Welcome to the World of AirBorn Interconnect Solutions

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AirBorn has been manufacturing high reliability interconnect systems for more than 45 years with leading-edge, innovative technology that is more reliable and better-performing than practically all other alternatives.

Our advanced technologies, experienced design support, incomparable lead times and personalized customer service and support provide customers with complete solutions to a vast array of highly specialized design requirements in diverse markets and applications.

You will find in this catalog technical drawings and specification information that will help you solve your interconnection needs from the design stage through production specification.

The products in this catalog are organized by the AirBorn part number assigned to them.

Each connector part number identifies five elements:

- AirBorn Series
- Body
- Size (number of contacts)
- Contact Type
- Hardware Type

Each catalog page shows the choices available for each of these elements. By selecting one option from any category on the page, you can build a set of connectors to meet your requirements.

If you do not find a particular connector size or option, please contact AirBorn for further assistance. AirBorn can manufacture special configurations for your exact specifications.

When everything matters, go AirBorn.

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"M" SERIES - .050"
MIL-DTL-83513
See pages M-5 thru M-126

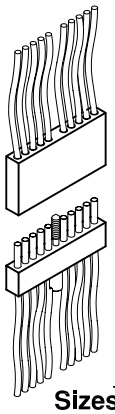
"MHT" SERIES - .050"
High Temperature
See pages MHT-1 thru MHT-24

"M" SERIES ACCESSORIES
See pages MA-1 thru MA-25

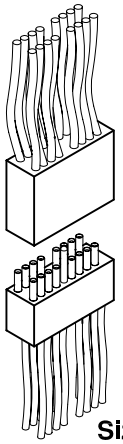
MILITARY CROSS REFERENCE
See pages MIL-1 thru MIL-22

AirBorn

Micro-Strip Connectors Cable to Cable

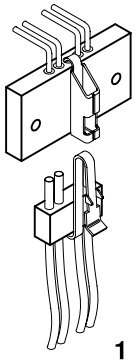


1 Row
Sizes: 3 thru 60
Page: M-11

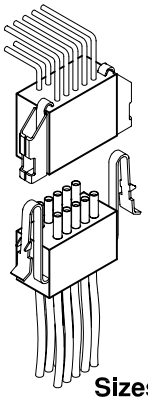


2 Row
Sizes: 4 thru 128
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Micro-Strip Connectors Board to Cable

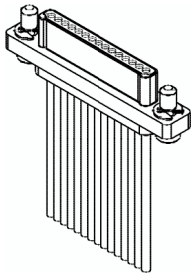


1 Row
Sizes: 3 thru 60
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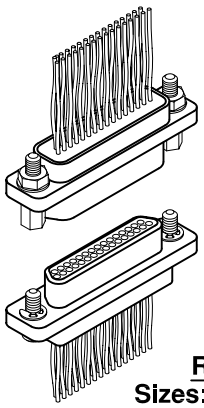


2 Row
Sizes: 4 thru 128
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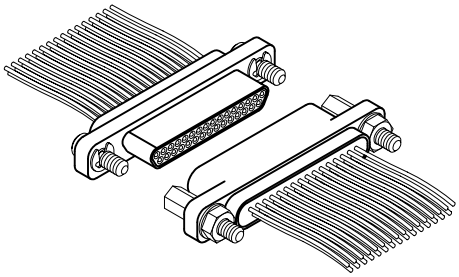
Micro-D Connectors Cable to Cable



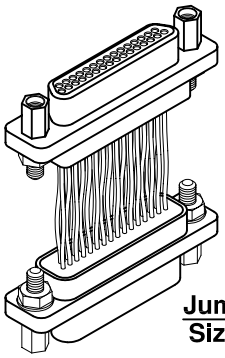
Single Row Micro
Sizes 4 thru 25
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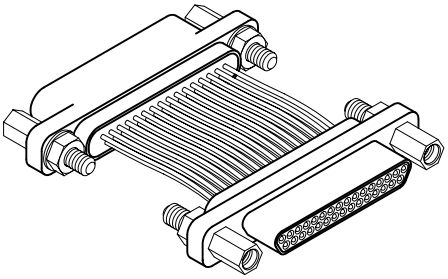
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Low Profile
Sizes: 9 thru 51
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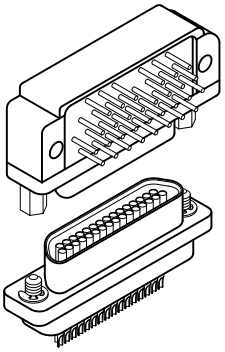


Rugged,
Jumper Assembly
Sizes: 9 thru 100
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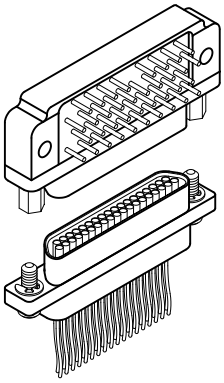


Low Profile, Jumper Assembly
Sizes: 9 thru 51
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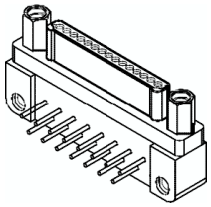
Micro-D Connectors Board to Cable



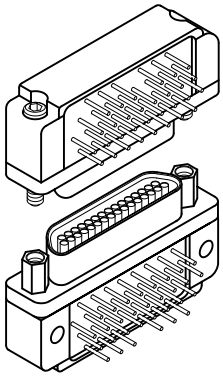
Rugged Right Angle, Narrow Footprint
Sizes: 9 thru 100
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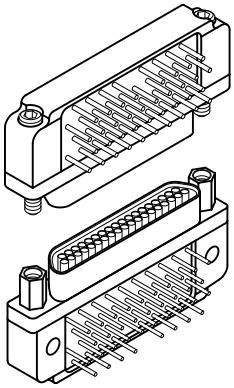
Low Profile Right Angle, Narrow Footprint
Sizes: 9 thru 51
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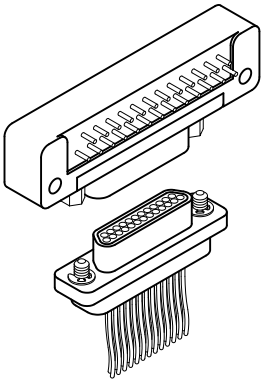
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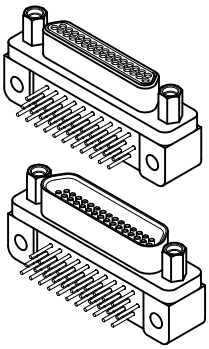
Rugged, Flex Cable
Sizes: 9 thru 100
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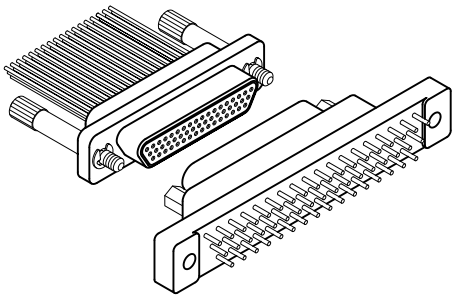
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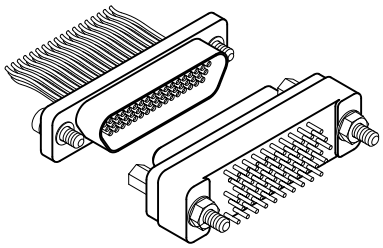
Rugged Right Angle, Standard Footprint
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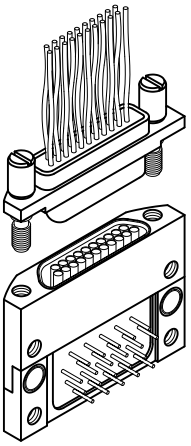
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Rugged Straight, Narrow Footprint
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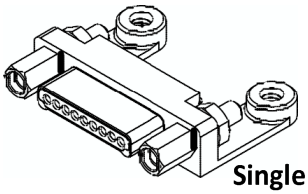
Rugged Straight, Standard Footprint
Sizes: 9 thru 100
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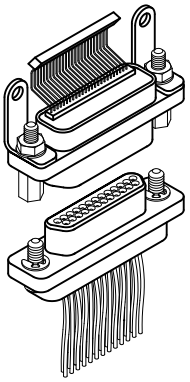
Low Profile, Radius Shell
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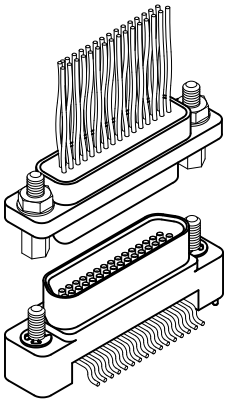
Micro-D Connectors Surface Mount Board to Cable



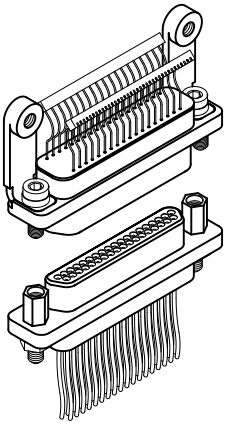
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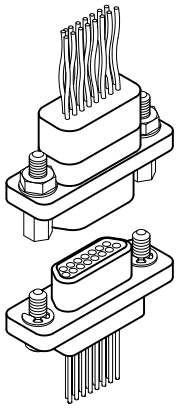


Rugged Vertical, Surface Mount
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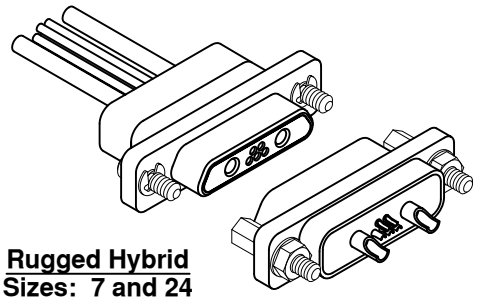
Rugged Card Edge Mount
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Micro-D Connectors Filtered Cable



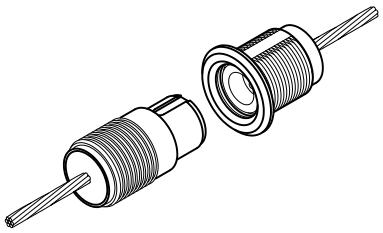
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Micro-D Connectors Hybrid Cable



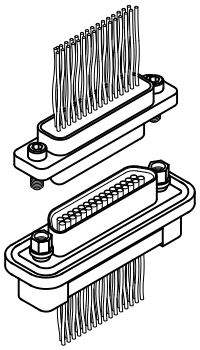
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Circular Cable Connectors

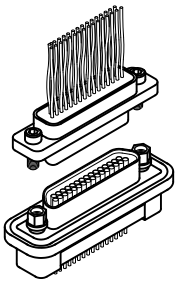


Circular
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Micro-D Connectors Rear Panel Mount

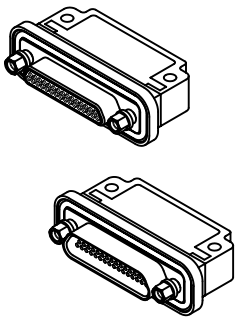


Rugged, Cable to Cable
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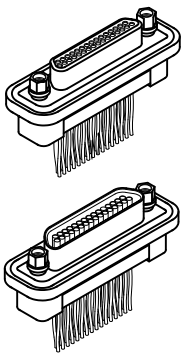
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Right Angle Boardmount



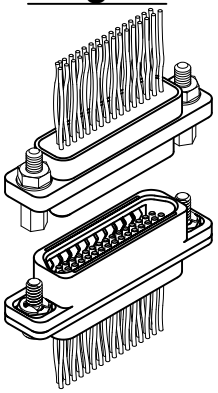
Rear Panel Mount
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Micro-D Connectors Sealing

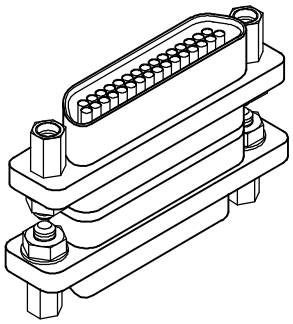


Rugged, I/O
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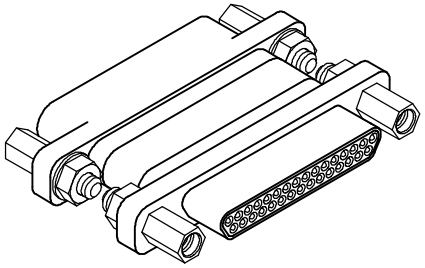
Micro-D Connectors Grounding Fingers



Rugged, I/O
Sizes: 9 thru 100
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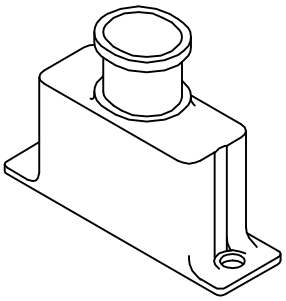


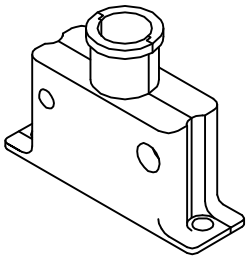
Rugged
Sizes: 9 thru 100
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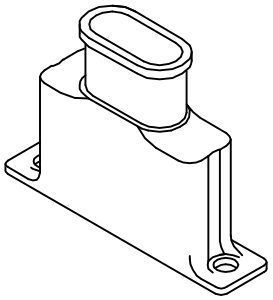


Low Profile
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Micro-D Connectors Connector Savers





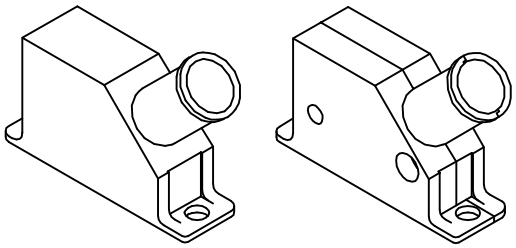


EMI / RFI Straight Backshells

Rugged
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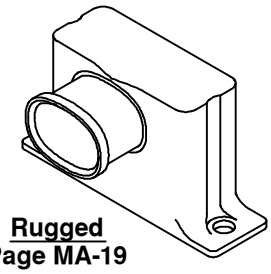
Low Profile
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Micro-D EMI / RFI 45° Backshells



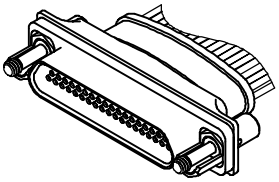
Rugged
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Micro-D EMI / RFI 90° Backshells



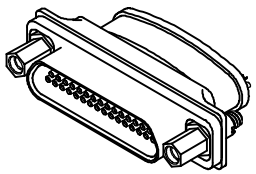
Rugged
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Integral Shield Termination



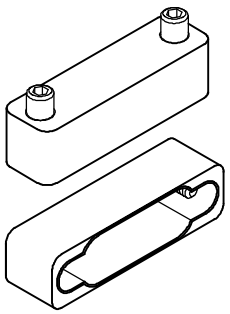
Rugged
Page M-36.3

Integral Shield Termination with Solder Cups

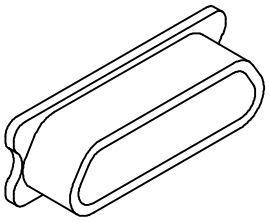


Rugged
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Dust Covers



Rugged
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ESD
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M-55	MS, MR	Low Profile, Flex Cable
M-57	MK, ML, MS, MR	Board Layouts - Right Angle Narrow Footprint
M-60.1	MK	Rugged Right Angle, Compressed Footprint
M-60.3	MK	Board Layouts - Right Angle Compressed Footprint
M-61, M-63	MK-MM, ML-MN	Rugged Right Angle, Standard Footprint
M-65	MK, ML	Board Layouts - Right Angle Standard Footprint
M-67, M-69	MK-MM, ML-MN	Rugged Straight, Narrow Footprint
M-71	MK, ML	Board Layouts - Straight Narrow Footprint
M-73, M-75	MK-MM, ML-MN	Rugged Straight, Standard Footprint
M-77	MK, ML	Board Layouts - Standard Narrow Footprint

Micro-D Surface Mount Board to Cable Connectors

M-81	MM, MN	Specifications, SMT Connectors
M-82	MM, MN	Performance, SMT Connectors
M-83, 85	MM-MM, MN-MN	Rugged Horizontal SMT
M-87	MM, MN	Board layouts - Rugged Horizontal SMT
M-89, 91	MK-MM	Rugged Vertical SMT
M-93	MK	Board layouts - Rugged Vertical SMT
M-95, 97	MK-MM	Rugged Card Edge Mount
M-99	MK	Board layouts - Rugged Card Edge Mount

Micro-D Filtered Cable Connectors

M-103	MF	Rugged metal

Micro-D Hybrid Connectors

M-105	MM	Specifications, Rugged Hybrid Connectors
M-106	MM	Performance, Rugged Hybrid Connectors
M-107	MM	Rugged Hybrid

Micro-Circular Connectors

M-109	MC-MC	Rugged metal, quick release

Micro-D Rear Panel Mount Connectors

M-111	MK-MM, MK-MN	Specifications, Rear Panel Mount
M-112	MK-MM, MK-MN	Performance, Rear Panel Mount
M-113, 115	MM, MN	Rugged, Cable to Cable Rear Panel Mount
M-117, 119	MK-MM, MK-MN	Rugged, Board to Cable Rear Panel Mount
M-121	MK	Board Layouts - Straight, Standard Footprint
M-122.1	MK	Rugged Right Angle, Rear Panel Mount
M-122.3	MK	Board Layouts - Rugged Right Angle

Micro-D Sealed Connectors

M-123	MM	Specifications, Sealed
M-124	MM	Performance, Sealed
M-125	MM	Rugged, Metal I/O Sealed

Specifications
Materials and Finishes *

Contacts:	Pins: BeCu alloy strip per ASTM B194 Sockets: Brass per ASTM B121 / B121M or ASTM B16 / B16M or ASTM B453
Contact Finish:**	Gold plate per ASTM B488
Shells:	Aluminum Alloy 6061-T6 per SAE AMS-QQ-A-250/11 or 6061-T6511 per SAE AMS-QQ-A-200/8 or Stainless Steel 300 series per ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Aluminum Shell Finishes:**	Electroless Nickel per SAE AMS2404, Class 3, 500 µ" min Electrodeposited Cadmium per SAE AMS-QQ-P-416, Type II, Class 3 Black Anodized per MIL-A-8625, Type III, Class 2 Gold per MIL-DTL-45204, Type II, Grade C, Class 0
Molded Insulators:	Glass filled polyphenylene sulfide per MIL-M-24519
Embedment:	Frey Engineering Co. insulating compound CF3003-80 and L-II-49 or equivalent
Jackscrews, Jackposts and Nuts:	Corrosion resistant steel per ASTM A320 or ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Clips and Washers:	Corrosion resistant steel per ASME 18.24 or NASM35333 or ASTM A484/A484M and ASTM A582/A582M (For reference only: ASME 18.24 CRS per ASTM A693 and NASM35333 CRS per ASTM A240) Passivated per ASME 18.24 or NASM35333 or SAE AMS2700 (For reference only: ASME 18.24 and NASM35333 passivated per SAE AMS2700)
Guide Pins	Corrosion resistant steel per ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Latches	Beryllium copper in accordance with ASTM B194 Electroless Nickel plate per SAE AMS2404
Interfacial Seal Gaskets:	Fluorosilicone per SAE AMS-R-25988
Tolerances:**	Unless otherwise specified: Fractions = ±1/64" Decimals = ±.010" Angles = ±5° Wire lengths: insulated/stranded = +1.0"/-0.0" uninsulated/solid = +0.2"/-0.0"

Note: AirBorn can manufacture special configurations for your exact specifications.

* = Reference the above listed specifications or an equivalent industry standard when applicable

** = When ordering to Mil Spec P/N, Mil Spec requirements apply

Performance

Reference MIL-DTL-83513

AirBorn "M' Series meets or exceeds MIL-DTL-83513 Performance Specifications

Contact Rating:	3-amperes maximum
Solderability:	Terminals (except crimp) tested in accordance with MIL-STD-202, Method 208
Wire Size:	Stranded #26 AWG or solid #25 AWG standard (consult factory for other sizes and types)
Test Voltage:	600 V, RMS, 60 Hz
Operating Temperature:	-55° C to +125° C
Insulation Resistance:	5,000 megohms minimum @ 500 VDC
Durability:	500 connector mating cycles
Vibration:	Tested in accordance with MIL-STD-1344, Method 2005, Condition IV, according to MIL-83513
Shock:	Tested in accordance with MIL-STD-1344, Method 2004, Condition E, according to MIL-83513
Salt Spray:	Mated connectors tested in accordance with MIL-STD-1344, Method 1001, Test Condition B
Humidity:	Mated connectors tested in accordance with MIL-STD-1344, Method 1002, Type II (except steps 7a and 7b)
Thermal Shock:	Tested to the temperature extremes of MIL-STD-1344, Method 1003, Test Condition A (except step 3, temperature shall be 125° C)
Contact Resistance:	0.065 volt maximum drop @ 2.5 amps (.026 ohms)
Contact Engaging Force:	6.0 ounce maximum, with .0221 diameter test sleeve per contact
Contact Separating Force:	0.5 ounce minimum, with .0230 diameter test sleeve per contact
Crimp Strength:	5 pound minimum tensile strength
Mating & Unmating Force:	10 ounces maximum per contact

Part Number Description

Each part number consists of at least five elements: series, body description, size (number of contacts), type of contacts, and type of hardware. A sixth element is added whenever special modifications or options are available.

Each catalog page shows the choices available for each of these elements. By selecting one option from each category on the page, you can build a set of connectors to meet your requirements.

Each element is identified by a combination of letters and/or numbers in fixed field lengths, and separated by a hyphen (-). Each space must be filled in to complete the number. When the size, for example, is less than 100, indicate as 009, 051, etc.

Series:
This will always be a two letter designator, and will identify the connector series. All .050" connectors begin with the letter "M". The second letter designates the various styles of .050" connectors.

Body:
Each digit of the Body Designator will normally identify (1) the number of rows, (2) the style of body, and (3) the body materials. The three digit number to identify the body consists of one digit from each group.

Size:
The size is determined by the number of contacts in the connector, and is an integral part of the part number. Order only sizes shown on the catalog page unless otherwise noted.

Contacts:
Each page also identifies all contact options for a given connector. The first two digits designate the type of contacts and terminations; the third digit designates the plating option.

Hardware:
The hardware designator is four digits; two for style of hardware and two for polarization or wiring instruction. Follow the choices for each connector.

Special Instructions (Options):
Special instructions are referenced by a three or four digit number added to the end of the part number. The last three or four digits are included only when applicable. AirBorn will provide individual code numbers as needed.

Note:
Each page is as comprehensive as possible. However, if you do not find a particular connector size or option, please contact the factory for further assistance.

☒ Symbolizes options that are not RoHS compliant.

Mating Matrix for AirBorn "M" Series Connectors

RECEPTACLES

PLUGS

	MA (Strip)	MC (Circular)	MM (Hybrid)	MK (Metal) PC Board	ML (Plastic) PC Board	MM (Metal) I/O	MN (Plastic) I/O	MP (Plastic) I/O	MQ (Metal) I/O	MR (Plastic) PC Board	MS (Metal) PC Board
MA (Strip)	XX										
MC (Circular)		XX									
MM (Hybrid)			XX								
MK (Metal) PC Board				BB	BB	BI	BI				
ML (Plastic) PC Board				BB	BB	BI	BI				
MM (Metal) I/O				IB	IB	II	II				
MN (Plastic) I/O				IB	IB	II	II				
MP (Plastic) I/O								II	II	IB	IB
MQ (Metal) I/O								II	II	IB	IB
MR (Plastic) PC Board								BI	BI	BB	BB
MS (Metal) PC Board								BI	BI	BB	BB

I/O Connectors	MM-MN-MP-MQ
PC Board Mounted Connectors	MK-ML-MR-MS
Inter-mateable Connectors	MK-ML-MM-MN MP-MQ-MR-MS

KEY:

BB = PC Board Mounted Plug with PC Board Mounted Receptacle

BI = PC Board Mounted Plug with I/O Receptacle

IB = I/O Plug with PC Board Mounted Receptacle

I I = I/O Plug with I/O Receptacle

For Military Configurations, See pages MIL-1 thru MIL-22

Call (972) 931-3200 · Fax (972) 931-9305 · www.AirBorn.com

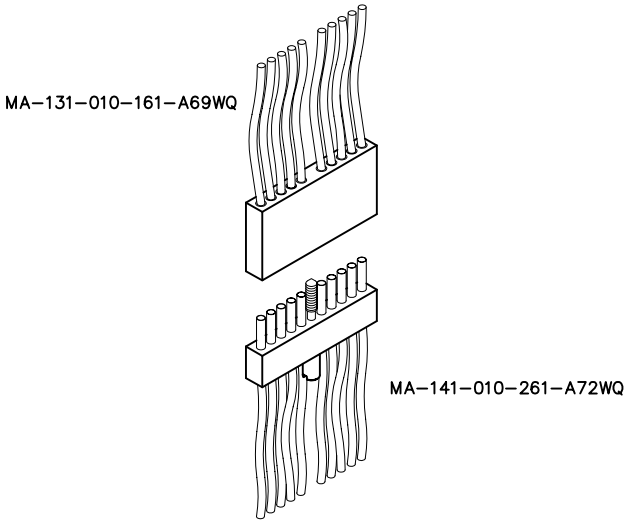
AirBorn

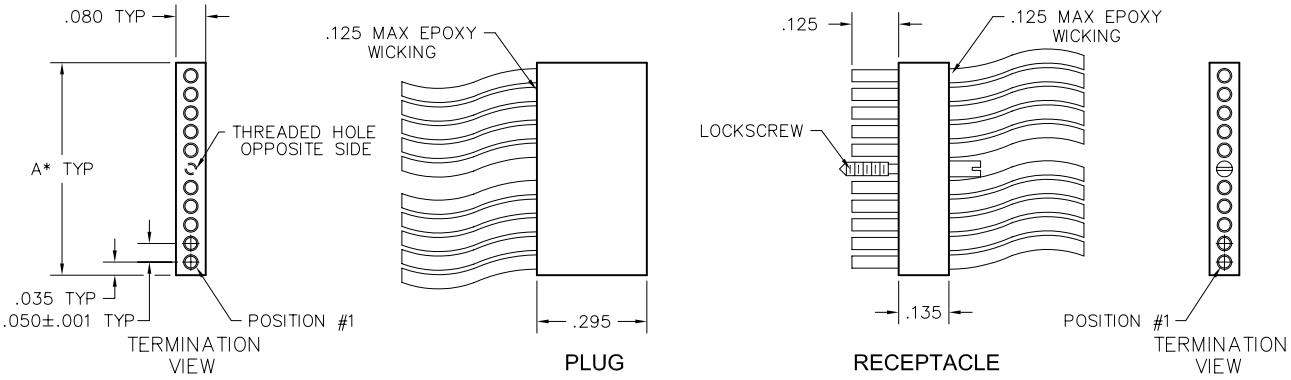
1 · ROW
Strip Connectors
Cable to Cable

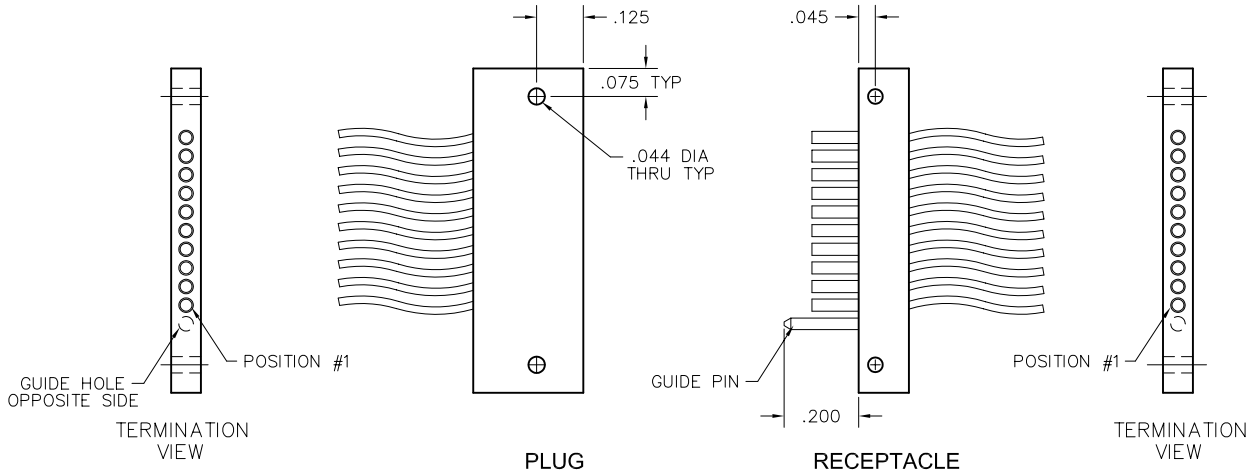
.050"

MA-1

2 thru 60 Contacts







OPTIONAL MOUNTING HOLES & GUIDE PIN

DIMENSIONS

To determine connector length (Dim "A"):

Multiply the number of cavities in one row by .050"	. "
Add fixed end lengths (constant, .010" x 2)	0.02"
Add .150" for each mounting hole	. "
Total Length:	. "

Notes:
Length over 2" may require support to insure alignment.
When using one lockscrew, use centermost available hole.
* = Maximum length is 3.020". Maximum number of contacts must be reduced to accommodate hardware and mounting holes.

PLUG: MA–131–010–161–A69WQ
RECEPTACLE: MA–141–010–261–A72WQ
XX–XXX–XXX–XXX–XXXXX

PLUG	RECEPTACLE
SERIES	
MA .050" Microminiature Strip Connector	MA .050" Microminiature Strip Connector
BODY	
1 1-Row	1 1-Row
BODY STYLE: (Material: Polyphenylene sulfide)	BODY STYLE: (Material: Polyphenylene sulfide)
11 Plug, straight, with mounting holes	21 Receptacle, straight, with mounting holes
31 Plug, straight, without mounting holes	41 Receptacle, straight, without mounting holes
SIZE	
XXX 002 - 060	XXX 002 - 060
Note: Maximum number of contacts is reduced when using hardware or mounting holes. See dimension chart on M-11.	
CONTACTS	
TYPE CONTACTS/TERMINATIONS:	TYPE CONTACTS/TERMINATIONS:
11 Pin, straight, solder cup	21 Socket, straight, solder cup
14 Pin, straight, .500" pigtails (.018 dia)	24 Socket, straight, .500" pigtails (.018 dia)
15 Pin, straight, 1.000" pigtails (.018 dia)	25 Socket, straight, 1.000" pigtails (.018 dia)
16 Pin, straight, crimped wire	26 Socket, straight, crimped wire
PLATING OPTIONS:	PLATING OPTIONS:
1 50 µ" Au contacts (crimp wire)	1 50 µ" Au contacts (crimp wire)
3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)	3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)
5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒	5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
7 50 µ" Au contacts; SAC305 terminations (pigtail)	7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE:	STYLE OF HARDWARE:
A00 None	A00 None
A01-A49 Latch box, side mounted (cavity number location)	A01-A49 Latch spring, side mounted (cavity number location)
A50 Latch boxes (two end cavities)	A51 Latch springs (two end cavities)
A64 One guide hole (centered)*	A61 One guide pin (centered)*
A65 One guide hole (first cavity)	A62 One guide pin (first cavity)
A66 One guide hole (last cavity)	A63 One guide pin (last cavity)
A68 Two guide holes (two end cavities)	A67 Two guide pins (two end cavities)
A69 One threaded hole (centered)*	A72 One lockscrew (centered)*, uninstalled
AHX One guide hole (cavity #2 - #9)	APX One guide pin (cavity #2 - #9)
ATX One threaded hole (cavity #2 - #9)	ALX One lockscrew (cavity #2 - #9), uninstalled
POLARIZATION / WIRING:	POLARIZATION / WIRING
00 None	00 None
XX For wiring codes, see pages MA-3 & MA-4	XX For wiring codes, see pages MA-3 & MA-4

* = To determine location, divide the total number of cavities by two and round to the next whole number, if result is a fraction. See page M-15.
See MA strip guidelines, page M-15, for location examples & visual clarification.

☒ = Option not RoHS compliant

AirBorn

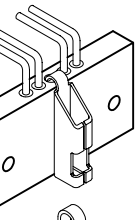
1 · ROW
Strip Connectors
Board to Cable

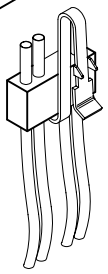
.050"

MA-1

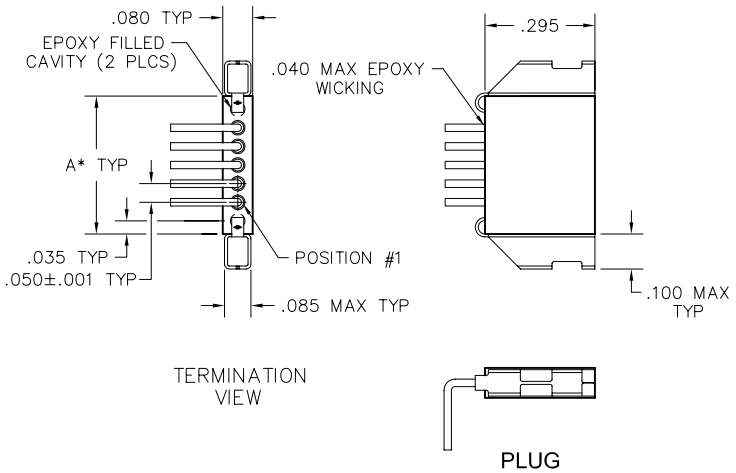
2 thru 60 Contacts

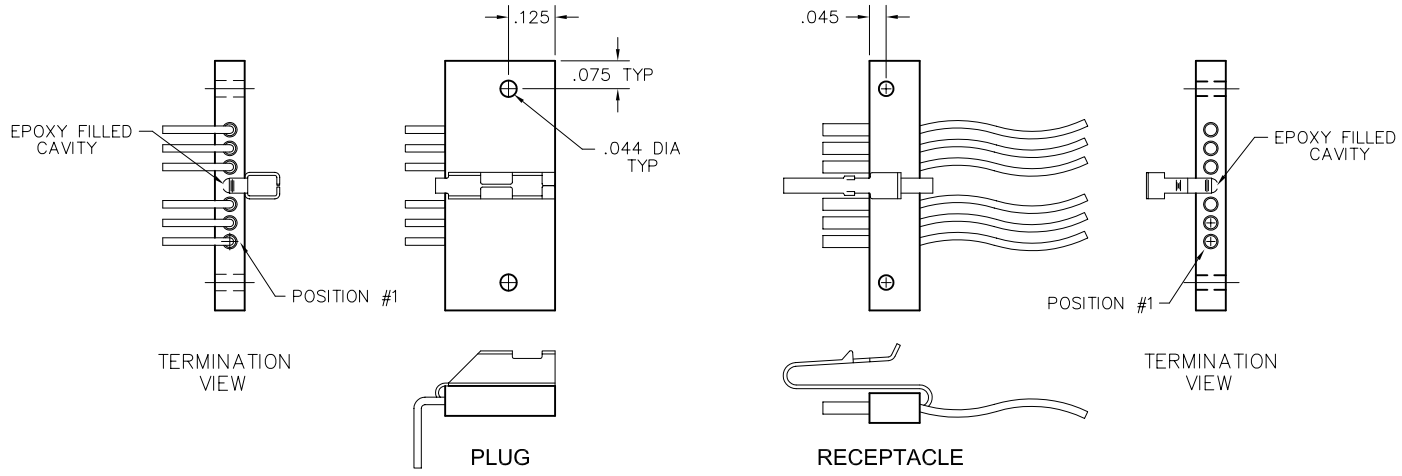
MA-1D1-004-325-A0300





MA-141-004-261-A03WS



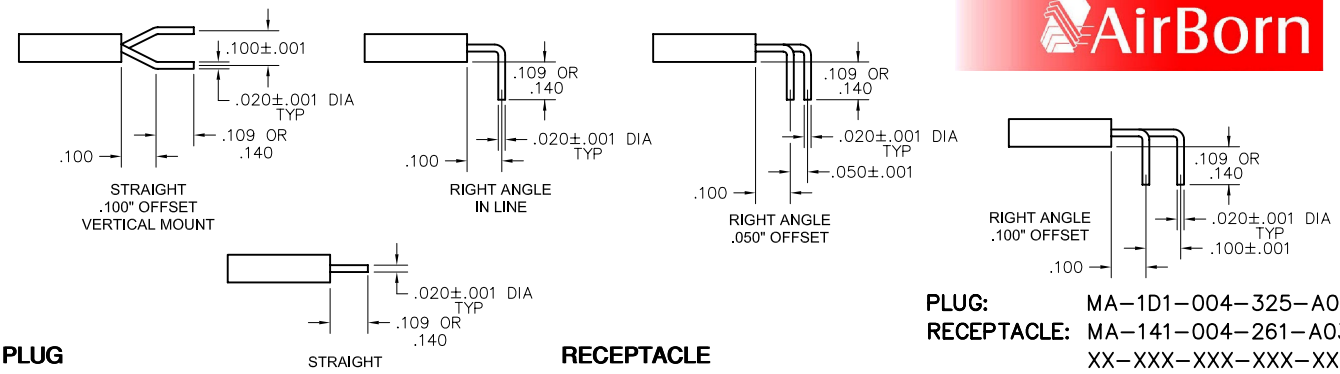


OPTIONAL MOUNTING HOLES

DIMENSIONS	
To determine connector length (Dim "A"):	
Multiply the number of cavities in one row by .050"	. "
Add fixed end lengths (constant, .010" x 2)	0.02"
Add .150" for each mounting hole	. "
Total Length:	. "

Notes:
Length over 2" may require support to insure alignment.
When using one lockscrew, use centermost available hole.
* = Maximum length is 3.020". Maximum number of contacts must be reduced to accommodate hardware and mounting holes.

LEAD CONFIGURATION OPTIONS



PLUG: MA-1D1-004-325-A0300
RECEPTACLE: MA-141-004-261-A03WS

XX-XXX-XXX-XXX-XXXXX

PLUG	RECEPTACLE
SERIES	
MA .050" Microminiature Strip Connector	MA .050" Microminiature Strip Connector
BODY	
1 1-Row	1 1-Row
BODY STYLE: (Material: Polyphenylene sulfide)	BODY STYLE: (Material: Polyphenylene sulfide)
11 Plug, straight, with mounting holes	21 Receptacle, straight, with mounting holes
31 Plug, straight, without mounting holes	41 Receptacle, straight, without mounting holes
51 Plug, right angle, .050" offset, with mounting holes	61 Receptacle, right angle, .050" offset, with mounting holes
71 Plug, right angle, .100" offset, with mounting holes	81 Receptacle, right angle, .100" offset, with mounting holes
91 Plug, right angle, .050" offset, without mounting holes	A1 Receptacle, right angle, .050" offset, without mounting holes
B1 Plug, right angle, .100" offset, without mounting holes	C1 Receptacle, right angle, .100" offset, without mounting holes
D1 Plug, right angle, in line, with mounting holes	E1 Receptacle, right angle, in line, with mounting holes
F1 Plug, right angle, in line, without mounting holes	G1 Receptacle, right angle, in line, without mounting holes
H1 Plug, straight, .100" offset, without mounting holes	J 1 Receptacle, straight, .100" offset, without mounting holes
SIZE	
XXX 002 - 060	XXX 002 - 060
Note: Maximum number of contacts is reduced when using hardware or mounting holes. See dimension chart on M-13.	
CONTACTS	
TYPE CONTACTS/TERMINATIONS:	TYPE CONTACTS/TERMINATIONS:
11 Pin, straight, solder cup	21 Socket, straight, solder cup
12 Pin, straight, PCB leads, .109"	22 Socket, straight, PCB leads, .109"
13 Pin, straight, PCB leads, .140"	23 Socket, straight, PCB leads, .140"
14 Pin, straight, .500" pigtails (.018 dia)	24 Socket, straight, .500" pigtails (.018 dia)
15 Pin, straight, 1.000" pigtails (.018 dia)	25 Socket, straight, 1.000" pigtails (.018 dia)
16 Pin, straight, crimped wire	26 Socket, straight, crimped wire
32 Pin, right angle, PCB leads, .109"	43 Socket, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"	44 Socket, right angle, PCB leads, .140"
PLATING OPTIONS:	PLATING OPTIONS:
1 50 µ" Au contacts (crimp wire)	1 50 µ" Au contacts (crimp wire)
3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail, PCB leads)	3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail, PCB leads)
5 50 µ" Au contacts; Sn/Pb alloy terminations (dip solder, pigtail, PCB leads) ☒	5 50 µ" Au contacts; Sn/Pb alloy terminations (dip solder, pigtail, PCB leads) ☒
7 50 µ" Au contacts; SAC305 terminations (pigtail, PCB leads)	7 50 µ" Au contacts; SAC305 terminations (pigtail, PCB leads)
HARDWARE	
STYLE OF HARDWARE:	STYLE OF HARDWARE:
A00 None	A00 None
A01-A49 Latch box, side mounted (cavity number location)	A01-A49 Latch spring, side mounted (cavity number location)
A50 Latch boxes (two end cavities).**	A51 Latch springs (two end cavities).**
A64 One guide hole (centered)*	A61 One guide pin (centered)*
A65 One guide hole (first cavity)	A62 One guide pin (first cavity)
A66 One guide hole (last cavity)	A63 One guide pin (last cavity)
A68 Two guide holes (two end cavities)	A67 Two guide pins (two end cavities)
A69 One threaded hole (centered)*	A72 One lockscrew (centered)*
AHX One guide hole (cavity #2 - #9)	APX One guide pin (cavity #2 - #9)
ATX One threaded hole (cavity #2 - #9)	ALX One lockscrew (cavity #2 - #9)
POLARIZATION / WIRING:	POLARIZATION / WIRING
00 None	00 None
XX For wiring codes, see pages MA-3 & MA-4	XX For wiring codes, see pages MA-3 & MA-4

* = To determine location, divide the total number of cavities by two and round to the next whole number, if result is a fraction. See page M-15.

** = Not available with mounting holes.

See MA strip guidelines, page M-15, for location examples & visual clarification.

☒ = Option not RoHS compliant

Ask About AirBorn's Accelerated Delivery Service

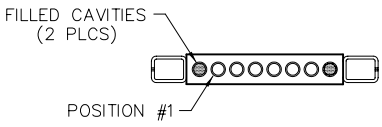
1 · ROW
Strip Connectors with Latches

.050"

MA-1

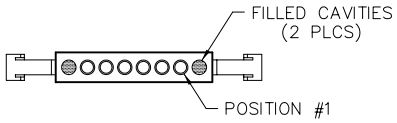
3 thru 60 Contacts

PLUG
LATCH BOX
(MATING FACE VIEW)

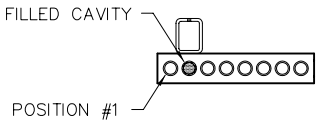


–A50XX
EXAMPLE: MA–131–006–161–A50WN

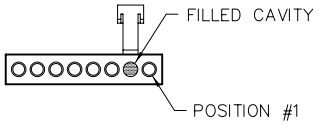
RECEPTACLE
LATCH SPRING
(MATING FACE VIEW)



–A51XX
EXAMPLE: MA–141–006–261–A51WN



POSITION 01–60
EXAMPLE: MA–131–006–161–A02WN

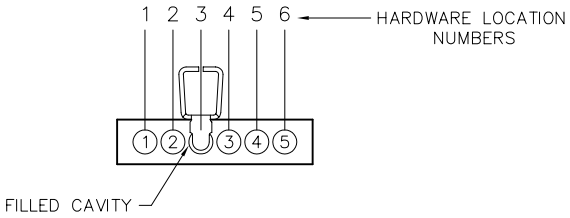


POSITION 01–60
EXAMPLE: MA–141–006–261–A02WN

MA Strip Guidelines
For "A" designator in hardware portion of part number

1. Any cavity that has a contact is considered an electrical position (including dummy contact).
2. All hardware locations, holes and/or epoxy filled cavities are considered mechanical positions.
3. Omit holes on board layout for mechanical positions and renumber board layout accordingly, except connectors with mechanical positon(s) in end cavity(ies). See board layout examples, pages M-16 thru M-22.
4. These guidelines apply for all hardware options, including guide holes (mechanical locations).
5. Do not skip wire colors on stranded wire assemblies.
6. Spacers underneath the connector are recommended when R/A PCB mount connectors with mounting holes are used and the PCB had irregularities greater than .004" underneath the connector.

To determine hardware location number:
1. Divide the total number of cavities by two (including hardware cavity).
2. Round to the next whole number if result is a fraction.



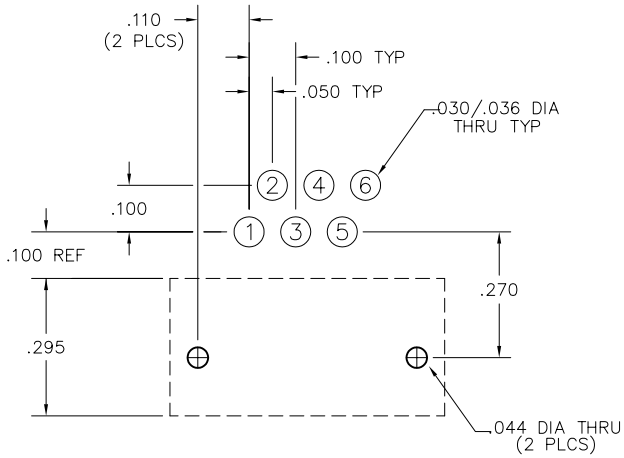
PLUG
5 POSITION, 1 ROW
(MATING FACE VIEW)

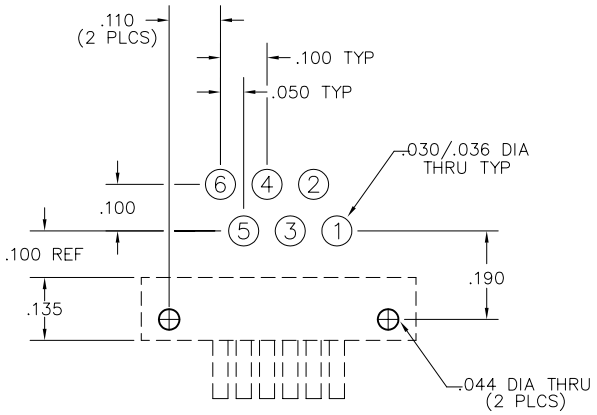
The connector above has 6 cavities with 5 live contacts.
(5 electrical positions & 1 mechanical position)

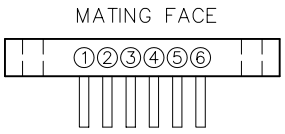
To determine the hardware location number:
6 cavities ÷ 2 = 3
Hardware would be placed in location #3

Board mount connectors, right angle offset (.100") with mounting holes

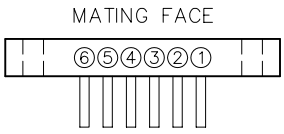
(6 electrical positions)







PLUG
MA-171-006-325-A0000



RECEPTACLE
MA-181-006-435-A0000

Crimped wire connectors, straight without mounting holes

(6 electrical positions)



PLUG
MA-131-006-161-A00WA



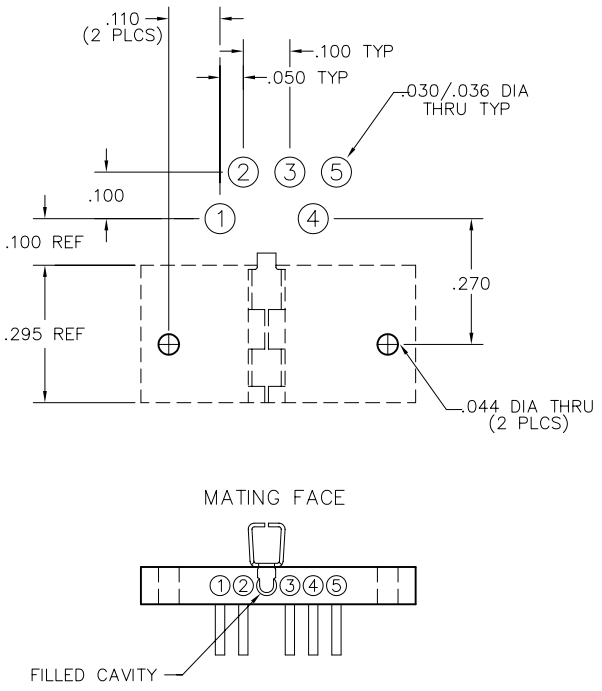
RECEPTACLE
MA-141-006-261-A00WA

WIRE CONNECT CHART

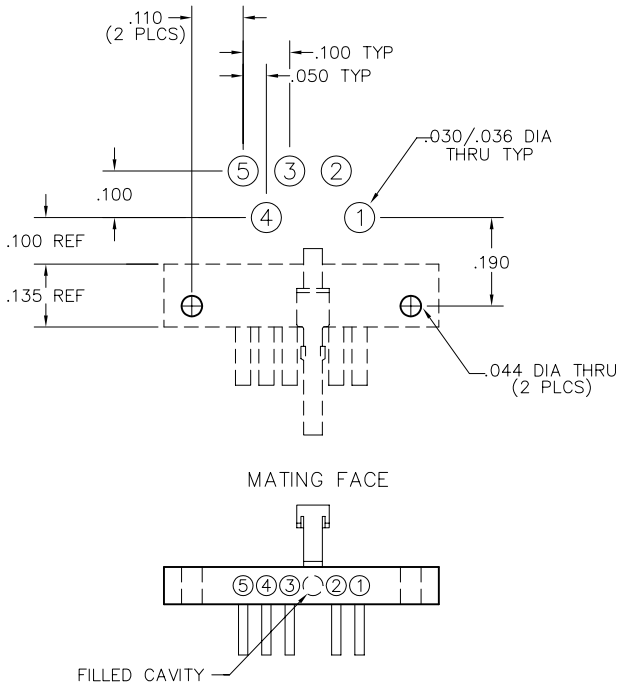
1 — BLK
2 — BRN
3 — RED
4 — ORN
5 — YEL
6 — GRN

Board mount connectors, right angle offset (.100") with mounting holes. Side mount latch, centered.

(5 electrical positions, 1 mechanical positions)



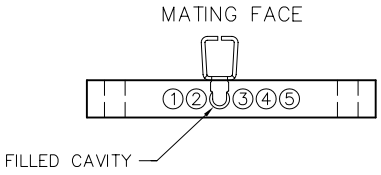
PLUG
MA-171-005-325-A0300



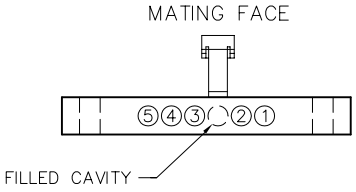
RECEPTACLE
MA-181-005-435-A0300

Crimped wire connectors, straight with mounting holes. Side mount latch, centered.

(5 electrical positions, 1 mechanical positions)



PLUG
MA-111-005-161-A03WA



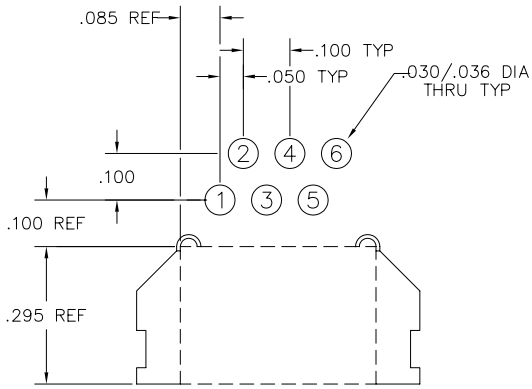
RECEPTACLE
MA-121-005-261-A03WA

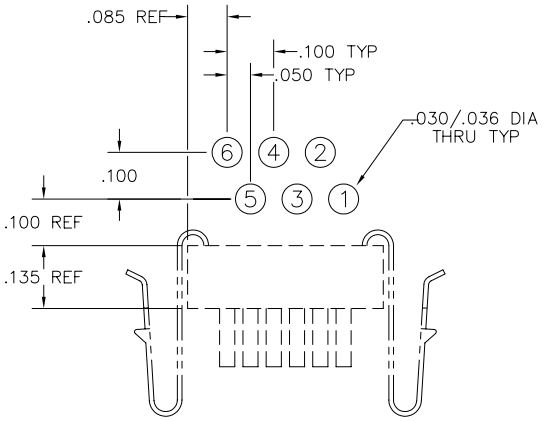
WIRE CONNECT CHART

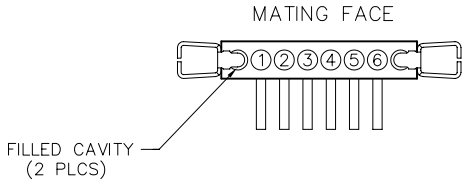
1 — BLK
2 — BRN
3 — RED
4 — ORN
5 — YEL

Board mount connectors, right angle offset (.100") without mounting holes End mount latches, 2 end cavities*

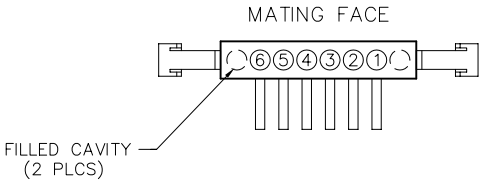
(6 electrical positions, 2 mechanical positions)







PLUG
MA-1B1-006-325-A5000

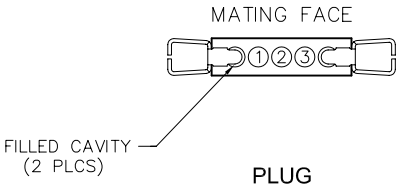


RECEPTACLE
MA-1C1-006-435-A5100

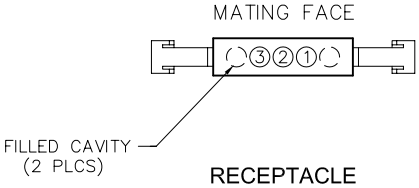
* = THIS IS THE EXCEPTION AS NOTED IN "MA STRIP GUIDELINES", PAGE M-15, NOTE 3.

Crimped wire connectors, straight without mounting holes End mount latches, 2 end cavities

(3 electrical positions, 2 mechanical positions)



PLUG
MA-131-003-161-A50WA



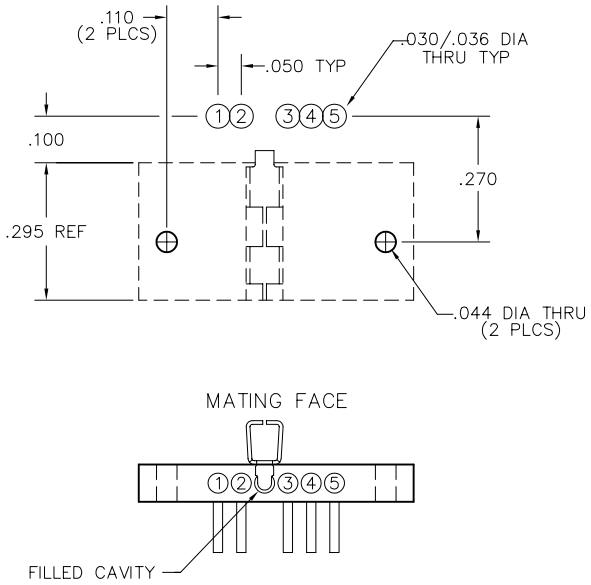
RECEPTACLE
MA-141-003-261-A51WA

WIRE CONNECT CHART

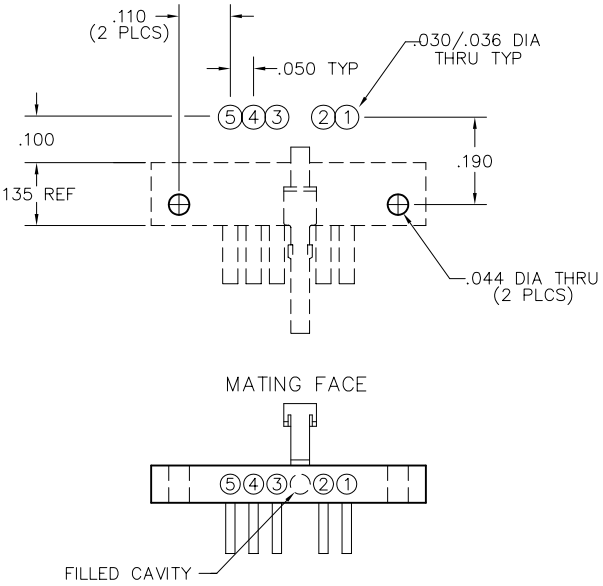
1 — BLK
2 — BRN
3 — RED

Board mount connectors, right angle inline (.100") with mounting holes
Side mount latch, centered

(5 electrical positions, 1 mechanical positions)



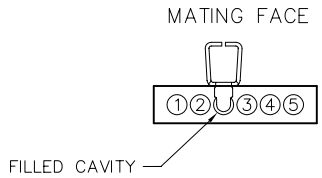
PLUG
MA-1D1-005-325-A0300



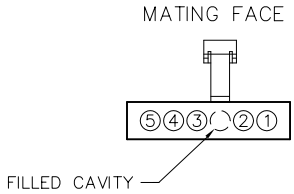
RECEPTACLE
MA-1E1-005-435-A0300

Crimped wire connectors, straight without mounting holes
Side mount latch, centered

(5 electrical positions, 1 mechanical positions)



PLUG
MA-131-005-161-A03WA

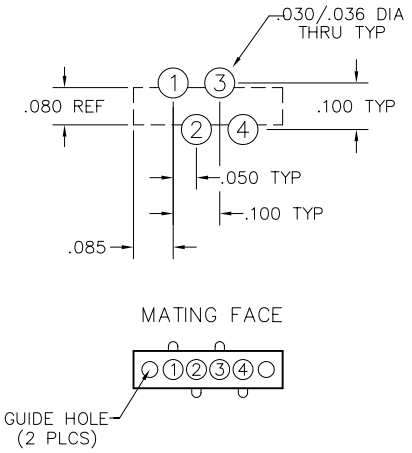


RECEPTACLE
MA-141-005-261-A03WA

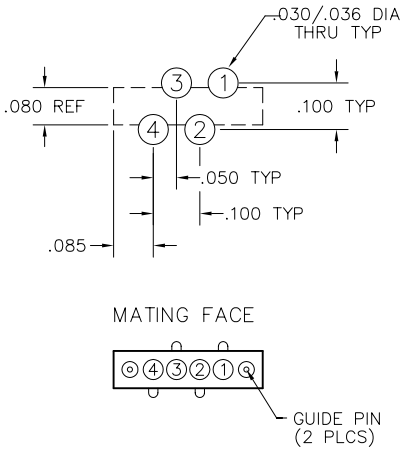
WIRE CONNECT CHART

1 — BLK
2 — BRN
3 — RED
4 — ORN
5 — YEL

Board mount connectors, straight offset (.100") without mounting holes
Two guide holes/two end cavities
(4 electrical positions, 2 mechanical positions)

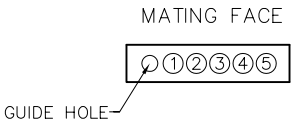


PLUG
MA-1H1-004-145-A6800

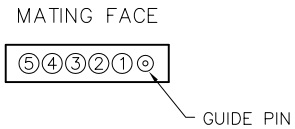


RECEPTACLE
MA-1J1-004-245-A6700

Board mount connectors, straight without mounting holes
One guide hole/pin, first cavity
(5 electrical positions, 1 mechanical position)

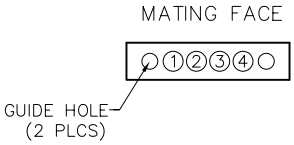


PLUG
MA-131-005-125-A6500

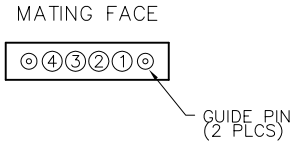


RECEPTACLE
MA-141-005-225-A6200

Crimped wire connectors, straight without mounting holes
Two guide holes/two end cavities
(4 electrical positions, 2 mechanical positions)



PLUG
MA-131-004-161-A68WA

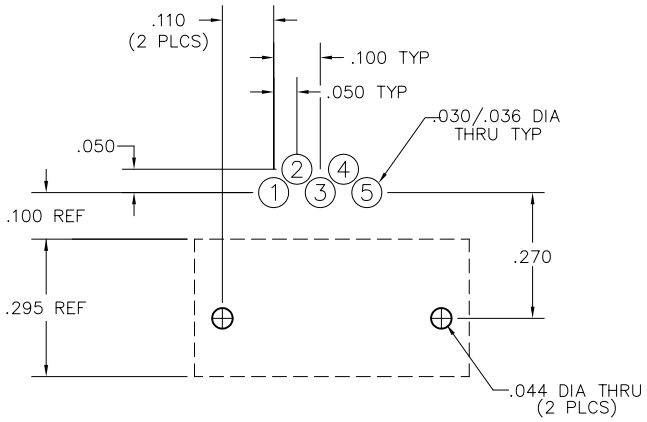


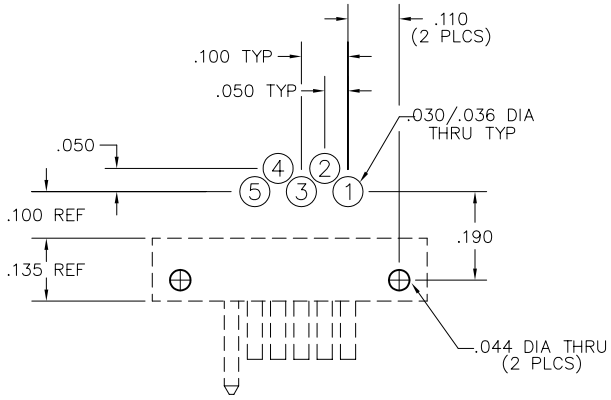
RECEPTACLE
MA-141-004-261-A67WA

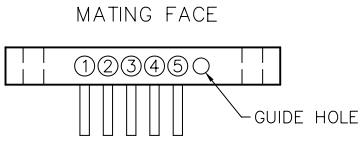
WIRE CONNECT CHART

1 — BLK
2 — BRN
3 — RED
4 — ORN

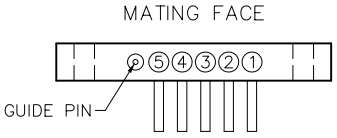
Board mount connectors, right angle offset (.050") with mounting holes
Guide hole/pin, last cavity
(5 electrical positions, 1 mechanical positions)





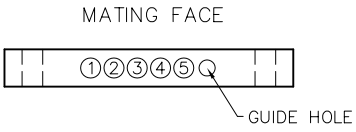


PLUG
MA-151-005-325-A6600

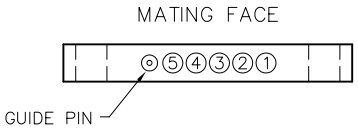


RECEPTACLE
MA-161-005-435-A6300

Crimped wire connectors, straight with mounting holes
Guide hole/pin, last cavity
(5 electrical positions, 1 mechanical positions)



PLUG
MA-111-005-161-A66WA



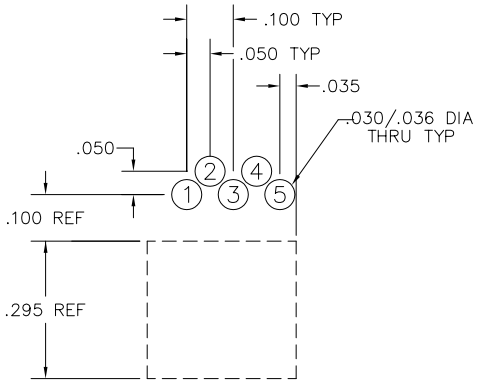
RECEPTACLE
MA-121-005-261-A63WA

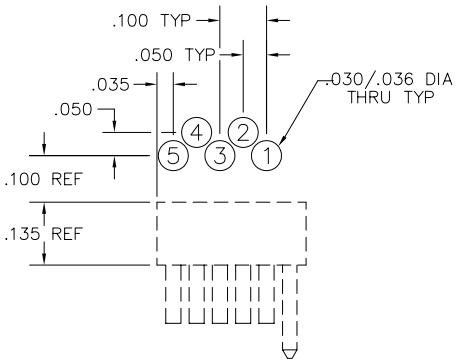
WIRE CONNECT CHART

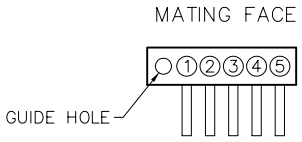
1 — BLK
2 — BRN
3 — RED
4 — ORN
5 — YEL

Board mount connectors, right angle offset (.050") without mounting holes Guide hole/pin, first cavity*

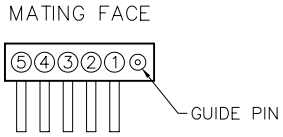
(5 electrical positions, 1 mechanical positions)







PLUG
MA-191-005-325-A6500

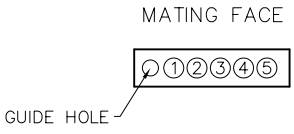


RECEPTACLE
MA-1A1-005-435-A6200

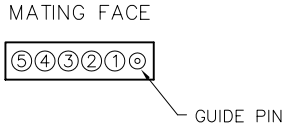
* = THIS IS THE EXCEPTION AS NOTED IN "MA STRIP GUIDELINES", PAGE M-15, NOTE 3.

Crimped wire connectors, straight without mounting holes Guide hole/pin, first cavity

(5 electrical positions, 1 mechanical positions)



PLUG
MA-131-005-161-A65WA



RECEPTACLE
MA-141-005-261-A62WA

WIRE CONNECT CHART

1 — BLK
2 — BRN
3 — RED
4 — ORN
5 — YEL

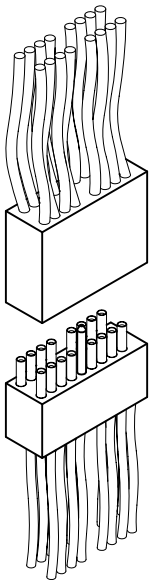
2 · ROW
Strip Connectors
Cable to Cable

.050"

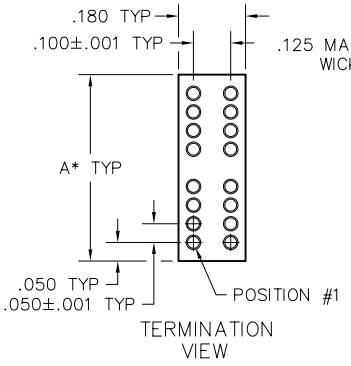
MA-2

4 thru 128 Contacts

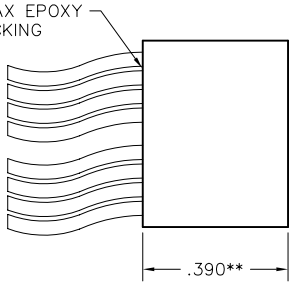
MA-231-016-161-A64WS



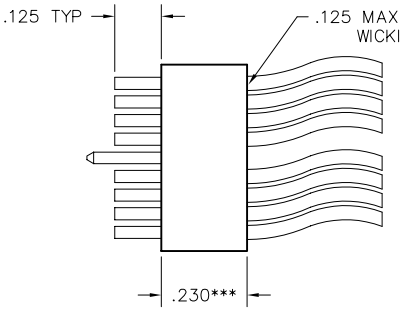
MA-241-016-261-A61WS



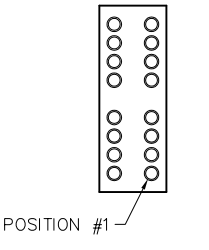
TERMINATION VIEW



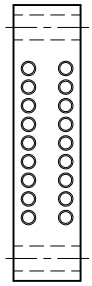
PLUG



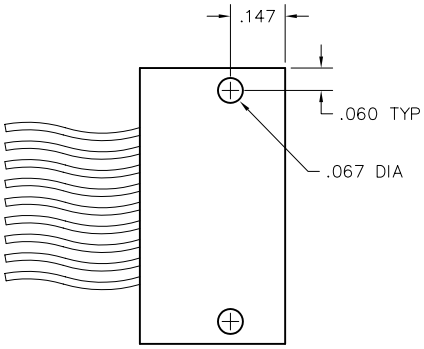
RECEPTACLE



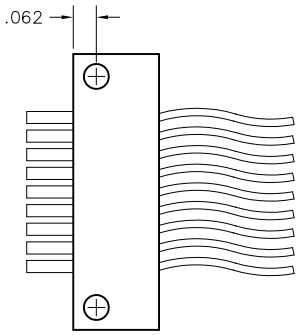
TERMINATION VIEW



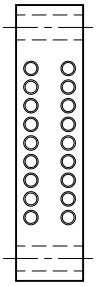
TERMINATION VIEW



PLUG



RECEPTACLE



TERMINATION VIEW

OPTIONAL MOUNTING HOLES

DIMENSIONS

To determine connector length (Dim "A"):

Multiply the number of cavities in one row by .050"	. "
Add fixed end lengths (constant, .025" x 2)	0.05"
Add .085" for each mounting hole	. "
Total Length:	. "

Notes:
Length over 2" may require support to insure alignment.
* = Maximum length is 3.420". Maximum number of contacts must be reduced to accommodate hardware and mounting holes.
** = For solder cup or board mount applications, .390" becomes .295"
*** = For solder cup or board mount applications, .230" becomes .135"

PLUG: MA–231–016–161–A64WS
RECEPTACLE: MA–241–016–261–A61WS
XX–XXX–XXX–XXX–XXXXX

PLUG	RECEPTACLE
SERIES	
MA .050" Microminiature Strip Connector	MA .050" Microminiature Strip Connector
BODY	
2 2-Row	2 2-Row
BODY STYLE: (Material: Polyphenylene sulfide)	BODY STYLE: (Material: Polyphenylene sulfide)
11 Plug, straight, with mounting holes	21 Receptacle, straight, with mounting holes
31 Plug, straight, without mounting holes	41 Receptacle, straight, without mounting holes
SIZE	
XXX 004 -128	XXX 004 -128
Note: Maximum number of contacts is reduced when using hardware or mounting holes. See dimension chart on M-23.	
CONTACTS	
TYPE CONTACTS/TERMINATIONS:	TYPE CONTACTS/TERMINATIONS:
11 Pin, straight, solder cup	21 Socket, straight, solder cup
14 Pin, straight, .500" pigtails (.018 dia)	24 Socket, straight, .500" pigtails (.018 dia)
15 Pin, straight, 1.000" pigtails (.018 dia)	25 Socket, straight, 1.000" pigtails (.018 dia)
16 Pin, straight, crimped wire	26 Socket, straight, crimped wire
PLATING OPTIONS:	PLATING OPTIONS:
1 50 µ" Au contacts (crimp wire)	1 50 µ" Au contacts (crimp wire)
3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)	3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)
5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒	5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
7 50 µ" Au contacts; SAC305 terminations (pigtail)	7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE:	STYLE OF HARDWARE:
A00 None	A00 None
ABC Latch box, side mounted (centered)* See page M-27	ALC Latch spring, side mounted (centered)* See page M-27
A50 Latch boxes (two end cavities). See page M-27**	A51 Latch springs, (two end cavities). See page M-27**
A52 Latch boxes (two end cavities). See page M-27**	A53 Latch springs, (two end cavities). See page M-27**
A54 Latch boxes (two end cavities). See page M-27**	A55 Latch springs, (two end cavities). See page M-27**
A56 Latch boxes (two end cavities). See page M-27**	A57 Latch springs, (two end cavities). See page M-27**
A64 One guide hole (centered)*	A61 One guide pin (centered)*
A65 One guide hole (first cavity)	A62 One guide pin (first cavity)
A66 One guide hole (last cavity)	A63 One guide pin (last cavity)
A68 Two guide holes (first & last cavity)	A67 Two guide pins (first & last cavity)
AHX One guide hole (cavity #2 - #9)	APX One guide pin (cavity #2 - #9)
POLARIZATION / WIRING:	POLARIZATION / WIRING
00 None	00 None
XX For wiring codes, see page MA-3 & MA-4	XX For wiring codes, see page MA-3 & MA-4

* = To determine location, divide the total number of cavities (in one row) by two and round to the next whole number, if result is a fraction. See page M-28.
** = Not available with mounting holes.
See MA strip guidelines, page M-28, for location examples & visual clarification.
Connector part number must have even number of contacts.
Consult factory for non-standard requirements.

☒ = Option not RoHS compliant

AirBorn

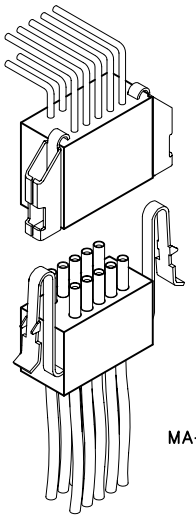
2 · ROW
Strip Connectors
Board to Cable

.050"

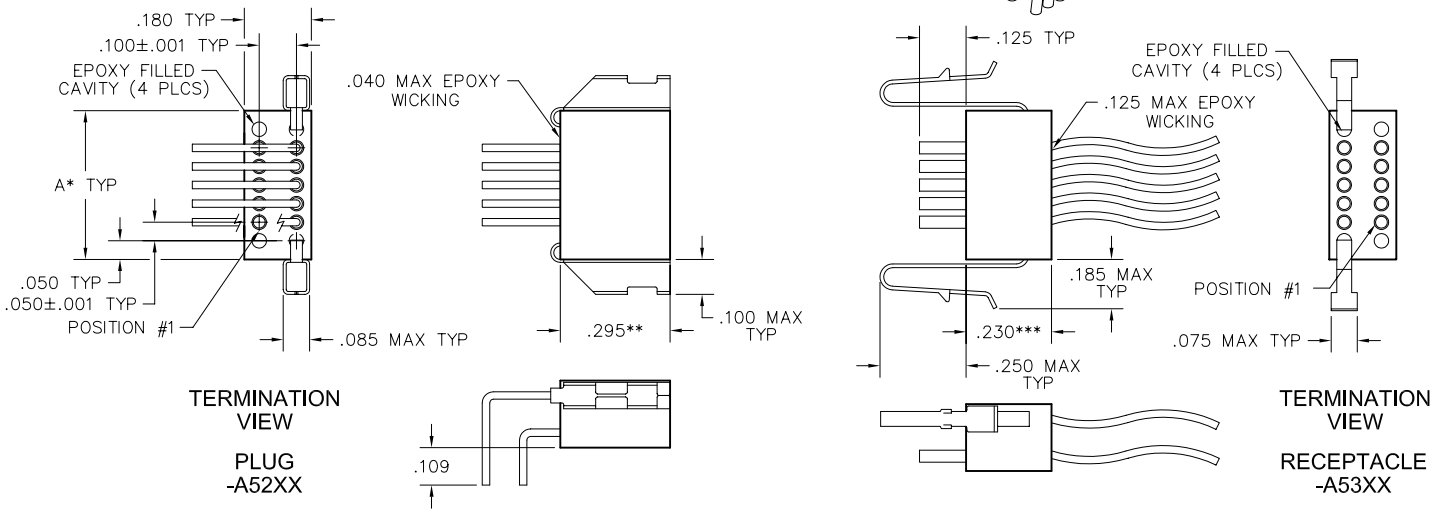
MA-2

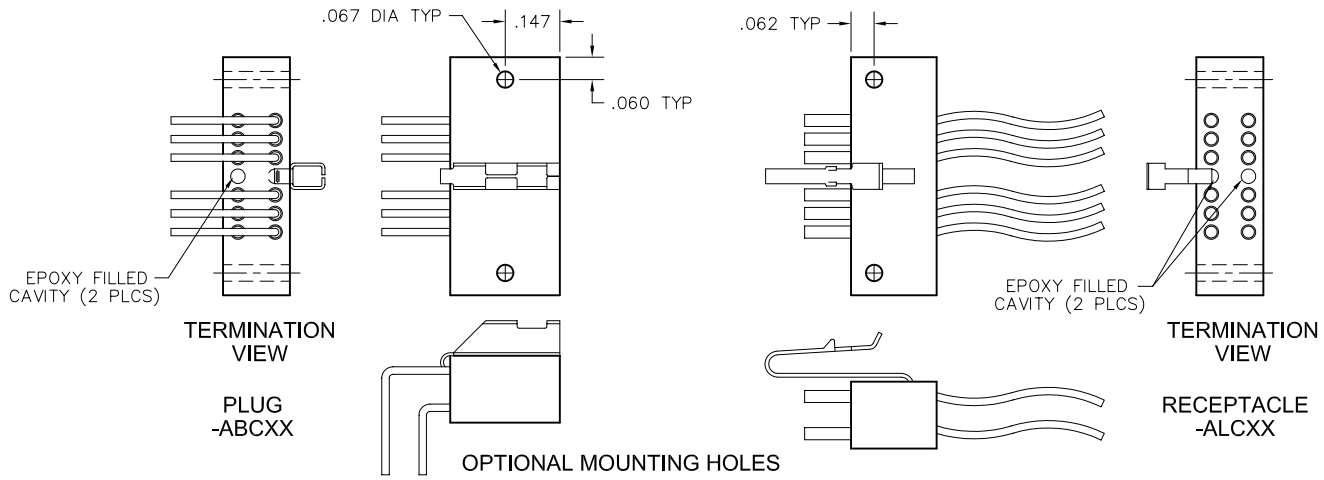
4 thru 128 Contacts

MA-2F1-010-325-A5200



MA-241-010-261-A53WA





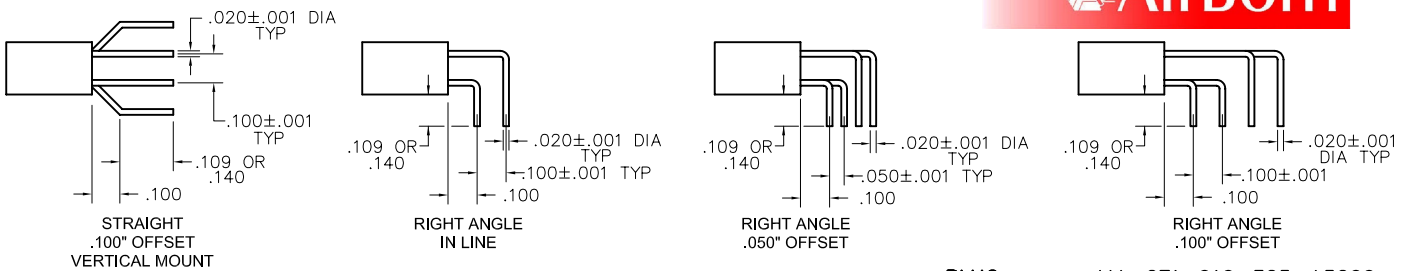
DIMENSIONS

To determine connector length (Dim "A"):

Multiply the number of cavities in one row by .050"	. "
Add fixed end lengths (constant, .025" x 2)	0.05"
Add .085" for each mounting hole	. "
Total Length:	. "

Notes:
Length over 2" may require support to insure alignment
* = Maximum length is 3.420". Maximum number of contacts must be reduced to accommodate hardware and mounting holes.
** = For cable applications, .295" becomes .390"
*** = For solder cup or board mount applications, .230" becomes .135"

LEAD CONFIGURATION OPTIONS



PLUG: MA–2F1–010–325–A5200
RECEPTACLE: MA–241–010–261–A53WA

XX–XXX–XXX–XXX–XXXXX

PLUG	RECEPTACLE
SERIES	
MA .050" Microminiature Strip Connector	MA .050" Microminiature Strip Connector
BODY	
2 2-Row	2 2-Row
BODY STYLE: (Material: Polyphenylene sulfide)	BODY STYLE: (Material: Polyphenylene sulfide)
11 Plug, straight, with mounting holes	21 Receptacle, straight, with mounting holes
31 Plug, straight, without mounting holes	41 Receptacle, straight, without mounting holes
51 Plug, right angle, .050" offset, with mounting holes	61 Receptacle, right angle, .050" offset, with mounting holes
71 Plug, right angle, .100" offset, with mounting holes	81 Receptacle, right angle, .100" offset, with mounting holes
91 Plug, right angle, .050" offset, without mounting holes	A1 Receptacle, right angle, .050" offset, without mounting holes
B1 Plug, right angle, .100" offset, without mounting holes	C1 Receptacle, right angle, .100" offset, without mounting holes
D1 Plug, right angle, in line, with mounting holes	E1 Receptacle, right angle, in line, with mounting holes
F1 Plug, right angle, in line, without mounting holes	G1 Receptacle, right angle, in line, without mounting holes
H1 Plug, straight, .100" offset, without mounting holes	J 1 Receptacle, straight, .100" offset, without mounting holes
SIZE	
XXX 004- 128	XXX 004-128
Note: Maximum number of contacts is reduced when using hardware or mounting holes. See dimension chart on M-25.	
CONTACTS	
TYPE CONTACTS/TERMINATIONS:	TYPE CONTACTS/TERMINATIONS:
11 Pin, straight, solder cup	21 Socket, straight, solder cup
12 Pin, straight, PCB leads, .109"	22 Socket, straight, PCB leads, .109"
13 Pin, straight, PCB leads, .140"	23 Socket, straight, PCB leads, .140"
14 Pin, straight, .500" pigtails (.018 dia)	24 Socket, straight, .500" pigtails (.018 dia)
15 Pin, straight, 1.000" pigtails (.018 dia)	25 Socket, straight, 1.000" pigtails (.018 dia)
16 Pin, straight, crimped wire	26 Socket, straight, crimped wire
32 Pin, right angle, PCB leads, .109"	43 Socket, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"	44 Socket, right angle, PCB leads, .140"
PLATING OPTIONS:	PLATING OPTIONS:
1 50 µ" Au contacts (crimp wire)	1 50 µ" Au contacts (crimp wire)
3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail, PCB leads)	3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail, PCB leads)
5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail, PCB leads) ☒	5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail, PCB leads) ☒
7 50 µ" Au contacts; SAC305 terminations (pigtail, PCB leads)	7 50 µ" Au contacts; SAC305 terminations (pigtail, PCB leads)
HARDWARE	
STYLE OF HARDWARE:	STYLE OF HARDWARE:
A00 None	A00 None
ABC Latch box, side mounted (centered)* See page M-27	ALC Latch spring, side mounted (centered)* See page M-27
A50 Latch boxes (two end cavities). See page M-27**	A51 Latch springs, (two end cavities). See page M-27**
A52 Latch boxes (two end cavities). See page M-27**	A53 Latch springs, (two end cavities). See page M-27**
A54 Latch boxes (two end cavities). See page M-27**	A55 Latch springs, (two end cavities). See page M-27**
A56 Latch boxes (two end cavities). See page M-27**	A57 Latch springs, (two end cavities). See page M-27**
A64 One guide hole (centered)*	A61 One guide pin (centered)*
A65 One guide hole (first cavity)	A62 One guide pin (first cavity)
A66 One guide hole (last cavity)	A63 One guide pin (last cavity)
A68 Two guide holes (first & last cavity)	A67 Two guide pins (first & last cavity)
AHX One guide hole (cavity #2 - #9)	APX One guide pin (cavity #2 - #9)
POLARIZATION / WIRING:	POLARIZATION / WIRING
00 None	00 None
XX For wiring codes, see page MA-3 & MA-4	XX For wiring codes, see page MA-3 & MA-4

* = To determine location, divide the total number of cavities (in one row) by two and round to the next whole number, if result is a fraction. See page M-28.
** = Not available with mounting holes.
See MA strip guidelines, page M-28, for location examples & visual clarification.
Connector part number must have even number of contacts.
Consult factory for non-standard requirements.
☒ = Option not RoHS compliant

Ask About AirBorn's Accelerated Delivery Service

2 • ROW
Strip Connectors with Latches

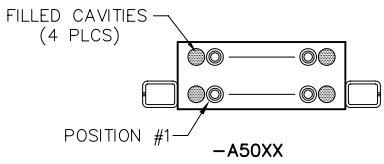
.050"

MA-2

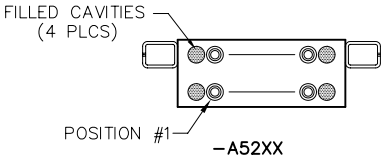
4 thru 128 Contacts

PLUG
LATCH BOX

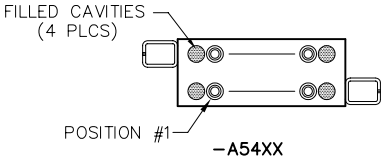
EXAMPLE: MA–231–012–161–A50WN



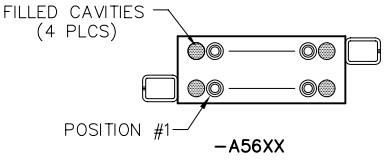
–A50XX



–A52XX



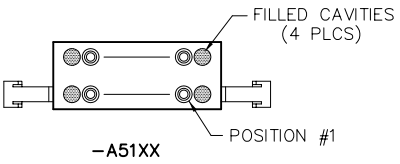
–A54XX



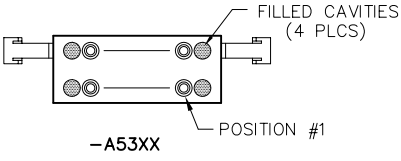
–A56XX

RECEPTACLE
LATCH SPRING

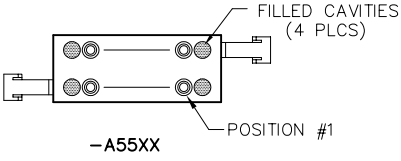
EXAMPLE: MA–241–012–261–A51WN



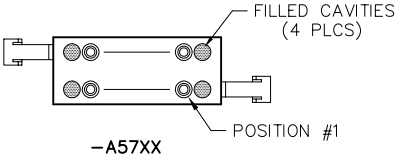
–A51XX



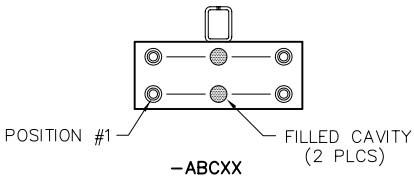
–A53XX



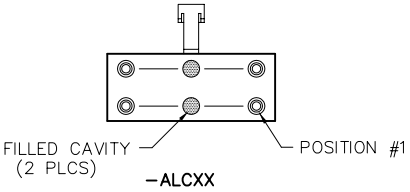
–A55XX



–A57XX



–ABCXX



–ALCXX

NOTE: ALL DRAWINGS VIEWED FROM MATING FACE

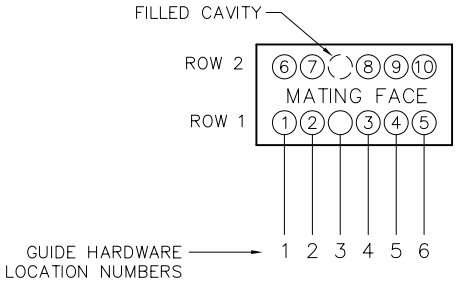
MA Strip Guidelines

For "A" designator in hardware portion of part number

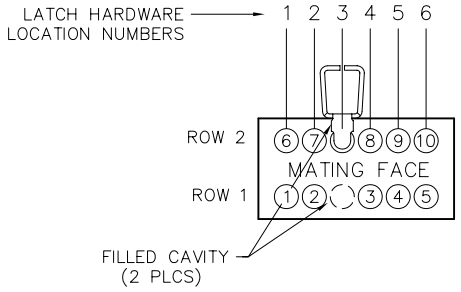
1. Any cavity that has a contact is considered an electrical position (including dummy contact).
2. All hardware locations, holes and/or epoxy filled cavities are considered mechanical positions.
3. The cavity adjacent to a mechanical hole, in opposite row, will be an epoxy filled cavity (two row only).
4. Side mount latch will always be in row two of connector (two row only).
5. Connector must always have an even number of contacts for standard part number (two row only). Consult factory for non-standard requirements.
6. Omit holes on board layout for mechanical positions and renumber board layout accordingly, except connectors with mechanical position(s) in end cavity(ies). See board layout examples, pages M-29 thru M-34.
7. These guidelines apply for all hardware options, including guide holes (mechanical locations).
8. Do not skip wire colors on stranded wire assemblies.
9. Spacers underneath the connector are recommended when R/A PCB mount connectors with mounting holes are used and the PCB had irregularities greater than .004" underneath the connector.

To determine centered hardware location number:

1. Divide the total number of cavities in one row by two (including hardware cavity).
2. Round to the next whole number if result is a fraction.
3. Guide hardware will be located in Row 1 and Latch hardware will be in Row 2.



PLUG
(10 POSITION, 2 ROW)



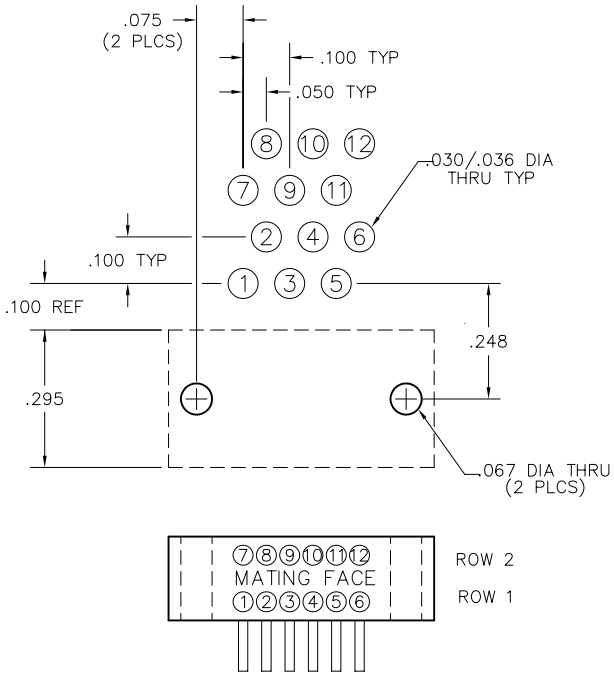
PLUG
(10 POSITION, 2 ROW)

The example above shows 12 cavities with 10 live contacts.
(10 electrical positions & 2 mechanical positions)

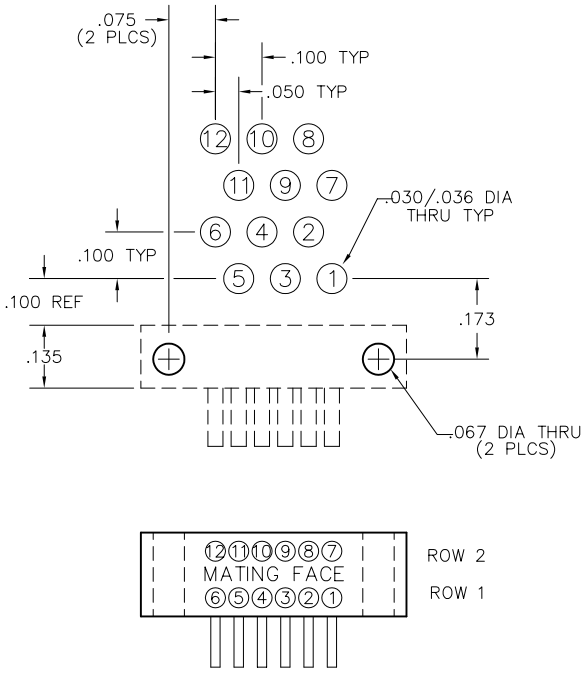
To determine the hardware location number:
6 cavities (in one row) ÷ 2 = 3
Hardware would be placed in location #3.

Board mount connectors, right angle offset (.100") with mounting holes

(12 electrical positions)



PLUG
MA-271-012-325-A0000



RECEPTACLE
MA-281-012-435-A0000

Crimped wire connectors, straight without mounting holes

(12 electrical positions)



PLUG
MA-231-012-161-A00WA



RECEPTACLE
MA-241-012-261-A00WA

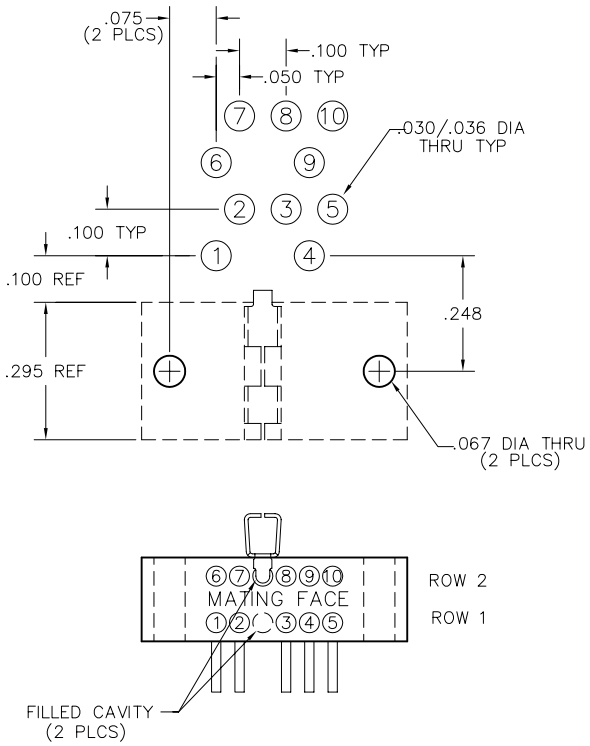
WIRE CONNECT CHART

1	BLK	7	BLU
2	BRN	8	VIO
3	RED	9	GRY
4	ORN	10	WHT
5	YEL	11	WHT/BLK
6	GRN	12	WHT/BRN

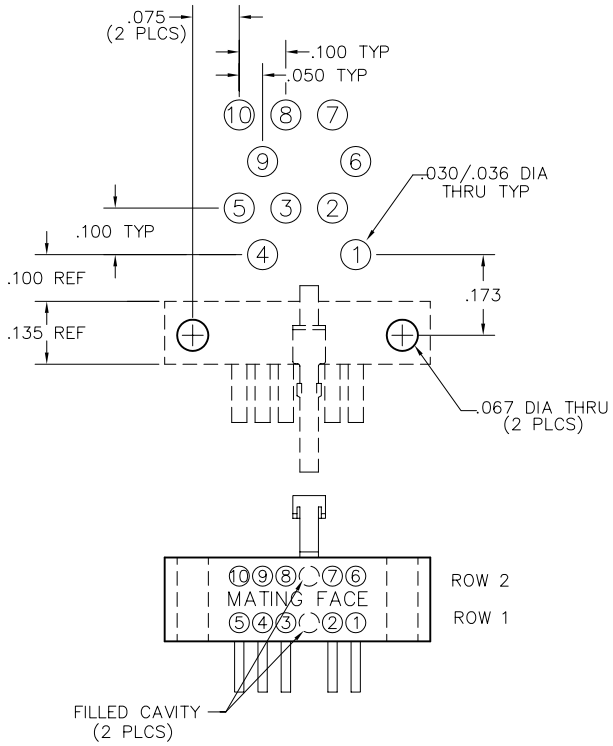
Board mount connectors, right angle offset (.100") with mounting holes. Side mount latch, centered.

Note: Side mount latch will always be in row #2 of connector. Not recommended on row #1 for board mount applications.

(10 electrical positions, 2 mechanical positions)



PLUG
MA-271-010-325-ABC00

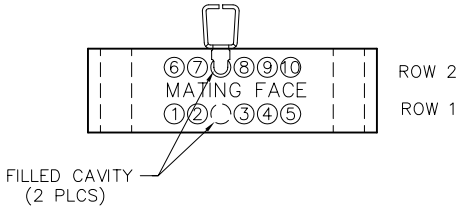


RECEPTACLE
MA-281-010-435-ALC00

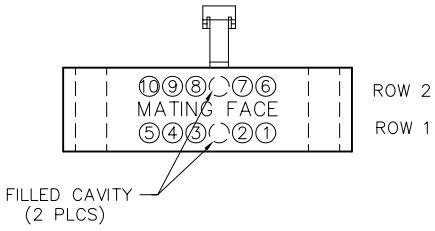
Crimped wire connectors, straight with mounting holes. Side mount latch, centered.

Note: Side mount latch will always be in row #2 of connector.

(10 electrical positions, 2 mechanical positions)



PLUG
MA-211-010-161-ABCWA



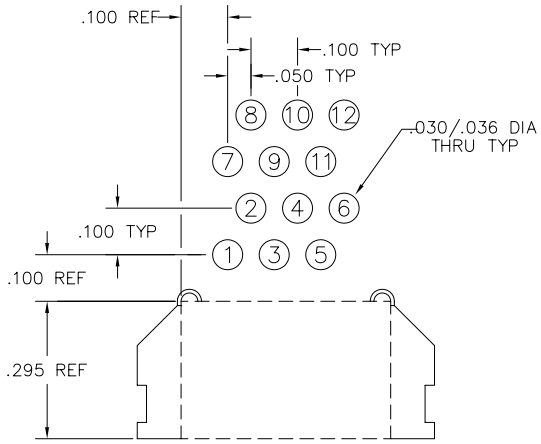
RECEPTACLE
MA-221-010-261-ALCWA

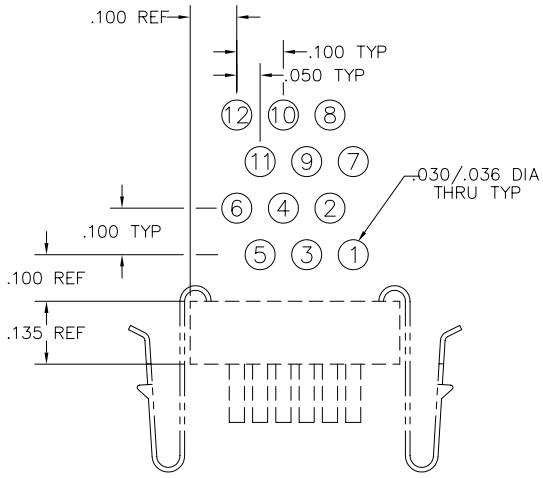
WIRE CONNECT CHART

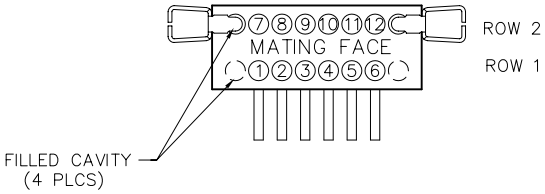
1	BLK	6	GRN
2	BRN	7	BLU
3	RED	8	VIO
4	ORN	9	GRY
5	YEL	10	WHT

Board mount connectors, right angle offset (.100") without mounting holes
End mount latches, 2 end cavities*

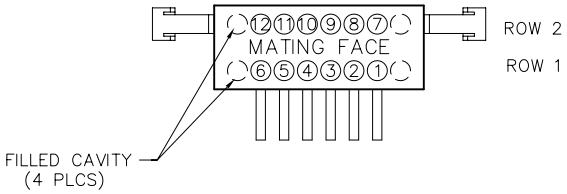
(12 electrical positions, 4 mechanical positions)







PLUG
MA-2B1-012-325-A5200

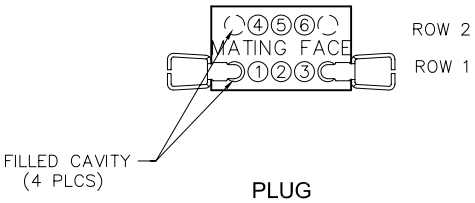


RECEPTACLE
MA-2C1-012-435-A5300

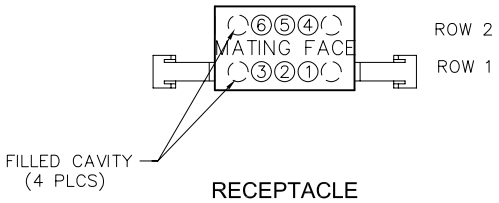
THIS IS THE EXCEPTION AS NOTED IN "MA STRIP GUIDELINES", PAGE M-28, NOTE 6.

Crimped wire connectors, straight without mounting holes
End mount latches, 2 end cavities

(6 electrical positions, 4 mechanical positions)



PLUG
MA-231-006-161-A50WA



RECEPTACLE
MA-241-006-261-A51WA

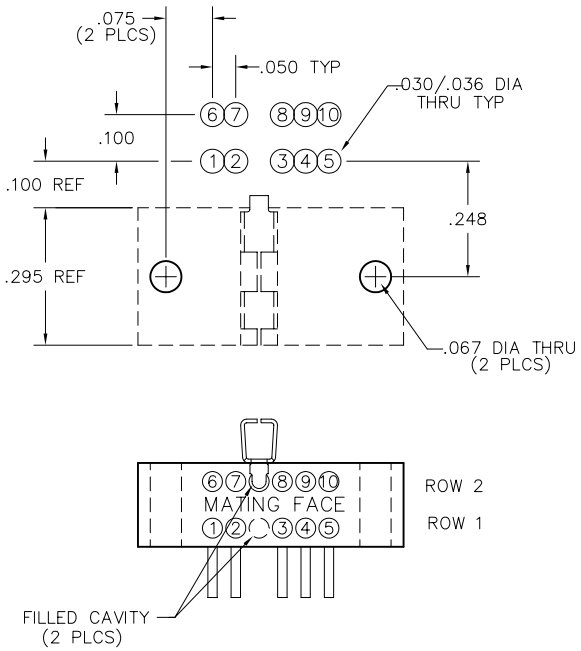
WIRE CONNECT CHART

1 — BLK
2 — BRN
3 — RED
4 — ORN
5 — YEL
6 — GRN

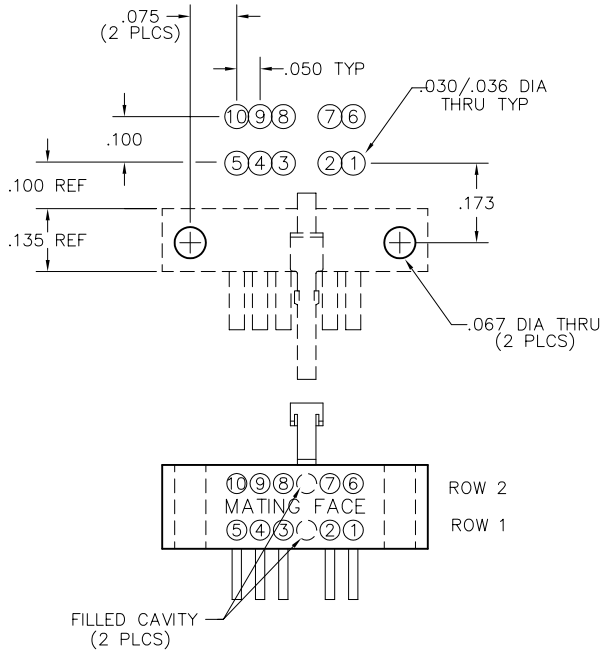
Board mount connectors, right angle inline (.100") with mounting holes
Side mount latch, centered

Note: Side mount latch will always be in row #2 of connector. Not recommended on row #1 for board mount applications.

(10 electrical positions, 2 mechanical positions)



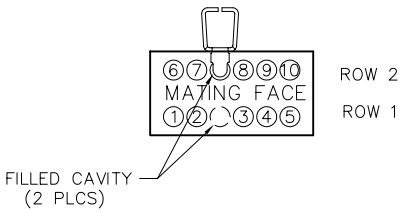
PLUG
MA-2D1-010-325-ABC00



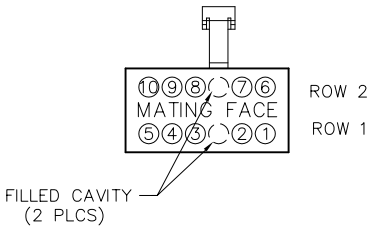
RECEPTACLE
MA-2E1-010-435-ALC00

Crimped wire connectors, straight without mounting holes
Side mount latch, centered

(10 electrical positions, 2 mechanical positions)



PLUG
MA-231-010-161-ABCWA

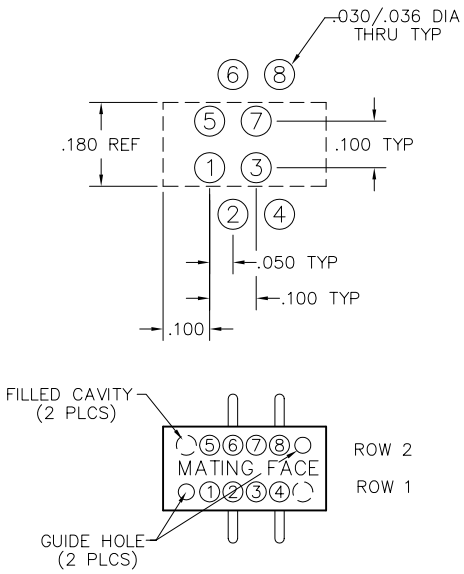


RECEPTACLE
MA-241-010-261-ALCWA

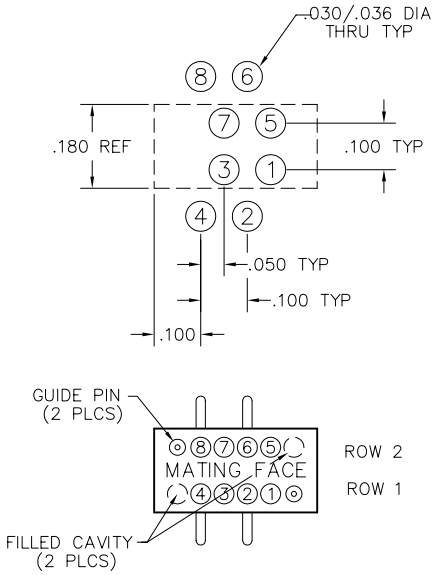
WIRE CONNECT CHART

1	BLK	6	GRN
2	BRN	7	BLU
3	RED	8	VIO
4	ORN	9	GRY
5	YEL	10	WHT

Board mount connectors, straight offset (.100") without mounting holes
Two guide holes/pins, first & last cavities
(8 electrical positions, 4 mechanical positions)

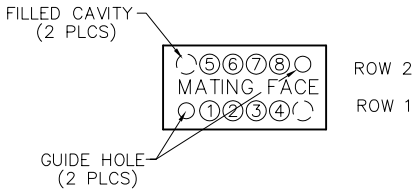


PLUG
MA-2H1-008-145-A6800

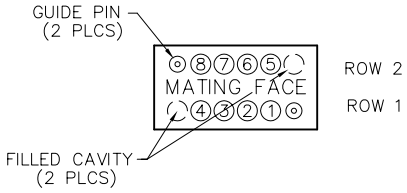


RECEPTACLE
MA-2J1-008-245-A6700

Crimped wire connectors, straight without mounting holes
Two guide holes/pins, first & last cavities
(8 electrical positions, 4 mechanical positions)



PLUG
MA-231-008-161-A68WA

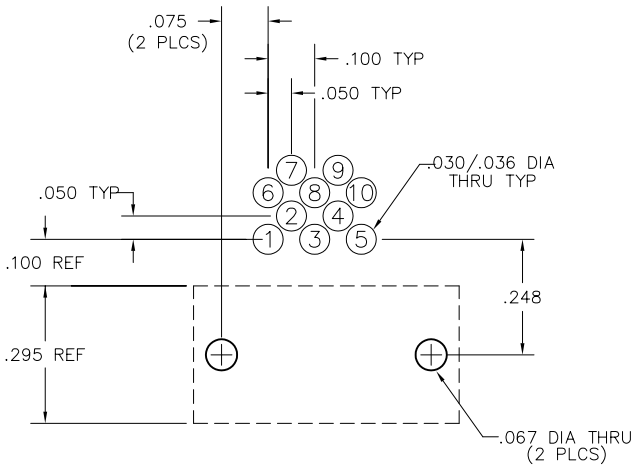


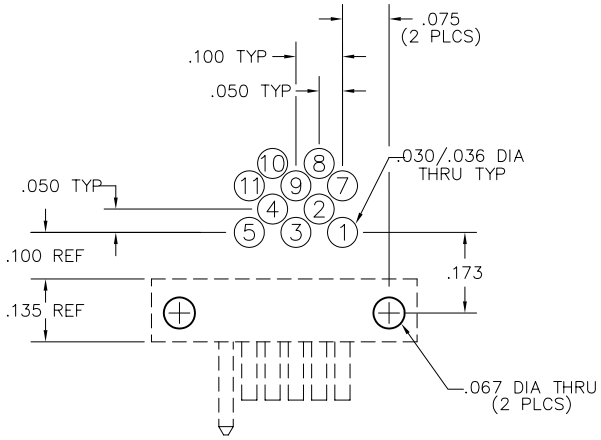
RECEPTACLE
MA-241-008-261-A67WA

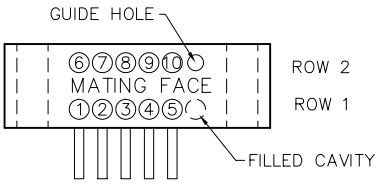
WIRE CONNECT CHART

1	BLK	5	YEL
2	BRN	6	GRN
3	RED	7	BLU
4	ORN	8	VIO

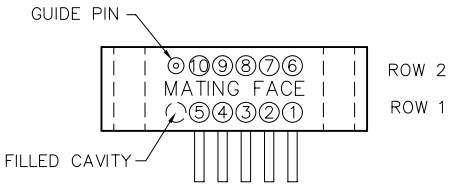
Board mount connectors, right angle offset (.050") with mounting holes
Guide hole/pin, last cavity
(10 electrical positions, 2 mechanical positions)





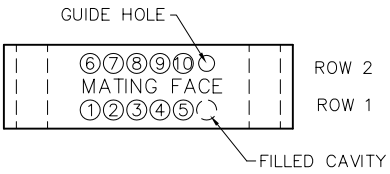


PLUG
MA-251-010-325-A6600

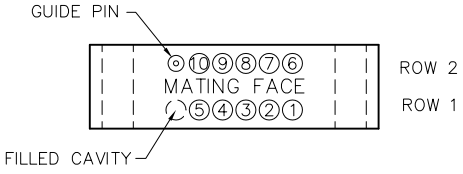


RECEPTACLE
MA-261-010-435-A6300

Crimped wire connectors, straight with mounting holes
Guide hole/pin, last cavity
(10 electrical positions, 2 mechanical positions)



PLUG
MA-211-010-161-A66WA



RECEPTACLE
MA-221-010-261-A63WA

WIRE CONNECT CHART

1	BLK	6	GRN
2	BRN	7	BLU
3	RED	8	VIO
4	ORN	9	GRY
5	YEL	10	WHT

AirBorn

Cable to Cable

.050"

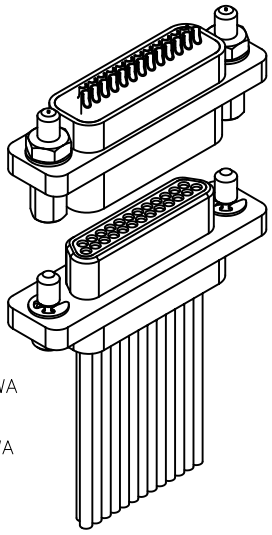
9 thru 100 Contacts

Rugged Metal

MM

Rugged Plastic

MN

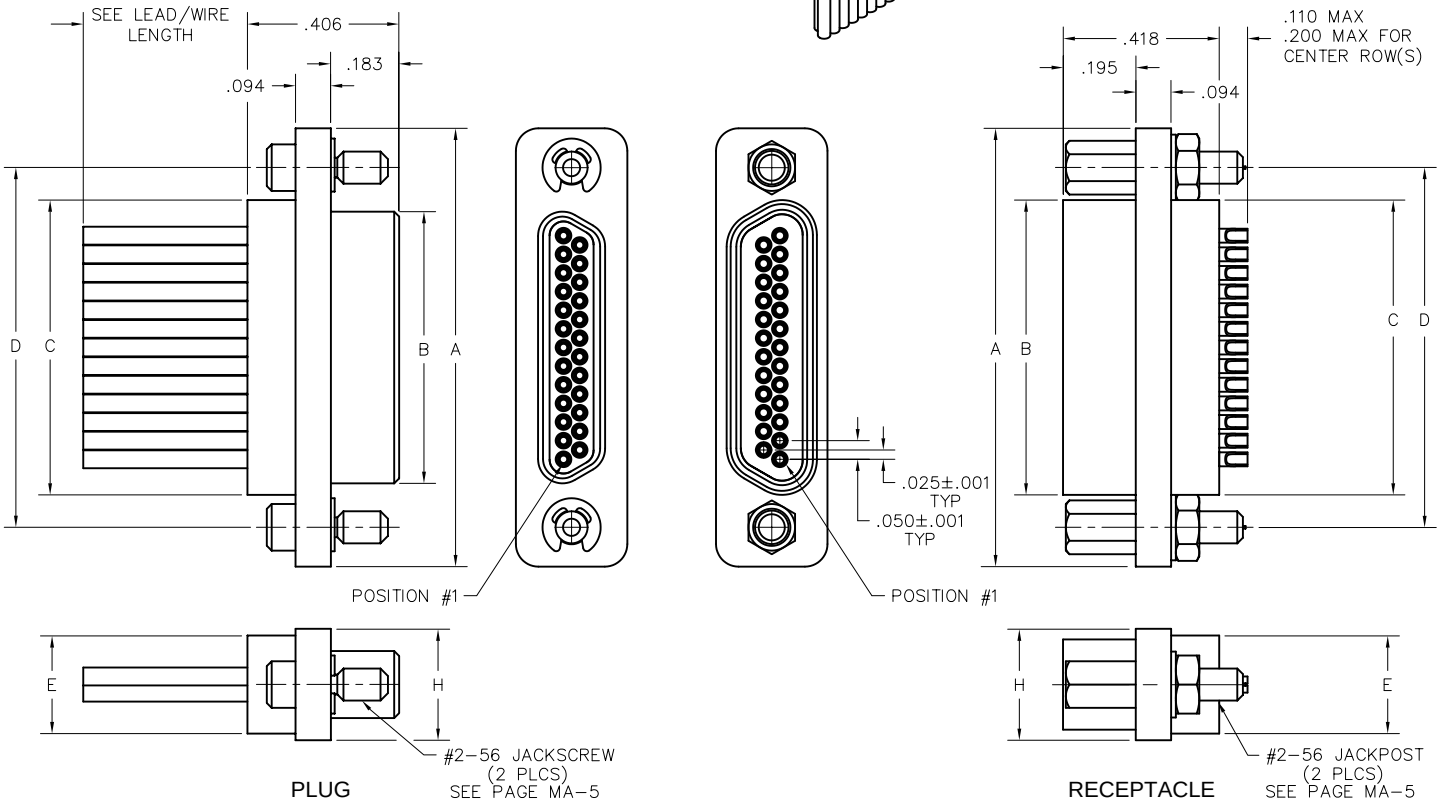


MM-223-025-2A3-2200
(METAL)

MN-221-025-2A3-2200
(PLASTIC)

MM-212-025-161-41WA
(METAL)

MN-211-025-161-41WA
(PLASTIC)



DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
9	2	.775	.334	.400	.390	.565	.270	.298	#2-56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.540	.715			
21		1.075	.634	.700	.690	.865			
25		1.175	.734	.800	.790	.965			
31		1.325	.884	.950	.940	1.115			
37		1.475	1.034	1.100	1.090	1.265			
51**		1.825	1.384	1.450	1.440	1.615			
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	
69		1.725	1.284	1.350	1.340	1.515			
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4-40 UNC THD (.147 DIA THRU)

* = 69 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.
** = 2 ROW, 51 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY, (NON MIL-SPEC INTERFACE).

AirBorn

PLUG: MM–212–031–161–41WA
RECEPTACLE: MM–222–031–2G3–4500
PLUG: MN–211–031–161–41WA
RECEPTACLE: MN–221–031–2G3–4500

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 51****) 3 3-Row (Size 51 & 69***) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 51****) 3 3-Row (Size 51 & 69***) 4 4-Row (Size 100)
BODY STYLE: 1 Plug, straight, with ears	BODY STYLE: 2 Receptacle, straight, with ears
BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell	BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051****, 069***, 100	XXX 009, 015, 021, 025, 031, 037, 051****, 069***, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, 26 awg solder cup 1A Pin, straight, 24 awg solder cup 1D Pin, straight, .109" Lead Length (.018 dia) SEE NOTE 1 1E Pin, straight, .125" Lead Length (.018 dia) SEE NOTE 1 1F Pin, straight, .140" Lead Length (.018 dia) SEE NOTE 1 12 Pin, straight, .150" Lead Length (.018 dia) SEE NOTE 1 1G Pin, straight, .156" Lead Length (.018 dia) SEE NOTE 1 1H Pin, straight, .172" Lead Length (.018 dia) SEE NOTE 1 1J Pin, straight, .187" Lead Length (.018 dia) SEE NOTE 1 13 Pin, straight, .250" Lead Length (.018 dia) SEE NOTE 1 1K Pin, straight, .375" Lead Length (.018 dia) SEE NOTE 1 14 Pin, straight, .500" Lead Length (.018 dia) SEE NOTE 1 15 Pin, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, 26 awg solder cup 2A Socket, straight, 24 awg solder cup 2D Socket, straight, .109" Lead Length (.018 dia) 2E Socket, straight, .125" Lead Length (.018 dia) 2F Socket, straight, .140" Lead Length (.018 dia) 22 Socket, straight, .150" Lead Length (.018 dia) 2G Socket, straight, .156" Lead Length (.018 dia) 2H Socket, straight, .172" Lead Length (.018 dia) 2J Socket, straight, .187" Lead Length (.018 dia) 23 Socket, straight, .250" Lead Length (.018 dia) 2K Socket, straight, .375" Lead Length (.018 dia) 2L Socket, straight, .500" Lead Length (.018 dia) 2M Socket, straight, 1.000" Lead Length (.018 dia) 24 Socket, straight, .500" Lead Length (.018 dia) SEE NOTE 1 25 Socket, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1 26 Socket, straight, crimped wire
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*) 99 Keying hardware, see options below. (Body material 2, 3 and 4 only)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*) 99 Keying hardware, see options below. (Body material 2, 3 and 4 only)
POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
KSXX Two turning jackscrews. See page MA-6 for keying options (KJ*) KPXX Two fixed jacknuts. See page MA-6 for keying options (KN*)	KSXX Two turning jackscrews and interfacial sealing gasket. See page MA-6 for keying options (KJ*) KPXX Two fixed jacknuts and interfacial sealing gasket. See page MA-6 for keying options (KN*) 900 Interfacial sealing gasket

* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.
*** = 69 position connectors are available in metal only.
**** = 2 row, 51 position connectors are available in metal only (non Mil-Spec interface).

☒ = Option not RoHS compliant

NOTE 1 = The leads on these contacts are soft copper suitable for forming.

Ask About AirBorn's Accelerated Delivery Service

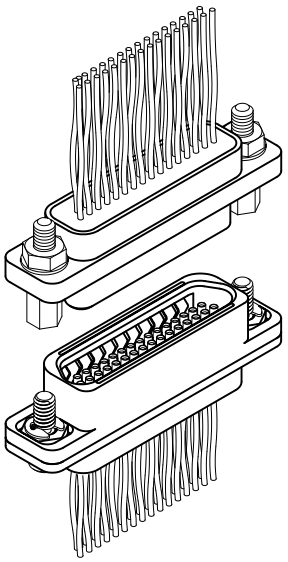
Cable to Cable Grounding Fingers

.050"

9 thru 100 Contacts

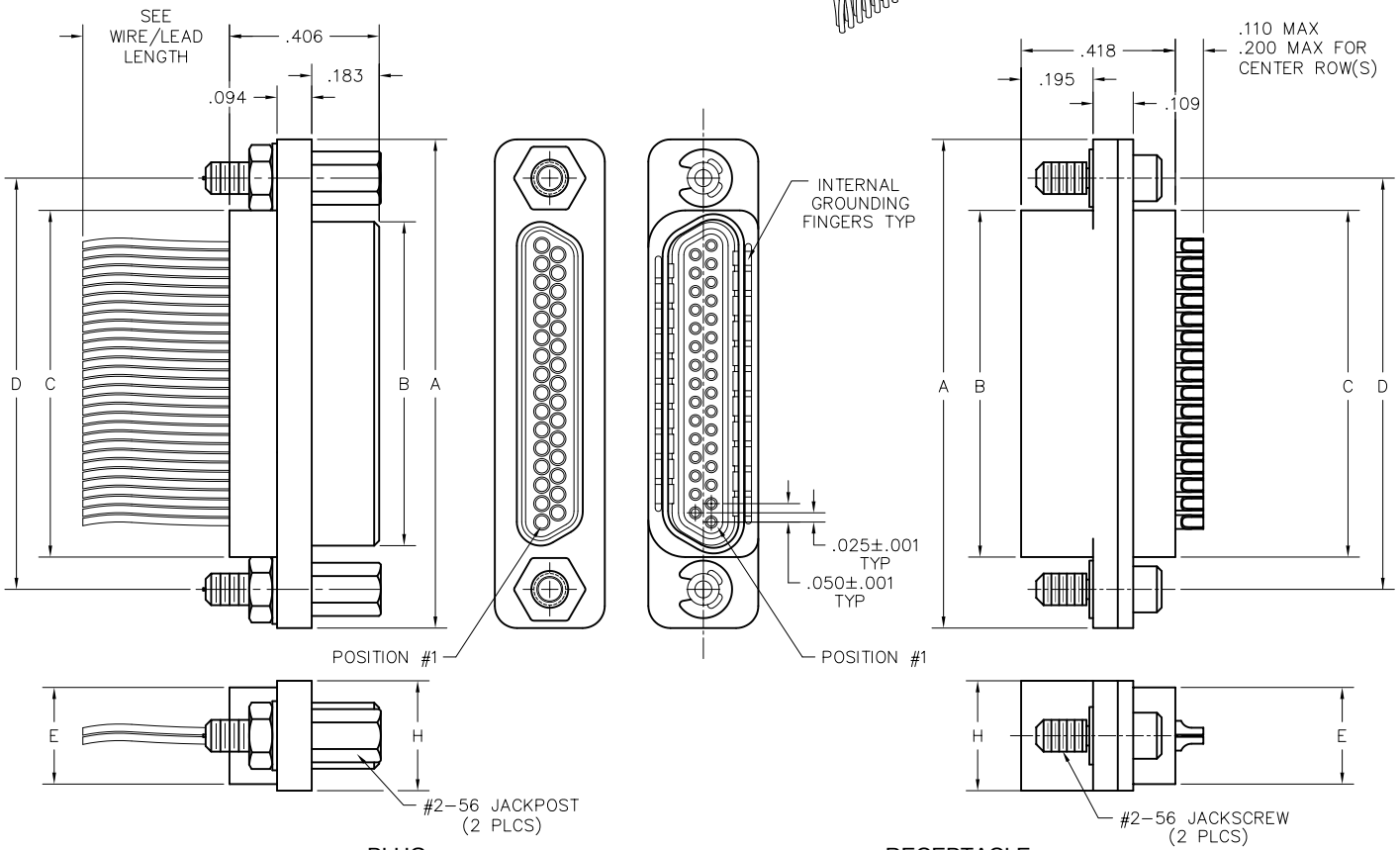
Rugged Metal

MM



MM-212-031-161-22WQ
(METAL)

MM-2D2-031-261-41WA
(METAL)



PLUG RECEPTACLE

DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
9	2	.775	.334	.400	.390	.565	.270	.298	#2-56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.540	.715			
21		1.075	.634	.700	.690	.865			
25		1.175	.734	.800	.790	.965			
31		1.325	.884	.950	.940	1.115			
37		1.475	1.034	1.100	1.090	1.265			
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	
69		1.725	1.284	1.350	1.340	1.515			
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4-40 UNC THD (.147 DIA THRU)

PLUG: MM–212–031–161–22WQ
RECEPTACLE: MM–2D2–031–261–41WA
XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector (MM mates with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector (MM mates with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37)	2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)	3 3-Row (Size 51 & 69)
4 4-Row (Size 100)	4 4-Row (Size 100)
BODY STYLE:	BODY STYLE:
1 Plug, straight, with ears	D Receptacle, straight, with grounding fingers
BODY MATERIAL:	BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell	2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒	3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
6 Polyphenylene Sulfide with gold plated shell	6 Polyphenylene Sulfide with gold plated shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS:	TYPE CONTACTS/TERMINATIONS:
11 Pin, straight, solder cup	21 Socket, straight, solder cup
1A Pin, straight, 24 awg solder cup	2A Socket, straight, 24 awg solder cup
1D Pin, straight, .109" Lead Length (.018 dia) SEE NOTE 1	2D Socket, straight, .109" Lead Length (.018 dia)
1E Pin, straight, .125" Lead Length (.018 dia) SEE NOTE 1	2E Socket, straight, .125" Lead Length (.018 dia)
1F Pin, straight, .140" Lead Length (.018 dia) SEE NOTE 1	2F Socket, straight, .140" Lead Length (.018 dia)
12 Pin, straight, .150" Lead Length (.018 dia) SEE NOTE 1	22 Socket, straight, .150" Lead Length (.018 dia)
1G Pin, straight, .156" Lead Length (.018 dia) SEE NOTE 1	2G Socket, straight, .156" Lead Length (.018 dia)
1H Pin, straight, .172" Lead Length (.018 dia) SEE NOTE 1	2H Socket, straight, .172" Lead Length (.018 dia)
1J Pin, straight, .187" Lead Length (.018 dia) SEE NOTE 1	2J Socket, straight, .187" Lead Length (.018 dia)
13 Pin, straight, .250" Lead Length (.018 dia) SEE NOTE 1	23 Socket, straight, .250" Lead Length (.018 dia)
1K Pin, straight, .375" Lead Length (.018 dia) SEE NOTE 1	2K Socket, straight, .375" Lead Length (.018 dia)
14 Pin, straight, .500" pigtails (.018 dia) SEE NOTE 1	2L Socket, straight, .500" Lead Length (.018 dia)
15 Pin, straight, 1.000" pigtails (.018 dia) SEE NOTE 1	2M Socket, straight, 1.000" Lead Length (.018 dia)
16 Pin, straight, crimped wire	24 Socket, straight, .500" pigtails (.018 dia) SEE NOTE 1
	25 Socket, straight, 1.000" pigtails (.018 dia) SEE NOTE 1
	26 Socket, straight, crimped wire
PLATING OPTIONS:	PLATING OPTIONS:
1 50 µ" Au contacts (crimp wire)	1 50 µ" Au contacts (crimp wire)
3 50 µ" Au contacts (solder cup, pigtail)	3 50 u" Au contacts (solder cup, pigtail)
5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒	5 50 u" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
7 50 µ" Au contacts; SAC305 terminations (pigtail)	7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE:	STYLE OF HARDWARE:
00 None	00 None
22 Two fixed jacknut assemblies (62*)	22 Two fixed captive jacknut assemblies** (62*)
41 Two turning jackscrews, allen head, retaining ring (81*)	41 Two turning jackscrews, allen head, retaining ring (81*)
42 Two long turning jackscrews, allen head, retaining ring (82*)	42 Two long turning jackscrews, allen head, retaining ring (82*)
43 Two turning jackscrews, slot head, retaining ring (83*)	43 Two turning jackscrews, slot head, retaining ring (83*)
44 Two long turning jackscrews, slot head, retaining ring (84*)	44 Two long turning jackscrews, slot head, retaining ring (84*)
45 Two turning jackscrews, allen head, captivated** (85*)	45 Two turning jackscrews, allen head, captivated** (85*)
99 Keying hardware, see options below. (Body material 2 and 3 only)	99 Keying hardware, see options below. (Body material 2 and 3 only)
POLARIZATION / WIRING:	POLARIZATION / WIRING
00 None	00 None
XX For wiring codes, see page MA-3 & MA-4	XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
KSXX Two turning jackscrews. See page MA-6 for keying options (KJ*)	KSXX Two turning jackscrews and interfacial sealing gasket. See page MA-6 for keying options (KJ*)
KPXX Two fixed jacknuts. See page MA-6 for keying options (KN*)	KPXX Two fixed jacknuts and interfacial sealing gasket. See page MA-6 for keying options (KN*)
	900 Interfacial sealing gasket

* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

NOTE 1 = The leads on these contacts are soft copper suitable for forming.

☒ = Option not RoHS compliant

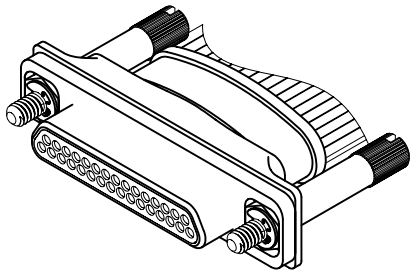
Ask About AirBorn's Accelerated Delivery Service

Rugged Metal I/O (Integral Shield Termination)

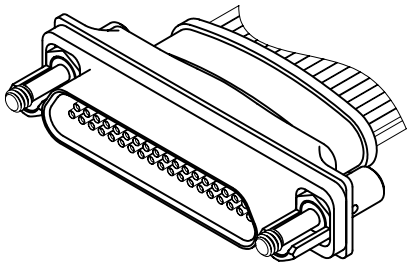
.050"

9 thru 100 Contacts

MM

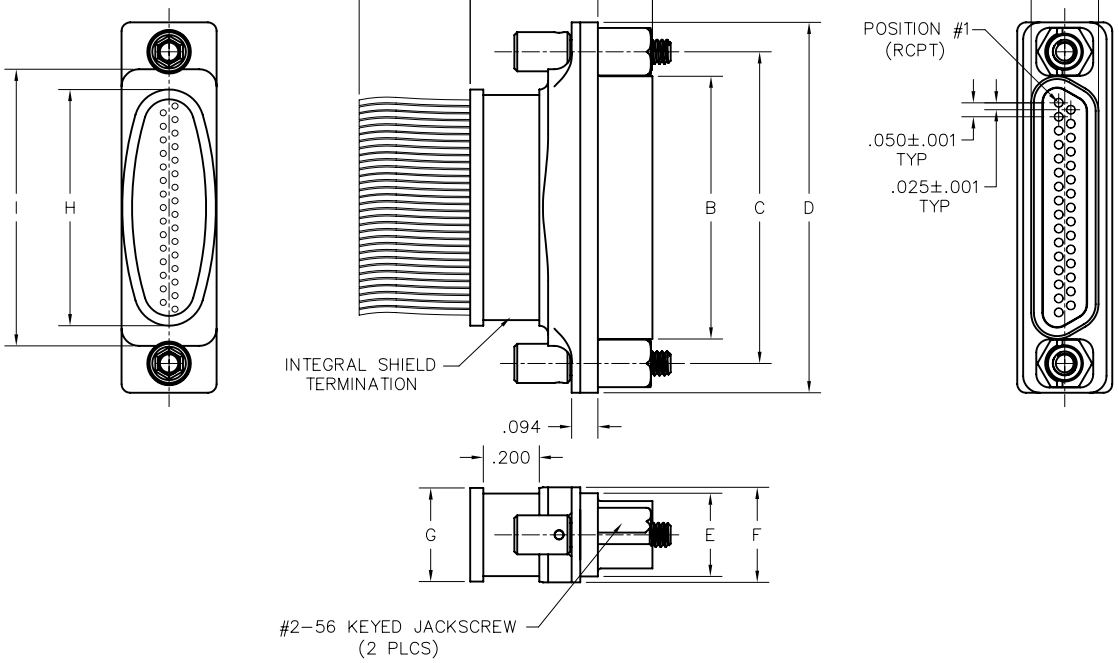


MM–2P2–031–161–44WA
(PLUG)



MM–2Q2–031–261–99WA–KS11
(RECEPTACLE)

MATING MATRIX	
CONNECTOR	MATES WITH
MM-2P...	MK, ML, MM, MN receptacles
MM-2Q...	MK, ML, MM, MN plugs



DIMENSIONS																
SIZE	CONTACT ROWS	A		B		C	HARDWARE	D	E	F	G	H	I	J		K	
		PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX									PLUG	RCPT	PLUG	RCPT
9	2	.185	.251	.334	.400	.565	#2–56 UNC THD (.092 DIA THRU)	.775	.298	.340	.290	.290	.440	.183	.195	.640	.652
15				.484	.550	.715		.925			.335	.445	.590				
21				.634	.700	.865		1.075				.595	.740				
25				.734	.800	.965		1.175				.695	840				
31				.884	.950	1.115		1.325				.845	.990				
37				1.034	1.100	1.265		1.475				.995	1.140				
51				1.384	1.450	1.615		1.825				1.345	1.490				
51	3	.228	.294	.984	1.050	1.215		1.425	.341	.380	.367	.945	1.090				
69				1.284	1.350	1.515		1.725				1.245	1.390				
100	4	.271	.394	1.384	1.508	1.800	#4–40 UNC THD (.147 DIA THRU)	2.160	.381	.430	.417	1.457	1.522				

PLUG: MM–2P2–031–161–44WA
RECEPTACLE: MM–2Q2–031–261–99WA–KS11

XX–XXX–XXX–XXX–XXXX
SERIES | BODY | SIZE | CONTACTS | HARDWARE & WIRING

PLUG

SERIES
MM .050" Rugged Metal I/O Connector

BODY
2 2-Row (Sizes 9 thru 37, 51)***
3 3-Row (Sizes 51 thru 69)
4 4-Row (Size 100)

BODY STYLE:
P Plug, straight, with ears and integral shield termination

BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒

SIZE
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS
CONTACTS/PLATING/TERMINATIONS:
161 Pin, straight, 50 µ" Au contacts (crimped stranded wire)

HARDWARE & WIRING
STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies (62)**
41 Two turning jackscrews, allen head, retaining ring (81)**
42 Two long turning jackscrews, allen head, retaining ring (82)**
43 Two turning jackscrews, slot head, retaining ring (83)**
44 Two long turning jackscrews, slot head, retaining ring (84)**
45 Two turning jackscrews, allenhead,captivated* (85)**
99 Keying hardware, see options below

WIRING:
XX For wiring codes, see page MA-3 & MA-4

OPTIONS
KSXX Two turning jackscrews
See page MA-6 for keying options (KJ)**
KPXX Two fixed jacknuts
See page MA-6 for keying options (KN)**

NOTES
See page MA-5 & MA-7 for hardware dimensions.
Reference PTB44 for band-it termination installation

Stainless steel micro band for shield termination, shipped with each connector
AirBorn part number CDG10026 1/8" short, CDG17492 1/8" long
Band-it application tool - AirBorn part number CDG10027

* = Captive hardware is factory installed and non-removable.
** = Use numbers or letters in parenthesis when ordering size 100.
*** = 2 Row, 51 position connectors are NON MIL-SPEC interface
☒ = Option not RoHS compliant

RECEPTACLE

SERIES
MM .050" Rugged Metal I/O Connector

BODY
2 2-Row (Sizes 9 thru 37, 51)***
3 3-Row (Sizes 51 thru 69)
4 4-Row (Size 100)

BODY STYLE:
Q Receptacle, straight, with ears and integral shield termination

BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒

SIZE
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS
CONTACTS/PLATING/TERMINATIONS:
261 Socket, straight, 50 µ" Au contacts (crimped stranded wire)

HARDWARE & WIRING
STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies (62)**
41 Two turning jackscrews, allen head, retaining ring (81)**
42 Two long turning jackscrews, allen head, retaining ring (82)**
43 Two turning jackscrews, slot head, retaining ring (83)**
44 Two long turning jackscrews, slot head, retaining ring (84)**
45 Two turning jackscrews, allenhead,captivated* (85)**
99 Keying hardware, see options below

WIRING:
XX For wiring codes, see page MA-3 & MA-4

OPTIONS
900 Interfacial seal
KSXX Two turning jackscrews & interfacial sealing gasket
See page MA-6 for keying options (KJ)**
KPXX Two fixed jacknuts & interfacial sealing gasket
See page MA-6 for keying options (KN)**

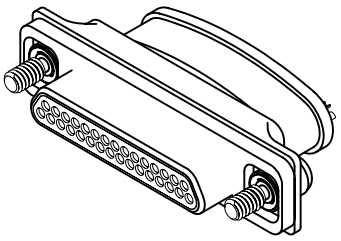
NOTES
See page MA-5 & MA-7 for hardware dimensions.
Reference PTB44 for band-it termination installation

Rugged Metal Solder Cup (Integral Shield Termination)

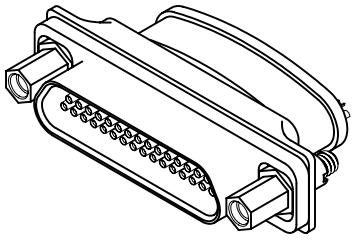
.050"

9 thru 100 Contacts

MM

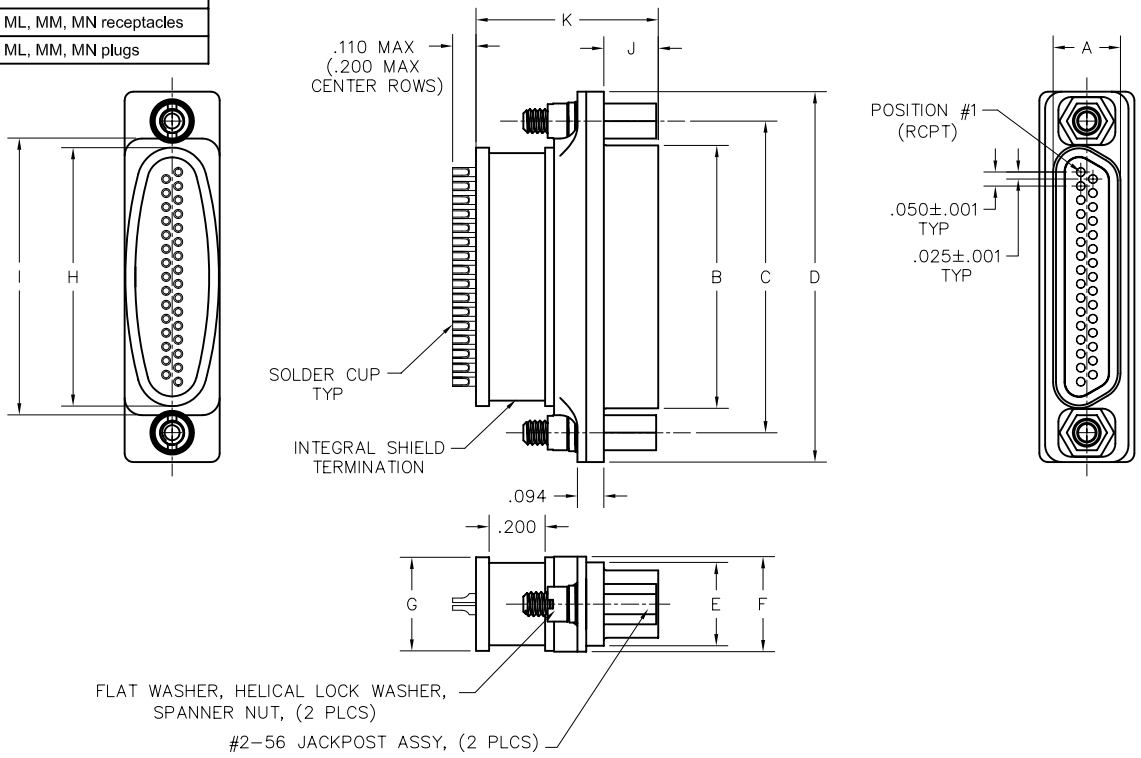


MM–2P2–031–113–4500
(PLUG)



MM–2Q2–031–213–2200
(RECEPTACLE)

MATING MATRIX	
CONNECTOR	MATES WITH
MM-2P...	MK, ML, MM, MN receptacles
MM-2Q...	MK, ML, MM, MN plugs



DIMENSIONS																
SIZE	CONTACT ROWS	A		B		C	HARDWARE	D	E	F	G	H	I	J		K	
		PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX									PLUG	RCPT	PLUG	RCPT
9	2	.185	.251	.334	.400	.565	#2–56 UNC THD (.092 DIA THRU)	.775	.298	.340	.335	.375	.440	.183	.195	.640	.652
15				.484	.550	.715		.925				.525	.590				
21				.634	.700	.865		1.075				.675	.740				
25				.734	.800	.965		1.175				.775	840				
31				.884	.950	1.115		1.325				.925	.990				
37				1.034	1.100	1.265		1.475				1.075	1.140				
51				1.384	1.450	1.615		1.825				1.425	1.490				
51	3	.228	.294	.984	1.050	1.215		1.425	.341	.380	.367	1.025	1.090				
69				1.284	1.350	1.515		1.725				1.325	1.390				
100	4	.271	.394	1.384	1.508	1.800	#4–40 UNC THD (.147 DIA THRU)	2.160	.381	.430	.417	1.457	1.522				

PLUG: MM–2P2–031–113–4500
RECEPTACLE: MM–2Q2–031–213–2200

XX–XXX–XXX–XXX–XXXX
SERIES | BODY | SIZE | CONTACTS | HARDWARE & WIRING

PLUG

SERIES
MM .050" Rugged Metal Solder Cup Connector

BODY
2 2-Row (Sizes 9 thru 37, 51)***
3 3-Row (Sizes 51 thru 69)
4 4-Row (Size 100)

BODY STYLE:
P Plug, straight, with ears and integral shield termination

BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒

SIZE
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS
CONTACTS/PLATING/TERMINATIONS:
113 Pin, straight, 50 µ" Au contacts, 10 µ" Au termination 26 AWG solder cup

HARDWARE & WIRING
STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies (62)**
41 Two turning jackscrews, allen head, retaining ring (81)**
43 Two turning jackscrews, slot head, retaining ring (83)**
45 Two turning jackscrews, allenhead,captivated* (85)**
99 Keying hardware, see options below

WIRING:
00 None

OPTIONS
KPXX Two fixed jacknuts
See page MA-6 for keying options (KN)**

NOTES
See page MA-5 & MA-7 for hardware dimensions.
Reference PTB43 for solder cup termination
Reference PTB44 for band-it termination installation

RECEPTACLE

SERIES
MM .050" Rugged Metal Solder Cup Connector

BODY
2 2-Row (Sizes 9 thru 37, 51)***
3 3-Row (Sizes 51 thru 69)
4 4-Row (Size 100)

BODY STYLE:
Q Receptacle, straight, with ears and integral shield termination

BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒

SIZE
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS
CONTACTS/PLATING/TERMINATIONS:
213 Socket, straight, 50 µ" Au contacts, 10 µ" Au termination 26 AWG solder cup

HARDWARE & WIRING
STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies (62)**
41 Two turning jackscrews, allen head, retaining ring (81)**
43 Two turning jackscrews, slot head, retaining ring (83)**
45 Two turning jackscrews, allenhead,captivated* (85)**
99 Keying hardware, see options below

WIRING:
00 None

OPTIONS
900 Interfacial seal
KPXX Two fixed jacknuts & interfacial sealing gasket
See page MA-6 for keying options (KN)**

NOTES
See page MA-5 & MA-7 for hardware dimensions.
Reference PTB43 for solder cup termination
Reference PTB44 for band-it termination installation

Stainless steel micro band for shield termination, shipped with each connector
AirBorn part number CDG10026 1/8" short, CDG17492 1/8" long
Band-it application tool - AirBorn part number CDG10027

* = Captive hardware is factory installed and non-removable.
** = Use numbers or letters in parenthesis when ordering size 100.
*** = 2 Row, 51 position connectors are NON MIL-SPEC interface
☒ = Option not RoHS compliant

Cable to Cable (Jumper Assembly)

.050"

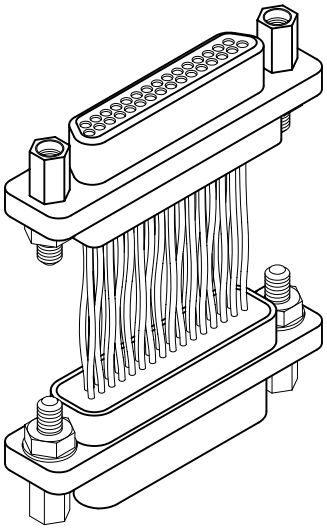
9 thru 100 Contacts

Rugged Metal

MM

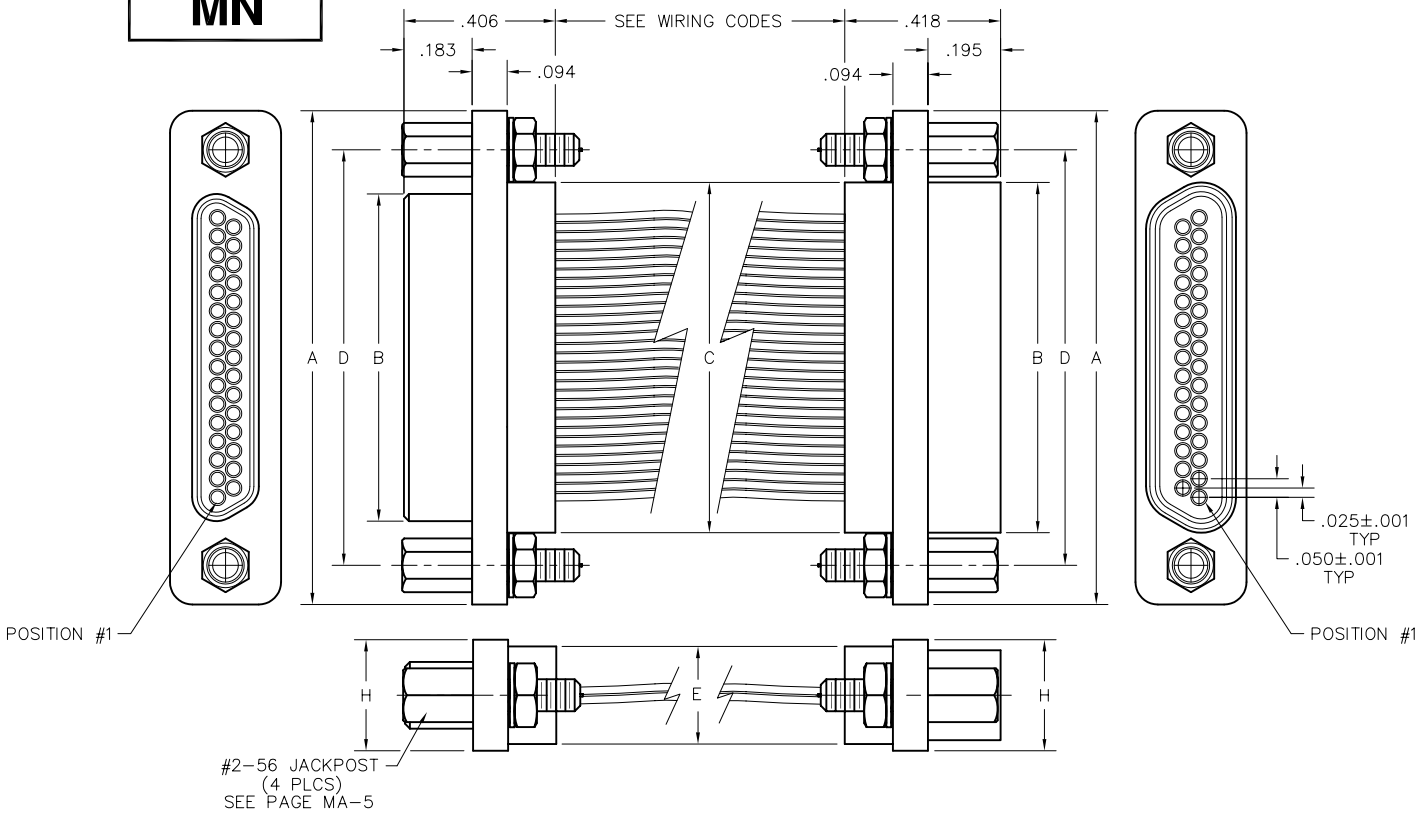
Rugged Plastic

MN



MM–2J2–031–PS1–22WA
(METAL)

MN–2J1–031–PS1–22WA
(PLASTIC)



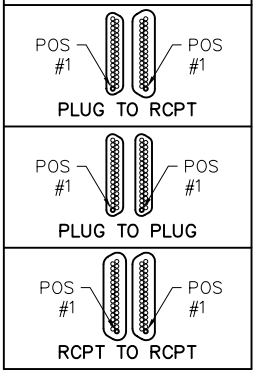
PLUG

RECEPTACLE

DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
9	2	.775	.334	.400	.390	.565	.270	.298	#2–56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.540	.715			
21		1.075	.634	.700	.690	.865			
25		1.175	.734	.800	.790	.965			
31		1.325	.884	.950	.940	1.115			
37		1.475	1.034	1.100	1.090	1.265			
51**		1.825	1.384	1.450	1.440	1.615			
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	
69*		1.725	1.284	1.350	1.340	1.515			
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4–40 UNC THD (.147 DIA THRU)

* = 69 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.
** = 2 ROW, 51 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY, (NON MIL–SPEC INTERFACE).

MATING FACE ORIENTATION



MM– 2J2 – 031 – PS1 – 22WA
MN– 2J1 – 031 – PS1 – 22WA
XX – XXX – XXX – XXX – XXXX – XXX

SERIES

MM .050" Rugged Metal I/O Connector
MN .050" Rugged Plastic I/O Connector
(MM & MN mate with MK, ML, MM, MN assemblies)

BODY

2 2-Row (Sizes 9 thru 51****)
3 3-Row (Size 51 & 69***)
4 4-Row (Size 100)

BODY STYLE:
J Jumper assembly, straight, with ears

BODY MATERIAL:
1 Polyphenylene Sulfide (MN only)
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4 Polyphenylene Sulfide with hard anodized black shell
5 Polyphenylene Sulfide with stainless steel shell

SIZE

XXX 009, 015, 021, 025, 031, 037, 051****,069***, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
PP Plug to plug
PS Plug to receptacle
SS Receptacle to receptacle

PLATING OPTIONS:
1 50 µ" Au contacts (crimp wire)

HARDWARE

STYLE OF HARDWARE:
00 None
22 Four fixed jacknut assemblies (62*)
41 Four turning jackscrews, allen head, retaining ring (81*)
43 Four turning jackscrews, slot head, retaining ring (83*)
45 Four turning jackscrews, allen head, captivated** (85*)
46 Two fixed jacknuts and two turning jackscrews, allen head, uninstalled (86*)
47 Two fixed jacknuts and two turning jackscrews, slot head, uninstalled (87*)
99 Keying hardware, see options below. (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
XX For wiring codes, see page MA-3 & MA-4

OPTIONS

KSXX Four turning jackscrews. Receptacles supplied with interfacial sealing gasket. See page MA-6 for keying options (KJ*)
KPXX Four fixed jacknuts. Receptacles supplied with interfacial sealing gasket. See page MA-6 for keying options (KN*)
900 Interfacial sealing gasket

* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.
*** = 69 position connectors are available in metal only.
**** = 2 row, 51 position connectors are available in metal only (non Mil-Spec interface).

☒ = Option not RoHS compliant

AirBorn

Cable to Cable

.050"

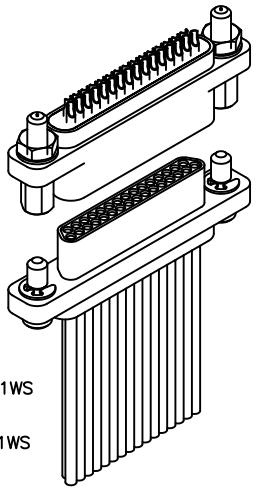
9 thru 51 Contacts

Low Profile Metal

MQ

Low Profile Plastic

MP

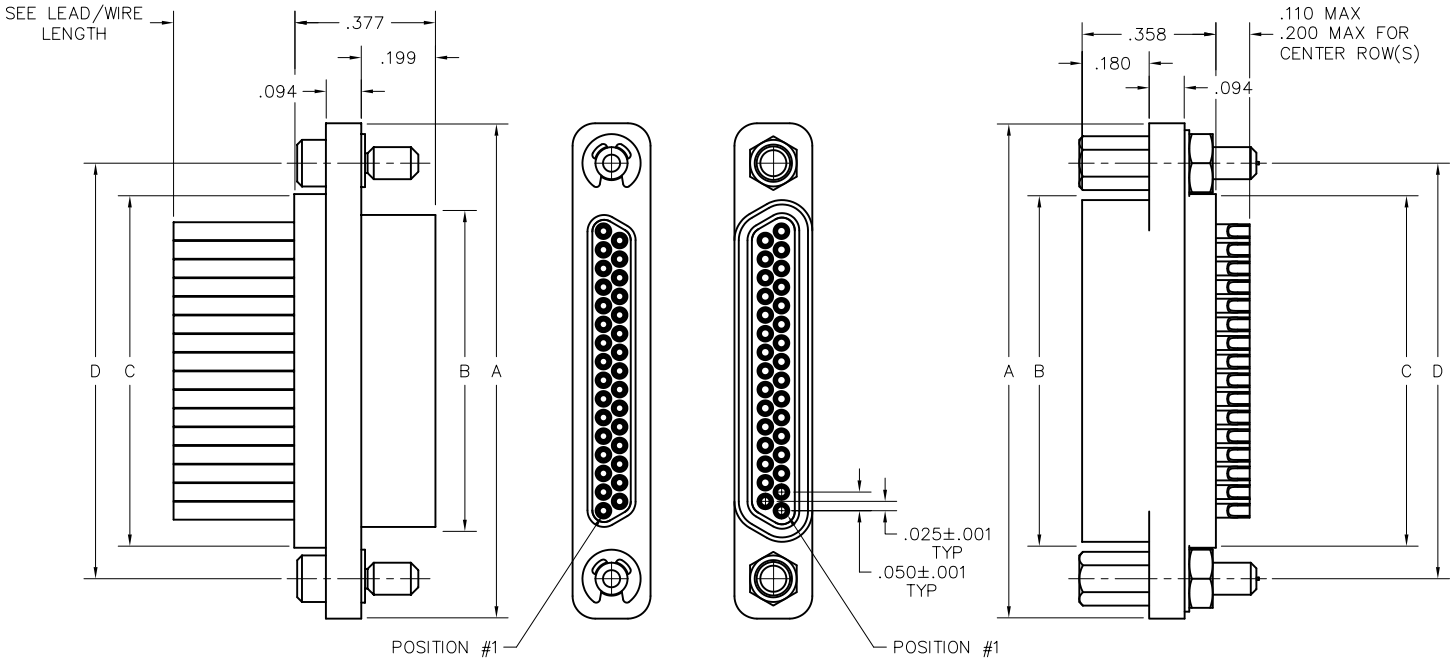


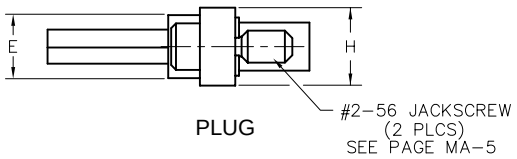
MQ-222-031-2A3-2200
(METAL)

MP-221-031-2A3-2200
(PLASTIC)

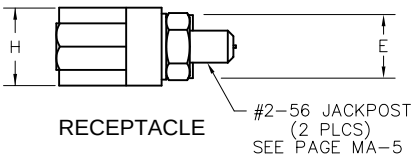
MQ-212-031-161-41WS
(METAL)

MP-211-031-161-41WS
(PLASTIC)





PLUG



RECEPTACLE

DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
9	2	.778	.292	.378	.398	.565	.173	.208	#2-56 UNC THD (.092 DIA THRU)
15		.928	.442	.528	.548	.715			
21		1.078	.592	.678	.698	.865			
25		1.178	.692	.778	.798	.965			
31		1.328	.842	.928	.948	1.115			
37		1.478	.992	1.078	1.098	1.265			
51	3	1.428	.942	1.028	1.048	1.215	.220	.250	

PLUG: MQ–212–031–161–41WS
RECEPTACLE: MQ–222–031–2G3–4500
PLUG: MP–211–031–161–41WS
RECEPTACLE: MP–221–031–2G3–4500

PLUG **RECEPTACLE** XX–XXX–XXX–XXX–XXXX–XXX

SERIES

PLUG	RECEPTACLE
MQ .050" Low Profile Metal I/O Connector MP .050" Low Profile Plastic I/O Connector (MQ & MP mate with MP, MQ, MR, MS receptacles)	MQ .050" Low Profile Metal I/O Connector MP .050" Low Profile Plastic I/O Connector (MQ & MP mate with MP, MQ, MR, MS plugs)

BODY

	PLUG		RECEPTACLE
2	2-Row (Sizes 9 thru 37)	2	2-Row (Sizes 9 thru 37)
3	3-Row (Size 51)	3	3-Row (Size 51)
	BODY STYLE:		BODY STYLE:
1	Plug, straight, with ears	2	Receptacle, straight, with ears
	BODY MATERIAL:		BODY MATERIAL:
1	Polyphenylene Sulfide (MN only)	1	Polyphenylene Sulfide (MN only)
2	Polyphenylene Sulfide with electroless nickel shell	2	Polyphenylene Sulfide with electroless nickel shell
3	Polyphenylene Sulfide with electrodeposited cadmium shell ☒	3	Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4	Polyphenylene Sulfide with hard anodized black shell	4	Polyphenylene Sulfide with hard anodized black shell

SIZE

XXX	009, 015, 021, 025, 031, 037, 051	XXX	009, 015, 021, 025, 031, 037, 051

CONTACTS

	PLUG		RECEPTACLE
	TYPE CONTACTS/TERMINATIONS:		TYPE CONTACTS/TERMINATIONS:
11	Pin, straight, 26 awg solder cup	21	Socket, straight, 26 awg solder cup
1A	Pin, straight, 24 awg solder cup	2A	Socket, straight, 24 awg solder cup
1D	Pin, straight, .109" Lead Length (.018 dia) SEE NOTE 1	2D	Socket, straight, .109" Lead Length (.018 dia)
1E	Pin, straight, .125" Lead Length (.018 dia) SEE NOTE 1	2E	Socket, straight, .125" Lead Length (.018 dia)
1F	Pin, straight, .140" Lead Length (.018 dia) SEE NOTE 1	2F	Socket, straight, .140" Lead Length (.018 dia)
12	Pin, straight, .150" Lead Length (.018 dia) SEE NOTE 1	22	Socket, straight, .150" Lead Length (.018 dia)
1G	Pin, straight, .156" Lead Length (.018 dia) SEE NOTE 1	2G	Socket, straight, .156" Lead Length (.018 dia)
1H	Pin, straight, .172" Lead Length (.018 dia) SEE NOTE 1	2H	Socket, straight, .172" Lead Length (.018 dia)
1J	Pin, straight, .187" Lead Length (.018 dia) SEE NOTE 1	2J	Socket, straight, .187" Lead Length (.018 dia)
13	Pin, straight, .250" Lead Length (.018 dia) SEE NOTE 1	23	Socket, straight, .250" Lead Length (.018 dia)
1K	Pin, straight, .375" Lead Length (.018 dia) SEE NOTE 1	2K	Socket, straight, .375" Lead Length (.018 dia)
14	Pin, straight, .500" Lead Length (.018 dia) SEE NOTE 1	2L	Socket, straight, .500" Lead Length (.018 dia)
15	Pin, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1	2M	Socket, straight, 1.000" Lead Length (.018 dia)
16	Pin, straight, crimped wire	24	Socket, straight, .500" Lead Length (.018 dia) SEE NOTE 1
		25	Socket, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1
		26	Socket, straight, crimped wire
	PLATING OPTIONS:		PLATING OPTIONS:
1	50 µ" Au contacts (crimp wire)	1	50 µ" Au contacts (crimp wire)
3	50 µ" Au contacts (solder cup, pigtail)	3	50 µ" Au contacts (solder cup, pigtail)
5	50 µ" Au contacts; Sn/Pb alloy terminations ☒	5	50 µ" Au contacts; Sn/Pb alloy terminations ☒
7	50 µ" Au contacts; SAC305 terminations	7	50 µ" Au contacts; SAC305 terminations

HARDWARE

	PLUG		RECEPTACLE
	STYLE OF HARDWARE:		STYLE OF HARDWARE:
00	None	00	None
22	Two fixed jacknut assemblies (62*)	22	Two fixed jacknut assemblies (62*)
41	Two turning jackscrews, allen head, retaining ring (81*)	41	Two turning jackscrews, allen head, retaining ring (81*)
42	Two long turning jackscrews, allen head, retaining ring (82*)	42	Two long turning jackscrews, allen head, retaining ring (82*)
43	Two turning jackscrews, slot head, retaining ring (83*)	43	Two turning jackscrews, slot head, retaining ring (83*)
44	Two long turning jackscrews, slot head, retaining ring (84*)	44	Two long turning jackscrews, slot head, retaining ring (84*)
45	Two turning jackscrews, allen head, captivated** (85*)	45	Two turning jackscrews, allen head, captivated** (85*)
99	Keying hardware, see options below. (Body material 2, 3 and 4 only)	99	Keying hardware, see options below. (Body material 2, 3 and 4 only)
	POLARIZATION / WIRING		POLARIZATION / WIRING
00	None	00	None
XX	For wiring codes, see page MA-3 & MA-4	XX	For wiring codes, see page MA-3 & MA-4

OPTIONS

PLUG	RECEPTACLE
KSXX Two turning jackscrews. See page MA-6 for keying options	KSXX Two turning jackscrews and interfacial sealing gasket. See page MA-6 for keying options
KPXX Two fixed jacknuts. See page MA-6 for keying options	KPXX Two fixed jacknuts and interfacial sealing gasket. See page MA-6 for keying options

** = Captive hardware is factory installed and non-removable.

☒ = Option not RoHS compliant

NOTE 1 = The leads on these contacts are soft copper suitable for forming.

Ask About AirBorn's Accelerated Delivery Service

Cable to Cable (Jumper Assembly)

.050"

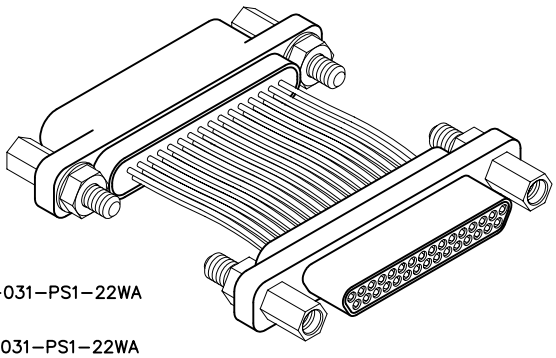
9 thru 51 Contacts

Low Profile Metal

MQ

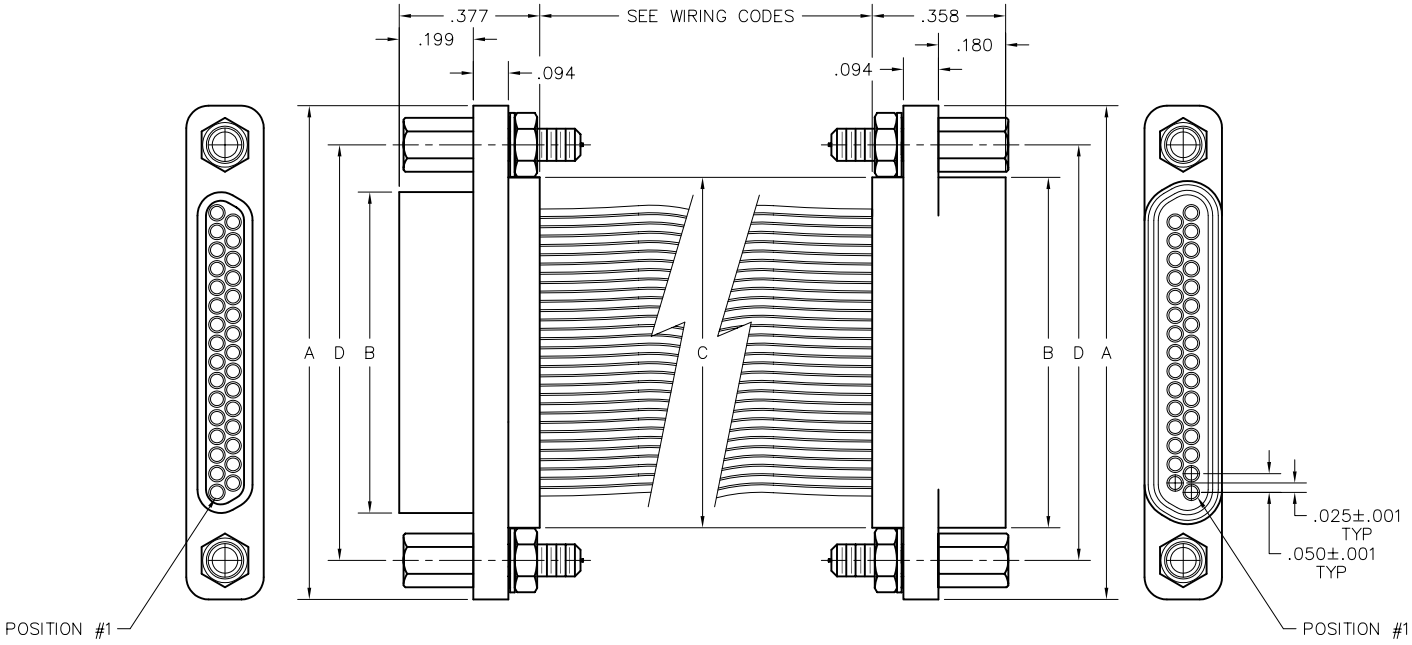
Low Profile Plastic

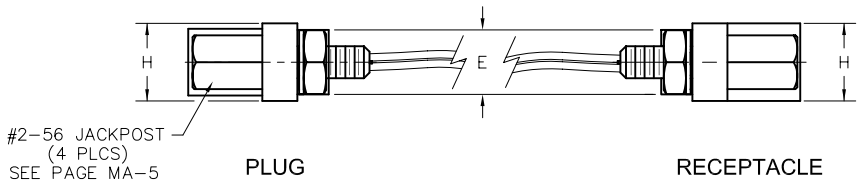
MP



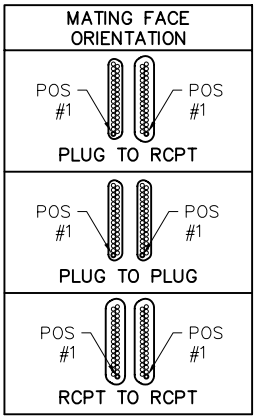
MQ–2J2–031–PS1–22WA
(METAL)

MP–2J1–031–PS1–22WA
(PLASTIC)





DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
9	2	.778	.292	.378	.398	.565	.173	.208	#2–56 UNC THD (.092 DIA THRU)
15		.928	.442	.528	.548	.715			
21		1.078	.592	.678	.698	.865			
25		1.178	.692	.778	.798	.965			
31		1.328	.842	.928	.948	1.115			
37		1.478	.992	1.078	1.098	1.265			
51	3	1.428	.942	1.028	1.048	1.215	.220	.250	



MQ– 2J2–031 – PS1–22WA
MP– 2J1 –031 – PS1–22WA
XX–XXX–XXX–XXX–XXXX–XXXX

SERIES

MQ .050" Low Profile Metal I/O Connector
MP .050" Low Profile Plastic I/O Connector
(MQ & MP mate with MP, MQ, MR, MS receptacles)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51)

BODY STYLE:
J Jumper assembly, straight, with ears

BODY MATERIAL:
1 Polyphenylene Sulfide (MP only)
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4 Polyphenylene Sulfide with hard anodized black shell

SIZE

XXX 009, 015, 021, 025, 031, 037, 051

CONTACTS

TYPE CONTACTS/TERMINATIONS:
PP Plug to plug
PS Plug to receptacle
SS Receptacle to receptacle

PLATING OPTIONS:
1 50 µ" Au contacts (crimp wire)

HARDWARE

STYLE OF HARDWARE:
00 None
22 Four fixed jacknut assemblies
41 Four turning jackscrews, allen head, retaining ring
43 Four turning jackscrews, slot head, retaining ring
45 Four turning jackscrews, allen head, captivated**
46 Two fixed jacknuts and two turning jackscrews, allen head, uninstalled
47 Two fixed jacknuts and two turning jackscrews, slot head, uninstalled
99 Keying hardware, see options below. (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
XX For wiring codes, see page MA-3 & MA-4

OPTIONS

KSXX Four turning jackscrews. See page MA-6 for keying options
KPXX Four fixed jacknuts. See page MA-6 for keying options

** = Captive hardware is factory installed and non-removable.
☒ = Option not RoHS compliant

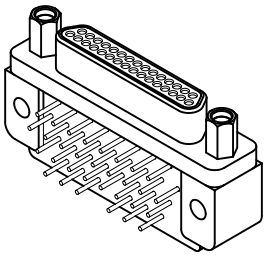
Right Angle Boardmount (Narrow Footprint)

.050"

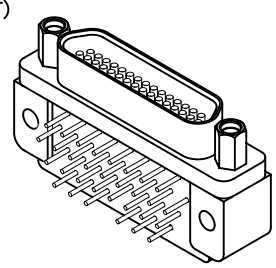
9 thru 100 Contacts

MK, ML

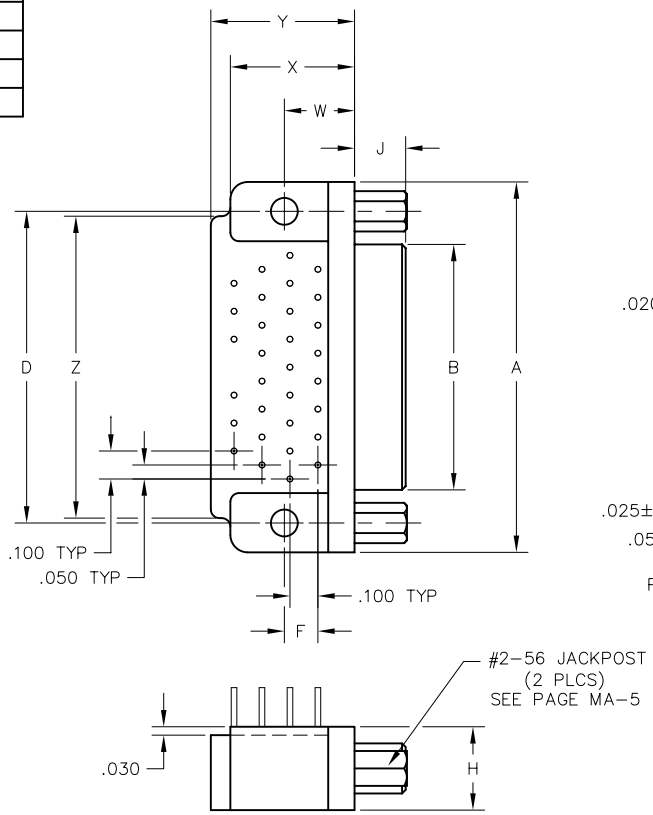
MK–252–031–335–220S
(PLUG)

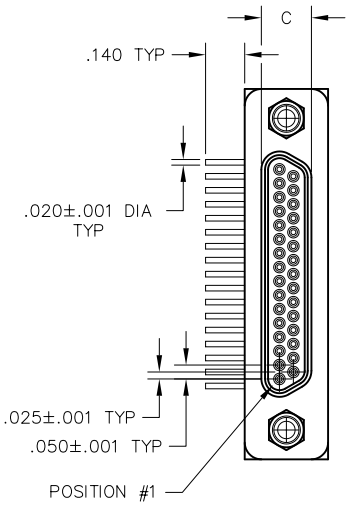


MK–262–031–445–220S
(RCPT)



MATING MATRIX	
CONNECTOR	MATES WITH
MK-25...	MK, ML, MM, MN receptacles
ML-25...	MK, ML, MM, MN receptacles
MK-26..	MK, ML, MM, MN plugs
ML-26..	MK, ML, MM, MN plugs





(PLUG SHOWN)

DIMENSIONS																	
SIZE	CONTACT ROWS	A	B		C		D	F	H	J		W	X MAX	Y MAX	Z	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX				PLUG	RCPT						
9	2	.775	.334	.400	.185	.251	.565	.020	.298	.183	.195	.250	.420	.420	.775	#2–56 UNC THD	.096 DIA OR #2–56 UNC THREADED INSERT
15		.925	.484	.550			.715	.120							.925		
21		1.075	.634	.700			.865								1.075		
25		1.175	.734	.800			.965								1.175		
31		1.325	.884	.950			1.115						.450	.520	1.080		
37		1.475	1.034	1.100			1.265								1.180		
51	3	1.425	.984	1.050	.228	.294	1.215	.150	.341			.300	.430	.650	1.220		
69		1.725	1.284	1.350			1.515							.755	1.450		
100	4	2.160	1.384	1.508	.271	.394	1.800	.200	.384			.400	.590	1.000	1.810	#4–40 UNC THD	.125 DIA
																	#2–56 UNC INSERT
																	#4–40 UNC INSERT

PLUG: MK–252–031–335–220S
RECEPTACLE: MK–262–031–445–220S

XX–XXX–XXX–XXX–XXXX–XXX

SERIES | BODY | SIZE | CONTACTS | HARDWARE | OPTIONS

PLUG

SERIES

MK .050" Rugged Metal PC Board Mount Connector
ML .050" Rugged Plastic PC Board Mount Connector
(MK & ML mate with MK, ML, MM, MN, receptacles)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69***)
4 4-Row (Size 100)

BODY STYLE:
5 Plug, right angle, narrow footprint, w/ mounting holes

BODY MATERIAL:
1 Polyphenylene Sulfide (ML only)
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"
34 Pin, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts: Sn/Pb alloy terminations ☒
7 50 µ" Au contacts: SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts (62*)
41 Two turning jackscrews, allen head, retaining ring****(81*)
99 Keying hardware, see options below (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts (KN*)
94P Mil-Spec footprint (size 100 only), standard body polarization
0B7 #2-56 threaded inserts, standard body polarization
0BJ Mil-Spec footprint (size 100 only) with #2-56 threaded inserts, standard body polarization
0H7 #4-40 threaded inserts (size 100 only), standard body polarization
0H6 Mil-Spec footprint (size 100 only) with #4-40 threaded inserts, standard body polarization

NOTES

See page MA-6 for keying options
* = Use numbers in parenthesis when ordering size 100.
*** = 69 position connectors are available in metal only.
**** = Connector body has no mounting holes.
☒ = Option not RoHS compliant

RECEPTACLE

SERIES

MK .050" Rugged Metal PC Board Mount Connector
ML .050" Rugged Plastic PC Board Mount Connector
(MK & ML mate with MK, ML, MM, MN plugs)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69***)
4 4-Row (Size 100)

BODY STYLE:
6 Receptacle, right angle, narrow footprint, w/ mounting holes

BODY MATERIAL:
1 Polyphenylene Sulfide (ML only)
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
43 Socket, right angle, PCB leads, .109"
44 Socket, right angle, PCB leads, .140"
45 Socket, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts: Sn/Pb alloy terminations ☒
7 50 µ" Au contacts: SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts (62*)
41 Two turning jackscrews, allen head, retaining ring****(81*)
99 Keying hardware, see options below (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts (KN*) and interfacial sealing gasket.
900 Interfacial sealing gasket
0B7 #2-56 Threaded inserts and interfacial sealing gasket standard body polarization
0H7 #4-40 threaded inserts (size 100 only), and interfacial sealing gasket, standard body polarization

NOTES

See page MA-6 for keying options
* = Use numbers in parenthesis when ordering size 100.
*** = 69 position connectors are available in metal only.
**** = Connector body has no mounting holes.
☒ = Option not RoHS compliant

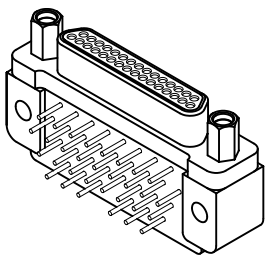
Right Angle Boardmount (Thru Clearance Cut)

.050"

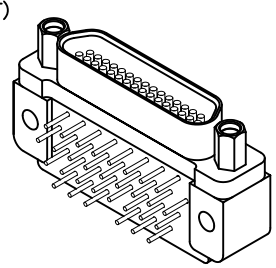
9 thru 100 Contacts

MK

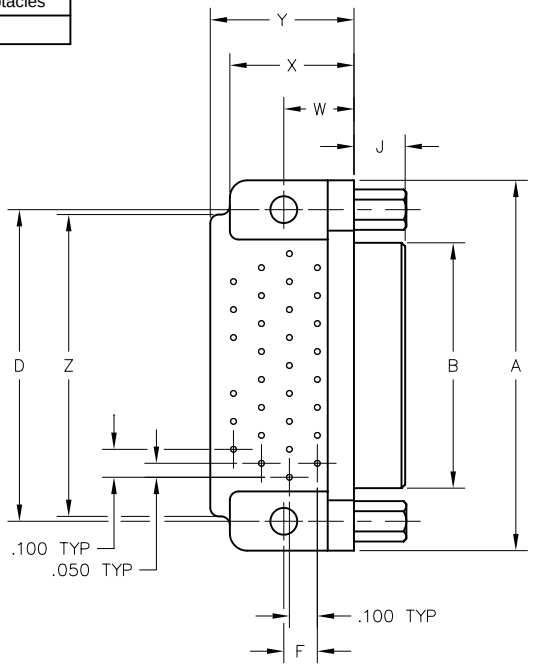
MK-2R2-031-335-220S
(PLUG)

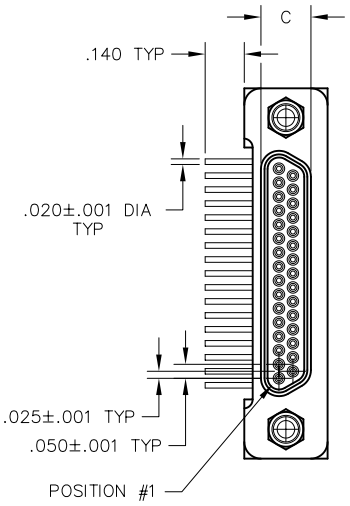


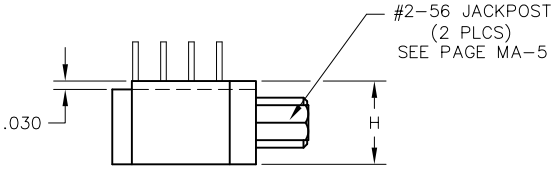
MK-2S2-031-445-220S
(RCPT)



MATING MATRIX	
CONNECTOR	MATES WITH
MK-2R...	MK, ML, MM, MN receptacles
MK-2S..	MK, ML, MM, MN plugs







(PLUG SHOWN)

DIMENSIONS																	
SIZE	CONTACT ROWS	A	B		C		D	F	H	J		W	X MAX	Y MAX	Z	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX				PLUG	RCPT						
9	2	.775	.334	.400	.185	.251	.565	.020	.298	.183	.195	.250	.420	.420	.775	#2-56 UNC THD	.096 DIA OR #2-56 UNC THREADED INSERT
15		.925	.484	.550			.715	.120							.925		
21		1.075	.634	.700			.865								1.075		
25		1.175	.734	.800			.965								1.175		
31		1.325	.884	.950			1.115						.450	.520	1.080		
37		1.475	1.034	1.100			1.265								1.180		
51	3	1.425	.984	1.050	.228	.294	1.215	.150	.341			.300	.430	.650	1.220		
69		1.725	1.284	1.350			1.515							.755	1.450		

PLUG: MK–2R2–031–335–220S
RECEPTACLE: MK–2S2–031–445–220S

XX–XXX–XXX–XXX–XXXX–XXX

SERIES | BODY | SIZE | CONTACTS | HARDWARE | OPTIONS

PLUG

SERIES

MK .050" Rugged Metal PC Board Mount Connector
(MK mates with MK, ML, MM, MN, receptacles)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)

BODY STYLE: Blind Cut
R Plug, right angle (thru clearance cut), narrow footprint, w/ mounting holes

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069

CONTACTS

TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"
34 Pin, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50 µ" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts
41 Two turning jackscrews, allen head, retaining ring****
99 Keying hardware, see options below (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts
0B7 Threaded inserts, standard body polarization

NOTES

See page MA-6 for keying options
**** = Connector body has no mounting holes.
☒ = Option not RoHS compliant

RECEPTACLE

SERIES

MK .050" Rugged Metal PC Board Mount Connector
(MK mates with MK, ML, MM, MN plugs)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)

BODY STYLE: Blind Cut
S Receptacle, right angle (thru clearance cut), narrow footprint, w/ mounting holes

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069

CONTACTS

TYPE CONTACTS/TERMINATIONS:
43 Socket, right angle, PCB leads, .109"
44 Socket, right angle, PCB leads, .140"
45 Socket, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50 µ" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts
41 Two turning jackscrews, allen head, retaining ring****
99 Keying hardware, see options below (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts and interfacial sealing gasket.
900 Interfacial sealing gasket
0B7 Threaded inserts and interfacial sealing gasket, standard body polarization.

NOTES

See page MA-6 for keying options
**** = Connector body has no mounting holes.
☒ = Option not RoHS compliant

Ask About AirBorn's Accelerated Delivery Service

Right Angle Boardmount (Blind Clearance Cut)

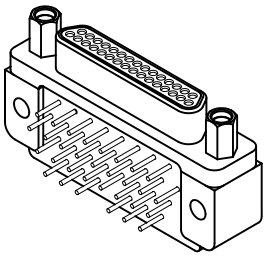
.050"

9 thru 100 Contacts

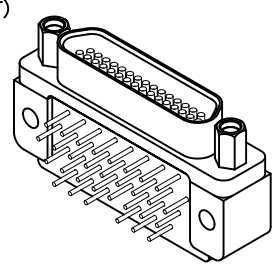
MK

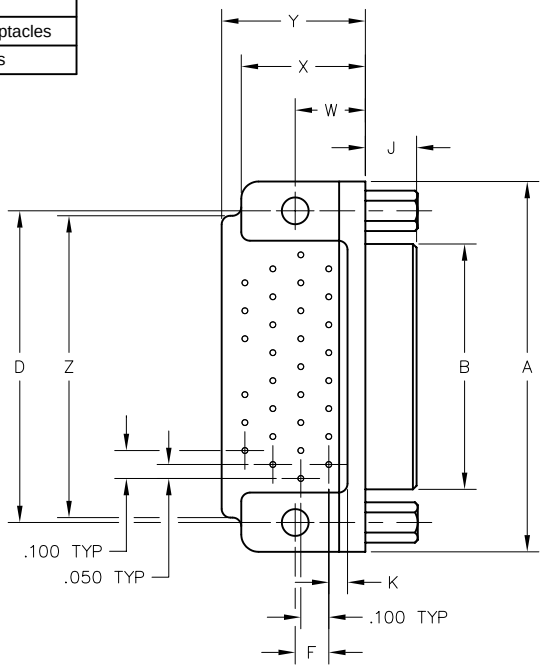
MATING MATRIX	
CONNECTOR	MATES WITH
MK-2T...	MK, ML, MM, MN receptacles
MK-2V..	MK, ML, MM, MN plugs

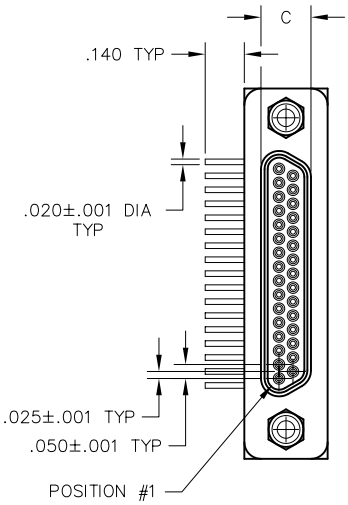
MK-2T2-031-335-220S
(PLUG)

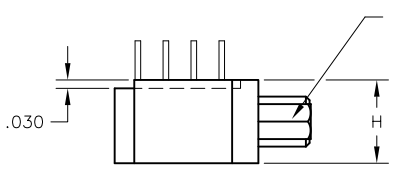


MK-2V2-031-445-220S
(RCPT)









(PLUG SHOWN)

DIMENSIONS																		
SIZE	CONTACT ROWS	A	B		C		D	F	H	J		K	W	X MAX	Y MAX	Z	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX				PLUG	RCPT							
9	2	.775	.334	.400	.185	.251	.565	.120	.298	.183	.195	.067	.250	.420	.420	.775	#2-56 UNC THD	.096 DIA OR #2-56 UNC THREADED INSERT
15		.925	.484	.550			.715									.925		
21		1.075	.634	.700			.865									1.075		
25		1.175	.734	.800			.965									1.175		
31		1.325	.884	.950			1.115							.450	.520	1.080		
37		1.475	1.034	1.100			1.265									1.180		
51	3	1.425	.984	1.050	.228	.294	1.215	.150	.341			.087	.300	.430	.650	1.220		
69		1.725	1.284	1.350			1.515								.755	1.450		
100	4	2.160	1.384	1.508	.271	.394	1.800	.200	.384			.137	.400	.590	1.000	1.810	#4-40 UNC THD	.125 DIA
																		#2-56 UNC INSERT
																		#4-40 UNC INSERT

PLUG: MK–2T2–031–335–220S
RECEPTACLE: MK–2V2–031–445–220S

XX–XXX–XXX–XXX–XXXX–XXX

SERIES | BODY | SIZE | CONTACTS | HARDWARE | OPTIONS

PLUG

SERIES

MK .050" Rugged Metal PC Board Mount Connector
(MK mates with MK, ML, MM, MN, receptacles)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)
4 4-Row (Size 100)

BODY STYLE: Blind Cut
T Plug, right angle (blind clearance cut), narrow footprint, w/ mounting holes

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"
34 Pin, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50 µ" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts (62*)
41 Two turning jackscrews, allen head, retaining ring****(81*)
99 Keying hardware, see options below (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts (KN*)
94P Mil-Spec footprint (size 100 only), standard body polarization
0B7 #2-56 threaded inserts, standard body polarization
0BJ Mil-Spec footprint (size 100 only) with #2-56 threaded inserts, standard body polarization
0H7 #4-40 threaded inserts (size 100 only), standard body polarization
0H6 Mil-Spec footprint (size 100 only) with #4-40 threaded inserts, standard body polarization

NOTES

See page MA-6 for keying options
* = Use numbers in parenthesis when ordering size 100.
**** = Connector body has no mounting holes.
☒ = Option not RoHS compliant

RECEPTACLE

SERIES

MK .050" Rugged Metal PC Board Mount Connector
(MK mates with MK, ML, MM, MN plugs)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)
4 4-Row (Size 100)

BODY STYLE: Blind Cut
V Receptacle, right angle (blind clearance cut), narrow footprint, w/ mounting holes

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
43 Socket, right angle, PCB leads, .109"
44 Socket, right angle, PCB leads, .140"
45 Socket, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50,u" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts (62*)
41 Two turning jackscrews, allen head, retaining ring****(81*)
99 Keying hardware, see options below (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts (KN*) and interfacial sealing gasket.
900 Interfacial sealing gasket
0B7 #2-56 Threaded inserts and interfacial sealing gasket, standard body polarization
0H7 #4-40 threaded inserts (size 100 only), and interfacial sealing gasket, standard body polarization

NOTES

See page MA-6 for keying options
* = Use numbers in parenthesis when ordering size 100.
**** = Connector body has no mounting holes.
☒ = Option not RoHS compliant

Board (Narrow Footprint) to Flex Cable

.050"

9 thru 100 Contacts

Rugged Board Mount

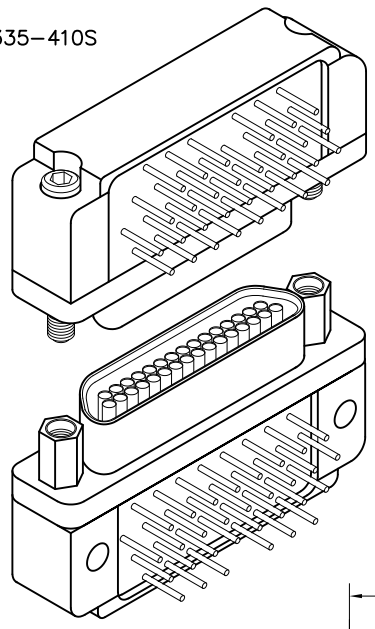
MK, ML

Flex Cable

MK, ML

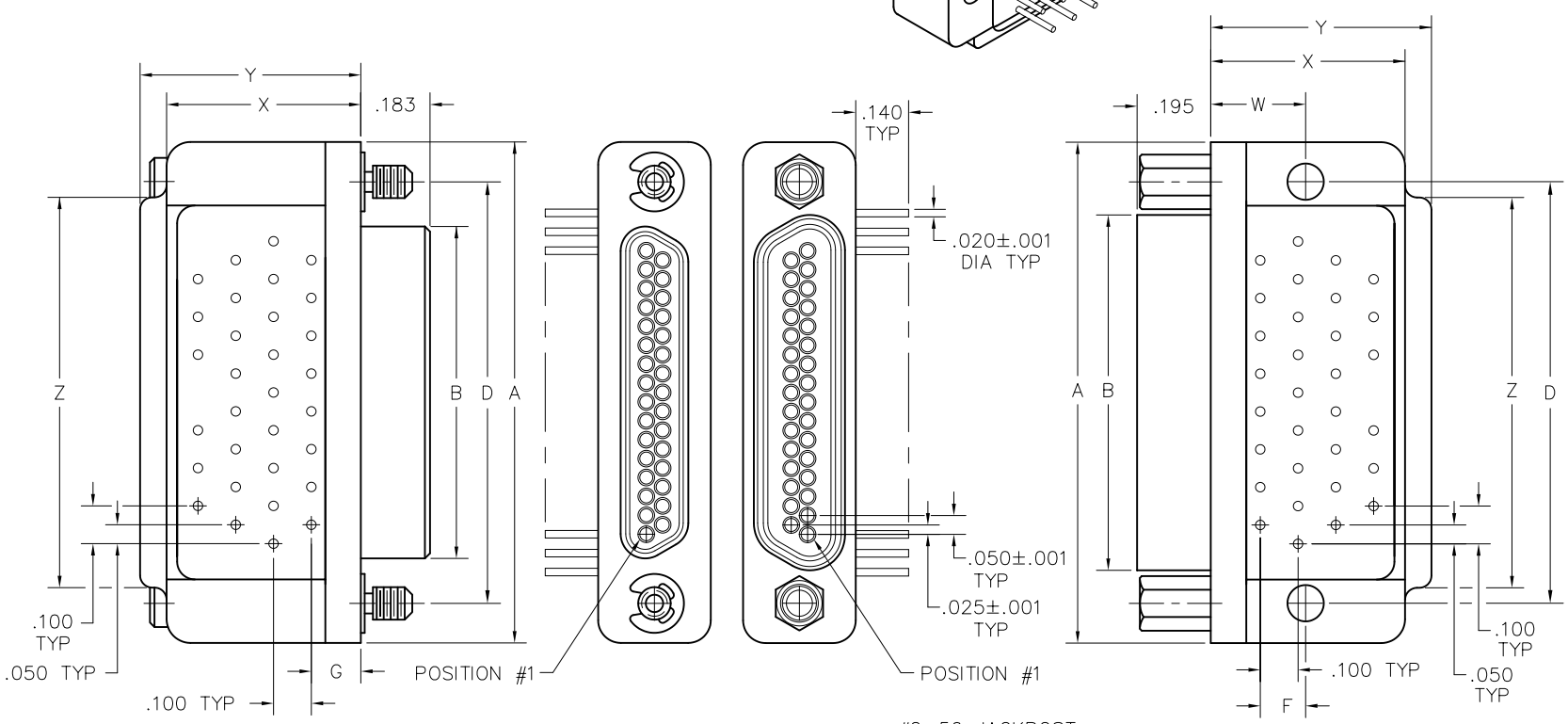
MK–253–031–335–410S
(METAL)

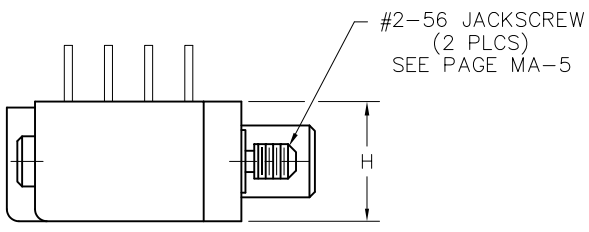
ML–251–031–335–410S
(PLASTIC)



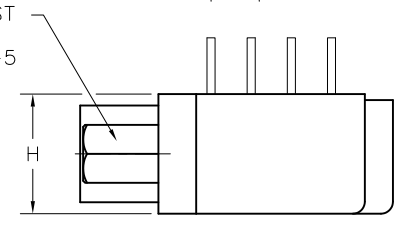
MK–263–031–445–220S
(METAL)

ML–261–031–445–220S
(PLASTIC)





PLUG



RECEPTACLE

DIMENSIONS														
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	D	F	G	H	W	X MAX	Y MAX	Z	HARDWARE	MOUNTING HOLE
9	2	.775	.334	.400	.565	.020	.230	.298	.250	.420	.420	.775	#2–56 UNC THD	.096 DIA OR #2–56 UNC THREADED INSERT
15		.925	.484	.550	.715	.120	.130					.925		
21		1.075	.634	.700	.865							1.075		
25		1.175	.734	.800	.965							1.175		
31		1.325	.884	.950	1.115					.450	.520	1.080		
37		1.475	1.034	1.100	1.265							1.180		
51	3	1.425	.984	1.050	1.215	.150	.150	.341	.300	.430	.650	1.220		
69*		1.725	1.284	1.350	1.515						.755	1.450		
100	4	2.160	1.384	1.508	1.800	.200	.200	.384	.400	.590	1.000	1.810	#4–40 UNC THD	.125 DIA OR #2–56 UNC THREADED INSERT

* = 69 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.

AirBorn

PLUG: MK–253–031–335–410S
RECEPTACLE: MK–263–031–445–220S
PLUG: ML–251–031–335–410S
RECEPTACLE: ML–261–031–445–220S

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MK .050" Rugged Metal PC Board Mount Connector ML .050" Rugged Plastic PC Board Mount Connector (MK & ML mate with MK, ML, MM, MN receptacles)	MK .050" Rugged Metal PC Board Mount Connector ML .050" Rugged Plastic PC Board Mount Connector (MK & ML mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69***) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69***) 4 4-Row (Size 100)
BODY STYLE: 5 Plug, right angle, narrow footprint, w/ mtg holes	BODY STYLE: 6 Receptacle, right angle, narrow footprint, w/ mtg holes
BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Electroless nickel shell w/ PPS insulator 3 Electrodeposited cadmium shell w/ PPS insulator ☒ 4 Hard anodized black shell w/ PPS insulator 5 Stainless steel shell w/ PPS insulator	BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Electroless nickel shell w/ PPS insulator 3 Electrodeposited cadmium shell w/ PPS insulator ☒ 4 Hard anodized black shell w/ PPS insulator 5 Stainless steel shell w/ PPS insulator
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 32 Pin, right angle, PCB leads, .109" 33 Pin, right angle, PCB leads, .140" 34 Pin, right angle, PCB leads, .172"	TYPE CONTACTS/TERMINATIONS: 43 Socket, right angle, PCB leads, .109" 44 Socket, right angle, PCB leads, .140" 45 Socket, right angle, PCB leads, .172"
PLATING OPTIONS: 3 50 µ" Au contacts: Au terminations 5 50 µ" Au contacts: Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts: SAC305 terminations	PLATING OPTIONS: 3 50 µ" Au contacts: Au terminations 5 50 µ" Au contacts: Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts: SAC305 terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring**** (81*)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring**** (81*)
POLARIZATION / WIRING: 0R Reversed body polarization 0S Standard body polarization	POLARIZATION / WIRING 0R Reversed body polarization 0S Standard body polarization
OPTIONS	
94P Mil-Spec footprint (size 100 only) Standard body polarization 0B7 Threaded inserts, standard body polarization 0BJ Mil-Spec footprint (size 100 only) with threaded inserts, standard body polarization	900 Interfacial sealing gasket 0B7 Threaded inserts and interfacial sealing gasket, standard body polarization

* = Use numbers in parenthesis when ordering size 100.
*** = 69 position connectors are available in metal only.
**** = Connector body has no mounting holes.

☒ = Option not RoHS compliant

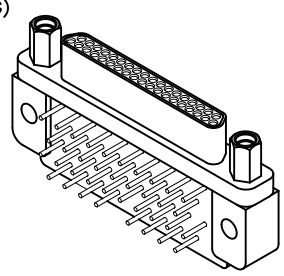
Right Angle Boardmount Low Profile (Narrow Footprint)

.050"

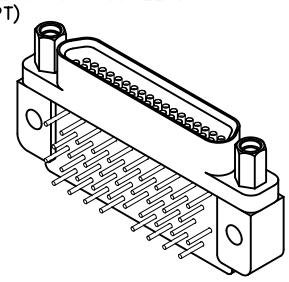
9 thru 51 Contacts

MS, MR

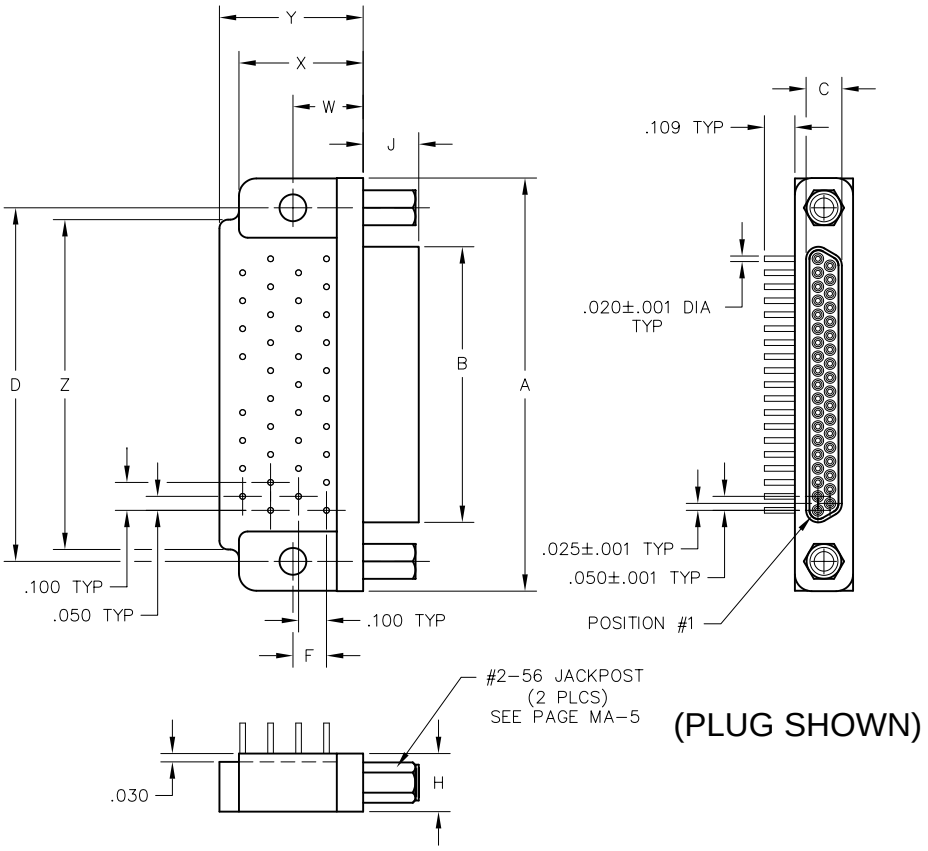
MS–253–037–325–220S
(PLUG)



MS–263–037–435–220S
(RCPT)



MATING MATRIX	
CONNECTOR	MATES WITH
MS-25...	MP, MQ, MR, MS receptacles
MR-25...	MP, MQ, MR, MS receptacles
MS-26..	MP, MQ, MR, MS plugs
MR-26..	MP, MQ, MR, MS plugs



(PLUG SHOWN)

DIMENSIONS																	
SIZE	CONTACT ROWS	A	B		C		D	F	H	J		W	X MAX	Y MAX	Z	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX				PLUG	RCPT						
9	2	.778	.292	.378	.134	.218	.565	.120	.208	.199	.180	.250	.420	.420	.775	#2–56 UNC THD	.096 DIA OR #2–56 UNC THREADED INSERT
15		.928	.442	.528			.715								.925		
21		1.078	.592	.678			.865								1.075		
25		1.178	.692	.778			.965								1.175		
31		1.328	.842	.928			1.115						.450	.520	1.080		
37		1.478	.992	1.078			1.265								1.180		
51	3	1.428	.942	1.028	.177	.260	1.215	.150	.250			.300	.425	.650	1.220		

PLUG: MS–253–037–325–220S
RECEPTACLE: MS–263–037–435–220S

XX–XXX–XXX–XXX–XXXX–XXX

SERIES	BODY	SIZE	CONTACTS	HARDWARE	OPTIONS

PLUG

SERIES

MS .050" Low Profile Metal PC Board Mount Connector
MR .050" Low Profile Plastic PC Board Mount Connector
(MS & MR mate with MP, MQ, MR, MS, receptacles)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51)

BODY STYLE:
5 Plug, right angle, narrow footprint, w/ mounting holes

BODY MATERIAL:
1 Polyphenylene Sulfide (MR only)
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051

CONTACTS

TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"
34 Pin, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50 µ" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts
41 Two turning jackscrews, allen head, retaining ring*
99 Keying hardware, see options below (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts
905 Threaded inserts

NOTES

See page MA-6 for keying options
* = Connector body has no mounting holes.
☒ = Option not RoHS compliant

RECEPTACLE

SERIES

MS .050" Low Profile Metal PC Board Mount Connector
MR .050" Low Profile Plastic PC Board Mount Connector
(MS & MR mate with MP, MQ, MR, MS plugs)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51)

BODY STYLE:
6 Receptacle, right angle, narrow footprint, w/ mounting holes

BODY MATERIAL:
1 Polyphenylene Sulfide (MR only)
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051

CONTACTS

TYPE CONTACTS/TERMINATIONS:
43 Socket, right angle, PCB leads, .109"
44 Socket, right angle, PCB leads, .140"
45 Socket, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50,u" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts
41 Two turning jackscrews, allen head, retaining ring*
99 Keying hardware, see options below (Body material 2, 3 and 4 only)

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts
905 Threaded inserts

NOTES

See page MA-6 for keying options
* = Connector body has no mounting holes.
☒ = Option not RoHS compliant

Right Angle Boardmount Low Profile (Blind Clearance Cut)

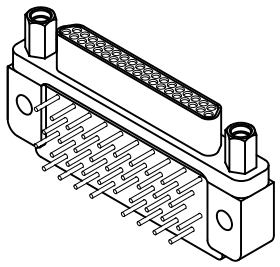
.050"

9 thru 51 Contacts

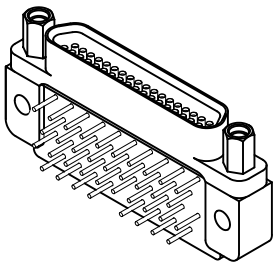
MS

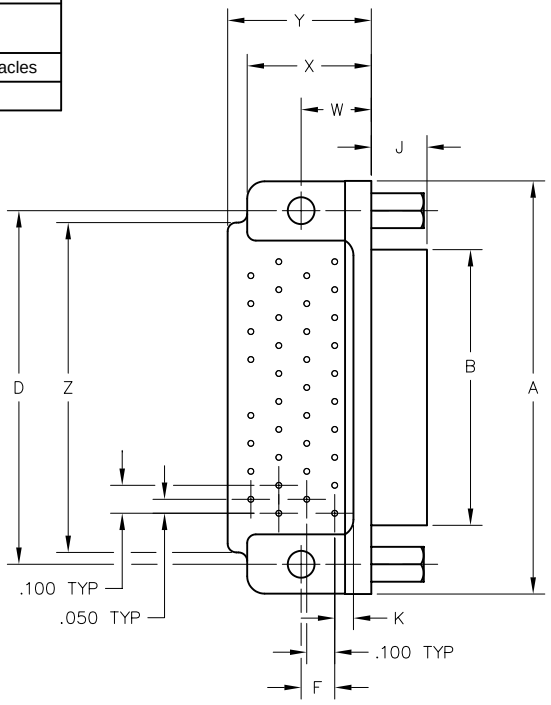
MATING MATRIX	
CONNECTOR	MATES WITH
MS-2T...	MP, MQ, MR, MS receptacles
MS-2V..	MP, MQ, MR, MS plugs

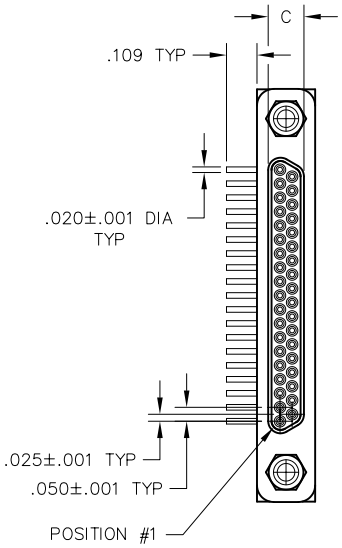
MS–2T3–037–325–220S
(PLUG)

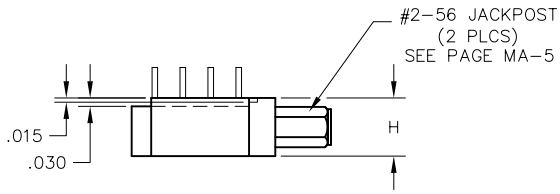


MS–2V3–037–435–220S
(RCPT)









(PLUG SHOWN)

DIMENSIONS																		
SIZE	CONTACT ROWS	A	B		C		D	F	H	J		K	W	X MAX	Y MAX	Z	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX				PLUG	RCPT							
9	2	.778	.292	.378	.134	.218	.565	.020	.208	.199	.180	.067	.250	.420	.420	.775	#2–56 UNC THD	.096 DIA OR #2–56 UNC THREADED INSERT
15		.928	.442	.528			.715	.120								.925		
21		1.078	.592	.678			.865									1.075		
25		1.178	.692	.778			.965									1.175		
31		1.328	.842	.928			1.115							.450	.520	1.080		
37		1.478	.992	1.078			1.265									1.180		
51	3	1.428	.942	1.028	.177	.260	1.215	.150	.250			.087	.300	.425	.650	1.220		

PLUG: MS–2T3–037–325–220S
RECEPTACLE: MS–2V3–037–435–220S

XX–XXX–XXX–XXX–XXXX–XXX

SERIES | BODY | SIZE | CONTACTS | HARDWARE | OPTIONS

PLUG

SERIES

MS .050" Low Profile Metal PC Board Mount Connector
(MS mates with MP, MQ, MR, MS, receptacles)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51)

BODY STYLE: Blind Cut
T Plug, right angle, narrow footprint, w/ mounting holes

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051

CONTACTS

TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"
34 Pin, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50 µ" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts
41 Two turning jackscrews, allen head, retaining ring*
99 Keying hardware, see options below

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts
905 Threaded inserts

NOTES

See page MA-6 for keying options
* = Connector body has no mounting holes.
☒ = Option not RoHS compliant

RECEPTACLE

SERIES

MS .050" Low Profile Metal PC Board Mount Connector
(MS mates with MP, MQ, MR, MS plugs)

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51)

BODY STYLE: Blind Cut
V Receptacle, right angle, narrow footprint, w/ mounting holes

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051

CONTACTS

TYPE CONTACTS/TERMINATIONS:
43 Socket, right angle, PCB leads, .109"
44 Socket, right angle, PCB leads, .140"
45 Socket, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50 µ" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts
41 Two turning jackscrews, allen head, retaining ring*
99 Keying hardware, see options below

POLARIZATION / WIRING:
0R Reversed body polarization
0S Standard body polarization

OPTIONS

KPXX Two fixed jacknuts
905 Threaded inserts

NOTES

See page MA-6 for keying options
* = Connector body has no mounting holes.
☒ = Option not RoHS compliant

Board (Narrow Footprint) to Flex Cable

.050"

9 thru 51 Contacts

Low Profile Board Mount

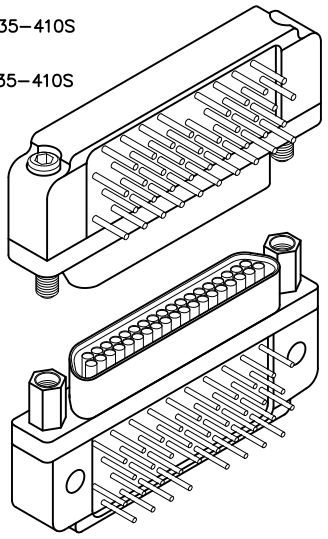
MS, MR

Flex Cable

MS, MR

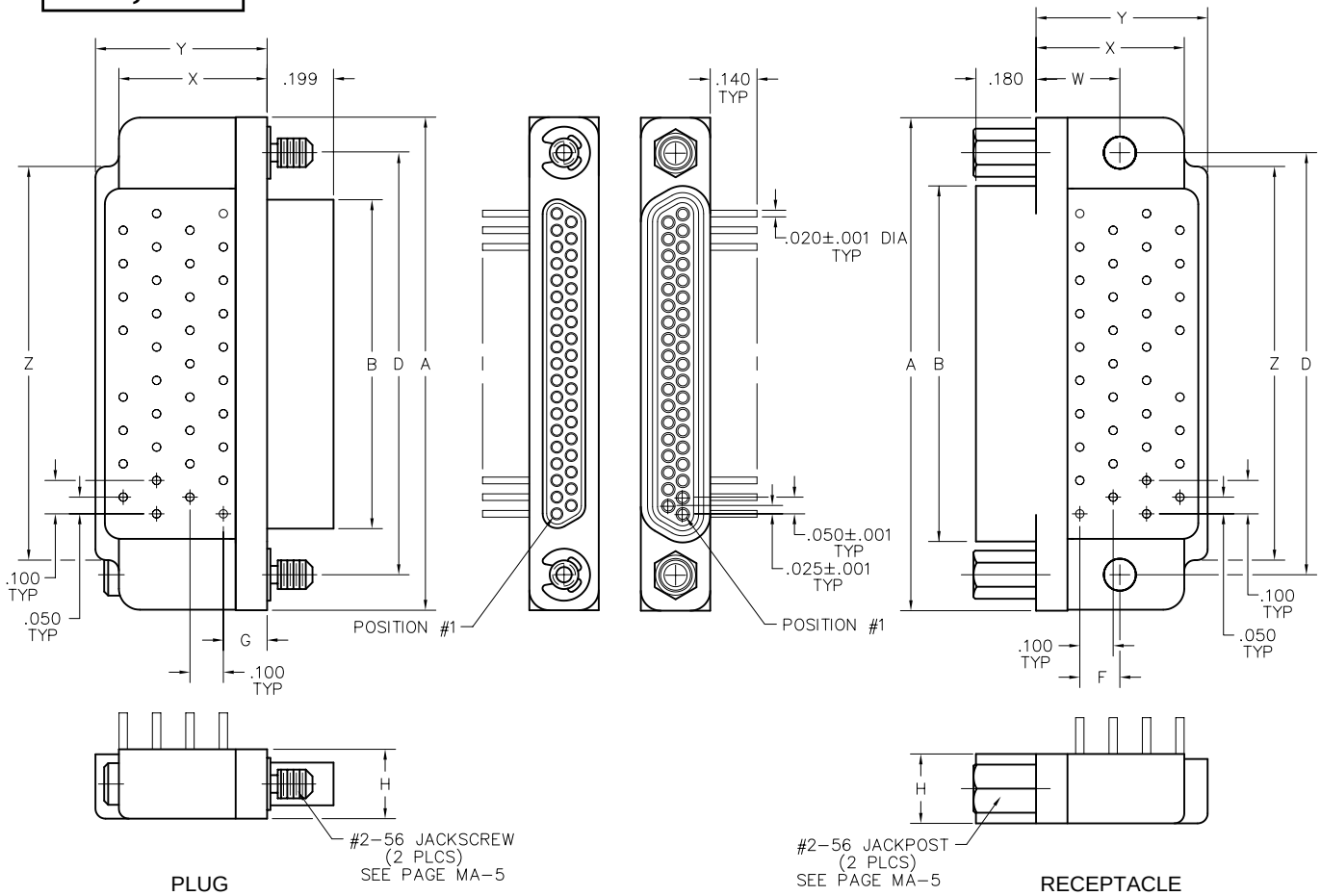
MS–253–037–335–410S
(METAL)

MR–251–037–335–410S
(PLASTIC)



MS–263–037–445–220S
(METAL)

MR–261–037–445–220S
(PLASTIC)



PLUG

RECEPTACLE

DIMENSIONS														
SIZE	CONTACT ROWS	A	B		D	F	G	H	W	X MAX	Y MAX	Z	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX										
9	2	.778	.292	.378	.565	.020	.230	.208	.250	.420	.420	.775	#2–56 UNC THD	.096 DIA THRU
15		.928	.442	.528	.715	.120	.130					.925		
21		1.078	.592	.678	.865							1.075		
25		1.178	.692	.778	.965							1.175		
31		1.328	.842	.928	1.115					.450	.520	1.080		
37		1.478	.992	1.078	1.265					.450		1.180		
51	3	1.428	.942	1.028	1.215	.150	.150	.250	.300	.425	.650	1.220		

AirBorn

PLUG: MS–253–037–335–410S
RECEPTACLE: MS–263–037–445–220S
PLUG: MR– 251–037–335–410S
RECEPTACLE: MR– 261–037–445–220S

XX–XXX–XXX–XXX–XXXX

PLUG	RECEPTACLE
SERIES	
MS .050" Low Profile Metal PC Board Mount Connector MR .050" Low Profile Plastic PC Board Mount Connector (MS & MR mate with MP, MQ, MR, MS receptacles)	MS .050" Low Profile Metal PC Board Mount Connector MR .050" Low Profile Plastic PC Board Mount Connector (MS & MR mate with MP, MQ, MR, MS plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51)
BODY STYLE: 5 Plug, right angle, narrow footprint, w/ mtg holes	BODY STYLE: 6 Receptacle, right angle, narrow footprint, w/ mtg holes
BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Electroless nickel shell w/ PPS insulator 3 Electrodeposited cadmium shell w/ PPS insulator ☒ 4 Hard anodized black shell w/ PPS insulator	BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Electroless nickel shell w/ PPS insulator 3 Electrodeposited cadmium shell w/ PPS insulator ☒ 4 Hard anodized black shell w/ PPS insulator
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051	XXX 009, 015, 021, 025, 031, 037, 051
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 32 Pin, right angle, PCB leads, .109" 33 Pin, right angle, PCB leads, .140" 34 Pin, right angle, PCB leads, .172"	TYPE CONTACTS/TERMINATIONS: 43 Socket, right angle, PCB leads, .109" 44 Socket, right angle, PCB leads, .140" 45 Socket, right angle, PCB leads, .172"
PLATING OPTIONS: 3 50 µ" Au contacts: Au terminations 5 50 µ" Au contacts: Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts: SAC305 terminations	PLATING OPTIONS: 3 50 µ" Au contacts: Au terminations 5 50 µ" Au contacts: Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts: SAC305 terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies 41 Two turning jackscrews, allen head, retaining ring	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies 41 Two turning jackscrews, allen head, retaining ring
POLARIZATION / WIRING: 0R Reversed body polarization 0S Standard body polarization	POLARIZATION / WIRING 0R Reversed body polarization 0S Standard body polarization

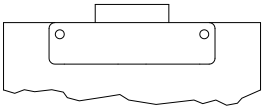
☒ = Option not RoHS compliant

Recommended PC Board Layout

Right Angle, Narrow Footprint
Standard Polarization



CONNECTOR MATING FACE

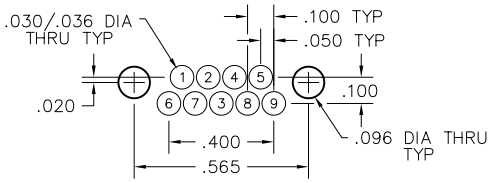


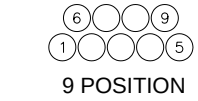
PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

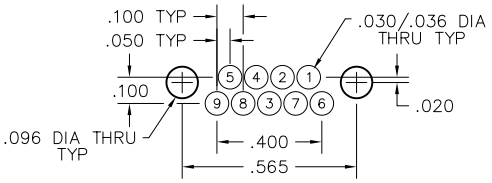
CONNECTOR
MATING FACE*
(RECEPTACLE)

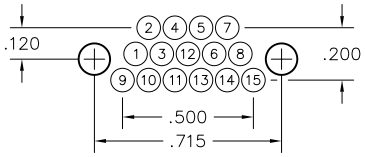
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

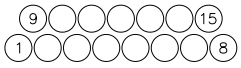




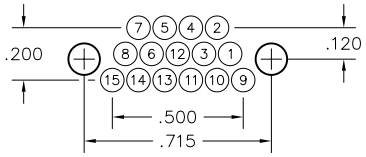
9 POSITION

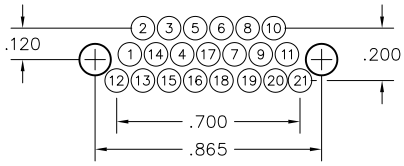






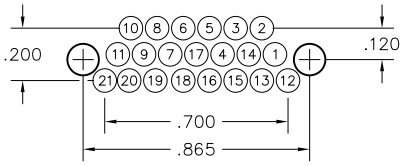
15 POSITION

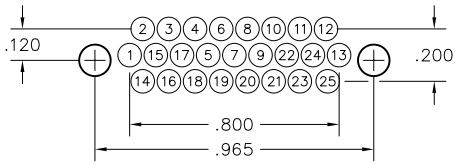






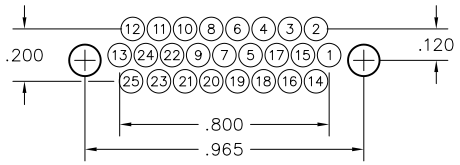
21 POSITION

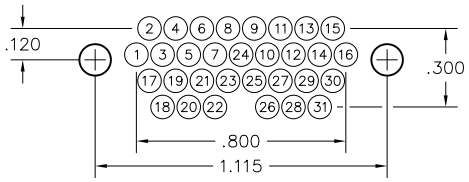






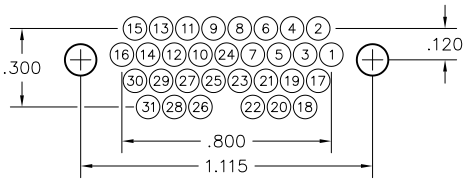
25 POSITION

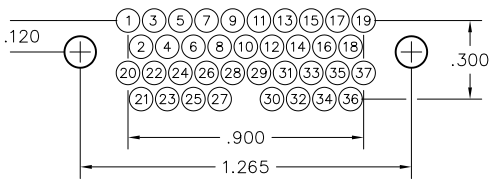






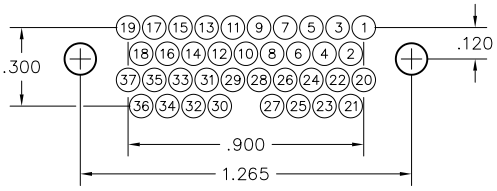
31 POSITION







37 POSITION

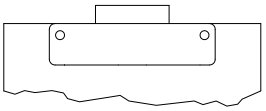


Recommended PC Board Layout

Right Angle, Narrow Footprint
Standard Polarization

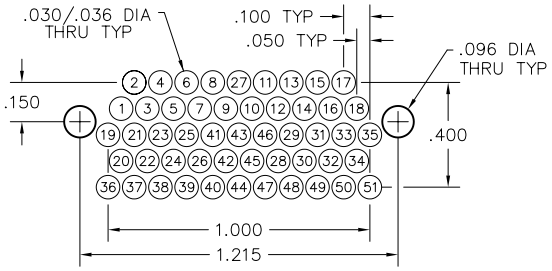


CONNECTOR MATING FACE



PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

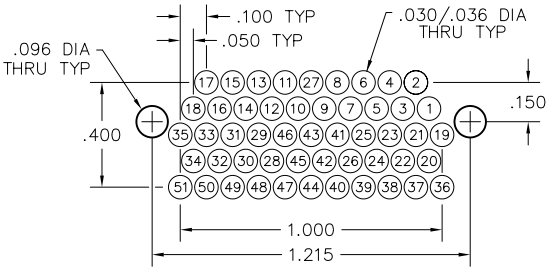


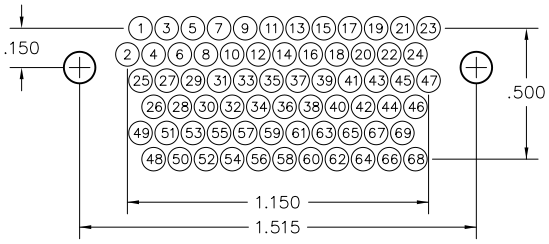
CONNECTOR MATING FACE* (RECEPTACLE)



51 POSITION

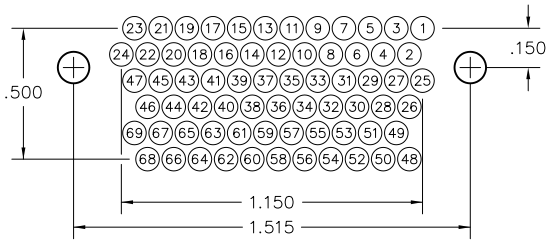
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

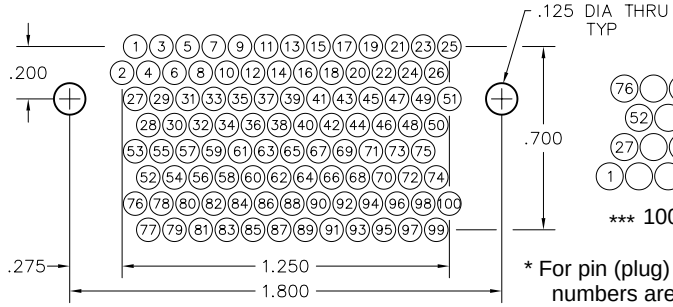


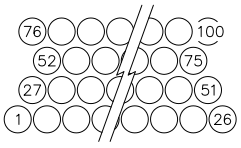




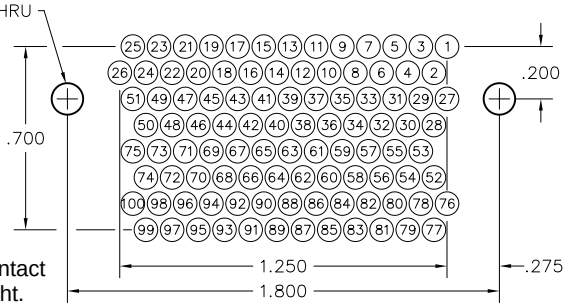
** 69 POSITION



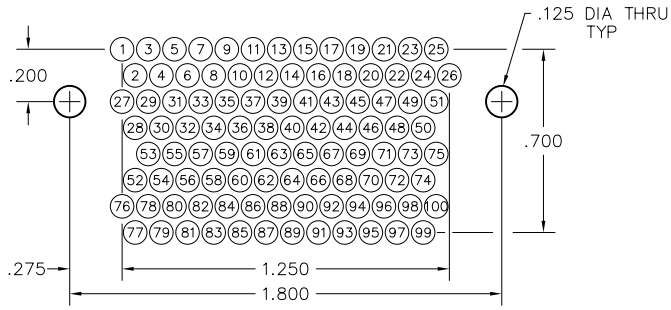




*** 100 POSITION



* For pin (plug) connectors, the contact numbers are reversed left to right.



Mil-Spec Footprint

For Mil-Spec footprint, use "Option" -94P

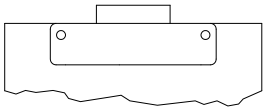
** = 69 and 100 positions not available in low profile (MS, MR)
*** = 100 position not available in thru-cut body style (R, S)

Recommended PC Board Layout

Right Angle, Narrow Footprint
Reverse Polarization



CONNECTOR MATING FACE

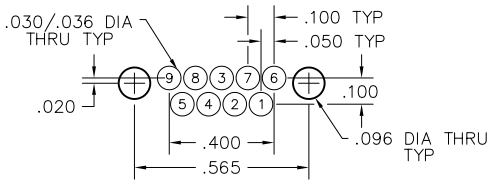


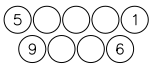
PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

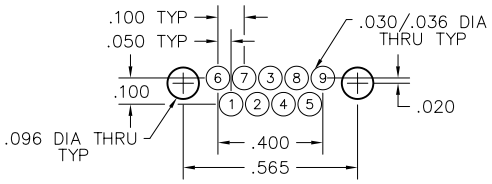
CONNECTOR MATING FACE* (RECEPTACLE)

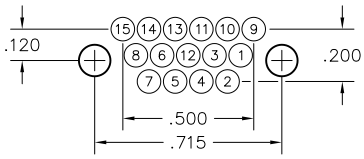
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

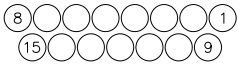




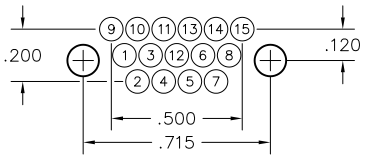
9 POSITION

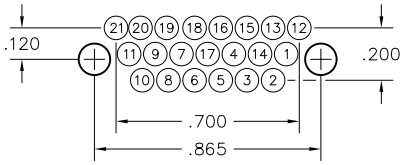






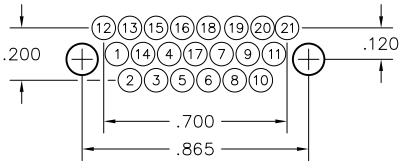
15 POSITION

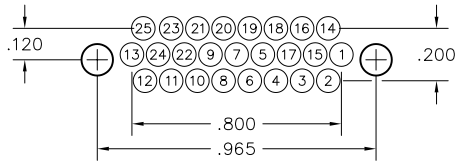






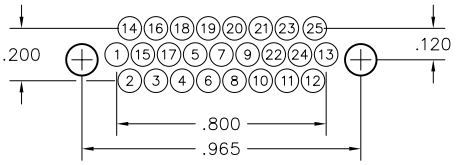
21 POSITION

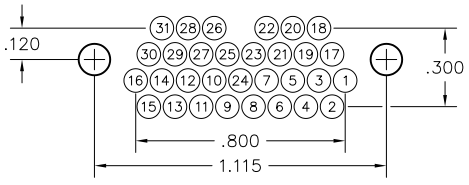






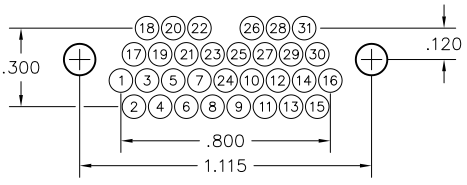
25 POSITION

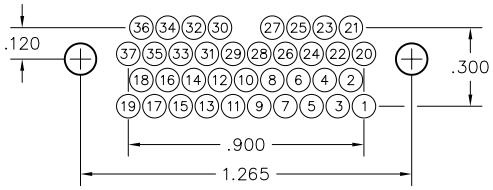






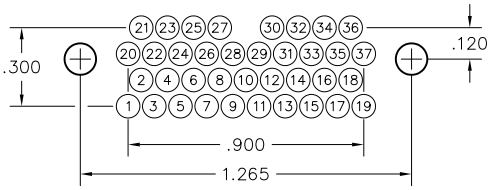
31 POSITION







37 POSITION



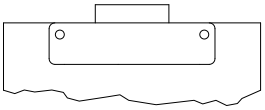
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Recommended PC Board Layout

Right Angle, Narrow Footprint
Reverse Polarization

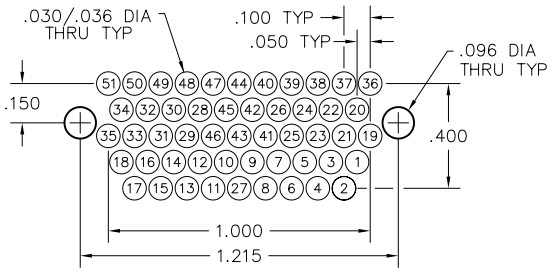


CONNECTOR MATING FACE



PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

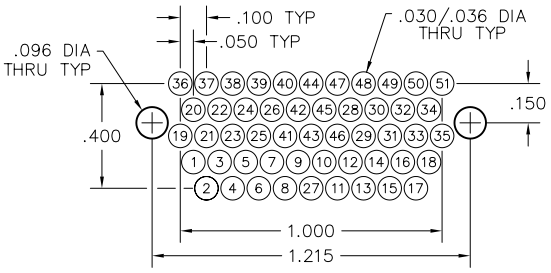


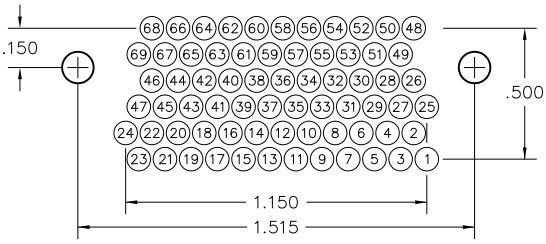
CONNECTOR MATING FACE* (RECEPTACLE)

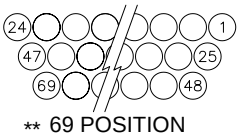


51 POSITION

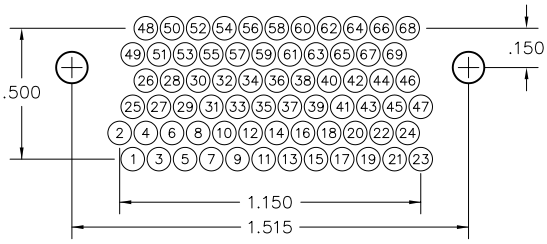
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

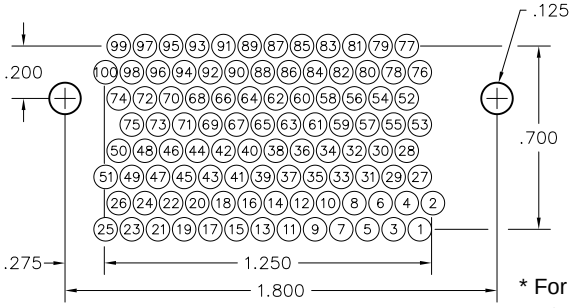


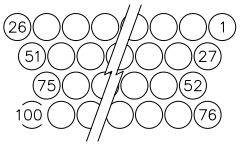




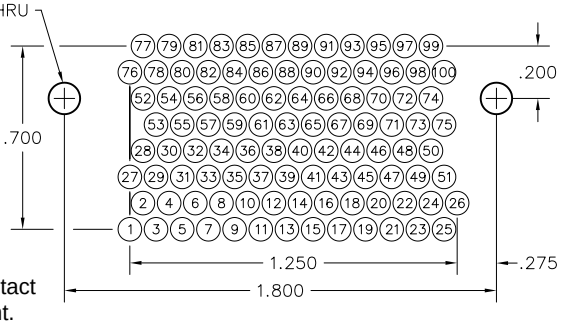
** 69 POSITION







*** 100 POSITION



* For pin (plug) connectors, the contact numbers are reversed left to right.

** = 69 and 100 positions not available in low profile (MS, MR)
*** = 100 position not available in thru-cut body style (R, S)

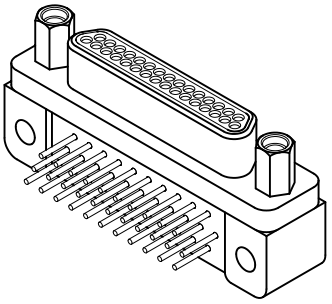
Right Angle Boardmount (Compressed Footprint)

.050"

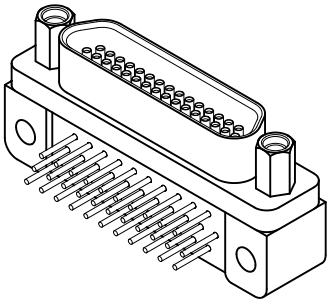
9 thru 100 Contacts

MK

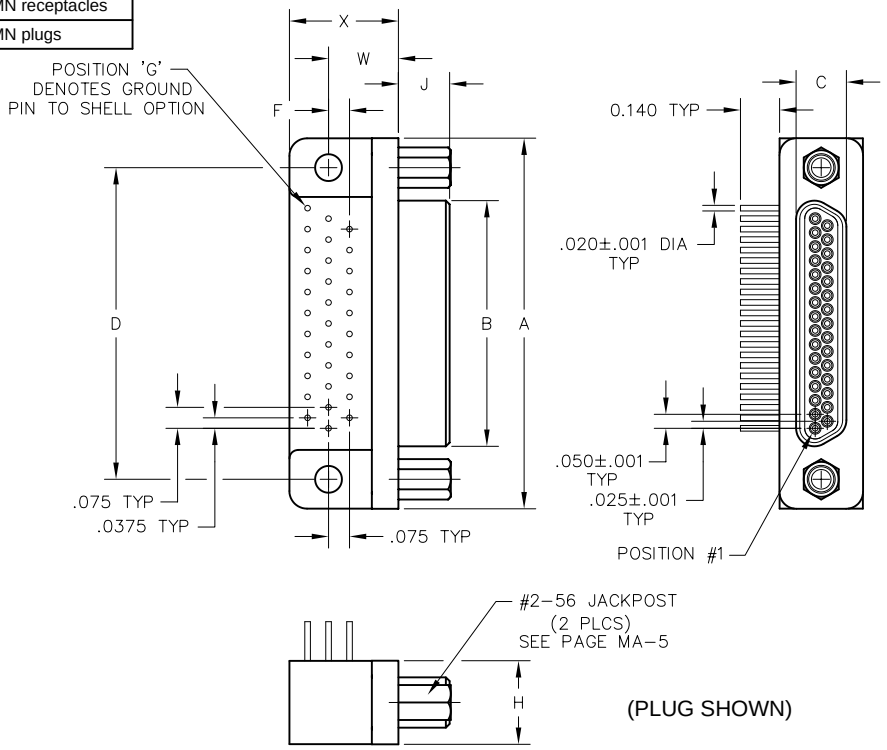
MK–2P2–031–A35–220S
(PLUG)



MK–2Q2–031–B45–220S
(RECEPTACLE)



MATING MATRIX	
CONNECTOR	MATES WITH
MK-2P...	MK, ML, MM, MN receptacles
MK-2Q..	MK, ML, MM, MN plugs



(PLUG SHOWN)

DIMENSIONS														
SIZE	CONTACT ROWS	A	B		C		D	F	H	J		W	X MAX	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX				PLUG	RCPT				
9	2	.775	.334	.400	.185	.251	.565	.0375	.298	.183	.195	.250	.400	#2–56 UNC THD	.096 DIA OR #2–56 UNC THREADED INSERT
15		.925	.484	.550			.715	.075							
21		1.075	.634	.700			.865								
25		1.175	.734	.800			.965								
31		1.325	.884	.950			1.115								
37		1.475	1.034	1.100			1.265								
51	3	1.425	.984	1.050	.228	.294	1.215	.1125	.341			.300	.490		
69		1.725	1.284	1.350			1.515								
100	4	2.160	1.384	1.508	.271	.394	1.800	.1875	.384			.400	.660	#4–40 UNC THD	.125 DIA OR #4–40 UNC THREADED INSERT

PLUG: MK–2P2–031–335–220S
RECEPTACLE: MK–2Q2–031–445–220S

XX–XXX–XXX–XXX–XXXX–XXX

SERIES | BODY | SIZE | CONTACTS | HARDWARE | OPTIONS

PLUG

SERIES

MK .050" Rugged Metal PC Board Mount Connector

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)
4 4-Row (Size 100)

BODY STYLE:
P Plug, right angle, compressed footprint

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"
34 Pin, right angle, PCB leads, .172"
A2 Pin, right angle, PCB leads, .109", w/ ground pin option
A3 Pin, right angle, PCB leads, .140", w/ ground pin option
A4 Pin, right angle, PCB leads, .172", w/ ground pin option

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts: Sn/Pb alloy terminations ☒
7 50 µ" Au contacts: SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts (62*)
99 Keying hardware, see options below

POLARIZATION:
0S Standard body polarization

OPTIONS

0B7 Threaded inserts in mounting holes
KPXX Two fixed jacknuts (KN*)

NOTES

See page MA-6 for keying options

RECEPTACLE

SERIES

MK .050" Rugged Metal PC Board Mount Connector

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)
4 4-Row (Size 100)

BODY STYLE:
Q Receptacle, right angle, compressed footprint

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator
5 Stainless steel shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
43 Socket, right angle, PCB leads, .109"
44 Socket, right angle, PCB leads, .140"
45 Socket, right angle, PCB leads, .172"
B3 Socket, right angle, PCB leads, .109", w/ ground pin option
B4 Socket, right angle, PCB leads, .140", w/ ground pin option
B5 Socket, right angle, PCB leads, .172", w/ ground pin option

PLATING OPTIONS:
3 50 µ" Au contacts: Au terminations
5 50 µ" Au contacts: Sn/Pb alloy terminations ☒
7 50 µ" Au contacts: SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknuts (62*)
99 Keying hardware, see options below

POLARIZATION:
0S Standard body polarization

OPTIONS

900 Interfacial sealing gasket
0B7 Threaded inserts in mounting holes and interfacial sealing gasket
KPXX Two fixed jacknuts (KN*) and interfacial sealing gasket

NOTES

See page MA-6 for keying options

* = Use numbers in parenthesis when ordering size 100.
☒ = Option not RoHS compliant

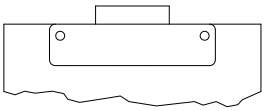
Ask About AirBorn's Accelerated Delivery Service

Recommended PC Board Layout

Right Angle, Compressed Footprint
Standard Polarization



CONNECTOR MATING FACE

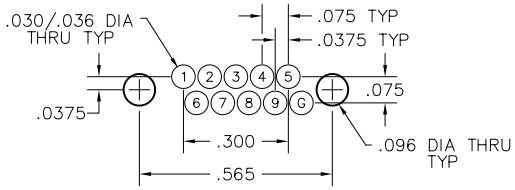


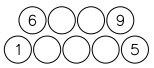
PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

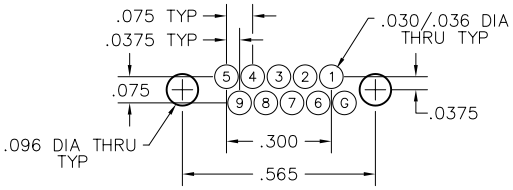
CONNECTOR MATING FACE* (RECEPTACLE)

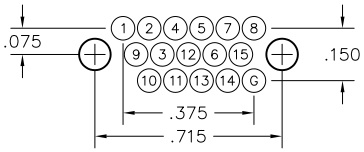
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

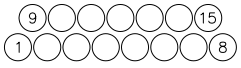




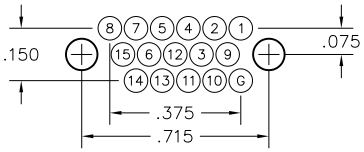
9 POSITION

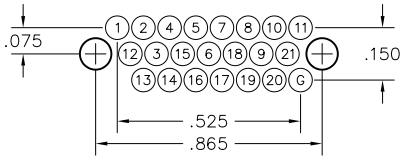






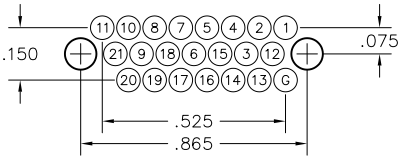
15 POSITION

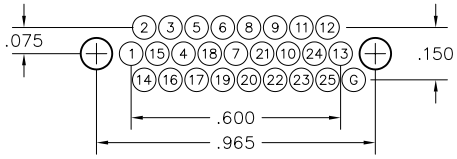






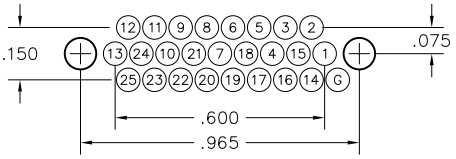
21 POSITION

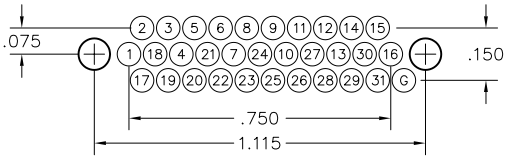






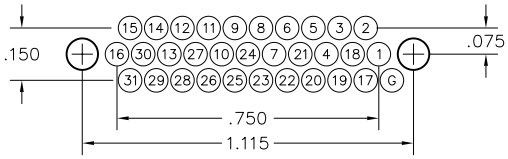
25 POSITION

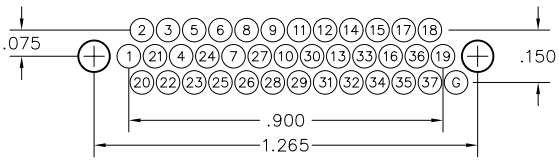






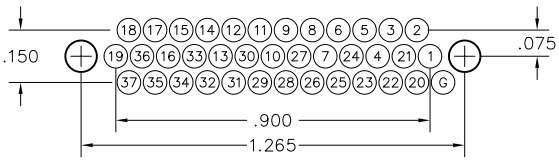
31 POSITION







37 POSITION

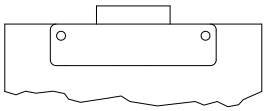


Recommended PC Board Layout

Right Angle, Compressed Footprint
Standard Polarization

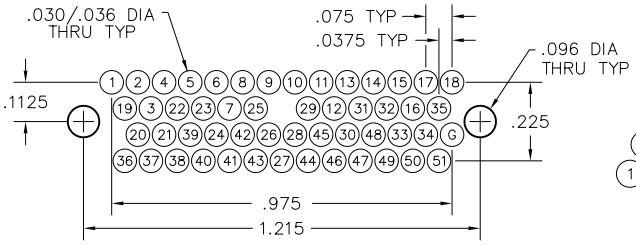


CONNECTOR MATING FACE

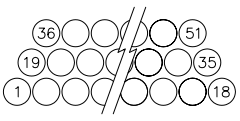


PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

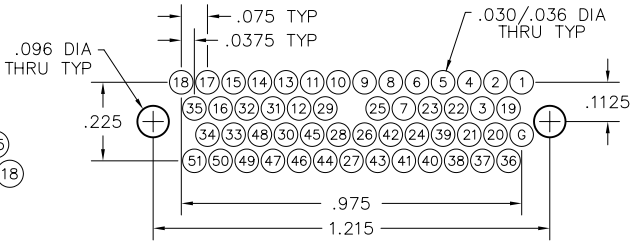


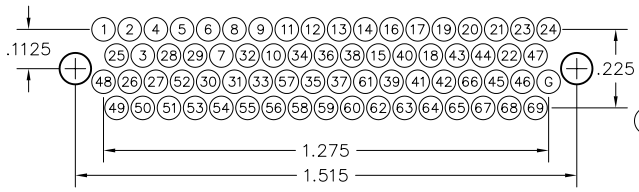
CONNECTOR MATING FACE* (RECEPTACLE)

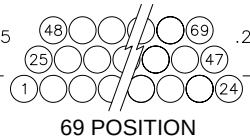


51 POSITION

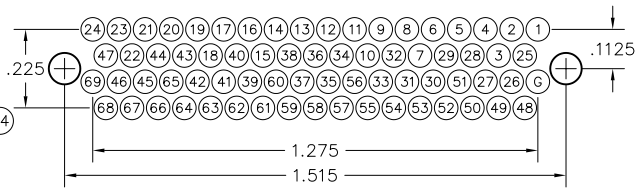
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

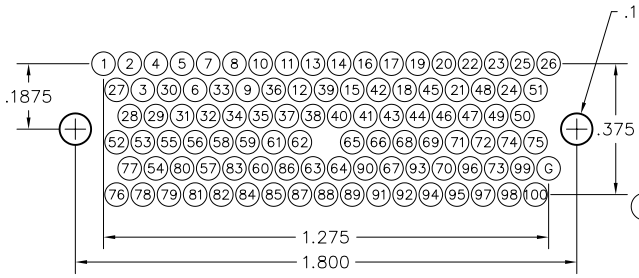


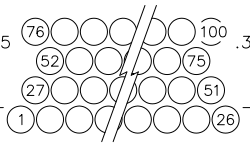




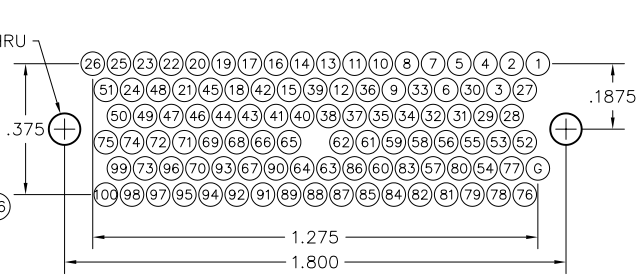
69 POSITION







100 POSITION



* For pin (plug) connectors, the contact numbers are reversed left to right.

Board (Standard Footprint) to Cable

.050"

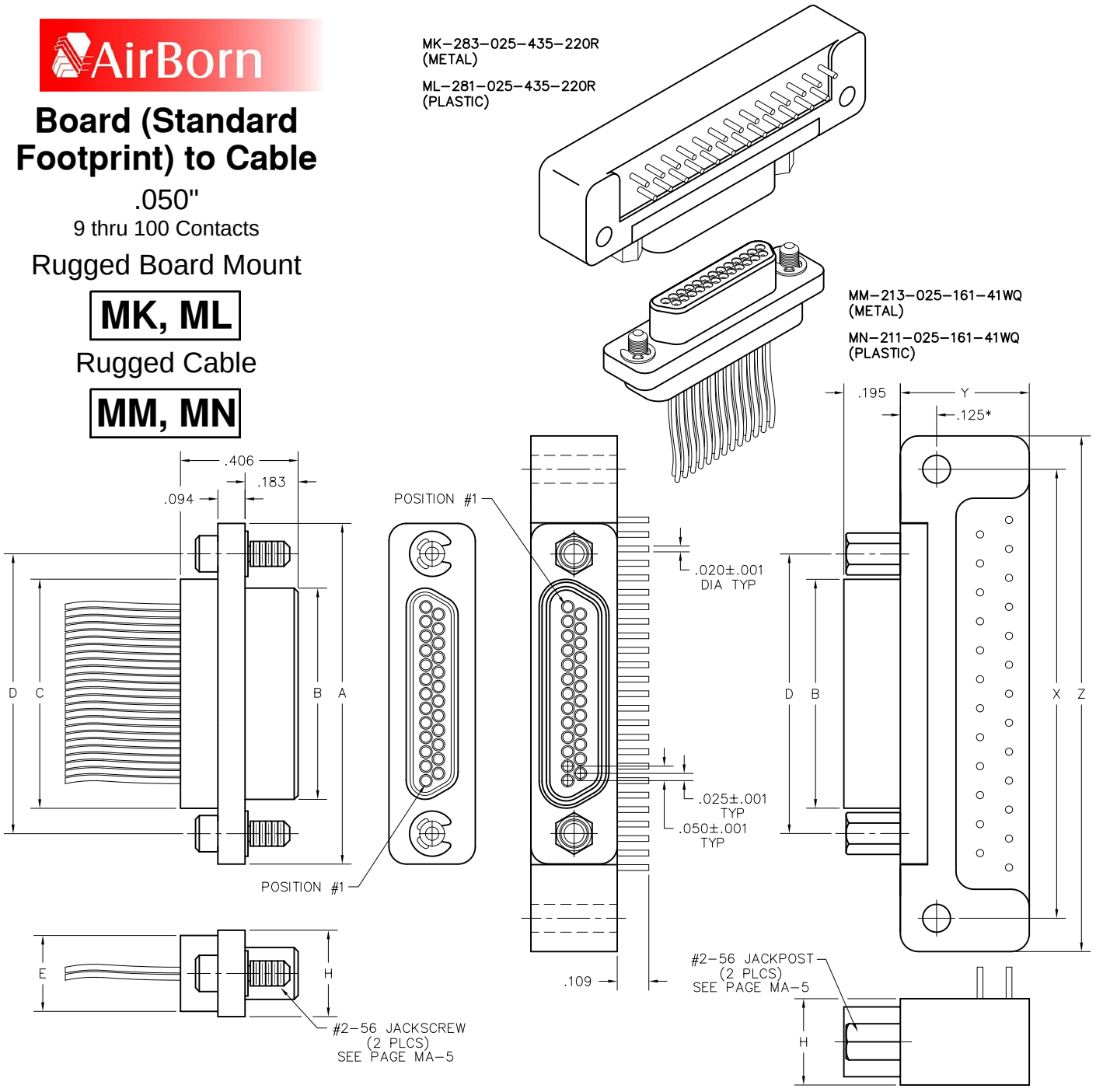
9 thru 100 Contacts

Rugged Board Mount

MK, ML

Rugged Cable

MM, MN



PLUG

RECEPTACLE

DIMENSIONS													
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	X	Y MAX	Z MAX	HARDWARE	MOUNTING HOLE
9	2	.775	.334	.400	.390	.565	.270	.298	1.150	.455	1.390	#2–56 UNC THD	.096 DIA OR #2–56 UNC THREADED INSERT
15		.925	.484	.550	.540	.715			1.300		1.540		
21		1.075	.634	.700	.690	.865			1.450		1.690		
25		1.175	.734	.800	.790	.965			1.550		1.790		
31		1.325	.884	.950	.940	1.115			1.800		2.040		
37		1.475	1.034	1.100	1.090	1.265			2.100		2.340		
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	1.600	.565	1.875		
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	2.500	.665**	2.780	#4–40 UNC THD	.125 DIA OR #4–40 UNC THREADED INSERT

* = .225 FOR "-05K" AND "0BJ" SPECIAL CODES (MIL-SPEC FOOTPRINT FOR 100 POSITION ONLY)
** = .765 MAX FOR "-05K" AND "0BJ" SPECIAL CODES (MIL-SPEC FOOTPRINT FOR 100 POSITION ONLY)

AirBorn

PLUG: MM–213–025–161–41WQ
RECEPTACLE: MK–283–025–435–220R
PLUG: MN–211–025–161–41WQ
RECEPTACLE: ML–281–025–435–220R

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN receptacles)	MK .050" Rugged Metal PC Board Mount Connector ML .050" Rugged Plastic PC Board Mount Connector (MK & ML mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)
BODY STYLE: 1 Plug, straight, with ears	BODY STYLE: 8 Receptacle, right angle, standard footprint, w/ mtg holes
BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell	BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 100	XXX 009, 015, 021, 025, 031, 037, 051, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 43 Socket, right angle, PCB leads, .109" 44 Socket, right angle, PCB leads, .140" 45 Socket, right angle, PCB leads, .172"
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)	PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 0R Reversed body polarization
OPTIONS	
KSXX Two turning jackscrews. See page MA-6 for keying options (KJ*)	KPXX Two fixed jacknuts and interfacial sealing gasket. See page MA-6 for keying options (KN*) 900 Interfacial sealing gasket 05K Mil-Spec footprint (size 100 only) 0B7 Threaded inserts and interfacial sealing gasket 0BJ Mil-Spec footprint (size 100 only) with threaded inserts and interfacial sealing gasket

* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

☒ = Option not RoHS compliant

Board (Standard Footprint) to Cable

.050"

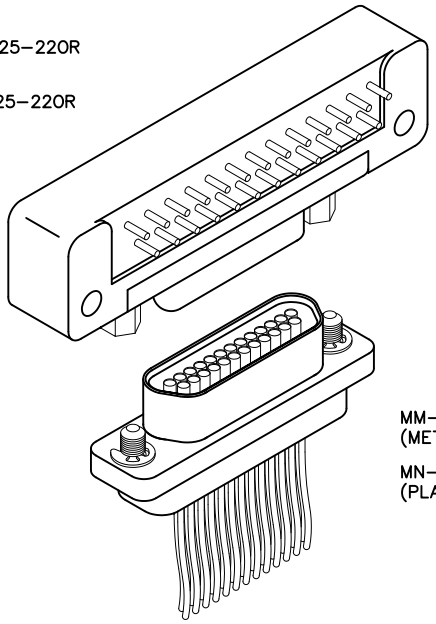
9 thru 100 Contacts

Rugged Board Mount

MK, ML

Rugged Cable

MM, MN

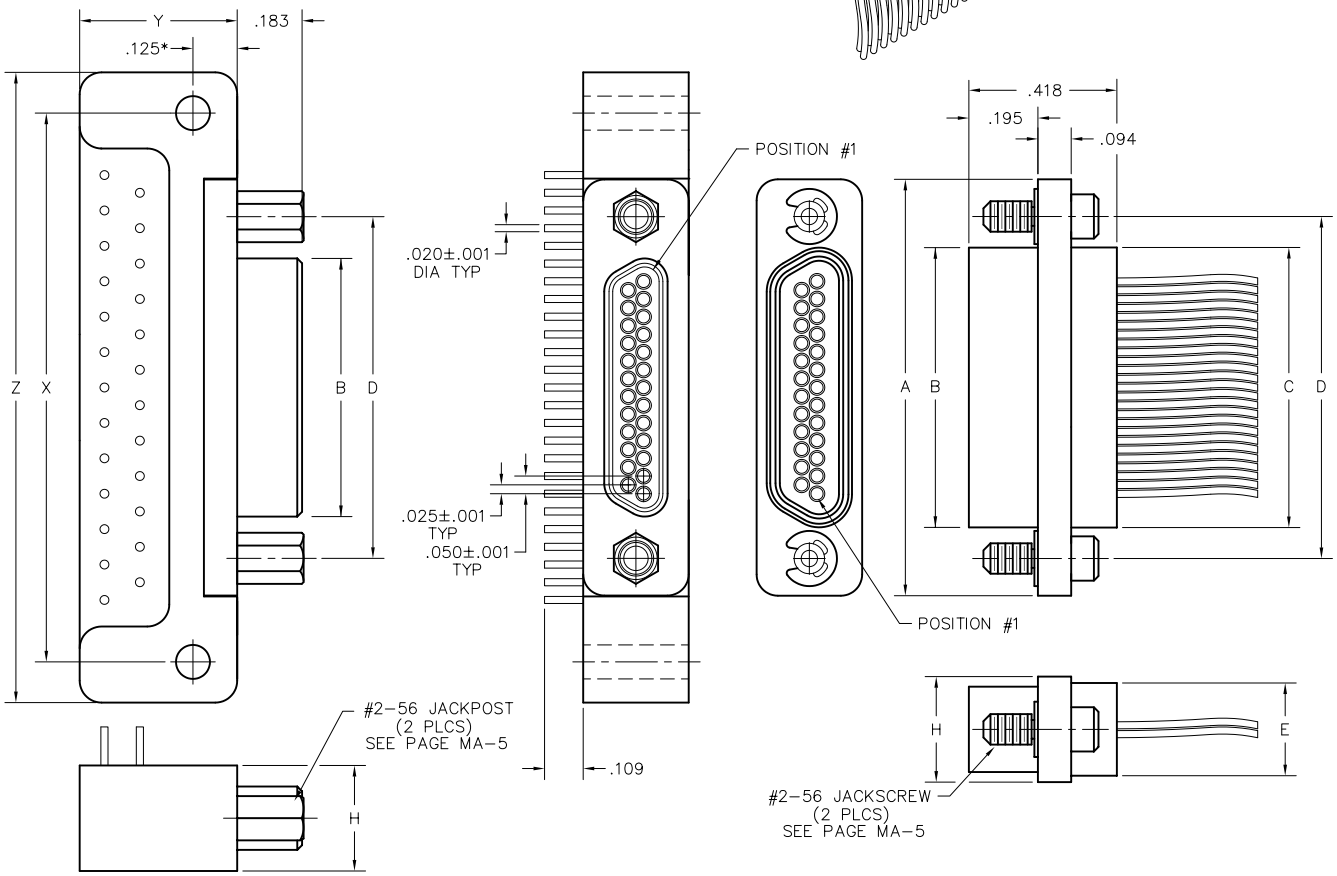


MK–273–025–325–220R
(METAL)

ML–271–025–325–220R
(PLASTIC)

MM–223–025–261–41WQ
(METAL)

MN–221–025–261–41WQ
(PLASTIC)



PLUG

RECEPTACLE

DIMENSIONS													
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	X	Y MAX	Z MAX	HARDWARE	MOUNTING HOLE
9	2	.775	.334	.400	.390	.565	.270	.298	1.150	.455	1.390	#2–56 UNC THD	.096 DIA OR #2–56 UNC THREADED INSERT
15		.925	.484	.550	.540	.715			1.300		1.540		
21		1.075	.634	.700	.690	.865			1.450		1.690		
25		1.175	.734	.800	.790	.965			1.550		1.790		
31		1.325	.884	.950	.940	1.115			1.800		2.040		
37		1.475	1.034	1.100	1.090	1.265			2.100		2.340		
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	1.600	.565	1.875		
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	2.500	.665**	2.780	#4–40 UNC THD	.125 DIA OR #4–40 UNC THREADED INSERT

* = .225 FOR "-05K" AND "0BJ" SPECIAL CODES (MIL-SPEC FOOTPRINT FOR 100 POSITION ONLY)
** = .765 MAX FOR "-05K" AND "0BJ" SPECIAL CODES (MIL-SPEC FOOTPRINT FOR 100 POSITION ONLY)

AirBorn

PLUG: MK–273–025–325–220R
RECEPTACLE: MM–223–025–261–41WQ
PLUG: ML–271–025–325–220R
RECEPTACLE: MN–221–025–261–41WQ

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MK .050" Rugged Metal PC Board Mount Connector ML .050" Rugged Plastic PC Board Mount Connector (MK & ML mate with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)
BODY STYLE: 7 Plug, right angle, standard footprint, w/ mtg holes	BODY STYLE: 2 Receptacle, straight, with ears
BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell	BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 100	XXX 009, 015, 021, 025, 031, 037, 051, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 32 Pin, right angle, PCB leads, .109" 33 Pin, right angle, PCB leads, .140" 34 Pin, right angle, PCB leads, .172"	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, solder cup 24 Socket, straight, .500" pigtails (.018 dia) 25 Socket, straight, 1.000" pigtails (.018 dia) 26 Socket, straight, crimped wire
PLATING OPTIONS: 3 50 µ" Au contacts: 10 u" Au terminations 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)
POLARIZATION / WIRING: 0R Reversed body polarization	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
KPXX Two fixed jacknuts. See page MA-6 for keying options (KN*) 05K Mil-Spec footprint (size 100 only) 0B7 Threaded inserts 0BJ Mil-Spec footprint (size 100 only) with threaded inserts	KSXX Two turning jackscrews and interfacial sealing gasket. See page MA-6 for keying options (KJ*) 900 Interfacial sealing gasket

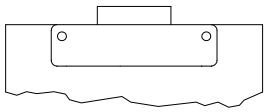
* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.
☒ = Option not RoHS compliant

Recommended PC Board Layout

Right Angle, Standard Footprint
Reverse Polarization

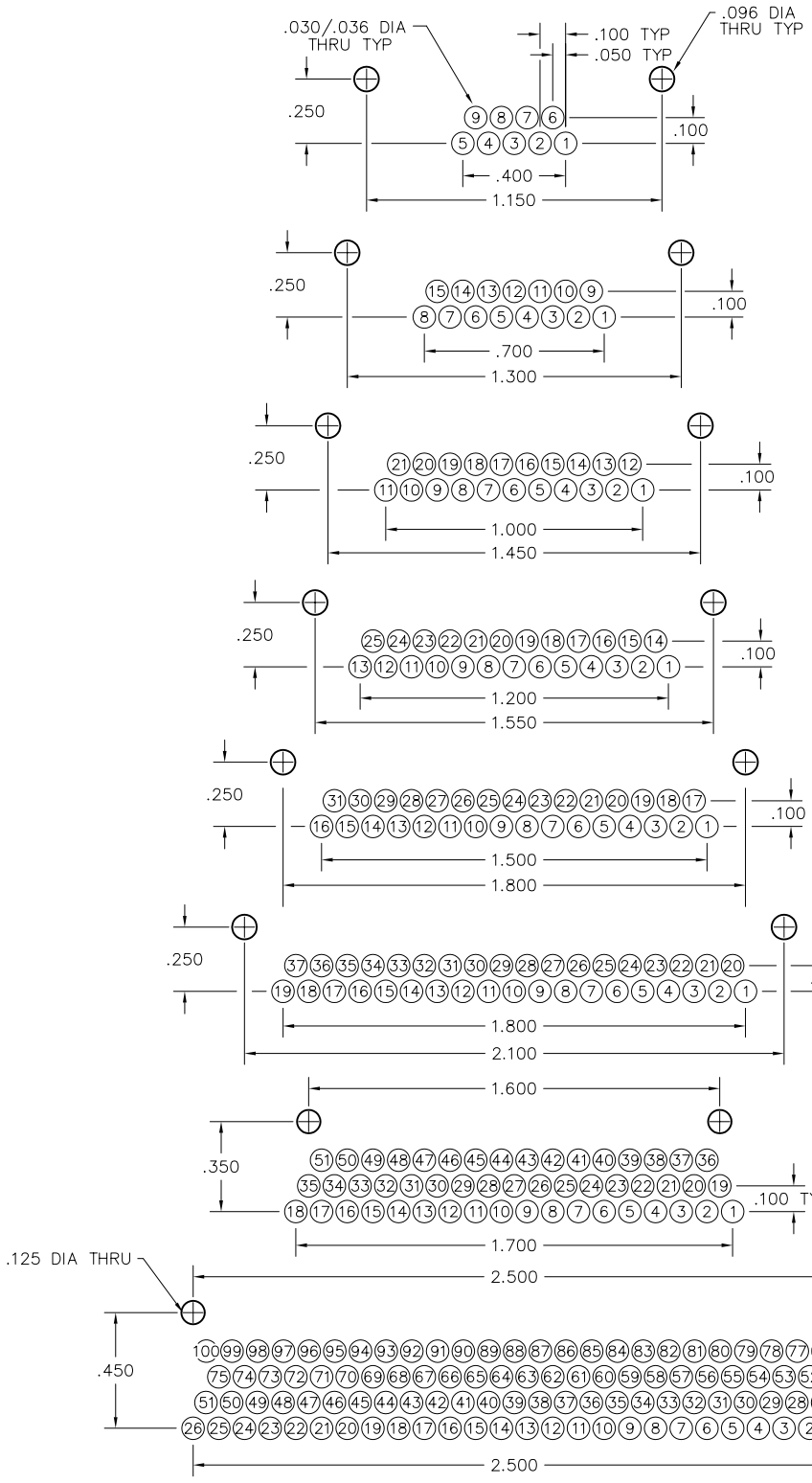


CONNECTOR MATING FACE

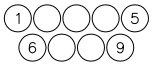


PC BOARD LAYOUT
COMPONENT SIDE

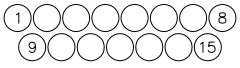
PLUG
PC BOARD LAYOUT
COMPONENT SIDE



CONNECTOR
MATING FACE
(PLUG)



9 POSITION



15 POSITION



21 POSITION



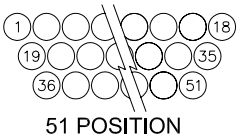
25 POSITION



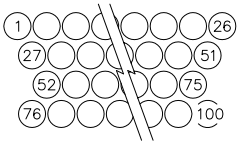
31 POSITION



37 POSITION



51 POSITION

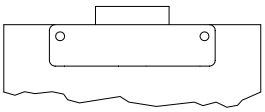


100 POSITION

Call (972) 931-3200 · Fax (972) 931-9305 · www.AirBorn.com



CONNECTOR MATING FACE



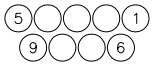
PC BOARD LAYOUT
COMPONENT SIDE

Recommended PC Board Layout

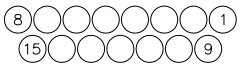
Right Angle, Standard Footprint
Reverse Polarization

CONNECTOR
MATING FACE
(RECEPTACLE)

RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE



9 POSITION



15 POSITION



21 POSITION



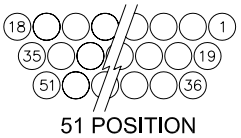
25 POSITION



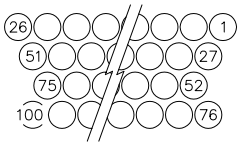
31 POSITION



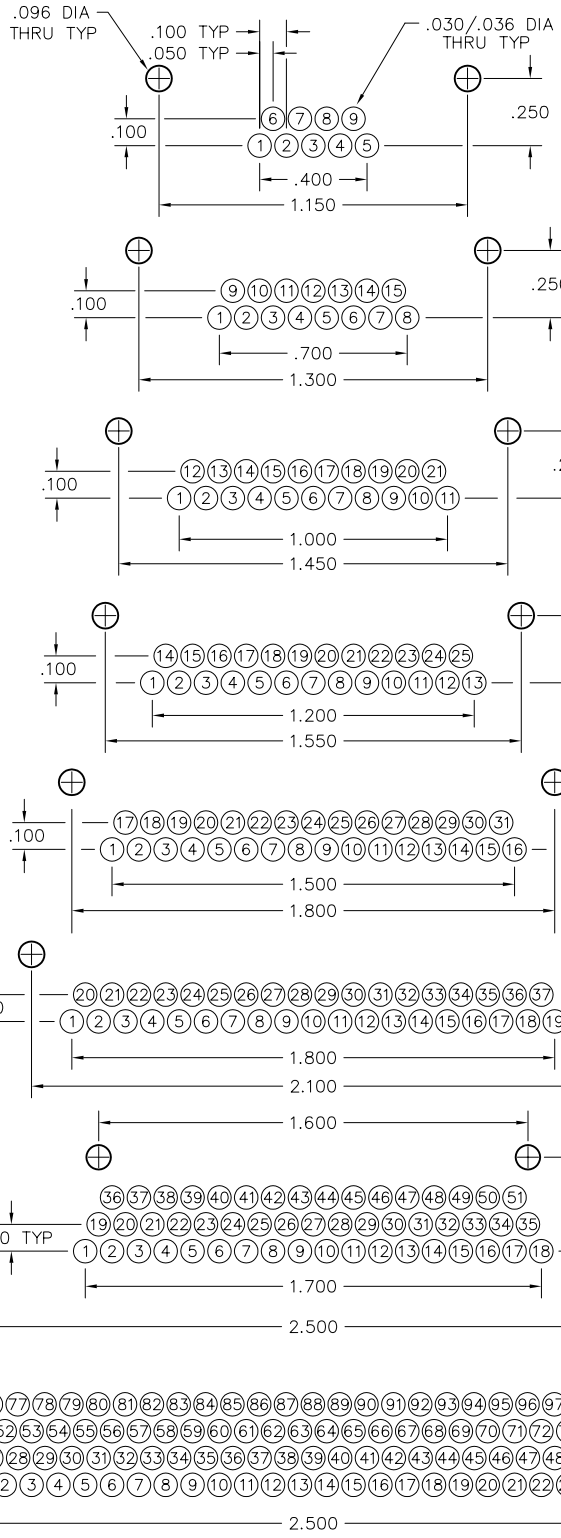
37 POSITION



51 POSITION



100 POSITION



Ask About AirBorn's Accelerated Delivery Service

Cable to Board (Narrow Footprint)

.050"

9 thru 100 Contacts

Rugged Cable

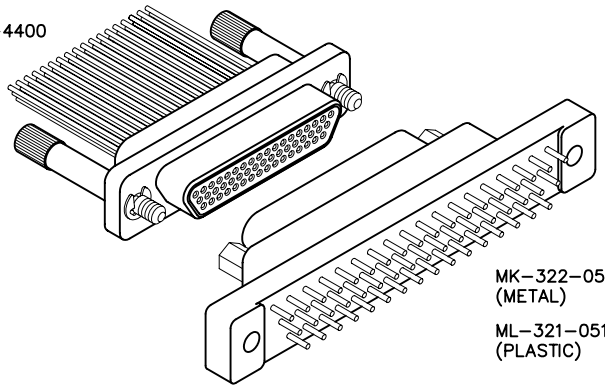
MM, MN

Rugged Board Mount

MK, ML

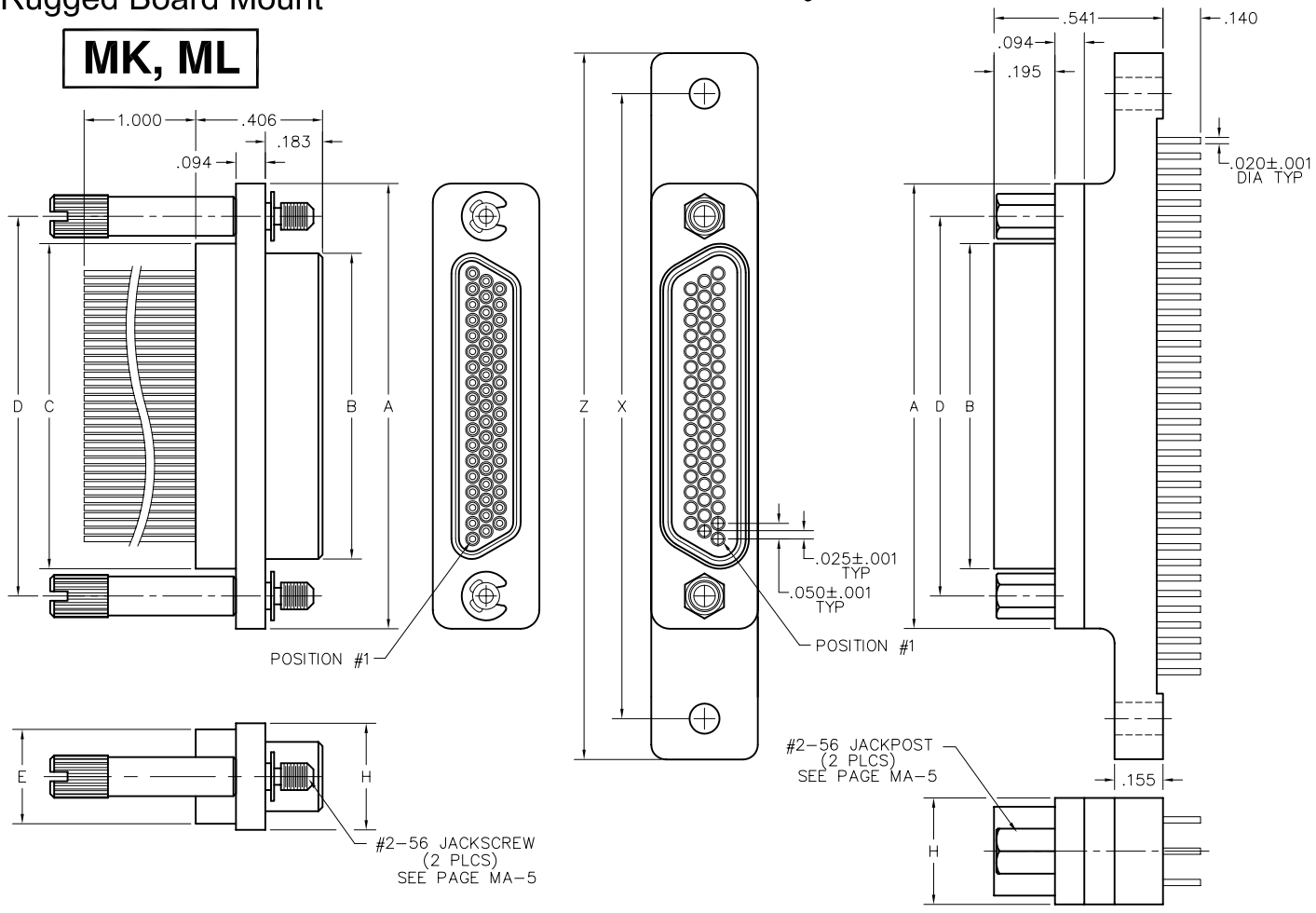
MM–312–051–153–4400
(METAL)

MN–311–051–153–4400
(PLASTIC)



MK–322–051–235–2200
(METAL)

ML–321–051–235–2200
(PLASTIC)



PLUG

RECEPTACLE

DIMENSIONS												
SIZE	CONTACT ROWS	A	B		C	D	E	H	X	Z MAX	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX			POTTING WELL MAX					
9	2	.775	.334	.400	.390	.565	.270	.298	1.150	1.390	#2–56 UNC THD (.092 DIA THRU)	.096 DIA OR #2–56 UNC THREADED INSERT
15		.925	.484	.550	.540	.715						
21		1.075	.634	.700	.690	.865			1.450	1.690		
25		1.175	.734	.800	.790	.965			1.500	1.740		
31		1.325	.884	.950	.940	1.115			1.800	2.040		
37		1.475	1.034	1.100	1.090	1.265			2.100	2.340		
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	2.000	2.270		
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	2.800	3.240	#4–40 UNC THD (.147 DIA THRU)	.125 DIA OR #2–56 UNC THREADED INSERT

PLUG: MM–312–051–153–4400
RECEPTACLE: MK–322–051–235–2200
PLUG: MN–311–051–153–4400
RECEPTACLE: ML–321–051–235–2200

PLUG	RECEPTACLE	XX–XXX–XXX–XXX–XXXX–XXX

SERIES

MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN receptacles)	MK .050" Rugged Metal PC Board Mount Connector ML .050" Rugged Plastic PC Board Mount Connector (MK & ML mate with MK, ML, MM, MN plugs)

BODY

2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)
BODY STYLE: 1 Plug, straight, with ears	BODY STYLE: 2 Receptacle, straight, narrow footprint, w/ mtg holes
BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell	BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 100	XXX 009, 015, 021, 025, 031, 037, 051, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 22 Socket, straight, PCB leads, .109" 23 Socket, straight, PCB leads, .140" 24 Socket, straight, PCB leads, .172"
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)	PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 00 None

OPTIONS

KSXX Two turning jackscrews. See page MA-6 for keying options (KJ*)	KPXX Two fixed jacknuts and interfacial sealing gasket. See page MA-6 for keying options (KN*) 900 Interfacial sealing gasket 0B7 Threaded inserts and interfacial sealing gasket

* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.
☒ = Option not RoHS compliant

Ask About AirBorn's Accelerated Delivery Service

Cable to Board (Narrow Footprint)

.050"

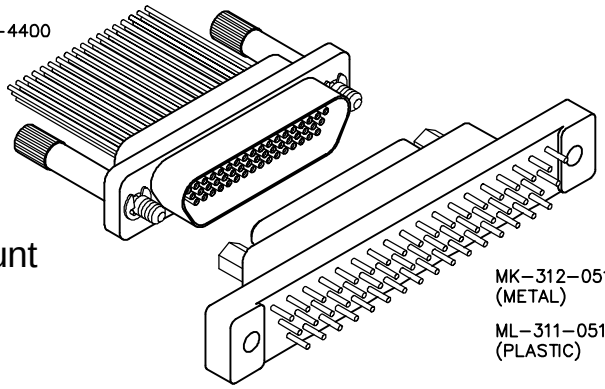
9 thru 100 Contacts

Rugged Cable — **MM, MN**

Rugged Board Mount — **MK, ML**

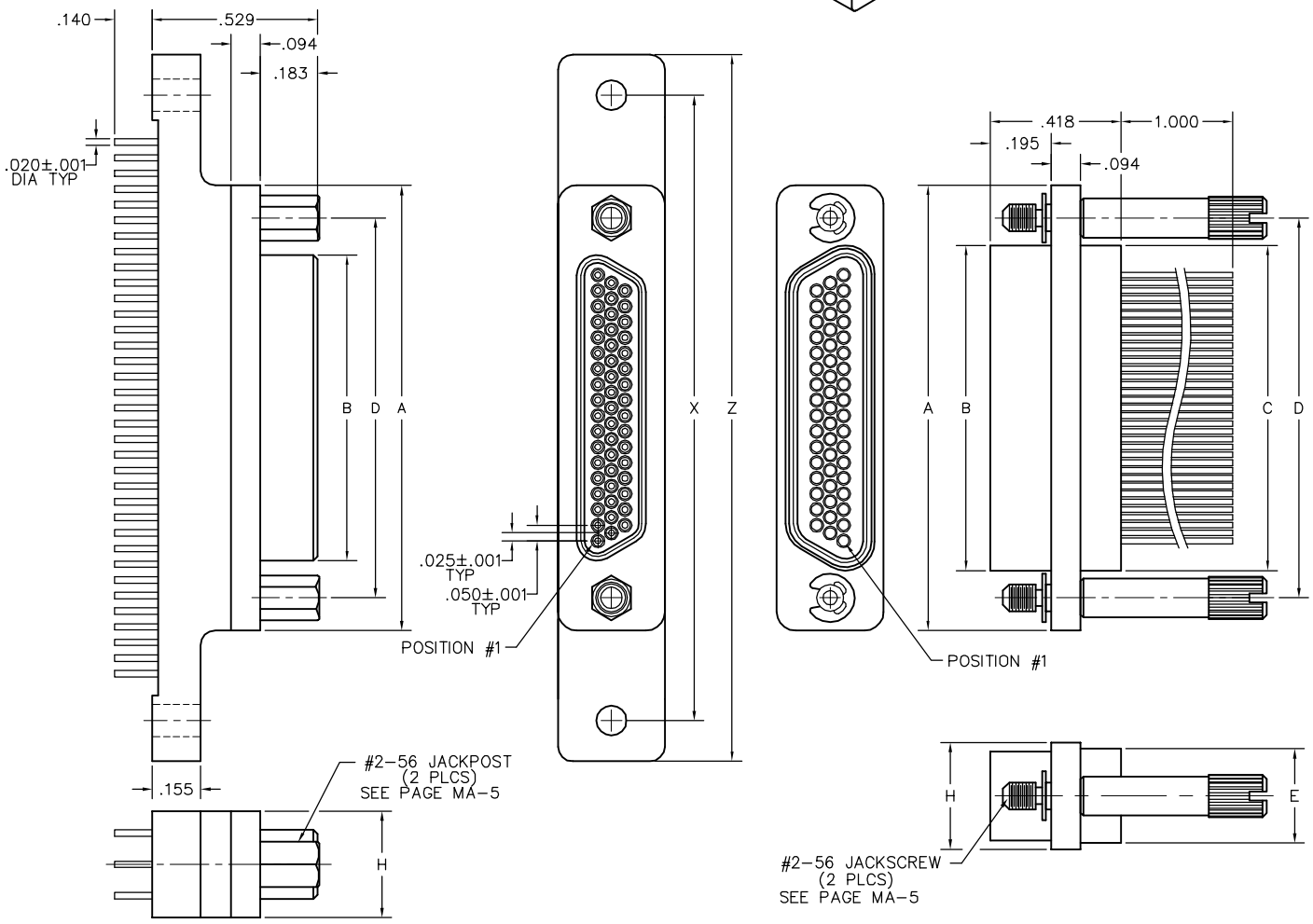
MM–322–051–253–4400
(METAL)

MN–321–051–253–4400
(PLASTIC)



MK–312–051–135–2200
(METAL)

ML–311–051–135–2200
(PLASTIC)



PLUG

RECEPTACLE

DIMENSIONS												
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	X	Z MAX	HARDWARE	MOUNTING HOLE
9	2	.775	.334	.400	.390	.565	.270	.298	1.150	1.390	#2–56 UNC THD	.096 DIA OR #2–56 UNC THREADED INSERT
15		.925	.484	.550	.540	.715						
21		1.075	.634	.700	.690	.865			1.450	1.690		
25		1.175	.734	.800	.790	.965			1.500	1.740		
31		1.325	.884	.950	.940	1.115			1.800	2.040		
37		1.475	1.034	1.100	1.090	1.265			2.100	2.340		
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	2.000	2.270		
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	2.800	3.240	#4–40 UNC THD	.125 DIA OR #2–56 UNC THREADED INSERT

AirBorn

PLUG: MK–312–051–135–2200
RECEPTACLE: MM–322–051–253–4400
PLUG: ML–311–051–135–2200
RECEPTACLE: MN–321–051–253–4400
XX–XXX–XXX–XXX–XXXX–XXX

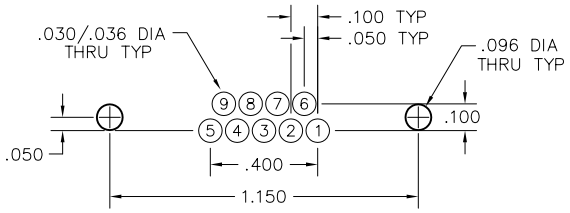
PLUG	RECEPTACLE
SERIES	
MK .050" Rugged Metal PC Board Mount Connector ML .050" Rugged Plastic PC Board Mount Connector (MK & ML mate with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)
BODY STYLE: 1 Plug, straight, narrow footprint, w/ mtg holes	BODY STYLE: 2 Receptacle, straight, with ears
BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell	BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 100	XXX 009, 015, 021, 025, 031, 037, 051, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 12 Pin, straight, PCB leads, .109" 13 Pin, straight, PCB leads, .140" 14 Pin, straight, PCB leads, .172"	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, solder cup 24 Socket, straight, .500" pigtails (.018 dia) 25 Socket, straight, 1.000" pigtails (.018 dia) 26 Socket, straight, crimped wire
PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)
POLARIZATION / WIRING: 00 None	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
KPXX Two fixed jacknuts. See page MA-6 for keying options (KN*) 0B7 Threaded inserts	KSXX Two turning jackscrews and interfacial sealing gasket. See page MA-6 for keying options (KJ*) 900 Interfacial sealing gasket

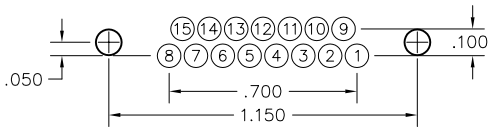
* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.
☒ = Option not RoHS compliant

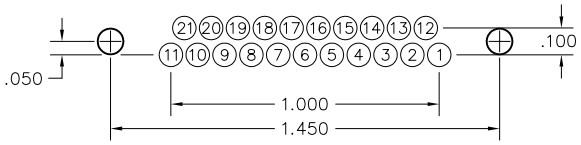
Recommended PC Board Layout

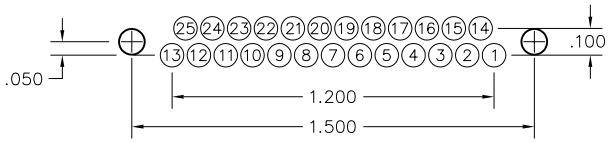
Straight, Narrow Footprint

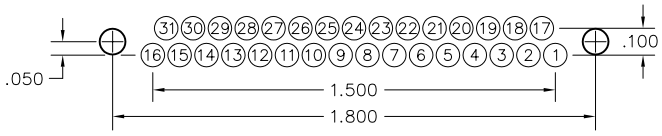
PLUG
PC BOARD LAYOUT
COMPONENT SIDE

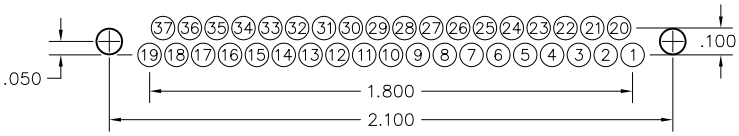


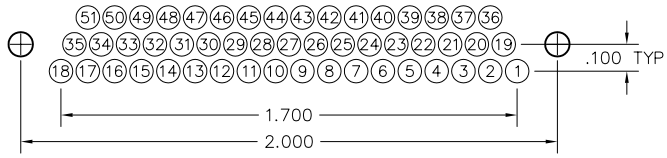


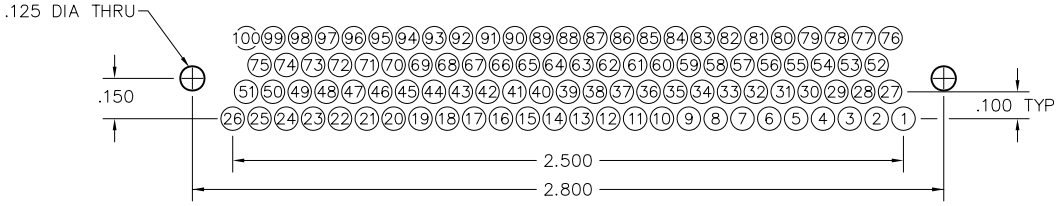




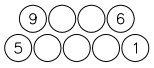




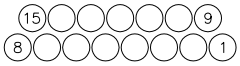




CONNECTOR
MATING FACE
(PLUG)



9 POSITION



15 POSITION



21 POSITION



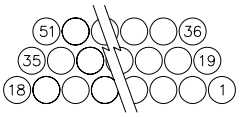
25 POSITION



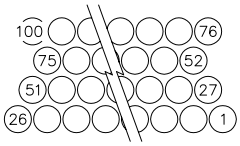
31 POSITION



37 POSITION



51 POSITION



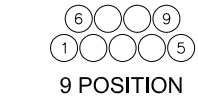
100 POSITION

Recommended PC Board Layout

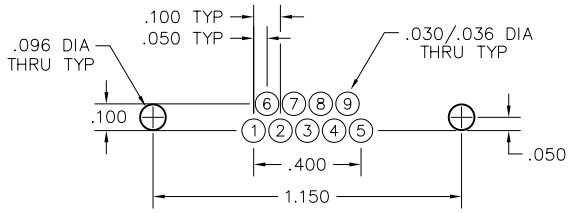
Straight, Narrow Footprint

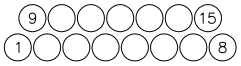
CONNECTOR MATING FACE (RECEPTACLE)

RECEPTACLE PC BOARD LAYOUT COMPONENT SIDE

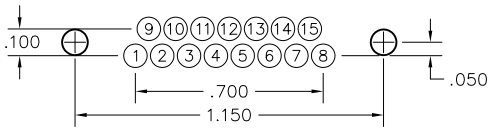


9 POSITION



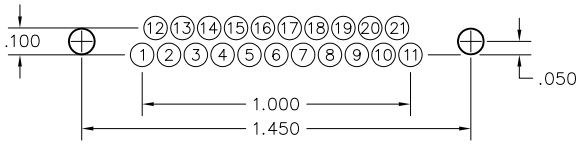


15 POSITION



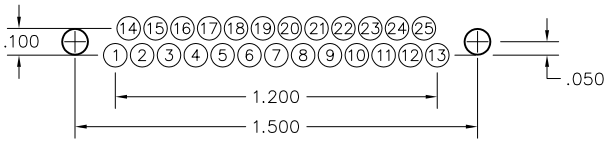


21 POSITION



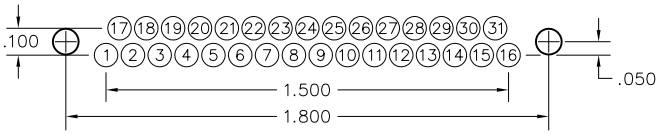


25 POSITION



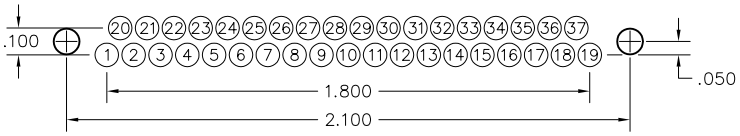


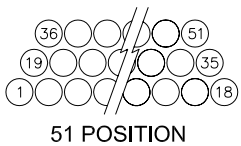
31 POSITION



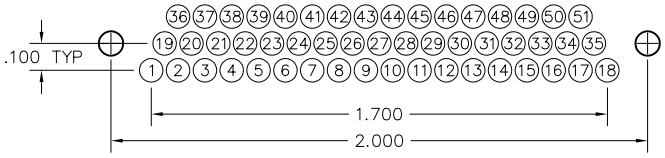


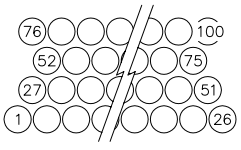
37 POSITION



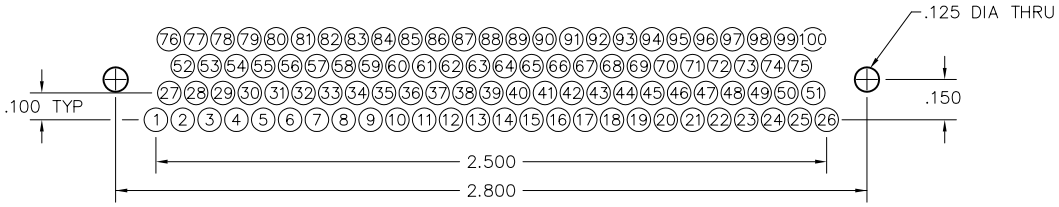


51 POSITION





100 POSITION



Ask About AirBorn's Accelerated Delivery Service

Cable to Board (Standard Footprint)

.050"

9 thru 100 Contacts

Rugged Cable

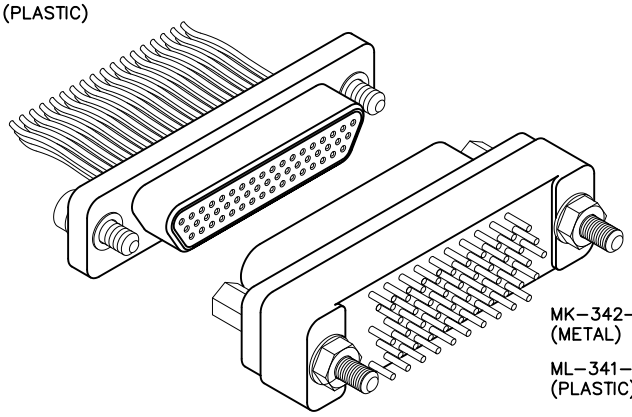
MM, MN

Rugged Board Mount

MK, ML

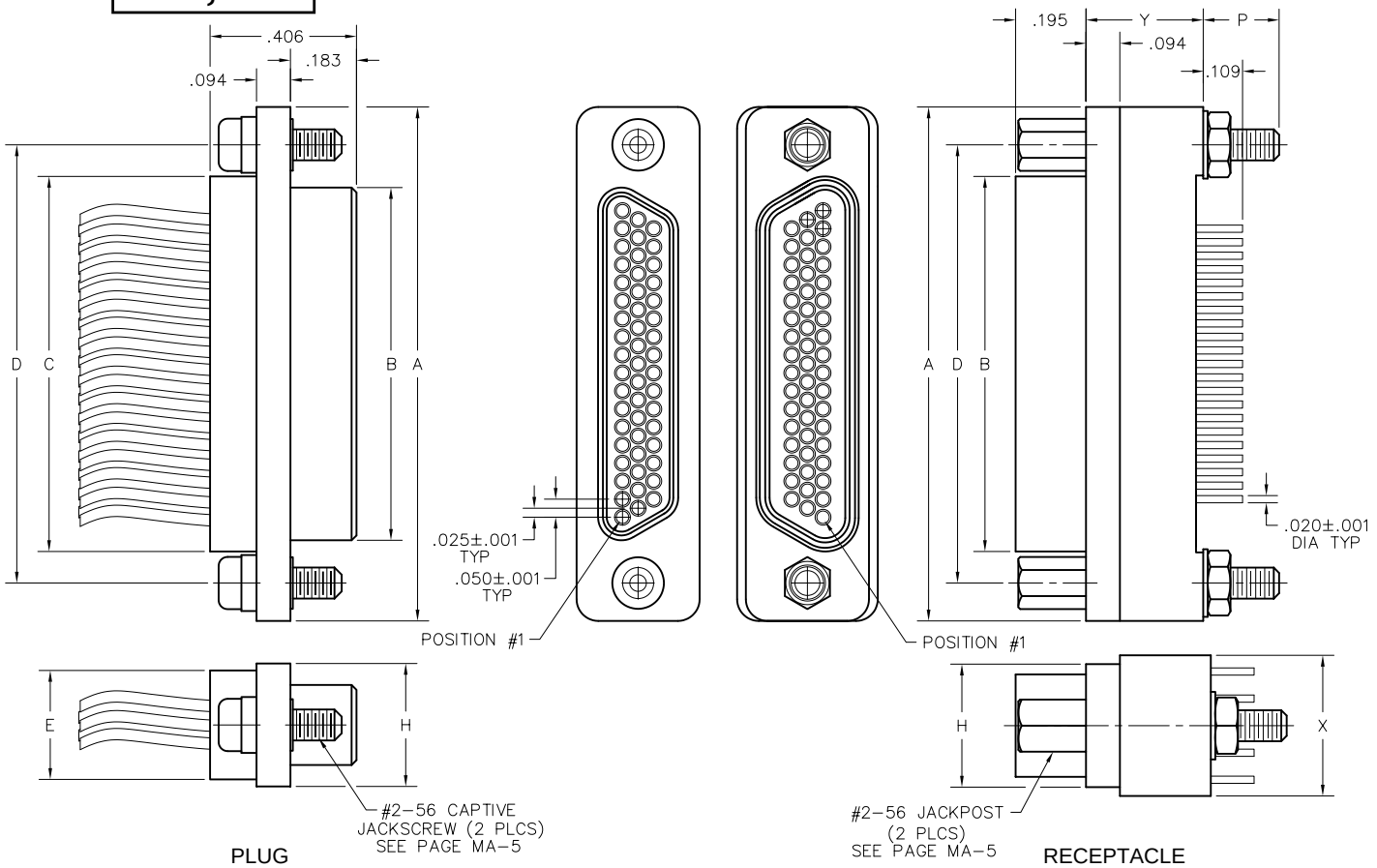
MM–312–051–161–45WP
(METAL)

MN–311–051–161–45WP
(PLASTIC)



MK–342–051–225–2200
(METAL)

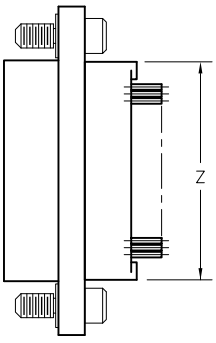
ML–341–051–225–2200
(PLASTIC)



PLUG

RECEPTACLE

DIMENSIONS													
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	P	X	Y	Z***	HARDWARE
9	2	.775	.334	.400	.390	.565	.270	.298	.210	.298	.280	.390	#2–56 UNC THD (#2–56 CLEARANCE OR #2–56 UNC THREADED INSERT)
15		.925	.484	.550	.540	.715						.540	
21		1.075	.634	.700	.690	.865						.690	
25		1.175	.734	.800	.790	.965						.780	
31		1.325	.884	.950	.940	1.115						.930	
37		1.475	1.034	1.100	1.090	1.265			.214		.330**	1.080	
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	.219	.390	.325	1.046	
69		1.725	1.284	1.350	1.340	1.515						1.346	
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	.216	.490	.379	1.530	#4–40 UNC THD (#4–40 CLEARANCE OR #4–40 UNC THREADED INSERT)



* = 69 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.
** = 37 POSITION WITH TURNING HARDWARE "Y" DIMENSION IS .280.
*** = "Z" DIMENSION FOR TURNING JACKSCREW ONLY

AirBorn

PLUG: MM–312–051–161–45WP
RECEPTACLE: MK–342–051–225–2200
PLUG: MN–311–051–161–45WP
RECEPTACLE: ML–341–051–225–2200

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN receptacles)	MK .050" Rugged Metal PC Board Mount Connector ML .050" Rugged Plastic PC Board Mount Connector (MK & ML mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69***) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69***) 4 4-Row (Size 100)
BODY STYLE: 1 Plug, straight, with ears	BODY STYLE: 4 Receptacle, straight, standard footprint
BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell	BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 22 Socket, straight, PCB leads, .109" 23 Socket, straight, PCB leads, .140" 24 Socket, straight, PCB leads, .172"
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)	PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring**** (81*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 00 None
OPTIONS	
KSXX Two turning jackscrews. See page MA-6 for keying options (KJ*)	KPXX Two fixed jacknuts and interfacial sealing gasket. See page MA-6 for keying options (KN*) 900 Interfacial sealing gasket 0B7 Threaded inserts and interfacial sealing gasket

* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.
*** = 69 position connectors are available in metal only.
**** = Connector body has no mounting holes.
☒ = Option not RoHS compliant

Ask About AirBorn's Accelerated Delivery Service

Cable to Board (Standard Footprint)

.050"

9 thru 100 Contacts

Rugged Cable

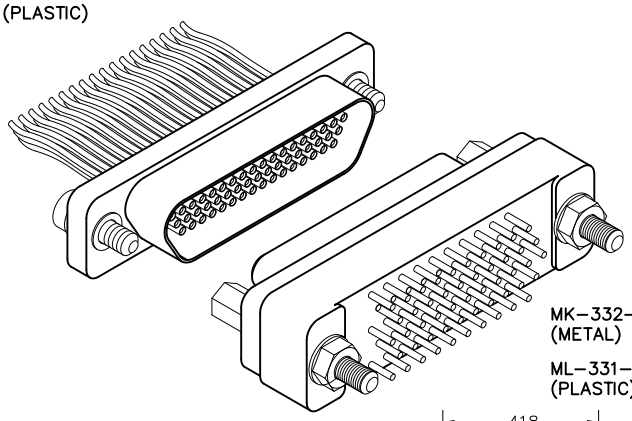
MM, MN

Rugged Board Mount

MK, ML

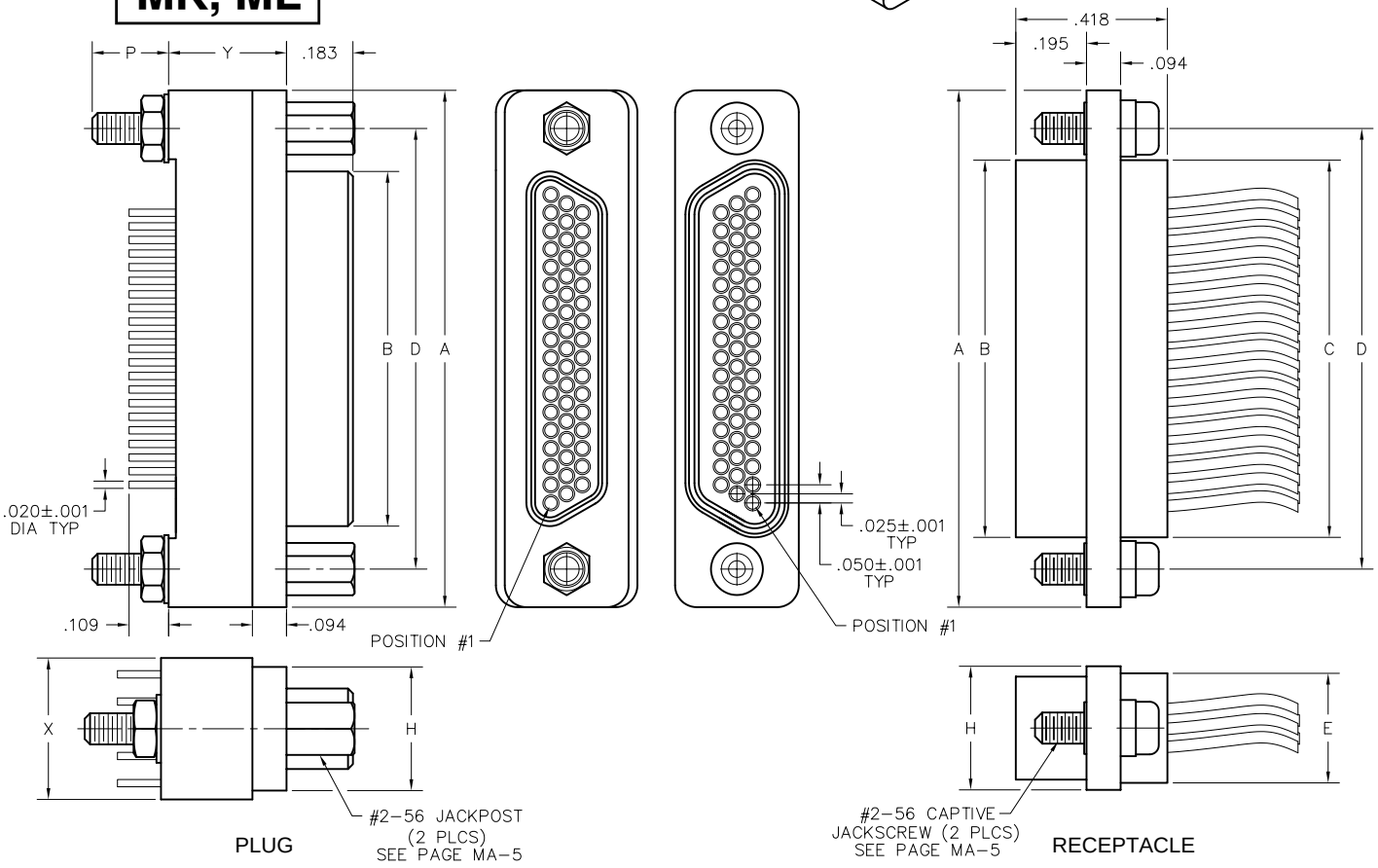
MM–322–051–261–45WP
(METAL)

MN–321–051–261–45WP
(PLASTIC)



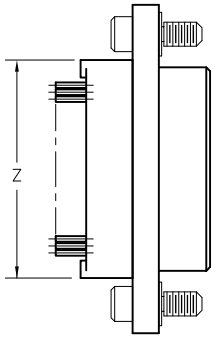
MK–332–051–125–2200
(METAL)

ML–331–051–125–2200
(PLASTIC)



PLUG

RECEPTACLE



DIMENSIONS													
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	P	X	Y	Z***	HARDWARE
9	2	.775	.334	.400	.390	.565	.270	.298	.210	.298	.280	.390	#2–56 UNC THD (#2–56 CLEARANCE OR #2–56 UNC THREADED INSERT)
15		.925	.484	.550	.540	.715						.540	
21		1.075	.634	.700	.690	.865						.690	
25		1.175	.734	.800	.790	.965						.780	
31		1.325	.884	.950	.940	1.115						.930	
37		1.475	1.034	1.100	1.090	1.265			.214		.330**	1.080	
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	.219	.390	.325	1.046	
69		1.725	1.284	1.350	1.340	1.515						1.346	
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	.216	.490	.379	1.530	#4–40 UNC THD (#4–40 CLEARANCE OR #4–40 UNC THREADED INSERT)

* = 69 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.
** = 37 POSITION WITH TURNING HARDWARE "Y" DIMENSION IS .280.
*** = "Z" DIMENSION FOR TURNING JACKSCREW ONLY

AirBorn

PLUG: MK–332–051–125–2200
RECEPTACLE: MM–322–051–261–45WP
PLUG: ML–331–051–125–2200
RECEPTACLE: MN–321–051–261–45WP
XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MK .050" Rugged Metal PC Board Mount Connector ML .050" Rugged Plastic PC Board Mount Connector (MK & ML mate with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69***) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69***) 4 4-Row (Size 100)
BODY STYLE: 3 Plug, straight, standard footprint	BODY STYLE: 2 Receptacle, straight, with ears
BODY MATERIAL: 1 Polyphenylene Sulfide (ML only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell	BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069***, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 12 Pin, straight, PCB leads, .109" 13 Pin, straight, PCB leads, .140" 14 Pin, straight, PCB leads, .172"	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, solder cup 24 Socket, straight, .500" pigtails (.018 dia) 25 Socket, straight, 1.000" pigtails (.018 dia) 26 Socket, straight, crimped wire
PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring**** (81*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*) 99 Keying hardware, see options below (Body material 2, 3 and 4 only)
POLARIZATION / WIRING: 00 None	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
KPXX Two fixed jacknuts. See page MA-6 for keying options (KN*) 0B7 Threaded inserts	KSXX Two turning jackscrews and interfacial sealing gasket. See page MA-6 for keying options (KJ*) 900 Interfacial sealing gasket

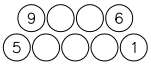
* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.
*** = 69 position connectors are available in metal only.
**** = Connector body has no mounting holes.

☒ = Option not RoHS compliant

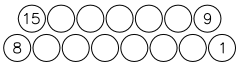
Recommended PC Board Layout

Straight, Standard Footprint

CONNECTOR
MATING FACE
(PLUG)



9 POSITION



15 POSITION



21 POSITION



25 POSITION

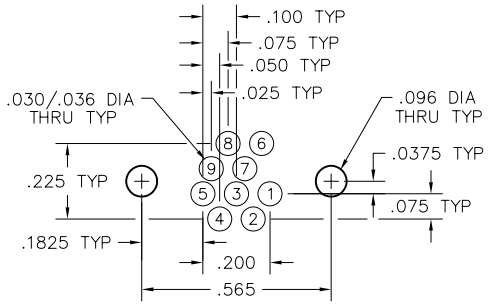


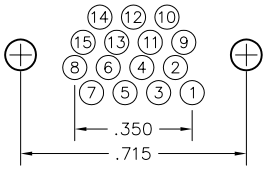
31 POSITION

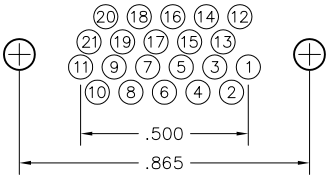


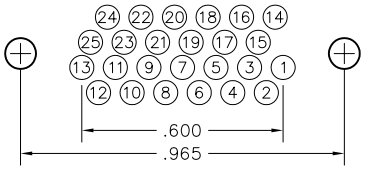
37 POSITION

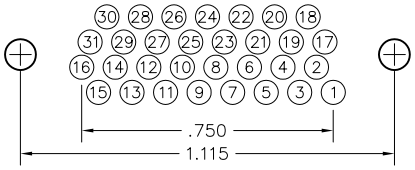
PLUG
PC BOARD LAYOUT
COMPONENT SIDE

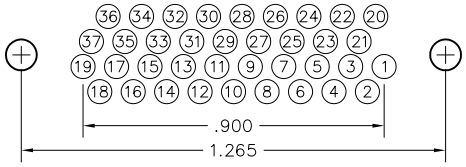










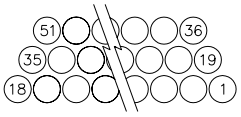


Recommended PC Board Layout

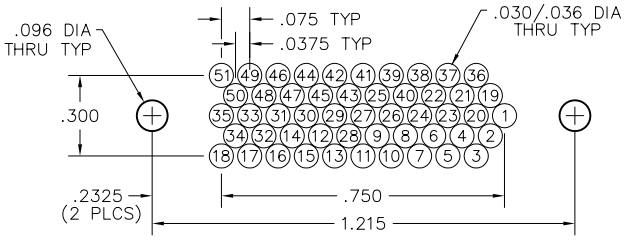
Straight, Standard Footprint

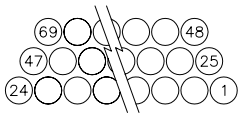
PLUG
PC BOARD LAYOUT
COMPONENT SIDE

CONNECTOR
MATING FACE
(PLUG)

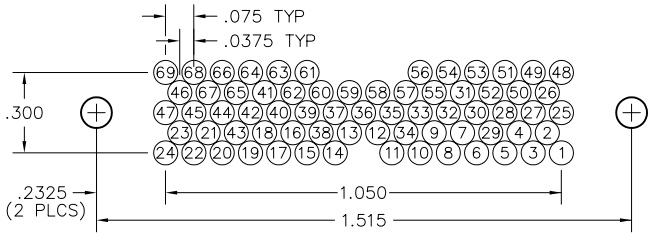


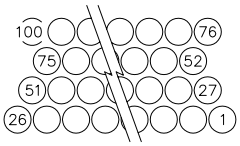
51 POSITION



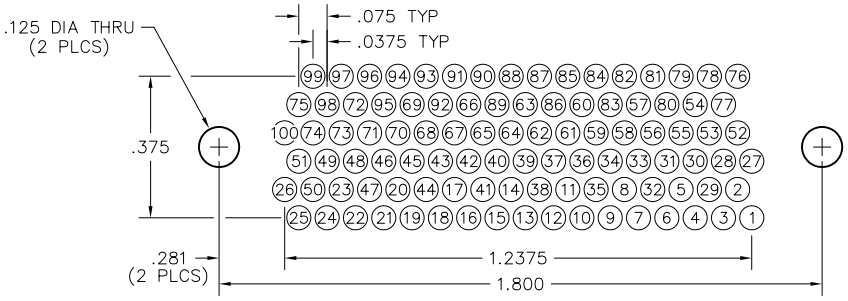


69 POSITION





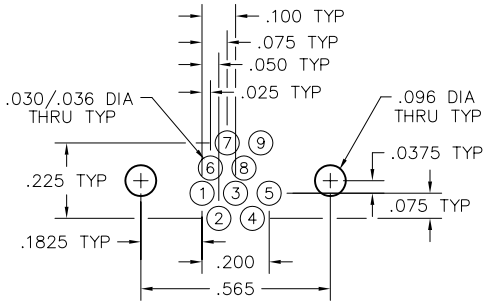
100 POSITION



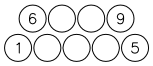
Recommended PC Board Layout

Straight, Standard Footprint

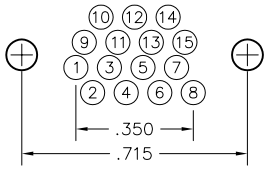
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

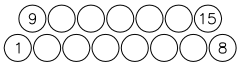


CONNECTOR
MATING FACE
(RECEPTACLE)

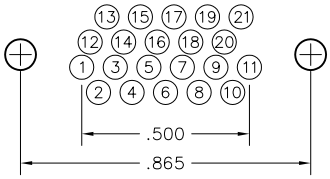


9 POSITION



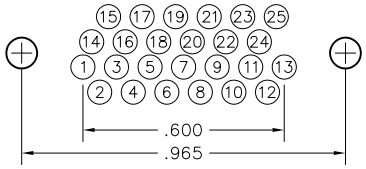


15 POSITION



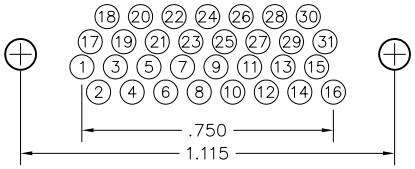


21 POSITION



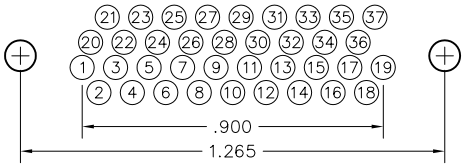


25 POSITION





31 POSITION



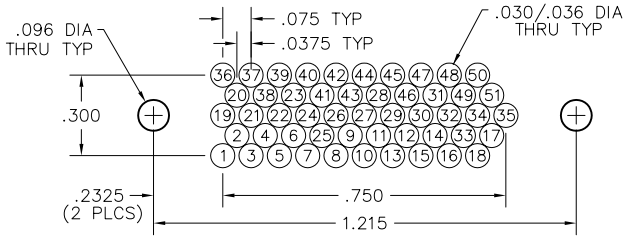


37 POSITION

Recommended PC Board Layout

Straight, Standard Footprint

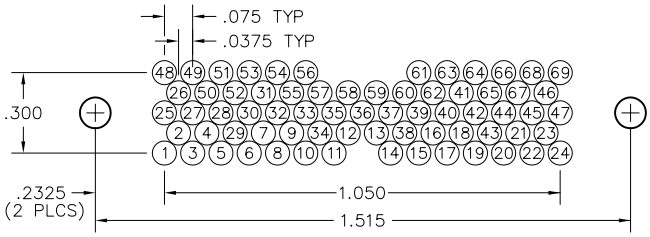
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE



CONNECTOR MATING FACE (RECEPTACLE)

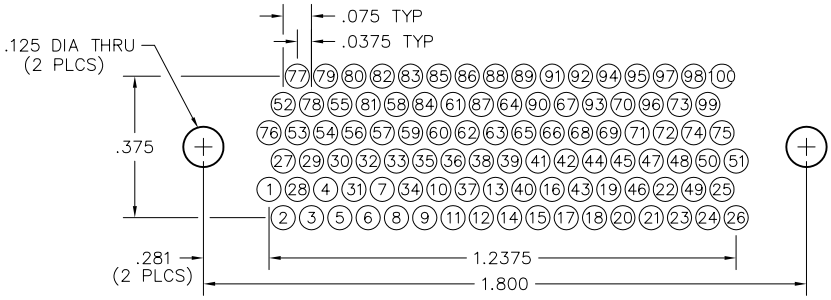


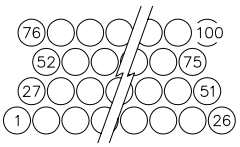
51 POSITION





69 POSITION





100 POSITION

Specifications - Surface Mount Connectors
Materials and Finishes *

Contacts:	Pins: BeCu alloy strip per ASTM B194 Sockets: Brass per ASTM B121 / B121M or ASTM B16 / B16M or ASTM B453
Contact Finish:	Gold plate per ASTM B488
Shells:	Aluminum Alloy 6061-T6 per SAE AMS-QQ-A-250/11 or 6061-T6511 per SAE AMS-QQ-A-200/8 or Stainless Steel 300 series per ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Aluminum Shell Finishes:	Electroless Nickel per SAE AMS2404, Class 3, 500 µ" min Electrodeposited Cadmium per SAE AMS-QQ-P-416, Type II, Class 3 Black Anodized per MIL-A-8625, Type III, Class 2
Molded Insulators:	Glass filled polyphenylene sulfide per MIL-M-24519
Embedment:	Frey Engineering Co. insulating compound CF3003-80 and L-II-49 or equivalent
Jackscrews, Jackposts and Nuts:	Corrosion resistant steel per ASTM A320 or ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Clips and Washers:	Corrosion resistant steel per ASME 18.24 or NASM35333 or ASTM A484/A484M and ASTM A582/A582M (For reference only: ASME 18.24 CRS per ASTM A693 and NASM35333 CRS per ASTM A240) Passivated per ASME 18.24 or NASM35333 or SAE AMS2700 (For reference only: ASME 18.24 and NASM35333 passivated per SAE AMS2700)
Brackets:	Card Edge Mount: Aluminum Alloy 7075-T6 per SAE AMS-QQ-A-250/12 or SAE AMS-QQ-A-200/11 Plating consistent with Aluminum Shell Horizontal Surface Mount: Corrosion resistant steel per ASTM A240 Passivated per SAE AMS2700
Interfacial Seal Gaskets:	Fluorosilicone per SAE AMS-R-25988
Tolerances:	Unless otherwise specified: Fractions = ±1/64" Decimals = ±.010" Angles = ±5° Wire lengths: uninsulated/solid = +0.2"/-0.0"

Note: AirBorn can manufacture special configurations for your exact specifications.

* = Reference the above listed specifications or an equivalent industry standard when applicable

Performance - Surface Mount Connectors

Contact Rating:	3-amperes maximum
Solderability:	Terminals (except crimp) tested in accordance with MIL-STD-202, Method 208
Wire Size:	Solid #30 AWG standard (consult factory for other sizes and types)
Test Voltage:	600 V, RMS, 60 Hz
Operating Temperature:	-55° C to +125° C
Insulation Resistance:	5,000 megohms minimum @ 500 VDC
Durability:	500 connector mating cycles
Vibration:	Tested in accordance with MIL-STD-1344, Method 2005, Condition IV, according to MIL-83513
Shock:	Tested in accordance with MIL-STD-1344, Method 2004, Condition E, according to MIL-83513
Salt Spray:	Mated connectors tested in accordance with MIL-STD-1344, Method 1001, Test Condition B
Humidity:	Mated connectors tested in accordance with MIL-STD-1344, Method 1002, Type II (except steps 7a and 7b)
Thermal Shock:	Tested to the temperature extremes of MIL-STD-1344, Method 1003, Test Condition A (except step 3, temperature shall be 125° C)
Contact Resistance:	0.065 volt maximum drop @ 2.5 amps (.026 ohms)
Contact Engaging Force:	6.0 ounce maximum, with .0221 diameter test sleeve
Contact Separating Force:	0.5 ounce minimum, with .0230 diameter test sleeve
Crimp Strength:	5 pound minimum tensile strength

AirBorn

Board SMT to Cable

.050"

9 thru 51 Contacts

Rugged Metal

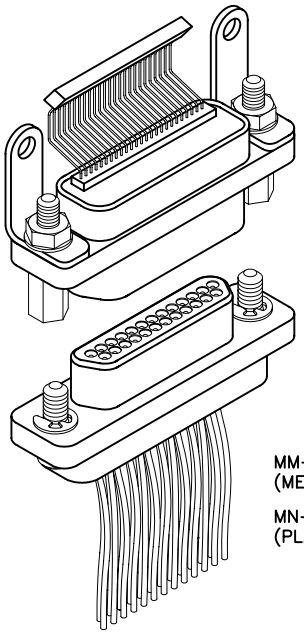
MM

Rugged Plastic

MN

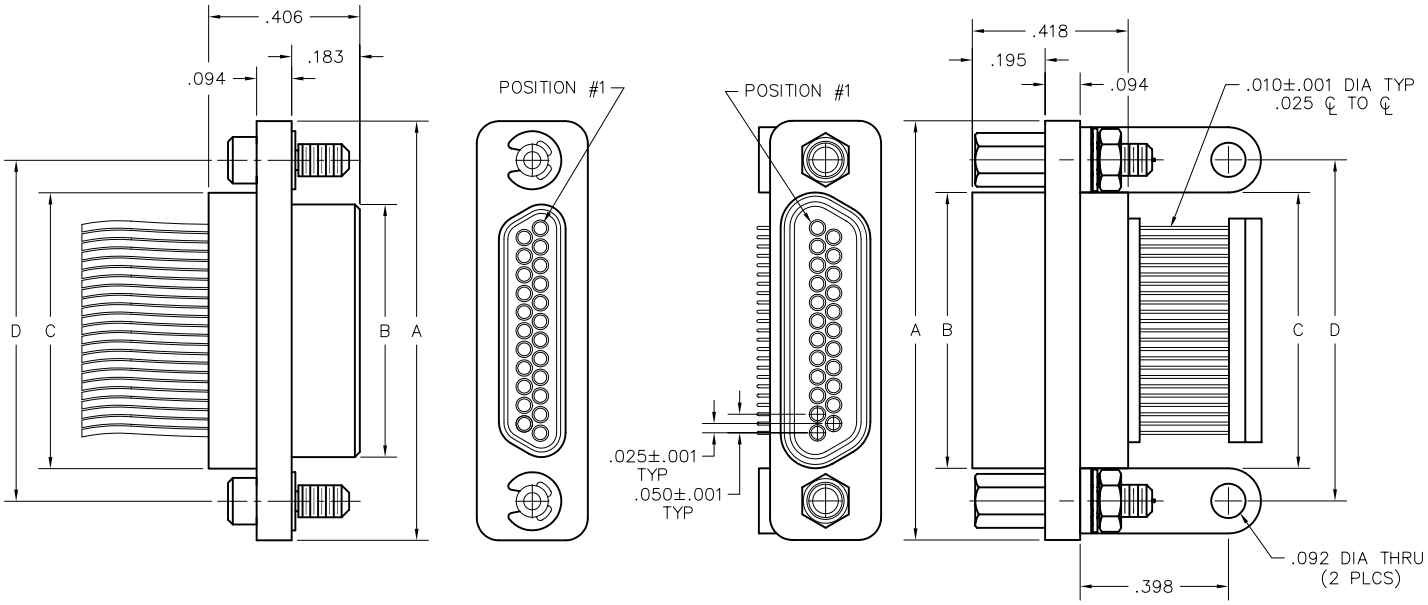
MM–223–025–275–320S
(METAL)

MN–221–025–275–320S
(PLASTIC)



MM–213–025–161–41WQ
(METAL)

MN–211–025–161–41WQ
(PLASTIC)



PLUG

RECEPTACLE

DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
9	2	.775	.334	.400	.390	.565	.270	.298	#2–56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.540	.715			
21		1.075	.634	.700	.690	.865			
25		1.175	.734	.800	.790	.965			
31		1.325	.884	.950	.940	1.115			
37		1.475	1.034	1.100	1.090	1.265			
51*		1.825	1.384	1.450	1.440	1.615			

* = 51 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.

AirBorn

PLUG: MM–213–025–161–41WQ
RECEPTACLE: MM–223–025–275–320S
PLUG: MN–211–025–161–41WQ
RECEPTACLE: MN–221–025–275–320S

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal PC Board Mount, SMT Connector MN .050" Rugged Plastic PC Board Mount, SMT Connector (MM & MN mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 51***)	2 2-Row (Sizes 9 thru 51***)
BODY STYLE: 1 Plug, straight, with ears	BODY STYLE: 2 Receptacle, straight, with ears
BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell	BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051***	XXX 009, 015, 021, 025, 031, 037, 051***
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 27 Socket, Surface Mount
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)	PLATING OPTIONS: 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 8 50 µ" Au contacts; Sn plated terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies 41 Two turning jackscrews, allen head, retaining ring 42 Two long turning jackscrews, allen head, retaining ring 43 Two turning jackscrews, slot head, retaining ring 44 Two long turning jackscrews, slot head, retaining ring 45 Two turning jackscrews, allen head, captivated**	STYLE OF HARDWARE: 00 None 32 Two fixed jacknut assemblies with mounting bracket 46 Two turning jackscrews, allen head, captivated** with mounting bracket
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 0R Reverse Body Polarization 0S Standard Body Polarization
OPTIONS	
	900 Interfacial sealing gasket

** = Captive hardware is factory installed and non-removable.
*** = 51 position connectors are available in metal only (non Mil-Spec interface).
☒ = Option not RoHS compliant

AirBorn

Board SMT to Cable

.050"

9 thru 51 Contacts

Rugged Metal

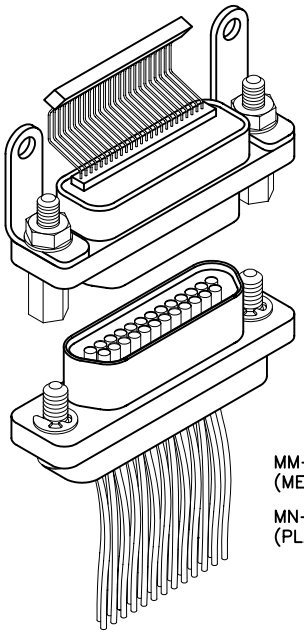
MM

Rugged Plastic

MN

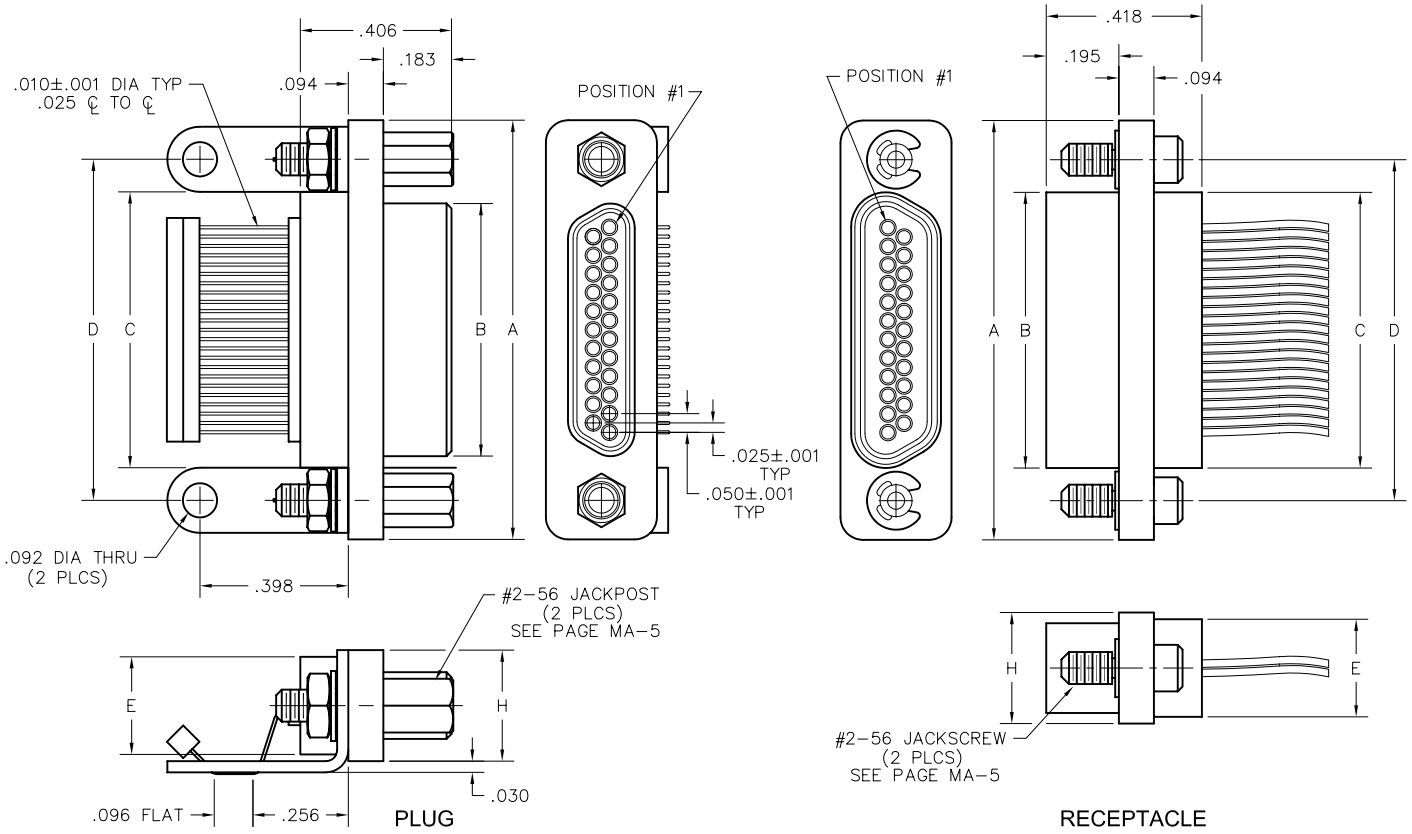
MM-212-025-175-320S
(METAL)

MN-211-025-175-320S
(PLASTIC)



MM-222-025-261-41WQ
(METAL)

MN-221-025-261-41WQ
(PLASTIC)



DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
9	2	.775	.334	.400	.390	.565	.270	.298	#2-56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.540	.715			
21		1.075	.634	.700	.690	.865			
25		1.175	.734	.800	.790	.965			
31		1.325	.884	.950	.940	1.115			
37		1.475	1.034	1.100	1.090	1.265			
51*		1.825	1.384	1.450	1.440	1.615			

* = 51 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.

AirBorn

PLUG: MM–212–025–175–320S
RECEPTACLE: MM–222–025–261–41WQ
PLUG: MN–211–025–175–320S
RECEPTACLE: MN–221–025–261–41WQ

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal PC Board Mount, SMT Connector MN .050" Rugged Plastic PC Board Mount, SMT Connector (MM & MN mate with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 51***)	2 2-Row (Sizes 9 thru 51***)
BODY STYLE: 1 Plug, straight, with ears	BODY STYLE: 2 Receptacle, straight, with ears
BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell	BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell 5 Polyphenylene Sulfide with stainless steel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051***	XXX 009, 015, 021, 025, 031, 037, 051***
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 17 Pin, Surface Mount	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, solder cup 24 Socket, straight, .500" pigtails (.018 dia) 25 Socket, straight, 1.000" pigtails (.018 dia) 26 Socket, straight, crimped wire
PLATING OPTIONS: 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 8 50 µ" Au contacts; Sn plated terminations	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE: 00 None 32 Two fixed jacknut assemblies with mounting bracket 46 Two turning jackscrews, allen head, captivated** with mounting bracket	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies 41 Two turning jackscrews, allen head, retaining ring 42 Two long turning jackscrews, allen head, retaining ring 43 Two turning jackscrews, slot head, retaining ring 44 Two long turning jackscrews, slot head, retaining ring 45 Two turning jackscrews, allen head, captivated**
POLARIZATION / WIRING: 0R Reverse Body Polarization 0S Standard Body Polarization	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
	900 Interfacial sealing gasket

** = Captive hardware is factory installed and non-removable.
*** = 51 position connectors are available in metal only (non Mil-Spec interface).

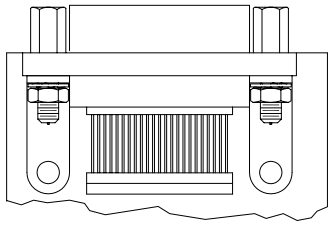
☒ = Option not RoHS compliant

Recommended PC Board Layout

Surface Mount
Standard Polarization



CONNECTOR MATING FACE

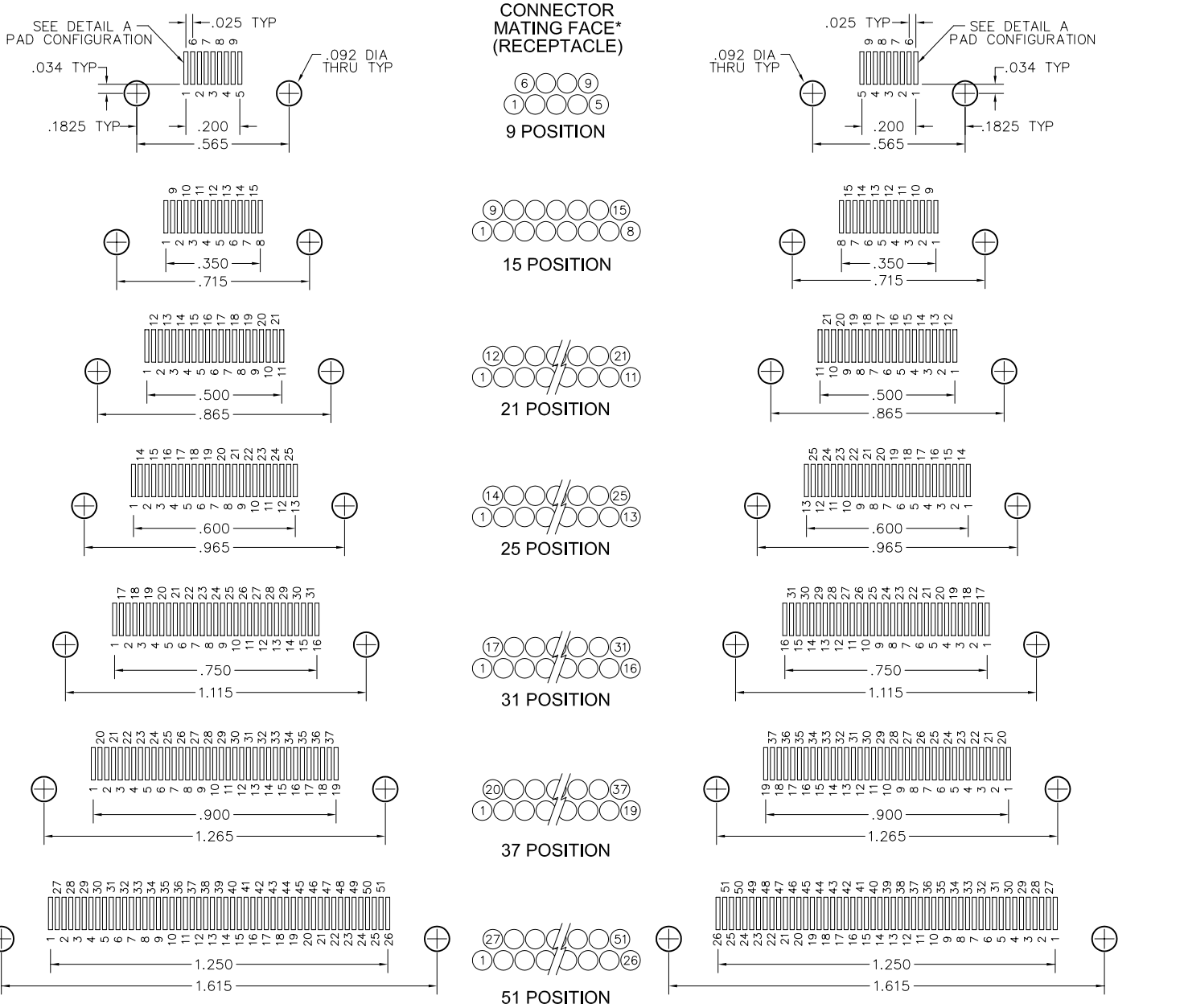


PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

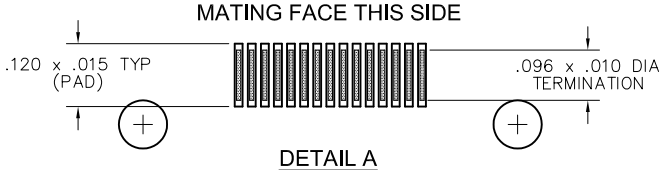
CONNECTOR MATING FACE* (RECEPTACLE)

RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE



* For pin (plug) connectors, the contact numbers are reversed left to right.

MATING FACE THIS SIDE



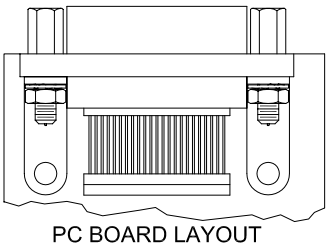
DETAIL A

Recommended PC Board Layout

Surface Mount
Reverse Polarization



CONNECTOR MATING FACE

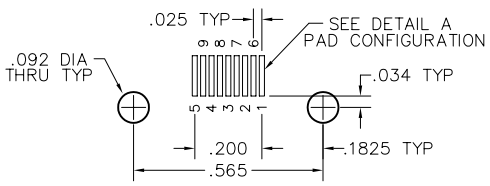


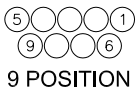
PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

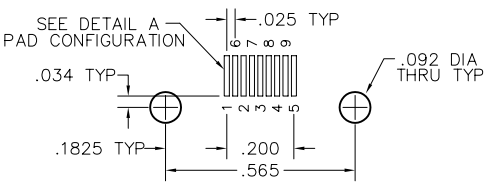
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

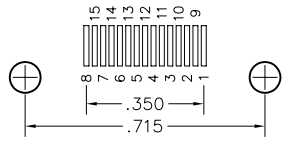
CONNECTOR MATING FACE* (RECEPTACLE)

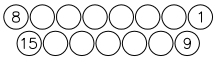




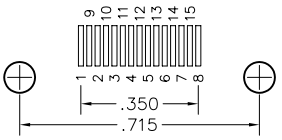
9 POSITION

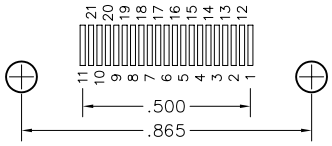






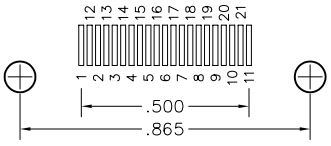
15 POSITION

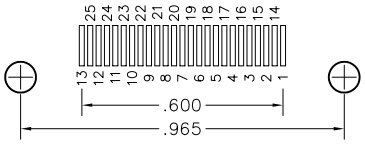






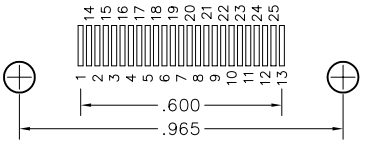
21 POSITION

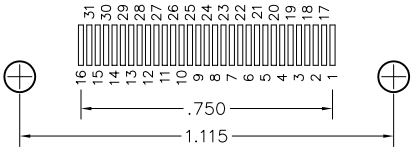






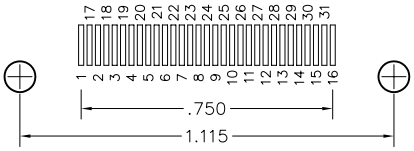
25 POSITION

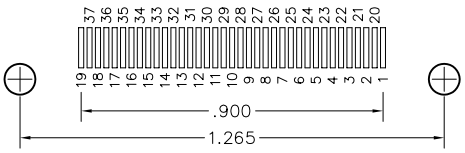






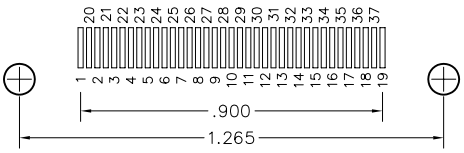
31 POSITION

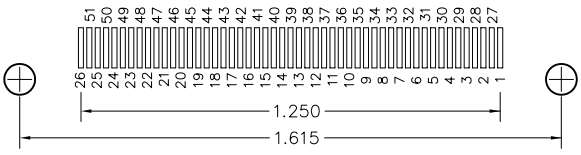






37 POSITION





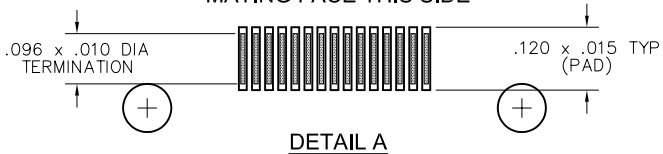


51 POSITION



* For pin (plug) connectors, the contact numbers are reversed left to right.

MATING FACE THIS SIDE



DETAIL A

Ask About AirBorn's Accelerated Delivery Service

Cable to Board
(Vertical Surface Mount)

.050"

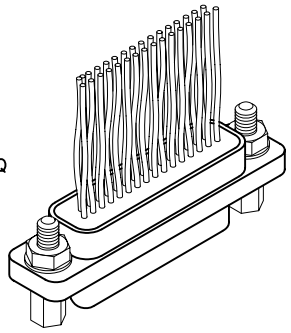
9 thru 51 Contacts

Rugged Surface Mount

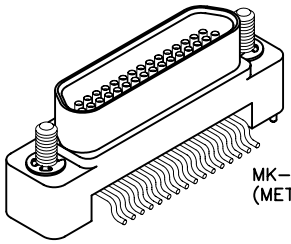
MK

Rugged Cable

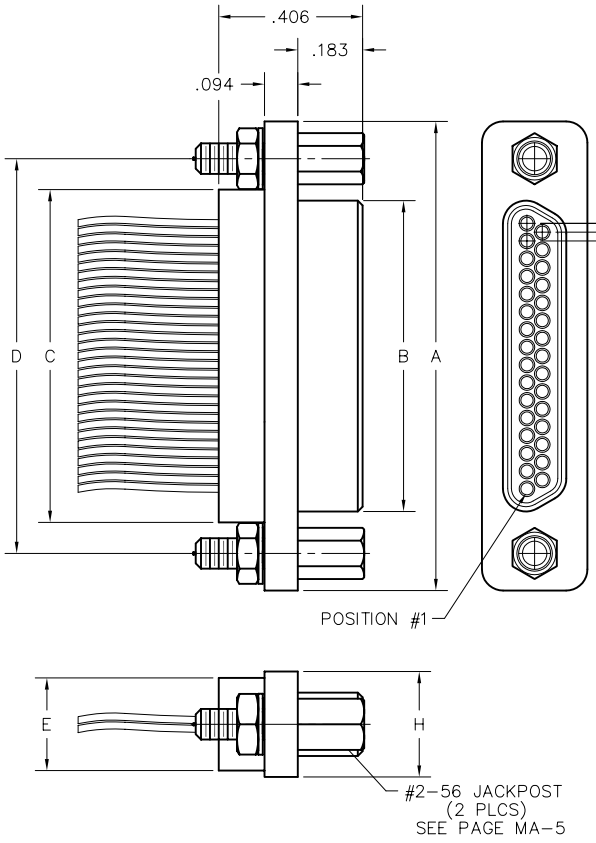
MM

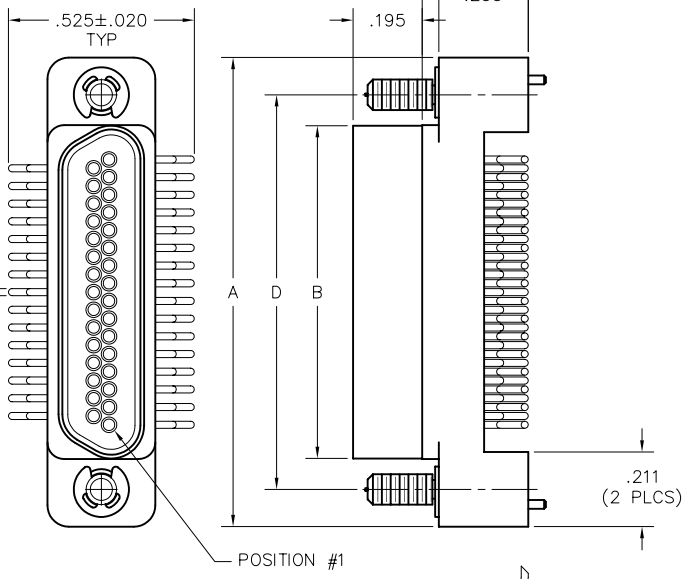


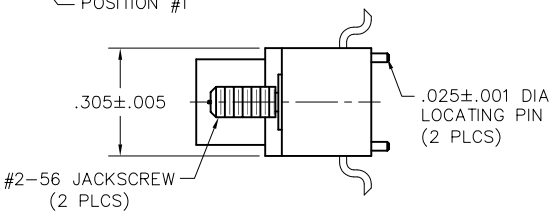
MM–212–031–161–22WQ
(METAL)



MK–2J2–031–475–4100
(METAL)







PLUG RECEPTACLE

DIMENSIONS									
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	HARDWARE
9	2	.775	.334	.400	.390	.565	.270	.298	#2–56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.540	.715			
21		1.075	.634	.700	.690	.865			
25		1.175	.734	.800	.790	.965			
31		1.325	.884	.950	.940	1.115			
37		1.475	1.034	1.100	1.090	1.265			
51*		1.825	1.384	1.450	1.440	1.615			

* = 51 POSITION CONNECTORS ARE NON-MIL SPEC INTERFACE

PLUG: MM–212–031–161–41WQ
RECEPTACLE: MK–2J2–031–475–2200
XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector (MM mates with MK, ML, MM, MN receptacles)	MK .050" Rugged Metal Surface Mount Connector (MK mates with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 51*)	2 2-Row (Sizes 9 thru 51*)
BODY STYLE:	BODY STYLE:
1 Plug, straight, with ears	J Receptacle, vertical surface mount
BODY MATERIAL:	BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell	2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒	3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4 Polyphenylene Sulfide with hard anodized black shell	4 Polyphenylene Sulfide with hard anodized black shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051*	XXX 009, 015, 021, 025, 031, 037, 051*
CONTACTS	
TYPE CONTACTS/TERMINATIONS:	TYPE CONTACTS/TERMINATIONS:
11 Pin, straight, solder cup	47 Socket, vertical smt
14 Pin, straight, .500" pigtails (.018 dia)	
15 Pin, straight, 1.000" pigtails (.018 dia)	
16 Pin, straight, crimped wire	
PLATING OPTIONS:	PLATING OPTIONS:
1 50 µ" Au contacts (crimp wire)	5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)	7 50 µ" Au contacts; SAC305 terminations
5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒	
7 50 µ" Au contacts; SAC305 terminations (pigtail)	
HARDWARE	
STYLE OF HARDWARE:	STYLE OF HARDWARE:
00 None	00 None
22 Two fixed jacknut assemblies	22 Two fixed jacknut assemblies
41 Two turning jackscrews, allen head, retaining ring	41 Two turning jackscrews, allen head, retaining ring
42 Two long turning jackscrews, allen head, retaining ring	99 Keying hardware, see options below
43 Two turning jackscrews, slot head, retaining ring	
44 Two long turning jackscrews, slot head, retaining ring	
45 Two turning jackscrews, allen head, captivated**	
99 Keying hardware, see options below	
POLARIZATION / WIRING:	POLARIZATION / WIRING
00 None	00 None
XX For wiring codes, see page MA-3 & MA-4	
OPTIONS	
KSXX Two turning jackscrews. See page MA-6 for keying options	KPXX Two fixed jacknuts and interfacial sealing gasket. See page MA-6 for keying options
	900 Interfacial sealing gasket

* = 2 row, 51 position connectors are non-Mil Spec interface.
** = Captive hardware is factory installed and non-removable.

☒ = Option not RoHS compliant

Cable to Board
(Vertical Surface Mount)

.050"

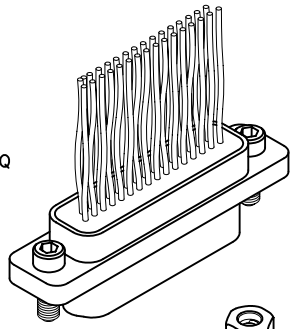
9 thru 51 Contacts

Rugged Surface Mount

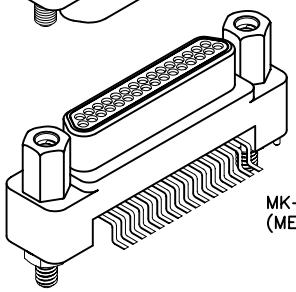
MK

Rugged Cable

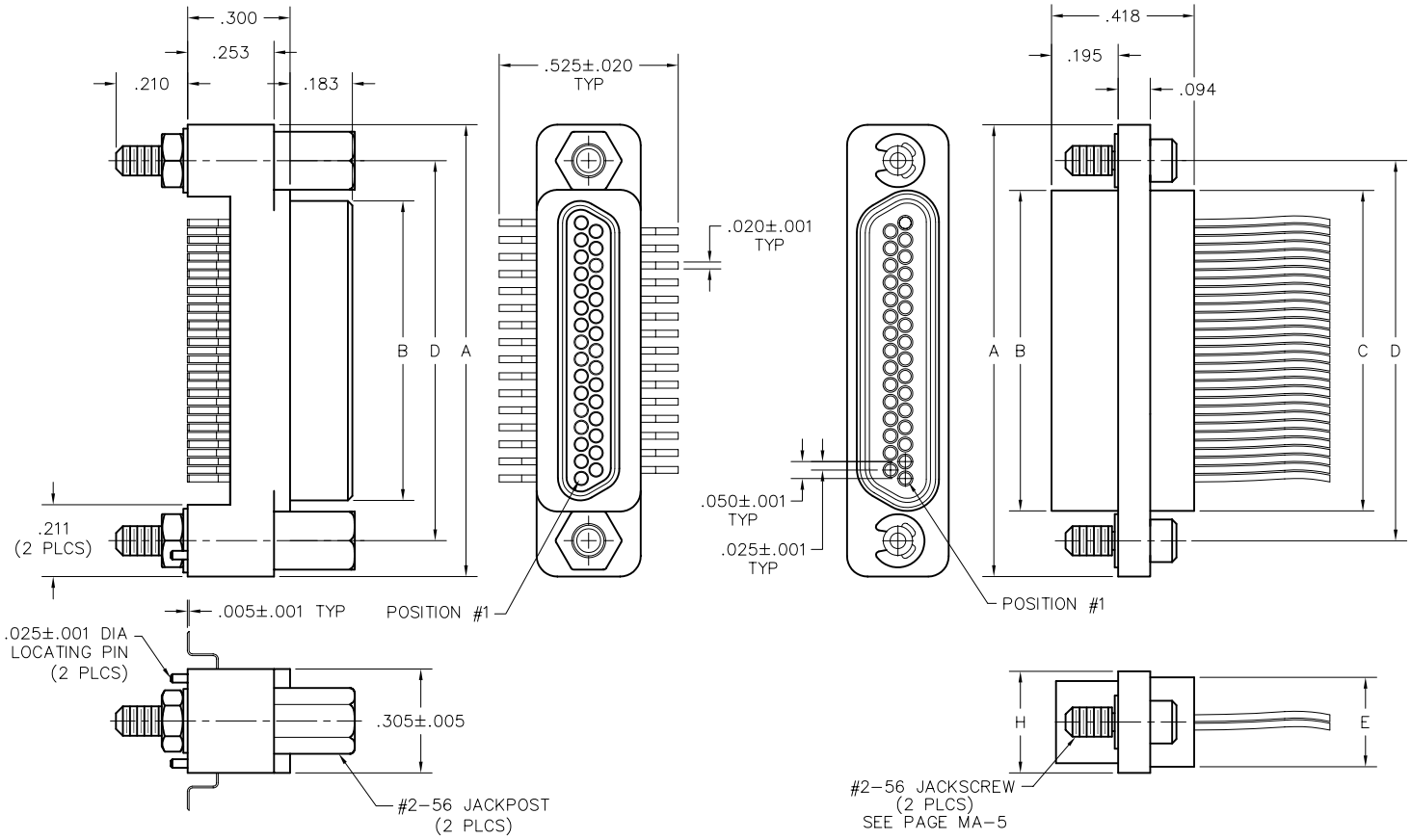
MM



MM–222–031–261–41WQ
(METAL)



MK–2H2–031–375–2200
(METAL)



PLUG

RECEPTACLE

DIMENSIONS									
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	HARDWARE
9	2	.775	.334	.400	.390	.565	.270	.298	#2–56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.540	.715			
21		1.075	.634	.700	.690	.865			
25		1.175	.734	.800	.790	.965			
31		1.325	.884	.950	.940	1.115			
37		1.475	1.034	1.100	1.090	1.265			
51*		1.825	1.384	1.450	1.440	1.615			

* = 51 POSITION CONNECTORS ARE NON-MIL SPEC INTERFACE

PLUG: MK–2H3–031–375–2200
RECEPTACLE: MM–223–031–213–4100
XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MK .050" Rugged Metal Surface Mount Connector (MK mates with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector (MM mates with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 51*)	2 2-Row (Sizes 9 thru 51*)
BODY STYLE:	BODY STYLE:
H Plug, vertical surface mount	2 Receptacle, straight, with ears
BODY MATERIAL:	BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell	2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒	3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4 Polyphenylene Sulfide with hard anodized black shell	4 Polyphenylene Sulfide with hard anodized black shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051*	XXX 009, 015, 021, 025, 031, 037, 051*
CONTACTS	
TYPE CONTACTS/TERMINATIONS:	TYPE CONTACTS/TERMINATIONS:
37 Pin, vertical smt	21 Socket, straight, solder cup
	24 Socket, straight, .500" pigtails (.018 dia)
	25 Socket, straight, 1.000" pigtails (.018 dia)
	26 Socket, straight, crimped wire
PLATING OPTIONS:	PLATING OPTIONS:
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒	1 50 µ" Au contacts (crimp wire)
7 50 µ" Au contacts; SAC305 terminations	3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)
	5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
	7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE:	STYLE OF HARDWARE:
00 None	00 None
22 Two fixed jacknut assemblies	22 Two fixed jacknut assemblies
41 Two turning jackscrews, allen head, retaining ring	41 Two turning jackscrews, allen head, retaining ring
	42 Two long turning jackscrews, allen head, retaining ring
	43 Two turning jackscrews, slot head, retaining ring
	44 Two long turning jackscrews, slot head, retaining ring
	45 Two turning jackscrews, allen head, captivated**
99 Keying hardware, see options below	99 Keying hardware, see options below
POLARIZATION / WIRING:	POLARIZATION / WIRING
00 None	00 None
	XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
KPXX Two fixed jacknuts. See page MA-6 for keying options	KSXX Two turning jackscrews and interfacial sealing gasket. See page MA-6 for keying options
	900 Interfacial sealing gasket

* = 2 row, 51 position connectors are non-Mil Spec interface.
** = Captive hardware is factory installed and non-removable.

☒ = Option not RoHS compliant

Recommended PC Board Layout

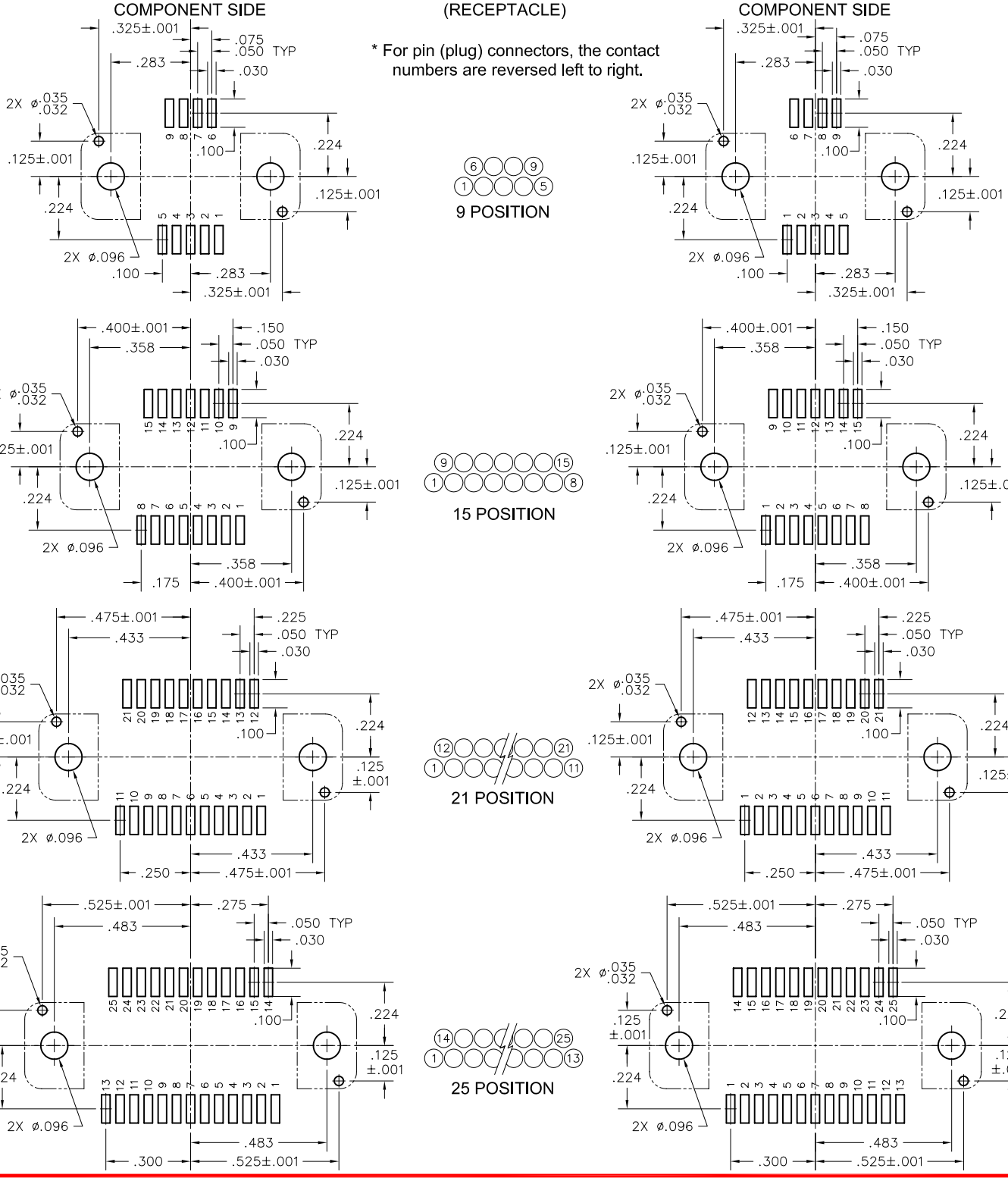
Vertical Surface Mount

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

CONNECTOR
MATING FACE*
(RECEPTACLE)

* For pin (plug) connectors, the contact numbers are reversed left to right.

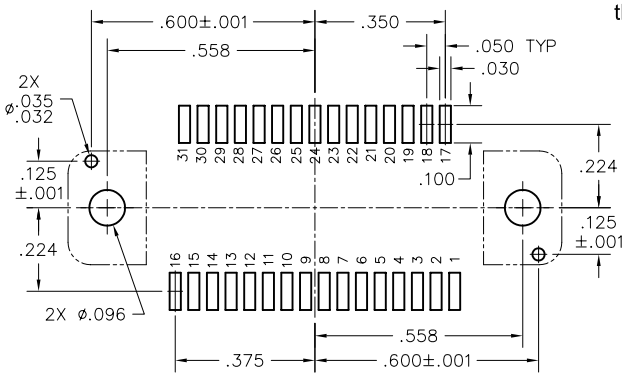
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE



Recommended PC Board Layout

Vertical Surface Mount

PLUG
PC BOARD LAYOUT
COMPONENT SIDE



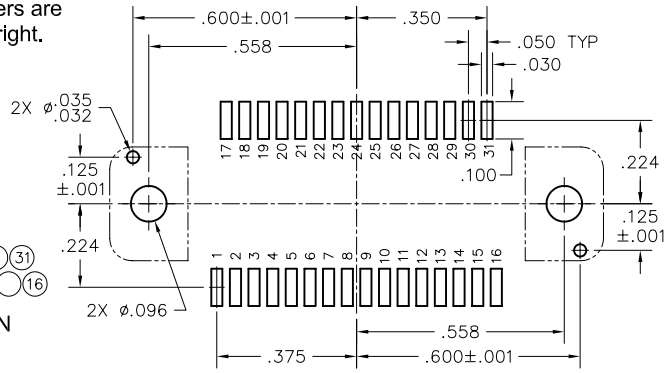
CONNECTOR MATING FACE*
(RECEPTACLE)

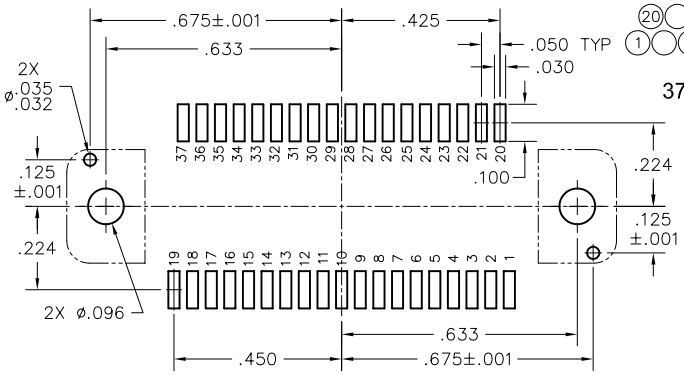
* For pin (plug) connectors, the contact numbers are reversed left to right.



31 POSITION

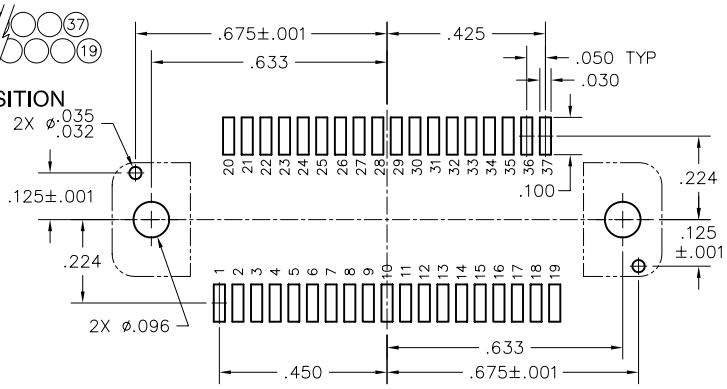
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

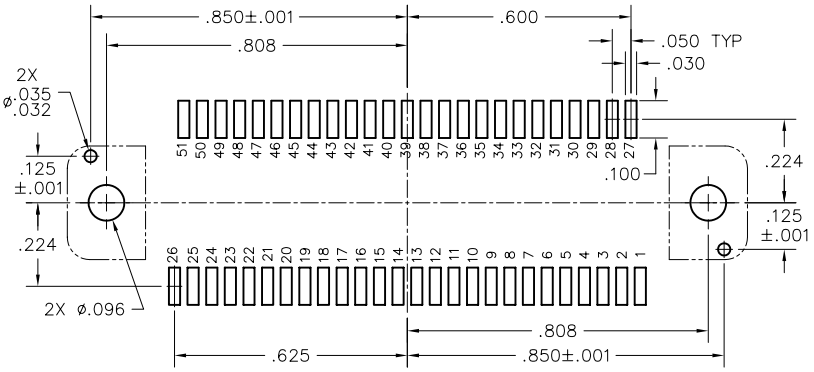






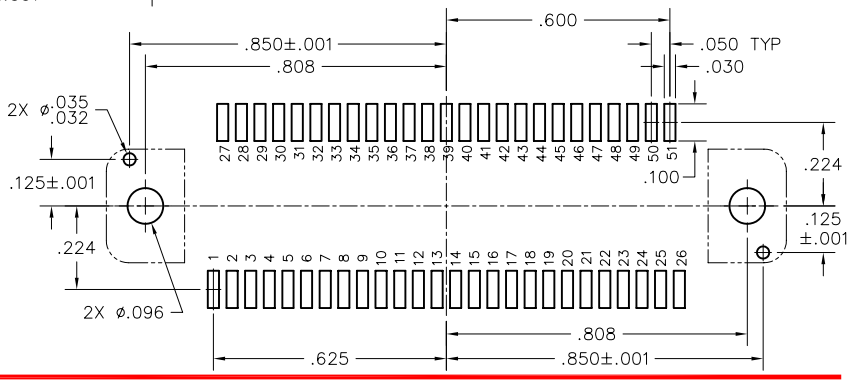
37 POSITION







51 POSITION



Card Edge Mount to Cable

.050"

9 thru 100 Contacts

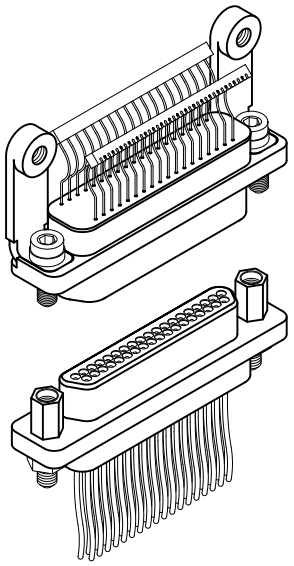
Rugged Card Edge Mount

MK

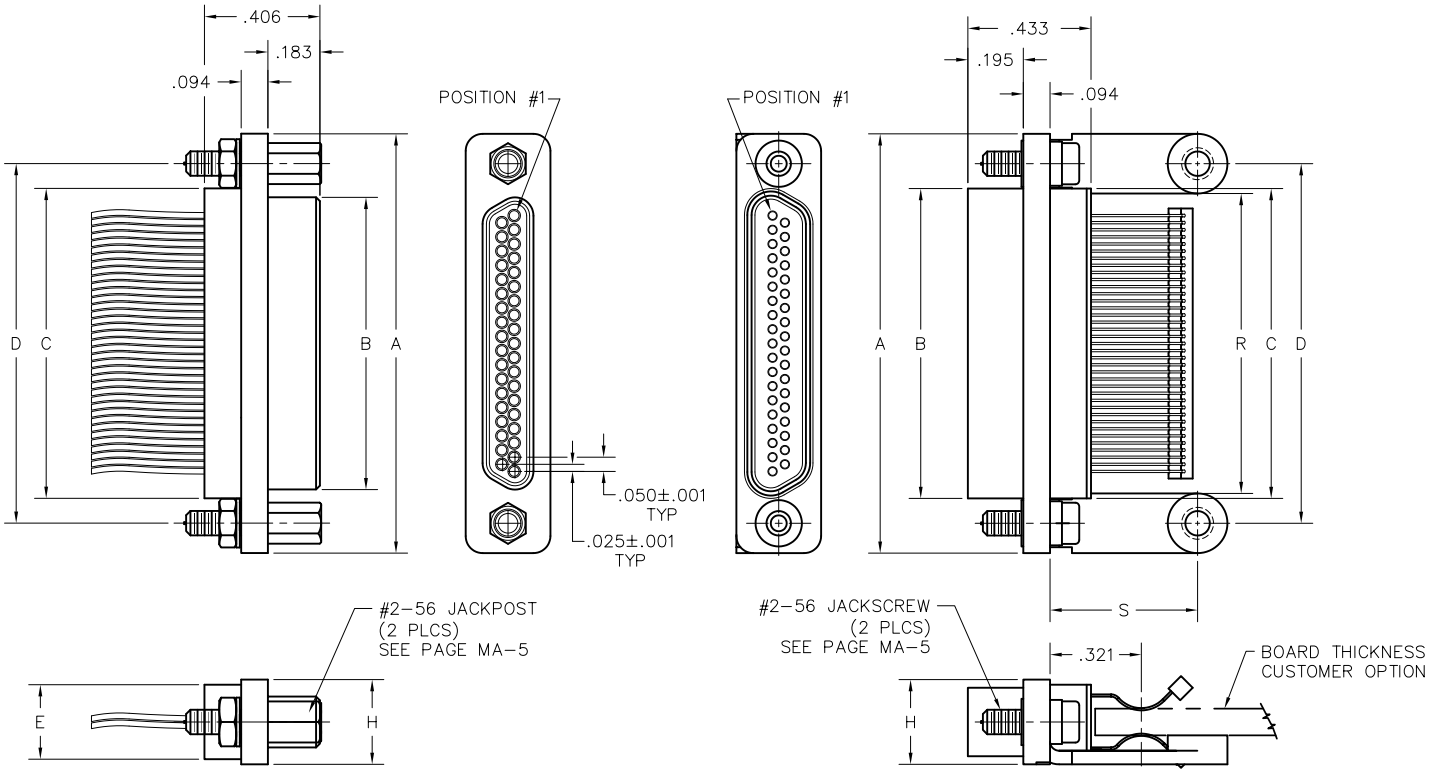
Rugged Metal

MM

MK–2G2–037–275–460S
(METAL)



MM–212–037–161–22WQ
(METAL)



PLUG

RECEPTACLE

DIMENSIONS												
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE	MOUNTING HOLES	R	S
			PLUG MAX	RCPT MAX			POTTING WELL MAX					
9	2	.775	.334	.400	.390	.565	.270	.298	#2–56 UNC THD	#4–40 UNC THD	.355	.519
15		.925	.484	.550	.540	.715					.505	
21		1.075	.634	.700	.690	.865					.655	
25		1.175	.734	.800	.790	.965					.755	
31		1.325	.884	.950	.940	1.115					.905	
37		1.475	1.034	1.100	1.090	1.265					1.055	
51	3	1.425	.984	1.050	1.040	1.215	.310	.341			1.005	
69		1.725	1.284	1.350	1.340	1.515					1.309	
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4–40 UNC THD		1.514	.540

PLUG: MM–212–031–161–22WQ
RECEPTACLE: MK–2G2–031–275–460S–900
XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector (MM mates with MK, ML, MM, MN receptacles)	MK .050" Rugged Metal Card Edge Mount (MK mates with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69) 4 4-Row (Size 100)
BODY STYLE: 1 Plug, straight, with ears	BODY STYLE: G Receptacle, straight, card edge with mounting brackets
BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell	BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 27 Socket, surface mount, .062-.094" pcb thickness (.010 dia) 28 Socket, surface mount, .109-.140" pcb thickness (.010 dia)
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)	PLATING OPTIONS: 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 8 50 µ" Au contacts; Sn plated terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*)	STYLE OF HARDWARE: 32 Two fixed jacknut assemblies (72*) 46 Two turning jackscrews, allen head, captivated** (86*)
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 0S Standard Body Polarization
OPTIONS	
	900 Interfacial sealing gasket

* = Use number in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

☒ = Option not RoHS compliant

Card Edge Mount to Cable

.050"

9 thru 100 Contacts

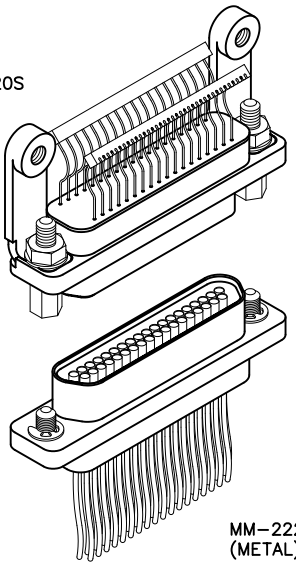
Rugged Card Edge Mount

MK

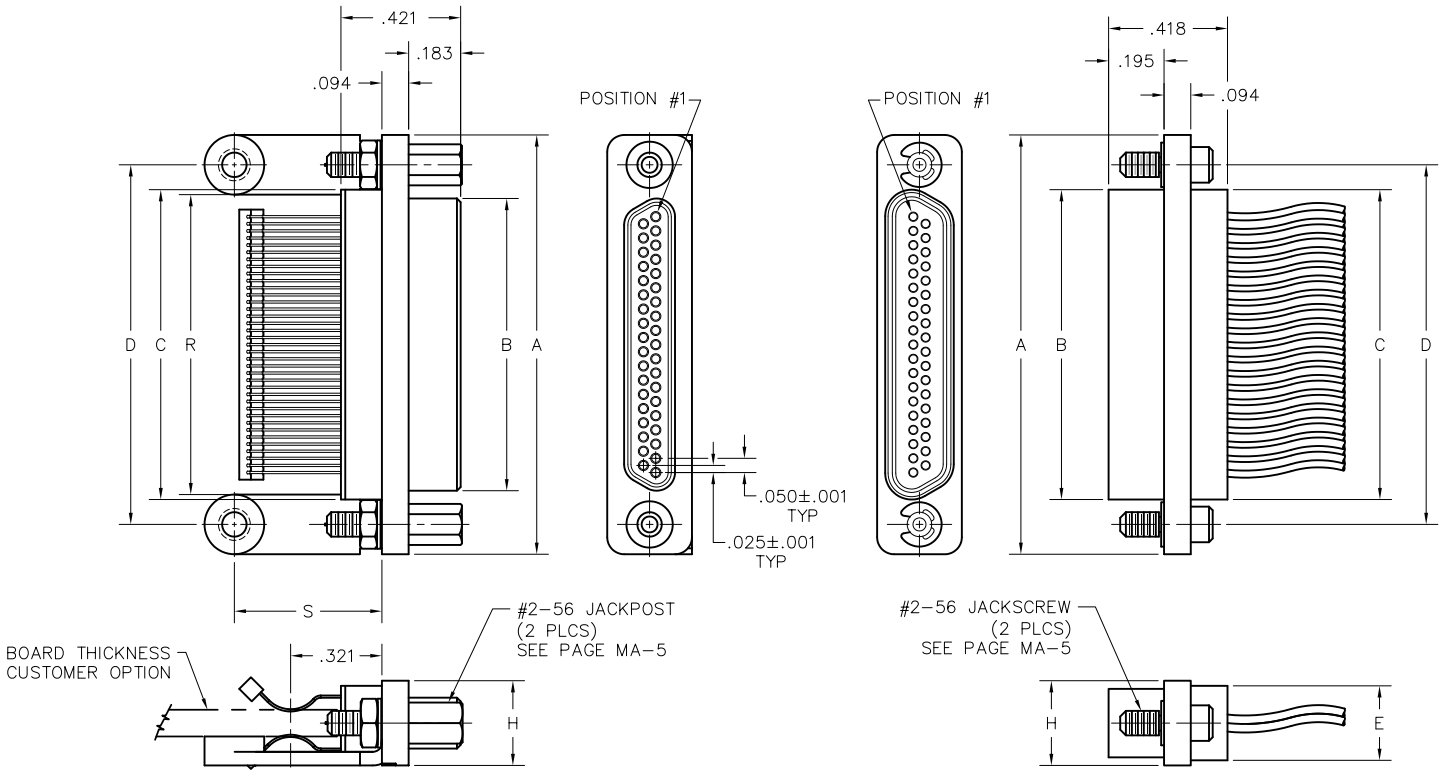
Rugged Metal

MM

MK–2F2–037–175–320S
(METAL)



MM–222–037–261–41WQ
(METAL)



PLUG RECEPTACLE

DIMENSIONS												
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	HARDWARE	MOUNTING HOLES	R	S
9	2	.775	.334	.400	.390	.565	.270	.298	#2–56 UNC THD	#4–40 UNC THD	.355	.519
15		.925	.484	.550	.540	.715					.505	
21		1.075	.634	.700	.690	.865					.655	
25		1.175	.734	.800	.790	.965					.755	
31		1.325	.884	.950	.940	1.115					.905	
37		1.475	1.034	1.100	1.090	1.265					1.055	
51	3	1.425	.984	1.050	1.040	1.215	.310	.341			1.005	
69		1.725	1.284	1.350	1.340	1.515					1.309	
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4–40 UNC THD		1.514	.540

PLUG: MK–2F2–031–175–320S
RECEPTACLE: MM–222–031–261–41WQ–900
XX–XXX–XXX–XXX–XXXX–XXX

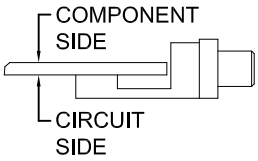
PLUG	RECEPTACLE
SERIES	
MK .050" Rugged Metal Card Edge Mount Connector (MK mates with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector (MM mates with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69) 4 4-Row (Size 100)
BODY STYLE: F Plug, straight, card edge, with mounting brackets	BODY STYLE: 2 Receptacle, straight, with ears
BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell	BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 17 Pin, surface mount, .062-.094 pcb thickness (.010 dia) 18 Pin, surface mount, .109-.140 pcb thickness (.010 dia)	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, solder cup 24 Socket, straight, .500" pigtails (.018 dia) 25 Socket, straight, 1.000" pigtails (.018 dia) 26 Socket, straight, crimped wire
PLATING OPTIONS: 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 8 50 µ" Au contacts; Sn plated terminations	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE: 32 Two fixed jacknut assemblies (72*) 46 Two turning jackscrews, allen head, captivated** (86*)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*) 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*)
POLARIZATION / WIRING: 0S Standard Body Polarization	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
	900 Interfacial sealing gasket

* = Use number in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

☒ = Option not RoHS compliant

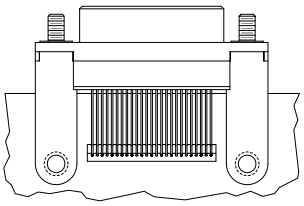
Recommended PC Board Layout

Card Edge Mount
Standard Polarization

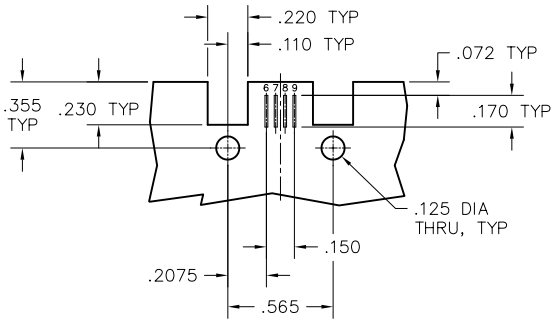




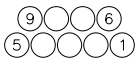
CONNECTOR MATING FACE


PC BOARD LAYOUT
CIRCUIT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

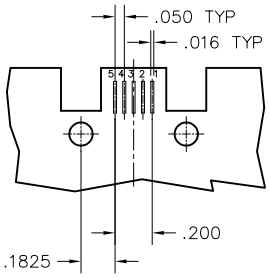


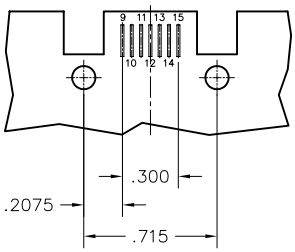
CONNECTOR MATING FACE

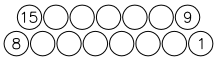


9 POSITION

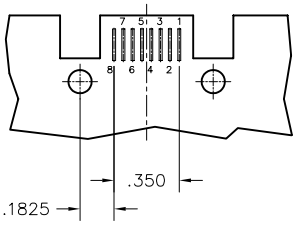
PLUG
PC BOARD LAYOUT
CIRCUIT SIDE

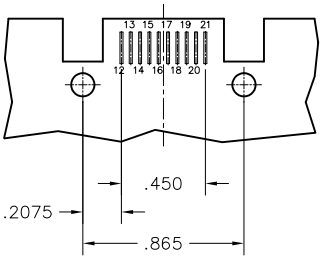






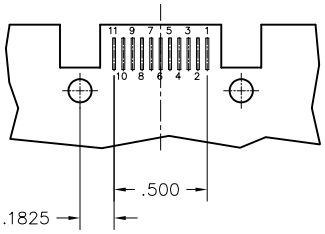
15 POSITION

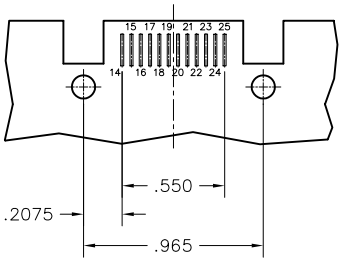






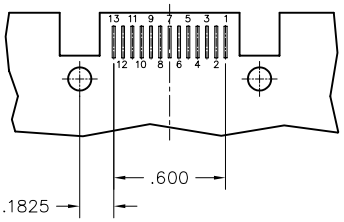
21 POSITION

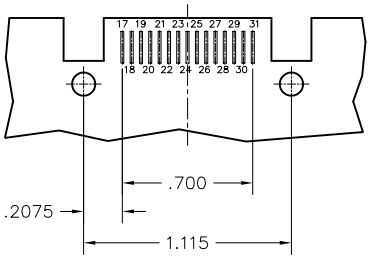






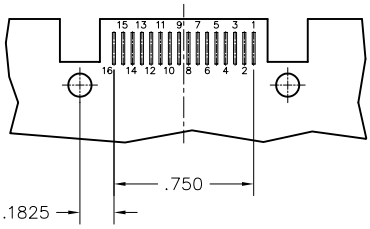
25 POSITION

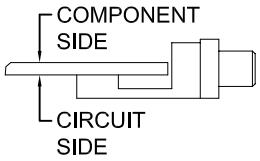






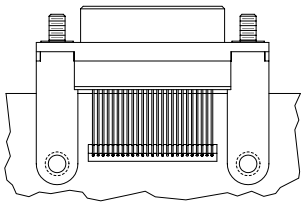
31 POSITION







CONNECTOR MATING FACE

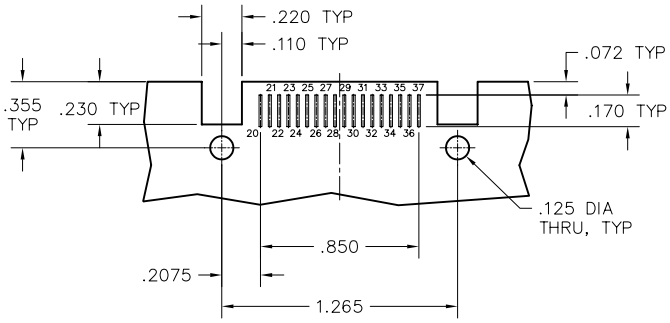


PC BOARD LAYOUT
CIRCUIT SIDE

Recommended PC Board Layout

Card Edge Mount
Standard Polarization

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

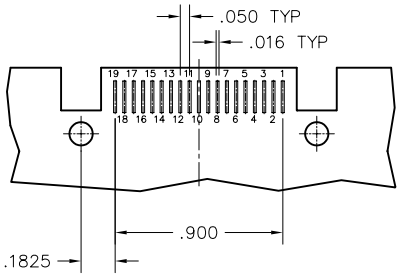


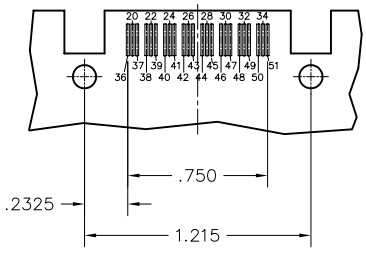
CONNECTOR MATING FACE

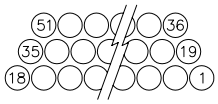


37 POSITION

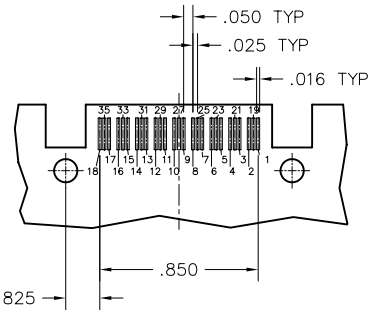
PLUG
PC BOARD LAYOUT
CIRCUIT SIDE

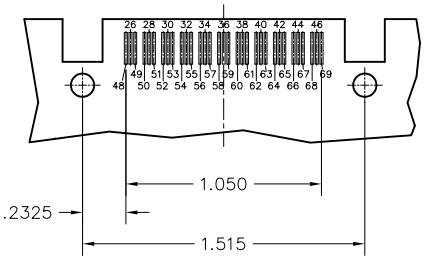


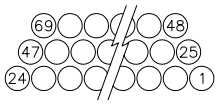




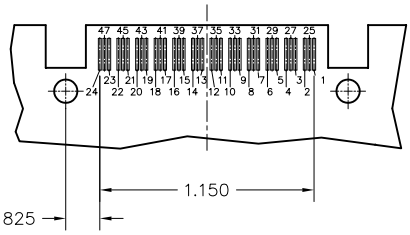
51 POSITION

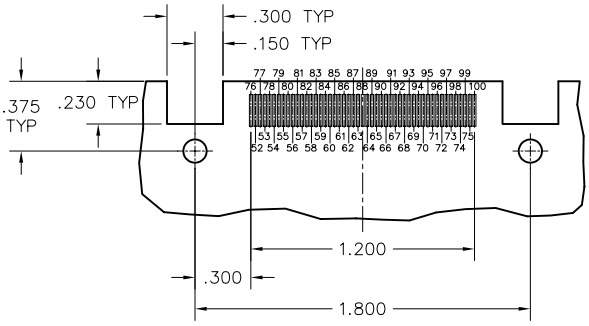


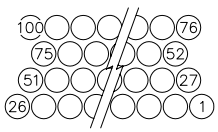




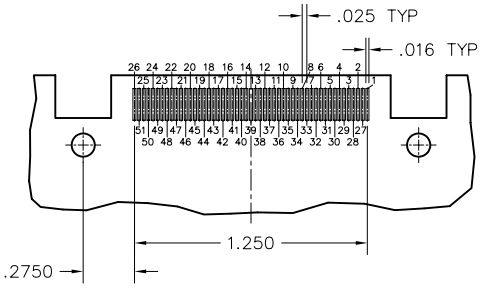
69 POSITION





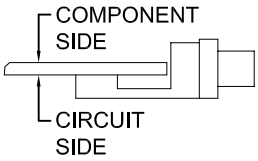


100 POSITION



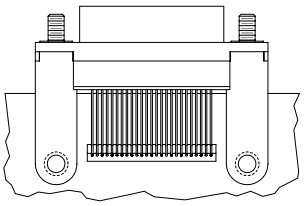
Recommended PC Board Layout

Card Edge Mount
Standard Polarization





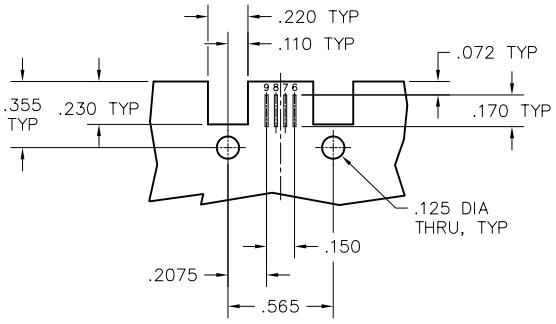
CONNECTOR MATING FACE

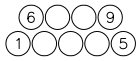

PC BOARD LAYOUT
CIRCUIT SIDE

RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

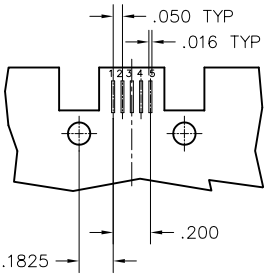
RECEPTACLE
PC BOARD LAYOUT
CIRCUIT SIDE

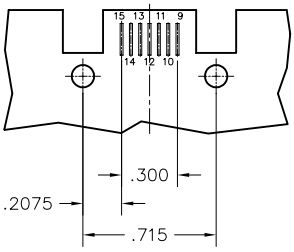
CONNECTOR
MATING FACE

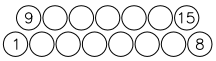




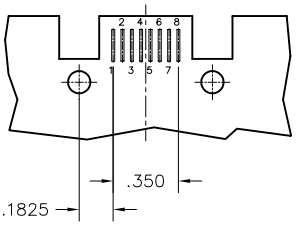
9 POSITION

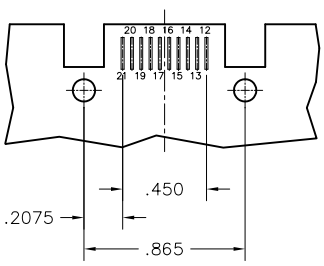






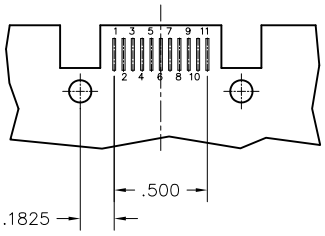
15 POSITION

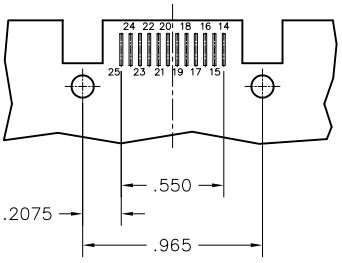






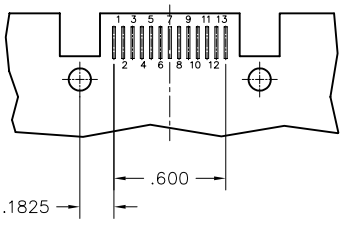
21 POSITION

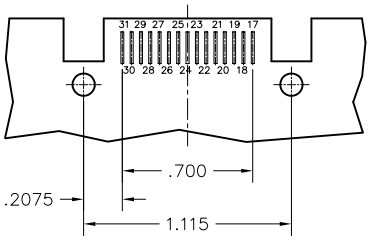






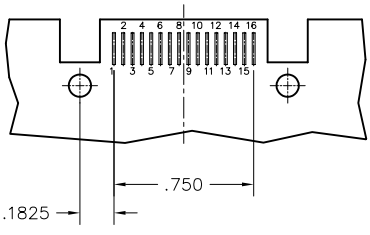
25 POSITION





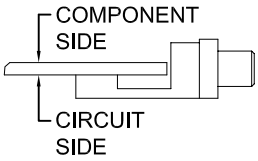


31 POSITION



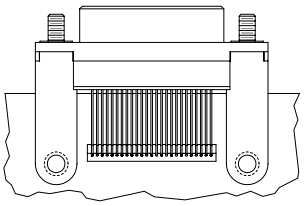
Recommended PC Board Layout

Card Edge Mount
Standard Polarization



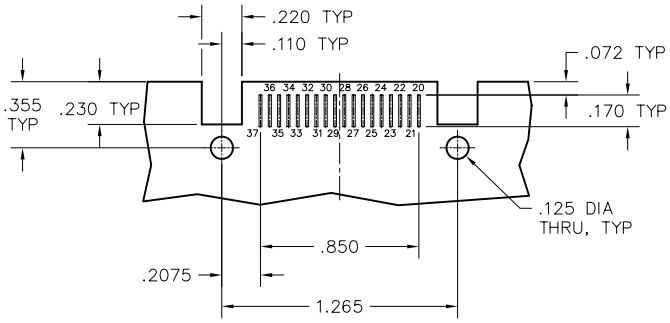


CONNECTOR MATING FACE



PC BOARD LAYOUT
CIRCUIT SIDE

RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

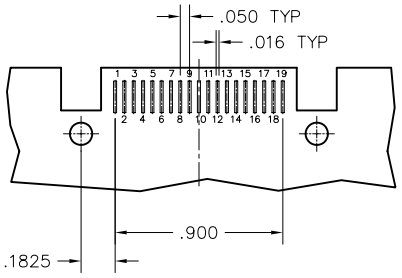


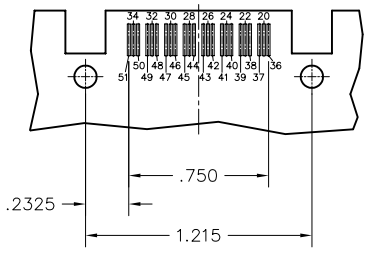
CONNECTOR MATING FACE



37 POSITION

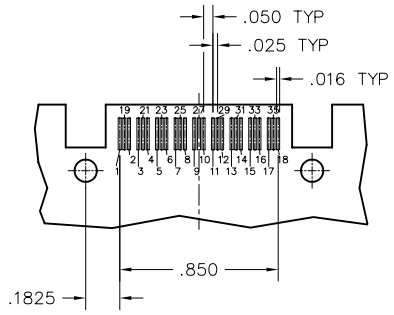
RECEPTACLE
PC BOARD LAYOUT
CIRCUIT SIDE

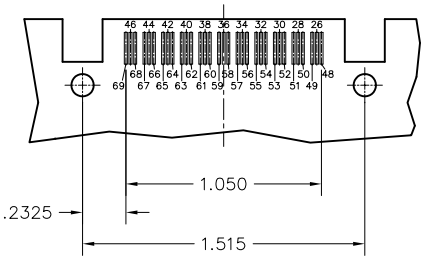


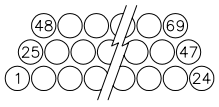




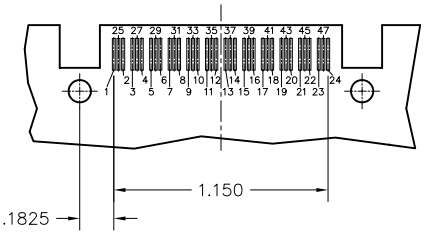
51 POSITION

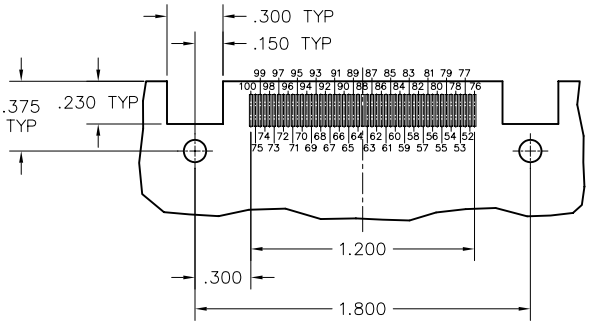


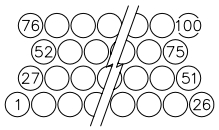




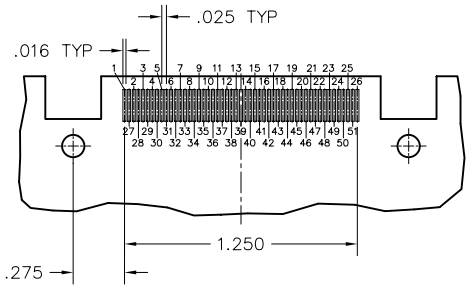
69 POSITION







100 POSITION



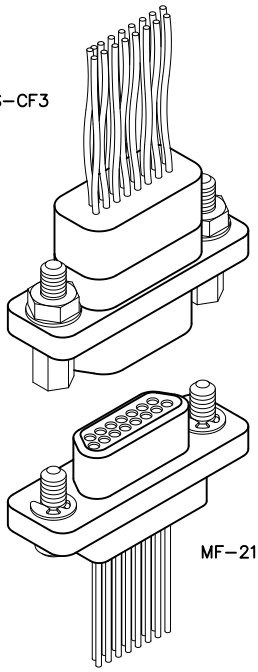
Filtered Cable Connectors

.050"

9 thru 37 Contacts

Rugged Metal

MF



MF–222–015–261–22WS–CF3

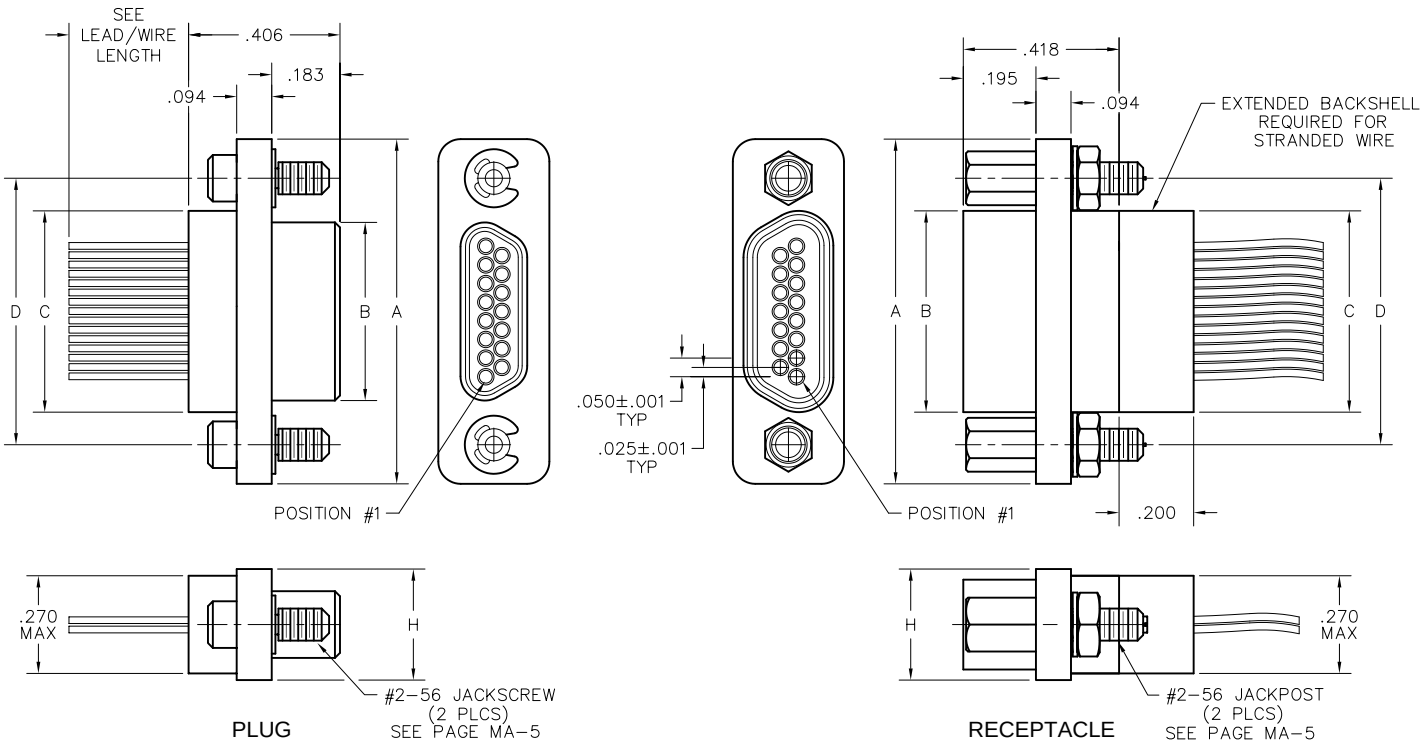
MF–212–015–145–4100–CF6

Electrical Data

Dielectric Withstanding Voltage (DWV): 300 VDC
Insulation Resistance: 5000 Megohms @ 100 VDC
Working Voltage (WV): 100 VDC
Current Rating: 3 Amps

Application Notes

1. Hipot voltage must not exceed working voltage.
2. Maximum solder tinning temperature is 275° C while maintaining a tinning dwell of 5 seconds max.
3. Maximum solder station temperature is 360° C while maintaining a soldering dwell of less than 5 seconds.
4. Temperature exceeding 150° C should never be applied to the entire connector. Failure to adhere to these guidelines may result in damage to connector or significantly reduced operating characteristics.



DIMENSIONS								
SIZE	CONTACT ROWS	A	B		C	D	H	HARDWARE
			PLUG MAX	RCPT MAX				
9	2	.775	.334	.400	.390	.565	.298	#2–56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.540	.715		
21		1.075	.634	.700	.690	.865		
25		1.175	.734	.800	.790	.965		
31		1.325	.884	.950	.940	1.115		
37		1.475	1.034	1.100	1.090	1.265		

AirBorn

PLUG: MF–212–015–145–4100–CF6
RECEPTACLE: MM–222–031–2G3–4500
PLUG: MF–212–031–1G3–4500
RECEPTACLE: MF–222–015–261–22WS–CF3

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MF .050" Rugged Metal I/O Connector (MF mates with MK, ML, MM, MN receptacles)	MF .050" Rugged Metal I/O Connector (MF mates with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37)	2 2-Row (Sizes 9 thru 37)
BODY STYLE:	BODY STYLE:
1 Plug, straight, with ears	2 Receptacle, straight, with ears & interfacial seal
BODY MATERIAL:	BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell	2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒	3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
SIZE	
XXX 009, 015, 021, 025, 031, 037	XXX 009, 015, 021, 025, 031, 037
CONTACTS	
TYPE CONTACTS/TERMINATIONS:	TYPE CONTACTS/TERMINATIONS:
1D Pin, straight, .109" Lead Length (.018 dia) SEE NOTE 1	2D Socket, straight, .109" Lead Length (.018 dia)
1E Pin, straight, .125" Lead Length (.018 dia) SEE NOTE 1	2E Socket, straight, .125" Lead Length (.018 dia)
1F Pin, straight, .140" Lead Length (.018 dia) SEE NOTE 1	2F Socket, straight, .140" Lead Length (.018 dia)
12 Pin, straight, .150" Lead Length (.018 dia) SEE NOTE 1	22 Socket, straight, .150" Lead Length (.018 dia)
1G Pin, straight, .156" Lead Length (.018 dia) SEE NOTE 1	2G Socket, straight, .156" Lead Length (.018 dia)
1H Pin, straight, .172" Lead Length (.018 dia) SEE NOTE 1	2H Socket, straight, .172" Lead Length (.018 dia)
1J Pin, straight, .187" Lead Length (.018 dia) SEE NOTE 1	2J Socket, straight, .187" Lead Length (.018 dia)
13 Pin, straight, .250" Lead Length (.018 dia) SEE NOTE 1	23 Socket, straight, .250" Lead Length (.018 dia)
1K Pin, straight, .375" Lead Length (.018 dia) SEE NOTE 1	2K Socket, straight, .375" Lead Length (.018 dia)
14 Pin, straight, .500" pigtails (.018 dia) SEE NOTE 1	2L Socket, straight, .500" Lead Length (.018 dia)
15 Pin, straight, 1.000" pigtails (.018 dia) SEE NOTE 1	2M Socket, straight, 1.000" Lead Length (.018 dia)
16 Pin, straight, stranded wire	24 Socket, straight, .500" pigtails (.018 dia) SEE NOTE 1
	25 Socket, straight, 1.000" pigtails (.018 dia) SEE NOTE 1
	26 Socket, straight, stranded wire
PLATING OPTIONS:	PLATING OPTIONS:
1 50 µ" Au contacts (stranded wire) ☒	1 50 µ" Au contacts (stranded wire) ☒
3 50 µ" Au contacts: 10 µ" Au terminations (pigtails)	3 50 µ" Au contacts: 10 µ" Au terminations (pigtails)
5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtails) ☒	5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtails) ☒
HARDWARE	
STYLE OF HARDWARE:	STYLE OF HARDWARE:
00 None	00 None
22 Two fixed jacknut assemblies	22 Two fixed jacknut assemblies
41 Two turning jackscrews, allen head, retaining ring	41 Two turning jackscrews, allen head, retaining ring
42 Two long turning jackscrews, allen head, retaining ring	42 Two long turning jackscrews, allen head, retaining ring
43 Two turning jackscrews, slot head, retaining ring	43 Two turning jackscrews, slot head, retaining ring
44 Two long turning jackscrews, slot head, retaining ring	44 Two long turning jackscrews, slot head, retaining ring
45 Two turning jackscrews, allen head, captivated**	45 Two turning jackscrews, allen head, captivated**
WIRING:	WIRING
00 None	00 None
XX For wiring codes, see page MA-3 & MA-4	XX For wiring codes, see page MA-3 & MA-4
CAPACITOR DESIGNATOR	
XXX See tables below	XXX See tables below

** = Captive hardware is factory installed and non-removable.
☒ = Option not RoHS compliant

NOTE 1 = The leads on these contacts are soft copper suitable for forming.

CERAMIC CHIP CAPACITOR FILTERS

CAPACITOR DESIGNATOR	CAP RANGE (pF)	MINIMUM INSERTION LOSS (DECIBELS)			
		10 MHz	15 MHz	30 MHz	50 MHz
CF1 ☒	150–250	—	—	1	4
CF2 ☒	300–500	1	2	5	8
CF3 ☒	700–1000	3	5	10	10
CF4 ☒	1300–2000	6	10	15	20
CF5 ☒	4000–5400	13	15	20	27
CF6 ☒	8500–11500	18	20	25	30

PLANAR CAPACITOR FILTERS

CAPACITOR DESIGNATOR	CAP RANGE (pF)	MINIMUM INSERTION LOSS (DECIBELS)			
		10 MHz	100 MHz	500 MHz	1 GHz
PF1 ☒	150–250	—	8	33	36
PF2 ☒	300–500	—	13	37	44
PF3 ☒	700–1000	2	19	42	42
PF4 ☒	1300–2000	6	25	45	45
PF5 ☒	4000–5400	14	34	41	41
PF6 ☒	8500–11500	20	36	43	43

Minimum no load attenuation (in 50 Ohm system, 25° C)

Ask About AirBorn's Accelerated Delivery Service

Specifications - Hybrid Connectors
Materials and Finishes *

Contacts:	Pins: BeCu alloy strip per ASTM B194 Sockets: Brass per ASTM B121 / B121M or ASTM B16 / B16M or ASTM B453 Power: Copper based alloy selected for power applications
Contact Finish:	Gold plate per ASTM B488
Shells:	Aluminum Alloy 6061-T6 per SAE AMS-QQ-A-250/11 or 6061-T6511 per SAE AMS-QQ-A-200/8
Aluminum Shell Finishes:	Electroless Nickel per SAE AMS2404, Class 3, 500 µ" min Electrodeposited Cadmium per SAE AMS-QQ-P-416, Type II, Class 3
Molded Insulators:	Glass filled polyphenylene sulfide per MIL-M-24519
Embedment:	Frey Engineering Co. insulating compound CF3003-80 and L-II-49 or equivalent
Jackscrews, Jackposts and Nuts:	Corrosion resistant steel per ASTM A320 or ASTM A484 / A484M and ASTM A582 / A582 Passivated per SAE AMS2700
Clips and Washers:	Corrosion resistant steel per ASME 18.24 or NASM35333 (For reference only: ASME 18.24 CRS per ASTM A693 and NASM35333 CRS per ASTM A240) Passivated per ASME 18.24 or NASM35333 (For reference only: ASME 18.24 and NASM35333 passivated per SAE AMS2700)
Interfacial Seal Gaskets:	Fluorosilicone per SAE AMS-R-25988
Tolerances:	Unless otherwise specified: Fractions = ±1/64" Decimals = ±.010" Angles = ±5° Wire lengths: insulated/stranded = +1.0"/-0.0"

Note: AirBorn can manufacture special configurations for your exact specifications.
* = Reference the above listed specifications or an equivalent industry standard when applicable

Performance - Hybrid Connectors
Reference MIL-DTL-83513

Contact Rating:	3-amperes maximum for signal and coax contacts 13-amperes maximum for power contacts
Solderability:	Terminals (except crimp) tested in accordance with MIL-STD-202, Method 208
Wire Size:	Stranded #16 AWG standard for power contacts RG316 or RG178 standard for coax contacts Stranded #24-#28 AWG standard (consult factory for other sizes and types)
Test Voltage:	600 V, RMS, 60 Hz
Operating Temperature:	-55° C to +125° C
Insulation Resistance:	5,000 megohms minimum @ 500 VDC
Durability:	500 connector mating cycles
Vibration:	Tested in accordance with MIL-STD-1344, Method 2005, Condition IV, according to MIL-83513
Shock:	Tested in accordance with MIL-STD-1344, Method 2004, Condition E, according to MIL-83513
Salt Spray:	Mated connectors tested in accordance with MIL-STD-1344, Method 1001, Test Condition B
Humidity:	Mated connectors tested in accordance with MIL-STD-1344, Method 1002, Type II (except steps 7a and 7b)
Thermal Shock:	Tested to the temperature extremes of MIL-STD-1344, Method 1003, Test Condition A (except step 3, temperature shall be 125° C)

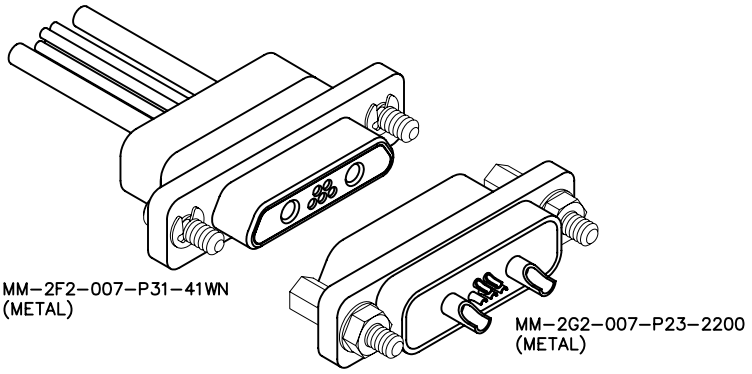
Cable to Cable Hybrid

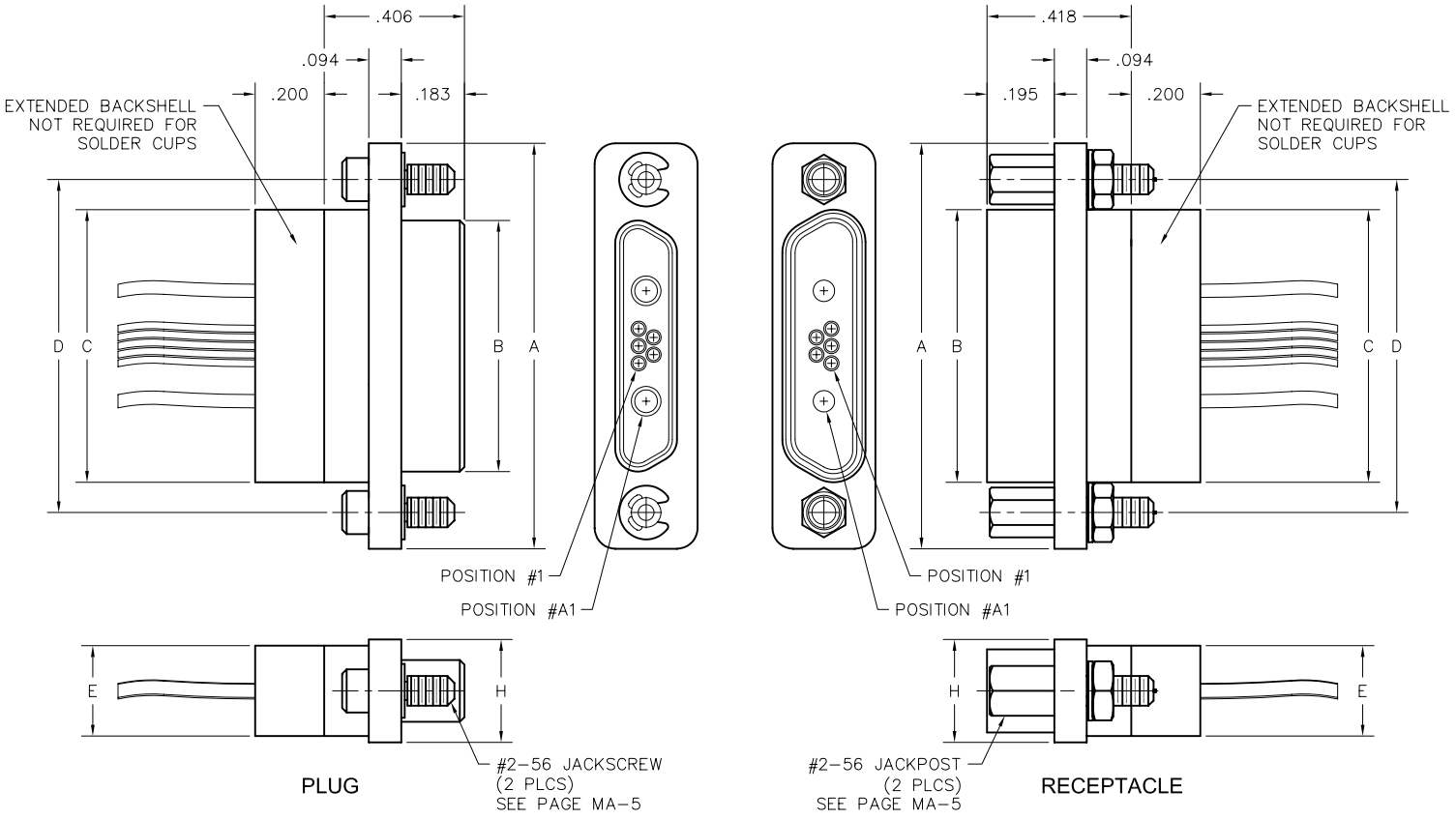
.050"

7 or 24 Contacts

Rugged Metal

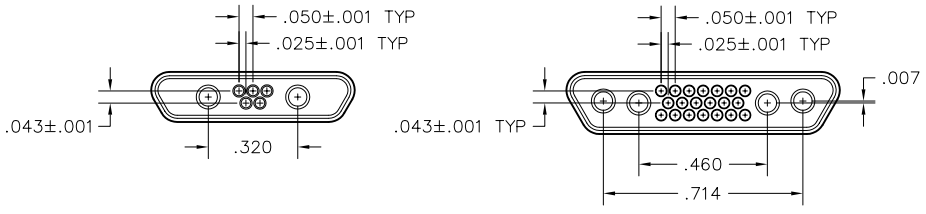
MM





DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
7	2	1.175	.734	.800	.790	.965	.270	.298	#2–56 UNC THD (.092 DIA THRU)
24	3	1.425	.984	1.050	1.040	1.215	.310	.341	

INTERFACE DIMENSIONS



PLUG: MM–2F2–007–P31–41WN
RECEPTACLE: MM–2G2–007–P41–22WS
XX–XXX–XXX–XXX–XXXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal Connector	MM .050" Rugged Metal Connector
BODY	
2 2-Row (Size 7) 3 3-Row (Size 24)	2 2-Row (Size 7) 3 3-Row (Size 24)
BODY STYLE: F Plug, straight, with ears	BODY STYLE: G Receptacle, straight, with ears & interfacial seal
BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒	BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
SIZE	
007 2 Power or Coax and 5 Signal 024 4 Power or Coax and 20 Signal	007 2 Power or Coax and 5 Signal 024 4 Power or Coax and 20 Signal
CONTACTS	
TYPE CONTACTS/TERMINATIONS: P1 Solder cup, power connector P3 Crimped wire, Power contacts M16878/4-16-9, length per wire code. C3 Crimped wire, Coax RG316, length per wire code C5 Crimped wire, Coax RG178, length per wire code Note: Plug connector has pin signal contacts and socket power/coax contacts.	TYPE CONTACTS/TERMINATIONS: P2 Solder cup, power connector P4 Crimped wire, Power contacts M16878/4-16-9, length per wire code. C4 Crimped wire, Coax RG316, length per wire code C6 Crimped wire, Coax RG178, length per wire code Note: Receptacle connector has socket signal contacts and pin power/coax contacts.
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, power connectors only)	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, power connectors only)
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies 41 Two turning jackscrews, allen head, retaining ring 42 Two long turning jackscrews, allen head, retaining ring 43 Two turning jackscrews, slot head, retaining ring 44 Two long turning jackscrews, slot head, retaining ring 45 Two turning jackscrews, allen head, captivated**	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies 41 Two turning jackscrews, allen head, retaining ring 42 Two long turning jackscrews, allen head, retaining ring 43 Two turning jackscrews, slot head, retaining ring 44 Two long turning jackscrews, slot head, retaining ring 45 Two turning jackscrews, allen head, captivated**
WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	WIRING 00 None XX For wiring codes, see page MA-3 & MA-4

** = Captive hardware is factory installed and non-removable.

☒ = Option not RoHS compliant

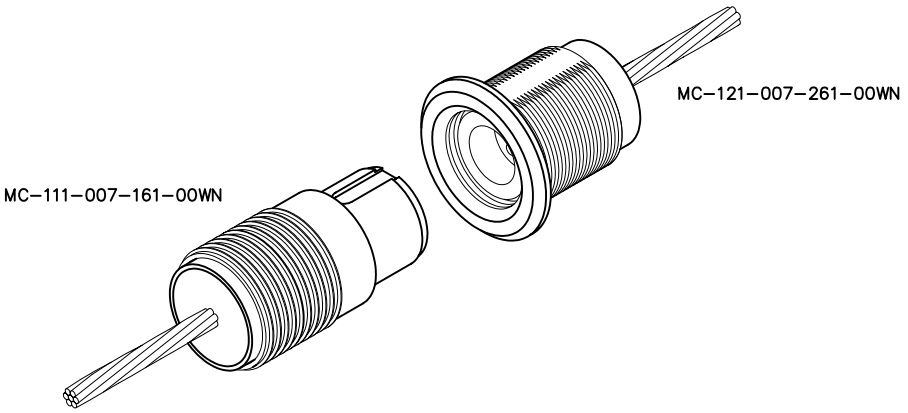
Circular Cable Connectors

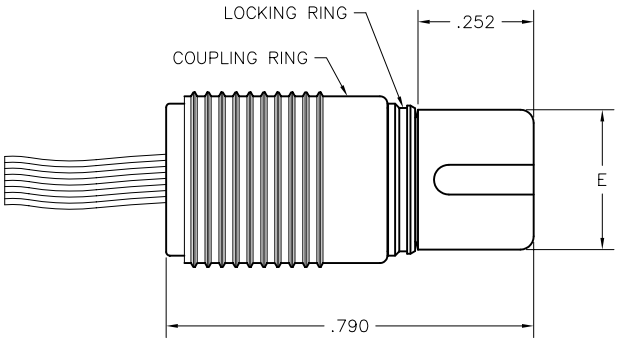
.050"

7 & 19 Contacts

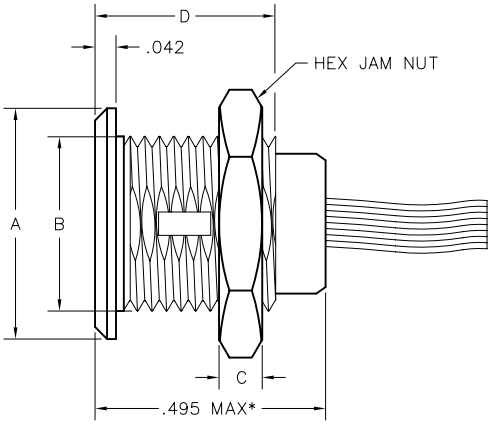
Rugged Metal

MC

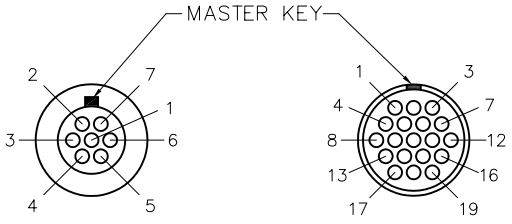




PLUG
(Socket Contacts)



RECEPTACLE
FRONT PANEL MOUNT
(Pin Contacts)

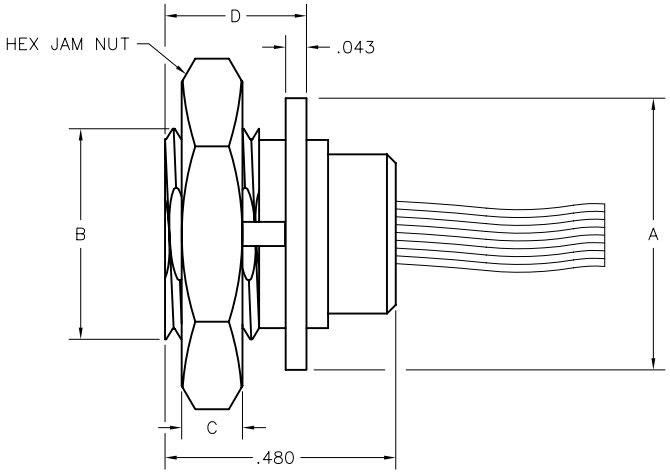


7 CONTACTS

19 CONTACTS

Contact Arrangements

Face view, receptacle (Pin contacts)
Cavity identification numbers are for reference
and do not appear on connector.



RECEPTACLE
REAR PANEL MOUNT
(Pin Contacts)

DIMENSIONS (RECEPTACLE)					
MOUNT	BODY	A MAX DIA	B THREAD	C NUT	D
FRONT PANEL	1 (7 POS)	.510	3/8-32 UNEF-2A	.093	.388
FRONT PANEL	2 (19 POS)	.575	1/2-28 UNEF-2A	.125	.340
REAR PANEL	1 (7 POS)	.575	7/16-28 UNEF-2A	.093	.293
REAR PANEL	2 (19 POS)	.575	1/2-28 UNEF-2A	.125	.305

* = .530 MAX FOR SOLDER CUP CONNECTORS

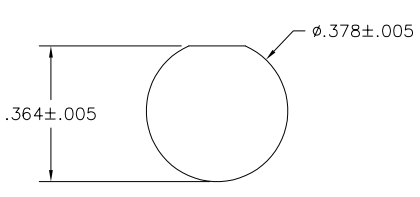
DIMENSIONS (PLUG)	
BODY	E MAX DIA
1 (7 POS)	.305
2 (19 POS)	.405

PLUG: MC– 111 –007– 161 –00WN
RECEPTACLE: MC– 121 –007– 261 –00WN
XX–XXX–XXX–XXX–XXX–XXXX

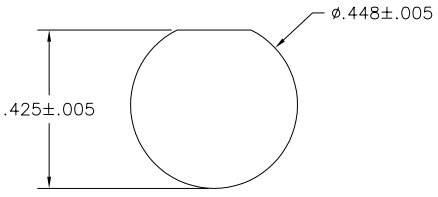
PLUG		RECEPTACLE	
SERIES			
MC	.050" Circular Connector	MC	.050" Circular Connector
BODY			
1	7 position shell	1	7 position shell
2	19 position shell	2	19 position shell
	BODY STYLE:		BODY STYLE:
1	Quick disconnect	2	Front mount, quick disconnect
		4	Rear mount, quick disconnect
	BODY MATERIAL:		BODY MATERIAL:
1	Polyphenylene Sulfide insulator, brass shell with electroless nickel plating	1	Polyphenylene Sulfide insulator, brass shell with electroless nickel plating
SIZE			
XXX	007, 019	XXX	007, 019
CONTACTS			
	TYPE CONTACTS/TERMINATIONS:		TYPE CONTACTS/TERMINATIONS:
14	Socket, straight, .500" pigtails (.018 dia)	21	Pin, straight, solder cup
15	Socket, straight, 1.000" pigtails (.018 dia)	24	Pin, straight, .500" pigtails (.018 dia)
16	Socket, straight, crimped wire	25	Pin, straight, 1.000" pigtails (.018 dia)
		26	Pin, straight, crimped wire
	PLATING OPTIONS:		PLATING OPTIONS:
1	50 µ" Au contacts (crimp wire)	1	50 µ" Au contacts (crimp wire)
3	50 µ" Au contacts: 10 µ" Au terminations (pigtail)	3	50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)
5	50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒	5	50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
7	50 µ" Au contacts; SAC305 terminations (pigtail)	7	50 u" Au contacts; SAC305 terminations (pigtail)
HARDWARE			
	STYLE OF HARDWARE:		STYLE OF HARDWARE:
00	None	00	None
	POLARIZATION / WIRING:		POLARIZATION / WIRING
00	None	00	None
XX	For wiring codes, see page MA-3 & MA-4	XX	For wiring codes, see page MA-3 & MA-4

☒ = Option not RoHS compliant

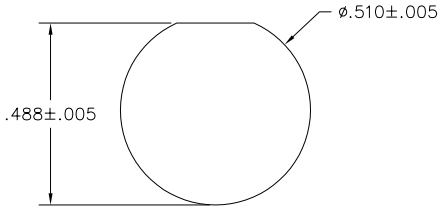
PANEL MOUNTING DIMENSIONS



7 POSITION
FRONT PANEL MOUNT



7 POSITION
REAR PANEL MOUNT



19 POSITION
FRONT AND REAR PANEL MOUNT

Specifications - Rear Panel Mount Connectors
Materials and Finishes *

Contacts:	Pins: BeCu alloy strip per ASTM B194 Sockets: Brass per ASTM B121 / B121M or ASTM B453
Contact Finish:	Gold plate per ASTM B488
Shells:	Aluminum Alloy 6061-T6 per SAE AMS-QQ-A-250/11 or 6061-T6511 per SAE AMS-QQ-A-200/8
Aluminum Shell Finishes:	Electroless Nickel per SAE AMS2404, Class 3, 500 µ" min Electrodeposited Cadmium per SAE AMS-QQ-P-416, Type II, Class 3 Black Anodized per MIL-A-8625, Type III, Class 2
Molded Insulators:	Glass filled polyphenylene sulfide per MIL-M-24519
Embedment:	Frey Engineering Co. insulating compound CF3003-80 and L-II-49 or equivalent
Jackscrews, Jackposts and Nuts:	Corrosion resistant steel per ASTM A320 or ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Clips:	Corrosion resistant steel per ASME 18.24 (For reference only: ASME 18.24 CRS per ASTM A693) Passivated per ASME 18.24 (For reference only: ASME 18.24 passivated per SAE AMS2700)
Gaskets:	Interfacial: Fluorosilicone per SAE AMS-R-25988 Flange: Fluorosilicone per SAE AMS-R-25988 Flange EMI: Conductive Elastomer per MIL-DTL-83528, Type D
Tolerances:	Unless otherwise specified: Fractions = ±1/64" Decimals = ±.010" Angles = ±5° Wire lengths: insulated/stranded = +1.0"/-0.0" uninsulated/solid = +0.2"/-0.0"

Note: AirBorn can manufacture special configurations for your exact specifications.

* = Reference the above listed specifications or an equivalent industry standard when applicable

Performance - Rear Panel Mount Connectors

Contact Rating:	3-amperes maximum
Solderability:	Terminals (except crimp) tested in accordance with MIL-STD-202, Method 208
Wire Size:	Stranded #26 AWG or solid #25 AWG standard (consult factory for other sizes and types)
Test Voltage:	600 V, RMS, 60 Hz
Operating Temperature:	-55° C to +125° C
Insulation Resistance:	5,000 megohms minimum @ 500 VDC
Durability:	500 connector mating cycles
Vibration:	Tested in accordance with MIL-STD-1344, Method 2005, Condition IV, according to MIL-83513
Shock:	Tested in accordance with MIL-STD-1344, Method 2004, Condition E, according to MIL-83513
Salt Spray:	Mated connectors tested in accordance with MIL-STD-1344, Method 1001, Test Condition B
Humidity:	Mated connectors tested in accordance with MIL-STD-1344, Method 1002, Type II (except steps 7a and 7b)
Thermal Shock:	Tested to the temperature extremes of MIL-STD-1344, Method 1003, Test Condition A (except step 3, temperature shall be 125° C)
Contact Resistance:	0.065 volt maximum drop @ 2.5 amps (.026 ohms)
Contact Engaging Force:	6.0 ounce maximum, with .0221 diameter test sleeve
Contact Separating Force:	0.5 ounce minimum, with .0230 diameter test sleeve
Crimp Strength:	5 pound minimum tensile strength
Sealing:	When mated, AirBorn rear panel mount connectors provide an environmental seal to water, moisture and certain chemicals as well as a dust and dirt barrier.

Cable to Cable (Rear Panel Mount)

.050"

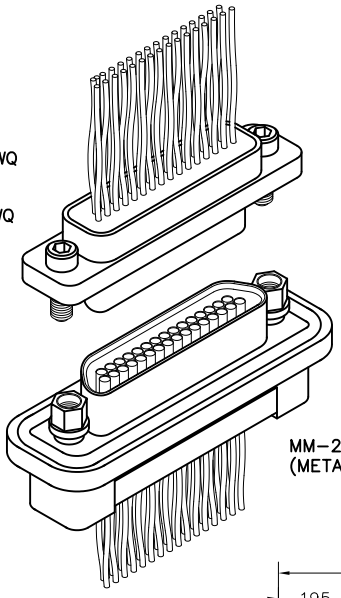
9 thru 100 Contacts

Rugged Metal

MM

Rugged Plastic

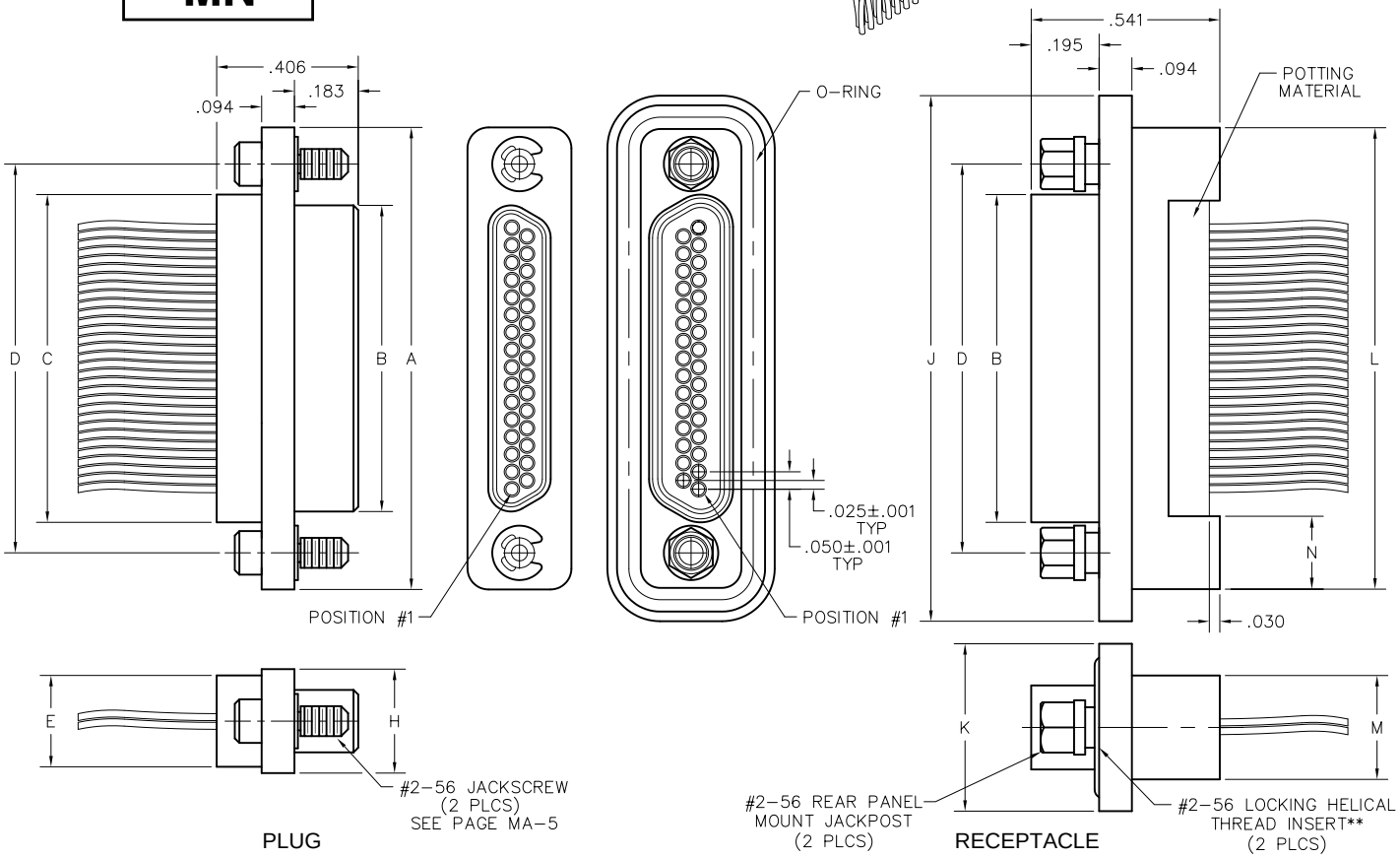
MN



MM-212-031-161-41WQ
(METAL)

MN-211-031-161-41WQ
(PLASTIC)

MM-2C2-031-261-26WA-EMI
(METAL)



PLUG

RECEPTACLE

DIMENSIONS														
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	HARDWARE	J	K	L	M	N
9	2	.775	.334	.400	.390	.565	.270	.298	#2-56 UNC THD	.957	.480	.773	.298	.210
15		.925	.484	.550	.540	.715				1.107		.923		
21		1.075	.634	.700	.690	.865				1.257		1.073		
25		1.175	.734	.800	.790	.965				1.357		1.173		
31		1.325	.884	.950	.940	1.115				1.507		1.323		
37		1.475	1.034	1.100	1.090	1.265				1.657		1.473		
51	3	1.425	.984	1.050	1.040	1.215	.310	.341		1.657	.523	1.477	.440	.239
69*		1.725	1.284	1.350	1.340	1.515				1.957		1.777		
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4-40 UNC THD	2.383	.600	2.219	.515	.301

* = 69 POSITON CONNECTORS ARE AVAILABLE IN METAL ONLY.

** = SHELL ACCEPTS .200 MAX #2-56 SCREW LENGTH (.295 MAX #4-40 SCREW LENGTH).

AirBorn

PLUG: MM–212–031–161–41WQ
RECEPTACLE: MM–2C2–031–261–26WA–EMI
PLUG: MN–211–031–161–41WQ
RECEPTACLE: MM–2C2–031–261–26WA–EMI

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector (MM mates with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 or 69) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 or 69) 4 4-Row (Size 100)
BODY STYLE: 1 Plug, straight, with ears	BODY STYLE: C Receptacle, straight, rear panel mount, with fluorosilicone o-ring and interfacial seal
BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell	BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, 26 awg solder cup 1A Pin, straight, 24 awg solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, 26 awg solder cup 2A Socket, straight, 24 awg solder cup 24 Socket, straight, .500" pigtails (.018 dia) 25 Socket, straight, 1.000" pigtails (.018 dia) 26 Socket, straight, crimped wire
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE: 00 None 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*)	STYLE OF HARDWARE: 00 None 24 Two fixed jacknuts, rear panel mount, .040" panel thickness (64*) 26 Two fixed jacknuts, rear panel mount, .060" panel thickness (66*) 28 Two fixed jacknuts, rear panel mount, .070" panel thickness (68*) 29 Two fixed jacknuts, rear panel mount, .080" panel thickness (69*)
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
	EMI EMI o-ring (in lieu of fluorosilicone o-ring)

* = Use number in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.
☒ = Option not RoHS compliant

Ask About AirBorn's Accelerated Delivery Service

Cable to Cable (Rear Panel Mount)

.050"

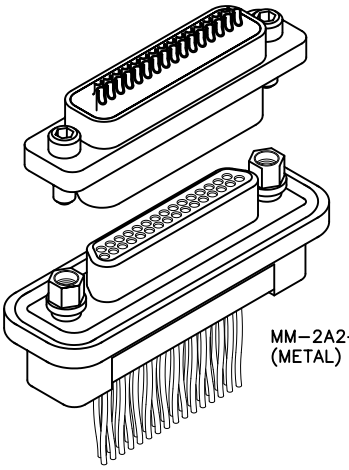
9 thru 100 Contacts

Rugged Metal

MM

Rugged Plastic

MN

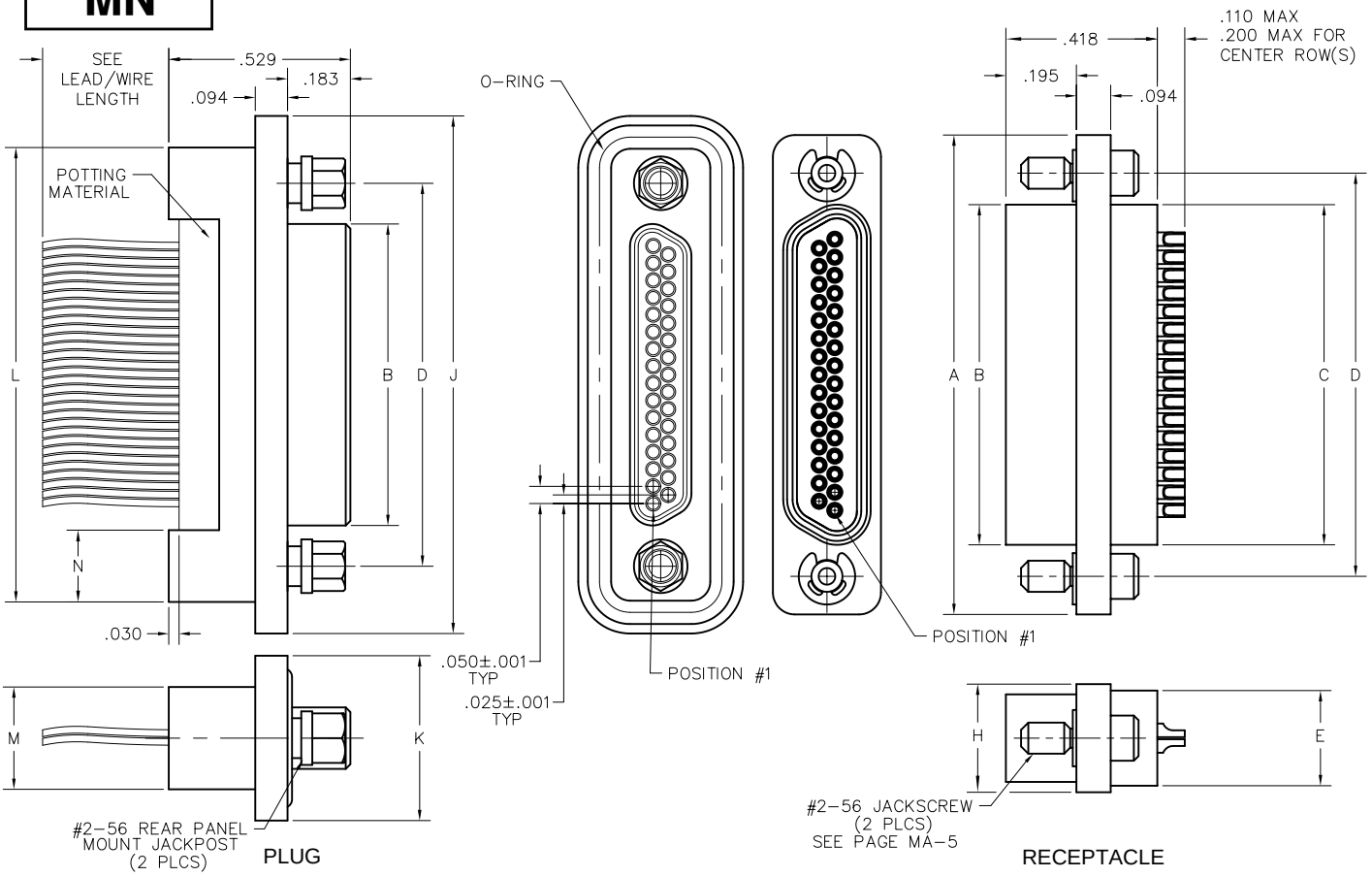


MM-222-031-2A3-2200
(METAL)

MN-221-031-2A3-2200
(PLASTIC)

MM-2A2-031-161-26WA-EMI
(METAL)

3 AND 4 ROW SOLDER CUPS



DIMENSIONS														
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	HARDWARE	J	K	L	M	N
9	2	.775	.334	.400	.390	.565	.270	.298	#2-56 UNC THD (.092 DIA THRU)	.957	.480	.773	.298	.210
15		.925	.484	.550	.540	.715				1.107		.923		
21		1.075	.634	.700	.690	.865				1.257		1.073		
25		1.175	.734	.800	.790	.965				1.357		1.173		
31		1.325	.884	.950	.940	1.115				1.507		1.323		
37		1.475	1.034	1.100	1.090	1.265				1.657		1.473		
51	3	1.425	.984	1.050	1.040	1.215	.310	.341		1.657	.523	1.477	.440	.239
69*		1.725	1.284	1.350	1.340	1.515				1.957		1.777		
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4-40 UNC THD (.147 DIA THRU)	2.383	.600	2.219	.515	.301

* = 69 POSITON CONNECTORS ARE AVAILABLE IN METAL ONLY.

AirBorn

PLUG: MM–2A2–031–161–26WA–EMI
RECEPTACLE: MM–222–031–2G3–4500
PLUG: MN–2A2–031–161–26WA–EMI
RECEPTACLE: MN–221–031–2G3–4500

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector (MM mateS with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 & 69) 4 4-Row (Size 100)
BODY STYLE: A Plug, straight, rear panel mount, with fluorosilicone o-ring	BODY STYLE: 2 Receptacle, straight, with ears
BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell	BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, 26 awg solder cup 1A Pin, straight, 24 awg solder cup 1D Pin, straight, .109" Lead Length (.018 dia) SEE NOTE 1 1E Pin, straight, .125" Lead Length (.018 dia) SEE NOTE 1 1F Pin, straight, .140" Lead Length (.018 dia) SEE NOTE 1 12 Pin, straight, .150" Lead Length (.018 dia) SEE NOTE 1 1G Pin, straight, .156" Lead Length (.018 dia) SEE NOTE 1 1H Pin, straight, .172" Lead Length (.018 dia) SEE NOTE 1 1J Pin, straight, .187" Lead Length (.018 dia) SEE NOTE 1 13 Pin, straight, .250" Lead Length (.018 dia) SEE NOTE 1 1K Pin, straight, .375" Lead Length (.018 dia) SEE NOTE 1 14 Pin, straight, .500" Lead Length (.018 dia) SEE NOTE 1 15 Pin, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, 26 awg solder cup 2A Socket, straight, 24 awg solder cup 2D Socket, straight, .109" Lead Length (.018 dia) 2E Socket, straight, .125" Lead Length (.018 dia) 2F Socket, straight, .140" Lead Length (.018 dia) 22 Socket, straight, .150" Lead Length (.018 dia) 2G Socket, straight, .156" Lead Length (.018 dia) 2H Socket, straight, .172" Lead Length (.018 dia) 2J Socket, straight, .187" Lead Length (.018 dia) 23 Socket, straight, .250" Lead Length (.018 dia) 2K Socket, straight, .375" Lead Length (.018 dia) 2L Socket, straight, .500" Lead Length (.018 dia) 2M Socket, straight, 1.000" Lead Length (.018 dia) 24 Socket, straight, .500" Lead Length (.018 dia) SEE NOTE 1 25 Socket, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1 26 Socket, straight, crimped wire
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au Terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au Terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE: 00 None 24 Two fixed jacknuts, rear panel mount, .040" panel thickness (64*) 26 Two fixed jacknuts, rear panel mount, .060" panel thickness (66*) 28 Two fixed jacknuts, rear panel mount, .070" panel thickness (68*) 29 Two fixed jacknuts, rear panel mount, .080" panel thickness (69*)	STYLE OF HARDWARE: 00 None 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*)
POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
EMI EMI o-ring (in lieu of fluorosilicone o-ring)	900 Interfacial sealing gasket

* = Use number in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

NOTE 1 = The leads on these contacts are soft copper suitable for forming.

☒ = Option not RoHS compliant

Cable to Board (Rear Panel Mount)

.050"

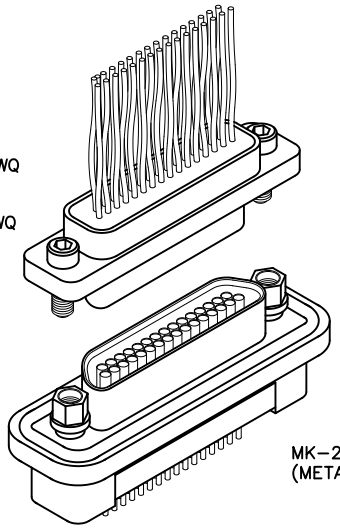
9 thru 100 Contacts

Rugged Board Mount

MK

Rugged Cable

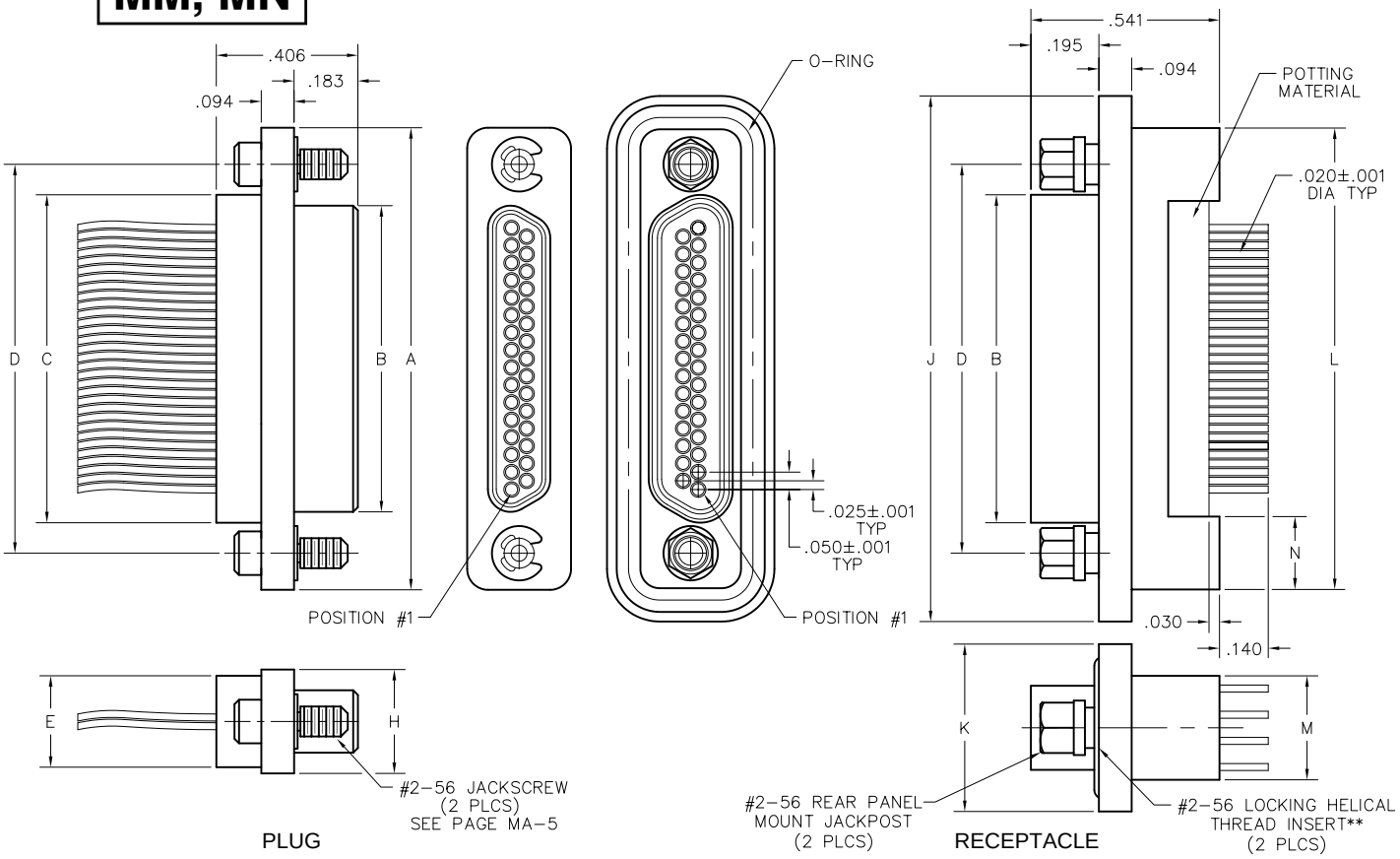
MM, MN



MM–212–031–161–41WQ
(METAL)

MN–211–031–161–41WQ
(PLASTIC)

MK–2C2–031–235–2600
(METAL)



PLUG

RECEPTACLE

DIMENSIONS														
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE	J	K	L	M	N
			PLUG MAX	RCPT MAX			POTTING WELL MAX							
9	2	.775	.334	.400	.390	.565	.270	.298	#2–56 UNC THD	.957	.480	.773	.298	.210
15		.925	.484	.550	.540	.715				1.107		.923		
21		1.075	.634	.700	.690	.865				1.257		1.073		
25		1.175	.734	.800	.790	.965				1.357		1.173		
31		1.325	.884	.950	.940	1.115				1.507		1.323		
37		1.475	1.034	1.100	1.090	1.265				1.657		1.473		
51	3	1.425	.984	1.050	1.040	1.215	.310	.341		1.657	.523	1.477	.440	.239
69*		1.725	1.284	1.350	1.340	1.515				1.957		1.777		
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4–40 UNC THD	2.383	.600	2.219	.515	.301

* = 69 POSITON CONNECTORS ARE AVAILABLE IN METAL ONLY.

** = SHELL ACCEPTS .200 MAX #2-56 SCREW LENGTH (.295 MAX #4-40 SCREW LENGTH).

AirBorn

PLUG: MM–212–031–161–41WQ
RECEPTACLE: MK–2C2–031–235–2600–EMI
PLUG: MN–211–031–161–41WQ
RECEPTACLE: MK–2C2–031–235–2600–EMI

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN receptacles)	MK .050" Rugged Metal PC Board Mount Connector (MK mates with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 or 69) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 or 69) 4 4-Row (Size 100)
BODY STYLE: 1 Plug, straight, with ears	BODY STYLE: C Receptacle, straight, standard footprint, rear panel mount with fluorosilicone o-ring and interfacial seal
BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell	BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 22 Socket, straight, PCB leads, .109" 23 Socket, straight, PCB leads, .140" 24 Socket, straight, PCB leads, .172"
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)	PLATING OPTIONS: 3 50 µ" Au contacts: 10 u" Au terminations 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*)	STYLE OF HARDWARE: 00 None 24 Two fixed jacknuts, rear panel mount, .040" panel thickness (64*) 26 Two fixed jacknuts, rear panel mount, .060" panel thickness (66*) 28 Two fixed jacknuts, rear panel mount, .070" panel thickness (68*) 29 Two fixed jacknuts, rear panel mount, .080" panel thickness (69*)
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 00 None
OPTIONS	
	EMI EMI o-ring (in lieu of fluorosilicone o-ring)

* = Use number in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

☒ = Option not RoHS compliant

Cable to Board (Rear Panel Mount)

.050"

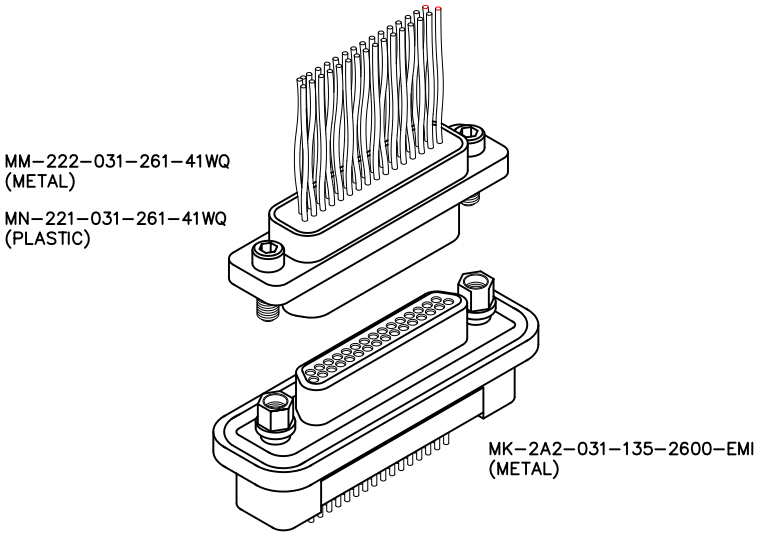
9 thru 100 Contacts

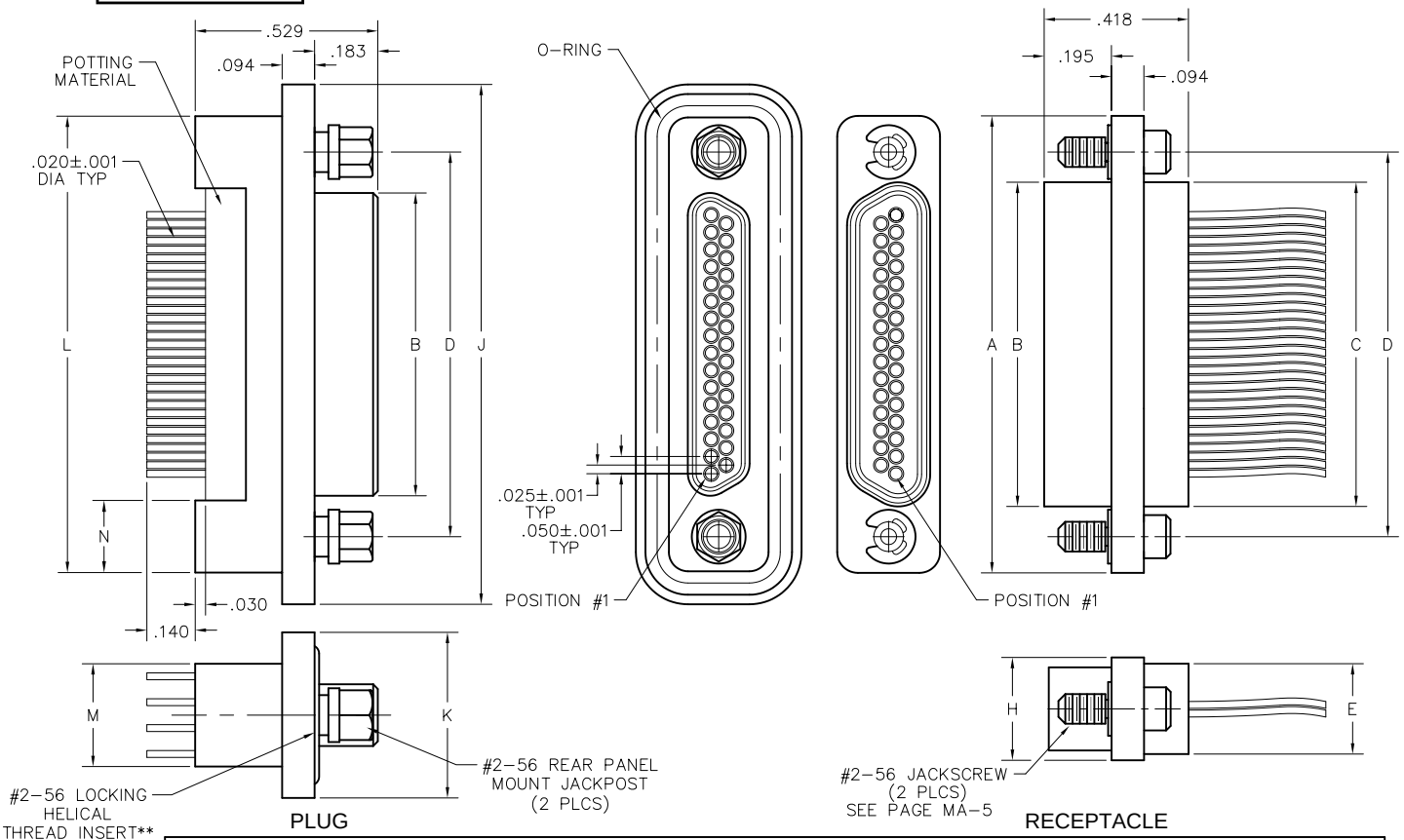
Rugged Board Mount

MK

Rugged Cable

MM, MN





DIMENSIONS														
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	H	HARDWARE	J	K	L	M	N
9	2	.775	.334	.400	.390	.565	.270	.298	#2–56 UNC THD	.957	.480	.773	.298	.210
15		.925	.484	.550	.540	.715				1.107		.923		
21		1.075	.634	.700	.690	.865				1.257		1.073		
25		1.175	.734	.800	.790	.965				1.357		1.173		
31		1.325	.884	.950	.940	1.115				1.507		1.323		
37		1.475	1.034	1.100	1.090	1.265				1.657		1.473		
51	3	1.425	.984	1.050	1.040	1.215	.310	.341		1.657	.523	1.477	.440	.239
69*		1.725	1.284	1.350	1.340	1.515				1.957		1.777		
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4–40 UNC THD	2.383	.600	2.219	.515	.301

* = 69 POSITON CONNECTORS ARE AVAILABLE IN METAL ONLY.

** = SHELL ACCEPTS .200 MAX #2-56 SCREW LENGTH (.295 MAX #4-40 SCREW LENGTH).

AirBorn

PLUG: MK–2A2–031–135–2600–EMI
RECEPTACLE: MM–222–031–261–41WQ
PLUG: MK–2A2–031–135–2600–EMI
RECEPTACLE: MN–221–031–261–41WQ

XX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MK .050" Rugged Metal PC Board Mount Connector (MK mates with MK, ML, MM, MN receptacles)	MM .050" Rugged Metal I/O Connector MN .050" Rugged Plastic I/O Connector (MM & MN mate with MK, ML, MM, MN plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 or 69) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51 or 69) 4 4-Row (Size 100)
BODY STYLE: A Plug, straight, standard footprint, rear panel mount with fluorosilicone o-ring	BODY STYLE: 2 Receptacle, straight, with ears
BODY MATERIAL: 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell	BODY MATERIAL: 1 Polyphenylene Sulfide (MN only) 2 Polyphenylene Sulfide with electroless nickel shell 3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒ 4 Polyphenylene Sulfide with hard anodized black shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100	XXX 009, 015, 021, 025, 031, 037, 051, 069, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 12 Pin, straight, PCB leads, .109" 13 Pin, straight, PCB leads, .140" 14 Pin, straight, PCB leads, .172"	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, solder cup 24 Socket, straight, .500" pigtails (.018 dia) 25 Socket, straight, 1.000" pigtails (.018 dia) 26 Socket, straight, crimped wire
PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations 5 50 µ" Au contacts; Sn/Pb alloy terminations ☒ 7 50 µ" Au contacts; SAC305 terminations	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail) 5 50 µ" Au contacts; Sn/Pb alloy terminations (pigtail) ☒ 7 50 µ" Au contacts; SAC305 terminations (pigtail)
HARDWARE	
STYLE OF HARDWARE: 00 None 24 Two fixed jacknuts, rear panel mount, .040" panel thickness (64*) 26 Two fixed jacknuts, rear panel mount, .060" panel thickness (66*) 28 Two fixed jacknuts, rear panel mount, .070" panel thickness (68*) 29 Two fixed jacknuts, rear panel mount, .080" panel thickness (69*)	STYLE OF HARDWARE: 00 None 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*)
POLARIZATION / WIRING: 00 None	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
EMI EMI o-ring (in lieu of fluorosilicone o-ring)	900 Interfacial sealing gasket

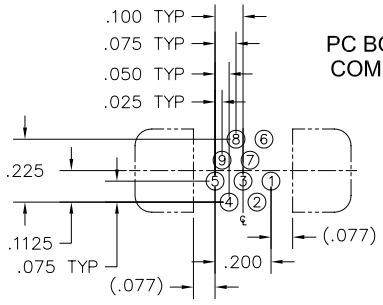
* = Use number in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

☒ = Option not RoHS compliant

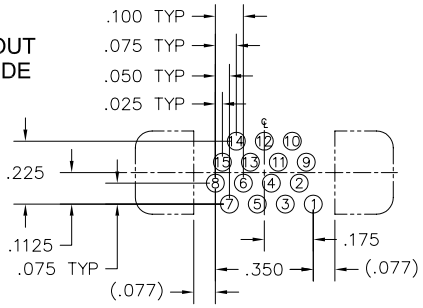
Recommended PC Board Layout

Straight, Standard Footprint

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

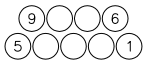


9 POSITION

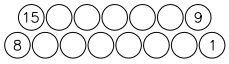


15 POSITION

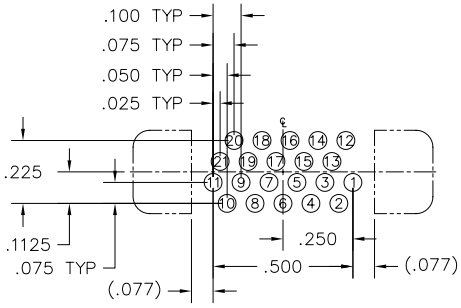
CONNECTOR
MATING FACE
(PLUG)



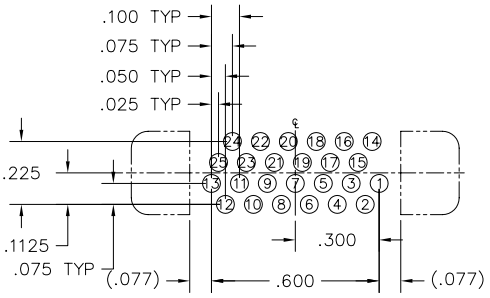
9 POSITION



15 POSITION



21 POSITION



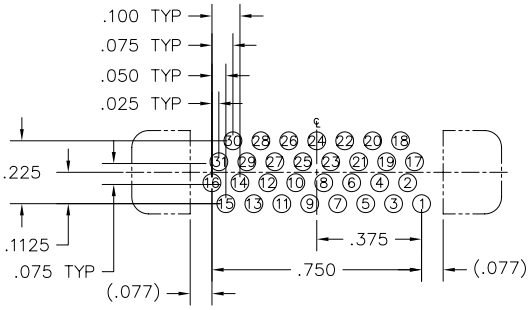
25 POSITION



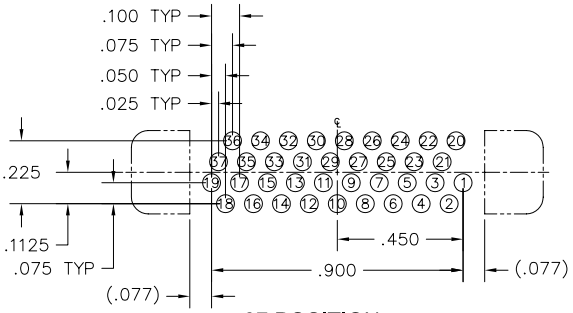
21 POSITION



25 POSITION



31 POSITION



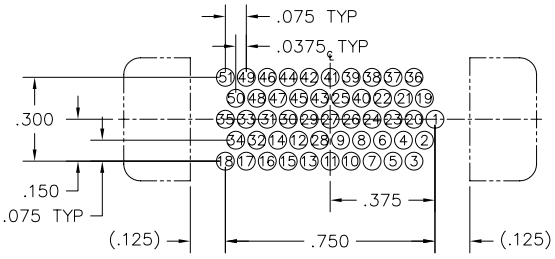
37 POSITION



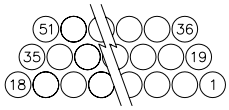
31 POSITION



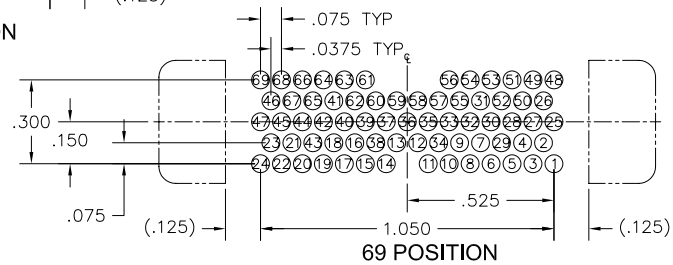
37 POSITION



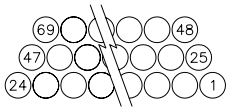
51 POSITION



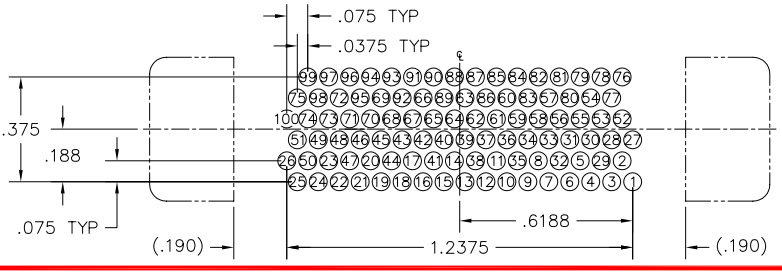
51 POSITION



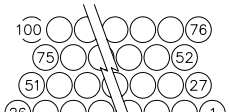
69 POSITION



69 POSITION



100 POSITION

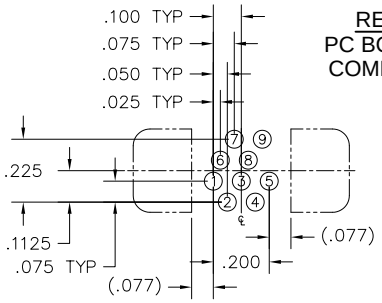


100 POSITION

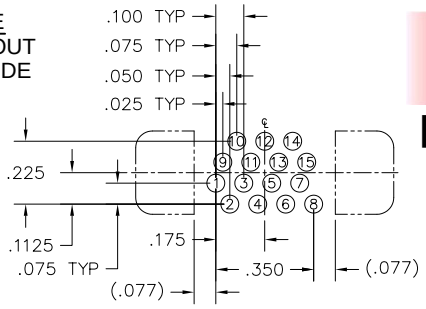
Recommended PC Board Layout

Straight, Standard Footprint

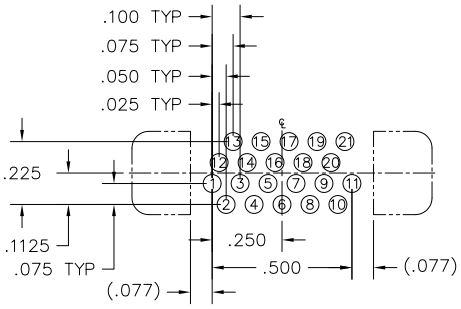
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE



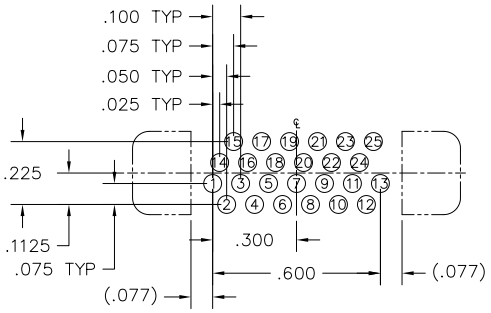
9 POSITION



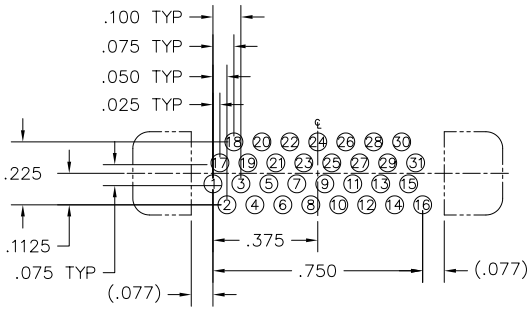
15 POSITION



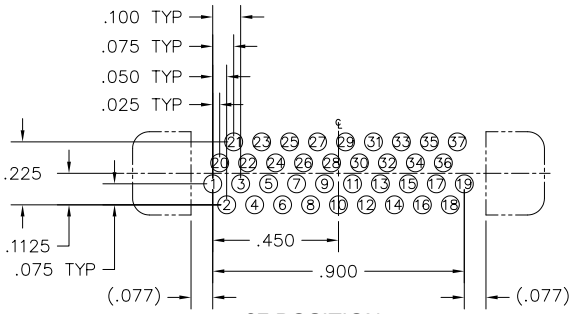
21 POSITION



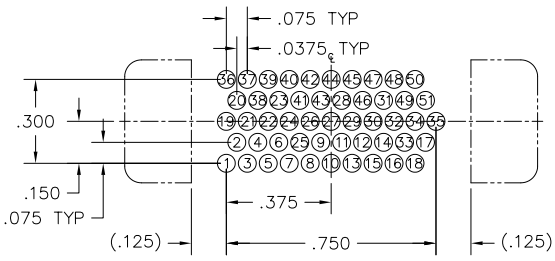
25 POSITION



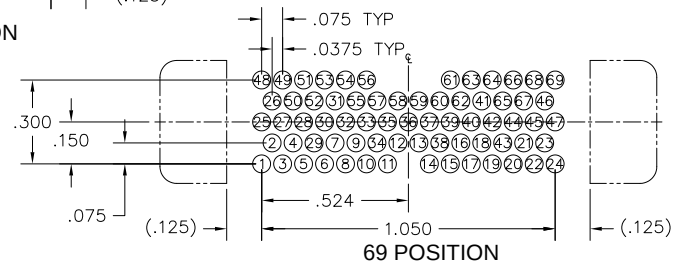
31 POSITION



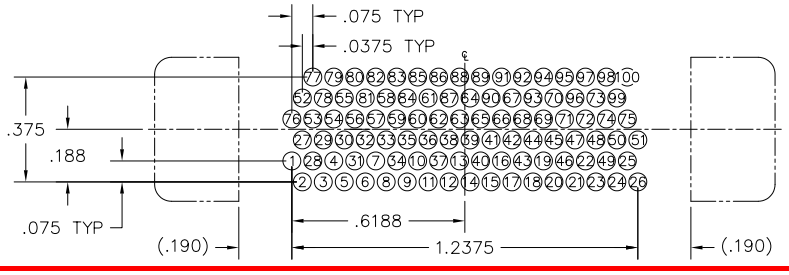
37 POSITION



51 POSITION

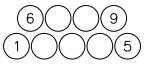


69 POSITION

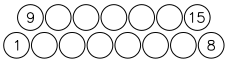


100 POSITION

CONNECTOR
MATING FACE
(RECEPTACLE)



9 POSITION



15 POSITION



21 POSITION



25 POSITION



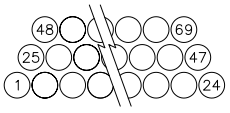
31 POSITION



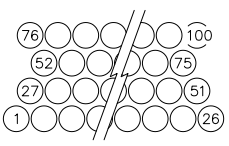
37 POSITION



51 POSITION



69 POSITION



100 POSITION

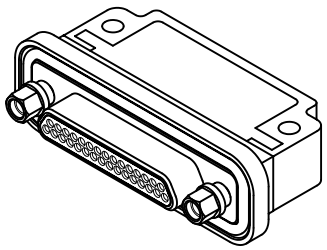
Ask About AirBorn's Accelerated Delivery Service

Rear Panel Mount, Right Angle Boardmount

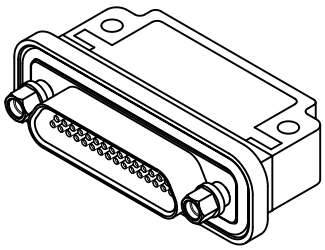
.050"

9 thru 100 Contacts

MK

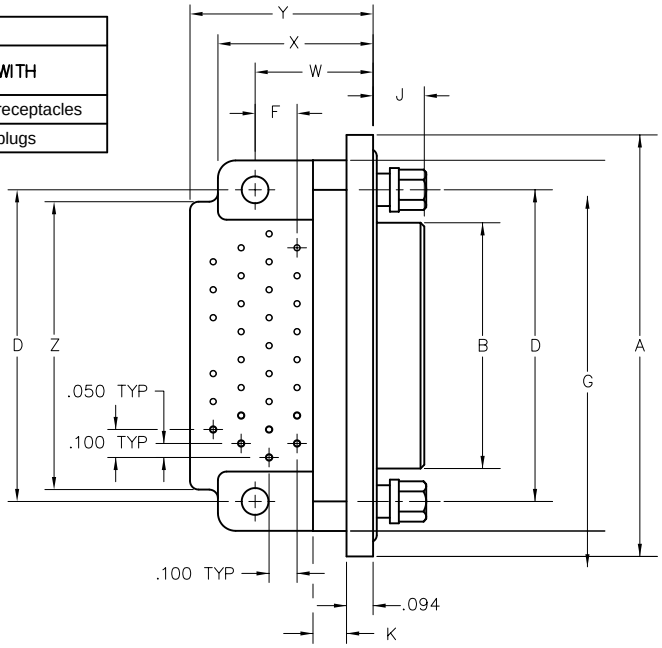


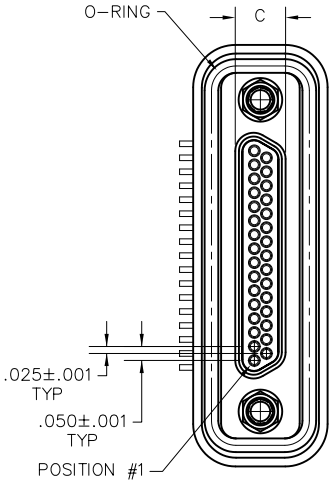
MK-2D2-031-335-260S
(PLUG)



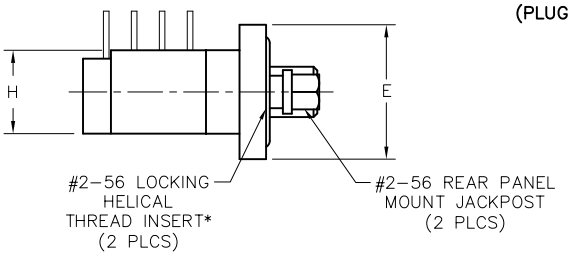
MK-2E2-031-445-260S
(RECEPTACLE)

MATING MATRIX	
CONNECTOR	MATES WITH
MK-2D...	MK, ML, MM, MN receptacles
MK-2E...	MK, ML, MM, MN plugs





(PLUG SHOWN)



DIMENSIONS																			
SIZE	CONTACT ROWS	A	B		C		D	E	F	G	H	J		K	W	X MAX	Y MAX	Z	HARDWARE	MOUNTING HOLE
			PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX						PLUG	RCPT							
9	2	.957	.334	.400	.185	.251	.565	.480	.020	.775	.298	.183	.195	.120	.371	.540	.540	.775	#2-56 UNC THD	.096 DIA OR #2-56 UNC THREADED INSERT
15		1.107	.484	.550			.715		.150	.925					.421	.560	.560	.925		
21		1.257	.634	.700			.865			1.075								1.075		
25		1.357	.734	.800			.965			1.175								1.175		
31		1.507	.884	.950			1.115			1.325							.660	1.030		
37		1.657	1.034	1.100			1.265			1.475								1.180		
51	3	1.657	.984	1.050	.228	.294	1.215	.523	.150	1.425	.341					.550	.770	1.220		
69		1.957	1.284	1.350			1.515			1.725							.870	1.450		
100	4	2.383	1.384	1.508	.271	.394	1.800	.600	.200	2.160	.381			.176	.577	.775	1.180	1.810	#4-40 UNC THD	.125 DIA OR #4-40 UNC THREADED INSERT

** = SHELL ACCEPTS .190 MAX #2-56 SCREW LENGTH (.220 MAX #4-40 SCREW LENGTH).

PLUG: MK 2D2–031–335–260S
RECEPTACLE: MK 2E2–031–445–260S

XX–XXX–XXX–XXX–XXXX–XXX

SERIES | BODY | SIZE | CONTACTS | HARDWARE | OPTIONS

PLUG

SERIES

MK .050" Rugged Metal PC Board Mount Connector

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)
4 4-Row (Size 100)

BODY STYLE:
D Plug, right angle, rear panel mount with fluorosilicone o-ring

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, PCB leads, .109"
33 Pin, right angle, PCB leads, .140"
34 Pin, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50 µ" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
24 Two fixed jacknuts, rear panel mount, .040" panel thickness (64*)
26 Two fixed jacknuts, rear panel mount, .060" panel thickness (66*)
28 Two fixed jacknuts, rear panel mount, .070" panel thickness (68*)
29 Two fixed jacknuts, rear panel mount, .080" panel thickness (69*)

POLARIZATION:
0S Standard body polarization

OPTIONS

EMI EMI gasket (in lieu of fluorosilicone o-ring)
0B7 Threaded inserts in mounting holes
0FW Threaded inserts in mounting holes and EMI gasket (in lieu of fluorosilicone o-ring)

NOTES

See page MA-10 for rear panel mounting dimensions.
See page MA-7 for rear panel hardware dimensions.

RECEPTACLE

SERIES

MK .050" Rugged Metal PC Board Mount Connector

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51 & 69)
4 4-Row (Size 100)

BODY STYLE:
E Receptacle, right angle, rear panel mount with fluorosilicone o-ring and interfacial seal

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insulator
3 Electrodeposited cadmium shell w/ PPS insulator ☒
4 Hard anodized black shell w/ PPS insulator

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
43 Socket, right angle, PCB leads, .109"
44 Socket, right angle, PCB leads, .140"
45 Socket, right angle, PCB leads, .172"

PLATING OPTIONS:
3 50 µ" Au contacts
5 50 µ" Au contacts; Sn/Pb alloy terminations ☒
7 50 µ" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
24 Two fixed jacknuts, rear panel mount, .040" panel thickness (64*)
26 Two fixed jacknuts, rear panel mount, .060" panel thickness (66*)
28 Two fixed jacknuts, rear panel mount, .070" panel thickness (68*)
29 Two fixed jacknuts, rear panel mount, .080" panel thickness (69*)

POLARIZATION:
0S Standard body polarization

OPTIONS

EMI EMI gasket (in lieu of fluorosilicone o-ring)
0B7 Threaded inserts in mounting holes
0FW Threaded inserts in mounting holes and EMI gasket (in lieu of fluorosilicone o-ring)

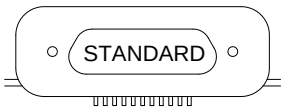
NOTES

See page MA-10 for rear panel mounting dimensions.
See page MA-7 for rear panel hardware dimensions.

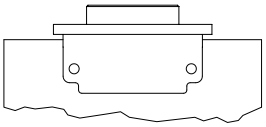
* = Use numbers in parenthesis when ordering size 100.
☒ = Option not RoHS compliant

Recommended PC Board Layout

Right Angle, Narrow Footprint
Rear Panel Mount
Standard Polarization



CONNECTOR MATING FACE

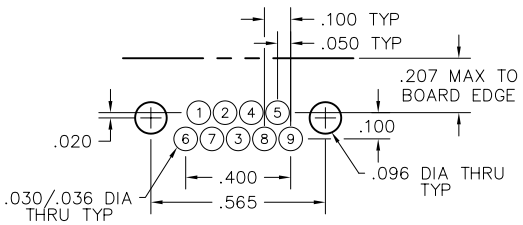


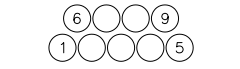
PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

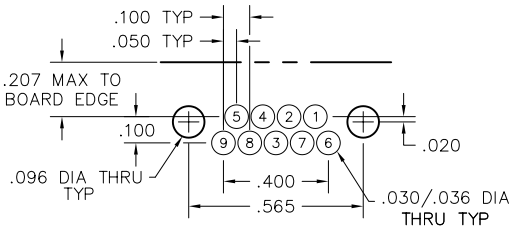
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

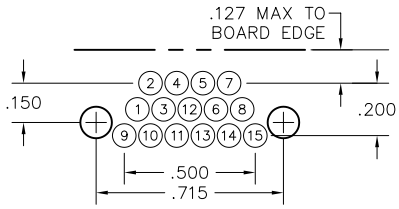
CONNECTOR MATING FACE* (RECEPTACLE)

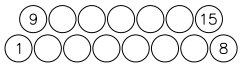




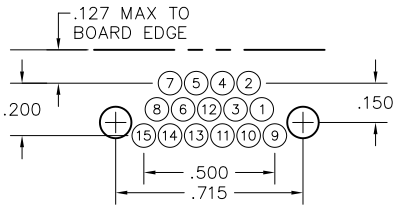
9 POSITION

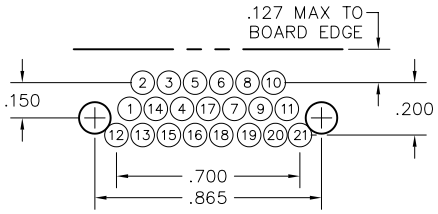






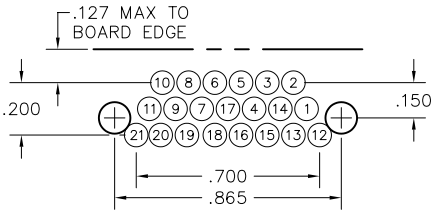
15 POSITION

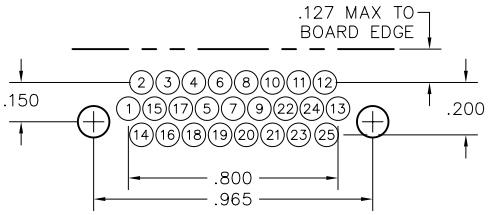






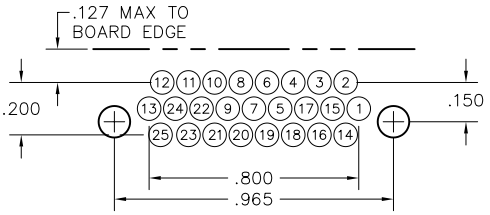
21 POSITION

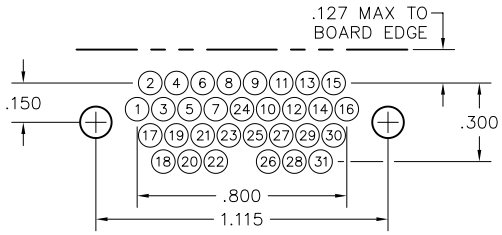






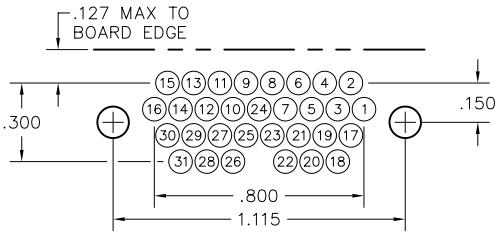
25 POSITION

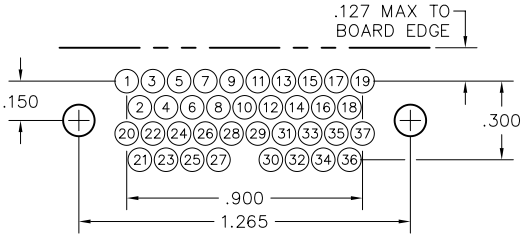






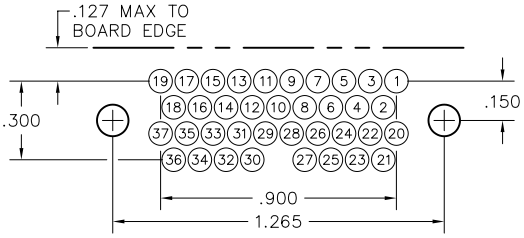
31 POSITION

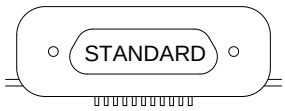




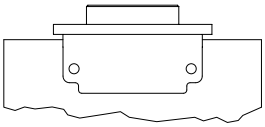


37 POSITION





CONNECTOR MATING FACE

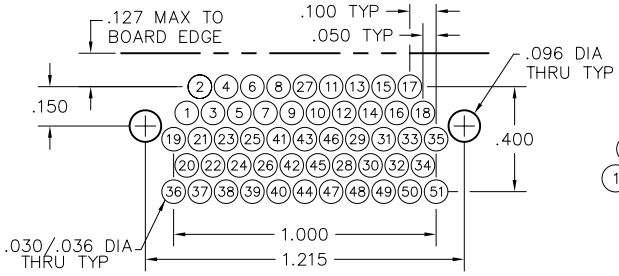


PC BOARD LAYOUT
COMPONENT SIDE

Recommended PC Board Layout

Right Angle, Narrow Footprint
Rear Panel Mount
Standard Polarization

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

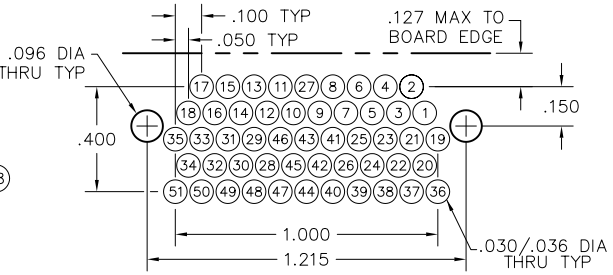


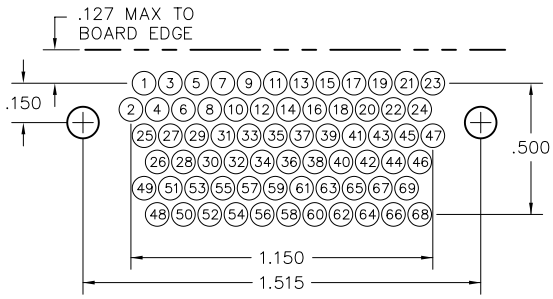
CONNECTOR MATING FACE* (RECEPTACLE)



51 POSITION

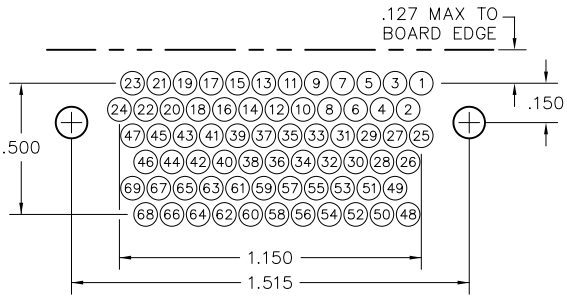
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

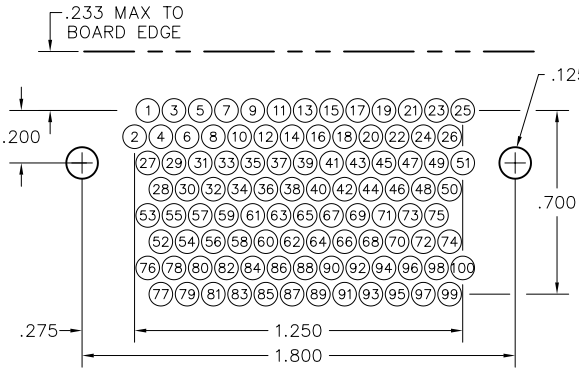


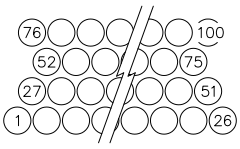




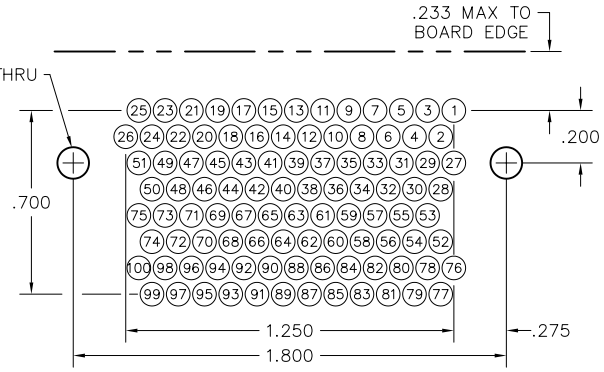
69 POSITION







100 POSITION



* For pin (plug) connectors, the contact numbers are reversed left to right.

Specifications - Sealed Connectors
Materials and Finishes *

Contacts:	Pins: BeCu alloy strip per ASTM B194 Sockets: Brass per ASTM B16 / B16M or ASTM B453 Uninsulated/solid wire tails: Brass per ASTM B16 / B16M or ASTM B453
Contact Finish:	Gold plate per ASTM B488
Shells:	Aluminum Alloy 6061-T6 per SAE AMS-QQ-A-250/11 or 6061-T6511 per SAE AMS-QQ-A-200/8
Aluminum Shell Finishes:	Electroless Nickel per SAE AMS2404, Class 3, 500 µ" min Electrodeposited Cadmium per SAE AMS-QQ-P-416, Type II, Class 3 Black Anodized per MIL-A-8625, Type III, Class 2
Molded Insulators:	Glass filled polyphenylene sulfide per MIL-M-24519
Embedment:	Frey Engineering Co. insulating compound CF3003-80 and L-II-49 or equivalent
Jackposts:	Corrosion resistant steel per ASTM A320 or ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Gaskets:	Interfacial: Fluorosilicone per SAE AMS-R-25988 Flange: Butyl per SAE AMS3238** Internal: EPDM per ASTM D2000**
Tolerances:	Unless otherwise specified: Fractions = ±1/64" Decimals = ±.010" Angles = ±5° Wire lengths: insulated/stranded = +1.0"/-0.0" uninsulated/solid = +0.2"/-0.0"

Note: AirBorn can manufacture special configurations for your exact specifications.

* Reference the above listed specifications or an equivalent industry standard when applicable.

** Chemical compatibility of gasket materials must be considered for each application. Contact AirBorn for specific application questions.

Performance

Interface:	Per M83513
Contact Rating:	3-amperes maximum
Solderability:	Terminals (except crimp) tested in accordance with MIL-STD-202, Method 208
Wire Size:	Stranded #24, #26, #28 AWG or solid #25 AWG standard (consult factory for other sizes and types)
Test Voltage:	600 V, RMS, 60 Hz
Operating Temperature:	-55° C to +100° C
Insulation Resistance:	5,000 megohms minimum @ 500 VDC
Durability:	500 connector mating cycles
Vibration:	Tested in accordance with EIA-364-28, Condition IV, according to MIL-83513
Shock:	Tested in accordance with EIA-364-27, Condition E, according to MIL-83513
Salt Spray:	Mated connectors tested in accordance with EIA-364-26, Test Condition B, according to M83513
Humidity:	Mated connectors tested in accordance with EIA-364-31, Method IV (except steps 7a and 7b)
Thermal Shock:	Tested to the temperature extremes of EIA-364-32, Method A, Test Condition I (except step 3, temperature shall be 100° C)
Contact Resistance:	0.065 volt maximum drop @ 2.5 amps (.026 ohms), according to M83513
Contact Engaging Force:	6.0 ounce maximum, with .0221 diameter test sleeve
Contact Separating Force:	0.5 ounce minimum, with .0230 diameter test sleeve
Crimp Strength:	5 pound minimum tensile strength
Sealing:	15 PSI per EIA-364-02 at room temperature, 5 minutes with no visible air leaks, positive pressure from wire (back side) of connector. (Body Styles E & H) 30 PSI per EIA-364-02 at room temperature, 5 minutes with no visible air leaks, positive pressure from wire (back side) of connector. (Body Styles K & L)

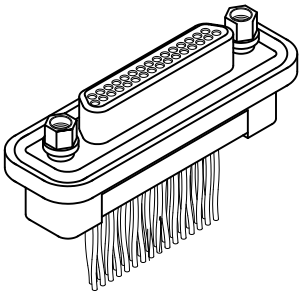
AirBorn

Rugged Metal I/O (Sealed Connector)

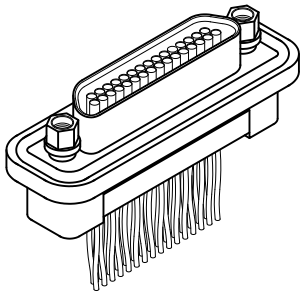
.050"

9 thru 100 Contacts

MM

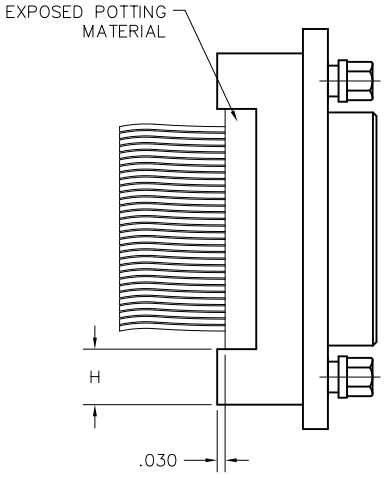


MM–2E2–031–161–26WA
(PLUG)

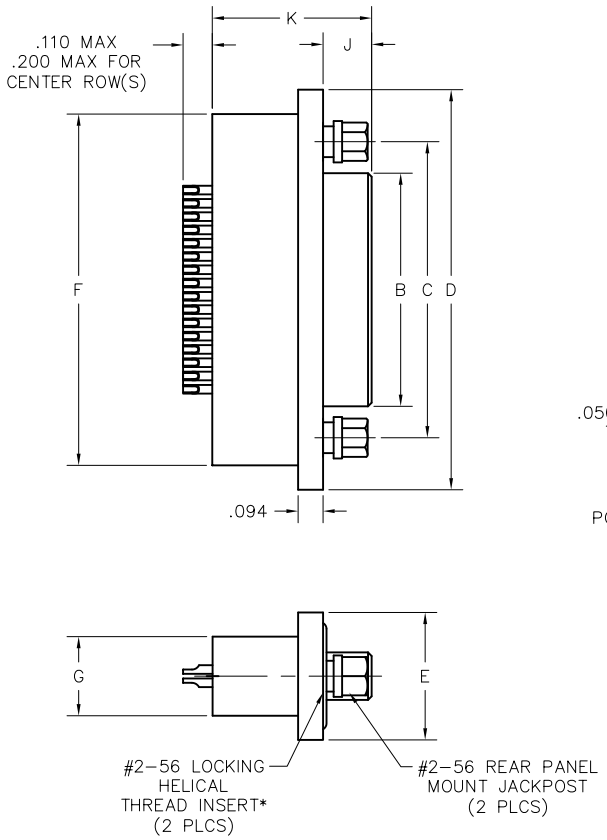


MM–2H2–031–261–26WA
(RECEPTACLE)

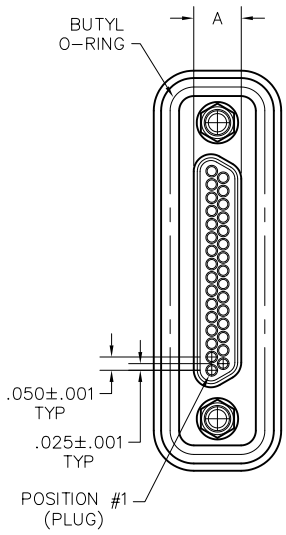
MATING MATRIX	
CONNECTOR	MATES WITH
MM-2E...	MK, ML, MM, MN receptacles
MM-2H...	MK, ML, MM, MN plugs
MM-2K...	MK, ML, MM, MN receptacles
MM-2L...	MK, ML, MM, MN plugs



STRANDED WIRE TERMINATION
(PLUG SHOWN)



SOLDER CUP OR PIGTAIL TERMINATION
(PLUG WITH SOLDER CUP TERMINATION SHOWN)



DIMENSIONS															
SIZE	CONTACT ROWS	A		B		C	HARDWARE	D	E	F	G	H	J		K	
		PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX								PLUG	RCPT	PLUG	RCPT
9	2	.185	.251	.334	.400	.565	#2–56 UNC THD	.957	.480	.773	.298	.210	.183	.195	.598	.610
15				.484	.550	.715		1.107		.923						
21				.634	.700	.865		1.257		1.073						
25				.734	.800	.965		1.357		1.173						
31				.884	.950	1.115		1.507		1.323						
37				1.034	1.100	1.265		1.657		1.473						
51	3	.228	.294	.984	1.050	1.215		1.657	.523	1.477	.440	.239				
69				1.284	1.350	1.515		1.957		1.777						
100	4	.271	.394	1.384	1.508	1.800	#4–40 UNC THD	2.383	.600	2.219	.515	.301				

** = SHELL ACCEPTS .200 MAX #2-56 SCREW LENGTH (.295 MAX #4-40 SCREW LENGTH).

PLUG: MM–2E2–031–161–26WA
RECEPTACLE: MM–2H2–031–261–26WA

XX–XXX–XXX–XXX–XXXX
SERIES | BODY | SIZE | CONTACTS | HARDWARE & WIRING

PLUG

SERIES
MM .050" Rugged Metal I/O Connector

BODY
2 2-Row (Sizes 9 thru 37)
3 3-Row (Sizes 51 thru 69)
4 4-Row (Size 100)

BODY STYLE:
E Plug, straight, rear panel mount. Sealed to 15 PSI pressure differential.
K Plug, straight, rear panel mount. Sealed to 30 PSI pressure differential.

All seal ratings are in the unmated condition

BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4 Polyphenylene Sulfide with hard anodized black shell

SIZE
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS
TYPE CONTACTS/TERMINATIONS:
11 Pin, straight, solder cup
14 Pin, straight, .500" pigtails (.018 dia)
16 Pin, straight, stranded wire

PLATING OPTIONS:
1 50 µ" Au contacts (stranded wire) ☒
3 50 µ" Au contacts; Au terminations (solder cup, pigtail)
5 50 u" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
7 50 u" Au contacts; SAC305 terminations (pigtail)

HARDWARE & WIRING
STYLE OF HARDWARE:
00 None
24 Two fixed jacknuts, rear panel mount, .040" panel thickness (64*)
26 Two fixed jacknuts, rear panel mount, .060" panel thickness (66*)
28 Two fixed jacknuts, rear panel mount, .070" panel thickness (68*)
29 Two fixed jacknuts, rear panel mount, .080" panel thickness (69*)

WIRING:
00 None (solder cup and pigtail only)
XX For wiring codes, see page MA-3 & MA-4

NOTES
See page MA-10 for rear panel mounting dimensions.
See page MA-7 for hardware dimensions.
See Product Technical Bulletin #43 for soldering to solder cups.

RECEPTACLE

SERIES
MM .050" Rugged Metal I/O Connector

BODY
2 2-Row (Sizes 9 thru 37)
3 3-Row (Sizes 51 thru 69)
4 4-Row (Size 100)

BODY STYLE:
H Receptacle, straight, rear panel mount, with fluorosilicone interfacial seal. Sealed to 15 PSI pressure differential.
L Receptacle, straight, rear panel mount, with fluorosilicone interfacial seal. Sealed to 30 PSI pressure differential.

All seal ratings are in the unmated condition

BODY MATERIAL:
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4 Polyphenylene Sulfide with hard anodized black shell

SIZE
XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS
TYPE CONTACTS/TERMINATIONS:
21 Socket, straight, solder cup
24 Socket, straight, .500" pigtails (.018 dia)
26 Socket, straight, crimped wire

PLATING OPTIONS:
1 50 µ" Au contacts (stranded wire) ☒
3 50 µ" Au contacts; Au terminations (solder cup, pigtail)
5 50 u" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
7 50 u" Au contacts; SAC305 terminations (pigtail)

HARDWARE & WIRING
STYLE OF HARDWARE:
00 None
24 Two fixed jacknuts, rear panel mount, .040" panel thickness (64*)
26 Two fixed jacknuts, rear panel mount, .060" panel thickness (66*)
28 Two fixed jacknuts, rear panel mount, .070" panel thickness (68*)
29 Two fixed jacknuts, rear panel mount, .080" panel thickness (69*)

WIRING:
00 None (solder cup and pigtail only)
XX For wiring codes, see page MA-3 & MA-4

NOTES
See page MA-10 for rear panel mounting dimensions.
See page MA-7 for hardware dimensions.
See Product Technical Bulletin #43 for soldering to solder cups.

* = Use numbers or letters in parenthesis when ordering size 100.
☒ = Option not RoHS compliant

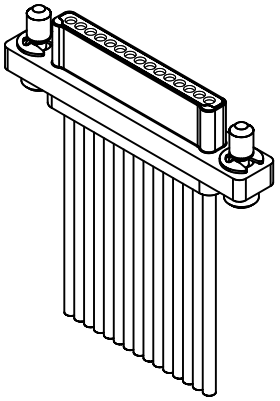
Ask About AirBorn's Accelerated Delivery Service

Cable to Cable (1 Row)

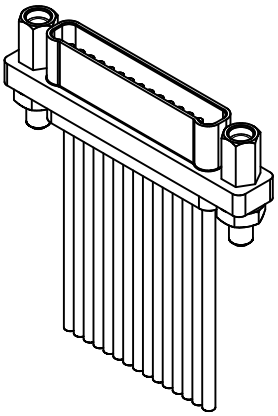
.050"

4 thru 25 Contacts

MM

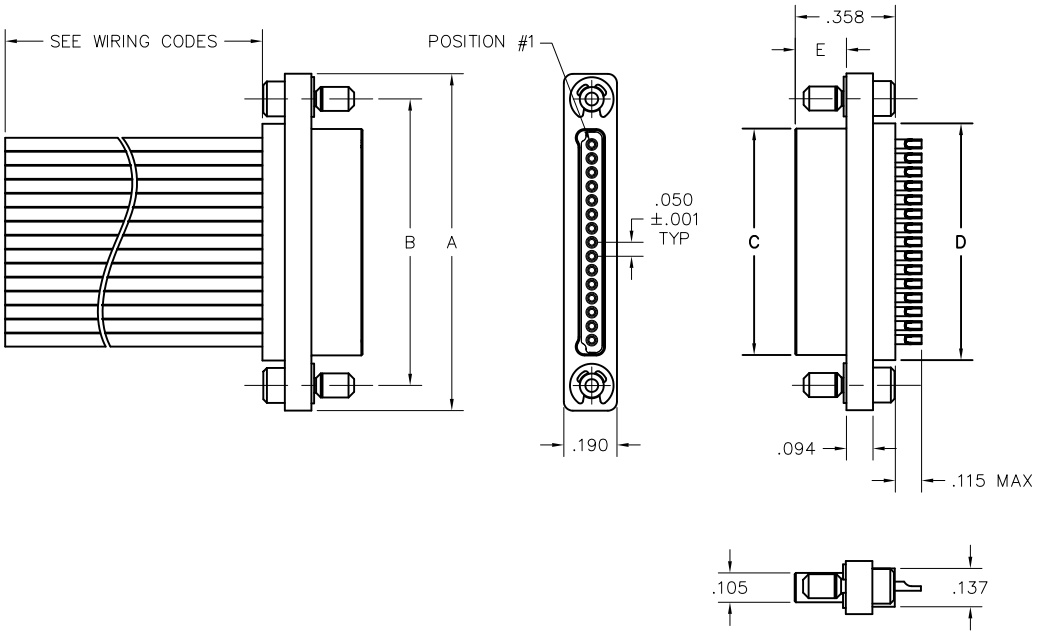


MM–112–015–161–41WQ
(PLUG)



MM–122–015–261–22WQ
(RECEPTACLE)

MATING MATRIX	
CONNECTOR	MATES WITH
MM-11...	MM-12, MK-16, MK-18 receptacles
MM-12...	MM-11, MK-15, MK-17 plugs



PLUG SHOWN

DIMENSIONS								
SIZE	A	B	C		D	E		HARDWARE
			PLUG MAX	RCPT MAX		PLUG MAX	RCPT MAX	
4	.655	.475	.260	.263	.297	.186	.198	#2–56 UNC THD (ø.092 THRU)
5	.705	.525	.310	.313	.347			
6	.755	.575	.360	.363	.397			
9	.905	.725	.510	.513	.547			
12	1.055	.875	.660	.663	.697			
15	1.205	1.025	.810	.813	.847			
21	1.505	1.325	1.110	1.113	1.147			
25	1.705	1.525	1.310	1.313	1.347			

PLUG: MM–112–006–113–2200
RECEPTACLE: MM–122–006–2A3–4100

XX–XXX–XXX–XXX–XXXX–XXX
SERIES | BODY | SIZE | CONTACTS | HARDWARE | OPTIONS

PLUG

SERIES
MM .050" Rugged Metal I/O Connector
(MM mates to MK & MM)

BODY
1 1-Row (Sizes 4 thru 25)

BODY STYLE:
1 Plug, straight

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insert
3 Electrodeposited cadmium shell w/ PPS insert ☒
5 Stainless Steel shell w/ PPS insert

SIZE
XXX 004, 005, 006, 009, 012, 015, 021, 025

CONTACTS
TYPE CONTACTS/TERMINATIONS:
11 Pin, straight, 26 awg solder cup
1A Pin, straight, 24 awg solder cup
12 Pin, straight, 0.150" pigtails (.018 dia)
13 Pin, straight, 0.250" pigtails (.018 dia)
14 Pin, straight, 0.500" pigtails (.018 dia)
16 Pin, straight, crimped wire

PLATING OPTIONS:
1 50 u" Au contacts (Crimped Wire)
3 50 u" Au contacts; Au terminations (solder cup, pigtail)
5 50 u" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
7 50 u" Au contacts; SAC305 terminations (pigtail)

HARDWARE
STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies
41 Two turning jackscrews, allen head, retaining ring
45 Two turning jackscrews, allen head, captivated**

WIRING
XX For wiring codes, see page MA-3 & MA-4

RECEPTACLE

SERIES
MM .050" Rugged Metal I/O Connector
(MM mates to MK & MM)

BODY
1 1-Row (Sizes 4 thru 25)

BODY STYLE:
2 Receptacle, straight

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insert
3 Electrodeposited cadmium shell w/ PPS insert ☒
5 Stainless Steel shell w/ PPS insert

SIZE
XXX 004, 005, 006, 009, 012, 015, 021, 025

CONTACTS
TYPE CONTACTS/TERMINATIONS:
21 Skt, straight, 26 awg solder cup
2A Skt, straight, 24 awg solder cup
22 Skt, straight, 0.150" pigtails (.018 dia)
23 Skt, straight, 0.250" pigtails (.018 dia)
24 Skt, straight, 0.500" pigtails (.018 dia)
26 Skt, straight, crimped wire

PLATING OPTIONS:
1 50 u" Au contacts (Crimped Wire)
3 50 u" Au contacts; Au terminations (solder cup, pigtail)
5 50 u" Au contacts; Sn/Pb alloy terminations (pigtail) ☒
7 50 u" Au contacts; SAC305 terminations (pigtail)

HARDWARE
STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies
41 Two turning jackscrews, allen head, retaining ring
45 Two turning jackscrews, allen head, captivated**

WIRING
XX For wiring codes, see page MA-3 & MA-4

OPTIONS
900 Interfacial Seal

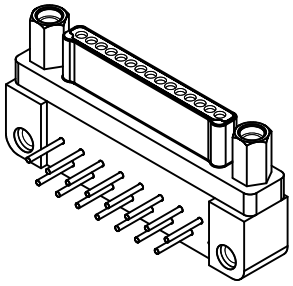
** = Captive hardware is factory installed and non-removable.
☒ = Option not RoHS compliant

Right Angle Boardmount (1 Row)

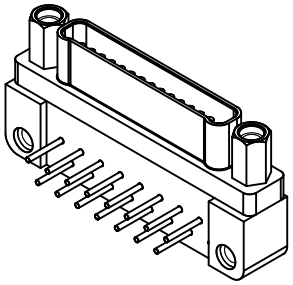
.050"

4 thru 25 Contacts

MK

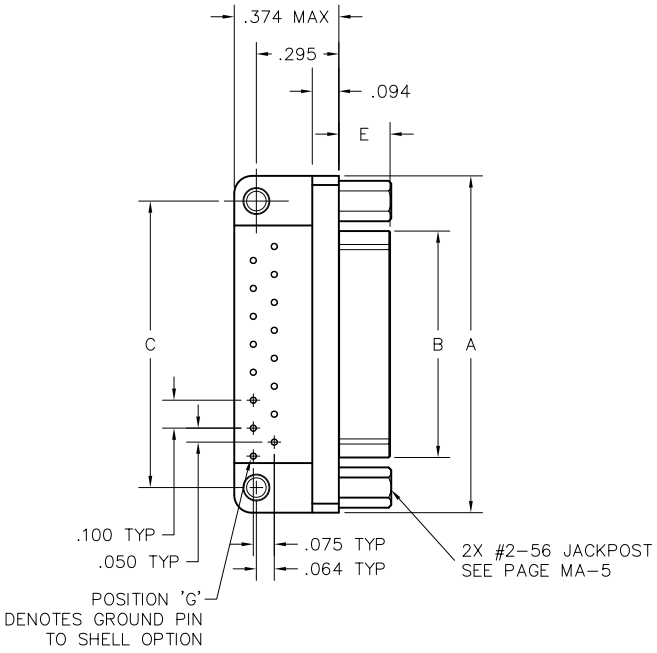


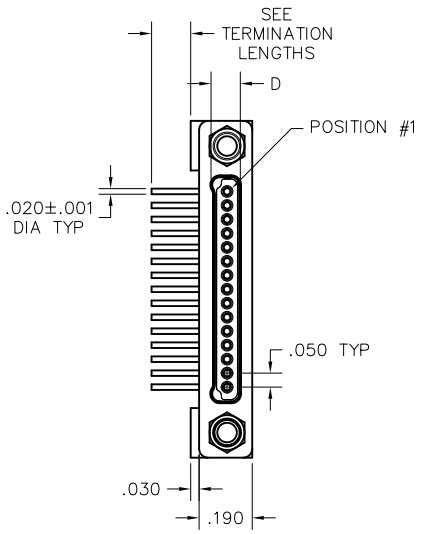
MK–152–015–325–220S
(PLUG)



MK–162–015–435–220S
(RECEPTACLE)

MATING MATRIX	
CONNECTOR	MATES WITH
MK-15...	MM-12, MK-18 receptacles
MK-16...	MM-11, MK-17 plugs





PLUG SHOWN

DIMENSIONS									
SIZE	A	B		C	D		E		MOUNTING HOLE
		PLUG MAX	RCPT MAX		PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX	
4	.655	.260	.297	.475	.110	.142	.186	.198	#2–56 CLEARANCE THRU OR #2–56 UNC THREADED INSERT
5	.705	.310	.347	.525					
6	.755	.360	.397	.575					
9	.905	.510	.547	.725					
12	1.055	.660	.697	.875					
15	1.205	.810	.847	1.025					
21	1.505	1.110	1.147	1.325					
25	1.705	1.310	1.347	1.525					

PLUG: MK–152–006–325–220S
RECEPTACLE: MK–162–006–425–220S

XX–XXX–XXX–XXX–XXXX–XXX
SERIES BODY SIZE CONTACTS HARDWARE OPTIONS

PLUG

SERIES

MK .050" Rugged Metal Right Angle PTH Connector
(MK mates to MK & MM)

BODY

1 1-Row (Sizes 4 thru 25)

BODY STYLE:
5 Plug, right angle, standard footprint, with mounting holes

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insert
3 Electrodeposited cadmium shell w/ PPS insert ☒
5 Stainless Steel shell w/ PPS insert

SIZE

XXX 004, 005, 006, 009, 012, 015, 021, 025

CONTACTS

TYPE CONTACTS/TERMINATIONS:
32 Pin, right angle, pcb leads, .109"
33 Pin, right angle, pcb leads, .140"
34 Pin, right angle, pcb leads, .172"
A2 Pin, right angle, pcb leads, .109" w/ ground pin option
A3 Pin, right angle, pcb leads, .140" w/ ground pin option
A4 Pin, right angle, pcb leads, .172" w/ ground pin option

PLATING OPTIONS:
3 50 u" Au contacts; Au terminations
5 50 u" Au contacts; Sn/Pb alloy terminations ☒
7 50 u" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies

POLARIZATION:
0S Standard body polarization

RECEPTACLE

SERIES

MK .050" Rugged Metal Right Angle PTH Connector
(MM mates to MK & MM)

BODY

1 1-Row (Sizes 4 thru 25)

BODY STYLE:
6 Receptacle, right angle, standard footprint, with mounting holes

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insert
3 Electrodeposited cadmium shell w/ PPS insert ☒
5 Stainless Steel shell w/ PPS insert

SIZE

XXX 004, 005, 006, 009, 012, 015, 021, 025

CONTACTS

TYPE CONTACTS/TERMINATIONS:
43 Socket, right angle, pcb leads, .109"
44 Socket, right angle, pcb leads, .140"
45 Socket, right angle, pcb leads, .172"
B3 Socket, right angle, pcb leads, .109" w/ ground pin option
B4 Socket, right angle, pcb leads, .140" w/ ground pin option
B5 Socket, right angle, pcb leads, .172" w/ ground pin option

PLATING OPTIONS:
3 50 u" Au contacts; Au terminations
5 50 u" Au contacts; Sn/Pb alloy terminations ☒
7 50 u" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies

POLARIZATION:
0S Standard body polarization

OPTIONS

0B7 Threaded inserts, standard body polarization

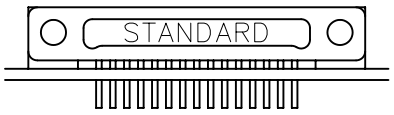
900 Interfacial Seal
0B7 Threaded inserts and interfacial sealing gasket, standard body polarization

☒ = Option not RoHS compliant

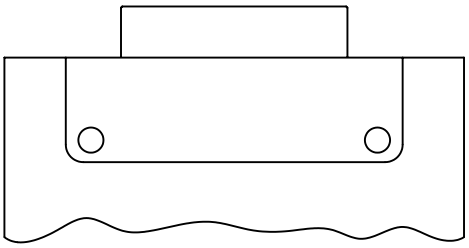
Ask About AirBorn's Accelerated Delivery Service

Recommended PC Board Layout

RIGHT ANGLE
Standard Polarization
Pos 4 thru 9



CONNECTOR MATING FACE

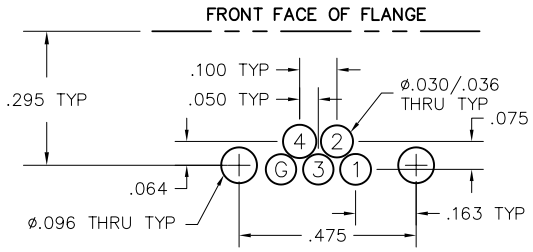


PC BOARD LAYOUT
COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

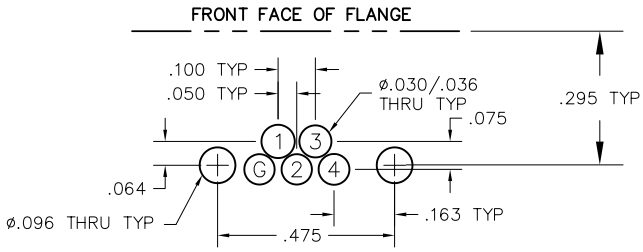
CONNECTOR
MATING FACE*
(RECEPTACLE)

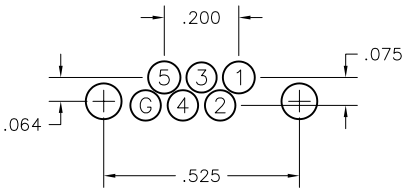
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE





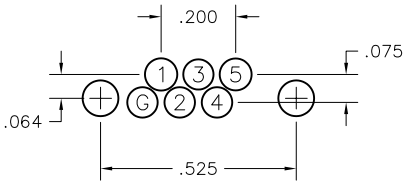
4 POSITION

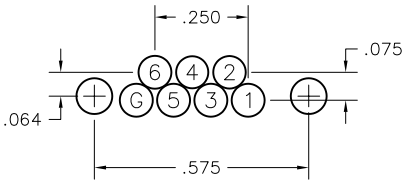






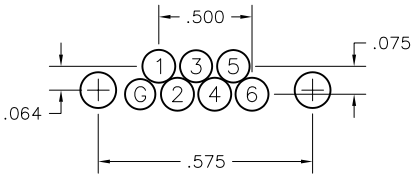
5 POSITION

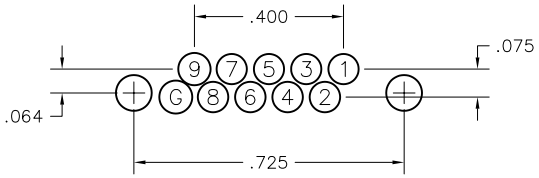






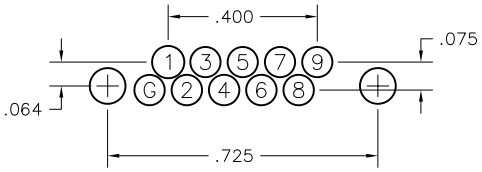
6 POSITION



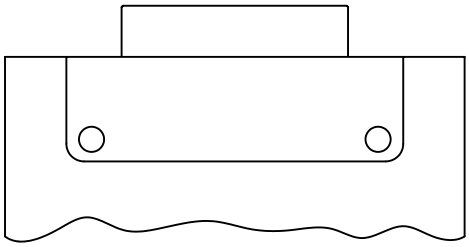




9 POSITION



Call (972) 931-3200 · Fax (972) 931-9305 · www.AirBorn.com



PC BOARD LAYOUT
COMPONENT SIDE



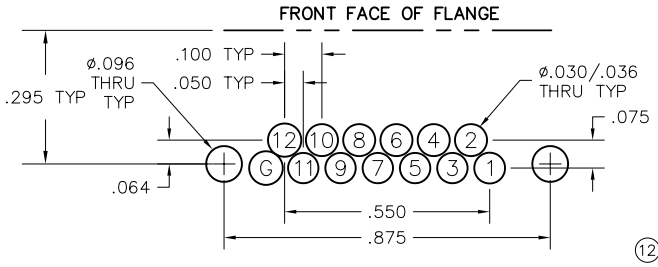
CONNECTOR MATING FACE

Recommended PC Board Layout

RIGHT ANGLE
Standard Polarization
Pos 12 thru 25

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

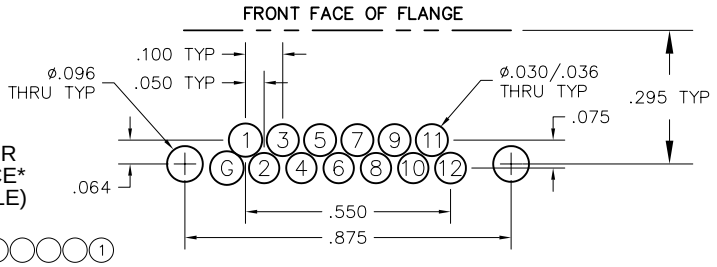
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

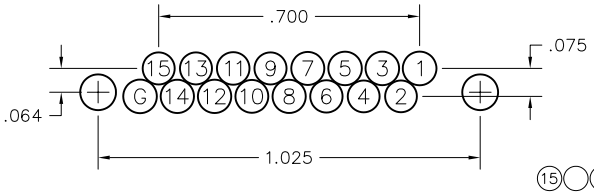


CONNECTOR MATING FACE* (RECEPTACLE)



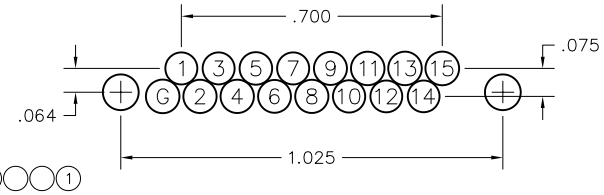
12 POSITION

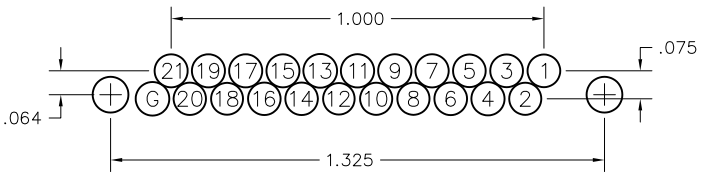






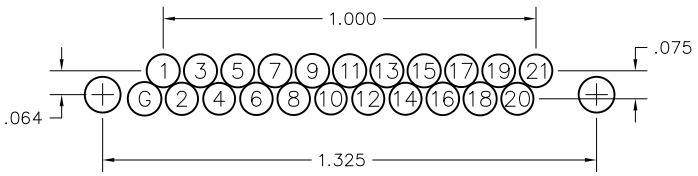
15 POSITION

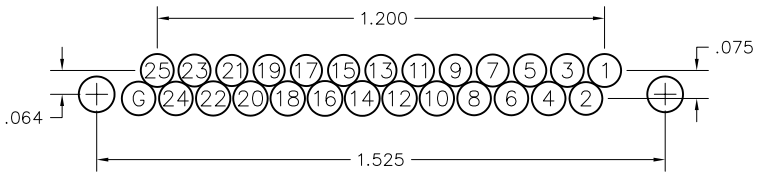






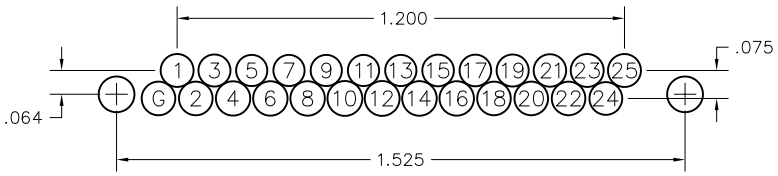
21 POSITION







25 POSITION



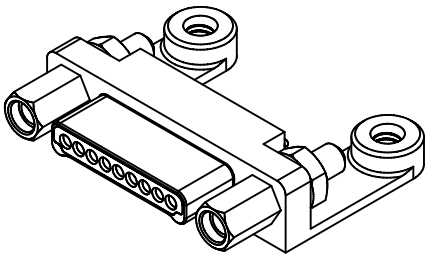
Ask About AirBorn's Accelerated Delivery Service

Horizontal Surface Mount (1 Row)

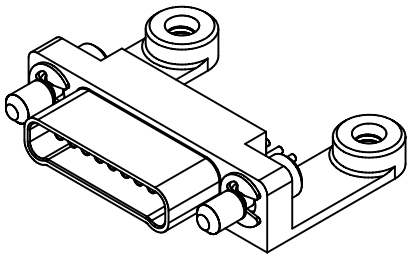
.050"

4 thru 25 Contacts

MK

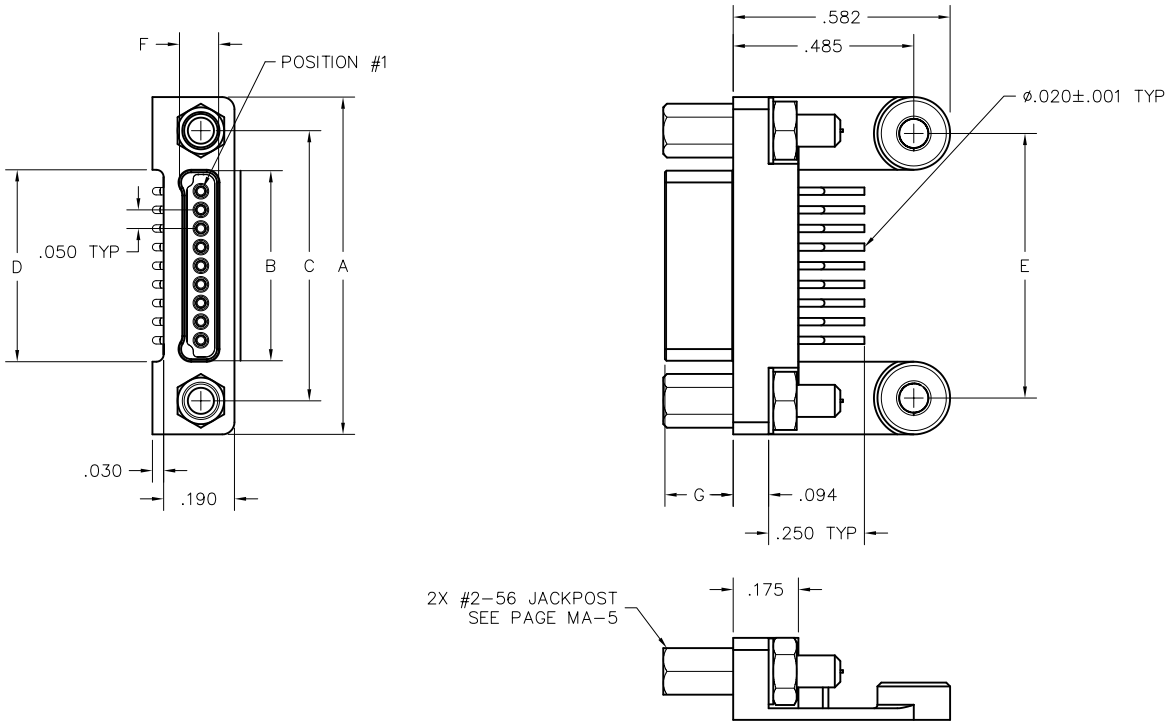


MK–172–009–175–220S
(PLUG)



MK–182–009–275–410S
(RECEPTACLE)

MATING MATRIX	
CONNECTOR	MATES WITH
MK-17...	MM-12, MK-18 receptacles
MK-18...	MM-11, MK-17 plugs



PLUG SHOWN

DIMENSIONS											
SIZE	A	B		C	D	E	F		G		MOUNTING HOLE
		PLUG MAX	RCPT MAX				PLUG MAX	RCPT MAX	PLUG MAX	RCPT MAX	
4	.655	.260	.297	.475	.265	.460	.110	.142	.186	.198	#2–56 THREAD THRU
5	.705	.310	.347	.525	.315	.510					
6	.755	.360	.397	.575	.365	.560					
9	.905	.510	.547	.725	.515	.710					
12	1.055	.660	.697	.875	.665	.860					
15	1.205	.810	.847	1.025	.815	1.010					
21	1.505	1.110	1.147	1.325	1.115	1.310					
25	1.705	1.310	1.347	1.525	1.315	1.510					

PLUG: MK–172–006–175–220S
RECEPTACLE: MK–182–006–275–410S

XX–XXX–XXX–XXX–XXXX–XXX

SERIES | BODY | SIZE | CONTACTS | OPTIONS | HARDWARE

PLUG

SERIES

MK .050" Rugged Metal Horizontal SMT Connector
(MK mates to MK & MM)

BODY

1 1-Row (Sizes 4 thru 25)

BODY STYLE:
7 Plug, Horizontal SMT

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insert
3 Electrodeposited cadmium shell w/ PPS insert ☒
5 Stainless Steel shell w/ PPS insert

SIZE

XXX 004, 005, 006, 009, 012, 015, 021, 025

CONTACTS

TYPE CONTACTS/TERMINATIONS:
17 Pin, surface mount

PLATING OPTIONS:
3 50 u" Au contacts; Au terminations
5 50 u" Au contacts; Sn/Pb alloy terminations ☒
7 50 u" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies
41 Two turning jackscrews, allen head, retaining ring

POLARIZATION:
0S Standard body polarization

RECEPTACLE

SERIES

MK .050" Rugged Metal Horizontal SMT Connector
(MK mates to MK & MM)

BODY

1 1-Row (Sizes 4 thru 25)

BODY STYLE:
8 Receptacle, Horizontal SMT

BODY MATERIAL:
2 Electroless nickel shell w/ PPS insert
3 Electrodeposited cadmium shell w/ PPS insert ☒
5 Stainless Steel shell w/ PPS insert

SIZE

XXX 004, 005, 006, 009, 012, 015, 021, 025

CONTACTS

TYPE CONTACTS/TERMINATIONS:
27 Socket, surface mount

PLATING OPTIONS:
3 50 u" Au contacts; Au terminations
5 50 u" Au contacts; Sn/Pb alloy terminations ☒
7 50 u" Au contacts; SAC305 terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies
41 Two turning jackscrews, allen head, retaining ring

POLARIZATION:
0S Standard body polarization

OPTIONS

☒ = Option not RoHS compliant

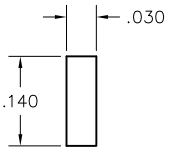
900 Interfacial Seal

Recommended PC Board Layout

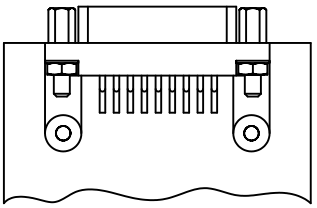
Horizontal SMT
1 ROW
Pos 4 thru 9



CONNECTOR MATING FACE

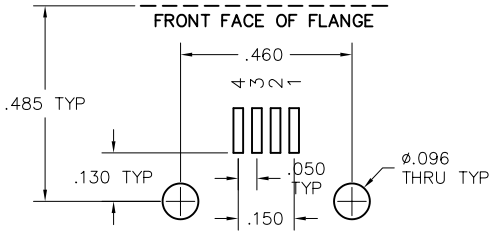


FOOTPRINT/PAD CONFIGURATION



PC BOARD LAYOUT COMPONENT SIDE

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

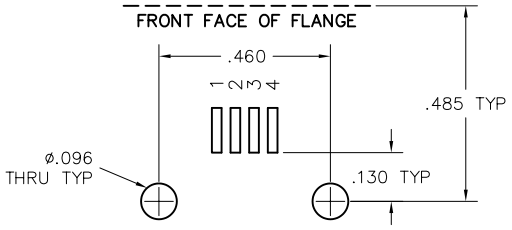


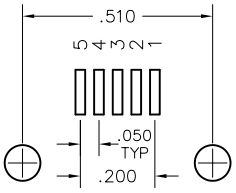
CONNECTOR MATING FACE* (RECEPTACLE)



4 POSITION

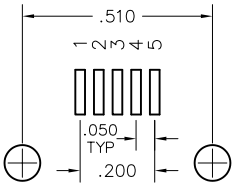
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

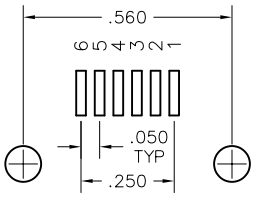






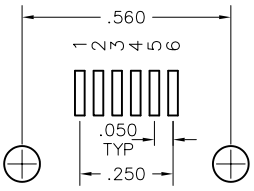
5 POSITION

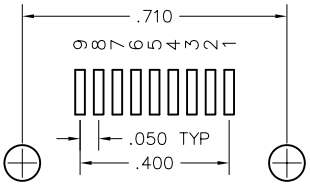






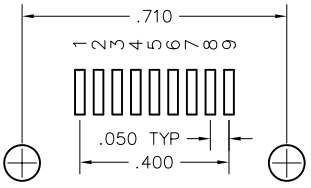
6 POSITION





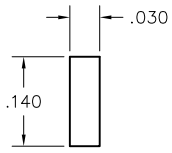


9 POSITION

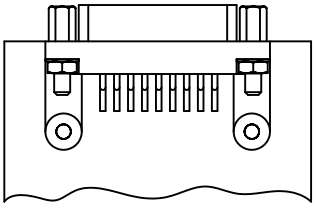




CONNECTOR MATING FACE



FOOTPRINT/PAD CONFIGURATION



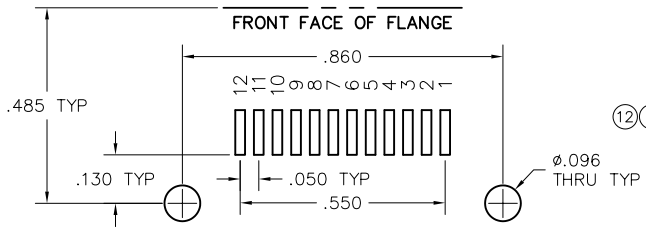
PC BOARD LAYOUT COMPONENT SIDE

AirBorn

Recommended PC Board Layout

Horizontal SMT
1 ROW
Pos 12 thru 25

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

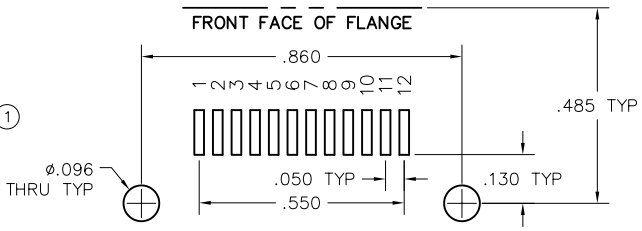


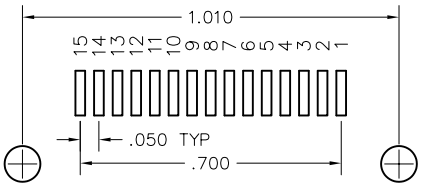
CONNECTOR MATING FACE* (RECEPTACLE)



12 POSITION

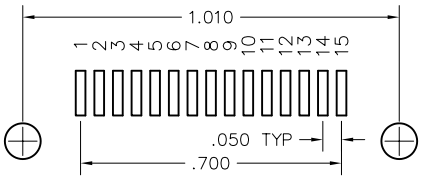
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

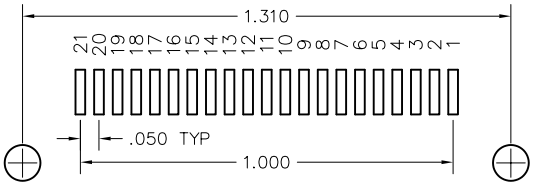






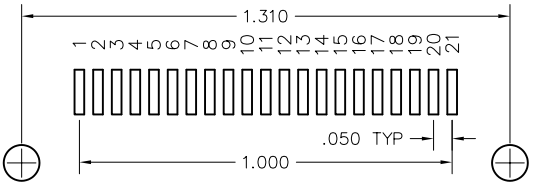
15 POSITION

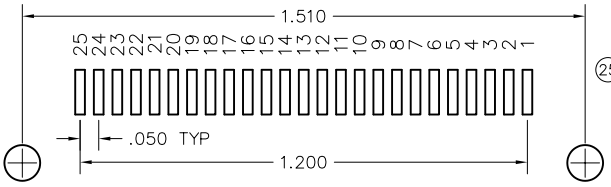






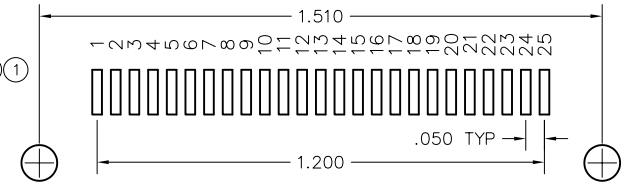
21 POSITION







25 POSITION



Ask About AirBorn's Accelerated Delivery Service

"MHT" SERIES - .050"
High Temperature

Contents

"MHT" Series
.050" Microminiature PCB and I/O Connectors, High Temperature

MHT-1	Contents	
MHT-2	Specifications	
MHT-3	Performance	
MHT-4	Part number description	
	Micro-D, High Temperature, Cable to Cable Connectors (Metal)	
MHT-5	MMHT - MMHT	Rugged
MHT-7	MQHT - MQHT	Low profile
	Micro-D, High Temperature, Board to Cable Connectors (Metal)	
MHT-9, 11	MKHT - MMHT	Rugged right angle, narrow footprint
MHT-13	MKHT	Board layouts - right angle, narrow footprint
MHT-15, 17	MSHT - MQHT	Low profile right angle, narrow footprint
MHT-19	MSHT	Board layouts - right angle, narrow footprint
MHT-21	MTHT - MTHT	Low Profile right angle, radius, four mounting holes
MHT-23	MTHT	Board layouts - right angle, radius, four mounting holes

Specifications
Materials and Finishes *

Contacts:	Pins: Copper based alloy selected for high temperature applications Sockets: Brass per ASTM B121 / B121M or ASTM B16 / B16M or ASTM B453
Contact Finish:	Gold plate per ASTM B488
Shells:	Aluminum Alloy 6061-T6 per SAE AMS-QQ-A-250/11 or 6061-T6511 per SAE AMS-QQ-A-200/8 Electroless Nickel per SAE AMS2404, Class 3, 500 µ" min
Molded Insulators:	High temperature thermoplastic
Embedment:	High temperature epoxy
Jackscrews, Jackposts and Nuts:	Corrosion resistant steel per ASTM A320 or ASTM A484 / A484M and ASTM A582 / A582M Passivated per SAE AMS2700
Clips and Washers:	Corrosion resistant steel per ASME 18.24 or NASM35333 (For reference only: ASME 18.24 CRS per ASTM A693 and NASM35333 CRS per ASTM A240) Passivated per ASME 18.24 or NASM35333 (For reference only: ASME 18.24 and NASM35333 passivated per SAE AMS2700)
Interfacial Seal Gaskets:	Fluorosilicone per SAE AMS-R-25988
Tolerances:	Unless otherwise specified: Fractions = ±1/64" Decimals = ±.010" Angles = ±5° Wire lengths: insulated/stranded = +1.0"/-0.0" uninsulated/solid = +0.2"/-0.0"

Note: AirBorn can manufacture special configurations for your exact specifications.

* = Reference the above listed specifications or an equivalent industry standard when applicable

Performance

Reference MIL-DTL-83513

AirBorn "M' Series meets or exceeds MIL-DTL-83513 Performance Specifications

Contact Rating:	3-amperes maximum
Solderability:	Terminals (except crimp) tested in accordance with MIL-STD-202, Method 208
Wire Size:	Stranded #24, #26, #28 AWG or solid #25 AWG standard (consult factory for other sizes and types)
Test Voltage:	600 V, RMS, 60 Hz
Operating Temperature:	-55° C to +205° C
Insulation Resistance:	5,000 megohms minimum @ 500 VDC
Durability:	500 connector mating cycles
Salt Spray:	Mated connectors tested in accordance with MIL-STD-1344, Method 1001, Test Condition B
Humidity:	Mated connectors tested in accordance with MIL-STD-1344, Method 1002, Type II (except steps 7a and 7b)
Thermal Shock:	Tested to the temperature extremes of MIL-STD-1344, Method 1003, Test Condition A (except step 3, temperature shall be 205° C)
Contact Resistance:	0.065 volt maximum drop @ 2.5 amps (.026 ohms)
Contact Engaging Force:	6.0 ounce maximum, with .0221 diameter test sleeve
Contact Separating Force:	0.5 ounce minimum, with .0230 diameter test sleeve
Crimp Strength:	5 pound minimum tensile strength

Part Number Description

Each part number consists of at least five elements: series, body description, size (number of contacts), type of contacts, and type of hardware. A sixth element is added whenever special modifications or options are available.

Each catalog page shows the choices available for each of these elements. By selecting one option from each category on the page, you can build a set of connectors to meet your requirements.

Each element is identified by a combination of letters and/or numbers in fixed field lengths, and separated by a hyphen (-). Each space must be filled in to complete the number. When the size, for example, is less than 100, indicate as 009, 051, etc.

Series:
This will always be a four letter designator which will identify the connector series. All .050" connectors begin with the letter "M". The second letter designates the various styles of .050" connectors. "HT" designates high temperature.

Body:
Each digit of the Body Designator will normally identify (1) the number of rows, (2) the style of body, and (3) the body materials. The three digit number to identify the body consists of one digit from each group.

Size:
The size is determined by the number of contacts in the connector, and is an integral part of the part number. Order only sizes shown on the catalog page unless otherwise noted.

Contacts:
Each page also identifies all contact options for a given connector. The first two digits designate the type of contacts and terminations; the third digit designates the plating option.

Hardware:
The hardware designator is four digits; two for style of hardware and two for polarization or wiring instruction. Follow the choices for each connector.

Special Instructions (Options):
Special instructions are referenced by a three digit number added to the end of the part number. The last three digits are included only when applicable. AirBorn will provide individual code numbers as needed.

Note:
Each page is as comprehensive as possible. However, if you do not find a particular connector size or option, please contact the factory for further assistance.

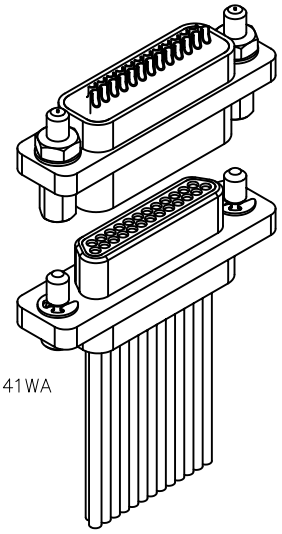
Cable to Cable

.050"

9 thru 100 Contacts

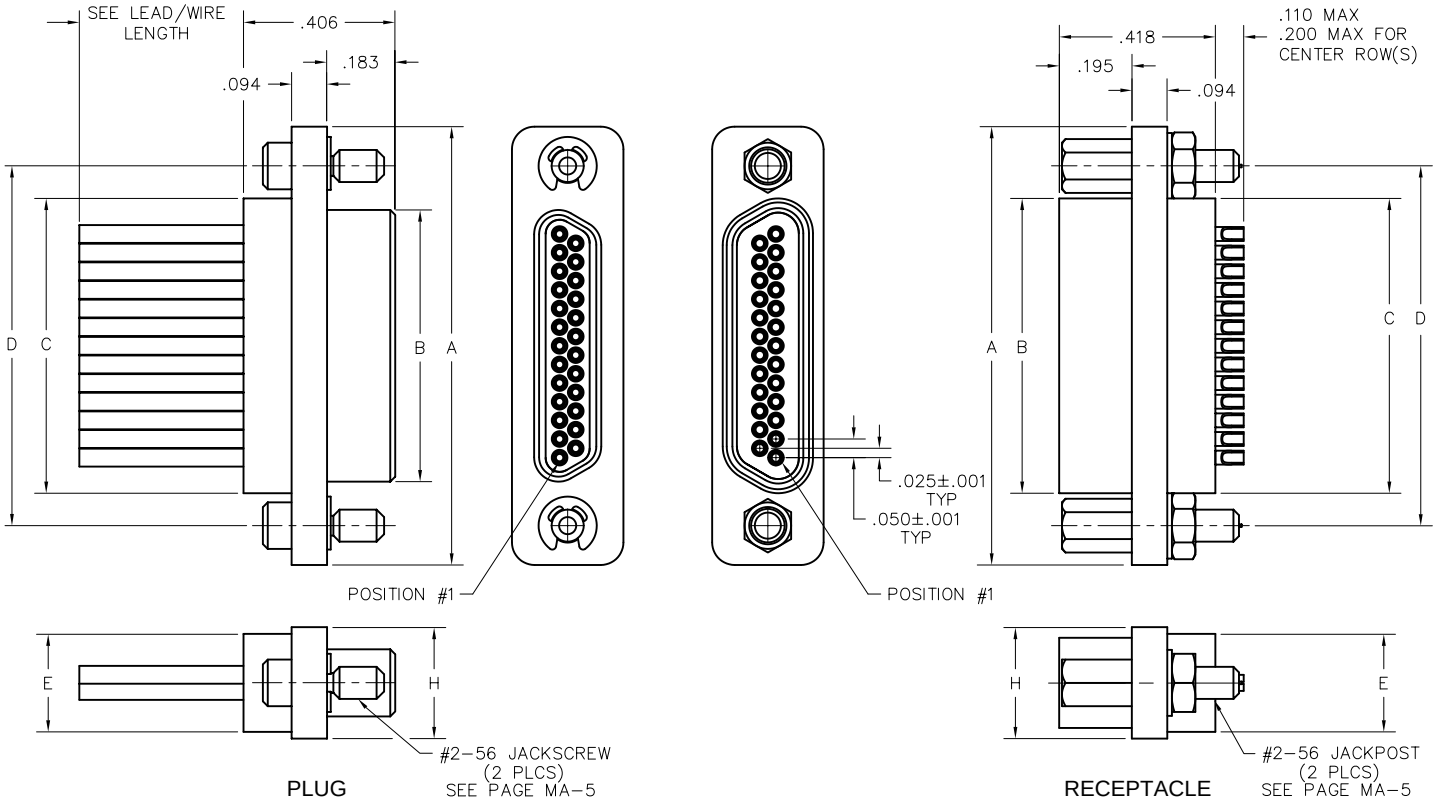
Rugged Metal
High Temperature

MMHT



MMHT–223–025–2A3–2200
(METAL)

MMHT–212–025–161–41WA
(METAL)



DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
9	2	.775	.334	.400	.390	.565	.270	.298	#2–56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.540	.715			
21		1.075	.634	.700	.690	.865			
25		1.175	.734	.800	.790	.965			
31		1.325	.884	.950	.940	1.115			
37		1.475	1.034	1.100	1.090	1.265			
51	3	1.425	.984	1.050	1.040	1.215	.310	.341	
100	4	2.160	1.384	1.508	1.432	1.800	.360	.384	#4–40 UNC THD (.147 DIA THRU)

PLUG: MMHT–212–031–161–41WA
RECEPTACLE: MMHT–222–031–2G3–4500
XXXX–XXX–XXX–XXX–XXXX

PLUG		RECEPTACLE	
SERIES			
MMHT	.050" Rugged Metal I/O Connector (MMHT mates with MMHT & MKHT receptacles)	MMHT	.050" Rugged Metal I/O Connector (MMHT mates with MMHT & MKHT plugs)
BODY			
2	2-Row (Sizes 9 thru 51****)	2	2-Row (Sizes 9 thru 51****)
3	3-Row (Size 51 & 69***)	3	3-Row (Size 51 & 69***)
4	4-Row (Size 100)	4	4-Row (Size 100)
	BODY STYLE:		BODY STYLE:
1	Plug, straight, with ears	2	Receptacle, straight, with ears and interfacial seal High temperature.
	BODY MATERIAL:		BODY MATERIAL:
2	High temperature thermoplastic with electroless nickel shell	2	High temperature thermoplastic with electroless nickel shell
SIZE			
XXX	009, 015, 021, 025, 031, 037, 051, 100	XXX	009, 015, 021, 025, 031, 037, 051, 100
CONTACTS			
	TYPE CONTACTS/TERMINATIONS:		TYPE CONTACTS/TERMINATIONS:
11	Pin, straight, 26 awg solder cup	21	Socket, straight, 26 awg solder cup
1A	Pin, straight, 24 awg solder cup	2A	Socket, straight, 24 awg solder cup
1D	Pin, straight, .109" Lead Length (.018 dia) SEE NOTE 1	2D	Socket, straight, .109" Lead Length (.018 dia)
1E	Pin, straight, .125" Lead Length (.018 dia) SEE NOTE 1	2E	Socket, straight, .125" Lead Length (.018 dia)
1F	Pin, straight, .140" Lead Length (.018 dia) SEE NOTE 1	2F	Socket, straight, .140" Lead Length (.018 dia)
12	Pin, straight, .150" Lead Length (.018 dia) SEE NOTE 1	22	Socket, straight, .150" Lead Length (.018 dia)
1G	Pin, straight, .156" Lead Length (.018 dia) SEE NOTE 1	2G	Socket, straight, .156" Lead Length (.018 dia)
1H	Pin, straight, .172" Lead Length (.018 dia) SEE NOTE 1	2H	Socket, straight, .172" Lead Length (.018 dia)
1J	Pin, straight, .187" Lead Length (.018 dia) SEE NOTE 1	2J	Socket, straight, .187" Lead Length (.018 dia)
13	Pin, straight, .250" Lead Length (.018 dia) SEE NOTE 1	23	Socket, straight, .250" Lead Length (.018 dia)
1K	Pin, straight, .375" Lead Length (.018 dia) SEE NOTE 1	2K	Socket, straight, .375" Lead Length (.018 dia)
14	Pin, straight, .500" Lead Length (.018 dia) SEE NOTE 1	2L	Socket, straight, .500" Lead Length (.018 dia)
15	Pin, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1	2M	Socket, straight, 1.000" Lead Length (.018 dia)
16	Pin, straight, crimped wire	24	Socket, straight, .500" Lead Length (.018 dia) SEE NOTE 1
		25	Socket, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1
		26	Socket, straight, crimped wire
	PLATING OPTIONS:		PLATING OPTIONS:
1	50 µ" Au contacts (crimp wire)	1	50 µ" Au contacts (crimp wire)
3	50 µ" Au contacts (solder cup, pigtail)	3	50 µ" Au contacts (solder cup, pigtail)
HARDWARE			
	STYLE OF HARDWARE:		STYLE OF HARDWARE:
00	None	00	None
22	Two fixed jacknut assemblies (62*)	22	Two fixed jacknut assemblies (62*)
41	Two turning jackscrews, allen head, retaining ring (81*)	41	Two turning jackscrews, allen head, retaining ring (81*)
42	Two long turning jackscrews, allen head, retaining ring (82*)	42	Two long turning jackscrews, allen head, retaining ring (82*)
43	Two turning jackscrews, slot head, retaining ring (83*)	43	Two turning jackscrews, slot head, retaining ring (83*)
44	Two long turning jackscrews, slot head, retaining ring (84*)	44	Two long turning jackscrews, slot head, retaining ring (84*)
45	Two turning jackscrews, allen head, captivated** (85*)	45	Two turning jackscrews, allen head, captivated** (85*)
	POLARIZATION / WIRING		POLARIZATION / WIRING
00	None	00	None
XX	For wiring codes, see page MA-3 & MA-4	XX	For wiring codes, see page MA-3 & MA-4

* = Use numbers or letters in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

NOTE 1 = The leads on these contacts are soft copper suitable for forming.

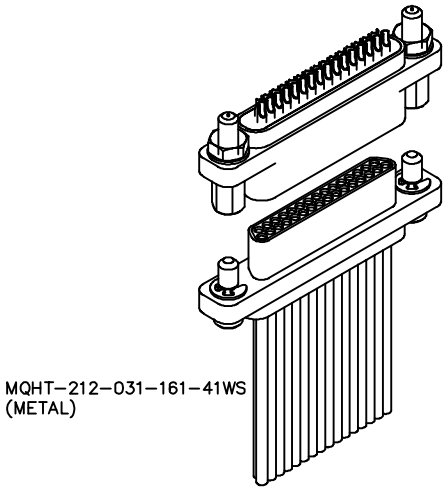
Cable to Cable

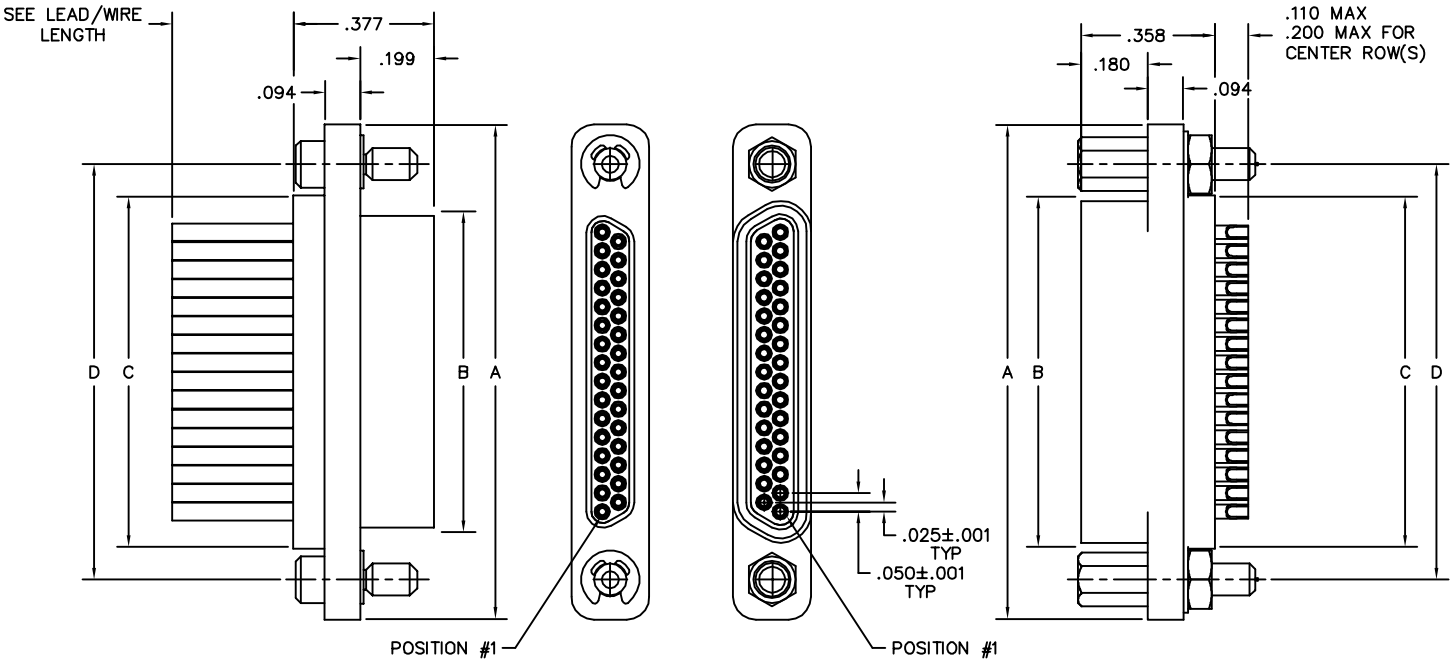
.050"

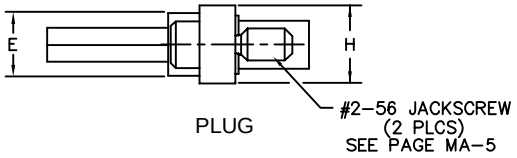
9 thru 51 Contacts

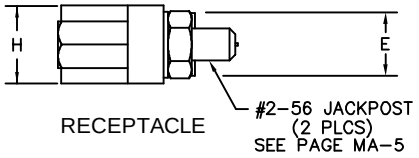
Low Profile Metal
High Temperature

MQHT









DIMENSIONS									
SIZE	CONTACT ROWS	A	B		C	D	E	H	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX		
9	2	.778	.292	.378	.398	.565	.173	.208	#2–56 UNC THD (.092 DIA THRU)
15		.928	.442	.528	.548	.715			
21		1.078	.592	.678	.698	.865			
25		1.178	.692	.778	.798	.965			
31		1.328	.842	.928	.948	1.115			
37		1.478	.992	1.078	1.098	1.265			
51	3	1.428	.942	1.028	1.048	1.215	.220	.250	

AirBorn

PLUG: MQHT–212–031–161–41WS
RECEPTACLE: MQHT–222–031–2G3–4500
XXXX–XXX–XXX–XXX–XXXX

PLUG		RECEPTACLE	
SERIES			
MQHT	.050" Low Profile Metal I/O Connector (MQHT mates with MQHT & MSHT receptacles)	MQHT	.050" Low Profile Metal I/O Connector (MQHT mates with MQHT & MSHT receptacles)
BODY			
2	2-Row (Sizes 9 thru 37)	2	2-Row (Sizes 9 thru 37)
3	3-Row (Size 51)	3	3-Row (Size 51)
	BODY STYLE:		BODY STYLE:
1	Plug, straight, with ears. High Temperature.	2	Receptacle, straight, with ears. High temperature.
	BODY MATERIAL:		BODY MATERIAL:
2	High temperature thermoplastic with electroless nickel shell	2	High temperature thermoplastic with electroless nickel shell
SIZE			
XXX	009, 015, 021, 025, 031, 037, 051	XXX	009, 015, 021, 025, 031, 037, 051
CONTACTS			
	TYPE CONTACTS/TERMINATIONS:		TYPE CONTACTS/TERMINATIONS:
11	Pin, straight, 26 awg solder cup	21	Socket, straight, 26 awg solder cup
1A	Pin, straight, 24 awg solder cup	2A	Socket, straight, 24 awg solder cup
1D	Pin, straight, .109" Lead Length (.018 dia) SEE NOTE 1	2D	Socket, straight, .109" Lead Length (.018 dia)
1E	Pin, straight, .125" Lead Length (.018 dia) SEE NOTE 1	2E	Socket, straight, .125" Lead Length (.018 dia)
1F	Pin, straight, .140" Lead Length (.018 dia) SEE NOTE 1	2F	Socket, straight, .140" Lead Length (.018 dia)
12	Pin, straight, .150" Lead Length (.018 dia) SEE NOTE 1	22	Socket, straight, .150" Lead Length (.018 dia)
1G	Pin, straight, .156" Lead Length (.018 dia) SEE NOTE 1	2G	Socket, straight, .156" Lead Length (.018 dia)
1H	Pin, straight, .172" Lead Length (.018 dia) SEE NOTE 1	2H	Socket, straight, .172" Lead Length (.018 dia)
1J	Pin, straight, .187" Lead Length (.018 dia) SEE NOTE 1	2J	Socket, straight, .187" Lead Length (.018 dia)
13	Pin, straight, .250" Lead Length (.018 dia) SEE NOTE 1	23	Socket, straight, .250" Lead Length (.018 dia)
1K	Pin, straight, .375" Lead Length (.018 dia) SEE NOTE 1	2K	Socket, straight, .375" Lead Length (.018 dia)
14	Pin, straight, .500" Lead Length (.018 dia) SEE NOTE 1	2L	Socket, straight, .500" Lead Length (.018 dia)
15	Pin, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1	2M	Socket, straight, 1.000" Lead Length (.018 dia)
16	Pin, straight, crimped wire	24	Socket, straight, .500" Lead Length (.018 dia) SEE NOTE 1
		25	Socket, straight, 1.000" Lead Length (.018 dia) SEE NOTE 1
		26	Socket, straight, crimped wire
	PLATING OPTIONS:		PLATING OPTIONS:
1	50 µ" Au contacts (crimp wire)	1	50 µ" Au contacts (crimp wire)
3	50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)	3	50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)
HARDWARE			
	STYLE OF HARDWARE:		STYLE OF HARDWARE:
00	None	00	None
22	Two fixed jacknut assemblies	22	Two fixed jacknut assemblies
41	Two turning jackscrews, allen head, retaining ring	41	Two turning jackscrews, allen head, retaining ring
42	Two long turning jackscrews, allen head, retaining ring	42	Two long turning jackscrews, allen head, retaining ring
43	Two turning jackscrews, slot head, retaining ring	43	Two turning jackscrews, slot head, retaining ring
44	Two long turning jackscrews, slot head, retaining ring	44	Two long turning jackscrews, slot head, retaining ring
45	Two turning jackscrews, allen head, captivated*	45	Two turning jackscrews, allen head, captivated*
	POLARIZATION / WIRING		POLARIZATION / WIRING
00	None	00	None
XX	For wiring codes, see page MA-3 & MA-4	XX	For wiring codes, see page MA-3 & MA-4

* = Captive hardware is factory installed and non-removable.

NOTE 1 = The leads on these contacts are soft copper suitable for forming.

Board (Narrow Footprint) to Cable

.050"

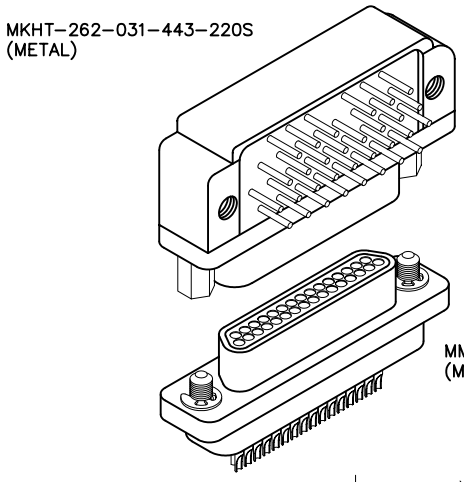
9 thru 100 Contacts

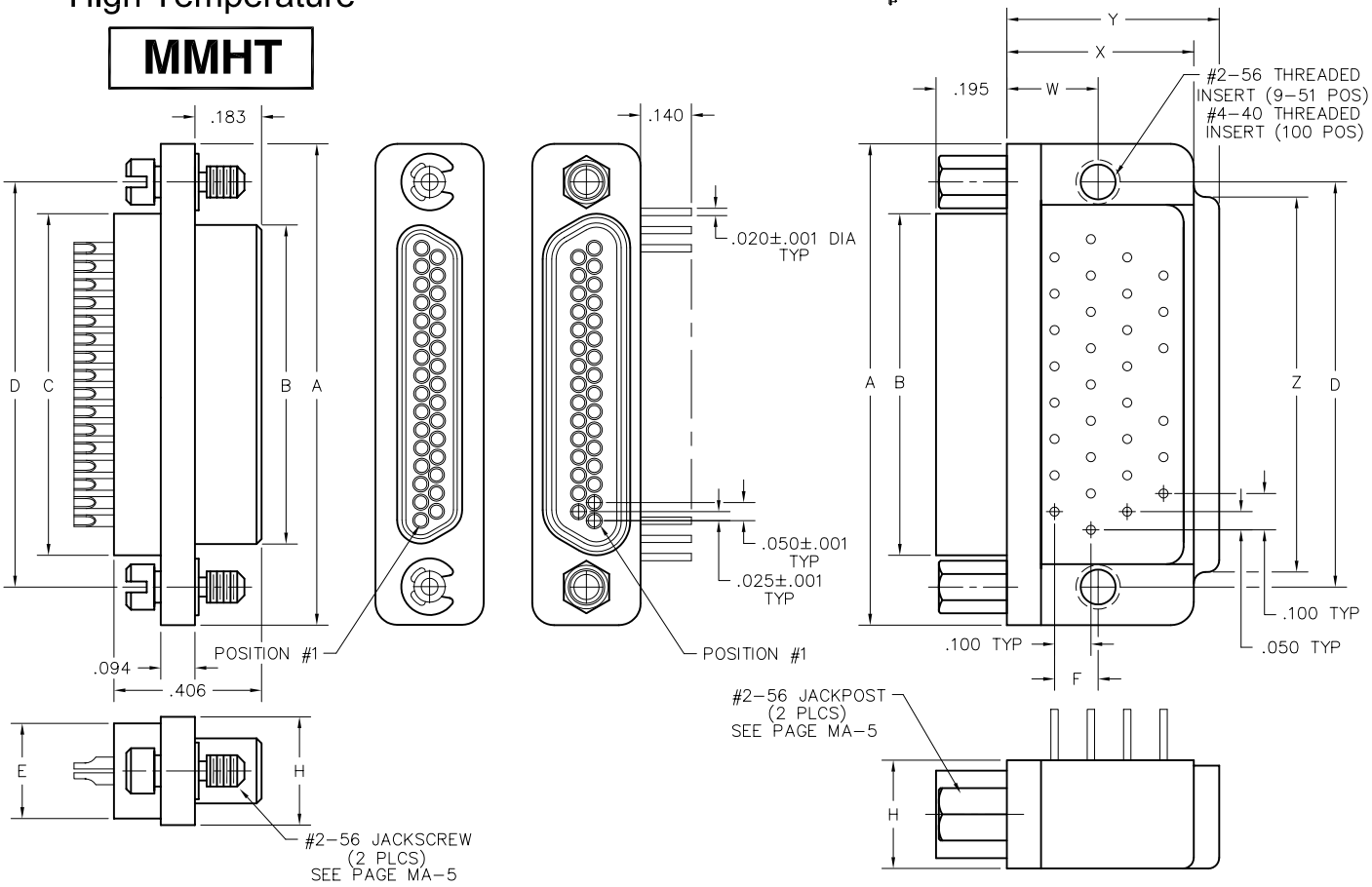
Rugged Board Mount
High Temperature

MKHT

Rugged Cable
High Temperature

MMHT





PLUG

RECEPTACLE

DIMENSIONS														
SIZE	CONTACT ROWS	A	B		C	D	E	F	H	W	X	Y	Z	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX				MAX	MAX		
9	2	.775	.334	.400	.390	.565	.270	.020	.298	.250	.420	.420	.775	#2–56 UNC THD
15		.925	.484	.550	.540	.715		.120					.925	
21		1.075	.634	.700	.690	.865							1.075	
25		1.175	.734	.800	.790	.965							1.175	
31		1.325	.884	.950	.940	1.115					.450	.520	1.080	
37		1.475	1.034	1.100	1.090	1.265							1.180	
51	3	1.425	.984	1.050	1.040	1.215	.310	.150	.341	.300	.430	.650	1.220	
100	4	2.160	1.384	1.508	1.432	1.800	.360	.200	.384	.400	.590	1.000	1.810	#4–40 UNC THD

PLUG: MMHT– 212 – 031 – 113 – 4300
RECEPTACLE: MKHT– 262 – 031 – 443 – 220S
XXXX – XXX – XXX – XXX – XXXX

PLUG	RECEPTACLE
SERIES	
MMHT .050" Rugged Metal I/O Connector (MMHT mates with MMHT & MKHT receptacles)	MKHT .050" Rugged Metal PC Board Mount Connector (MKHT mates with MMHT plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)
BODY STYLE: 1 Plug, straight, with ears. High temperature.	BODY STYLE: 6 Receptacle, right angle, narrow footprint, w/ threaded inserts and interfacial seal. High temperature.
BODY MATERIAL: 2 High temperature thermoplastic with electroless nickel shell	BODY MATERIAL: 2 High temperature thermoplastic with electroless nickel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 100	XXX 009, 015, 021, 025, 031, 037, 051, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 43 Socket, right angle, dip solder, .109" x .020" dia 44 Socket, right angle, dip solder, .140" x .020" dia 45 Socket, right angle, dip solder, .172" x .020" dia
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)	PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*)	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*)
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 0S Standard body polarization

* = Use number in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

Board (Narrow Footprint) to Cable

.050"

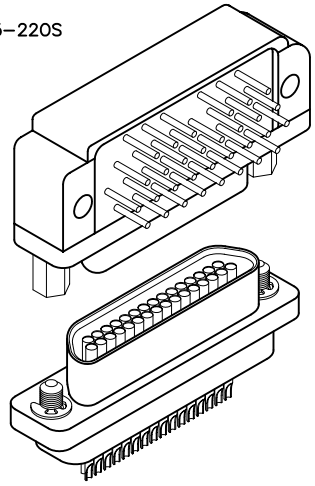
9 thru 100 Contacts

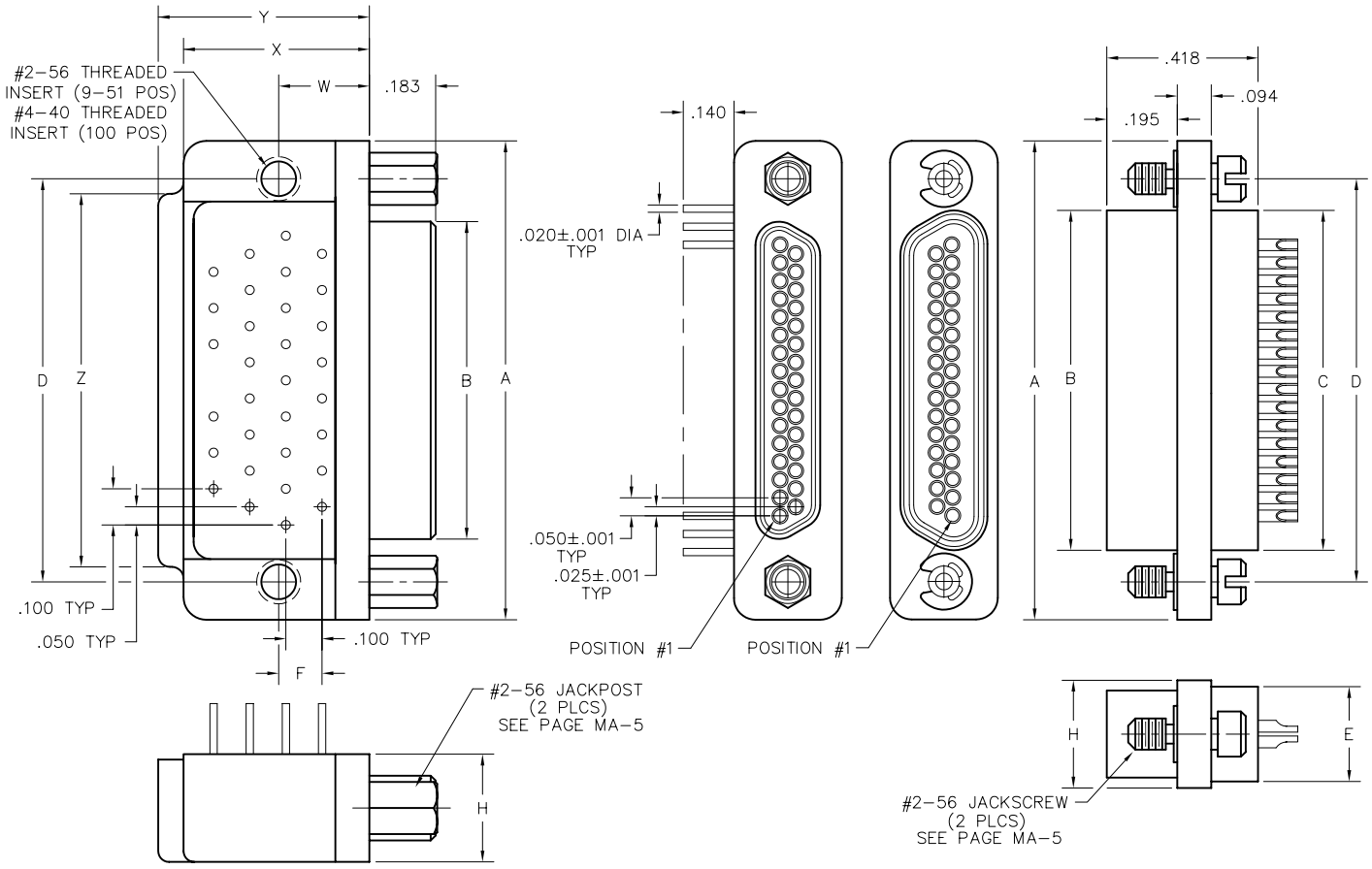
Rugged Board Mount
High Temperature

MKHT

Rugged Cable
High Temperature

MMHT





PLUG

RECEPTACLE

DIMENSIONS														
SIZE	CONTACT ROWS	A	B		C	D	E	F	H	W	X MAX	Y MAX	Z	HARDWARE
			PLUG MAX	RCPT MAX			POTTING WELL MAX							
9	2	.775	.334	.400	.390	.565	.270	.020	.298	.250	.420	.420	.775	#2–56 UNC THD
15		.925	.484	.550	.540	.715		.120					.925	
21		1.075	.634	.700	.690	.865							1.075	
25		1.175	.734	.800	.790	.965							1.175	
31		1.325	.884	.950	.940	1.115					.450	.520	1.080	
37		1.475	1.034	1.100	1.090	1.265							1.180	
51	3	1.425	.984	1.050	1.040	1.215	.310	.150	.341	.300	.430	.650	1.220	
100	4	2.160	1.384	1.508	1.432	1.800	.360	.200	.384	.400	.590	1.000	1.810	#4–40 UNC THD

PLUG: MKHT–252–031–335–220S
RECEPTACLE: MMHT–222–031–213–4100
XXXX–XXX–XXX–XXX–XXXX–XXX

PLUG	RECEPTACLE
SERIES	
MKHT .050" Rugged Metal PC Board Mount Connector (MKHT mates with MMHT receptacles)	MMHT .050" Rugged Metal I/O Connector (MMHT mates with MKHT & MMHT plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51) 4 4-Row (Size 100)
BODY STYLE: 5 Plug, right angle, narrow footprint, w/ threaded inserts. High temperature.	BODY STYLE: 2 Receptacle, straight, with ears. High temperature.
BODY MATERIAL: 2 High temperature thermoplastic with electroless nickel shell	BODY MATERIAL: 2 High temperature thermoplastic with electroless nickel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051, 100	XXX 009, 015, 021, 025, 031, 037, 051, 100
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 32 Pin, right angle, dip solder, .109" 33 Pin, right angle, dip solder, .140" 34 Pin, right angle, dip solder, .172"	TYPE CONTACTS/TERMINATIONS: 21 Socket, straight, solder cup 24 Socket, straight, .500" pigtails (.018 dia) 25 Socket, straight, 1.000" pigtails (.018 dia) 26 Socket, straight, crimped wire
PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations	PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)
HARDWARE	
STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies (62*)	STYLE OF HARDWARE: 00 None 41 Two turning jackscrews, allen head, retaining ring (81*) 42 Two long turning jackscrews, allen head, retaining ring (82*) 43 Two turning jackscrews, slot head, retaining ring (83*) 44 Two long turning jackscrews, slot head, retaining ring (84*) 45 Two turning jackscrews, allen head, captivated** (85*)
POLARIZATION / WIRING: 0S Standard body polarization	POLARIZATION / WIRING 00 None XX For wiring codes, see page MA-3 & MA-4
OPTIONS	
	900 Interfacial sealing gasket

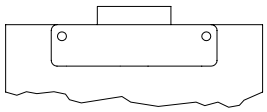
* = Use number in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

Recommended PC Board Layout

Right Angle, Narrow Footprint
Standard Polarization

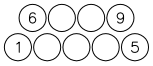


CONNECTOR MATING FACE

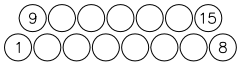


PC BOARD LAYOUT
COMPONENT SIDE

CONNECTOR
MATING FACE
(RECEPTACLE)



9 POSITION



15 POSITION



21 POSITION



25 POSITION



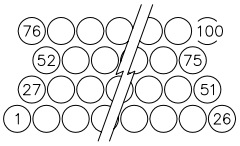
31 POSITION



37 POSITION

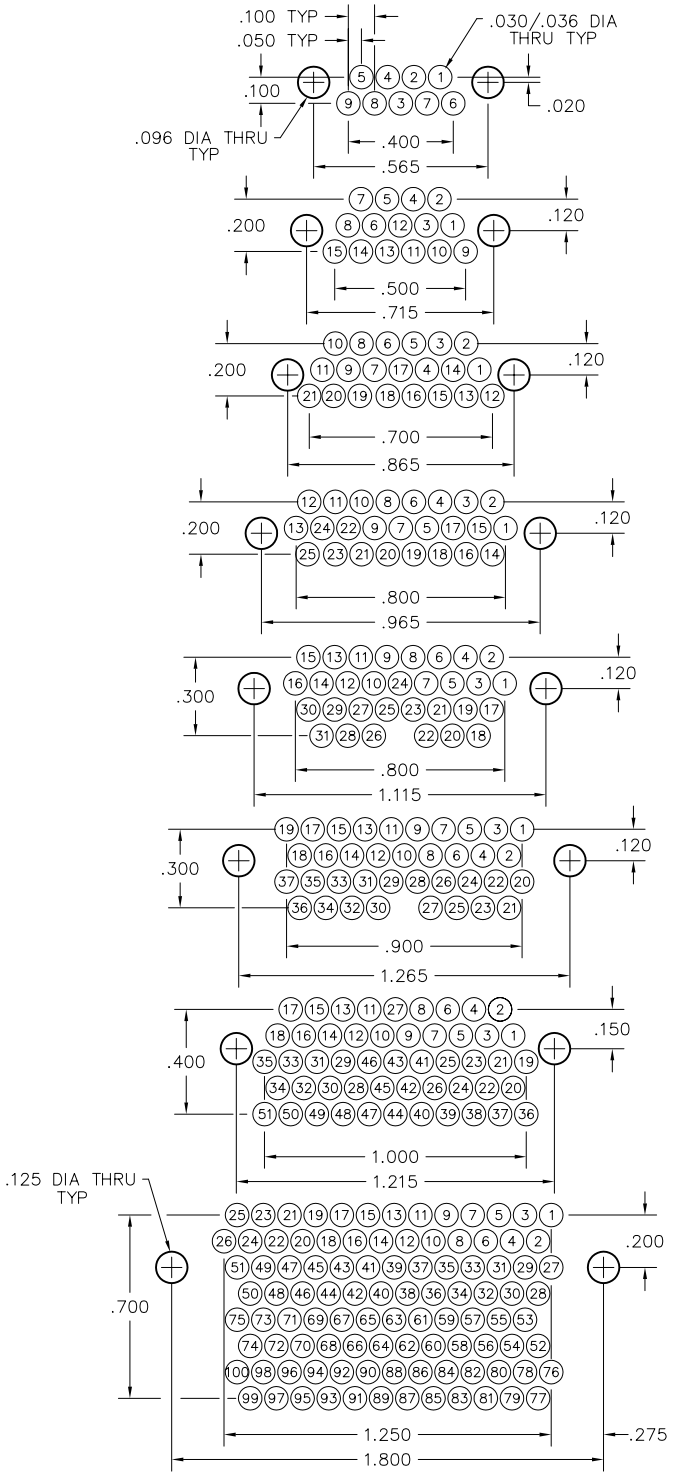


51 POSITION



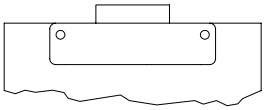
100 POSITION

RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE





CONNECTOR MATING FACE



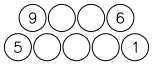
PC BOARD LAYOUT
COMPONENT SIDE

Recommended PC Board Layout

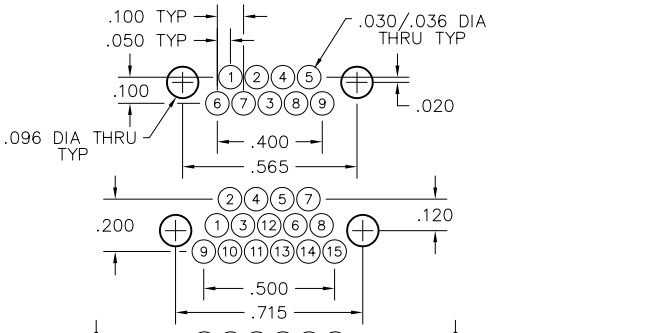
Right Angle, Narrow Footprint
Standard Polarization

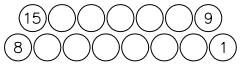
CONNECTOR MATING FACE (PLUG)

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

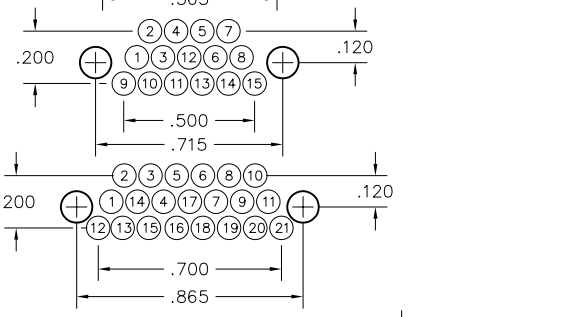


9 POSITION



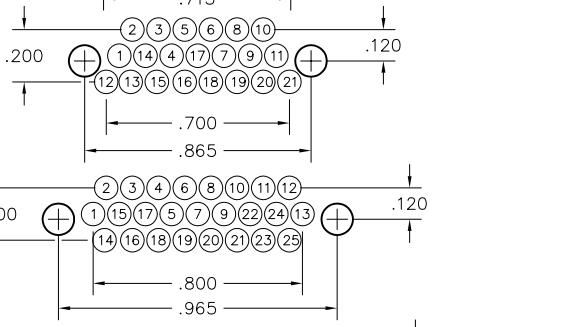


15 POSITION





21 POSITION

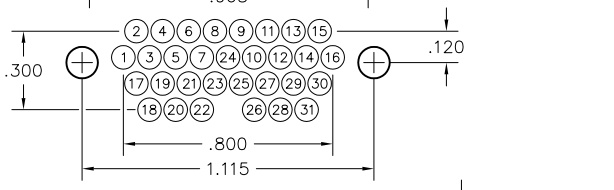




25 POSITION

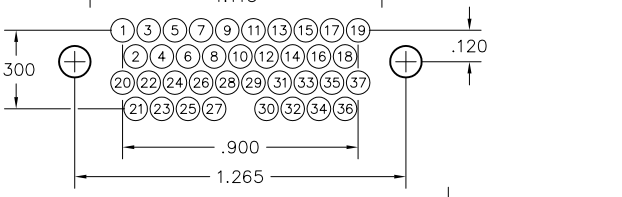


31 POSITION



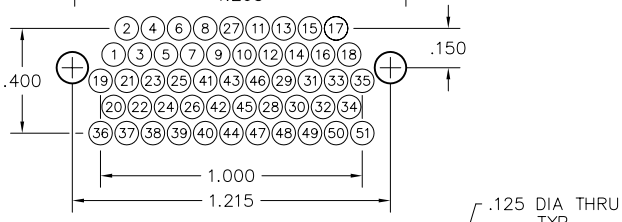


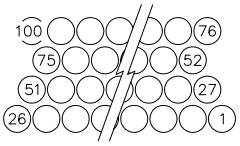
37 POSITION



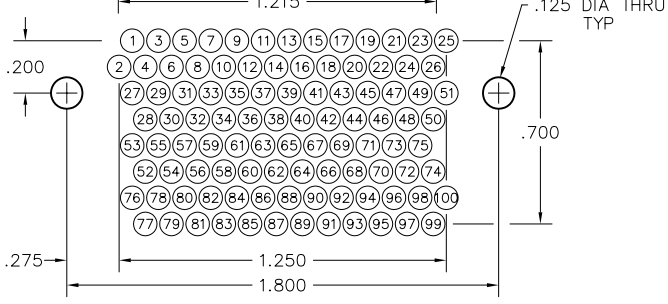


51 POSITION





100 POSITION



Board (Narrow Footprint) to Cable

.050"

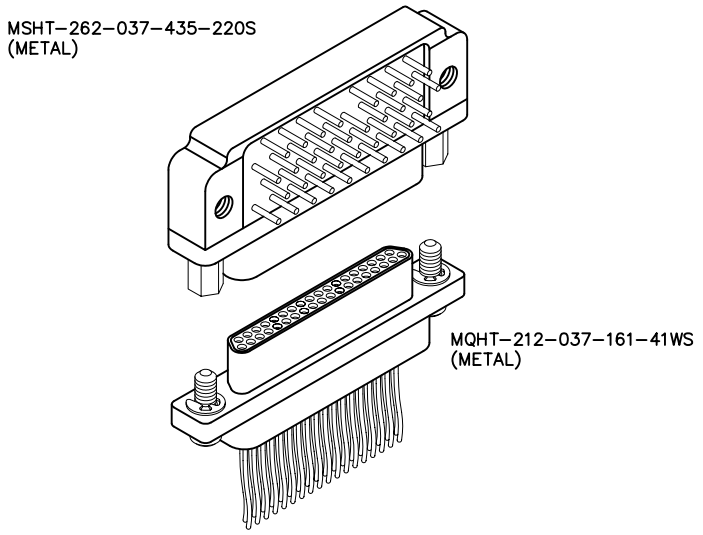
9 thru 51 Contacts

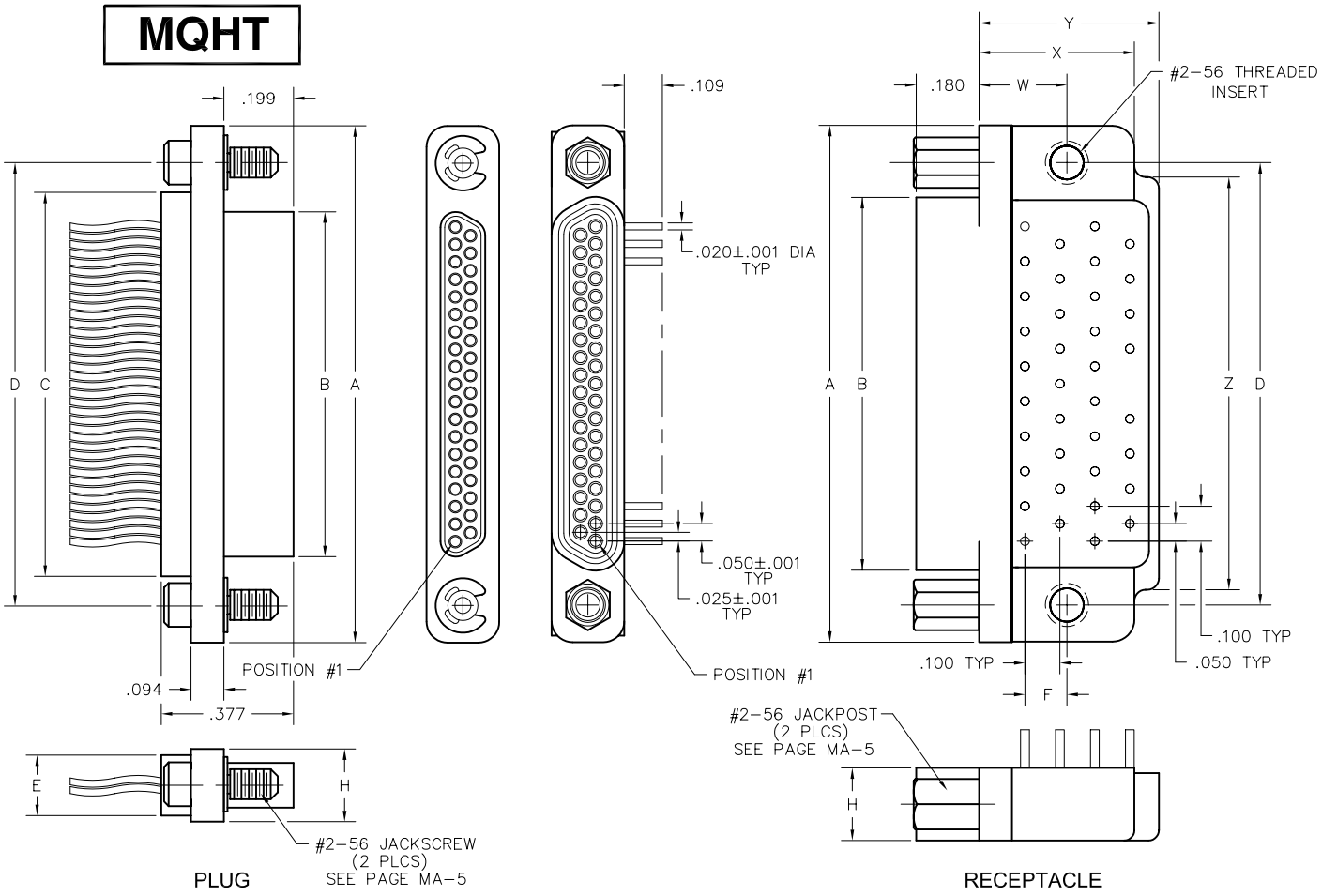
Low Profile Board Mount
High Temperature

MSHT

Low Profile Cable
High Temperature

MQHT





DIMENSIONS														
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	F	H	W	X MAX	Y MAX	Z	HARDWARE
9	2	.778	.292	.378	.398	.565	.173	.020	.208	.250	.420	.420	.775	#2–56 UNC THD
15		.928	.442	.528	.548	.715		.120					.925	
21		1.078	.592	.678	.698	.865							1.075	
25		1.178	.692	.778	.798	.965							1.175	
31		1.328	.842	.928	.948	1.115					.450	.520	1.080	
37		1.478	.992	1.078	1.098	1.265					.450		1.180	
51	3	1.428	.942	1.028	1.048	1.215	.220	.150	.250	.300	.425	.650	1.220	

PLUG: MQHT–212–037–161–41WS
RECEPTACLE: MSHT–262–037–433–220S
XXXX–XXX–XXX–XXX–XXXX

PLUG	RECEPTACLE
SERIES	
MQHT .050" Low Profile Metal I/O Connector (MQHT mates with MQHT & MSHT receptacles)	MSHT .050" Low Profile Metal PC Board Mount Connector (MSHT mates with MQHT plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51)
BODY STYLE: 1 Plug, straight, with ears. High temperature.	BODY STYLE: 6 Receptacle, right angle, narrow footprint, w/ threaded inserts. High temperature.
BODY MATERIAL: 2 High temperature thermoplastic with electroless nickel shell	BODY MATERIAL: 2 High temperature thermoplastic with electroless nickel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051	XXX 009, 015, 021, 025, 031, 037, 051
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 43 Socket, right angle, dip solder, .109" x .020" dia 44 Socket, right angle, dip solder, .140" x .020" dia 45 Socket, right angle, dip solder, .172" x .020" dia
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)	PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 41 Two turning jackscrews, allen head, retaining ring 42 Two long turning jackscrews, allen head, retaining ring 43 Two turning jackscrews, slot head, retaining ring 44 Two long turning jackscrews, slot head, retaining ring 45 Two turning jackscrews, allen head, captivated*	STYLE OF HARDWARE: 00 None 22 Two fixed jacknut assemblies
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 0S Standard body polarization

* = Captive hardware is factory installed and non-removable.

Board (Narrow Footprint) to Cable

.050"

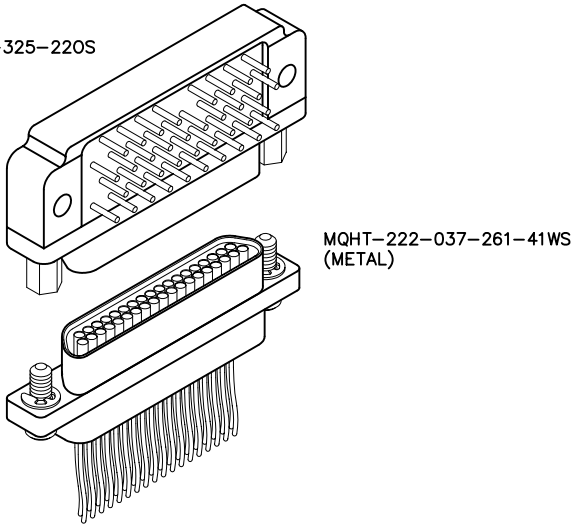
9 thru 51 Contacts

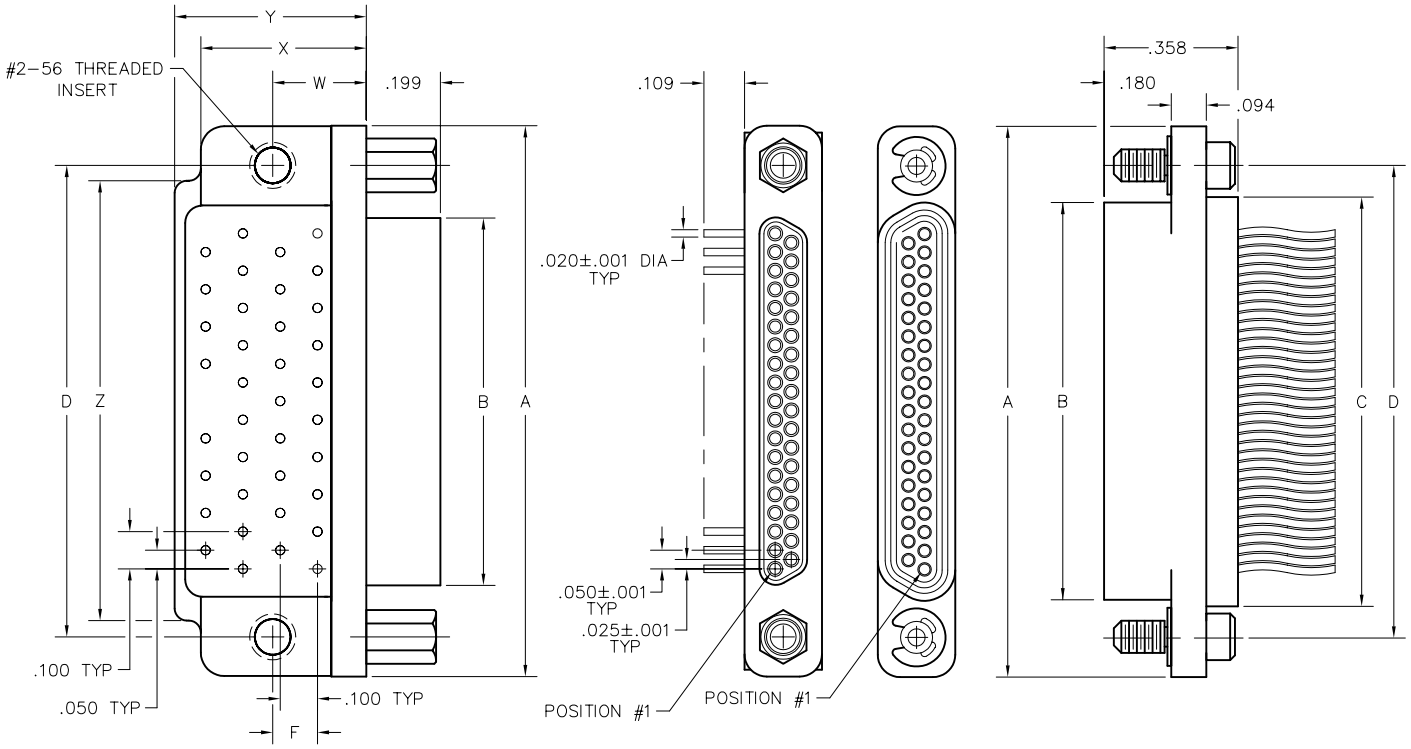
Low Profile Board Mount
High Temperature

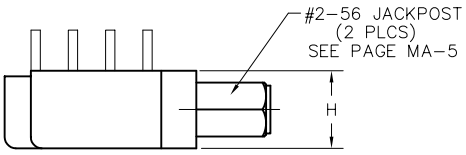
MSHT

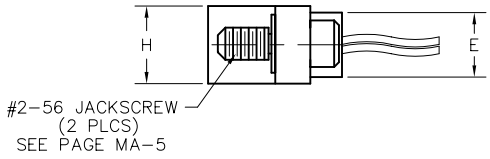
Low Profile Cable
High Temperature

MQHT









PLUG

RECEPTACLE

DIMENSIONS														
SIZE	CONTACT ROWS	A	B PLUG MAX	B RCPT MAX	C	D	E POTTING WELL MAX	F	H	W	X MAX	Y MAX	Z	HARDWARE
9	2	.778	.292	.378	.398	.565	.173	.020	.208	.250	.420	.420	.775	#2–56 UNC THD
15		.928	.442	.528	.548	.715		.120					.925	
21		1.078	.592	.678	.698	.865							1.075	
25		1.178	.692	.778	.798	.965							1.175	
31		1.328	.842	.928	.948	1.115					.450	.520	1.080	
37		1.478	.992	1.078	1.098	1.265					.450		1.180	
51	3	1.428	.942	1.028	1.048	1.215	.220	.150	.250	.300	.425	.650	1.220	

PLUG: MSHT–252–037–323–220S
RECEPTACLE: MQHT–222–037–261–41WS
XXXX–XXX–XXX–XXX–XXX–XXXX

PLUG		RECEPTACLE	
SERIES			
MSHT .050" Low Profile Metal PC Board Mount Connector (MSHT mates with MQHT receptacles)		MQHT .050" Low Profile Metal I/O Connector (MQHT mates with MQHT & MSHT plugs)	
BODY			
2	2-Row (Sizes 9 thru 37)	2	2-Row (Sizes 9 thru 37)
3	3-Row (Size 51)	3	3-Row (Size 51)
	BODY STYLE:		BODY STYLE:
5	Plug, right angle, narrow footprint, w/ threaded inserts. High temperature.	2	Receptacle, straight, with ears. High temperature.
	BODY MATERIAL:		BODY MATERIAL:
2	High temperature thermoplastic with electroless nickel shell	2	High temperature thermoplastic with electroless nickel shell
SIZE			
XXX	009, 015, 021, 025, 031, 037, 051	XXX	009, 015, 021, 025, 031, 037, 051
CONTACTS			
	TYPE CONTACTS/TERMINATIONS:		TYPE CONTACTS/TERMINATIONS:
32	Pin, right angle, dip solder, .109"	21	Socket, straight, solder cup
33	Pin, right angle, dip solder, .140"	24	Socket, straight, .500" pigtails (.018 dia)
34	Pin, right angle, dip solder, .172"	25	Socket, straight, 1.000" pigtails (.018 dia)
		26	Socket, straight, crimped wire
	PLATING OPTIONS:		PLATING OPTIONS:
3	50 µ" Au contacts: 10 µ" Au terminations	1	50 µ" Au contacts (crimp wire)
		3	50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)
HARDWARE			
	STYLE OF HARDWARE:		STYLE OF HARDWARE:
00	None	00	None
22	Two fixed jacknut assemblies	41	Two turning jackscrews, allen head, retaining ring
		42	Two long turning jackscrews, allen head, retaining ring
		43	Two turning jackscrews, slot head, retaining ring
		44	Two long turning jackscrews, slot head, retaining ring
		45	Two turning jackscrews, allen head, captivated*
	POLARIZATION / WIRING:		POLARIZATION / WIRING
0S	Standard body polarization	00	None
		XX	For wiring codes, see page MA-3 & MA-4

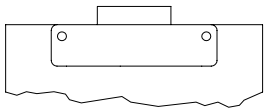
* = Captive hardware is factory installed and non-removable.

Recommended PC Board Layout

Right Angle, Narrow Footprint
Standard Polarization



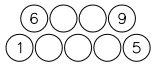
CONNECTOR MATING FACE



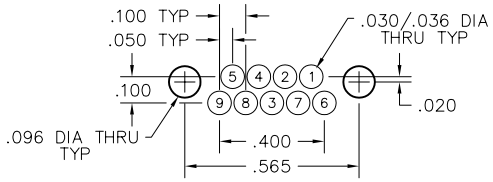
PC BOARD LAYOUT
COMPONENT SIDE

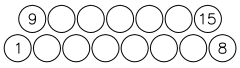
CONNECTOR
MATING FACE
(RECEPTACLE)

RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

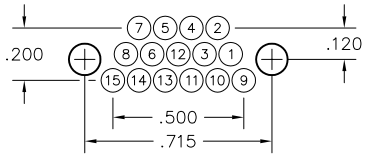


9 POSITION



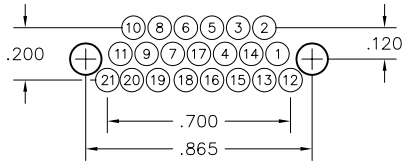


15 POSITION



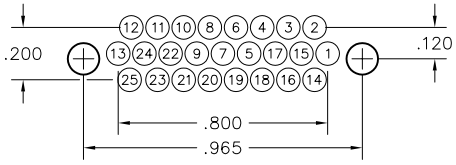


21 POSITION



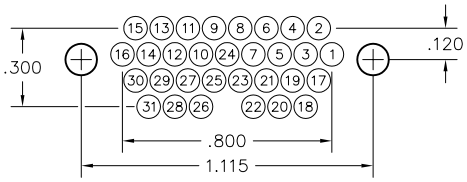


25 POSITION



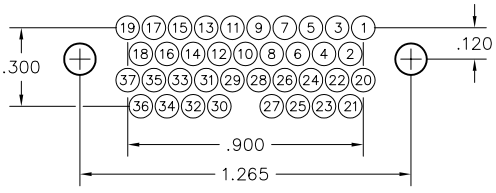


31 POSITION



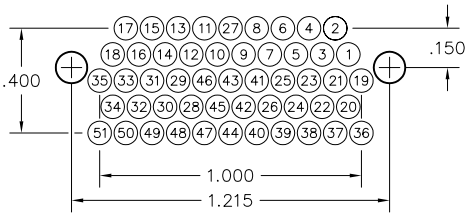


37 POSITION



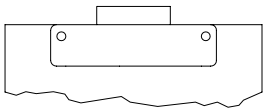


51 POSITION





CONNECTOR MATING FACE



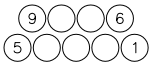
PC BOARD LAYOUT
COMPONENT SIDE

Recommended PC Board Layout

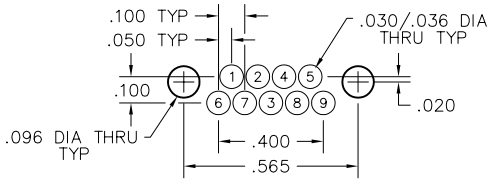
Right Angle, Narrow Footprint
Standard Polarization

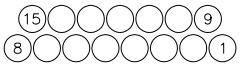
CONNECTOR MATING FACE (PLUG)

PLUG
PC BOARD LAYOUT
COMPONENT SIDE

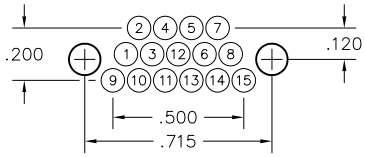


9 POSITION



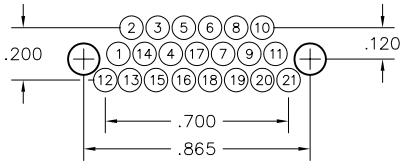


15 POSITION



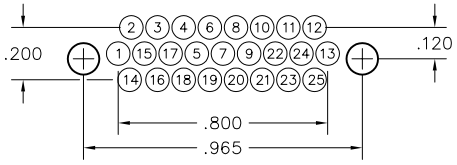


21 POSITION



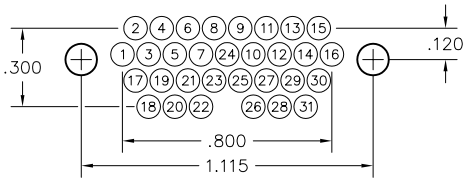


25 POSITION



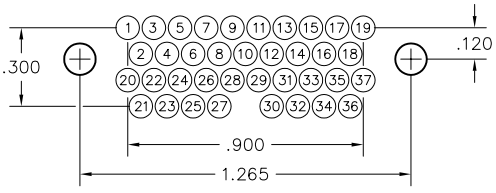


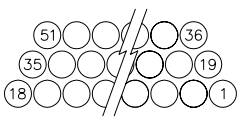
31 POSITION



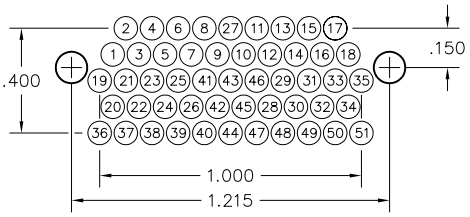


37 POSITION





51 POSITION



AirBorn

Cable to Board

.050"

9 thru 51 Contacts

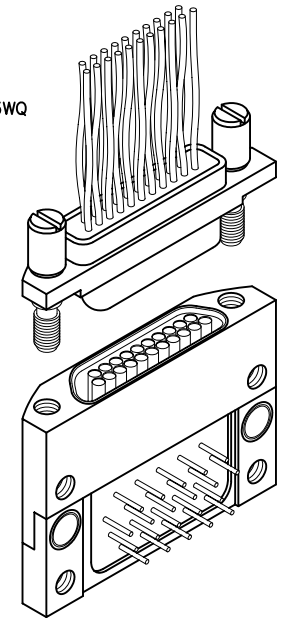
Low Profile Cable
High Temperature

MTHT

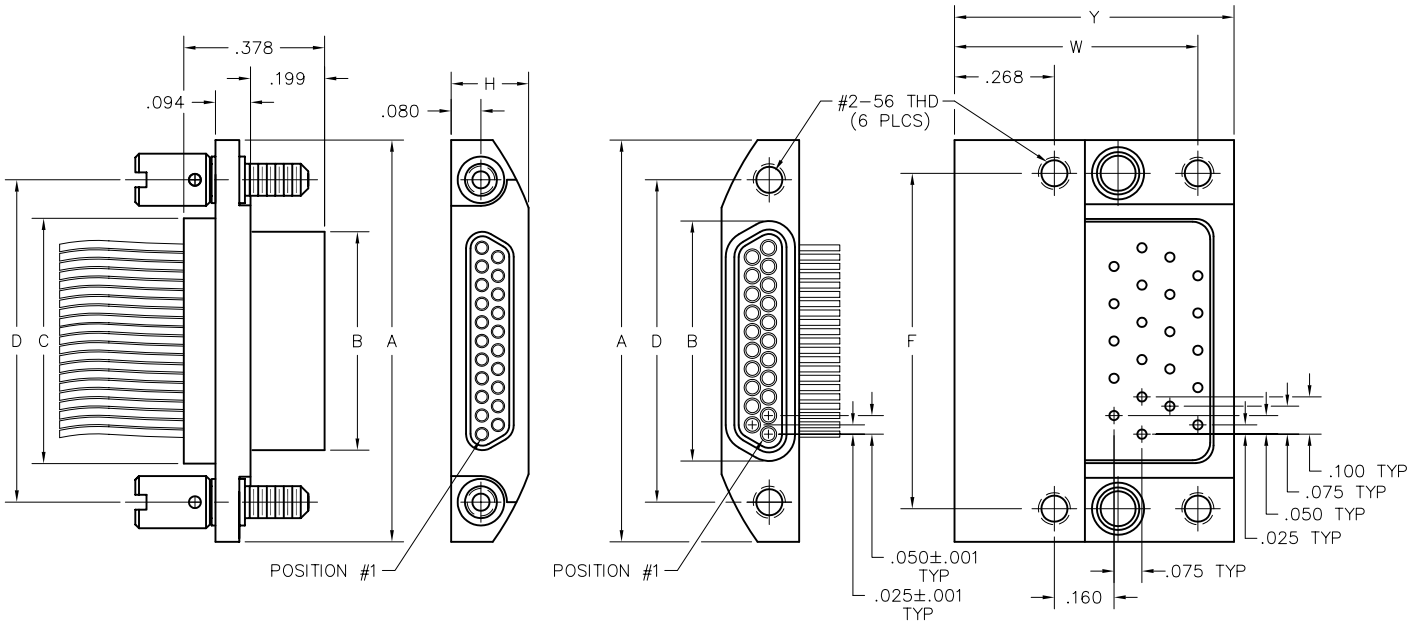
Low Profile Board Mount
High Temperature

MTHT

MTHT–212–021–161–43WQ
(METAL)



MTHT–2E2–021–433–000S
(METAL)



PLUG

RECEPTACLE

DIMENSIONS												
SIZE	CONTACT ROWS	A	B		C	D	E	F	H	HARDWARE	W	Y
			PLUG MAX	RCPT MAX			POTTING WELL MAX					
9	2	.778	.292	.378	.398	.565	.173	.600	.208	#2–56 UNC THD (.092 DIA THRU)	.608	.690
15		.928	.442	.528	.548	.715		.750				
21		1.078	.592	.678	.698	.865		.900			.653	.750
25		1.178	.692	.778	.798	.965		1.000				
31		1.328	.842	.928	.948	1.115		1.150				
37		1.478	.992	1.078	1.098	1.265		1.300				
51	3	1.428	.942	1.028	1.048	1.215	.220	1.250	.250		.728	.825

PLUG: MTHT – 212 – 021 – 161 – 43WQ
RECEPTACLE: MTHT – 2E2 – 021 – 433 – 000S
XXXX – XXX – XXX – XXX – XXXX

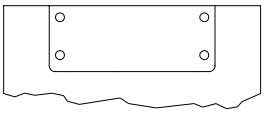
PLUG	RECEPTACLE
SERIES	
MTHT .050" Low Profile Metal I/O Connector (MTHT mates with MTHT receptacles)	MTHT .050" Low Profile Metal PC Board Mount Connector (MTHT mates with MTHT plugs)
BODY	
2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51)	2 2-Row (Sizes 9 thru 37) 3 3-Row (Size 51)
BODY STYLE: 1 Plug, straight, with ears. Low profile, radius. High temperature.	BODY STYLE: E Receptacle, right angle, with four mounting holes. Low profile, radius. High temperature.
BODY MATERIAL: 2 High temperature thermoplastic with electroless nickel shell	BODY MATERIAL: 2 High temperature thermoplastic with electroless nickel shell
SIZE	
XXX 009, 015, 021, 025, 031, 037, 051	XXX 009, 015, 021, 025, 031, 037, 051
CONTACTS	
TYPE CONTACTS/TERMINATIONS: 11 Pin, straight, solder cup 14 Pin, straight, .500" pigtails (.018 dia) 15 Pin, straight, 1.000" pigtails (.018 dia) 16 Pin, straight, crimped wire	TYPE CONTACTS/TERMINATIONS: 43 Socket, right angle, gold plated, .109" x .016" dia 44 Socket, right angle, gold plated, .140" x .016" dia 45 Socket, right angle, gold plated, .172" x .016" dia
PLATING OPTIONS: 1 50 µ" Au contacts (crimp wire) 3 50 µ" Au contacts: 10 µ" Au terminations (solder cup, pigtail)	PLATING OPTIONS: 3 50 µ" Au contacts: 10 µ" Au terminations
HARDWARE	
STYLE OF HARDWARE: 00 None 41 Two turning jackscrews, allen head 43 Two turning jackscrews, slot head	STYLE OF HARDWARE: 00 Integrated jacknuts
POLARIZATION / WIRING: 00 None XX For wiring codes, see page MA-3 & MA-4	POLARIZATION / WIRING 0S Standard body polarization

Recommended PC Board Layout

Low Profile, Right Angle
Standard Polarization



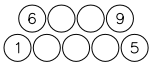
CONNECTOR MATING FACE



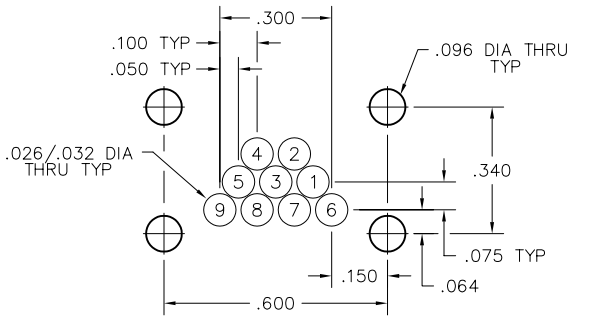
PC BOARD LAYOUT
COMPONENT SIDE

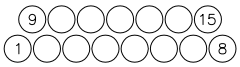
RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

CONNECTOR
MATING FACE
(RECEPTACLE)

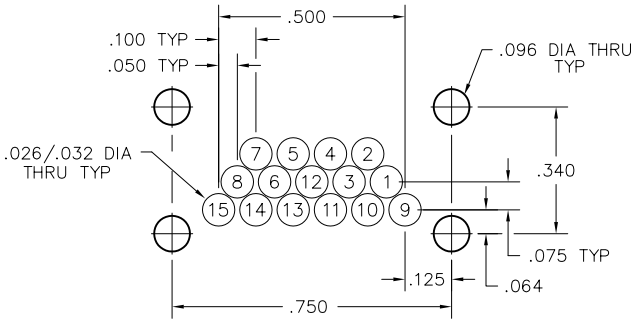


9 POSITION



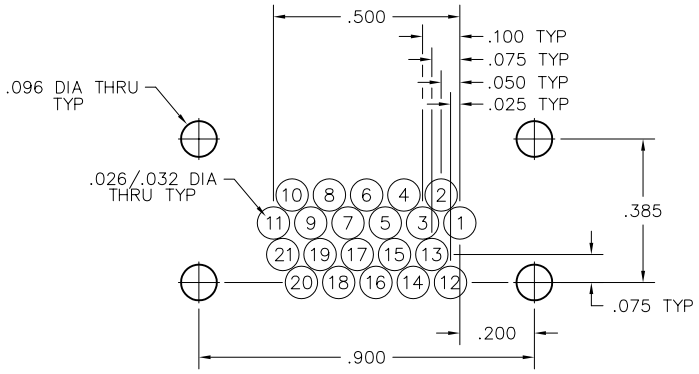


15 POSITION



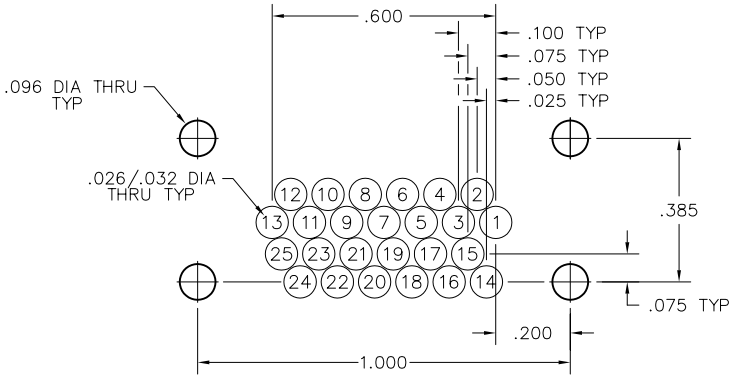


21 POSITION



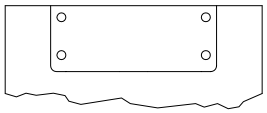


25 POSITION





CONNECTOR MATING FACE



PC BOARD LAYOUT
COMPONENT SIDE

Recommended PC Board Layout

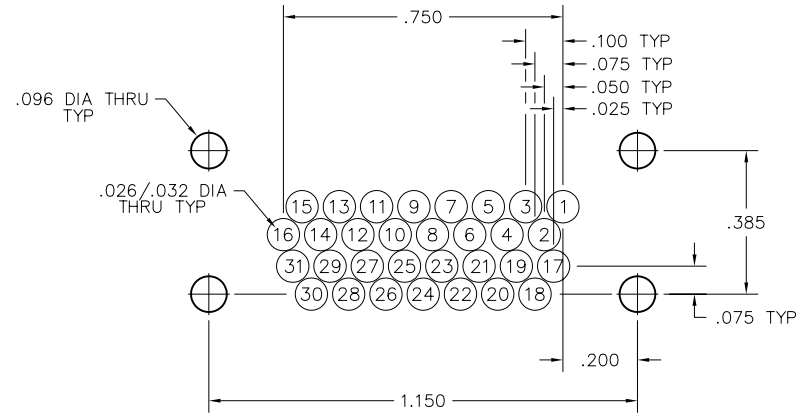
Low Profile, Right Angle
Standard Polarization

RECEPTACLE
PC BOARD LAYOUT
COMPONENT SIDE

CONNECTOR
MATING FACE
(RECEPTACLE)

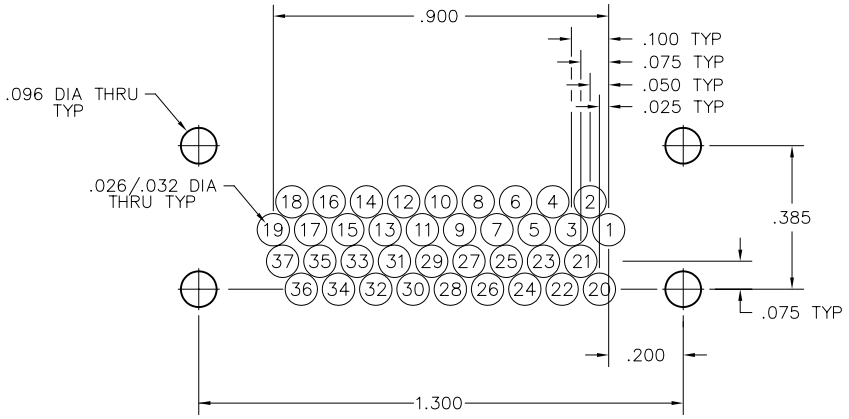


31 POSITION



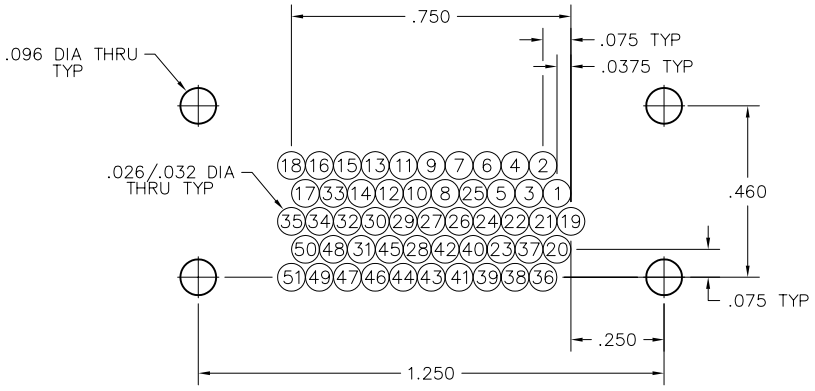


37 POSITION





51 POSITION



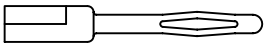
"M" SERIES ACCESSORIES

Contents

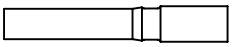
"M" Series
Hardware, Contacts and Accessories

	Wire Codes, Contacts and Hardware
MA-2	Contacts, contact positions and connector polarization
MA-3, MA-4	Wire codes (24 awg, 26 awg, 28 awg and twisted pairs)
MA-5	Hardware - MM, MN, MP, MQ, MMHT and MQHT
MA-6	Keying hardware
MA-7	Hardware - MM, MQ, EMI and Rear Panel Mount (MM and MK)
MA-8	Hardware - Miscellaneous
	Accessories
MA-11	Connector savers, rugged (metal - MQ and plastic - MN)
MA-13	Connector savers, low profile (metal - MQ and plastic - MN)
MA-15	EMI/RFI backshells, straight exit, rugged (metal - MM)
MA-17	EMI/RFI backshells, 45° exit, rugged (metal - MM)
MA-19	EMI/RFI backshells, 90° exit, rugged (metal - MM)
MA-21	EMI/RFI backshells, straight exit, low profile (metal - MQ)
MA-23	Dust covers, rugged (metal - MD)
MA-25	ESD dust covers, rugged and low profile (plastic - MD)
MA-26	O-rings and gaskets
MA-27	Rear Panel Mount Hardware
MA-28	Panel cut-outs, MM connectors with grounding fingers

Contacts

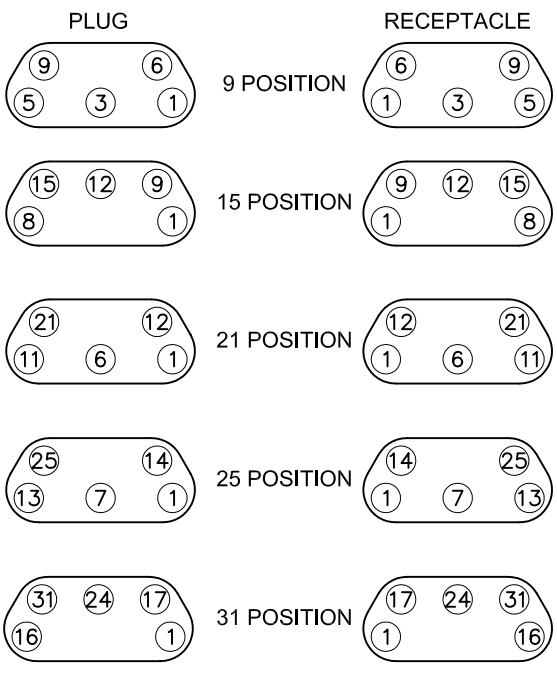


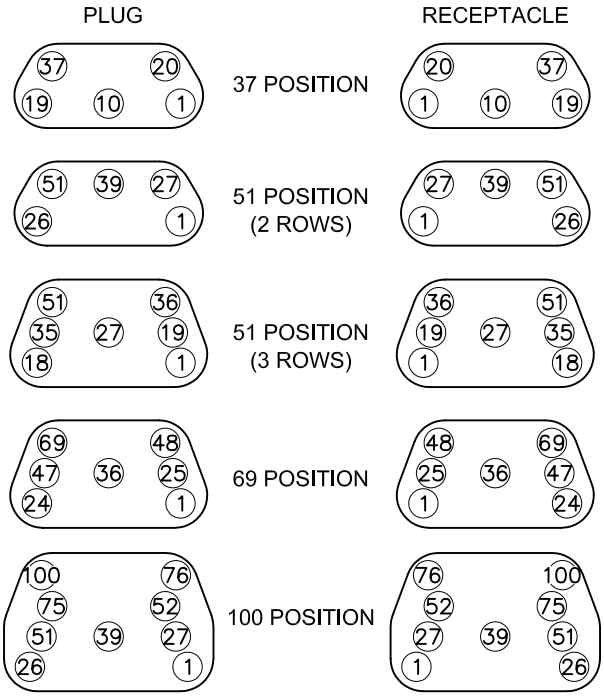
PIN CONTACT
WITH CRIMP BARREL



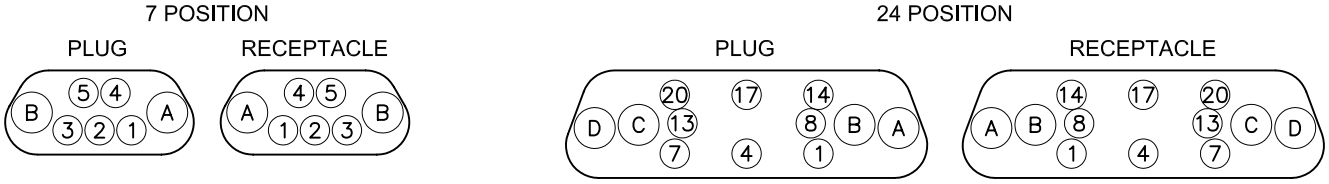
SOCKET CONTACT
WITH CRIMP BARREL

Contact Positions





Hybrid Connectors



Note: Numbers indicate corner and centermost contacts. Views shown are mating face.

Connector Polarization



Note: Polarization option applies to PC board mounted, right angle connectors. (Series MK, ML, MR & MS)

Only standard polarization option applies to PC board mounted, right angle, high temperature connectors. (Series MKHT, MSHT & MTHT)

Wire Codes

NEMA HP3-EXBEB (Formerly M16878/4-24 TFE 7 strand)

	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	108"	120"
MIL-STD-681*	WA	WB	WC	UD	UE	WD	UG	UH	UJ	UK	UL	UM	UN	UP	UQ	UR
WHITE	WE	WF	WG	VD	VE	WH	VG	VH	VJ	VK	VL	VM	VN	VP	VQ	VR
YELLOW	WJ	WK	WL			WM										

NEMA HP3-EXBDB (Formerly M16878/4-26 TFE 7 strand)

	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	108"	120"
MIL-STD-681*	WN	WP	WQ	YD	YE	WR	YG	YH	YJ	YK	YL	YM	YN	YP	YQ	YR
WHITE	WS	WT	WU	ZD	ZE	WV	ZG	ZH	ZJ	ZK	ZL	ZM	ZN	ZP	ZQ	ZR
YELLOW	WW	WX	WY			WZ										

NEMA HP3-EXBCB (Formerly M16878/4-28 TFE 7 strand)

	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	108"	120"
MIL-STD-681*	XA	XB	XC	1D	1E	XD	1G	1H	1J	1K	1L	1M	1N	1P	1Q	1R
WHITE	XE	XF	XG	2D	2E	XH	2G	2H	2J	2K	2L	2M	2N	2P	2Q	2R
YELLOW	XJ	XK	XL			XM										

TWISTED PAIR per NEMA WC27500-XXRC2U00 (SAE AS22759/11)

	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	108"	120"
24 AWG	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	AN	AP	AQ	AR
26 AWG	BA	BB	BC	BD	BE	BF	BG	BH	BJ	BK	BL	BM	BN	BP	BQ	BR

TWISTED PAIR per NEMA WC27500-XXSC2U00 (SAE AS22759/33)*** ☒

	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	108"	120"
24 AWG	JA	JB	JC	JD	JE	JF	JG	JH	JJ	JK	JL	JM	JN	JP	JQ	JR
26 AWG	KA	KB	KC	KD	KE	KF	KG	KH	KJ	KK	KL	KM	KN	KP	KQ	KR

For twisted pair wire connect charts, see page MA-9
Twisted pair wire not available on MA, MC or Hybrid connectors

* = Connectors with more than 100 contacts will repeat color code after 100 colors.
*** = Per M83513, corrosion has been experienced on connectors that are pre-wired with 22759/33 and stored in sealed environments. Caution should be excercised when using this wire.
☒ = Option not RoHS compliant

Wire Codes

SAE AS22759/11-24

	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	108"	120"
M83513**	5A	5B	5C	5D	5E	5F	5G	5H	5J	5K	5L	5M	5N	5P	5Q	5R
MIL-STD-681*	CA	CB	CC	CD	CE	CF	CG	CH	CJ	CK	CL	CM	CN	CP	CQ	CR
WHITE	DA	DB	DC	DD	DE	DF	DG	DH	DJ	DK	DL	DM	DN	DP	DQ	DR

SAE AS22759/11-26

	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	108"	120"
M83513**	6A	6B	V1	6D	6E	V2	6G	6H	6J	6K	6L	Y6	6N	6P	6Q	6R
MIL-STD-681*	X3	X4	W3	ED	EE	W4	EG	EH	EJ	EK	EL	EM	EN	EP	EQ	ER
WHITE	X1	X2	W1	FD	FE	W2	FG	FH	FJ	FK	FL	Y5	FN	FP	FQ	FR

SAE AS22759/33-24*** ☒

	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	108"	120"
M83513**	LA	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LL	LM	LN	LP	LQ	LR
WHITE	MA	MB	MC	MD	ME	MF	MG	MH	MJ	MK	ML	MM	MN	MP	MQ	MR

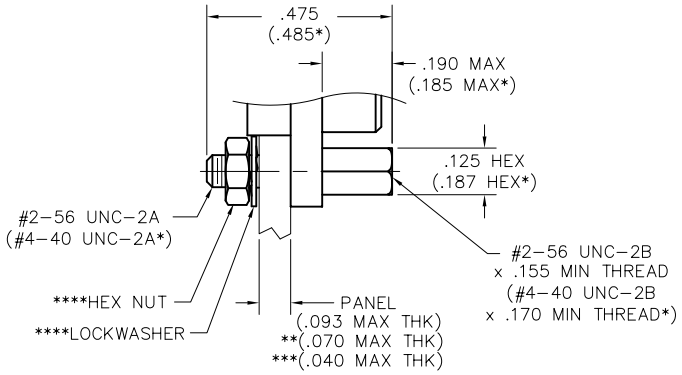
SAE AS22759/33-26*** ☒

	6"	12"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	84"	96"	108"	120"
M83513**	NA	NB	Y3	ND	NE	Y4	NG	NH	NJ	NK	NL	Y8	NN	NP	NQ	NR
WHITE	PA	PB	Y1	PD	PE	Y2	PG	PH	PJ	PK	PL	Y7	PN	PP	PQ	PR

* = Connectors with more than 100 contacts will repeat color code after 100 colors.
** = Wire colors per M83513 are ten solid colors repeating.
*** = Per M83513, corrosion has been experienced on connectors that are pre-wired with 22759/33 and stored in sealed environments. Caution should be excercised when using this wire.
☒ = Option not RoHS compliant

Hardware

MM - MN - MQ - MP - MMHT - MQHT
Jacking Hardware

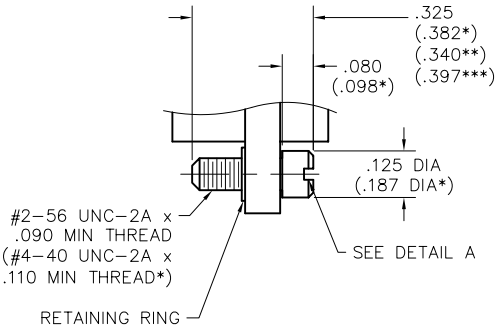


JACKPOST ASSEMBLY

#2-56 JACKPOST	00-000-000-000-2200
#4-40 JACKPOST	00-000-000-000-6200

FOR RECEPTACLES WITH GROUNDING FINGERS

#2-56 JACKPOST	00-000-000-000-2200-0G7
#4-40 JACKPOST	00-000-000-000-6200-0G7

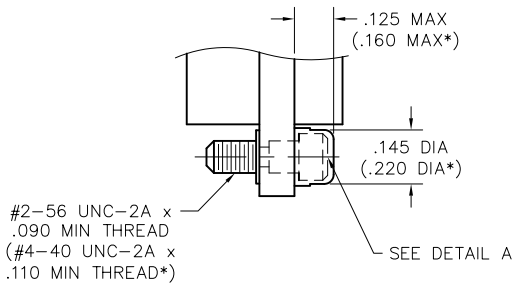


SHORT TURNING
JACKSCREW ASSEMBLY

#2-56 JACKSCREW, ALLEN HEAD	00-000-000-000-4100
#2-56 JACKSCREW, SLOT HEAD	00-000-000-000-4300
#4-40 JACKSCREW, ALLEN HEAD	00-000-000-000-8100
#4-40 JACKSCREW, SLOT HEAD	00-000-000-000-8300

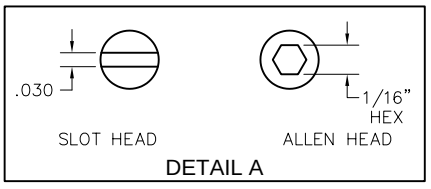
FOR RECEPTACLES WITH GROUNDING FINGERS

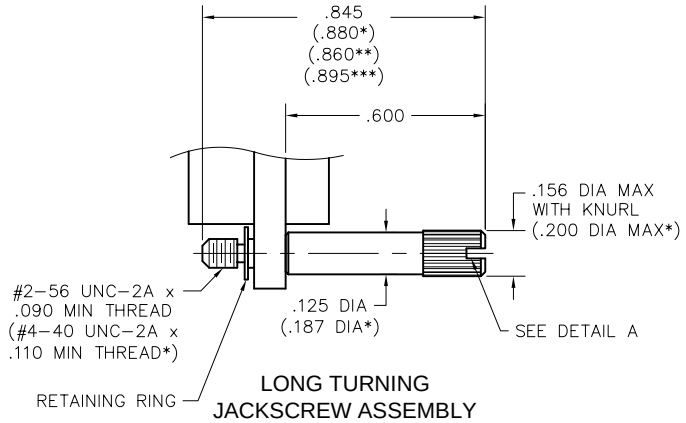
#2-56 JACKSCREW, ALLEN HEAD	00-000-000-000-4100-0G7
#2-56 JACKSCREW, SLOT HEAD	00-000-000-000-4300-0G7
#4-40 JACKSCREW, ALLEN HEAD	00-000-000-000-8100-0G7
#4-40 JACKSCREW, SLOT HEAD	00-000-000-000-8300-0G7



SHORT CAPTIVE
JACKSCREW ASSEMBLY

JACKSCREW, ALLEN HEAD
FACTORY INSTALLED ONLY





LONG TURNING
JACKSCREW ASSEMBLY

#2-56 JACKSCREW, ALLEN HEAD	00-000-000-000-4200
#2-56 JACKSCREW, SLOT HEAD	00-000-000-000-4400
#4-40 JACKSCREW, ALLEN HEAD	00-000-000-000-8200
#4-40 JACKSCREW, SLOT HEAD	00-000-000-000-8400

FOR RECEPTACLES WITH GROUNDING FINGERS

#2-56 JACKSCREW, ALLEN HEAD	00-000-000-000-4200-0G7
#2-56 JACKSCREW, SLOT HEAD	00-000-000-000-4400-0G7
#4-40 JACKSCREW, ALLEN HEAD	00-000-000-000-8200-0G7
#4-40 JACKSCREW, SLOT HEAD	00-000-000-000-8400-0G7

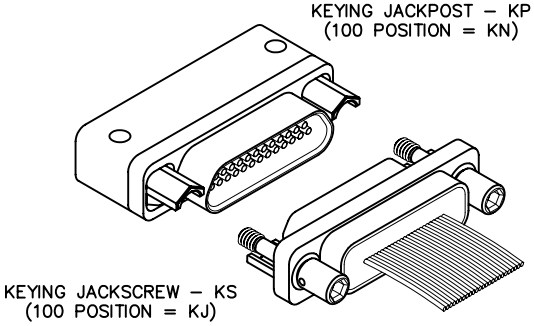
* = Dimensions for 100 position connectors
** = Applies to #2-56 hardware for receptacles with grounding fingers
*** = Applies to #4-40 hardware for receptacles with grounding fingers
**** = Hardware for Receptacles with Grounding Fingers will come with a flat washers, lockwashers, and spanner nuts

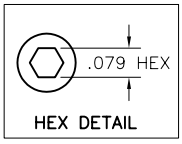
Polarized Keying Hardware

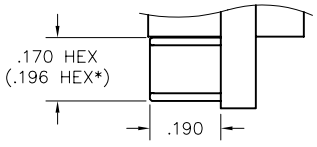


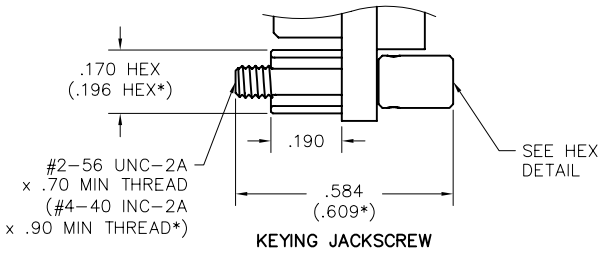
Select the appropriate two digit number above and include as the last two digits of the hardware code in the part number. (Keying hardware is factory installed and non-removable).

Example:
MM-213-025-161-99WA-KS11
MK-263-025-435-990S-KP11







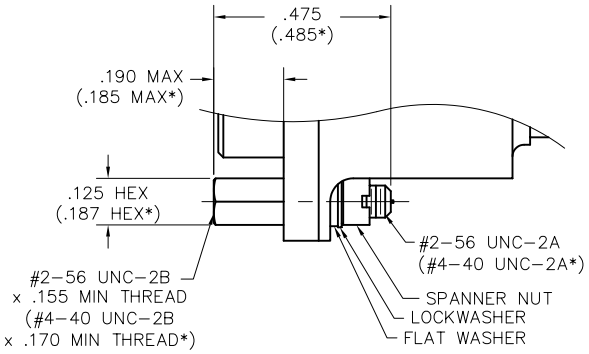


* = Dimensions for 100 position connectors

Ask About AirBorn's Accelerated Delivery Service

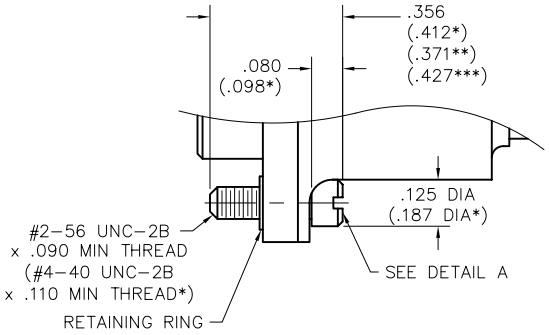
Hardware

MM - MQ
I/O with EMI/RFI Backshell



JACKPOST ASSEMBLY

#2-56 JACKPOST	00-000-000-000-2200-01G
#4-40 JACKPOST	00-000-000-000-6200-04A

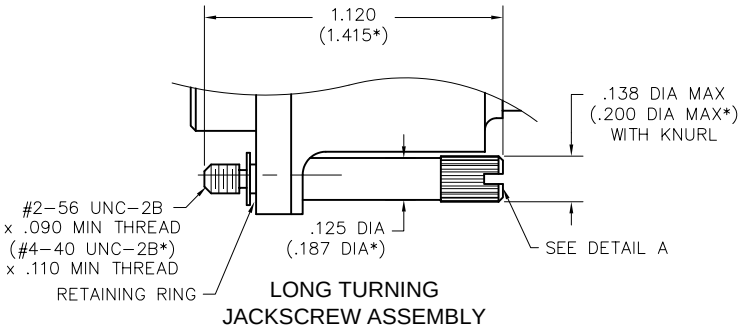


SHORT TURNING
JACKSCREW ASSEMBLY

#2-56 JACKSCREW, ALLEN HEAD	00-000-000-000-4100-01G
#2-56 JACKSCREW, SLOT HEAD	00-000-000-000-4300-01G
#4-40 JACKSCREW, ALLEN HEAD	00-000-000-000-8100-04A
#4-40 JACKSCREW, SLOT HEAD	00-000-000-000-8300-04A

FOR RECEPTACLES WITH GROUNDING FINGERS

#2-56 JACKSCREW, ALLEN HEAD	00-000-000-000-4100-0FZ
#2-56 JACKSCREW, SLOT HEAD	00-000-000-000-4300-0FZ
#4-40 JACKSCREW, ALLEN HEAD	00-000-000-000-8100-0FZ
#4-40 JACKSCREW, SLOT HEAD	00-000-000-000-8300-0FZ

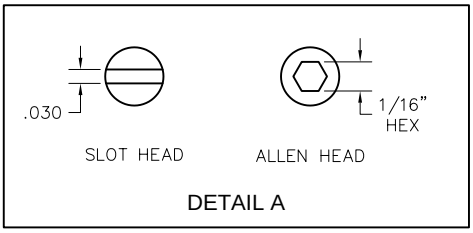


LONG TURNING
JACKSCREW ASSEMBLY

#2-56 JACKSCREW, SLOT HEAD	00-000-000-000-4400-01G
#4-40 JACKSCREW, SLOT HEAD	00-000-000-000-8400-04A

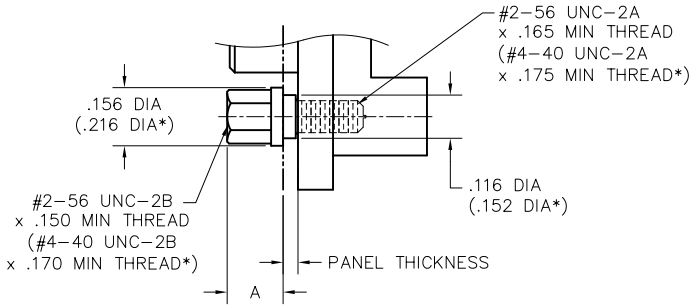
FOR RECEPTACLES WITH GROUNDING FINGERS

#2-56 JACKSCREW, SLOT HEAD	00-000-000-000-4400-0FZ
#4-40 JACKSCREW, SLOT HEAD	00-000-000-000-8400-0FZ



* = Dimensions for #4-40 hardware (100 position connectors)
** = Applies to #2-56 hardware for receptacles with grounding fingers
*** = Applies to #4-40 hardware for receptacles with grounding fingers

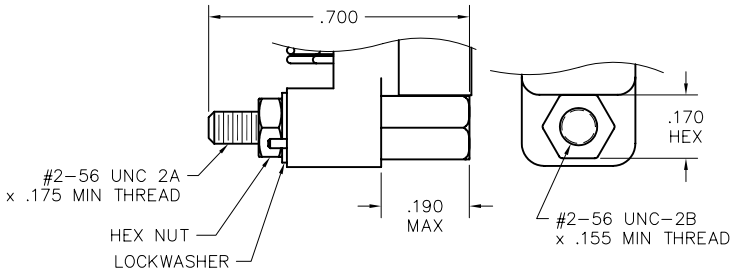
MM - MK
Rear Panel Mount Jackposts
for Body Styles "A", "C", "E", "H", "K", and "L"



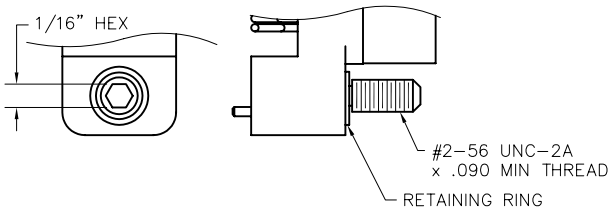
PANEL THK	THREAD SIZE	PART NUMBER	A MAX
.040	#2-56	MM-000-000-000-2400-0D1	.150
.060		MM-000-000-000-2600-0D3	.130
.070		MM-000-000-000-2800-0D5	.120
.080		MM-000-000-000-2900-0D7	.110
.040	#4-40	MM-000-000-000-6400-0D2	.150
.060		MM-000-000-000-6600-0D4	.130
.070		MM-000-000-000-6800-0D6	.120
.080		MM-000-000-000-6900-0D8	.110

* = Dimensions for 100 position connectors

MK
Vertical SMT

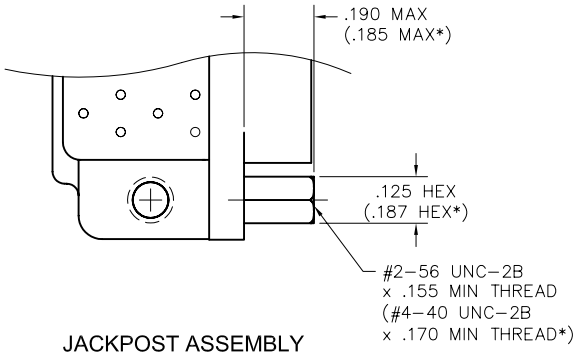


JACKPOST ASSEMBLY
FACTORY INSTALLED ONLY



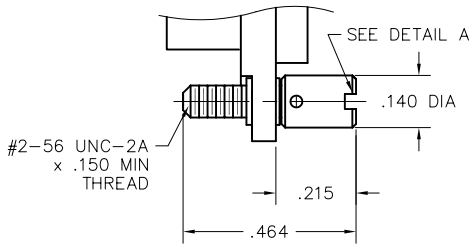
TURNING JACKSCREW ASSEMBLY
FACTORY INSTALLED ONLY

MK - MS
MKHT - MSHT



JACKPOST ASSEMBLY
CONSULT FACTORY

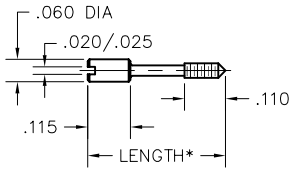
MTHT



JACKSCREW ASSEMBLY
FACTORY INSTALLED ONLY

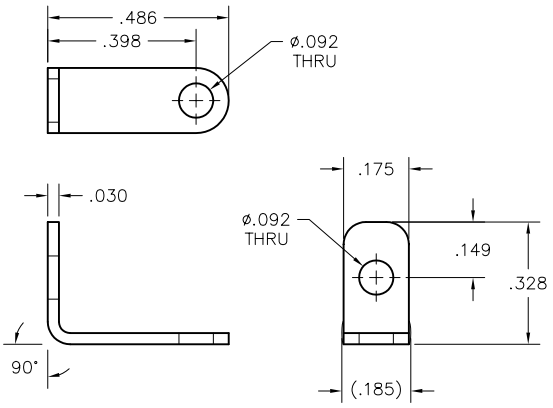
* = Dimensions for 100 position connectors

MA



1 MM LOCKSCREW
FOR MA STRIP CONNECTORS
* .370 LONG CDG10492
* .465 LONG CDG10493

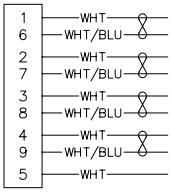
Mounting Bracket



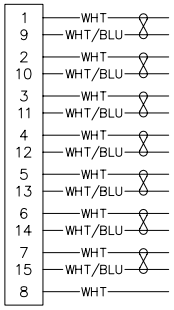
CDG12633 – 2 EACH

Twisted Pair Wire Connect Charts

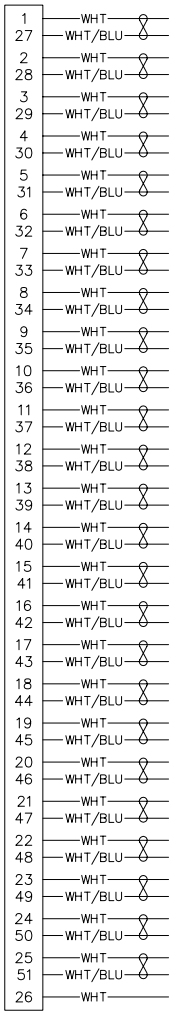
9 POSITION



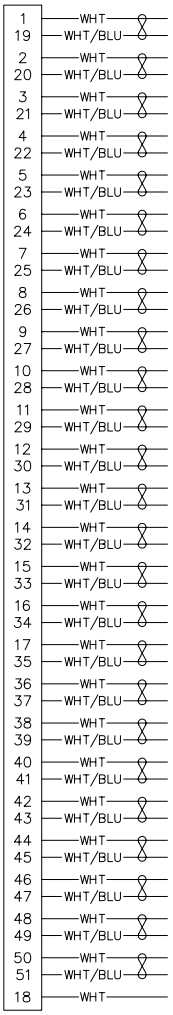
15 POSITION



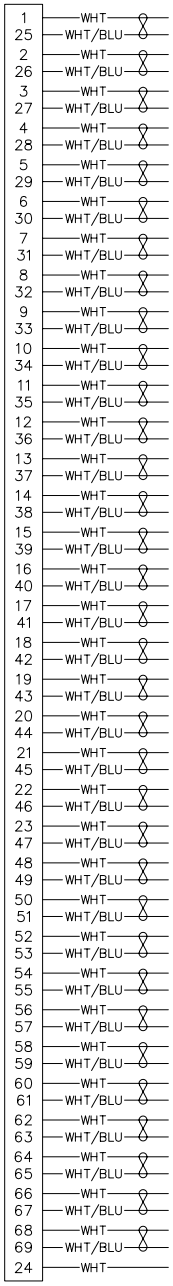
51 POSITION 2 rows



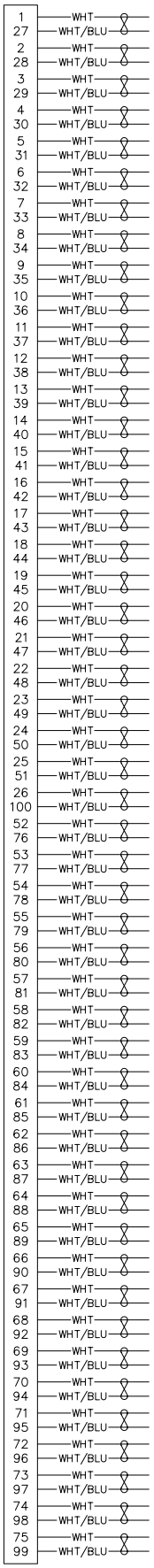
51 POSITION 3 rows



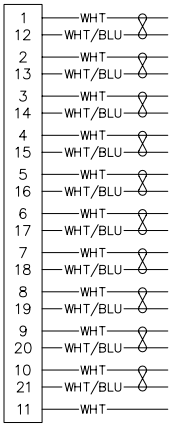
69 POSITION



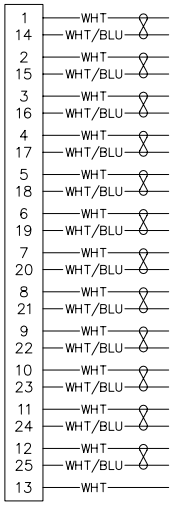
100 POSITION



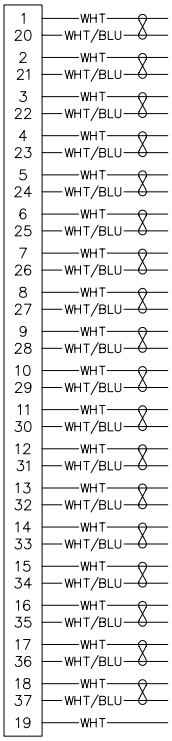
21 POSITION



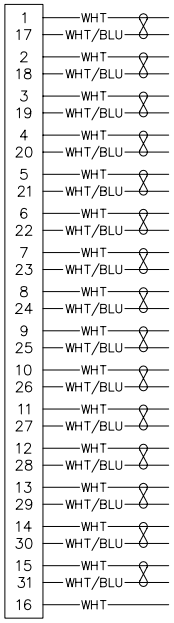
25 POSITION



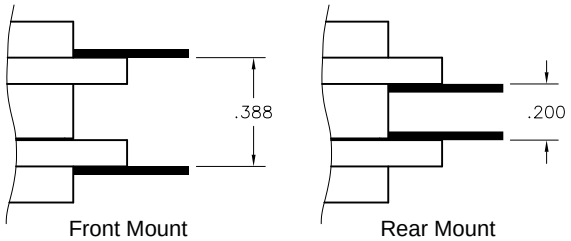
37 POSITION

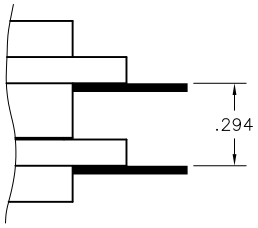


31 POSITION

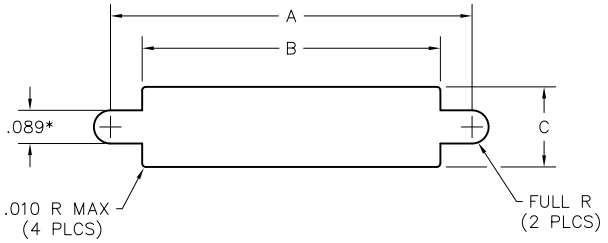


Panel Mounting Dimensions





MOUNTING DIMENSIONS



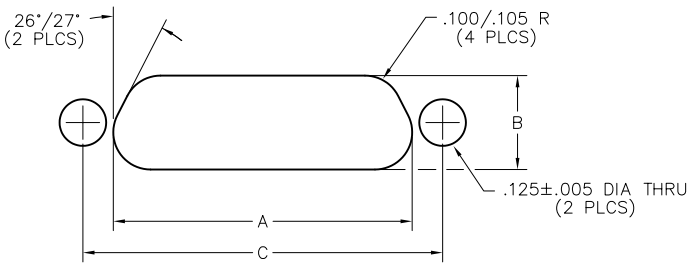
* = .118 FOR 100 POSITION CONNECTOR

DIMENSIONS					
CONTACT ROWS	SIZE	A +.004 −.000	B +.005 −.000	C +.004 −.000	
				MP,MQ,MR,MS MQHT, MSHT	MK,ML,MM,MN MKHT, MMHT
2	9	.570	.400	.215	.273
	15	.720	.550		
	21	.870	.700		
	25	.970	.800		
	31	1.120	.950		
	37	1.270	1.100		
	51	1.620	1.450		
3	51	1.220	1.034	.256	.311
	69	1.520	1.334		
4	100	1.805	1.503	——	.383

Panel Mounting Dimensions for Rear Panel Mount Connectors

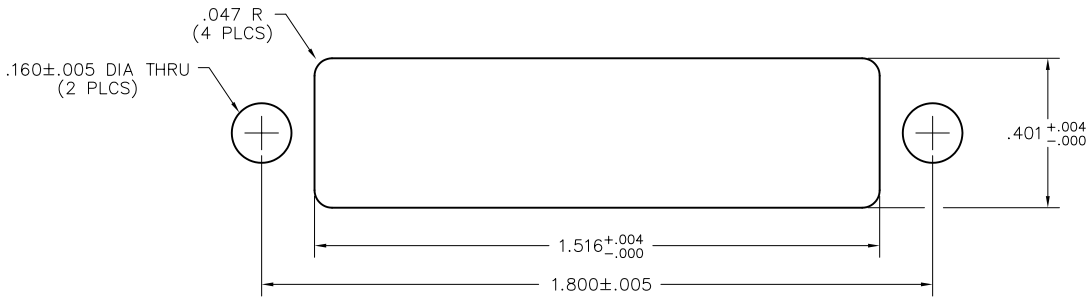
RUGGED METAL
MM, MN, MK. ML
SIZES: 9 - 69

DIMENSIONS			
SIZE	A +.004 −.000	B +.005 −.000	C ±.005
9	.401	.252	.565
15	.551		.715
21	.701		.865
25	.801		.965
31	.951		1.115
37	1.101		1.265
51	1.051	.295	1.215
69	1.351		1.515



LOW PROFILE
MQ. MP, MS, MR
SIZES: 9 - 51

DIMENSIONS			
SIZE	A +.004 −.000	B +.005 −.000	C ±.005
9	.379	.219	.565
15	.529		.715
21	.679		.865
25	.779		.965
31	.929		1.115
37	1.079		1.265
51	1.029	.261	1.215



RUGGED METAL
MM, MN, MK. ML
SIZE 100

Ask About AirBorn's Accelerated Delivery Service

Connector Saver

.050"

9 thru 100 Contacts

Rugged Metal

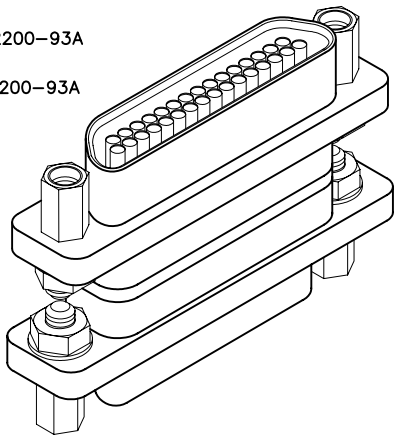
MM

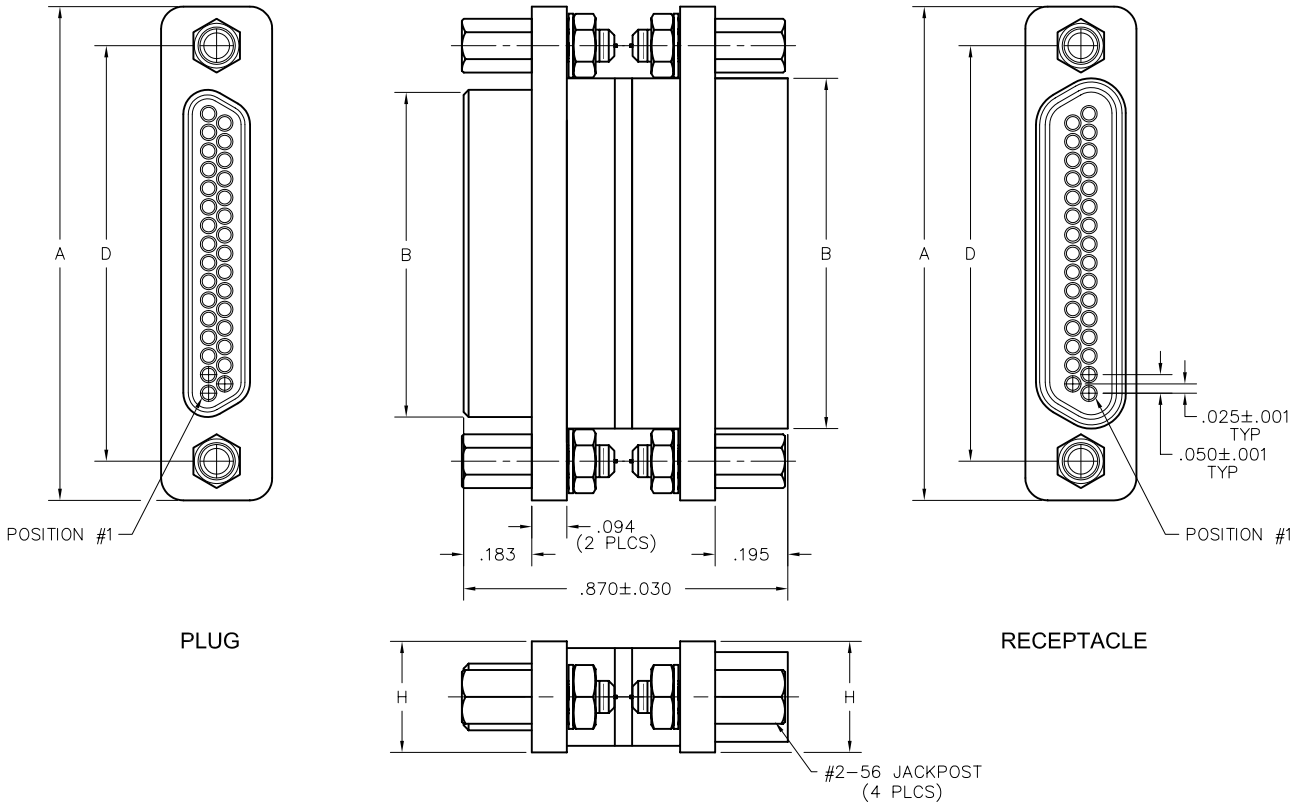
Rugged Plastic

MN

MM–212–031–143–2200–93A
(METAL)

MN–211–031–143–2200–93A
(PLASTIC)





PLUG

RECEPTACLE

DIMENSIONS							
SIZE	CONTACT ROWS	A	B		D	H	HARDWARE
			PLUG MAX	RCPT MAX			
9	2	.775	.334	.400	.565	.298	#2–56 UNC THD (.092 DIA THRU)
15		.925	.484	.550	.715		
21		1.075	.634	.700	.865		
25		1.175	.734	.800	.965		
31		1.325	.884	.950	1.115		
37		1.475	1.034	1.100	1.265		
51**		1.825	1.384	1.450	1.615		
51	3	1.425	.984	1.050	1.215	.341	
69***		1.725	1.284	1.350	1.515		
100	4	2.160	1.384	1.508	1.800	.384	#4–40 UNC THD (.147 DIA THRU)

** = 2 ROW, 51 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY (NON MIL–SPEC INTERFACE)
*** = 69 POSITION CONNECTORS ARE AVAILABLE IN METAL ONLY.

PLUG/RECEPTACLE: MM– 212 – 031 – 143 – 2200 – 93A
MN– 211 – 031 – 143 – 2200 – 93A
XX–XXX–XXX–XXX–XXXX–XXX

SERIES

MM .050" Rugged Metal
MN .050" Rugged Plastic

BODY

2 2-Row (Sizes 9 thru 51**)
3 3-Row (Size 51 & 69***)
4 4-Row (Size 100)

BODY STYLE:
1 Plug/Receptacle, straight with mounting ears, receptacle includes interfacial sealing gasket

BODY MATERIAL:
1 Polyphenylene Sulfide (MN only)
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4 Polyphenylene Sulfide with hard anodized black shell

SIZE

XXX 009, 015, 021, 025, 031, 037, 051**, 069***, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
14 Pin/Socket, straight

PLATING OPTIONS:
3 50 µ" Au contacts: 10 µ" Au terminations

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies (62*)
JA Turning jackpost with retaining ring, uninstalled (PA*)
JP Turning jackpost, internal thread on plug side (PP*)
JS Turning jackpost, internal thread on receptacle side (PS*)

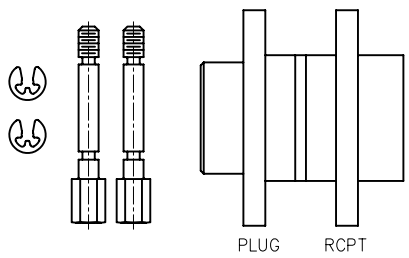
POLARIZATION / WIRING:
00 None

SPECIAL DESIGNATORS

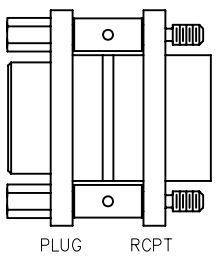
93A Connector saver designator

* = Use number in parenthesis when ordering size 100.
** = 2 row, 51 position connectors are available in metal only (non mil-spec interface)
*** = 69 position connectors are available in metal only.

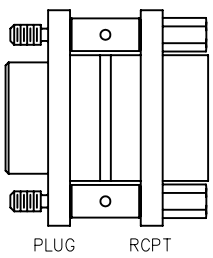
☒ = Option not RoHS compliant



JA (PA*)



JP (PP*)



JS (PS*)

Connector Saver

.050"

9 thru 51 Contacts

Low Profile Metal

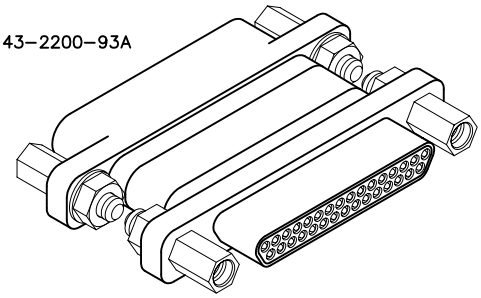
MQ

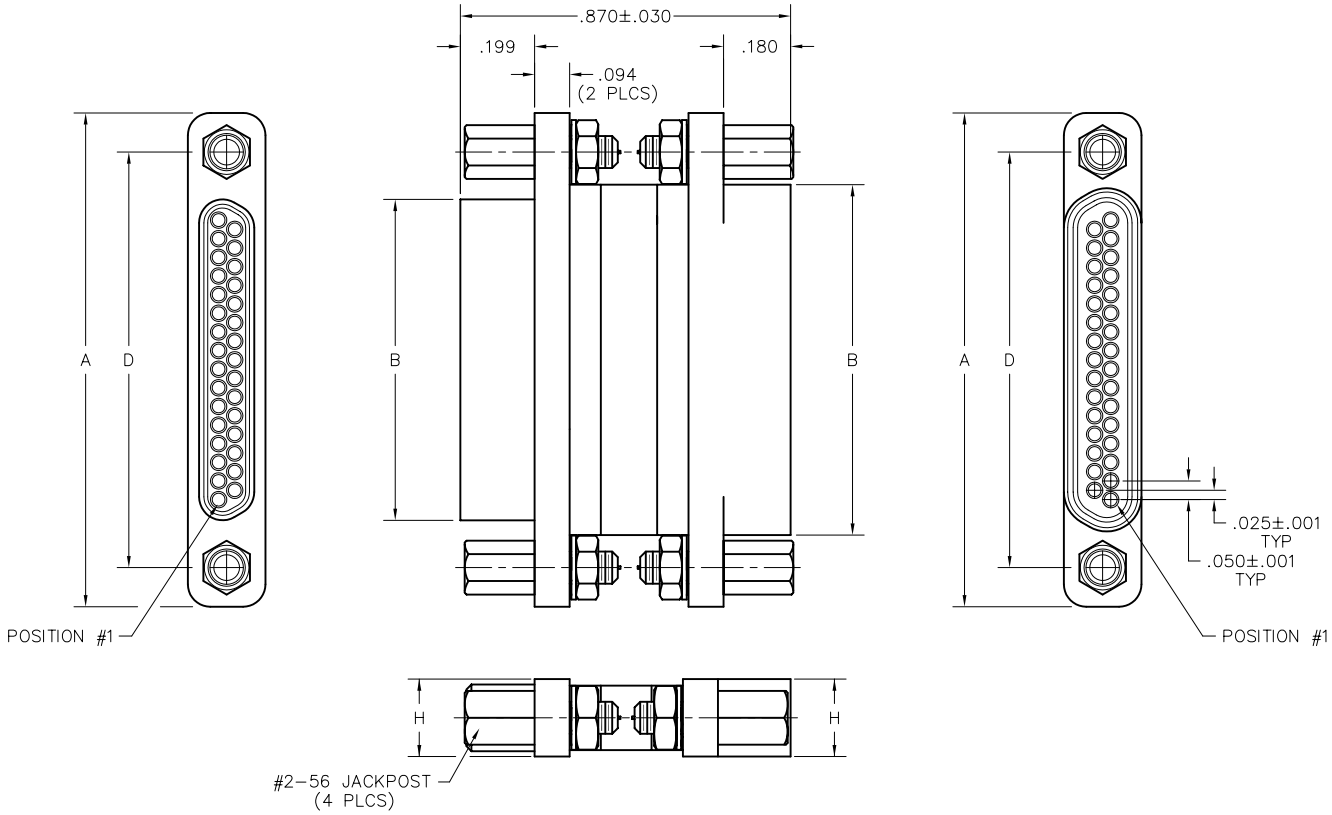
Low Profile Plastic

MP

MQ–212–031–143–2200–93A
(METAL)

MP–211–031–143–2200–93A
(PLASTIC)





PLUG

RECEPTACLE

DIMENSIONS							
SIZE	CONTACT ROWS	A	B		D	H ±.005	HARDWARE
			PLUG MAX	RCPT MAX			
9	2	.778	.292	.378	.565	.208	#2–56 UNC THD (.092 DIA THRU)
15		.928	.442	.528	.715		
21		1.078	.592	.678	.865		
25		1.178	.692	.778	.965		
31		1.328	.842	.928	1.115		
37		1.478	.992	1.078	1.265		
51	3	1.428	.942	1.028	1.215	.250	

PLUG/RECEPTACLE: MQ – 212 – 031 – 143 – 2200 – 93A
MP – 211 – 031 – 143 – 2200 – 93A
XX – XXX – XXX – XXX – XXXX – XXX

SERIES

MQ .050" Low Profile Metal
MP .050" Low Profile Plastic

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Size 51)

BODY STYLE:
1 Plug/Receptacle, straight with mounting ears

BODY MATERIAL:
1 Polyphenylene Sulfide (MN only)
2 Polyphenylene Sulfide with electroless nickel shell
3 Polyphenylene Sulfide with electrodeposited cadmium shell ☒
4 Polyphenylene Sulfide with hard anodized back shell

SIZE

XXX 009, 015, 021, 025, 031, 037, 051

CONTACTS

TYPE CONTACTS/TERMINATIONS:
14 Pin/Socket, straight

PLATING OPTIONS:
3 50 µ" Au contacts: 10 µ" Au terminations

HARDWARE

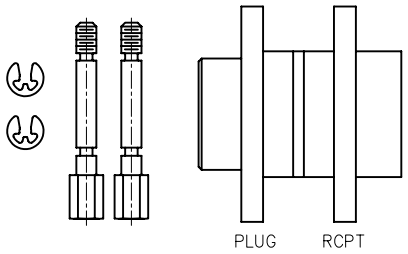
STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies
JA Turning jackpost with retaining ring, uninstalled
JP Turning jackpost, internal thread on plug side
JS Turning jackpost, internal thread on receptacle side

POLARIZATION / WIRING:
00 None

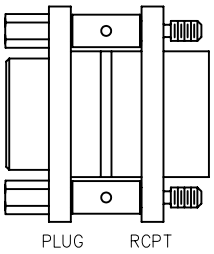
SPECIAL DESIGNATORS

93A Connector saver designator

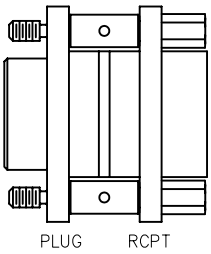
☒ = Option not RoHS compliant



JA (PA*)



JP (PP*)



JS (PS*)

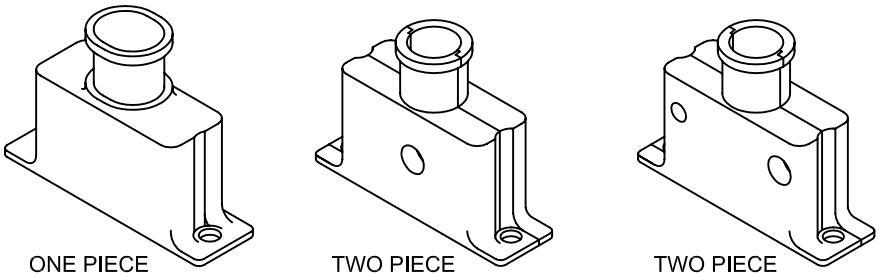
EMI/RFI Straight Backshells

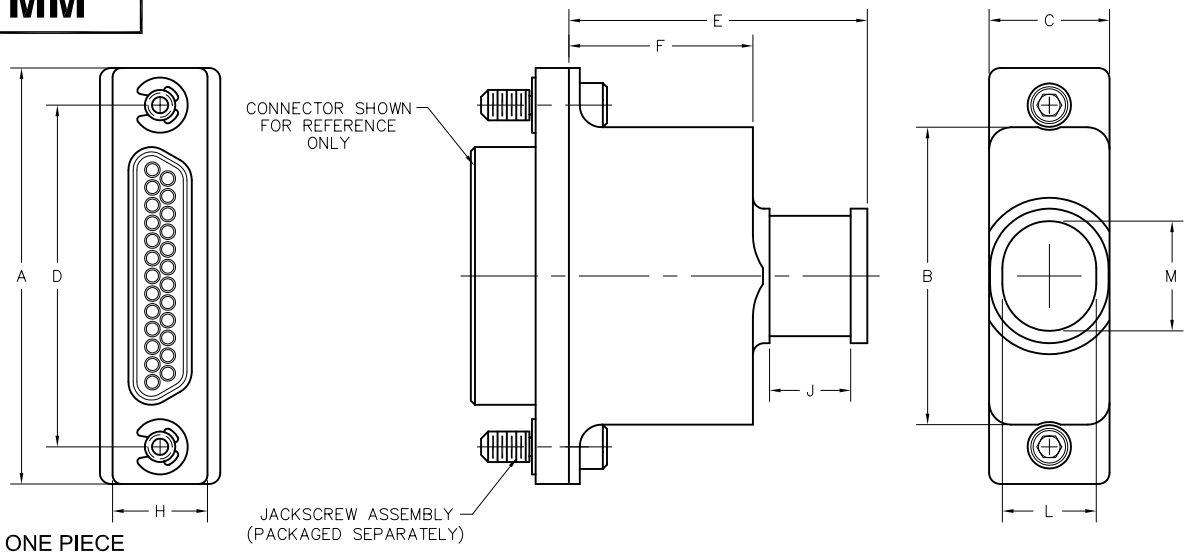
.050"

9 thru 100 Contacts

Rugged Metal

MM





ONE PIECE

DIMENSIONS												
SIZE	CONTACT ROWS	A	B	C	D	E	F	H	J	L	M	HARDWARE
9	2	.775	.440	.340	.565	.843	.520	.298	.229	SEE TABLE A (RIGHT)		#2-56 UNC THD (.092 DIA THRU)
15		.925	.590		.715							
21		1.075	.740		.865							
25		1.175	.840		.965							
31		1.325	.990		1.115							
37		1.475	1.140		1.265							
51		1.825	1.490		1.615	.933	.610	.341				
51	3	1.425	1.090	.380	1.215							
69		1.725	1.390		1.515							
100	4	2.160	1.522	.430	1.800	.953	.630	.384				#4-40 UNC THD (.147 DIA THRU)

TWO PIECE

DIMENSIONS												
SIZE	CONTACT ROWS	A	B	C	D	E	F	H	J	L	M	HARDWARE
9	2	.775	.480	.340	.565	.843	.520	.298	.229	SEE TABLE A (RIGHT)		#2-56 UNC THD (.092 DIA THRU)
15		.925	.630		.715							
21		1.075	.780		.865							
25		1.175	.880		.965							
31		1.325	1.030		1.115							
37		1.475	1.180		1.265							
51		1.825	1.530		1.615	.933	.610	.341				
51	3	1.425	1.130	.380	1.215							
69		1.725	1.430		1.515							
100	4	2.160	1.528	.430	1.800	.953	.630	.384				#4-40 UNC THD (.147 DIA THRU)

RUGGED: MM–252–031–000–4100
XX–XXX–XXX–XXX–XXXX–XXX

SERIES

MM .050" Rugged Metal Backshell

BODY

2 2-Row (Sizes 9 thru 51)
3 3-Row (Sizes 51 & 69)
4 4-Row (Size 100)

BODY STYLE:
3 Straight, one piece
5 Straight, two piece***

BODY MATERIAL:
2 Aluminum, with electroless nickel plating
3 Aluminum, with electrodeposited cadmium ☒
4 Aluminum, with hard anodized black plating

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

EXIT

000 Standard exit, see Table A
AAA Large exit, see Table A**
BBB Small exit, see Table A**

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies (62*)
41 Two turning jackscrews, allen head, retaining ring (81*)
43 Two turning jackscrews, slot head, retaining ring (83*)
44 Two long turning jackscrews, slot head, retaining ring (84*)

POLARIZATION / WIRING:
00 None

OPTIONS

0FZ Required for recptacles with grounding fingers when ordering hardware styles 41, 43, 44, 81, 83, & 84

* = Use number in parenthesis when ordering size 100.
** = Available with Body Style 3 (one piece) only.
*** = Sizes 9 and 15 not recommended for solder cup applications or 24 AWG wire applications.

Stainless steel micro band for shield termination - AirBorn part number CDG10026, shipped with each backshell
Band-it application tool - AirBorn part number CDG10027

☒ = Option not ROHS compliant

TABLE A

EXIT DIMENSIONS						
SIZE	000		AAA		BBB	
	L	M	L	M	L	M
9	—	.188	.265	.310	—	.129
15	—	.230		.458	—	.162
21	—	.257		.608	—	.188
25	.265	.310		.708	—	.206
31		.330		.858	—	.225
37		.375		1.008	—	.242
51		.515		1.034	.265	.300
51	.297	.470	.297	.921	—	.290
69		.620		1.158	.297	.361
100	.344	.688	.344	1.342	.344	.461

Ask About AirBorn's Accelerated Delivery Service

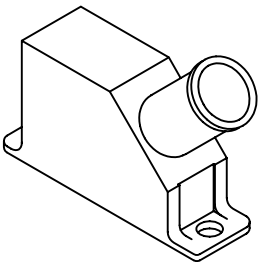
EMI/RFI 45° Backshells

.050"

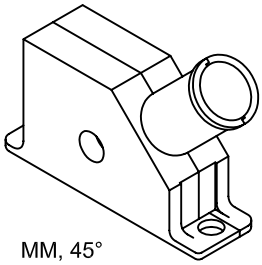
9 thru 100 Contacts

Rugged Metal

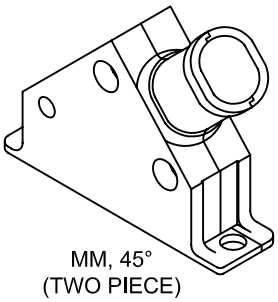
MM



MM, 45°
(ONE PIECE)



MM, 45°
(TWO PIECE)
(POSITIONS 9 & 15)



MM, 45°
(TWO PIECE)
(POSITIONS 21 - 100)

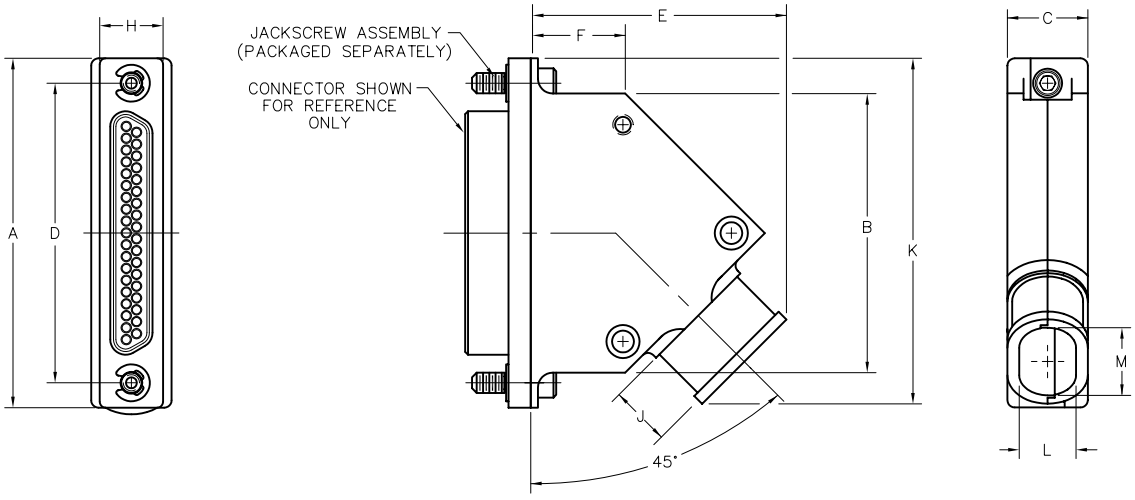
Note: 21 & 25 position, 2 piece backshells use two screw clamping configurations.

MM, 45° (ONE PIECE)

DIMENSIONS													
SIZE	CONTACT ROWS	A	B	C	D	E	F	H	J	K	L	M	HARDWARE
9	2	.775	.440	.340	.565	.696	.500	.298	.229	.804	—	.188	#2–56 UNC THD (.092 DIA THRU)
15		.925	.590		.715	.721	.525			.954	—	.230	
21		1.075	.740		.865	.746	.550			1.103	—	.257	
25		1.175	.840		.965	.796	.600			1.203	.265	.310	
31		1.325	.990		1.115	.846	.650			1.353		.330	
37		1.475	1.140		1.265	.921	.725			1.503		.375	
51		1.825	1.490		1.615	1.144	.950			1.853		.510	
51	3	1.425	1.090	.380	1.215	.946	.750	.341		1.453	.297	.470	
69		1.725	1.390		1.515					1.753		.620	
100	4	2.160	1.522	.430	1.800	1.146	.950	.384		2.036	.344	.688	#4–40 UNC THD (.147 DIA THRU)

MM, 45° (TWO PIECE)

DIMENSIONS													
SIZE	CONTACT ROWS	A	B	C	D	E	F	H	J	K	L	M	HARDWARE
9	2	.775	.480	.340	.565	.855	.650	.298	.229	.806	—	.188	#2–56 UNC THD (.092 DIA THRU)
15		.925	.630		.715	.831	.625			.944	—	.230	
21		1.075	.780		.865	.985	.421			1.059	.240	.268	
25		1.175	.880		.965	1.031	.400			1.159		.333	
31		1.325	1.030		1.115	1.046				1.309		.354	
37		1.475	1.180		1.265	1.081				1.459		.404	
51		1.825	1.530		1.615	1.193				1.809		.559	
51	3	1.425	1.130	.380	1.215	1.233	.625	.341		1.409	.280	.492	
69		1.725	1.430		1.515	1.378	.527			1.703		.642	
100	4	2.160	1.522	.430	1.800	1.403	.532	.384		1.973	.330	.711	#4–40 UNC THD (.147 DIA THRU)



RUGGED: MM– 242 – 031 – 000 – 4100
XX–XXX–XXX–XXX–XXXX–XXX

SERIES

MM .050" Rugged Metal Backshell

BODY

2 2-Row (Sizes 9 thru 51)
3 3-Row (Sizes 51 & 69)
4 4-Row (Size 100)

BODY STYLE:
4 45°, one piece
6 45°, two piece **

BODY MATERIAL:
2 Aluminum, with electroless nickel plating
3 Aluminum, with electrodeposited cadmium ☒
4 Aluminum, with hard anodized black plating

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

CONTACTS

TYPE CONTACTS/TERMINATIONS:
000 None

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies (62*)
41 Two turning jackscrews, allen head, retaining ring (81*)
43 Two turning jackscrews, slot head, retaining ring (83*)

POLARIZATION / WIRING:
00 None

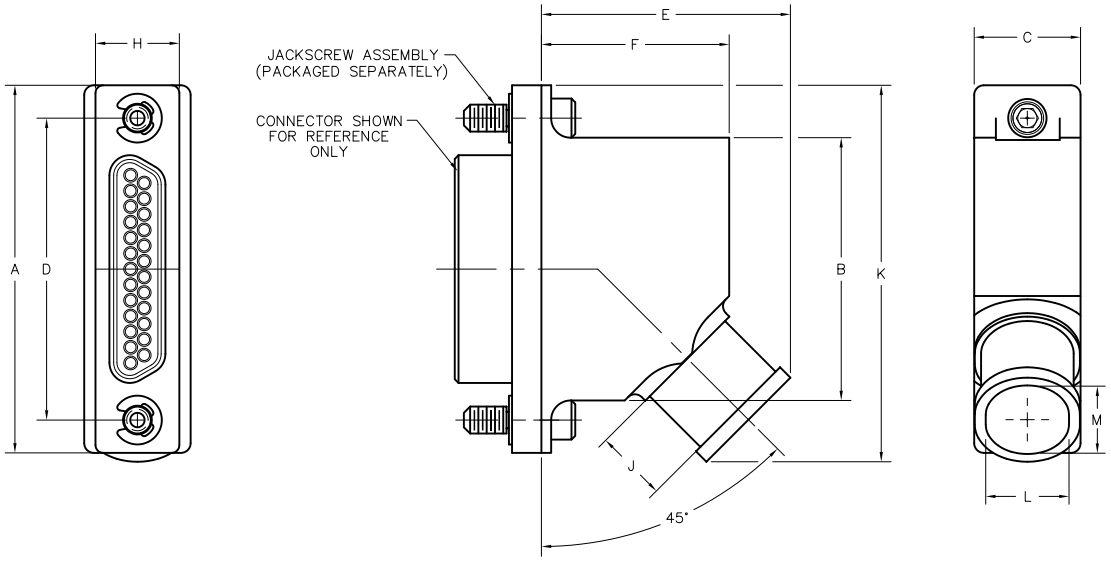
OPTIONS

0FZ Required for recptacles with grounding fingers when ordering hardware styles 41, 43, 81, & 83

* = Use number in parenthesis when ordering size 100.
** = Sizes 9 and 15 not recommended for solder cup applications.

Stainless steel micro band for shield termination - AirBorn part number CDG10026
Band-it application tool - AirBorn part number CDG10027

☒ = Option not RoHS compliant



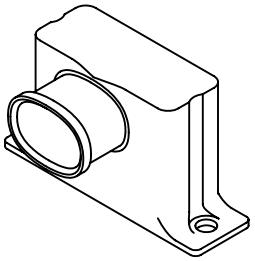
EMI/RFI 90° Backshells

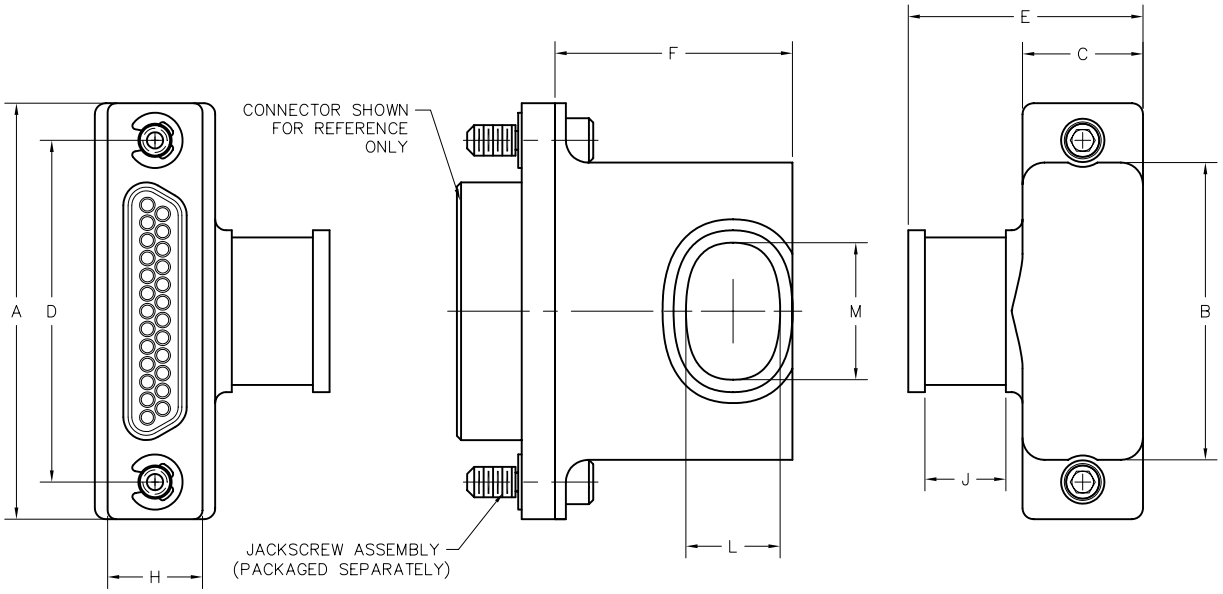
.050"

9 thru 100 Contacts

Rugged Metal

MM





ONE PIECE

DIMENSIONS												
SIZE	CONTACT ROWS	A	B	C	D	E	F	H	J	L	M	HARDWARE
9	2	.775	.440	.340	.565	.663	.671	.298	.229	.266	.268	#2–56 UNC THD (.092 DIA THRU)
15		.925	.590		.715						.311	
21		1.075	.740		.865						.331	
25		1.175	.840		.965						.387	
31		1.325	.990		1.115						.450	
37		1.475	1.140		1.265						.511	
51		1.825	1.490		1.615						.678	
51	3	1.425	1.090	.380	1.215	.703	.703	.341		.298	.619	
69		1.725	1.390		1.515						.823	
100	4	2.160	1.522	.430	1.800	.753	.749	.384		.344	1.063	#4–40 UNC THD (.147 DIA THRU)

RUGGED: MM–272–031–000–4100
XX–XXX–XXX–XXX–XXX–XXXX

SERIES

MM .050" Rugged Metal Backshell

BODY

2 2-Row (Sizes 9 thru 51)
3 3-Row (Sizes 51 & 69)
4 4-Row (Size 100)

BODY STYLE:
7 90°, one piece

BODY MATERIAL:
2 Aluminum, with electroless nickel plating
3 Aluminum, with electrodeposited cadmium ☒
4 Aluminum, with hard anodized black plating

SIZE

XXX 009, 015, 021, 025, 031, 037, 051, 069, 100

EXIT

000 Standard exit**

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies (62*)
41 Two turning jackscrews, allen head, retaining ring (81*)
43 Two turning jackscrews, slot head, retaining ring (83*)
44 Two long turning jackscrews, slot head, retaining ring (84*)

POLARIZATION / WIRING:
00 None

* = Use number in parenthesis when ordering size 100.
** = Backshell exits are designed to accomodate 26AWG wire or smaller

Stainless steel micro band for shield termination - AirBorn part number CDG10026, shipped with each backshell
Band-it application tool - AirBorn part number CDG10027

☒ = Option not ROHS compliant

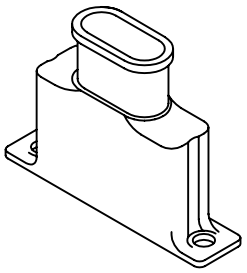
EMI/RFI Straight Backshells

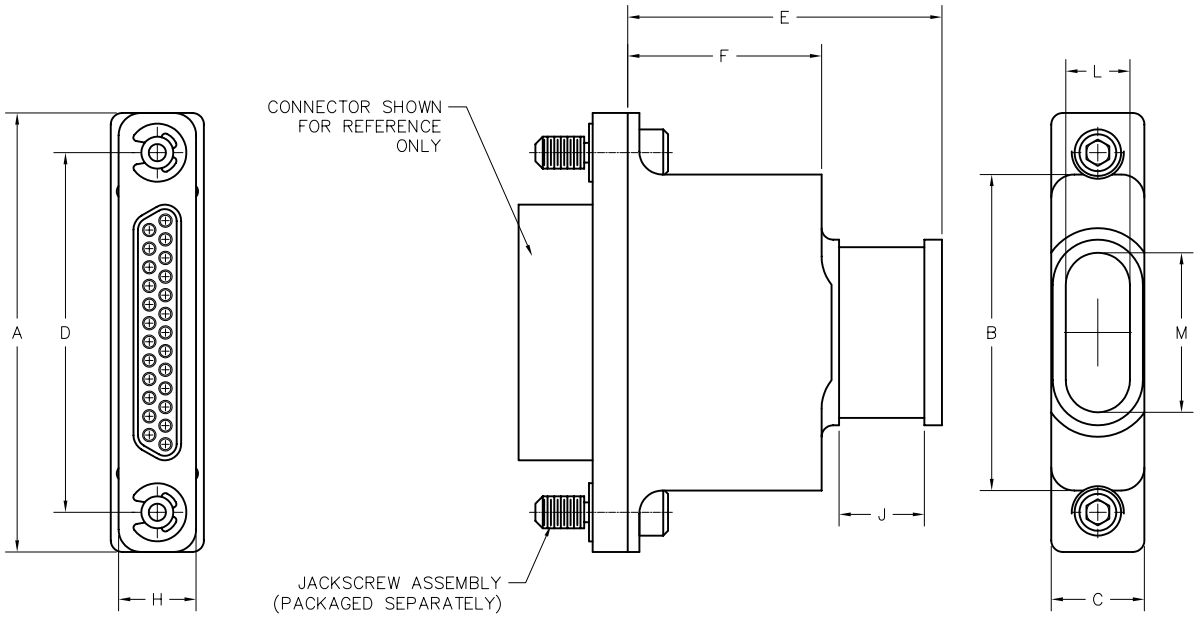
.050"

9 thru 51 Contacts

Low Profile Metal

MQ





ONE PIECE

DIMENSIONS												
SIZE	CONTACT ROWS	A	B	C	D	E	F	H	J	L	M	HARDWARE
9	2	.778	.448	.250	.565	.843	.520	.208	.229	.172	.197	#2-56 UNC THD (.092 DIA THRU)
15		.928	.598		.715						.279	
21		1.078	.748		.865						.339	
25		1.178	.848		.965						.428	
31		1.328	.998		1.115						.462	
37		1.478	1.148		1.265						.531	
51	3	1.428	1.098	.292	1.215	.933	.610	.250		.220	.596	

RUGGED: MQ–232–025–000–4100
XX–XXX–XXX–XXX–XXX–XXXX

SERIES

MQ .050" Low Profile Metal Backshell

BODY

2 2-Row (Sizes 9 thru 37)
3 3-Row (Sizes 51)

BODY STYLE:
3 Straight, one piece

BODY MATERIAL:
2 Aluminum, with electroless nickel plating
3 Aluminum, with electrodeposited cadmium ☒
4 Aluminum, with hard anodized black plating

SIZE

XXX 009, 015, 021, 025, 031, 037, 051

EXIT

000 Standard exit

HARDWARE

STYLE OF HARDWARE:
00 None
22 Two fixed jacknut assemblies
41 Two turning jackscrews, allen head, retaining ring
43 Two turning jackscrews, slot head, retaining ring
44 Two long turning jackscrews, slot head, retaining ring

POLARIZATION / WIRING:
00 None

Stainless steel micro band for shield termination - AirBorn part number CDG10026, shipped with each backshell
Band-it application tool - AirBorn part number CDG10027

☒ = Option not ROHS compliant

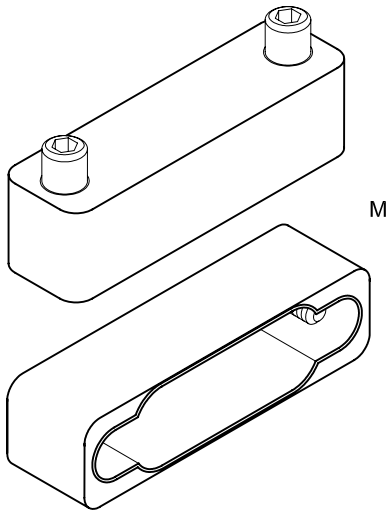
Dust Covers

.050"

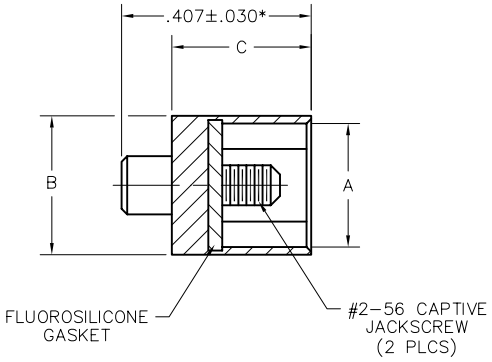
9 thru 100 Contacts

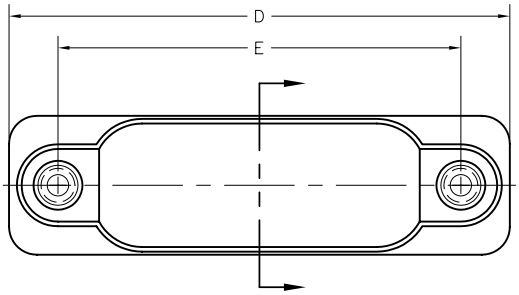
Rugged Metal

MD



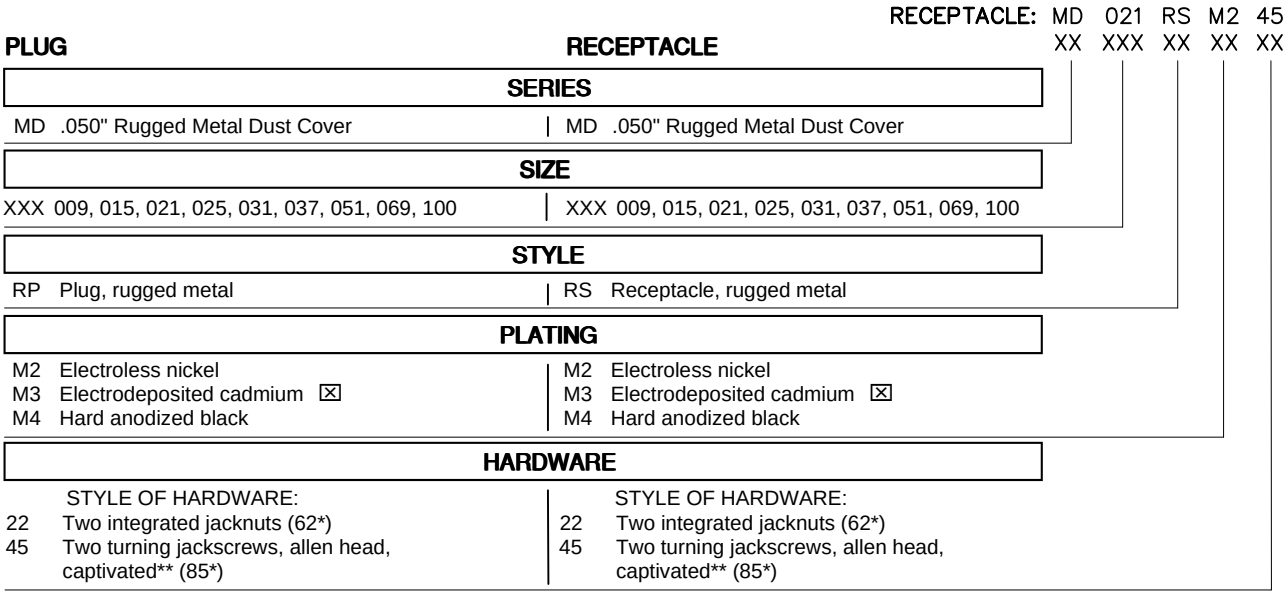
MD021RSM245





DIMENSIONS								
SIZE	A		B		C	D	E	HARDWARE
	PLUG	RCPT	PLUG	RCPT				
9	.203	.265	.298	.298	.299	.775	.565	#2–56 UNC THD
15						.925	.715	
21						1.075	.865	
25						1.175	.965	
31						1.325	1.115	
37						1.475	1.265	
51	.246	.308	.341	.341		1.425	1.215	
69						1.725	1.515	
100	.291	.394	.381	.434		2.152	1.800	#4–40 UNC THD

* = 100 POS DIMENSION .460±.030



* = Use number in parenthesis when ordering size 100.
** = Captive hardware is factory installed and non-removable.

Not for use with rear panel mount connectors
Not for use on receptacles with grounding fingers

☒ = Option not RoHS compliant

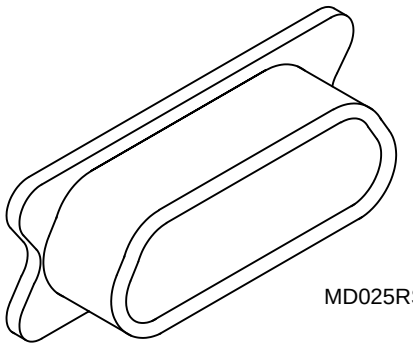
ESD Dust Covers

.050"

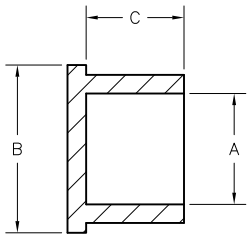
9 thru 100 Contacts

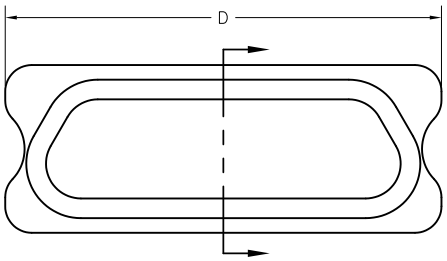
Rugged Metal
Low Profile Plastic

MD



MD025RS





EXAMPLE: MD025RS
MDXXXXX

SIZE:

R – RUGGED
L – LOW PROFILE

P – PLUG
S – RECEPTACLE

Material: Carbon filled polypropylene
Static Decay meets MIL–PRF–81705D
Surface Resistivity per ASTM D 257–99(2005): <1.0 x 10^{12} ohms/square

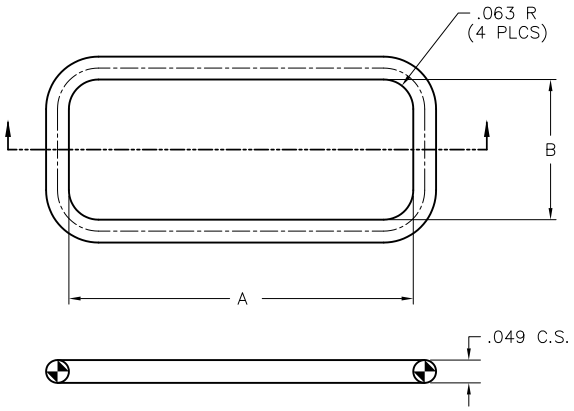
RUGGED PLASTIC

DIMENSIONS											
SIZE	CONTACT ROWS	A		B		C		D		PART NUMBER	
		PLUG	RCPT	PLUG	RCPT	PLUG	RCPT	PLUG	RCPT	PLUG	RCPT
9	2	.176	.238	.298	.360	.195	.215	.475	.460	MD009RP	MD009RS
15								.625	.610	MD015RP	MD015RS
21								.775	.760	MD021RP	MD021RS
25								.875	.860	MD025RP	MD025RS
31								1.025	1.010	MD031RP	MD031RS
37								1.175	1.160	MD037RP	MD037RS
51								1.525	1.510	MD051RP–2	MD051RS–2
51	3	.219	.281	.340	.400			1.125	1.110	MD051RP	MD051RS
69								1.425	1.410	MD069RP	MD069RS
100	4	.265	.379	.385	.500			1.500	1.615	MD100RP	MD100RS

LOW PROFILE PLASTIC

DIMENSIONS											
SIZE	CONTACT ROWS	A		B		C		D		PART NUMBER	
		PLUG	RCPT	PLUG	RCPT	PLUG	RCPT	PLUG	RCPT	PLUG	RCPT
9	2	.125	.205	.256	.315	.210	.195	.400	.430	MD009LP	MD009LS
15								.550	.580	MD015LP	MD015LS
21								.700	.730	MD021LP	MD021LS
25								.800	.830	MD025LP	MD025LS
31								.950	.980	MD031LP	MD031LS
37								1.100	1.130	MD037LP	MD037LS
51	3	.168	.247	.298	.360			1.050	1.080	MD051LP	MD051LS

Not for use on receptacles with grounding fingers



O-Rings, Fluorosilicone & Butyl

DIMENSIONS (Ref Only)			
SIZE	CONTACT ROWS	A	B
9	2	.739	.301
15		.889	
21		1.039	
25		1.139	
31		1.297	
37		1.439	
51	3	1.439	.344
69		1.731	
100	4	2.159	.421

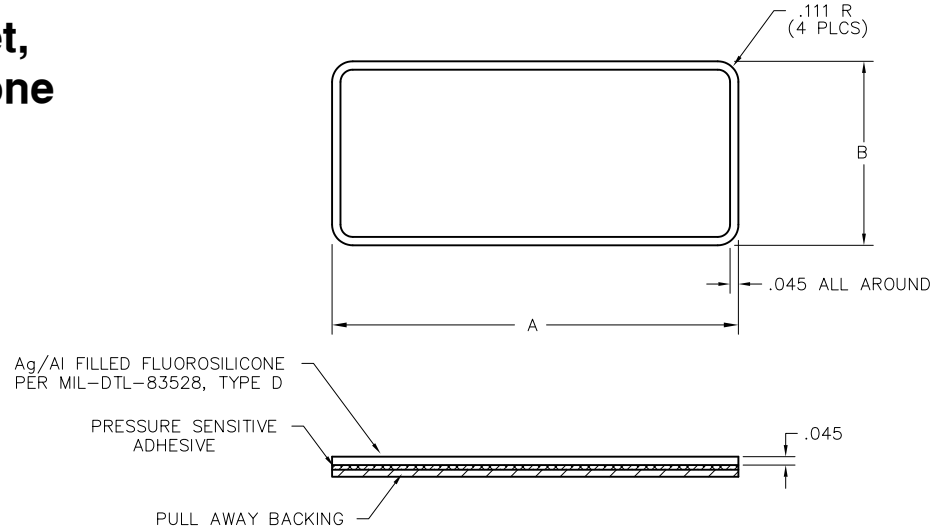
FLOUROSILICONE

PART NUMBERS	
SIZE	P/N
9	CDG17148
15	CDG17149
21	CDG17150
25	CDG17151
31	CDG17152
37	CDG17153
51	CDG17154
69	CDG17155
100	CDG17156

BUTYL

PART NUMBERS	
SIZE	P/N
9	CDG17478
15	CDG17479
21	CDG17480
25	CDG17481
31	CDG17482
37	CDG17483
51	CDG17484
69	CDG17485
100	CDG17486

EMI Gasket, Fluorosilicone

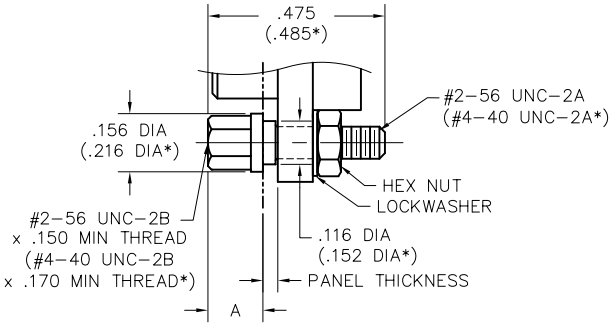


DIMENSIONS (Ref Only)			
SIZE	CONTACT ROWS	A	B
9	2	.872	.395
15		1.022	
21		1.172	
25		1.272	
31		1.422	
37		1.572	
51	3	1.572	.438
69		1.872	
100	4	2.298	.515

PART NUMBERS	
SIZE	P/N
9	CDG15933
15	CDG15934
21	CDG15935
25	CDG15936
31	CDG15937
37	CDG13044
51	CDG15938
69	CDG12978
100	CDG15939

Hardware

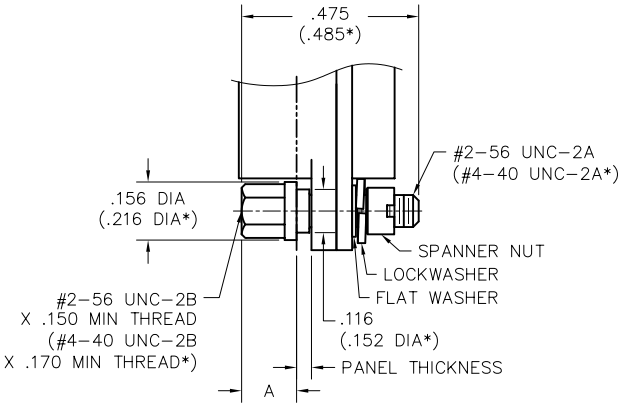
MM - MN - MQ - MP
Rear Panel Mount Hardware for Standard I/O Connectors



PANEL THK	THREAD SIZE	PART NUMBER	A MAX
.040	#2–56	MM–000–000–000–2400–0F4	.150
.050		MM–000–000–000–2500–0F5	.140
.060		MM–000–000–000–2600–0F6	.130
.070		MM–000–000–000–2800–0F7	.120
.080		MM–000–000–000–2900–0F8	.110
.040	#4–40	MM–000–000–000–6400–0F9	.150
.050		MM–000–000–000–6500–0FA	.140
.060		MM–000–000–000–6600–0FB	.130
.070		MM–000–000–000–6800–0FC	.120
.080		MM–000–000–000–6900–0FD	.110

* = Dimensions for 100 position connectors

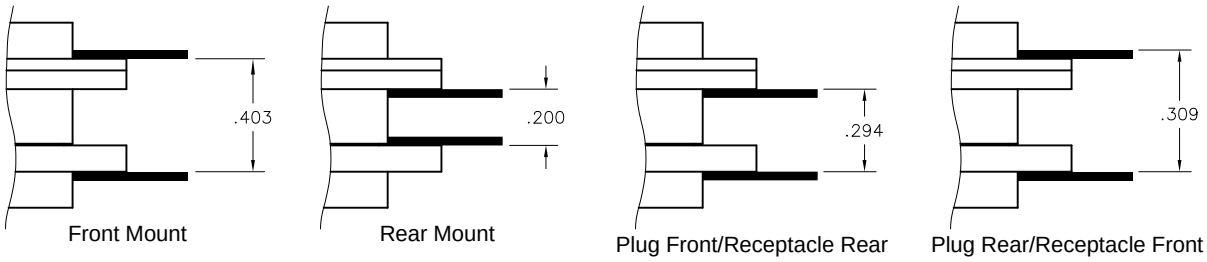
MM - MN - MQ - MP
Rear Panel Mount Hardware for I/O Connectors with Grounding Fingers, Integrated Shield Termination, or I/O with EMI/RFI Backshell



PANEL THK	THREAD SIZE	PART NUMBER	A MAX
.040	#2–56	MM–000–000–000–2400–0G7	.150
.050		MM–000–000–000–2500–0G7	.140
.060		MM–000–000–000–2600–0G7	.130
.070		MM–000–000–000–2800–0G7	.120
.080		MM–000–000–000–2900–0G7	.110
.040	#4–40	MM–000–000–000–6400–0G7	.150
.050		MM–000–000–000–6500–0G7	.140
.060		MM–000–000–000–6600–0G7	.130
.070		MM–000–000–000–6800–0G7	.120
.080		MM–000–000–000–6900–0G7	.110

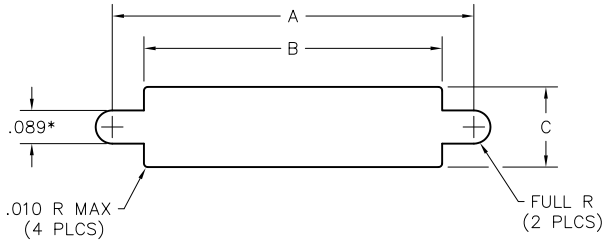
* = Dimensions for 100 position connectors

Panel Mounting Dimensions for Receptacles With Grounding Fingers



Front Mount | Rear Mount | Plug Front/Receptacle Rear | Plug Rear/Receptacle Front

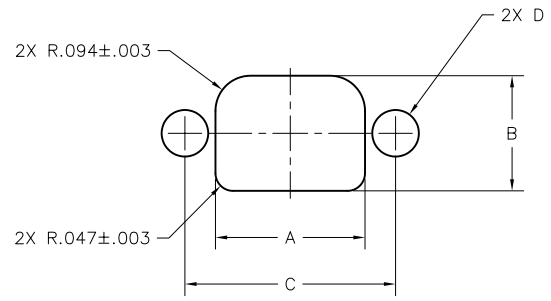
Front Panel Mounting Receptacles With Grounding Fingers



* = .118 FOR 100 POSITION CONNECTOR

DIMENSIONS				
SIZE	A +.004 −.000	B +.005 −.000	C +.004 −.000	
			MP,MQ,MR,MS MQHT, MSHT	MK,ML,MM,MN MKHT, MMHT
9	.570	.400	.215	.273
15	.720	.550		
21	.870	.700		
25	.970	.800		
31	1.120	.950		
37	1.270	1.100		
51	1.220	1.050	.256	.311
69	1.520	1.350	——	
100	1.805	1.442	——	.383

Rear Panel Mounting Receptacles With Grounding Fingers



DIMENSIONS				
SIZE	A +.004 −.000	B +.004 −.000	C ±.005	D ±.005 THRU
9	.401	.308	.565	.125
15	.551		.715	
21	.701		.865	
25	.801		.965	
31	.951		1.115	
37	1.101		1.265	
51	1.051	.351	1.215	
69	1.351		1.515	
100	1.505	.391	1.800	.160

MILITARY CROSS REFERENCE

Military Cross Reference Chart

M83513 / 01

M83513 / 01 - AC	MM-213-009-113-0000	M83513 / 01 - DC	MM-213-025-113-0000	M83513 / 01 - GC	MM-313-051-113-0000
M83513 / 01 - AN	MM-212-009-113-0000	M83513 / 01 - DN	MM-212-025-113-0000	M83513 / 01 - GN	MM-312-051-113-0000
M83513 / 01 - AP	MM-215-009-113-0000	M83513 / 01 - DP	MM-215-025-113-0000	M83513 / 01 - GP	MM-315-051-113-0000
M83513 / 01 - BC	MM-213-015-113-0000	M83513 / 01 - EC	MM-213-031-113-0000	M83513 / 01 - HC	MM-413-100-113-0000
M83513 / 01 - BN	MM-212-015-113-0000	M83513 / 01 - EN	MM-212-031-113-0000	M83513 / 01 - HN	MM-412-100-113-0000
M83513 / 01 - BP	MM-215-015-113-0000	M83513 / 01 - EP	MM-215-031-113-0000	M83513 / 01 - HP	MM-415-100-113-0000
M83513 / 01 - CC	MM-213-021-113-0000	M83513 / 01 - FC	MM-213-037-113-0000		
M83513 / 01 - CN	MM-212-021-113-0000	M83513 / 01 - FN	MM-212-037-113-0000		
M83513 / 01 - CP	MM-215-021-113-0000	M83513 / 01 - FP	MM-215-037-113-0000		

M83513 / 02

M83513 / 02 - AC	MM-223-009-213-0000-900	M83513 / 02 - DC	MM-223-025-213-0000-900	M83513 / 02 - GC	MM-323-051-213-0000-900
M83513 / 02 - AN	MM-222-009-213-0000-900	M83513 / 02 - DN	MM-222-025-213-0000-900	M83513 / 02 - GN	MM-322-051-213-0000-900
M83513 / 02 - AP	MM-225-009-213-0000-900	M83513 / 02 - DP	MM-225-025-213-0000-900	M83513 / 02 - GP	MM-325-051-213-0000-900
M83513 / 02 - BC	MM-223-015-213-0000-900	M83513 / 02 - EC	MM-223-031-213-0000-900	M83513 / 02 - HC	MM-423-100-213-0000-900
M83513 / 02 - BN	MM-222-015-213-0000-900	M83513 / 02 - EN	MM-222-031-213-0000-900	M83513 / 02 - HN	MM-422-100-213-0000-900
M83513 / 02 - BP	MM-225-015-213-0000-900	M83513 / 02 - EP	MM-225-031-213-0000-900	M83513 / 02 - HP	MM-425-100-213-0000-900
M83513 / 02 - CC	MM-223-021-213-0000-900	M83513 / 02 - FC	MM-223-037-213-0000-900		
M83513 / 02 - CN	MM-222-021-213-0000-900	M83513 / 02 - FN	MM-222-037-213-0000-900		
M83513 / 02 - CP	MM-225-021-213-0000-900	M83513 / 02 - FP	MM-225-037-213-0000-900		

M83513 / 03

M83513 / 03-A01C	MM-213-009-161-00W1	M83513 / 03-A12C	MM-213-009-161-00Y4	M83513 / 03-B06P	MM-215-015-153-0000
M83513 / 03-A01N	MM-212-009-161-00W1	M83513 / 03-A12N	MM-212-009-161-00Y4	M83513 / 03-B07C	MM-213-015-145-0000
M83513 / 03-A01P	MM-215-009-161-00W1	M83513 / 03-A12P	MM-215-009-161-00Y4	M83513 / 03-B07N	MM-212-015-145-0000
M83513 / 03-A02C	MM-213-009-161-00W2	M83513 / 03-A13C	MM-213-009-161-00Y5	M83513 / 03-B07P	MM-215-015-145-0000
M83513 / 03-A02N	MM-212-009-161-00W2	M83513 / 03-A13N	MM-212-009-161-00Y5	M83513 / 03-B08C	MM-213-015-155-0000
M83513 / 03-A02P	MM-215-009-161-00W2	M83513 / 03-A13P	MM-215-009-161-00Y5	M83513 / 03-B08N	MM-212-015-155-0000
M83513 / 03-A03C	MM-213-009-161-00V1	M83513 / 03-A14C	MM-213-009-161-00Y6	M83513 / 03-B08P	MM-215-015-155-0000
M83513 / 03-A03N	MM-212-009-161-00V1	M83513 / 03-A14N	MM-212-009-161-00Y6	M83513 / 03-B09C	MM-213-015-161-00Y1
M83513 / 03-A03P	MM-215-009-161-00V1	M83513 / 03-A14P	MM-215-009-161-00Y6	M83513 / 03-B09N	MM-212-015-161-00Y1
M83513 / 03-A04C	MM-213-009-161-00V2	M83513 / 03-A15C	MM-213-009-161-00Y7	M83513 / 03-B09P	MM-215-015-161-00Y1
M83513 / 03-A04N	MM-212-009-161-00V2	M83513 / 03-A15N	MM-212-009-161-00Y7	M83513 / 03-B10C	MM-213-015-161-00Y2
M83513 / 03-A04P	MM-215-009-161-00V2	M83513 / 03-A15P	MM-215-009-161-00Y7	M83513 / 03-B10N	MM-212-015-161-00Y2
M83513 / 03-A05C	MM-213-009-143-0000	M83513 / 03-A16C	MM-213-009-161-00Y8	M83513 / 03-B10P	MM-215-015-161-00Y2
M83513 / 03-A05N	MM-212-009-143-0000	M83513 / 03-A16N	MM-212-009-161-00Y8	M83513 / 03-B11C	MM-213-015-161-00Y3
M83513 / 03-A05P	MM-215-009-143-0000	M83513 / 03-A16P	MM-215-009-161-00Y8	M83513 / 03-B11N	MM-212-015-161-00Y3
M83513 / 03-A06C	MM-213-009-153-0000			M83513 / 03-B11P	MM-215-015-161-00Y3
M83513 / 03-A06N	MM-212-009-153-0000	M83513 / 03-B01C	MM-213-015-161-00W1	M83513 / 03-B12C	MM-213-015-161-00Y4
M83513 / 03-A06P	MM-215-009-153-0000	M83513 / 03-B01N	MM-212-015-161-00W1	M83513 / 03-B12N	MM-212-015-161-00Y4
M83513 / 03-A07C	MM-213-009-145-0000	M83513 / 03-B01P	MM-215-015-161-00W1	M83513 / 03-B12P	MM-215-015-161-00Y4
M83513 / 03-A07N	MM-212-009-145-0000	M83513 / 03-B02C	MM-213-015-161-00W2	M83513 / 03-B13C	MM-213-015-161-00Y5
M83513 / 03-A07P	MM-215-009-145-0000	M83513 / 03-B02N	MM-212-015-161-00W2	M83513 / 03-B13N	MM-212-015-161-00Y5
M83513 / 03-A08C	MM-213-009-155-0000	M83513 / 03-B02P	MM-215-015-161-00W2	M83513 / 03-B13P	MM-215-015-161-00Y5
M83513 / 03-A08N	MM-212-009-155-0000	M83513 / 03-B03C	MM-213-015-161-00V1	M83513 / 03-B14C	MM-213-015-161-00Y6
M83513 / 03-A08P	MM-215-009-155-0000	M83513 / 03-B03N	MM-212-015-161-00V1	M83513 / 03-B14N	MM-212-015-161-00Y6
M83513 / 03-A09C	MM-213-009-161-00Y1	M83513 / 03-B03P	MM-215-015-161-00V1	M83513 / 03-B14P	MM-215-015-161-00Y6
M83513 / 03-A09N	MM-212-009-161-00Y1	M83513 / 03-B04C	MM-213-015-161-00V2	M83513 / 03-B15C	MM-213-015-161-00Y7
M83513 / 03-A09P	MM-215-009-161-00Y1	M83513 / 03-B04N	MM-212-015-161-00V2	M83513 / 03-B15N	MM-212-015-161-00Y7
M83513 / 03-A10C	MM-213-009-161-00Y2	M83513 / 03-B04P	MM-215-015-161-00V2	M83513 / 03-B15P	MM-215-015-161-00Y7
M83513 / 03-A10N	MM-212-009-161-00Y2	M83513 / 03-B05C	MM-213-015-143-0000	M83513 / 03-B16C	MM-213-015-161-00Y8
M83513 / 03-A10P	MM-215-009-161-00Y2	M83513 / 03-B05N	MM-212-015-143-0000	M83513 / 03-B16N	MM-212-015-161-00Y8
M83513 / 03-A11C	MM-213-009-161-00Y3	M83513 / 03-B05P	MM-215-015-143-0000	M83513 / 03-B16P	MM-215-015-161-00Y8
M83513 / 03-A11N	MM-212-009-161-00Y3	M83513 / 03-B06C	MM-213-015-153-0000		
M83513 / 03-A11P	MM-215-009-161-00Y3	M83513 / 03-B06N	MM-212-015-153-0000		

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Military Cross Reference Chart

-- Continued from previous page

M83513 / 03 (continued)

M83513 / 03-C01C	MM-213-021-161-00W1
M83513 / 03-C01N	MM-212-021-161-00W1
M83513 / 03-C01P	MM-215-021-161-00W1
M83513 / 03-C02C	MM-213-021-161-00W2
M83513 / 03-C02N	MM-212-021-161-00W2
M83513 / 03-C02P	MM-215-021-161-00W2
M83513 / 03-C03C	MM-213-021-161-00V1
M83513 / 03-C03N	MM-212-021-161-00V1
M83513 / 03-C03P	MM-215-021-161-00V1
M83513 / 03-C04C	MM-213-021-161-00V2
M83513 / 03-C04N	MM-212-021-161-00V2
M83513 / 03-C04P	MM-215-021-161-00V2
M83513 / 03-C05C	MM-213-021-143-0000
M83513 / 03-C05N	MM-212-021-143-0000
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M83513 / 03-C11P	MM-215-021-161-00Y3
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M83513 / 03-C12P	MM-215-021-161-00Y4
M83513 / 03-C13C	MM-213-021-161-00Y5
M83513 / 03-C13N	MM-212-021-161-00Y5
M83513 / 03-C13P	MM-215-021-161-00Y5
M83513 / 03-C14C	MM-213-021-161-00Y6
M83513 / 03-C14N	MM-212-021-161-00Y6
M83513 / 03-C14P	MM-215-021-161-00Y6
M83513 / 03-C15C	MM-213-021-161-00Y7
M83513 / 03-C15N	MM-212-021-161-00Y7
M83513 / 03-C15P	MM-215-021-161-00Y7
M83513 / 03-C16C	MM-213-021-161-00Y8
M83513 / 03-C16N	MM-212-021-161-00Y8
M83513 / 03-C16P	MM-215-021-161-00Y8

M83513 / 03-D01C	MM-213-025-161-00W1
M83513 / 03-D01N	MM-212-025-161-00W1
M83513 / 03-D01P	MM-215-025-161-00W1
M83513 / 03-D02C	MM-213-025-161-00W2
M83513 / 03-D02N	MM-212-025-161-00W2
M83513 / 03-D02P	MM-215-025-161-00W2
M83513 / 03-D03C	MM-213-025-161-00V1
M83513 / 03-D03N	MM-212-025-161-00V1
M83513 / 03-D03P	MM-215-025-161-00V1
M83513 / 03-D04C	MM-213-025-161-00V2
M83513 / 03-D04N	MM-212-025-161-00V2
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M83513 / 03-D10C	MM-213-025-161-00Y2
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M83513 / 03-D11N	MM-212-025-161-00Y3
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M83513 / 03-D12C	MM-213-025-161-00Y4
M83513 / 03-D12N	MM-212-025-161-00Y4
M83513 / 03-D12P	MM-215-025-161-00Y4
M83513 / 03-D13C	MM-213-025-161-00Y5
M83513 / 03-D13N	MM-212-025-161-00Y5
M83513 / 03-D13P	MM-215-025-161-00Y5
M83513 / 03-D14C	MM-213-025-161-00Y6
M83513 / 03-D14N	MM-212-025-161-00Y6
M83513 / 03-D14P	MM-215-025-161-00Y6
M83513 / 03-D15C	MM-213-025-161-00Y7
M83513 / 03-D15N	MM-212-025-161-00Y7
M83513 / 03-D15P	MM-215-025-161-00Y7
M83513 / 03-D16C	MM-213-025-161-00Y8
M83513 / 03-D16N	MM-212-025-161-00Y8
M83513 / 03-D16P	MM-215-025-161-00Y8

M83513 / 03-E01C	MM-213-031-161-00W1
M83513 / 03-E01N	MM-212-031-161-00W1
M83513 / 03-E01P	MM-215-031-161-00W1
M83513 / 03-E02C	MM-213-031-161-00W2
M83513 / 03-E02N	MM-212-031-161-00W2
M83513 / 03-E02P	MM-215-031-161-00W2
M83513 / 03-E03C	MM-213-031-161-00V1
M83513 / 03-E03N	MM-212-031-161-00V1
M83513 / 03-E03P	MM-215-031-161-00V1
M83513 / 03-E04C	MM-213-031-161-00V2
M83513 / 03-E04N	MM-212-031-161-00V2
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M83513 / 03-E07P	MM-215-031-145-0000
M83513 / 03-E08C	MM-213-031-155-0000
M83513 / 03-E08N	MM-212-031-155-0000
M83513 / 03-E08P	MM-215-031-155-0000
M83513 / 03-E09C	MM-213-031-161-00Y1
M83513 / 03-E09N	MM-212-031-161-00Y1
M83513 / 03-E09P	MM-215-031-161-00Y1
M83513 / 03-E10C	MM-213-031-161-00Y2
M83513 / 03-E10N	MM-212-031-161-00Y2
M83513 / 03-E10P	MM-215-031-161-00Y2
M83513 / 03-E11C	MM-213-031-161-00Y3
M83513 / 03-E11N	MM-212-031-161-00Y3
M83513 / 03-E11P	MM-215-031-161-00Y3
M83513 / 03-E12C	MM-213-031-161-00Y4
M83513 / 03-E12N	MM-212-031-161-00Y4
M83513 / 03-E12P	MM-215-031-161-00Y4
M83513 / 03-E13C	MM-213-031-161-00Y5
M83513 / 03-E13N	MM-212-031-161-00Y5
M83513 / 03-E13P	MM-215-031-161-00Y5
M83513 / 03-E14C	MM-213-031-161-00Y6
M83513 / 03-E14N	MM-212-031-161-00Y6
M83513 / 03-E14P	MM-215-031-161-00Y6
M83513 / 03-E15C	MM-213-031-161-00Y7
M83513 / 03-E15N	MM-212-031-161-00Y7
M83513 / 03-E15P	MM-215-031-161-00Y7
M83513 / 03-E16C	MM-213-031-161-00Y8
M83513 / 03-E16N	MM-212-031-161-00Y8
M83513 / 03-E16P	MM-215-031-161-00Y8

M83513 / 03-F01C	MM-213-037-161-00W1
M83513 / 03-F01N	MM-212-037-161-00W1
M83513 / 03-F01P	MM-215-037-161-00W1
M83513 / 03-F02C	MM-213-037-161-00W2
M83513 / 03-F02N	MM-212-037-161-00W2
M83513 / 03-F02P	MM-215-037-161-00W2
M83513 / 03-F03C	MM-213-037-161-00V1
M83513 / 03-F03N	MM-212-037-161-00V1
M83513 / 03-F03P	MM-215-037-161-00V1
M83513 / 03-F04C	MM-213-037-161-00V2
M83513 / 03-F04N	MM-212-037-161-00V2
M83513 / 03-F04P	MM-215-037-161-00V2
M83513 / 03-F05C	MM-213-037-143-0000
M83513 / 03-F05N	MM-212-037-143-0000
M83513 / 03-F05P	MM-215-037-143-0000
M83513 / 03-F06C	MM-213-037-153-0000
M83513 / 03-F06N	MM-212-037-153-0000
M83513 / 03-F06P	MM-215-037-153-0000
M83513 / 03-F07C	MM-213-037-145-0000
M83513 / 03-F07N	MM-212-037-145-0000
M83513 / 03-F07P	MM-215-037-145-0000

Ask About AirBorn's Accelerated Delivery Service

M83513 / 03 (continued)

M83513 / 03-F08C	MM-213-037-155-0000
M83513 / 03-F08N	MM-212-037-155-0000
M83513 / 03-F08P	MM-215-037-155-0000
M83513 / 03-F09C	MM-213-037-161-00Y1
M83513 / 03-F09N	MM-212-037-161-00Y1
M83513 / 03-F09P	MM-215-037-161-00Y1
M83513 / 03-F10C	MM-213-037-161-00Y2
M83513 / 03-F10N	MM-212-037-161-00Y2
M83513 / 03-F10P	MM-215-037-161-00Y2
M83513 / 03-F11C	MM-213-037-161-00Y3
M83513 / 03-F11N	MM-212-037-161-00Y3
M83513 / 03-F11P	MM-215-037-161-00Y3
M83513 / 03-F12C	MM-213-037-161-00Y4
M83513 / 03-F12N	MM-212-037-161-00Y4
M83513 / 03-F12P	MM-215-037-161-00Y4
M83513 / 03-F13C	MM-213-037-161-00Y5
M83513 / 03-F13N	MM-212-037-161-00Y5
M83513 / 03-F13P	MM-215-037-161-00Y5
M83513 / 03-F14C	MM-213-037-161-00Y6
M83513 / 03-F14N	MM-212-037-161-00Y6
M83513 / 03-F14P	MM-215-037-161-00Y6
M83513 / 03-F15C	MM-213-037-161-00Y7
M83513 / 03-F15N	MM-212-037-161-00Y7
M83513 / 03-F15P	MM-215-037-161-00Y7
M83513 / 03-F16C	MM-213-037-161-00Y8
M83513 / 03-F16N	MM-212-037-161-00Y8
M83513 / 03-F16P	MM-215-037-161-00Y8
M83513 / 03-G01C	MM-313-051-161-00W1
M83513 / 03-G01N	MM-312-051-161-00W1
M83513 / 03-G01P	MM-315-051-161-00W1
M83513 / 03-G02C	MM-313-051-161-00W2
M83513 / 03-G02N	MM-312-051-161-00W2
M83513 / 03-G02P	MM-315-051-161-00W2
M83513 / 03-G03C	MM-313-051-161-00V1
M83513 / 03-G03N	MM-312-051-161-00V1
M83513 / 03-G03P	MM-315-051-161-00V1
M83513 / 03-G04C	MM-313-051-161-00V2
M83513 / 03-G04N	MM-312-051-161-00V2
M83513 / 03-G04P	MM-315-051-161-00V2
M83513 / 03-G05C	MM-313-051-143-0000
M83513 / 03-G05N	MM-312-051-143-0000
M83513 / 03-G05P	MM-315-051-143-0000
M83513 / 03-G06C	MM-313-051-153-0000
M83513 / 03-G06N	MM-312-051-153-0000
M83513 / 03-G06P	MM-315-051-153-0000
M83513 / 03-G07C	MM-313-051-145-0000
M83513 / 03-G07N	MM-312-051-145-0000
M83513 / 03-G07P	MM-315-051-145-0000
M83513 / 03-G08C	MM-313-051-155-0000
M83513 / 03-G08N	MM-312-051-155-0000
M83513 / 03-G08P	MM-315-051-155-0000
M83513 / 03-G09C	MM-313-051-161-00Y1
M83513 / 03-G09N	MM-312-051-161-00Y1
M83513 / 03-G09P	MM-315-051-161-00Y1
M83513 / 03-G10C	MM-313-051-161-00Y2
M83513 / 03-G10N	MM-312-051-161-00Y2
M83513 / 03-G10P	MM-315-051-161-00Y2
M83513 / 03-G11C	MM-313-051-161-00Y3
M83513 / 03-G11N	MM-312-051-161-00Y3
M83513 / 03-G11P	MM-315-051-161-00Y3
M83513 / 03-G12C	MM-313-051-161-00Y4
M83513 / 03-G12N	MM-312-051-161-00Y4
M83513 / 03-G12P	MM-315-051-161-00Y4
M83513 / 03-G13C	MM-313-051-161-00Y5
M83513 / 03-G13N	MM-312-051-161-00Y5
M83513 / 03-G13P	MM-315-051-161-00Y5
M83513 / 03-G14C	MM-313-051-161-00Y6
M83513 / 03-G14N	MM-312-051-161-00Y6
M83513 / 03-G14P	MM-315-051-161-00Y6
M83513 / 03-G15C	MM-313-051-161-00Y7
M83513 / 03-G15N	MM-312-051-161-00Y7
M83513 / 03-G15P	MM-315-051-161-00Y7
M83513 / 03-G16C	MM-313-051-161-00Y8
M83513 / 03-G16N	MM-312-051-161-00Y8
M83513 / 03-G16P	MM-315-051-161-00Y8
M83513 / 03-H01C	MM-413-100-161-00W1
M83513 / 03-H01N	MM-412-100-161-00W1
M83513 / 03-H01P	MM-415-100-161-00W1
M83513 / 03-H02C	MM-413-100-161-00W2
M83513 / 03-H02N	MM-412-100-161-00W2
M83513 / 03-H02P	MM-415-100-161-00W2
M83513 / 03-H03C	MM-413-100-161-00V1
M83513 / 03-H03N	MM-412-100-161-00V1
M83513 / 03-H03P	MM-415-100-161-00V1
M83513 / 03-H04C	MM-413-100-161-00V2
M83513 / 03-H04N	MM-412-100-161-00V2
M83513 / 03-H04P	MM-415-100-161-00V2
M83513 / 03-H05C	MM-413-100-143-0000
M83513 / 03-H05N	MM-412-100-143-0000
M83513 / 03-H05P	MM-415-100-143-0000
M83513 / 03-H06C	MM-413-100-153-0000
M83513 / 03-H06N	MM-412-100-153-0000
M83513 / 03-H06P	MM-415-100-153-0000
M83513 / 03-H07C	MM-413-100-145-0000
M83513 / 03-H07N	MM-412-100-145-0000
M83513 / 03-H07P	MM-415-100-145-0000
M83513 / 03-H08C	MM-413-100-155-0000
M83513 / 03-H08N	MM-412-100-155-0000
M83513 / 03-H08P	MM-415-100-155-0000
M83513 / 03-H09C	MM-413-100-161-00Y1
M83513 / 03-H09N	MM-412-100-161-00Y1
M83513 / 03-H09P	MM-415-100-161-00Y1
M83513 / 03-H10C	MM-413-100-161-00Y2
M83513 / 03-H10N	MM-412-100-161-00Y2
M83513 / 03-H10P	MM-415-100-161-00Y2
M83513 / 03-H11C	MM-413-100-161-00Y3
M83513 / 03-H11N	MM-412-100-161-00Y3
M83513 / 03-H11P	MM-415-100-161-00Y3
M83513 / 03-H12C	MM-413-100-161-00Y4
M83513 / 03-H12N	MM-412-100-161-00Y4
M83513 / 03-H12P	MM-415-100-161-00Y4
M83513 / 03-H13C	MM-413-100-161-00Y5
M83513 / 03-H13N	MM-412-100-161-00Y5
M83513 / 03-H13P	MM-415-100-161-00Y5
M83513 / 03-H14C	MM-413-100-161-00Y6
M83513 / 03-H14N	MM-412-100-161-00Y6
M83513 / 03-H14P	MM-415-100-161-00Y6
M83513 / 03-H15C	MM-413-100-161-00Y7
M83513 / 03-H15N	MM-412-100-161-00Y7
M83513 / 03-H15P	MM-415-100-161-00Y7
M83513 / 03-H16C	MM-413-100-161-00Y8
M83513 / 03-H16N	MM-412-100-161-00Y8
M83513 / 03-H16P	MM-415-100-161-00Y8

M83513 / 04

M83513 / 04-A01C	MM-223-009-261-00W1-900
M83513 / 04-A01N	MM-222-009-261-00W1-900
M83513 / 04-A01P	MM-225-009-261-00W1-900
M83513 / 04-A02C	MM-223-009-261-00W2-900
M83513 / 04-A02N	MM-222-009-261-00W2-900
M83513 / 04-A02P	MM-225-009-261-00W2-900
M83513 / 04-A03C	MM-223-009-261-00V1-900
M83513 / 04-A03N	MM-222-009-261-00V1-900
M83513 / 04-A03P	MM-225-009-261-00V1-900
M83513 / 04-A04C	MM-223-009-261-00V2-900
M83513 / 04-A04N	MM-222-009-261-00V2-900
M83513 / 04-A04P	MM-225-009-261-00V2-900
M83513 / 04-A05C	MM-223-009-243-0000-900
M83513 / 04-A05N	MM-222-009-243-0000-900
M83513 / 04-A05P	MM-225-009-243-0000-900
M83513 / 04-A06C	MM-223-009-253-0000-900
M83513 / 04-A06N	MM-222-009-253-0000-900
M83513 / 04-A06P	MM-225-009-253-0000-900
M83513 / 04-A07C	MM-223-009-245-0000-900
M83513 / 04-A07N	MM-222-009-245-0000-900
M83513 / 04-A07P	MM-225-009-245-0000-900
M83513 / 04-A08C	MM-223-009-255-0000-900
M83513 / 04-A08N	MM-222-009-255-0000-900
M83513 / 04-A08P	MM-225-009-255-0000-900
M83513 / 04-A09C	MM-223-009-261-00Y1-900
M83513 / 04-A09N	MM-222-009-261-00Y1-900
M83513 / 04-A09P	MM-225-009-261-00Y1-900
M83513 / 04-A10C	MM-223-009-261-00Y2-900
M83513 / 04-A10N	MM-222-009-261-00Y2-900
M83513 / 04-A10P	MM-225-009-261-00Y2-900
M83513 / 04-A11C	MM-223-009-261-00Y3-900
M83513 / 04-A11N	MM-222-009-261-00Y3-900
M83513 / 04-A11P	MM-225-009-261-00Y3-900
M83513 / 04-A12C	MM-223-009-261-00Y4-900
M83513 / 04-A12N	MM-222-009-261-00Y4-900
M83513 / 04-A12P	MM-225-009-261-00Y4-900

Military Cross Reference Chart

-- Continued from previous page

M83513 / 04 (continued)

M83513 / 04-A13C	MM-223-009-261-00Y5-900
M83513 / 04-A13N	MM-222-009-261-00Y5-900
M83513 / 04-A13P	MM-225-009-261-00Y5-900
M83513 / 04-A14C	MM-223-009-261-00Y6-900
M83513 / 04-A14N	MM-222-009-261-00Y6-900
M83513 / 04-A14P	MM-225-009-261-00Y6-900
M83513 / 04-A15C	MM-223-009-261-00Y7-900
M83513 / 04-A15N	MM-222-009-261-00Y7-900
M83513 / 04-A15P	MM-225-009-261-00Y7-900
M83513 / 04-A16C	MM-223-009-261-00Y8-900
M83513 / 04-A16N	MM-222-009-261-00Y8-900
M83513 / 04-A16P	MM-225-009-261-00Y8-900
M83513 / 04-B01C	MM-223-015-261-00W1-900
M83513 / 04-B01N	MM-222-015-261-00W1-900
M83513 / 04-B01P	MM-225-015-261-00W1-900
M83513 / 04-B02C	MM-223-015-261-00W2-900
M83513 / 04-B02N	MM-222-015-261-00W2-900
M83513 / 04-B02P	MM-225-015-261-00W2-900
M83513 / 04-B03C	MM-223-015-261-00V1-900
M83513 / 04-B03N	MM-222-015-261-00V1-900
M83513 / 04-B03P	MM-225-015-261-00V1-900
M83513 / 04-B04C	MM-223-015-261-00V2-900
M83513 / 04-B04N	MM-222-015-261-00V2-900
M83513 / 04-B04P	MM-225-015-261-00V2-900
M83513 / 04-B05C	MM-223-015-243-0000-900
M83513 / 04-B05N	MM-222-015-243-0000-900
M83513 / 04-B05P	MM-225-015-243-0000-900
M83513 / 04-B06C	MM-223-015-253-0000-900
M83513 / 04-B06N	MM-222-015-253-0000-900
M83513 / 04-B06P	MM-225-015-253-0000-900
M83513 / 04-B07C	MM-223-015-245-0000-900
M83513 / 04-B07N	MM-222-015-245-0000-900
M83513 / 04-B07P	MM-225-015-245-0000-900
M83513 / 04-B08C	MM-223-015-255-0000-900
M83513 / 04-B08N	MM-222-015-255-0000-900
M83513 / 04-B08P	MM-225-015-255-0000-900
M83513 / 04-B09C	MM-223-015-261-00Y1-900
M83513 / 04-B09N	MM-222-015-261-00Y1-900
M83513 / 04-B09P	MM-225-015-261-00Y1-900
M83513 / 04-B10C	MM-223-015-261-00Y2-900
M83513 / 04-B10N	MM-222-015-261-00Y2-900
M83513 / 04-B10P	MM-225-015-261-00Y2-900
M83513 / 04-B11C	MM-223-015-261-00Y3-900
M83513 / 04-B11N	MM-222-015-261-00Y3-900
M83513 / 04-B11P	MM-225-015-261-00Y3-900
M83513 / 04-B12C	MM-223-015-261-00Y4-900
M83513 / 04-B12N	MM-222-015-261-00Y4-900
M83513 / 04-B12P	MM-225-015-261-00Y4-900
M83513 / 04-B13C	MM-223-015-261-00Y5-900
M83513 / 04-B13N	MM-222-015-261-00Y5-900
M83513 / 04-B13P	MM-225-015-261-00Y5-900
M83513 / 04-B14C	MM-223-015-261-00Y6-900
M83513 / 04-B14N	MM-222-015-261-00Y6-900
M83513 / 04-B14P	MM-225-015-261-00Y6-900
M83513 / 04-B15C	MM-223-015-261-00Y7-900
M83513 / 04-B15N	MM-222-015-261-00Y7-900
M83513 / 04-B15P	MM-225-015-261-00Y7-900
M83513 / 04-B16C	MM-223-015-261-00Y8-900
M83513 / 04-B16N	MM-222-015-261-00Y8-900
M83513 / 04-B16P	MM-225-015-261-00Y8-900
M83513 / 04-C01C	MM-223-021-261-00W1-900
M83513 / 04-C01N	MM-222-021-261-00W1-900
M83513 / 04-C01P	MM-225-021-261-00W1-900
M83513 / 04-C02C	MM-223-021-261-00W2-900
M83513 / 04-C02N	MM-222-021-261-00W2-900
M83513 / 04-C02P	MM-225-021-261-00W2-900
M83513 / 04-C03C	MM-223-021-261-00V1-900
M83513 / 04-C03N	MM-222-021-261-00V1-900
M83513 / 04-C03P	MM-225-021-261-00V1-900
M83513 / 04-C04C	MM-223-021-261-00V2-900
M83513 / 04-C04N	MM-222-021-261-00V2-900
M83513 / 04-C04P	MM-225-021-261-00V2-900
M83513 / 04-C05C	MM-223-021-243-0000-900
M83513 / 04-C05N	MM-222-021-243-0000-900
M83513 / 04-C05P	MM-225-021-243-0000-900
M83513 / 04-C06C	MM-223-021-253-0000-900
M83513 / 04-C06N	MM-222-021-253-0000-900
M83513 / 04-C06P	MM-225-021-253-0000-900
M83513 / 04-C07C	MM-223-021-245-0000-900
M83513 / 04-C07N	MM-222-021-245-0000-900
M83513 / 04-C07P	MM-225-021-245-0000-900
M83513 / 04-C08C	MM-223-021-255-0000-900
M83513 / 04-C08N	MM-222-021-255-0000-900
M83513 / 04-C08P	MM-225-021-255-0000-900
M83513 / 04-C09C	MM-223-021-261-00Y1-900
M83513 / 04-C09N	MM-222-021-261-00Y1-900
M83513 / 04-C09P	MM-225-021-261-00Y1-900
M83513 / 04-C10C	MM-223-021-261-00Y2-900
M83513 / 04-C10N	MM-222-021-261-00Y2-900
M83513 / 04-C10P	MM-225-021-261-00Y2-900
M83513 / 04-C11C	MM-223-021-261-00Y3-900
M83513 / 04-C11N	MM-222-021-261-00Y3-900
M83513 / 04-C11P	MM-225-021-261-00Y3-900
M83513 / 04-C12C	MM-223-021-261-00Y4-900
M83513 / 04-C12N	MM-222-021-261-00Y4-900
M83513 / 04-C12P	MM-225-021-261-00Y4-900
M83513 / 04-C13C	MM-223-021-261-00Y5-900
M83513 / 04-C13N	MM-222-021-261-00Y5-900
M83513 / 04-C13P	MM-225-021-261-00Y5-900
M83513 / 04-C14C	MM-223-021-261-00Y6-900
M83513 / 04-C14N	MM-222-021-261-00Y6-900
M83513 / 04-C14P	MM-225-021-261-00Y6-900
M83513 / 04-C15C	MM-223-021-261-00Y7-900
M83513 / 04-C15N	MM-222-021-261-00Y7-900
M83513 / 04-C15P	MM-225-021-261-00Y7-900
M83513 / 04-C16C	MM-223-021-261-00Y8-900
M83513 / 04-C16N	MM-222-021-261-00Y8-900
M83513 / 04-C16P	MM-225-021-261-00Y8-900
M83513 / 04-D01C	MM-223-025-261-00W1-900
M83513 / 04-D01N	MM-222-025-261-00W1-900
M83513 / 04-D01P	MM-225-025-261-00W1-900
M83513 / 04-D02C	MM-223-025-261-00W2-900
M83513 / 04-D02N	MM-222-025-261-00W2-900
M83513 / 04-D02P	MM-225-025-261-00W2-900
M83513 / 04-D03C	MM-223-025-261-00V1-900
M83513 / 04-D03N	MM-222-025-261-00V1-900
M83513 / 04-D03P	MM-225-025-261-00V1-900
M83513 / 04-D04C	MM-223-025-261-00V2-900
M83513 / 04-D04N	MM-222-025-261-00V2-900
M83513 / 04-D04P	MM-225-025-261-00V2-900
M83513 / 04-D05C	MM-223-025-243-0000-900
M83513 / 04-D05N	MM-222-025-243-0000-900
M83513 / 04-D05P	MM-225-025-243-0000-900
M83513 / 04-D06C	MM-223-025-253-0000-900
M83513 / 04-D06N	MM-222-025-253-0000-900
M83513 / 04-D06P	MM-225-025-253-0000-900
M83513 / 04-D07C	MM-223-025-245-0000-900
M83513 / 04-D07N	MM-222-025-245-0000-900
M83513 / 04-D07P	MM-225-025-245-0000-900
M83513 / 04-D08C	MM-223-025-255-0000-900
M83513 / 04-D08N	MM-222-025-255-0000-900
M83513 / 04-D08P	MM-225-025-255-0000-900
M83513 / 04-D09C	MM-223-025-261-00Y1-900
M83513 / 04-D09N	MM-222-025-261-00Y1-900
M83513 / 04-D09P	MM-225-025-261-00Y1-900
M83513 / 04-D10C	MM-223-025-261-00Y2-900
M83513 / 04-D10N	MM-222-025-261-00Y2-900
M83513 / 04-D10P	MM-225-025-261-00Y2-900
M83513 / 04-D11C	MM-223-025-261-00Y3-900
M83513 / 04-D11N	MM-222-025-261-00Y3-900
M83513 / 04-D11P	MM-225-025-261-00Y3-900
M83513 / 04-D12C	MM-223-025-261-00Y4-900
M83513 / 04-D12N	MM-222-025-261-00Y4-900
M83513 / 04-D12P	MM-225-025-261-00Y4-900
M83513 / 04-D13C	MM-223-025-261-00Y5-900
M83513 / 04-D13N	MM-222-025-261-00Y5-900
M83513 / 04-D13P	MM-225-025-261-00Y5-900
M83513 / 04-D14C	MM-223-025-261-00Y6-900
M83513 / 04-D14N	MM-222-025-261-00Y6-900
M83513 / 04-D14P	MM-225-025-261-00Y6-900
M83513 / 04-D15C	MM-223-025-261-00Y7-900
M83513 / 04-D15N	MM-222-025-261-00Y7-900
M83513 / 04-D15P	MM-225-025-261-00Y7-900
M83513 / 04-D16C	MM-223-025-261-00Y8-900
M83513 / 04-D16N	MM-222-025-261-00Y8-900
M83513 / 04-D16P	MM-225-025-261-00Y8-900
M83513 / 04-E01C	MM-223-031-261-00W1-900
M83513 / 04-E01N	MM-222-031-261-00W1-900
M83513 / 04-E01P	MM-225-031-261-00W1-900
M83513 / 04-E02C	MM-223-031-261-00W2-900
M83513 / 04-E02N	MM-222-031-261-00W2-900
M83513 / 04-E02P	MM-225-031-261-00W2-900

Ask About AirBorn's Accelerated Delivery Service

M83513 / 04 (continued)

M83513 / 04-E03C	MM-223-031-261-00V1-900
M83513 / 04-E03N	MM-222-031-261-00V1-900
M83513 / 04-E03P	MM-225-031-261-00V1-900
M83513 / 04-E04C	MM-223-031-261-00V2-900
M83513 / 04-E04N	MM-222-031-261-00V2-900
M83513 / 04-E04P	MM-225-031-261-00V2-900
M83513 / 04-E05C	MM-223-031-243-0000-900
M83513 / 04-E05N	MM-222-031-243-0000-900
M83513 / 04-E05P	MM-225-031-243-0000-900
M83513 / 04-E06C	MM-223-031-253-0000-900
M83513 / 04-E06N	MM-222-031-253-0000-900
M83513 / 04-E06P	MM-225-031-253-0000-900
M83513 / 04-E07C	MM-223-031-245-0000-900
M83513 / 04-E07N	MM-222-031-245-0000-900
M83513 / 04-E07P	MM-225-031-245-0000-900
M83513 / 04-E08C	MM-223-031-255-0000-900
M83513 / 04-E08N	MM-222-031-255-0000-900
M83513 / 04-E08P	MM-225-031-255-0000-900
M83513 / 04-E09C	MM-223-031-261-00Y1-900
M83513 / 04-E09N	MM-222-031-261-00Y1-900
M83513 / 04-E09P	MM-225-031-261-00Y1-900
M83513 / 04-E10C	MM-223-031-261-00Y2-900
M83513 / 04-E10N	MM-222-031-261-00Y2-900
M83513 / 04-E10P	MM-225-031-261-00Y2-900
M83513 / 04-E11C	MM-223-031-261-00Y3-900
M83513 / 04-E11N	MM-222-031-261-00Y3-900
M83513 / 04-E11P	MM-225-031-261-00Y3-900
M83513 / 04-E12C	MM-223-031-261-00Y4-900
M83513 / 04-E12N	MM-222-031-261-00Y4-900
M83513 / 04-E12P	MM-225-031-261-00Y4-900
M83513 / 04-E13C	MM-223-031-261-00Y5-900
M83513 / 04-E13N	MM-222-031-261-00Y5-900
M83513 / 04-E13P	MM-225-031-261-00Y5-900
M83513 / 04-E14C	MM-223-031-261-00Y6-900
M83513 / 04-E14N	MM-222-031-261-00Y6-900
M83513 / 04-E14P	MM-225-031-261-00Y6-900
M83513 / 04-E15C	MM-223-031-261-00Y7-900
M83513 / 04-E15N	MM-222-031-261-00Y7-900
M83513 / 04-E15P	MM-225-031-261-00Y7-900
M83513 / 04-E16C	MM-223-031-261-00Y8-900
M83513 / 04-E16N	MM-222-031-261-00Y8-900
M83513 / 04-E16P	MM-225-031-261-00Y8-900
M83513 / 04-F01C	MM-223-037-261-00W1-900
M83513 / 04-F01N	MM-222-037-261-00W1-900
M83513 / 04-F01P	MM-225-037-261-00W1-900
M83513 / 04-F02C	MM-223-037-261-00W2-900
M83513 / 04-F02N	MM-222-037-261-00W2-900
M83513 / 04-F02P	MM-225-037-261-00W2-900
M83513 / 04-F03C	MM-223-037-261-00V1-900
M83513 / 04-F03N	MM-222-037-261-00V1-900
M83513 / 04-F03P	MM-225-037-261-00V1-900
M83513 / 04-F04C	MM-223-037-261-00V2-900
M83513 / 04-F04N	MM-222-037-261-00V2-900
M83513 / 04-F04P	MM-225-037-261-00V2-900
M83513 / 04-F05C	MM-223-037-243-0000-900
M83513 / 04-F05N	MM-222-037-243-0000-900
M83513 / 04-F05P	MM-225-037-243-0000-900
M83513 / 04-F06C	MM-223-037-253-0000-900
M83513 / 04-F06N	MM-222-037-253-0000-900
M83513 / 04-F06P	MM-225-037-253-0000-900
M83513 / 04-F07C	MM-223-037-245-0000-900
M83513 / 04-F07N	MM-222-037-245-0000-900
M83513 / 04-F07P	MM-225-037-245-0000-900
M83513 / 04-F08C	MM-223-037-255-0000-900
M83513 / 04-F08N	MM-222-037-255-0000-900
M83513 / 04-F08P	MM-225-037-255-0000-900
M83513 / 04-F09C	MM-223-037-261-00Y1-900
M83513 / 04-F09N	MM-222-037-261-00Y1-900
M83513 / 04-F09P	MM-225-037-261-00Y1-900
M83513 / 04-F10C	MM-223-037-261-00Y2-900
M83513 / 04-F10N	MM-222-037-261-00Y2-900
M83513 / 04-F10P	MM-225-037-261-00Y2-900
M83513 / 04-F11C	MM-223-037-261-00Y3-900
M83513 / 04-F11N	MM-222-037-261-00Y3-900
M83513 / 04-F11P	MM-225-037-261-00Y3-900
M83513 / 04-F12C	MM-223-037-261-00Y4-900
M83513 / 04-F12N	MM-222-037-261-00Y4-900
M83513 / 04-F12P	MM-225-037-261-00Y4-900
M83513 / 04-F13C	MM-223-037-261-00Y5-900
M83513 / 04-F13N	MM-222-037-261-00Y5-900
M83513 / 04-F13P	MM-225-037-261-00Y5-900
M83513 / 04-F14C	MM-223-037-261-00Y6-900
M83513 / 04-F14N	MM-222-037-261-00Y6-900
M83513 / 04-F14P	MM-225-037-261-00Y6-900
M83513 / 04-F15C	MM-223-037-261-00Y7-900
M83513 / 04-F15N	MM-222-037-261-00Y7-900
M83513 / 04-F15P	MM-225-037-261-00Y7-900
M83513 / 04-F16C	MM-223-037-261-00Y8-900
M83513 / 04-F16N	MM-222-037-261-00Y8-900
M83513 / 04-F16P	MM-225-037-261-00Y8-900
M83513 / 04-G01C	MM-323-051-261-00W1-900
M83513 / 04-G01N	MM-322-051-261-00W1-900
M83513 / 04-G01P	MM-325-051-261-00W1-900
M83513 / 04-G02C	MM-323-051-261-00W2-900
M83513 / 04-G02N	MM-322-051-261-00W2-900
M83513 / 04-G02P	MM-325-051-261-00W2-900
M83513 / 04-G03C	MM-323-051-261-00V1-900
M83513 / 04-G03N	MM-322-051-261-00V1-900
M83513 / 04-G03P	MM-325-051-261-00V1-900
M83513 / 04-G04C	MM-323-051-261-00V2-900
M83513 / 04-G04N	MM-322-051-261-00V2-900
M83513 / 04-G04P	MM-325-051-261-00V2-900
M83513 / 04-G05C	MM-323-051-243-0000-900
M83513 / 04-G05N	MM-322-051-243-0000-900
M83513 / 04-G05P	MM-325-051-243-0000-900
M83513 / 04-G06C	MM-323-051-253-0000-900
M83513 / 04-G06N	MM-322-051-253-0000-900
M83513 / 04-G06P	MM-325-051-253-0000-900
M83513 / 04-G07C	MM-323-051-245-0000-900
M83513 / 04-G07N	MM-322-051-245-0000-900
M83513 / 04-G07P	MM-325-051-245-0000-900
M83513 / 04-G08C	MM-323-051-255-0000-900
M83513 / 04-G08N	MM-322-051-255-0000-900
M83513 / 04-G08P	MM-325-051-255-0000-900
M83513 / 04-G09C	MM-323-051-261-00Y1-900
M83513 / 04-G09N	MM-322-051-261-00Y1-900
M83513 / 04-G09P	MM-325-051-261-00Y1-900
M83513 / 04-G10C	MM-323-051-261-00Y2-900
M83513 / 04-G10N	MM-322-051-261-00Y2-900
M83513 / 04-G10P	MM-325-051-261-00Y2-900
M83513 / 04-G11C	MM-323-051-261-00Y3-900
M83513 / 04-G11N	MM-322-051-261-00Y3-900
M83513 / 04-G11P	MM-325-051-261-00Y3-900
M83513 / 04-G12C	MM-323-051-261-00Y4-900
M83513 / 04-G12N	MM-322-051-261-00Y4-900
M83513 / 04-G12P	MM-325-051-261-00Y4-900
M83513 / 04-G13C	MM-323-051-261-00Y5-900
M83513 / 04-G13N	MM-322-051-261-00Y5-900
M83513 / 04-G13P	MM-325-051-261-00Y5-900
M83513 / 04-G14C	MM-323-051-261-00Y6-900
M83513 / 04-G14N	MM-322-051-261-00Y6-900
M83513 / 04-G14P	MM-325-051-261-00Y6-900
M83513 / 04-G15C	MM-323-051-261-00Y7-900
M83513 / 04-G15N	MM-322-051-261-00Y7-900
M83513 / 04-G15P	MM-325-051-261-00Y7-900
M83513 / 04-G16C	MM-323-051-261-00Y8-900
M83513 / 04-G16N	MM-322-051-261-00Y8-900
M83513 / 04-G16P	MM-325-051-261-00Y8-900
M83513 / 04-H01C	MM-423-100-261-00W1-900
M83513 / 04-H01N	MM-422-100-261-00W1-900
M83513 / 04-H01P	MM-425-100-261-00W1-900
M83513 / 04-H02C	MM-423-100-261-00W2-900
M83513 / 04-H02N	MM-422-100-261-00W2-900
M83513 / 04-H02P	MM-425-100-261-00W2-900
M83513 / 04-H03C	MM-423-100-261-00V1-900
M83513 / 04-H03N	MM-422-100-261-00V1-900
M83513 / 04-H03P	MM-425-100-261-00V1-900
M83513 / 04-H04C	MM-423-100-261-00V2-900
M83513 / 04-H04N	MM-422-100-261-00V2-900
M83513 / 04-H04P	MM-425-100-261-00V2-900
M83513 / 04-H05C	MM-423-100-243-0000-900
M83513 / 04-H05N	MM-422-100-243-0000-900
M83513 / 04-H05P	MM-425-100-243-0000-900
M83513 / 04-H06C	MM-423-100-253-0000-900
M83513 / 04-H06N	MM-422-100-253-0000-900
M83513 / 04-H06P	MM-425-100-253-0000-900
M83513 / 04-H07C	MM-423-100-245-0000-900
M83513 / 04-H07N	MM-422-100-245-0000-900
M83513 / 04-H07P	MM-425-100-245-0000-900
M83513 / 04-H08C	MM-423-100-255-0000-900
M83513 / 04-H08N	MM-422-100-255-0000-900
M83513 / 04-H08P	MM-425-100-255-0000-900

Military Cross Reference Chart

-- Continued from previous page

M83513 / 04 (continued)

M83513 / 04-H09C	MM-423-100-261-00Y1-900	M83513 / 04-H11P	MM-425-100-261-00Y3-900	M83513 / 04-H14N	MM-422-100-261-00Y6-900
M83513 / 04-H09N	MM-422-100-261-00Y1-900	M83513 / 04-H12C	MM-423-100-261-00Y4-900	M83513 / 04-H14P	MM-425-100-261-00Y6-900
M83513 / 04-H09P	MM-425-100-261-00Y1-900	M83513 / 04-H12N	MM-422-100-261-00Y4-900	M83513 / 04-H15C	MM-423-100-261-00Y7-900
M83513 / 04-H10C	MM-423-100-261-00Y2-900	M83513 / 04-H12P	MM-425-100-261-00Y4-900	M83513 / 04-H15N	MM-422-100-261-00Y7-900
M83513 / 04-H10N	MM-422-100-261-00Y2-900	M83513 / 04-H13C	MM-423-100-261-00Y5-900	M83513 / 04-H15P	MM-425-100-261-00Y7-900
M83513 / 04-H10P	MM-425-100-261-00Y2-900	M83513 / 04-H13N	MM-422-100-261-00Y5-900	M83513 / 04-H16C	MM-423-100-261-00Y8-900
M83513 / 04-H11C	MM-423-100-261-00Y3-900	M83513 / 04-H13P	MM-425-100-261-00Y5-900	M83513 / 04-H16N	MM-422-100-261-00Y8-900
M83513 / 04-H11N	MM-422-100-261-00Y3-900	M83513 / 04-H14C	MM-423-100-261-00Y6-900	M83513 / 04-H16P	MM-425-100-261-00Y8-900

M83513 / 05

M83513 / 05-02	00-000-000-000-4100
M83513 / 05-03	00-000-000-000-4200
M83513 / 05-05	00-000-000-000-4300
M83513 / 05-06	00-000-000-000-4400
M83513 / 05-07	00-000-000-000-2200
M83513 / 05-12	00-000-000-000-8100
M83513 / 05-13	00-000-000-000-8200
M83513 / 05-15	00-000-000-000-8300
M83513 / 05-16	00-000-000-000-8400
M83513 / 05-17	00-000-000-000-6200

M83513 / 06

M83513 / 06-A	MP-211-009-113-0000
M83513 / 06-B	MP-211-015-113-0000
M83513 / 06-C	MP-211-021-113-0000
M83513 / 06-D	MP-211-025-113-0000
M83513 / 06-E	MP-211-031-113-0000
M83513 / 06-F	MP-211-037-113-0000
M83513 / 06-G	MP-311-051-113-0000

M83513 / 07

M83513 / 07-A	MP-221-009-213-0000
M83513 / 07-B	MP-221-015-213-0000
M83513 / 07-C	MP-221-021-213-0000
M83513 / 07-D	MP-221-025-213-0000
M83513 / 07-E	MP-221-031-213-0000
M83513 / 07-F	MP-221-037-213-0000
M83513 / 07-G	MP-321-051-213-0000

M83513 / 08

M83513 / 08-A01	MP-211-009-161-00W1	M83513 / 08-C01	MP-211-021-161-00W1	M83513 / 08-E01	MP-211-031-161-00W1
M83513 / 08-A02	MP-211-009-161-00W2	M83513 / 08-C02	MP-211-021-161-00W2	M83513 / 08-E02	MP-211-031-161-00W2
M83513 / 08-A03	MP-211-009-161-00V1	M83513 / 08-C03	MP-211-021-161-00V1	M83513 / 08-E03	MP-211-031-161-00V1
M83513 / 08-A04	MP-211-009-161-00V2	M83513 / 08-C04	MP-211-021-161-00V2	M83513 / 08-E04	MP-211-031-161-00V2
M83513 / 08-A05	MP-211-009-143-0000	M83513 / 08-C05	MP-211-021-143-0000	M83513 / 08-E05	MP-211-031-143-0000
M83513 / 08-A06	MP-211-009-153-0000	M83513 / 08-C06	MP-211-021-153-0000	M83513 / 08-E06	MP-211-031-153-0000
M83513 / 08-A07	MP-211-009-145-0000	M83513 / 08-C07	MP-211-021-145-0000	M83513 / 08-E07	MP-211-031-145-0000
M83513 / 08-A08	MP-211-009-155-0000	M83513 / 08-C08	MP-211-021-155-0000	M83513 / 08-E08	MP-211-031-155-0000
M83513 / 08-A09	MP-211-009-161-00Y1	M83513 / 08-C09	MP-211-021-161-00Y1	M83513 / 08-E09	MP-211-031-161-00Y1
M83513 / 08-A10	MP-211-009-161-00Y2	M83513 / 08-C10	MP-211-021-161-00Y2	M83513 / 08-E10	MP-211-031-161-00Y2
M83513 / 08-A11	MP-211-009-161-00Y3	M83513 / 08-C11	MP-211-021-161-00Y3	M83513 / 08-E11	MP-211-031-161-00Y3
M83513 / 08-A12	MP-211-009-161-00Y4	M83513 / 08-C12	MP-211-021-161-00Y4	M83513 / 08-E12	MP-211-031-161-00Y4
M83513 / 08-A13	MP-211-009-161-00Y5	M83513 / 08-C13	MP-211-021-161-00Y5	M83513 / 08-E13	MP-211-031-161-00Y5
M83513 / 08-A14	MP-211-009-161-00Y6	M83513 / 08-C14	MP-211-021-161-00Y6	M83513 / 08-E14	MP-211-031-161-00Y6
M83513 / 08-A15	MP-211-009-161-00Y7	M83513 / 08-C15	MP-211-021-161-00Y7	M83513 / 08-E15	MP-211-031-161-00Y7
M83513 / 08-A16	MP-211-009-161-00Y8	M83513 / 08-C16	MP-211-021-161-00Y8	M83513 / 08-E16	MP-211-031-161-00Y8
M83513 / 08-B01	MP-211-015-161-00W1	M83513 / 08-D01	MP-211-025-161-00W1	M83513 / 08-F01	MP-211-037-161-00W1
M83513 / 08-B02	MP-211-015-161-00W2	M83513 / 08-D02	MP-211-025-161-00W2	M83513 / 08-F02	MP-211-037-161-00W2
M83513 / 08-B03	MP-211-015-161-00V1	M83513 / 08-D03	MP-211-025-161-00V1	M83513 / 08-F03	MP-211-037-161-00V1
M83513 / 08-B04	MP-211-015-161-00V2	M83513 / 08-D04	MP-211-025-161-00V2	M83513 / 08-F04	MP-211-037-161-00V2
M83513 / 08-B05	MP-211-015-143-0000	M83513 / 08-D05	MP-211-025-143-0000	M83513 / 08-F05	MP-211-037-143-0000
M83513 / 08-B06	MP-211-015-153-0000	M83513 / 08-D06	MP-211-025-153-0000	M83513 / 08-F06	MP-211-037-153-0000
M83513 / 08-B07	MP-211-015-145-0000	M83513 / 08-D07	MP-211-025-145-0000	M83513 / 08-F07	MP-211-037-145-0000
M83513 / 08-B08	MP-211-015-155-0000	M83513 / 08-D08	MP-211-025-155-0000	M83513 / 08-F08	MP-211-037-155-0000
M83513 / 08-B09	MP-211-015-161-00Y1	M83513 / 08-D09	MP-211-025-161-00Y1	M83513 / 08-F09	MP-211-037-161-00Y1
M83513 / 08-B10	MP-211-015-161-00Y2	M83513 / 08-D10	MP-211-025-161-00Y2	M83513 / 08-F10	MP-211-037-161-00Y2
M83513 / 08-B11	MP-211-015-161-00Y3	M83513 / 08-D11	MP-211-025-161-00Y3	M83513 / 08-F11	MP-211-037-161-00Y3
M83513 / 08-B12	MP-211-015-161-00Y4	M83513 / 08-D12	MP-211-025-161-00Y4	M83513 / 08-F12	MP-211-037-161-00Y4
M83513 / 08-B13	MP-211-015-161-00Y5	M83513 / 08-D13	MP-211-025-161-00Y5	M83513 / 08-F13	MP-211-037-161-00Y5
M83513 / 08-B14	MP-211-015-161-00Y6	M83513 / 08-D14	MP-211-025-161-00Y6	M83513 / 08-F14	MP-211-037-161-00Y6
M83513 / 08-B15	MP-211-015-161-00Y7	M83513 / 08-D15	MP-211-025-161-00Y7	M83513 / 08-F15	MP-211-037-161-00Y7
M83513 / 08-B16	MP-211-015-161-00Y8	M83513 / 08-D16	MP-211-025-161-00Y8	M83513 / 08-F16	MP-211-037-161-00Y8

M83513 / 08 (continued)

M83513 / 08-G01	MP-311-051-161-00W1	M83513 / 08-G07	MP-311-051-145-0000	M83513 / 08-G13	MP-311-051-161-00Y5
M83513 / 08-G02	MP-311-051-161-00W2	M83513 / 08-G08	MP-311-051-155-0000	M83513 / 08-G14	MP-311-051-161-00Y6
M83513 / 08-G03	MP-311-051-161-00V1	M83513 / 08-G09	MP-311-051-161-00Y1	M83513 / 08-G15	MP-311-051-161-00Y7
M83513 / 08-G04	MP-311-051-161-00V2	M83513 / 08-G10	MP-311-051-161-00Y2	M83513 / 08-G16	MP-311-051-161-00Y8
M83513 / 08-G05	MP-311-051-143-0000	M83513 / 08-G11	MP-311-051-161-00Y3		
M83513 / 08-G06	MP-311-051-153-0000	M83513 / 08-G12	MP-311-051-161-00Y4		

M83513 / 09

M83513 / 09-A01	MP-221-009-261-00W1	M83513 / 09-C07	MP-221-021-245-0000	M83513 / 09-E12	MP-221-031-261-00Y4
M83513 / 09-A02	MP-221-009-261-00W2	M83513 / 09-C08	MP-221-021-255-0000	M83513 / 09-E13	MP-221-031-261-00Y5
M83513 / 09-A03	MP-221-009-261-00V1	M83513 / 09-C09	MP-221-021-261-00Y1	M83513 / 09-E14	MP-221-031-261-00Y6
M83513 / 09-A04	MP-221-009-261-00V2	M83513 / 09-C10	MP-221-021-261-00Y2	M83513 / 09-E15	MP-221-031-261-00Y7
M83513 / 09-A05	MP-221-009-243-0000	M83513 / 09-C11	MP-221-021-261-00Y3	M83513 / 09-E16	MP-221-031-261-00Y8
M83513 / 09-A06	MP-221-009-253-0000	M83513 / 09-C12	MP-221-021-261-00Y4		
M83513 / 09-A07	MP-221-009-245-0000	M83513 / 09-C13	MP-221-021-261-00Y5	M83513 / 09-F01	MP-221-037-261-00W1
M83513 / 09-A08	MP-221-009-255-0000	M83513 / 09-C14	MP-221-021-261-00Y6	M83513 / 09-F02	MP-221-037-261-00W2
M83513 / 09-A09	MP-221-009-261-00Y1	M83513 / 09-C15	MP-221-021-261-00Y7	M83513 / 09-F03	MP-221-037-261-00V1
M83513 / 09-A10	MP-221-009-261-00Y2	M83513 / 09-C16	MP-221-021-261-00Y8	M83513 / 09-F04	MP-221-037-261-00V2
M83513 / 09-A11	MP-221-009-261-00Y3			M83513 / 09-F05	MP-221-037-243-0000
M83513 / 09-A12	MP-221-009-261-00Y4	M83513 / 09-D01	MP-221-025-261-00W1	M83513 / 09-F06	MP-221-037-253-0000
M83513 / 09-A13	MP-221-009-261-00Y5	M83513 / 09-D02	MP-221-025-261-00W2	M83513 / 09-F07	MP-221-037-245-0000
M83513 / 09-A14	MP-221-009-261-00Y6	M83513 / 09-D03	MP-221-025-261-00V1	M83513 / 09-F08	MP-221-037-255-0000
M83513 / 09-A15	MP-221-009-261-00Y7	M83513 / 09-D04	MP-221-025-261-00V2	M83513 / 09-F09	MP-221-037-261-00Y1
M83513 / 09-A16	MP-221-009-261-00Y8	M83513 / 09-D05	MP-221-025-243-0000	M83513 / 09-F10	MP-221-037-261-00Y2
		M83513 / 09-D06	MP-221-025-253-0000	M83513 / 09-F11	MP-221-037-261-00Y3
M83513 / 09-B01	MP-221-015-261-00W1	M83513 / 09-D07	MP-221-025-245-0000	M83513 / 09-F12	MP-221-037-261-00Y4
M83513 / 09-B02	MP-221-015-261-00W2	M83513 / 09-D08	MP-221-025-255-0000	M83513 / 09-F13	MP-221-037-261-00Y5
M83513 / 09-B03	MP-221-015-261-00V1	M83513 / 09-D09	MP-221-025-261-00Y1	M83513 / 09-F14	MP-221-037-261-00Y6
M83513 / 09-B04	MP-221-015-261-00V2	M83513 / 09-D10	MP-221-025-261-00Y2	M83513 / 09-F15	MP-221-037-261-00Y7
M83513 / 09-B05	MP-221-015-243-0000	M83513 / 09-D11	MP-221-025-261-00Y3	M83513 / 09-F16	MP-221-037-261-00Y8
M83513 / 09-B06	MP-221-015-253-0000	M83513 / 09-D12	MP-221-025-261-00Y4		
M83513 / 09-B07	MP-221-015-245-0000	M83513 / 09-D13	MP-221-025-261-00Y5	M83513 / 09-G01	MP-321-051-261-00W1
M83513 / 09-B08	MP-221-015-255-0000	M83513 / 09-D14	MP-221-025-261-00Y6	M83513 / 09-G02	MP-321-051-261-00W2
M83513 / 09-B09	MP-221-015-261-00Y1	M83513 / 09-D15	MP-221-025-261-00Y7	M83513 / 09-G03	MP-321-051-261-00V1
M83513 / 09-B10	MP-221-015-261-00Y2	M83513 / 09-D16	MP-221-025-261-00Y8	M83513 / 09-G04	MP-321-051-261-00V2
M83513 / 09-B11	MP-221-015-261-00Y3			M83513 / 09-G05	MP-321-051-243-0000
M83513 / 09-B12	MP-221-015-261-00Y4	M83513 / 09-E01	MP-221-031-261-00W1	M83513 / 09-G06	MP-321-051-253-0000
M83513 / 09-B13	MP-221-015-261-00Y5	M83513 / 09-E02	MP-221-031-261-00W2	M83513 / 09-G07	MP-321-051-245-0000
M83513 / 09-B14	MP-221-015-261-00Y6	M83513 / 09-E03	MP-221-031-261-00V1	M83513 / 09-G08	MP-321-051-255-0000
M83513 / 09-B15	MP-221-015-261-00Y7	M83513 / 09-E04	MP-221-031-261-00V2	M83513 / 09-G09	MP-321-051-261-00Y1
M83513 / 09-B16	MP-221-015-261-00Y8	M83513 / 09-E05	MP-221-031-243-0000	M83513 / 09-G10	MP-321-051-261-00Y2
		M83513 / 09-E06	MP-221-031-253-0000	M83513 / 09-G11	MP-321-051-261-00Y3
M83513 / 09-C01	MP-221-021-261-00W1	M83513 / 09-E07	MP-221-031-245-0000	M83513 / 09-G12	MP-321-051-261-00Y4
M83513 / 09-C02	MP-221-021-261-00W2	M83513 / 09-E08	MP-221-031-255-0000	M83513 / 09-G13	MP-321-051-261-00Y5
M83513 / 09-C03	MP-221-021-261-00V1	M83513 / 09-E09	MP-221-031-261-00Y1	M83513 / 09-G14	MP-321-051-261-00Y6
M83513 / 09-C04	MP-221-021-261-00V2	M83513 / 09-E10	MP-221-031-261-00Y2	M83513 / 09-G15	MP-321-051-261-00Y7
M83513 / 09-C05	MP-221-021-243-0000	M83513 / 09-E11	MP-221-031-261-00Y3	M83513 / 09-G16	MP-321-051-261-00Y8
M83513 / 09-C06	MP-221-021-253-0000				

M83513 / 10

M83513 / 10-A01CN	MK-253-009-325-000S	M83513 / 10-A01NT	MK-252-009-325-000S-0B7	M83513 / 10-A02CN	MK-253-009-335-000S
M83513 / 10-A01CP	MK-253-009-325-220S	M83513 / 10-A01NW	MK-252-009-325-220S-0B7	M83513 / 10-A02CP	MK-253-009-335-220S
M83513 / 10-A01CT	MK-253-009-325-000S-0B7	M83513 / 10-A01PN	MK-255-009-325-000S	M83513 / 10-A02CT	MK-253-009-335-000S-0B7
M83513 / 10-A01CW	MK-253-009-325-220S-0B7	M83513 / 10-A01PP	MK-255-009-325-220S	M83513 / 10-A02CW	MK-253-009-335-220S-0B7
M83513 / 10-A01NN	MK-252-009-325-000S	M83513 / 10-A01PT	MK-255-009-325-000S-0B7	M83513 / 10-A02NN	MK-252-009-335-000S
M83513 / 10-A01NP	MK-252-009-325-220S	M83513 / 10-A01PW	MK-255-009-325-220S-0B7	M83513 / 10-A02NP	MK-252-009-335-220S

Military Cross Reference Chart

-- Continued from previous page

M83513 / 10 (continued)

M83513 / 10-A02NT	MK-252-009-335-000S-0B7
M83513 / 10-A02NW	MK-252-009-335-220S-0B7
M83513 / 10-A02PN	MK-255-009-335-000S
M83513 / 10-A02PP	MK-255-009-335-220S
M83513 / 10-A02PT	MK-255-009-335-000S-0B7
M83513 / 10-A02PW	MK-255-009-335-220S-0B7
M83513 / 10-A03CN	MK-253-009-345-000S
M83513 / 10-A03CP	MK-253-009-345-220S
M83513 / 10-A03CT	MK-253-009-345-000S-0B7
M83513 / 10-A03CW	MK-253-009-345-220S-0B7
M83513 / 10-A03NN	MK-252-009-345-000S
M83513 / 10-A03NP	MK-252-009-345-220S
M83513 / 10-A03NT	MK-252-009-345-000S-0B7
M83513 / 10-A03NW	MK-252-009-345-220S-0B7
M83513 / 10-A03PN	MK-255-009-345-000S
M83513 / 10-A03PP	MK-255-009-345-220S
M83513 / 10-A03PT	MK-255-009-345-000S-0B7
M83513 / 10-A03PW	MK-255-009-345-220S-0B7
M83513 / 10-B01CN	MK-253-015-325-000S
M83513 / 10-B01CP	MK-253-015-325-220S
M83513 / 10-B01CT	MK-253-015-325-000S-0B7
M83513 / 10-B01CW	MK-253-015-325-220S-0B7
M83513 / 10-B01NN	MK-252-015-325-000S
M83513 / 10-B01NP	MK-252-015-325-220S
M83513 / 10-B01NT	MK-252-015-325-000S-0B7
M83513 / 10-B01NW	MK-252-015-325-220S-0B7
M83513 / 10-B01PN	MK-255-015-325-000S
M83513 / 10-B01PP	MK-255-015-325-220S
M83513 / 10-B01PT	MK-255-015-325-000S-0B7
M83513 / 10-B01PW	MK-255-015-325-220S-0B7
M83513 / 10-B02CN	MK-253-015-335-000S
M83513 / 10-B02CP	MK-253-015-335-220S
M83513 / 10-B02CT	MK-253-015-335-000S-0B7
M83513 / 10-B02CW	MK-253-015-335-220S-0B7
M83513 / 10-B02NN	MK-252-015-335-000S
M83513 / 10-B02NP	MK-252-015-335-220S
M83513 / 10-B02NT	MK-252-015-335-000S-0B7
M83513 / 10-B02NW	MK-252-015-335-220S-0B7
M83513 / 10-B02PN	MK-255-015-335-000S
M83513 / 10-B02PP	MK-255-015-335-220S
M83513 / 10-B02PT	MK-255-015-335-000S-0B7
M83513 / 10-B02PW	MK-255-015-335-220S-0B7
M83513 / 10-B03CN	MK-253-015-345-000S
M83513 / 10-B03CP	MK-253-015-345-220S
M83513 / 10-B03CT	MK-253-015-345-000S-0B7
M83513 / 10-B03CW	MK-253-015-345-220S-0B7
M83513 / 10-B03NN	MK-252-015-345-000S
M83513 / 10-B03NP	MK-252-015-345-220S
M83513 / 10-B03NT	MK-252-015-345-000S-0B7
M83513 / 10-B03NW	MK-252-015-345-220S-0B7
M83513 / 10-B03PN	MK-255-015-345-000S
M83513 / 10-B03PP	MK-255-015-345-220S
M83513 / 10-B03PT	MK-255-015-345-000S-0B7
M83513 / 10-B03PW	MK-255-015-345-220S-0B7
M83513 / 10-C01CN	MK-253-021-325-000S
M83513 / 10-C01CP	MK-253-021-325-220S
M83513 / 10-C01CT	MK-253-021-325-000S-0B7
M83513 / 10-C01CW	MK-253-021-325-220S-0B7
M83513 / 10-C01NN	MK-252-021-325-000S
M83513 / 10-C01NP	MK-252-021-325-220S
M83513 / 10-C01NT	MK-252-021-325-000S-0B7
M83513 / 10-C01NW	MK-252-021-325-220S-0B7
M83513 / 10-C01PN	MK-255-021-325-000S
M83513 / 10-C01PP	MK-255-021-325-220S
M83513 / 10-C01PT	MK-255-021-325-000S-0B7
M83513 / 10-C01PW	MK-255-021-325-220S-0B7
M83513 / 10-C02CN	MK-253-021-335-000S
M83513 / 10-C02CP	MK-253-021-335-220S
M83513 / 10-C02CT	MK-253-021-335-000S-0B7
M83513 / 10-C02CW	MK-253-021-335-220S-0B7
M83513 / 10-C02NN	MK-252-021-335-000S
M83513 / 10-C02NP	MK-252-021-335-220S
M83513 / 10-C02NT	MK-252-021-335-000S-0B7
M83513 / 10-C02NW	MK-252-021-335-220S-0B7
M83513 / 10-C02PN	MK-255-021-335-000S
M83513 / 10-C02PP	MK-255-021-335-220S
M83513 / 10-C02PT	MK-255-021-335-000S-0B7
M83513 / 10-C02PW	MK-255-021-335-220S-0B7
M83513 / 10-C03CN	MK-253-021-345-000S
M83513 / 10-C03CP	MK-253-021-345-220S
M83513 / 10-C03CT	MK-253-021-345-000S-0B7
M83513 / 10-C03CW	MK-253-021-345-220S-0B7
M83513 / 10-C03NN	MK-252-021-345-000S
M83513 / 10-C03NP	MK-252-021-345-220S
M83513 / 10-C03NT	MK-252-021-345-000S-0B7
M83513 / 10-C03NW	MK-252-021-345-220S-0B7
M83513 / 10-C03PN	MK-255-021-345-000S
M83513 / 10-C03PP	MK-255-021-345-220S
M83513 / 10-C03PT	MK-255-021-345-000S-0B7
M83513 / 10-C03PW	MK-255-021-345-220S-0B7
M83513 / 10-D01CN	MK-253-025-325-000S
M83513 / 10-D01CP	MK-253-025-325-220S
M83513 / 10-D01CT	MK-253-025-325-000S-0B7
M83513 / 10-D01CW	MK-253-025-325-220S-0B7
M83513 / 10-D01NN	MK-252-025-325-000S
M83513 / 10-D01NP	MK-252-025-325-220S
M83513 / 10-D01NT	MK-252-025-325-000S-0B7
M83513 / 10-D01NW	MK-252-025-325-220S-0B7
M83513 / 10-D01PN	MK-255-025-325-000S
M83513 / 10-D01PP	MK-255-025-325-220S
M83513 / 10-D01PT	MK-255-025-325-000S-0B7
M83513 / 10-D01PW	MK-255-025-325-220S-0B7
M83513 / 10-D02CN	MK-253-025-335-000S
M83513 / 10-D02CP	MK-253-025-335-220S
M83513 / 10-D02CT	MK-253-025-335-000S-0B7
M83513 / 10-D02CW	MK-253-025-335-220S-0B7
M83513 / 10-D02NN	MK-252-025-335-000S
M83513 / 10-D02NP	MK-252-025-335-220S
M83513 / 10-D02NT	MK-252-025-335-000S-0B7
M83513 / 10-D02NW	MK-252-025-335-220S-0B7
M83513 / 10-D02PN	MK-255-025-335-000S
M83513 / 10-D02PP	MK-255-025-335-220S
M83513 / 10-D02PT	MK-255-025-335-000S-0B7
M83513 / 10-D02PW	MK-255-025-335-220S-0B7
M83513 / 10-D03CN	MK-253-025-345-000S
M83513 / 10-D03CP	MK-253-025-345-220S
M83513 / 10-D03CT	MK-253-025-345-000S-0B7
M83513 / 10-D03CW	MK-253-025-345-220S-0B7
M83513 / 10-D03NN	MK-252-025-345-000S
M83513 / 10-D03NP	MK-252-025-345-220S
M83513 / 10-D03NT	MK-252-025-345-000S-0B7
M83513 / 10-D03NW	MK-252-025-345-220S-0B7
M83513 / 10-D03PN	MK-255-025-345-000S
M83513 / 10-D03PP	MK-255-025-345-220S
M83513 / 10-D03PT	MK-255-025-345-000S-0B7
M83513 / 10-D03PW	MK-255-025-345-220S-0B7
M83513 / 10-E01CN	MK-253-031-325-000S
M83513 / 10-E01CP	MK-253-031-325-220S
M83513 / 10-E01CT	MK-253-031-325-000S-0B7
M83513 / 10-E01CW	MK-253-031-325-220S-0B7
M83513 / 10-E01NN	MK-252-031-325-000S
M83513 / 10-E01NP	MK-252-031-325-220S
M83513 / 10-E01NT	MK-252-031-325-000S-0B7
M83513 / 10-E01NW	MK-252-031-325-220S-0B7
M83513 / 10-E01PN	MK-255-031-325-000S
M83513 / 10-E01PP	MK-255-031-325-220S
M83513 / 10-E01PT	MK-255-031-325-000S-0B7
M83513 / 10-E01PW	MK-255-031-325-220S-0B7
M83513 / 10-E02CN	MK-253-031-335-000S
M83513 / 10-E02CP	MK-253-031-335-220S
M83513 / 10-E02CT	MK-253-031-335-000S-0B7
M83513 / 10-E02CW	MK-253-031-335-220S-0B7
M83513 / 10-E02NN	MK-252-031-335-000S
M83513 / 10-E02NP	MK-252-031-335-220S
M83513 / 10-E02NT	MK-252-031-335-000S-0B7
M83513 / 10-E02NW	MK-252-031-335-220S-0B7
M83513 / 10-E02PN	MK-255-031-335-000S
M83513 / 10-E02PP	MK-255-031-335-220S
M83513 / 10-E02PT	MK-255-031-335-000S-0B7
M83513 / 10-E02PW	MK-255-031-335-220S-0B7
M83513 / 10-E03CN	MK-253-031-345-000S
M83513 / 10-E03CP	MK-253-031-345-220S
M83513 / 10-E03CT	MK-253-031-345-000S-0B7
M83513 / 10-E03CW	MK-253-031-345-220S-0B7
M83513 / 10-E03NN	MK-252-031-345-000S
M83513 / 10-E03NP	MK-252-031-345-220S
M83513 / 10-E03NT	MK-252-031-345-000S-0B7
M83513 / 10-E03NW	MK-252-031-345-220S-0B7
M83513 / 10-E03PN	MK-255-031-345-000S
M83513 / 10-E03PP	MK-255-031-345-220S
M83513 / 10-E03PT	MK-255-031-345-000S-0B7
M83513 / 10-E03PW	MK-255-031-345-220S-0B7

M83513 / 10 (continued)

M83513 / 10-F01CN	MK-253-037-325-000S	M83513 / 10-F02CN	MK-253-037-335-000S	M83513 / 10-F03CN	MK-253-037-345-000S
M83513 / 10-F01CP	MK-253-037-325-220S	M83513 / 10-F02CP	MK-253-037-335-220S	M83513 / 10-F03CP	MK-253-037-345-220S
M83513 / 10-F01CT	MK-253-037-325-000S-0B7	M83513 / 10-F02CT	MK-253-037-335-000S-0B7	M83513 / 10-F03CT	MK-253-037-345-000S-0B7
M83513 / 10-F01CW	MK-253-037-325-220S-0B7	M83513 / 10-F02CW	MK-253-037-335-220S-0B7	M83513 / 10-F03CW	MK-253-037-345-220S-0B7
M83513 / 10-F01NN	MK-252-037-325-000S	M83513 / 10-F02NN	MK-252-037-335-000S	M83513 / 10-F03NN	MK-252-037-345-000S
M83513 / 10-F01NP	MK-252-037-325-220S	M83513 / 10-F02NP	MK-252-037-335-220S	M83513 / 10-F03NP	MK-252-037-345-220S
M83513 / 10-F01NT	MK-252-037-325-000S-0B7	M83513 / 10-F02NT	MK-252-037-335-000S-0B7	M83513 / 10-F03NT	MK-252-037-345-000S-0B7
M83513 / 10-F01NW	MK-252-037-325-220S-0B7	M83513 / 10-F02NW	MK-252-037-335-220S-0B7	M83513 / 10-F03NW	MK-252-037-345-220S-0B7
M83513 / 10-F01PN	MK-255-037-325-000S	M83513 / 10-F02PN	MK-255-037-335-000S	M83513 / 10-F03PN	MK-255-037-345-000S
M83513 / 10-F01PP	MK-255-037-325-220S	M83513 / 10-F02PP	MK-255-037-335-220S	M83513 / 10-F03PP	MK-255-037-345-220S
M83513 / 10-F01PT	MK-255-037-325-000S-0B7	M83513 / 10-F02PT	MK-255-037-335-000S-0B7	M83513 / 10-F03PT	MK-255-037-345-000S-0B7
M83513 / 10-F01PW	MK-255-037-325-220S-0B7	M83513 / 10-F02PW	MK-255-037-335-220S-0B7	M83513 / 10-F03PW	MK-255-037-345-220S-0B7

M83513 / 11

M83513 / 11-G01CN	MK-353-051-325-000S	M83513 / 11-G02CN	MK-353-051-335-000S	M83513 / 11-G03CN	MK-353-051-345-000S
M83513 / 11-G01CP	MK-353-051-325-220S	M83513 / 11-G02CP	MK-353-051-335-220S	M83513 / 11-G03CP	MK-353-051-345-220S
M83513 / 11-G01CT	MK-353-051-325-000S-0B7	M83513 / 11-G02CT	MK-353-051-335-000S-0B7	M83513 / 11-G03CT	MK-353-051-345-000S-0B7
M83513 / 11-G01CW	MK-353-051-325-220S-0B7	M83513 / 11-G02CW	MK-353-051-335-220S-0B7	M83513 / 11-G03CW	MK-353-051-345-220S-0B7
M83513 / 11-G01NN	MK-352-051-325-000S	M83513 / 11-G02NN	MK-352-051-335-000S	M83513 / 11-G03NN	MK-352-051-345-000S
M83513 / 11-G01NP	MK-352-051-325-220S	M83513 / 11-G02NP	MK-352-051-335-220S	M83513 / 11-G03NP	MK-352-051-345-220S
M83513 / 11-G01NT	MK-352-051-325-000S-0B7	M83513 / 11-G02NT	MK-352-051-335-000S-0B7	M83513 / 11-G03NT	MK-352-051-345-000S-0B7
M83513 / 11-G01NW	MK-352-051-325-220S-0B7	M83513 / 11-G02NW	MK-352-051-335-220S-0B7	M83513 / 11-G03NW	MK-352-051-345-220S-0B7
M83513 / 11-G01PN	MK-355-051-325-000S	M83513 / 11-G02PN	MK-355-051-335-000S	M83513 / 11-G03PN	MK-355-051-345-000S
M83513 / 11-G01PP	MK-355-051-325-220S	M83513 / 11-G02PP	MK-355-051-335-220S	M83513 / 11-G03PP	MK-355-051-345-220S
M83513 / 11-G01PT	MK-355-051-325-000S-0B7	M83513 / 11-G02PT	MK-355-051-335-000S-0B7	M83513 / 11-G03PT	MK-355-051-345-000S-0B7
M83513 / 11-G01PW	MK-355-051-325-220S-0B7	M83513 / 11-G02PW	MK-355-051-335-220S-0B7	M83513 / 11-G03PW	MK-355-051-345-220S-0B7

M83513 / 12

M83513 / 12-H01CN	MK-453-100-325-000S-94P	M83513 / 12-H02CN	MK-453-100-335-000S-94P	M83513 / 12-H03CN	MK-453-100-345-000S-94P
M83513 / 12-H01CP	MK-453-100-325-620S-94P	M83513 / 12-H02CP	MK-453-100-335-620S-94P	M83513 / 12-H03CP	MK-453-100-345-620S-94P
M83513 / 12-H01CT	MK-453-100-325-000S-0BJ	M83513 / 12-H02CT	MK-453-100-335-000S-0BJ	M83513 / 12-H03CT	MK-453-100-345-000S-0BJ
M83513 / 12-H01CW	MK-453-100-325-620S-0BJ	M83513 / 12-H02CW	MK-453-100-335-620S-0BJ	M83513 / 12-H03CW	MK-453-100-345-620S-0BJ
M83513 / 12-H01NN	MK-452-100-325-000S-94P	M83513 / 12-H02NN	MK-452-100-335-000S-94P	M83513 / 12-H03NN	MK-452-100-345-000S-94P
M83513 / 12-H01NP	MK-452-100-325-620S-94P	M83513 / 12-H02NP	MK-452-100-335-620S-94P	M83513 / 12-H03NP	MK-452-100-345-620S-94P
M83513 / 12-H01NT	MK-452-100-325-000S-0BJ	M83513 / 12-H02NT	MK-452-100-335-000S-0BJ	M83513 / 12-H03NT	MK-452-100-345-000S-0BJ
M83513 / 12-H01NW	MK-452-100-325-620S-0BJ	M83513 / 12-H02NW	MK-452-100-335-620S-0BJ	M83513 / 12-H03NW	MK-452-100-345-620S-0BJ
M83513 / 12-H01PN	MK-455-100-325-000S-94P	M83513 / 12-H02PN	MK-455-100-335-000S-94P	M83513 / 12-H03PN	MK-455-100-345-000S-94P
M83513 / 12-H01PP	MK-455-100-325-620S-94P	M83513 / 12-H02PP	MK-455-100-335-620S-94P	M83513 / 12-H03PP	MK-455-100-345-620S-94P
M83513 / 12-H01PT	MK-455-100-325-000S-0BJ	M83513 / 12-H02PT	MK-455-100-335-000S-0BJ	M83513 / 12-H03PT	MK-455-100-345-000S-0BJ
M83513 / 12-H01PW	MK-455-100-325-620S-0BJ	M83513 / 12-H02PW	MK-455-100-335-620S-0BJ	M83513 / 12-H03PW	MK-455-100-345-620S-0BJ

M83513 / 13

M83513 / 13-A01CN	MK-263-009-435-000S-900	M83513 / 13-A02CN	MK-263-009-445-000S-900	M83513 / 13-A03CN	MK-263-009-455-000S-900
M83513 / 13-A01CP	MK-263-009-435-220S-900	M83513 / 13-A02CP	MK-263-009-445-220S-900	M83513 / 13-A03CP	MK-263-009-455-220S-900
M83513 / 13-A01CT	MK-263-009-435-000S-0B7	M83513 / 13-A02CT	MK-263-009-445-000S-0B7	M83513 / 13-A03CT	MK-263-009-455-000S-0B7
M83513 / 13-A01CW	MK-263-009-435-220S-0B7	M83513 / 13-A02CW	MK-263-009-445-220S-0B7	M83513 / 13-A03CW	MK-263-009-455-220S-0B7
M83513 / 13-A01NN	MK-262-009-435-000S-900	M83513 / 13-A02NN	MK-262-009-445-000S-900	M83513 / 13-A03NN	MK-262-009-455-000S-900
M83513 / 13-A01NP	MK-262-009-435-220S-900	M83513 / 13-A02NP	MK-262-009-445-220S-900	M83513 / 13-A03NP	MK-262-009-455-220S-900
M83513 / 13-A01NT	MK-262-009-435-000S-0B7	M83513 / 13-A02NT	MK-262-009-445-000S-0B7	M83513 / 13-A03NT	MK-262-009-455-000S-0B7
M83513 / 13-A01NW	MK-262-009-435-220S-0B7	M83513 / 13-A02NW	MK-262-009-445-220S-0B7	M83513 / 13-A03NW	MK-262-009-455-220S-0B7
M83513 / 13-A01PN	MK-265-009-435-000S-900	M83513 / 13-A02PN	MK-265-009-445-000S-900	M83513 / 13-A03PN	MK-265-009-455-000S-900
M83513 / 13-A01PP	MK-265-009-435-220S-900	M83513 / 13-A02PP	MK-265-009-445-220S-900	M83513 / 13-A03PP	MK-265-009-455-220S-900
M83513 / 13-A01PT	MK-265-009-435-000S-0B7	M83513 / 13-A02PT	MK-265-009-445-000S-0B7	M83513 / 13-A03PT	MK-265-009-455-000S-0B7
M83513 / 13-A01PW	MK-265-009-435-220S-0B7	M83513 / 13-A02PW	MK-265-009-445-220S-0B7	M83513 / 13-A03PW	MK-265-009-455-220S-0B7

Military Cross Reference Chart

-- Continued from previous page

M83513 / 13 (continued)

M83513 / 13-B01CN	MK-263-015-435-000S-900
M83513 / 13-B01CP	MK-263-015-435-220S-900
M83513 / 13-B01CT	MK-263-015-435-000S-0B7
M83513 / 13-B01CW	MK-263-015-435-220S-0B7
M83513 / 13-B01NN	MK-262-015-435-000S-900
M83513 / 13-B01NP	MK-262-015-435-220S-900
M83513 / 13-B01NT	MK-262-015-435-000S-0B7
M83513 / 13-B01NW	MK-262-015-435-220S-0B7
M83513 / 13-B01PN	MK-265-015-435-000S-900
M83513 / 13-B01PP	MK-265-015-435-220S-900
M83513 / 13-B01PT	MK-265-015-435-000S-0B7
M83513 / 13-B01PW	MK-265-015-435-220S-0B7
M83513 / 13-B02CN	MK-263-015-445-000S-900
M83513 / 13-B02CP	MK-263-015-445-220S-900
M83513 / 13-B02CT	MK-263-015-445-000S-0B7
M83513 / 13-B02CW	MK-263-015-445-220S-0B7
M83513 / 13-B02NN	MK-262-015-445-000S-900
M83513 / 13-B02NP	MK-262-015-445-220S-900
M83513 / 13-B02NT	MK-262-015-445-000S-0B7
M83513 / 13-B02NW	MK-262-015-445-220S-0B7
M83513 / 13-B02PN	MK-265-015-445-000S-900
M83513 / 13-B02PP	MK-265-015-445-220S-900
M83513 / 13-B02PT	MK-265-015-445-000S-0B7
M83513 / 13-B02PW	MK-265-015-445-220S-0B7
M83513 / 13-B03CN	MK-263-015-455-000S-900
M83513 / 13-B03CP	MK-263-015-455-220S-900
M83513 / 13-B03CT	MK-263-015-455-000S-0B7
M83513 / 13-B03CW	MK-263-015-455-220S-0B7
M83513 / 13-B03NN	MK-262-015-455-000S-900
M83513 / 13-B03NP	MK-262-015-455-220S-900
M83513 / 13-B03NT	MK-262-015-455-000S-0B7
M83513 / 13-B03NW	MK-262-015-455-220S-0B7
M83513 / 13-B03PN	MK-265-015-455-000S-900
M83513 / 13-B03PP	MK-265-015-455-220S-900
M83513 / 13-B03PT	MK-265-015-455-000S-0B7
M83513 / 13-B03PW	MK-265-015-455-220S-0B7

M83513 / 13-C01CN	MK-263-021-435-000S-900
M83513 / 13-C01CP	MK-263-021-435-220S-900
M83513 / 13-C01CT	MK-263-021-435-000S-0B7
M83513 / 13-C01CW	MK-263-021-435-220S-0B7
M83513 / 13-C01NN	MK-262-021-435-000S-900
M83513 / 13-C01NP	MK-262-021-435-220S-900
M83513 / 13-C01NT	MK-262-021-435-000S-0B7
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M83513 / 13-C01PP	MK-265-021-435-220S-900
M83513 / 13-C01PT	MK-265-021-435-000S-0B7
M83513 / 13-C01PW	MK-265-021-435-220S-0B7
M83513 / 13-C02CN	MK-263-021-445-000S-900
M83513 / 13-C02CP	MK-263-021-445-220S-900
M83513 / 13-C02CT	MK-263-021-445-000S-0B7
M83513 / 13-C02CW	MK-263-021-445-220S-0B7
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M83513 / 13-C02NP	MK-262-021-445-220S-900
M83513 / 13-C02NT	MK-262-021-445-000S-0B7
M83513 / 13-C02NW	MK-262-021-445-220S-0B7
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M83513 / 13-C02PP	MK-265-021-445-220S-900
M83513 / 13-C02PT	MK-265-021-445-000S-0B7
M83513 / 13-C02PW	MK-265-021-445-220S-0B7
M83513 / 13-C03CN	MK-263-021-455-000S-900
M83513 / 13-C03CP	MK-263-021-455-220S-900
M83513 / 13-C03CT	MK-263-021-455-000S-0B7
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M83513 / 13-C03NP	MK-262-021-455-220S-900
M83513 / 13-C03NT	MK-262-021-455-000S-0B7
M83513 / 13-C03NW	MK-262-021-455-220S-0B7
M83513 / 13-C03PN	MK-265-021-455-000S-900
M83513 / 13-C03PP	MK-265-021-455-220S-900
M83513 / 13-C03PT	MK-265-021-455-000S-0B7
M83513 / 13-C03PW	MK-265-021-455-220S-0B7

M83513 / 13-D01CN	MK-263-025-435-000S-900
M83513 / 13-D01CP	MK-263-025-435-220S-900
M83513 / 13-D01CT	MK-263-025-435-000S-0B7
M83513 / 13-D01CW	MK-263-025-435-220S-0B7
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M83513 / 13-D01NP	MK-262-025-435-220S-900
M83513 / 13-D01NT	MK-262-025-435-000S-0B7
M83513 / 13-D01NW	MK-262-025-435-220S-0B7
M83513 / 13-D01PN	MK-265-025-435-000S-900
M83513 / 13-D01PP	MK-265-025-435-220S-900
M83513 / 13-D01PT	MK-265-025-435-000S-0B7
M83513 / 13-D01PW	MK-265-025-435-220S-0B7
M83513 / 13-D02CN	MK-263-025-445-000S-900
M83513 / 13-D02CP	MK-263-025-445-220S-900
M83513 / 13-D02CT	MK-263-025-445-000S-0B7
M83513 / 13-D02CW	MK-263-025-445-220S-0B7
M83513 / 13-D02NN	MK-262-025-445-000S-900
M83513 / 13-D02NP	MK-262-025-445-220S-900
M83513 / 13-D02NT	MK-262-025-445-000S-0B7
M83513 / 13-D02NW	MK-262-025-445-220S-0B7
M83513 / 13-D02PN	MK-265-025-445-000S-900
M83513 / 13-D02PP	MK-265-025-445-220S-900
M83513 / 13-D02PT	MK-265-025-445-000S-0B7
M83513 / 13-D02PW	MK-265-025-445-220S-0B7
M83513 / 13-D03CN	MK-263-025-455-000S-900
M83513 / 13-D03CP	MK-263-025-455-220S-900
M83513 / 13-D03CT	MK-263-025-455-000S-0B7
M83513 / 13-D03CW	MK-263-025-455-220S-0B7
M83513 / 13-D03NN	MK-262-025-455-000S-900
M83513 / 13-D03NP	MK-262-025-455-220S-900
M83513 / 13-D03NT	MK-262-025-455-000S-0B7
M83513 / 13-D03NW	MK-262-025-455-220S-0B7
M83513 / 13-D03PN	MK-265-025-455-000S-900
M83513 / 13-D03PP	MK-265-025-455-220S-900
M83513 / 13-D03PT	MK-265-025-455-000S-0B7
M83513 / 13-D03PW	MK-265-025-455-220S-0B7

M83513 / 13-E01CN	MK-263-031-435-000S-900
M83513 / 13-E01CP	MK-263-031-435-220S-900
M83513 / 13-E01CT	MK-263-031-435-000S-0B7
M83513 / 13-E01CW	MK-263-031-435-220S-0B7
M83513 / 13-E01NN	MK-262-031-435-000S-900
M83513 / 13-E01NP	MK-262-031-435-220S-900
M83513 / 13-E01NT	MK-262-031-435-000S-0B7
M83513 / 13-E01NW	MK-262-031-435-220S-0B7
M83513 / 13-E01PN	MK-265-031-435-000S-900
M83513 / 13-E01PP	MK-265-031-435-220S-900
M83513 / 13-E01PT	MK-265-031-435-000S-0B7
M83513 / 13-E01PW	MK-265-031-435-220S-0B7
M83513 / 13-E02CN	MK-263-031-445-000S-900
M83513 / 13-E02CP	MK-263-031-445-220S-900
M83513 / 13-E02CT	MK-263-031-445-000S-0B7
M83513 / 13-E02CW	MK-263-031-445-220S-0B7
M83513 / 13-E02NN	MK-262-031-445-000S-900
M83513 / 13-E02NP	MK-262-031-445-220S-900
M83513 / 13-E02NT	MK-262-031-445-000S-0B7
M83513 / 13-E02NW	MK-262-031-445-220S-0B7
M83513 / 13-E02PN	MK-265-031-445-000S-900
M83513 / 13-E02PP	MK-265-031-445-220S-900
M83513 / 13-E02PT	MK-265-031-445-000S-0B7
M83513 / 13-E02PW	MK-265-031-445-220S-0B7
M83513 / 13-E03CN	MK-263-031-455-000S-900
M83513 / 13-E03CP	MK-263-031-455-220S-900
M83513 / 13-E03CT	MK-263-031-455-000S-0B7
M83513 / 13-E03CW	MK-263-031-455-220S-0B7
M83513 / 13-E03NN	MK-262-031-455-000S-900
M83513 / 13-E03NP	MK-262-031-455-220S-900
M83513 / 13-E03NT	MK-262-031-455-000S-0B7
M83513 / 13-E03NW	MK-262-031-455-220S-0B7
M83513 / 13-E03PN	MK-265-031-455-000S-900
M83513 / 13-E03PP	MK-265-031-455-220S-900
M83513 / 13-E03PT	MK-265-031-455-000S-0B7
M83513 / 13-E03PW	MK-265-031-455-220S-0B7

M83513 / 13-F01CN	MK-263-037-435-000S-900
M83513 / 13-F01CP	MK-263-037-435-220S-900
M83513 / 13-F01CT	MK-263-037-435-000S-0B7
M83513 / 13-F01CW	MK-263-037-435-220S-0B7
M83513 / 13-F01NN	MK-262-037-435-000S-900
M83513 / 13-F01NP	MK-262-037-435-220S-900
M83513 / 13-F01NT	MK-262-037-435-000S-0B7
M83513 / 13-F01NW	MK-262-037-435-220S-0B7
M83513 / 13-F01PN	MK-265-037-435-000S-900
M83513 / 13-F01PP	MK-265-037-435-220S-900
M83513 / 13-F01PT	MK-265-037-435-000S-0B7
M83513 / 13-F01PW	MK-265-037-435-220S-0B7
M83513 / 13-F02CN	MK-263-037-445-000S-900
M83513 / 13-F02CP	MK-263-037-445-220S-900
M83513 / 13-F02CT	MK-263-037-445-000S-0B7
M83513 / 13-F02CW	MK-263-037-445-220S-0B7
M83513 / 13-F02NN	MK-262-037-445-000S-900
M83513 / 13-F02NP	MK-262-037-445-220S-900

M83513 / 13 (continued)

M83513 / 13-F02NT	MK-262-037-445-000S-0B7	M83513 / 13-F03CN	MK-263-037-455-000S-900	M83513 / 13-F03NT	MK-262-037-455-000S-0B7
M83513 / 13-F02NW	MK-262-037-445-220S-0B7	M83513 / 13-F03CP	MK-263-037-455-220S-900	M83513 / 13-F03NW	MK-262-037-455-220S-0B7
M83513 / 13-F02PN	MK-265-037-445-000S-900	M83513 / 13-F03CT	MK-263-037-455-000S-0B7	M83513 / 13-F03PN	MK-265-037-455-000S-900
M83513 / 13-F02PP	MK-265-037-445-220S-900	M83513 / 13-F03CW	MK-263-037-455-220S-0B7	M83513 / 13-F03PP	MK-265-037-455-220S-900
M83513 / 13-F02PT	MK-265-037-445-000S-0B7	M83513 / 13-F03NN	MK-262-037-455-000S-900	M83513 / 13-F03PT	MK-265-037-455-000S-0B7
M83513 / 13-F02PW	MK-265-037-445-220S-0B7	M83513 / 13-F03NP	MK-262-037-455-220S-900	M83513 / 13-F03PW	MK-265-037-455-220S-0B7

M83513 / 14

M83513 / 14-G01CN	MK-363-051-435-000S-900	M83513 / 14-G02CN	MK-363-051-445-000S-900	M83513 / 14-G03CN	MK-363-051-455-000S-900
M83513 / 14-G01CP	MK-363-051-435-220S-900	M83513 / 14-G02CP	MK-363-051-445-220S-900	M83513 / 14-G03CP	MK-363-051-455-220S-900
M83513 / 14-G01CT	MK-363-051-435-000S-0B7	M83513 / 14-G02CT	MK-363-051-445-000S-0B7	M83513 / 14-G03CT	MK-363-051-455-000S-0B7
M83513 / 14-G01CW	MK-363-051-435-220S-0B7	M83513 / 14-G02CW	MK-363-051-445-220S-0B7	M83513 / 14-G03CW	MK-363-051-455-220S-0B7
M83513 / 14-G01NN	MK-362-051-435-000S-900	M83513 / 14-G02NN	MK-362-051-445-000S-900	M83513 / 14-G03NN	MK-362-051-455-000S-900
M83513 / 14-G01NP	MK-362-051-435-220S-900	M83513 / 14-G02NP	MK-362-051-445-220S-900	M83513 / 14-G03NP	MK-362-051-455-220S-900
M83513 / 14-G01NT	MK-362-051-435-000S-0B7	M83513 / 14-G02NT	MK-362-051-445-000S-0B7	M83513 / 14-G03NT	MK-362-051-455-000S-0B7
M83513 / 14-G01NW	MK-362-051-435-220S-0B7	M83513 / 14-G02NW	MK-362-051-445-220S-0B7	M83513 / 14-G03NW	MK-362-051-455-220S-0B7
M83513 / 14-G01PN	MK-365-051-435-000S-900	M83513 / 14-G02PN	MK-365-051-445-000S-900	M83513 / 14-G03PN	MK-365-051-455-000S-900
M83513 / 14-G01PP	MK-365-051-435-220S-900	M83513 / 14-G02PP	MK-365-051-445-220S-900	M83513 / 14-G03PP	MK-365-051-455-220S-900
M83513 / 14-G01PT	MK-365-051-435-000S-0B7	M83513 / 14-G02PT	MK-365-051-445-000S-0B7	M83513 / 14-G03PT	MK-365-051-455-000S-0B7
M83513 / 14-G01PW	MK-365-051-435-220S-0B7	M83513 / 14-G02PW	MK-365-051-445-220S-0B7	M83513 / 14-G03PW	MK-365-051-455-220S-0B7

M83513 / 15

M83513 / 15-H01CN	MK-463-100-435-000S-900	M83513 / 15-H02CN	MK-463-100-445-000S-900	M83513 / 15-H03CN	MK-463-100-455-000S-900
M83513 / 15-H01CP	MK-463-100-435-620S-900	M83513 / 15-H02CP	MK-463-100-445-620S-900	M83513 / 15-H03CP	MK-463-100-455-620S-900
M83513 / 15-H01CT	MK-463-100-435-000S-0B7	M83513 / 15-H02CT	MK-463-100-445-000S-0B7	M83513 / 15-H03CT	MK-463-100-455-000S-0B7
M83513 / 15-H01CW	MK-463-100-435-620S-0B7	M83513 / 15-H02CW	MK-463-100-445-620S-0B7	M83513 / 15-H03CW	MK-463-100-455-620S-0B7
M83513 / 15-H01NN	MK-462-100-435-000S-900	M83513 / 15-H02NN	MK-462-100-445-000S-900	M83513 / 15-H03NN	MK-462-100-455-000S-900
M83513 / 15-H01NP	MK-462-100-435-620S-900	M83513 / 15-H02NP	MK-462-100-445-620S-900	M83513 / 15-H03NP	MK-462-100-455-620S-900
M83513 / 15-H01NT	MK-462-100-435-000S-0B7	M83513 / 15-H02NT	MK-462-100-445-000S-0B7	M83513 / 15-H03NT	MK-462-100-455-000S-0B7
M83513 / 15-H01NW	MK-462-100-435-620S-0B7	M83513 / 15-H02NW	MK-462-100-445-620S-0B7	M83513 / 15-H03NW	MK-462-100-455-620S-0B7
M83513 / 15-H01PN	MK-465-100-435-000S-900	M83513 / 15-H02PN	MK-465-100-445-000S-900	M83513 / 15-H03PN	MK-465-100-455-000S-900
M83513 / 15-H01PP	MK-465-100-435-620S-900	M83513 / 15-H02PP	MK-465-100-445-620S-900	M83513 / 15-H03PP	MK-465-100-455-620S-900
M83513 / 15-H01PT	MK-465-100-435-000S-0B7	M83513 / 15-H02PT	MK-465-100-445-000S-0B7	M83513 / 15-H03PT	MK-465-100-455-000S-0B7
M83513 / 15-H01PW	MK-465-100-435-620S-0B7	M83513 / 15-H02PW	MK-465-100-445-620S-0B7	M83513 / 15-H03PW	MK-465-100-455-620S-0B7

M83513 / 16

M83513 / 16-A01CN	MK-273-009-325-000R	M83513 / 16-A02NW	MK-272-009-335-220R-0B7	M83513 / 16-B01CN	MK-273-015-325-000R
M83513 / 16-A01CP	MK-273-009-325-220R	M83513 / 16-A02PN	MK-275-009-335-000R	M83513 / 16-B01CP	MK-273-015-325-220R
M83513 / 16-A01CT	MK-273-009-325-000R-0B7	M83513 / 16-A02PP	MK-275-009-335-220R	M83513 / 16-B01CT	MK-273-015-325-000R-0B7
M83513 / 16-A01CW	MK-273-009-325-220R-0B7	M83513 / 16-A02PT	MK-275-009-335-000R-0B7	M83513 / 16-B01CW	MK-273-015-325-220R-0B7
M83513 / 16-A01NN	MK-272-009-325-000R	M83513 / 16-A02PW	MK-275-009-335-220R-0B7	M83513 / 16-B01NN	MK-272-015-325-000R
M83513 / 16-A01NP	MK-272-009-325-220R	M83513 / 16-A03CN	MK-273-009-345-000R	M83513 / 16-B01NP	MK-272-015-325-220R
M83513 / 16-A01NT	MK-272-009-325-000R-0B7	M83513 / 16-A03CP	MK-273-009-345-220R	M83513 / 16-B01NT	MK-272-015-325-000R-0B7
M83513 / 16-A01NW	MK-272-009-325-220R-0B7	M83513 / 16-A03CT	MK-273-009-345-000R-0B7	M83513 / 16-B01NW	MK-272-015-325-220R-0B7
M83513 / 16-A01PN	MK-275-009-325-000R	M83513 / 16-A03CW	MK-273-009-345-220R-0B7	M83513 / 16-B01PN	MK-275-015-325-000R
M83513 / 16-A01PP	MK-275-009-325-220R	M83513 / 16-A03NN	MK-272-009-345-000R	M83513 / 16-B01PP	MK-275-015-325-220R
M83513 / 16-A01PT	MK-275-009-325-000R-0B7	M83513 / 16-A03NP	MK-272-009-345-220R	M83513 / 16-B01PT	MK-275-015-325-000R-0B7
M83513 / 16-A01PW	MK-275-009-325-220R-0B7	M83513 / 16-A03NT	MK-272-009-345-000R-0B7	M83513 / 16-B01PW	MK-275-015-325-220R-0B7
M83513 / 16-A02CN	MK-273-009-335-000R	M83513 / 16-A03NW	MK-272-009-345-220R-0B7	M83513 / 16-B02CN	MK-273-015-335-000R
M83513 / 16-A02CP	MK-273-009-335-220R	M83513 / 16-A03PN	MK-275-009-345-000R	M83513 / 16-B02CP	MK-273-015-335-220R
M83513 / 16-A02CT	MK-273-009-335-000R-0B7	M83513 / 16-A03PP	MK-275-009-345-220R	M83513 / 16-B02CT	MK-273-015-335-000R-0B7
M83513 / 16-A02CW	MK-273-009-335-220R-0B7	M83513 / 16-A03PT	MK-275-009-345-000R-0B7	M83513 / 16-B02CW	MK-273-015-335-220R-0B7
M83513 / 16-A02NN	MK-272-009-335-000R	M83513 / 16-A03PW	MK-275-009-345-220R-0B7	M83513 / 16-B02NN	MK-272-015-335-000R
M83513 / 16-A02NP	MK-272-009-335-220R			M83513 / 16-B02NP	MK-272-015-335-220R
M83513 / 16-A02NT	MK-272-009-335-000R-0B7			M83513 / 16-B02NT	MK-272-015-335-000R-0B7

Military Cross Reference Chart

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M83513 / 16 (continued)

M83513 / 16-B02NW	MK-272-015-335-220R-0B7
M83513 / 16-B02PN	MK-275-015-335-000R
M83513 / 16-B02PP	MK-275-015-335-220R
M83513 / 16-B02PT	MK-275-015-335-000R-0B7
M83513 / 16-B02PW	MK-275-015-335-220R-0B7
M83513 / 16-B03CN	MK-273-015-345-000R
M83513 / 16-B03CP	MK-273-015-345-220R
M83513 / 16-B03CT	MK-273-015-345-000R-0B7
M83513 / 16-B03CW	MK-273-015-345-220R-0B7
M83513 / 16-B03NN	MK-272-015-345-000R
M83513 / 16-B03NP	MK-272-015-345-220R
M83513 / 16-B03NT	MK-272-015-345-000R-0B7
M83513 / 16-B03NW	MK-272-015-345-220R-0B7
M83513 / 16-B03PN	MK-275-015-345-000R
M83513 / 16-B03PP	MK-275-015-345-220R
M83513 / 16-B03PT	MK-275-015-345-000R-0B7
M83513 / 16-B03PW	MK-275-015-345-220R-0B7

M83513 / 16-C01CN	MK-273-021-325-000R
M83513 / 16-C01CP	MK-273-021-325-220R
M83513 / 16-C01CT	MK-273-021-325-000R-0B7
M83513 / 16-C01CW	MK-273-021-325-220R-0B7
M83513 / 16-C01NN	MK-272-021-325-000R
M83513 / 16-C01NP	MK-272-021-325-220R
M83513 / 16-C01NT	MK-272-021-325-000R-0B7
M83513 / 16-C01NW	MK-272-021-325-220R-0B7
M83513 / 16-C01PN	MK-275-021-325-000R
M83513 / 16-C01PP	MK-275-021-325-220R
M83513 / 16-C01PT	MK-275-021-325-000R-0B7
M83513 / 16-C01PW	MK-275-021-325-220R-0B7
M83513 / 16-C02CN	MK-273-021-335-000R
M83513 / 16-C02CP	MK-273-021-335-220R
M83513 / 16-C02CT	MK-273-021-335-000R-0B7
M83513 / 16-C02CW	MK-273-021-335-220R-0B7
M83513 / 16-C02NN	MK-272-021-335-000R
M83513 / 16-C02NP	MK-272-021-335-220R
M83513 / 16-C02NT	MK-272-021-335-000R-0B7
M83513 / 16-C02NW	MK-272-021-335-220R-0B7
M83513 / 16-C02PN	MK-275-021-335-000R
M83513 / 16-C02PP	MK-275-021-335-220R
M83513 / 16-C02PT	MK-275-021-335-000R-0B7
M83513 / 16-C02PW	MK-275-021-335-220R-0B7
M83513 / 16-C03CN	MK-273-021-345-000R
M83513 / 16-C03CP	MK-273-021-345-220R
M83513 / 16-C03CT	MK-273-021-345-000R-0B7
M83513 / 16-C03CW	MK-273-021-345-220R-0B7
M83513 / 16-C03NN	MK-272-021-345-000R
M83513 / 16-C03NP	MK-272-021-345-220R
M83513 / 16-C03NT	MK-272-021-345-000R-0B7
M83513 / 16-C03NW	MK-272-021-345-220R-0B7
M83513 / 16-C03PN	MK-275-021-345-000R
M83513 / 16-C03PP	MK-275-021-345-220R
M83513 / 16-C03PT	MK-275-021-345-000R-0B7
M83513 / 16-C03PW	MK-275-021-345-220R-0B7

M83513 / 16-D01CN	MK-273-025-325-000R
M83513 / 16-D01CP	MK-273-025-325-220R
M83513 / 16-D01CT	MK-273-025-325-000R-0B7
M83513 / 16-D01CW	MK-273-025-325-220R-0B7
M83513 / 16-D01NN	MK-272-025-325-000R
M83513 / 16-D01NP	MK-272-025-325-220R
M83513 / 16-D01NT	MK-272-025-325-000R-0B7
M83513 / 16-D01NW	MK-272-025-325-220R-0B7
M83513 / 16-D01PN	MK-275-025-325-000R
M83513 / 16-D01PP	MK-275-025-325-220R
M83513 / 16-D01PT	MK-275-025-325-000R-0B7
M83513 / 16-D01PW	MK-275-025-325-220R-0B7
M83513 / 16-D02CN	MK-273-025-335-000R
M83513 / 16-D02CP	MK-273-025-335-220R
M83513 / 16-D02CT	MK-273-025-335-000R-0B7
M83513 / 16-D02CW	MK-273-025-335-220R-0B7
M83513 / 16-D02NN	MK-272-025-335-000R
M83513 / 16-D02NP	MK-272-025-335-220R
M83513 / 16-D02NT	MK-272-025-335-000R-0B7
M83513 / 16-D02NW	MK-272-025-335-220R-0B7
M83513 / 16-D02PN	MK-275-025-335-000R
M83513 / 16-D02PP	MK-275-025-335-220R
M83513 / 16-D02PT	MK-275-025-335-000R-0B7
M83513 / 16-D02PW	MK-275-025-335-220R-0B7
M83513 / 16-D03CN	MK-273-025-345-000R
M83513 / 16-D03CP	MK-273-025-345-220R
M83513 / 16-D03CT	MK-273-025-345-000R-0B7
M83513 / 16-D03CW	MK-273-025-345-220R-0B7
M83513 / 16-D03NN	MK-272-025-345-000R
M83513 / 16-D03NP	MK-272-025-345-220R
M83513 / 16-D03NT	MK-272-025-345-000R-0B7
M83513 / 16-D03NW	MK-272-025-345-220R-0B7
M83513 / 16-D03PN	MK-275-025-345-000R
M83513 / 16-D03PP	MK-275-025-345-220R
M83513 / 16-D03PT	MK-275-025-345-000R-0B7
M83513 / 16-D03PW	MK-275-025-345-220R-0B7

M83513 / 16-E01CN	MK-273-031-325-000R
M83513 / 16-E01CP	MK-273-031-325-220R
M83513 / 16-E01CT	MK-273-031-325-000R-0B7
M83513 / 16-E01CW	MK-273-031-325-220R-0B7
M83513 / 16-E01NN	MK-272-031-325-000R
M83513 / 16-E01NP	MK-272-031-325-220R
M83513 / 16-E01NT	MK-272-031-325-000R-0B7
M83513 / 16-E01NW	MK-272-031-325-220R-0B7
M83513 / 16-E01PN	MK-275-031-325-000R
M83513 / 16-E01PP	MK-275-031-325-220R
M83513 / 16-E01PT	MK-275-031-325-000R-0B7
M83513 / 16-E01PW	MK-275-031-325-220R-0B7
M83513 / 16-E02CN	MK-273-031-335-000R
M83513 / 16-E02CP	MK-273-031-335-220R
M83513 / 16-E02CT	MK-273-031-335-000R-0B7
M83513 / 16-E02CW	MK-273-031-335-220R-0B7
M83513 / 16-E02NN	MK-272-031-335-000R
M83513 / 16-E02NP	MK-272-031-335-220R
M83513 / 16-E02NT	MK-272-031-335-000R-0B7
M83513 / 16-E02NW	MK-272-031-335-220R-0B7
M83513 / 16-E02PN	MK-275-031-335-000R
M83513 / 16-E02PP	MK-275-031-335-220R
M83513 / 16-E02PT	MK-275-031-335-000R-0B7
M83513 / 16-E02PW	MK-275-031-335-220R-0B7
M83513 / 16-E03CN	MK-273-031-345-000R
M83513 / 16-E03CP	MK-273-031-345-220R
M83513 / 16-E03CT	MK-273-031-345-000R-0B7
M83513 / 16-E03CW	MK-273-031-345-220R-0B7
M83513 / 16-E03NN	MK-272-031-345-000R
M83513 / 16-E03NP	MK-272-031-345-220R
M83513 / 16-E03NT	MK-272-031-345-000R-0B7
M83513 / 16-E03NW	MK-272-031-345-220R-0B7
M83513 / 16-E03PN	MK-275-031-345-000R
M83513 / 16-E03PP	MK-275-031-345-220R
M83513 / 16-E03PT	MK-275-031-345-000R-0B7
M83513 / 16-E03PW	MK-275-031-345-220R-0B7

M83513 / 16-F01CN	MK-273-037-325-000R
M83513 / 16-F01CP	MK-273-037-325-220R
M83513 / 16-F01CT	MK-273-037-325-000R-0B7
M83513 / 16-F01CW	MK-273-037-325-220R-0B7
M83513 / 16-F01NN	MK-272-037-325-000R
M83513 / 16-F01NP	MK-272-037-325-220R
M83513 / 16-F01NT	MK-272-037-325-000R-0B7
M83513 / 16-F01NW	MK-272-037-325-220R-0B7
M83513 / 16-F01PN	MK-275-037-325-000R
M83513 / 16-F01PP	MK-275-037-325-220R
M83513 / 16-F01PT	MK-275-037-325-000R-0B7
M83513 / 16-F01PW	MK-275-037-325-220R-0B7
M83513 / 16-F02CN	MK-273-037-335-000R
M83513 / 16-F02CP	MK-273-037-335-220R
M83513 / 16-F02CT	MK-273-037-335-000R-0B7
M83513 / 16-F02CW	MK-273-037-335-220R-0B7
M83513 / 16-F02NN	MK-272-037-335-000R
M83513 / 16-F02NP	MK-272-037-335-220R
M83513 / 16-F02NT	MK-272-037-335-000R-0B7
M83513 / 16-F02NW	MK-272-037-335-220R-0B7
M83513 / 16-F02PN	MK-275-037-335-000R
M83513 / 16-F02PP	MK-275-037-335-220R
M83513 / 16-F02PT	MK-275-037-335-000R-0B7
M83513 / 16-F02PW	MK-275-037-335-220R-0B7
M83513 / 16-F03CN	MK-273-037-345-000R
M83513 / 16-F03CP	MK-273-037-345-220R
M83513 / 16-F03CT	MK-273-037-345-000R-0B7
M83513 / 16-F03CW	MK-273-037-345-220R-0B7
M83513 / 16-F03NN	MK-272-037-345-000R
M83513 / 16-F03NP	MK-272-037-345-220R
M83513 / 16-F03NT	MK-272-037-345-000R-0B7
M83513 / 16-F03NW	MK-272-037-345-220R-0B7
M83513 / 16-F03PN	MK-275-037-345-000R
M83513 / 16-F03PP	MK-275-037-345-220R
M83513 / 16-F03PT	MK-275-037-345-000R-0B7
M83513 / 16-F03PW	MK-275-037-345-220R-0B7

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M83513 / 17-G01CN	MK-373-051-325-000R	M83513 / 17-G02CN	MK-373-051-335-000R	M83513 / 17-G03CN	MK-373-051-345-000R
M83513 / 17-G01CP	MK-373-051-325-220R	M83513 / 17-G02CP	MK-373-051-335-220R	M83513 / 17-G03CP	MK-373-051-345-220R
M83513 / 17-G01CT	MK-373-051-325-000R-0B7	M83513 / 17-G02CT	MK-373-051-335-000R-0B7	M83513 / 17-G03CT	MK-373-051-345-000R-0B7
M83513 / 17-G01CW	MK-373-051-325-220R-0B7	M83513 / 17-G02CW	MK-373-051-335-220R-0B7	M83513 / 17-G03CW	MK-373-051-345-220R-0B7
M83513 / 17-G01NN	MK-372-051-325-000R	M83513 / 17-G02NN	MK-372-051-335-000R	M83513 / 17-G03NN	MK-372-051-345-000R
M83513 / 17-G01NP	MK-372-051-325-220R	M83513 / 17-G02NP	MK-372-051-335-220R	M83513 / 17-G03NP	MK-372-051-345-220R
M83513 / 17-G01NT	MK-372-051-325-000R-0B7	M83513 / 17-G02NT	MK-372-051-335-000R-0B7	M83513 / 17-G03NT	MK-372-051-345-000R-0B7
M83513 / 17-G01NW	MK-372-051-325-220R-0B7	M83513 / 17-G02NW	MK-372-051-335-220R-0B7	M83513 / 17-G03NW	MK-372-051-345-220R-0B7
M83513 / 17-G01PN	MK-375-051-325-000R	M83513 / 17-G02PN	MK-375-051-335-000R	M83513 / 17-G03PN	MK-375-051-345-000R
M83513 / 17-G01PP	MK-375-051-325-220R	M83513 / 17-G02PP	MK-375-051-335-220R	M83513 / 17-G03PP	MK-375-051-345-220R
M83513 / 17-G01PT	MK-375-051-325-000R-0B7	M83513 / 17-G02PT	MK-375-051-335-000R-0B7	M83513 / 17-G03PT	MK-375-051-345-000R-0B7
M83513 / 17-G01PW	MK-375-051-325-220R-0B7	M83513 / 17-G02PW	MK-375-051-335-220R-0B7	M83513 / 17-G03PW	MK-375-051-345-220R-0B7

M83513 / 18

M83513 / 18-H01CN	MK-473-100-325-000R-05K	M83513 / 18-H02CN	MK-473-100-335-000R-05K	M83513 / 18-H03CN	MK-473-100-345-000R-05K
M83513 / 18-H01CP	MK-473-100-325-620R-05K	M83513 / 18-H02CP	MK-473-100-335-620R-05K	M83513 / 18-H03CP	MK-473-100-345-620R-05K
M83513 / 18-H01CT	MK-473-100-325-000R-0BJ	M83513 / 18-H02CT	MK-473-100-335-000R-0BJ	M83513 / 18-H03CT	MK-473-100-345-000R-0BJ
M83513 / 18-H01CW	MK-473-100-325-620R-0BJ	M83513 / 18-H02CW	MK-473-100-335-620R-0BJ	M83513 / 18-H03CW	MK-473-100-345-620R-0BJ
M83513 / 18-H01NN	MK-472-100-325-000R-05K	M83513 / 18-H02NN	MK-472-100-335-000R-05K	M83513 / 18-H03NN	MK-472-100-345-000R-05K
M83513 / 18-H01NP	MK-472-100-325-620R-05K	M83513 / 18-H02NP	MK-472-100-335-620R-05K	M83513 / 18-H03NP	MK-472-100-345-620R-05K
M83513 / 18-H01NT	MK-472-100-325-000R-0BJ	M83513 / 18-H02NT	MK-472-100-335-000R-0BJ	M83513 / 18-H03NT	MK-472-100-345-000R-0BJ
M83513 / 18-H01NW	MK-472-100-325-620R-0BJ	M83513 / 18-H02NW	MK-472-100-335-620R-0BJ	M83513 / 18-H03NW	MK-472-100-345-620R-0BJ
M83513 / 18-H01PN	MK-475-100-325-000R-05K	M83513 / 18-H02PN	MK-475-100-335-000R-05K	M83513 / 18-H03PN	MK-475-100-345-000R-05K
M83513 / 18-H01PP	MK-475-100-325-620R-05K	M83513 / 18-H02PP	MK-475-100-335-620R-05K	M83513 / 18-H03PP	MK-475-100-345-620R-05K
M83513 / 18-H01PT	MK-475-100-325-000R-0BJ	M83513 / 18-H02PT	MK-475-100-335-000R-0BJ	M83513 / 18-H03PT	MK-475-100-345-000R-0BJ
M83513 / 18-H01PW	MK-475-100-325-620R-0BJ	M83513 / 18-H02PW	MK-475-100-335-620R-0BJ	M83513 / 18-H03PW	MK-475-100-345-620R-0BJ

M83513 / 19

M83513 / 19-A01CN	MK-283-009-435-000R-900	M83513 / 19-A03NN	MK-282-009-455-000R-900	M83513 / 19-B02NW	MK-282-015-445-220R-0B7
M83513 / 19-A01CP	MK-283-009-435-220R-900	M83513 / 19-A03NP	MK-282-009-455-220R-900	M83513 / 19-B02PN	MK-285-015-445-000R-900
M83513 / 19-A01CT	MK-283-009-435-000R-0B7	M83513 / 19-A03NT	MK-282-009-455-000R-0B7	M83513 / 19-B02PP	MK-285-015-445-220R-900
M83513 / 19-A01CW	MK-283-009-435-220R-0B7	M83513 / 19-A03NW	MK-282-009-455-220R-0B7	M83513 / 19-B02PT	MK-285-015-445-000R-0B7
M83513 / 19-A01NN	MK-282-009-435-000R-900	M83513 / 19-A03PN	MK-285-009-455-000R-900	M83513 / 19-B02PW	MK-285-015-445-220R-0B7
M83513 / 19-A01NP	MK-282-009-435-220R-900	M83513 / 19-A03PP	MK-285-009-455-220R-900	M83513 / 19-B03CN	MK-283-015-455-000R-900
M83513 / 19-A01NT	MK-282-009-435-000R-0B7	M83513 / 19-A03PT	MK-285-009-455-000R-0B7	M83513 / 19-B03CP	MK-283-015-455-220R-900
M83513 / 19-A01NW	MK-282-009-435-220R-0B7	M83513 / 19-A03PW	MK-285-009-455-220R-0B7	M83513 / 19-B03CT	MK-283-015-455-000R-0B7
M83513 / 19-A01PN	MK-285-009-435-000R-900			M83513 / 19-B03CW	MK-283-015-455-220R-0B7
M83513 / 19-A01PP	MK-285-009-435-220R-900	M83513 / 19-B01CN	MK-283-015-435-000R-900	M83513 / 19-B03NN	MK-282-015-455-000R-900
M83513 / 19-A01PT	MK-285-009-435-000R-0B7	M83513 / 19-B01CP	MK-283-015-435-220R-900	M83513 / 19-B03NP	MK-282-015-455-220R-900
M83513 / 19-A01PW	MK-285-009-435-220R-0B7	M83513 / 19-B01CT	MK-283-015-435-000R-0B7	M83513 / 19-B03NT	MK-282-015-455-000R-0B7
M83513 / 19-A02CN	MK-283-009-445-000R-900	M83513 / 19-B01CW	MK-283-015-435-220R-0B7	M83513 / 19-B03NW	MK-282-015-455-220R-0B7
M83513 / 19-A02CP	MK-283-009-445-220R-900	M83513 / 19-B01NN	MK-282-015-435-000R-900	M83513 / 19-B03PN	MK-285-015-455-000R-900
M83513 / 19-A02CT	MK-283-009-445-000R-0B7	M83513 / 19-B01NP	MK-282-015-435-220R-900	M83513 / 19-B03PP	MK-285-015-455-220R-900
M83513 / 19-A02CW	MK-283-009-445-220R-0B7	M83513 / 19-B01NT	MK-282-015-435-000R-0B7	M83513 / 19-B03PT	MK-285-015-455-000R-0B7
M83513 / 19-A02NN	MK-282-009-445-000R-900	M83513 / 19-B01NW	MK-282-015-435-220R-0B7	M83513 / 19-B03PW	MK-285-015-455-220R-0B7
M83513 / 19-A02NP	MK-282-009-445-220R-900	M83513 / 19-B01PN	MK-285-015-435-000R-900		
M83513 / 19-A02NT	MK-282-009-445-000R-0B7	M83513 / 19-B01PP	MK-285-015-435-220R-900	M83513 / 19-C01CN	MK-283-021-435-000R-900
M83513 / 19-A02NW	MK-282-009-445-220R-0B7	M83513 / 19-B01PT	MK-285-015-435-000R-0B7	M83513 / 19-C01CP	MK-283-021-435-220R-900
M83513 / 19-A02PN	MK-285-009-445-000R-900	M83513 / 19-B01PW	MK-285-015-435-220R-0B7	M83513 / 19-C01CT	MK-283-021-435-000R-0B7
M83513 / 19-A02PP	MK-285-009-445-220R-900	M83513 / 19-B02CN	MK-283-015-445-000R-900	M83513 / 19-C01CW	MK-283-021-435-220R-0B7
M83513 / 19-A02PT	MK-285-009-445-000R-0B7	M83513 / 19-B02CP	MK-283-015-445-220R-900	M83513 / 19-C01NN	MK-282-021-435-000R-900
M83513 / 19-A02PW	MK-285-009-445-220R-0B7	M83513 / 19-B02CT	MK-283-015-445-000R-0B7	M83513 / 19-C01NP	MK-282-021-435-220R-900
M83513 / 19-A03CN	MK-283-009-455-000R-900	M83513 / 19-B02CW	MK-283-015-445-220R-0B7	M83513 / 19-C01NT	MK-282-021-435-000R-0B7
M83513 / 19-A03CP	MK-283-009-455-220R-900	M83513 / 19-B02NN	MK-282-015-445-000R-900	M83513 / 19-C01NW	MK-282-021-435-220R-0B7
M83513 / 19-A03CT	MK-283-009-455-000R-0B7	M83513 / 19-B02NP	MK-282-015-445-220R-900	M83513 / 19-C01PN	MK-285-021-435-000R-900
M83513 / 19-A03CW	MK-283-009-455-220R-0B7	M83513 / 19-B02NT	MK-282-015-445-000R-0B7	M83513 / 19-C01PP	MK-285-021-435-220R-900

Military Cross Reference Chart

-- Continued from previous page

M83513 / 19 (continued)

M83513 / 19-C01PT	MK-285-021-435-000R-0B7
M83513 / 19-C01PW	MK-285-021-435-220R-0B7
M83513 / 19-C02CN	MK-283-021-445-000R-900
M83513 / 19-C02CP	MK-283-021-445-220R-900
M83513 / 19-C02CT	MK-283-021-445-000R-0B7
M83513 / 19-C02CW	MK-283-021-445-220R-0B7
M83513 / 19-C02NN	MK-282-021-445-000R-900
M83513 / 19-C02NP	MK-282-021-445-220R-900
M83513 / 19-C02NT	MK-282-021-445-000R-0B7
M83513 / 19-C02NW	MK-282-021-445-220R-0B7
M83513 / 19-C02PN	MK-285-021-445-000R-900
M83513 / 19-C02PP	MK-285-021-445-220R-900
M83513 / 19-C02PT	MK-285-021-445-000R-0B7
M83513 / 19-C02PW	MK-285-021-445-220R-0B7
M83513 / 19-C03CN	MK-283-021-455-000R-900
M83513 / 19-C03CP	MK-283-021-455-220R-900
M83513 / 19-C03CT	MK-283-021-455-000R-0B7
M83513 / 19-C03CW	MK-283-021-455-220R-0B7
M83513 / 19-C03NN	MK-282-021-455-000R-900
M83513 / 19-C03NP	MK-282-021-455-220R-900
M83513 / 19-C03NT	MK-282-021-455-000R-0B7
M83513 / 19-C03NW	MK-282-021-455-220R-0B7
M83513 / 19-C03PN	MK-285-021-455-000R-900
M83513 / 19-C03PP	MK-285-021-455-220R-900
M83513 / 19-C03PT	MK-285-021-455-000R-0B7
M83513 / 19-C03PW	MK-285-021-455-220R-0B7
M83513 / 19-D01CN	MK-283-025-435-000R-900
M83513 / 19-D01CP	MK-283-025-435-220R-900
M83513 / 19-D01CT	MK-283-025-435-000R-0B7
M83513 / 19-D01CW	MK-283-025-435-220R-0B7
M83513 / 19-D01NN	MK-282-025-435-000R-900
M83513 / 19-D01NP	MK-282-025-435-220R-900
M83513 / 19-D01NT	MK-282-025-435-000R-0B7
M83513 / 19-D01NW	MK-282-025-435-220R-0B7
M83513 / 19-D01PN	MK-285-025-435-000R-900
M83513 / 19-D01PP	MK-285-025-435-220R-900
M83513 / 19-D01PT	MK-285-025-435-000R-0B7
M83513 / 19-D01PW	MK-285-025-435-220R-0B7
M83513 / 19-D02CN	MK-283-025-445-000R-900
M83513 / 19-D02CP	MK-283-025-445-220R-900
M83513 / 19-D02CT	MK-283-025-445-000R-0B7
M83513 / 19-D02CW	MK-283-025-445-220R-0B7
M83513 / 19-D02NN	MK-282-025-445-000R-900
M83513 / 19-D02NP	MK-282-025-445-220R-900
M83513 / 19-D02NT	MK-282-025-445-000R-0B7
M83513 / 19-D02NW	MK-282-025-445-220R-0B7
M83513 / 19-D02PN	MK-285-025-445-000R-900
M83513 / 19-D02PP	MK-285-025-445-220R-900
M83513 / 19-D02PT	MK-285-025-445-000R-0B7
M83513 / 19-D02PW	MK-285-025-445-220R-0B7
M83513 / 19-D03CN	MK-283-025-455-000R-900
M83513 / 19-D03CP	MK-283-025-455-220R-900
M83513 / 19-D03CT	MK-283-025-455-000R-0B7
M83513 / 19-D03CW	MK-283-025-455-220R-0B7
M83513 / 19-D03NN	MK-282-025-455-000R-900
M83513 / 19-D03NP	MK-282-025-455-220R-900
M83513 / 19-D03NT	MK-282-025-455-000R-0B7
M83513 / 19-D03NW	MK-282-025-455-220R-0B7
M83513 / 19-D03PN	MK-285-025-455-000R-900
M83513 / 19-D03PP	MK-285-025-455-220R-900
M83513 / 19-D03PT	MK-285-025-455-000R-0B7
M83513 / 19-D03PW	MK-285-025-455-220R-0B7
M83513 / 19-E01CN	MK-283-031-435-000R-900
M83513 / 19-E01CP	MK-283-031-435-220R-900
M83513 / 19-E01CT	MK-283-031-435-000R-0B7
M83513 / 19-E01CW	MK-283-031-435-220R-0B7
M83513 / 19-E01NN	MK-282-031-435-000R-900
M83513 / 19-E01NP	MK-282-031-435-220R-900
M83513 / 19-E01NT	MK-282-031-435-000R-0B7
M83513 / 19-E01NW	MK-282-031-435-220R-0B7
M83513 / 19-E01PN	MK-285-031-435-000R-900
M83513 / 19-E01PP	MK-285-031-435-220R-900
M83513 / 19-E01PT	MK-285-031-435-000R-0B7
M83513 / 19-E01PW	MK-285-031-435-220R-0B7
M83513 / 19-E02CN	MK-283-031-445-000R-900
M83513 / 19-E02CP	MK-283-031-445-220R-900
M83513 / 19-E02CT	MK-283-031-445-000R-0B7
M83513 / 19-E02CW	MK-283-031-445-220R-0B7
M83513 / 19-E02NN	MK-282-031-445-000R-900
M83513 / 19-E02NP	MK-282-031-445-220R-900
M83513 / 19-E02NT	MK-282-031-445-000R-0B7
M83513 / 19-E02NW	MK-282-031-445-220R-0B7
M83513 / 19-E02PN	MK-285-031-445-000R-900
M83513 / 19-E02PP	MK-285-031-445-220R-900
M83513 / 19-E02PT	MK-285-031-445-000R-0B7
M83513 / 19-E02PW	MK-285-031-445-220R-0B7
M83513 / 19-E03CN	MK-283-031-455-000R-900
M83513 / 19-E03CP	MK-283-031-455-220R-900
M83513 / 19-E03CT	MK-283-031-455-000R-0B7
M83513 / 19-E03CW	MK-283-031-455-220R-0B7
M83513 / 19-E03NN	MK-282-031-455-000R-900
M83513 / 19-E03NP	MK-282-031-455-220R-900
M83513 / 19-E03NT	MK-282-031-455-000R-0B7
M83513 / 19-E03NW	MK-282-031-455-220R-0B7
M83513 / 19-E03PN	MK-285-031-455-000R-900
M83513 / 19-E03PP	MK-285-031-455-220R-900
M83513 / 19-E03PT	MK-285-031-455-000R-0B7
M83513 / 19-E03PW	MK-285-031-455-220R-0B7
M83513 / 19-F01CN	MK-283-037-435-000R-900
M83513 / 19-F01CP	MK-283-037-435-220R-900
M83513 / 19-F01CT	MK-283-037-435-000R-0B7
M83513 / 19-F01CW	MK-283-037-435-220R-0B7
M83513 / 19-F01NN	MK-282-037-435-000R-900
M83513 / 19-F01NP	MK-282-037-435-220R-900
M83513 / 19-F01NT	MK-282-037-435-000R-0B7
M83513 / 19-F01NW	MK-282-037-435-220R-0B7
M83513 / 19-F01PN	MK-285-037-435-000R-900
M83513 / 19-F01PP	MK-285-037-435-220R-900
M83513 / 19-F01PT	MK-285-037-435-000R-0B7
M83513 / 19-F01PW	MK-285-037-435-220R-0B7
M83513 / 19-F02CN	MK-283-037-445-000R-900
M83513 / 19-F02CP	MK-283-037-445-220R-900
M83513 / 19-F02CT	MK-283-037-445-000R-0B7
M83513 / 19-F02CW	MK-283-037-445-220R-0B7
M83513 / 19-F02NN	MK-282-037-445-000R-900
M83513 / 19-F02NP	MK-282-037-445-220R-900
M83513 / 19-F02NT	MK-282-037-445-000R-0B7
M83513 / 19-F02NW	MK-282-037-445-220R-0B7
M83513 / 19-F02PN	MK-285-037-445-000R-900
M83513 / 19-F02PP	MK-285-037-445-220R-900
M83513 / 19-F02PT	MK-285-037-445-000R-0B7
M83513 / 19-F02PW	MK-285-037-445-220R-0B7
M83513 / 19-F03CN	MK-283-037-455-000R-900
M83513 / 19-F03CP	MK-283-037-455-220R-900
M83513 / 19-F03CT	MK-283-037-455-000R-0B7
M83513 / 19-F03CW	MK-283-037-455-220R-0B7
M83513 / 19-F03NN	MK-282-037-455-000R-900
M83513 / 19-F03NP	MK-282-037-455-220R-900
M83513 / 19-F03NT	MK-282-037-455-000R-0B7
M83513 / 19-F03NW	MK-282-037-455-220R-0B7
M83513 / 19-F03PN	MK-285-037-455-000R-900
M83513 / 19-F03PP	MK-285-037-455-220R-900
M83513 / 19-F03PT	MK-285-037-455-000R-0B7
M83513 / 19-F03PW	MK-285-037-455-220R-0B7

M83513 / 20

M83513 / 20-G01CN	MK-383-051-435-000R-900
M83513 / 20-G01CP	MK-383-051-435-220R-900
M83513 / 20-G01CT	MK-383-051-435-000R-0B7
M83513 / 20-G01CW	MK-383-051-435-220R-0B7
M83513 / 20-G01NN	MK-382-051-435-000R-900
M83513 / 20-G01NP	MK-382-051-435-220R-900
M83513 / 20-G01NT	MK-382-051-435-000R-0B7
M83513 / 20-G01NW	MK-382-051-435-220R-0B7
M83513 / 20-G01PN	MK-385-051-435-000R-900
M83513 / 20-G01PP	MK-385-051-435-220R-900
M83513 / 20-G01PT	MK-385-051-435-000R-0B7
M83513 / 20-G01PW	MK-385-051-435-220R-0B7
M83513 / 20-G02CN	MK-383-051-445-000R-900
M83513 / 20-G02CP	MK-383-051-445-220R-900
M83513 / 20-G02CT	MK-383-051-445-000R-0B7
M83513 / 20-G02CW	MK-383-051-445-220R-0B7
M83513 / 20-G02NN	MK-382-051-445-000R-900
M83513 / 20-G02NP	MK-382-051-445-220R-900
M83513 / 20-G02NT	MK-382-051-445-000R-0B7
M83513 / 20-G02NW	MK-382-051-445-220R-0B7
M83513 / 20-G02PN	MK-385-051-445-000R-900
M83513 / 20-G02PP	MK-385-051-445-220R-900
M83513 / 20-G02PT	MK-385-051-445-000R-0B7
M83513 / 20-G02PW	MK-385-051-445-220R-0B7

M83513 / 20 (continued)

M83513 / 20-G03CN	MK-383-051-455-000R-900	M83513 / 20-G03NN	MK-382-051-455-000R-900	M83513 / 20-G03PN	MK-385-051-455-000R-900
M83513 / 20-G03CP	MK-383-051-455-220R-900	M83513 / 20-G03NP	MK-382-051-455-220R-900	M83513 / 20-G03PP	MK-385-051-455-220R-900
M83513 / 20-G03CT	MK-383-051-455-000R-0B7	M83513 / 20-G03NT	MK-382-051-455-000R-0B7	M83513 / 20-G03PT	MK-385-051-455-000R-0B7
M83513 / 20-G03CW	MK-383-051-455-220R-0B7	M83513 / 20-G03NW	MK-382-051-455-220R-0B7	M83513 / 20-G03PW	MK-385-051-455-220R-0B7

M83513 / 21

M83513 / 21-H01CN	MK-483-100-435-000R-05K	M83513 / 21-H02CN	MK-483-100-445-000R-05K	M83513 / 21-H03CN	MK-483-100-455-000R-05K
M83513 / 21-H01CP	MK-483-100-435-620R-05K	M83513 / 21-H02CP	MK-483-100-445-620R-05K	M83513 / 21-H03CP	MK-483-100-455-620R-05K
M83513 / 21-H01CT	MK-483-100-435-000R-0BJ	M83513 / 21-H02CT	MK-483-100-445-000R-0BJ	M83513 / 21-H03CT	MK-483-100-455-000R-0BJ
M83513 / 21-H01CW	MK-483-100-435-620R-0BJ	M83513 / 21-H02CW	MK-483-100-445-620R-0BJ	M83513 / 21-H03CW	MK-483-100-455-620R-0BJ
M83513 / 21-H01NN	MK-482-100-435-000R-05K	M83513 / 21-H02NN	MK-482-100-445-000R-05K	M83513 / 21-H03NN	MK-482-100-455-000R-05K
M83513 / 21-H01NP	MK-482-100-435-620R-05K	M83513 / 21-H02NP	MK-482-100-445-620R-05K	M83513 / 21-H03NP	MK-482-100-455-620R-05K
M83513 / 21-H01NT	MK-482-100-435-000R-0BJ	M83513 / 21-H02NT	MK-482-100-445-000R-0BJ	M83513 / 21-H03NT	MK-482-100-455-000R-0BJ
M83513 / 21-H01NW	MK-482-100-435-620R-0BJ	M83513 / 21-H02NW	MK-482-100-445-620R-0BJ	M83513 / 21-H03NW	MK-482-100-455-620R-0BJ
M83513 / 21-H01PN	MK-485-100-435-000R-05K	M83513 / 21-H02PN	MK-485-100-445-000R-05K	M83513 / 21-H03PN	MK-485-100-455-000R-05K
M83513 / 21-H01PP	MK-485-100-435-620R-05K	M83513 / 21-H02PP	MK-485-100-445-620R-05K	M83513 / 21-H03PP	MK-485-100-455-620R-05K
M83513 / 21-H01PT	MK-485-100-435-000R-0BJ	M83513 / 21-H02PT	MK-485-100-445-000R-0BJ	M83513 / 21-H03PT	MK-485-100-455-000R-0BJ
M83513 / 21-H01PW	MK-485-100-435-620R-0BJ	M83513 / 21-H02PW	MK-485-100-445-620R-0BJ	M83513 / 21-H03PW	MK-485-100-455-620R-0BJ

M83513 / 22

M83513 / 22-A01CN	MK-213-009-125-0000	M83513 / 22-A03PW	MK-215-009-145-2200-0B7	M83513 / 22-B03PP	MK-215-015-145-2200
M83513 / 22-A01CP	MK-213-009-125-2200			M83513 / 22-B03PT	MK-215-015-145-0000-0B7
M83513 / 22-A01CT	MK-213-009-125-0000-0B7	M83513 / 22-B01CN	MK-213-015-125-0000	M83513 / 22-B03PW	MK-215-015-145-2200-0B7
M83513 / 22-A01CW	MK-213-009-125-2200-0B7	M83513 / 22-B01CP	MK-213-015-125-2200		
M83513 / 22-A01NN	MK-212-009-125-0000	M83513 / 22-B01CT	MK-213-015-125-0000-0B7	M83513 / 22-C01CN	MK-213-021-125-0000
M83513 / 22-A01NP	MK-212-009-125-2200	M83513 / 22-B01CW	MK-213-015-125-2200-0B7	M83513 / 22-C01CP	MK-213-021-125-2200
M83513 / 22-A01NT	MK-212-009-125-0000-0B7	M83513 / 22-B01NN	MK-212-015-125-0000	M83513 / 22-C01CT	MK-213-021-125-0000-0B7
M83513 / 22-A01NW	MK-212-009-125-2200-0B7	M83513 / 22-B01NP	MK-212-015-125-2200	M83513 / 22-C01CW	MK-213-021-125-2200-0B7
M83513 / 22-A01PN	MK-215-009-125-0000	M83513 / 22-B01NT	MK-212-015-125-0000-0B7	M83513 / 22-C01NN	MK-212-021-125-0000
M83513 / 22-A01PP	MK-215-009-125-2200	M83513 / 22-B01NW	MK-212-015-125-2200-0B7	M83513 / 22-C01NP	MK-212-021-125-2200
M83513 / 22-A01PT	MK-215-009-125-0000-0B7	M83513 / 22-B01PN	MK-215-015-125-0000	M83513 / 22-C01NT	MK-212-021-125-0000-0B7
M83513 / 22-A01PW	MK-215-009-125-2200-0B7	M83513 / 22-B01PP	MK-215-015-125-2200	M83513 / 22-C01NW	MK-212-021-125-2200-0B7
M83513 / 22-A02CN	MK-213-009-135-0000	M83513 / 22-B01PT	MK-215-015-125-0000-0B7	M83513 / 22-C01PN	MK-215-021-125-0000
M83513 / 22-A02CP	MK-213-009-135-2200	M83513 / 22-B01PW	MK-215-015-125-2200-0B7	M83513 / 22-C01PP	MK-215-021-125-2200
M83513 / 22-A02CT	MK-213-009-135-0000-0B7	M83513 / 22-B02CN	MK-213-015-135-0000	M83513 / 22-C01PT	MK-215-021-125-0000-0B7
M83513 / 22-A02CW	MK-213-009-135-2200-0B7	M83513 / 22-B02CP	MK-213-015-135-2200	M83513 / 22-C01PW	MK-215-021-125-2200-0B7
M83513 / 22-A02NN	MK-212-009-135-0000	M83513 / 22-B02CT	MK-213-015-135-0000-0B7	M83513 / 22-C02CN	MK-213-021-135-0000
M83513 / 22-A02NP	MK-212-009-135-2200	M83513 / 22-B02CW	MK-213-015-135-2200-0B7	M83513 / 22-C02CP	MK-213-021-135-2200
M83513 / 22-A02NT	MK-212-009-135-0000-0B7	M83513 / 22-B02NN	MK-212-015-135-0000	M83513 / 22-C02CT	MK-213-021-135-0000-0B7
M83513 / 22-A02NW	MK-212-009-135-2200-0B7	M83513 / 22-B02NP	MK-212-015-135-2200	M83513 / 22-C02CW	MK-213-021-135-2200-0B7
M83513 / 22-A02PN	MK-215-009-135-0000	M83513 / 22-B02NT	MK-212-015-135-0000-0B7	M83513 / 22-C02NN	MK-212-021-135-0000
M83513 / 22-A02PP	MK-215-009-135-2200	M83513 / 22-B02NW	MK-212-015-135-2200-0B7	M83513 / 22-C02NP	MK-212-021-135-2200
M83513 / 22-A02PT	MK-215-009-135-0000-0B7	M83513 / 22-B02PN	MK-215-015-135-0000	M83513 / 22-C02NT	MK-212-021-135-0000-0B7
M83513 / 22-A02PW	MK-215-009-135-2200-0B7	M83513 / 22-B02PP	MK-215-015-135-2200	M83513 / 22-C02NW	MK-212-021-135-2200-0B7
M83513 / 22-A03CN	MK-213-009-145-0000	M83513 / 22-B02PT	MK-215-015-135-0000-0B7	M83513 / 22-C02PN	MK-215-021-135-0000
M83513 / 22-A03CP	MK-213-009-145-2200	M83513 / 22-B02PW	MK-215-015-135-2200-0B7	M83513 / 22-C02PP	MK-215-021-135-2200
M83513 / 22-A03CT	MK-213-009-145-0000-0B7	M83513 / 22-B03CN	MK-213-015-145-0000	M83513 / 22-C02PT	MK-215-021-135-0000-0B7
M83513 / 22-A03CW	MK-213-009-145-2200-0B7	M83513 / 22-B03CP	MK-213-015-145-2200	M83513 / 22-C02PW	MK-215-021-135-2200-0B7
M83513 / 22-A03NN	MK-212-009-145-0000	M83513 / 22-B03CT	MK-213-015-145-0000-0B7	M83513 / 22-C03CN	MK-213-021-145-0000
M83513 / 22-A03NP	MK-212-009-145-2200	M83513 / 22-B03CW	MK-213-015-145-2200-0B7	M83513 / 22-C03CP	MK-213-021-145-2200
M83513 / 22-A03NT	MK-212-009-145-0000-0B7	M83513 / 22-B03NN	MK-212-015-145-0000	M83513 / 22-C03CT	MK-213-021-145-0000-0B7
M83513 / 22-A03NW	MK-212-009-145-2200-0B7	M83513 / 22-B03NP	MK-212-015-145-2200	M83513 / 22-C03CW	MK-213-021-145-2200-0B7
M83513 / 22-A03PN	MK-215-009-145-0000	M83513 / 22-B03NT	MK-212-015-145-0000-0B7	M83513 / 22-C03NN	MK-212-021-145-0000
M83513 / 22-A03PP	MK-215-009-145-2200	M83513 / 22-B03NW	MK-212-015-145-2200-0B7	M83513 / 22-C03NP	MK-212-021-145-2200
M83513 / 22-A03PT	MK-215-009-145-0000-0B7	M83513 / 22-B03PN	MK-215-015-145-0000	M83513 / 22-C03NT	MK-212-021-145-0000-0B7

Military Cross Reference Chart

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M83513 / 22 (continued)

M83513 / 22-C03NW	MK-212-021-145-2200-0B7
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M83513 / 22-C03PP	MK-215-021-145-2200
M83513 / 22-C03PT	MK-215-021-145-0000-0B7
M83513 / 22-C03PW	MK-215-021-145-2200-0B7
M83513 / 22-D01CN	MK-213-025-125-0000
M83513 / 22-D01CP	MK-213-025-125-2200
M83513 / 22-D01CT	MK-213-025-125-0000-0B7
M83513 / 22-D01CW	MK-213-025-125-2200-0B7
M83513 / 22-D01NN	MK-212-025-125-0000
M83513 / 22-D01NP	MK-212-025-125-2200
M83513 / 22-D01NT	MK-212-025-125-0000-0B7
M83513 / 22-D01NW	MK-212-025-125-2200-0B7
M83513 / 22-D01PN	MK-215-025-125-0000
M83513 / 22-D01PP	MK-215-025-125-2200
M83513 / 22-D01PT	MK-215-025-125-0000-0B7
M83513 / 22-D01PW	MK-215-025-125-2200-0B7
M83513 / 22-D02CN	MK-213-025-135-0000
M83513 / 22-D02CP	MK-213-025-135-2200
M83513 / 22-D02CT	MK-213-025-135-0000-0B7
M83513 / 22-D02CW	MK-213-025-135-2200-0B7
M83513 / 22-D02NN	MK-212-025-135-0000
M83513 / 22-D02NP	MK-212-025-135-2200
M83513 / 22-D02NT	MK-212-025-135-0000-0B7
M83513 / 22-D02NW	MK-212-025-135-2200-0B7
M83513 / 22-D02PN	MK-215-025-135-0000
M83513 / 22-D02PP	MK-215-025-135-2200
M83513 / 22-D02PT	MK-215-025-135-0000-0B7
M83513 / 22-D02PW	MK-215-025-135-2200-0B7
M83513 / 22-D03CN	MK-213-025-145-0000
M83513 / 22-D03CP	MK-213-025-145-2200
M83513 / 22-D03CT	MK-213-025-145-0000-0B7
M83513 / 22-D03CW	MK-213-025-145-2200-0B7
M83513 / 22-D03NN	MK-212-025-145-0000
M83513 / 22-D03NP	MK-212-025-145-2200
M83513 / 22-D03NT	MK-212-025-145-0000-0B7
M83513 / 22-D03NW	MK-212-025-145-2200-0B7
M83513 / 22-D03PN	MK-215-025-145-0000
M83513 / 22-D03PP	MK-215-025-145-2200
M83513 / 22-D03PT	MK-215-025-145-0000-0B7
M83513 / 22-D03PW	MK-215-025-145-2200-0B7
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M83513 / 22-E01CP	MK-213-031-125-2200
M83513 / 22-E01CT	MK-213-031-125-0000-0B7
M83513 / 22-E01CW	MK-213-031-125-2200-0B7
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M83513 / 22-E01NP	MK-212-031-125-2200
M83513 / 22-E01NT	MK-212-031-125-0000-0B7
M83513 / 22-E01NW	MK-212-031-125-2200-0B7
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M83513 / 22-E01PP	MK-215-031-125-2200
M83513 / 22-E01PT	MK-215-031-125-0000-0B7
M83513 / 22-E01PW	MK-215-031-125-2200-0B7
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M83513 / 22-E02CP	MK-213-031-135-2200
M83513 / 22-E02CT	MK-213-031-135-0000-0B7
M83513 / 22-E02CW	MK-213-031-135-2200-0B7
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M83513 / 22-E02NP	MK-212-031-135-2200
M83513 / 22-E02NT	MK-212-031-135-0000-0B7
M83513 / 22-E02NW	MK-212-031-135-2200-0B7
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M83513 / 22-E02PT	MK-215-031-135-0000-0B7
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M83513 / 22-E03CP	MK-213-031-145-2200
M83513 / 22-E03CT	MK-213-031-145-0000-0B7
M83513 / 22-E03CW	MK-213-031-145-2200-0B7
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M83513 / 22-E03NT	MK-212-031-145-0000-0B7
M83513 / 22-E03NW	MK-212-031-145-2200-0B7
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M83513 / 22-E03PT	MK-215-031-145-0000-0B7
M83513 / 22-E03PW	MK-215-031-145-2200-0B7
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M83513 / 22-F01CP	MK-213-037-125-2200
M83513 / 22-F01CT	MK-213-037-125-0000-0B7
M83513 / 22-F01CW	MK-213-037-125-2200-0B7
M83513 / 22-F01NN	MK-212-037-125-0000
M83513 / 22-F01NP	MK-212-037-125-2200
M83513 / 22-F01NT	MK-212-037-125-0000-0B7
M83513 / 22-F01NW	MK-212-037-125-2200-0B7
M83513 / 22-F01PN	MK-215-037-125-0000
M83513 / 22-F01PP	MK-215-037-125-2200
M83513 / 22-F01PT	MK-215-037-125-0000-0B7
M83513 / 22-F01PW	MK-215-037-125-2200-0B7
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M83513 / 22-F02CP	MK-213-037-135-2200
M83513 / 22-F02CT	MK-213-037-135-0000-0B7
M83513 / 22-F02CW	MK-213-037-135-2200-0B7
M83513 / 22-F02NN	MK-212-037-135-0000
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M83513 / 22-F02NT	MK-212-037-135-0000-0B7
M83513 / 22-F02NW	MK-212-037-135-2200-0B7
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M83513 / 22-F02PP	MK-215-037-135-2200
M83513 / 22-F02PT	MK-215-037-135-0000-0B7
M83513 / 22-F02PW	MK-215-037-135-2200-0B7
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M83513 / 22-F03CP	MK-213-037-145-2200
M83513 / 22-F03CT	MK-213-037-145-0000-0B7
M83513 / 22-F03CW	MK-213-037-145-2200-0B7
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M83513 / 22-F03NT	MK-212-037-145-0000-0B7
M83513 / 22-F03NW	MK-212-037-145-2200-0B7
M83513 / 22-F03PN	MK-215-037-145-0000
M83513 / 22-F03PP	MK-215-037-145-2200
M83513 / 22-F03PT	MK-215-037-145-0000-0B7
M83513 / 22-F03PW	MK-215-037-145-2200-0B7

M83513 / 23

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M83513 / 23-G01CP	MK-313-051-125-2200
M83513 / 23-G01CT	MK-313-051-125-0000-0B7
M83513 / 23-G01CW	MK-313-051-125-2200-0B7
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M83513 / 23-G01NP	MK-312-051-125-2200
M83513 / 23-G01NT	MK-312-051-125-0000-0B7
M83513 / 23-G01NW	MK-312-051-125-2200-0B7
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M83513 / 23-G01PP	MK-315-051-125-2200
M83513 / 23-G01PT	MK-315-051-125-0000-0B7
M83513 / 23-G01PW	MK-315-051-125-2200-0B7
M83513 / 23-G02CN	MK-313-051-135-0000
M83513 / 23-G02CP	MK-313-051-135-2200
M83513 / 23-G02CT	MK-313-051-135-0000-0B7
M83513 / 23-G02CW	MK-313-051-135-2200-0B7
M83513 / 23-G02NN	MK-312-051-135-0000
M83513 / 23-G02NP	MK-312-051-135-2200
M83513 / 23-G02NT	MK-312-051-135-0000-0B7
M83513 / 23-G02NW	MK-312-051-135-2200-0B7
M83513 / 23-G02PN	MK-315-051-135-0000
M83513 / 23-G02PP	MK-315-051-135-2200
M83513 / 23-G02PT	MK-315-051-135-0000-0B7
M83513 / 23-G02PW	MK-315-051-135-2200-0B7
M83513 / 23-G03CN	MK-313-051-145-0000
M83513 / 23-G03CP	MK-313-051-145-2200
M83513 / 23-G03CT	MK-313-051-145-0000-0B7
M83513 / 23-G03CW	MK-313-051-145-2200-0B7
M83513 / 23-G03NN	MK-312-051-145-0000
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M83513 / 23-G03NT	MK-312-051-145-0000-0B7
M83513 / 23-G03NW	MK-312-051-145-2200-0B7
M83513 / 23-G03PN	MK-315-051-145-0000
M83513 / 23-G03PP	MK-315-051-145-2200
M83513 / 23-G03PT	MK-315-051-145-0000-0B7
M83513 / 23-G03PW	MK-315-051-145-2200-0B7

M83513 / 24

M83513 / 24-H01CN	MK-413-100-125-0000	M83513 / 24-H02CN	MK-413-100-135-0000	M83513 / 24-H03CN	MK-413-100-145-0000
M83513 / 24-H01CP	MK-413-100-125-6200	M83513 / 24-H02CP	MK-413-100-135-6200	M83513 / 24-H03CP	MK-413-100-145-6200
M83513 / 24-H01CT	MK-413-100-125-0000-0B7	M83513 / 24-H02CT	MK-413-100-135-0000-0B7	M83513 / 24-H03CT	MK-413-100-145-0000-0B7
M83513 / 24-H01CW	MK-413-100-125-6200-0B7	M83513 / 24-H02CW	MK-413-100-135-6200-0B7	M83513 / 24-H03CW	MK-413-100-145-6200-0B7
M83513 / 24-H01NN	MK-412-100-125-0000	M83513 / 24-H02NN	MK-412-100-135-0000	M83513 / 24-H03NN	MK-412-100-145-0000
M83513 / 24-H01NP	MK-412-100-125-6200	M83513 / 24-H02NP	MK-412-100-135-6200	M83513 / 24-H03NP	MK-412-100-145-6200
M83513 / 24-H01NT	MK-412-100-125-0000-0B7	M83513 / 24-H02NT	MK-412-100-135-0000-0B7	M83513 / 24-H03NT	MK-412-100-145-0000-0B7
M83513 / 24-H01NW	MK-412-100-125-6200-0B7	M83513 / 24-H02NW	MK-412-100-135-6200-0B7	M83513 / 24-H03NW	MK-412-100-145-6200-0B7
M83513 / 24-H01PN	MK-415-100-125-0000	M83513 / 24-H02PN	MK-415-100-135-0000	M83513 / 24-H03PN	MK-415-100-145-0000
M83513 / 24-H01PP	MK-415-100-125-6200	M83513 / 24-H02PP	MK-415-100-135-6200	M83513 / 24-H03PP	MK-415-100-145-6200
M83513 / 24-H01PT	MK-415-100-125-0000-0B7	M83513 / 24-H02PT	MK-415-100-135-0000-0B7	M83513 / 24-H03PT	MK-415-100-145-0000-0B7
M83513 / 24-H01PW	MK-415-100-125-6200-0B7	M83513 / 24-H02PW	MK-415-100-135-6200-0B7	M83513 / 24-H03PW	MK-415-100-145-6200-0B7

M83513 / 25

M83513 / 25-A01CN	MK-223-009-225-0000-900	M83513 / 25-B01NN	MK-222-015-225-0000-900	M83513 / 25-C01PN	MK-225-021-225-0000-900
M83513 / 25-A01CP	MK-223-009-225-2200-900	M83513 / 25-B01NP	MK-222-015-225-2200-900	M83513 / 25-C01PP	MK-225-021-225-2200-900
M83513 / 25-A01CT	MK-223-009-225-0000-0B7	M83513 / 25-B01NT	MK-222-015-225-0000-0B7	M83513 / 25-C01PT	MK-225-021-225-0000-0B7
M83513 / 25-A01CW	MK-223-009-225-2200-0B7	M83513 / 25-B01NW	MK-222-015-225-2200-0B7	M83513 / 25-C01PW	MK-225-021-225-2200-0B7
M83513 / 25-A01NN	MK-222-009-225-0000-900	M83513 / 25-B01PN	MK-225-015-225-0000-900	M83513 / 25-C02CN	MK-223-021-235-0000-900
M83513 / 25-A01NP	MK-222-009-225-2200-900	M83513 / 25-B01PP	MK-225-015-225-2200-900	M83513 / 25-C02CP	MK-223-021-235-2200-900
M83513 / 25-A01NT	MK-222-009-225-0000-0B7	M83513 / 25-B01PT	MK-225-015-225-0000-0B7	M83513 / 25-C02CT	MK-223-021-235-0000-0B7
M83513 / 25-A01NW	MK-222-009-225-2200-0B7	M83513 / 25-B01PW	MK-225-015-225-2200-0B7	M83513 / 25-C02CW	MK-223-021-235-2200-0B7
M83513 / 25-A01PN	MK-225-009-225-0000-900	M83513 / 25-B02CN	MK-223-015-235-0000-900	M83513 / 25-C02NN	MK-222-021-235-0000-900
M83513 / 25-A01PP	MK-225-009-225-2200-900	M83513 / 25-B02CP	MK-223-015-235-2200-900	M83513 / 25-C02NP	MK-222-021-235-2200-900
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M83513 / 25-A02CN	MK-223-009-235-0000-900	M83513 / 25-B02NN	MK-222-015-235-0000-900	M83513 / 25-C02PN	MK-225-021-235-0000-900
M83513 / 25-A02CP	MK-223-009-235-2200-900	M83513 / 25-B02NP	MK-222-015-235-2200-900	M83513 / 25-C02PP	MK-225-021-235-2200-900
M83513 / 25-A02CT	MK-223-009-235-0000-0B7	M83513 / 25-B02NT	MK-222-015-235-0000-0B7	M83513 / 25-C02PT	MK-225-021-235-0000-0B7
M83513 / 25-A02CW	MK-223-009-235-2200-0B7	M83513 / 25-B02NW	MK-222-015-235-2200-0B7	M83513 / 25-C02PW	MK-225-021-235-2200-0B7
M83513 / 25-A02NN	MK-222-009-235-0000-900	M83513 / 25-B02PN	MK-225-015-235-0000-900	M83513 / 25-C03CN	MK-223-021-245-0000-900
M83513 / 25-A02NP	MK-222-009-235-2200-900	M83513 / 25-B02PP	MK-225-015-235-2200-900	M83513 / 25-C03CP	MK-223-021-245-2200-900
M83513 / 25-A02NT	MK-222-009-235-0000-0B7	M83513 / 25-B02PT	MK-225-015-235-0000-0B7	M83513 / 25-C03CT	MK-223-021-245-0000-0B7
M83513 / 25-A02NW	MK-222-009-235-2200-0B7	M83513 / 25-B02PW	MK-225-015-235-2200-0B7	M83513 / 25-C03CW	MK-223-021-245-2200-0B7
M83513 / 25-A02PN	MK-225-009-235-0000-900	M83513 / 25-B03CN	MK-223-015-245-0000-900	M83513 / 25-C03NN	MK-222-021-245-0000-900
M83513 / 25-A02PP	MK-225-009-235-2200-900	M83513 / 25-B03CP	MK-223-015-245-2200-900	M83513 / 25-C03NP	MK-222-021-245-2200-900
M83513 / 25-A02PT	MK-225-009-235-0000-0B7	M83513 / 25-B03CT	MK-223-015-245-0000-0B7	M83513 / 25-C03NT	MK-222-021-245-0000-0B7
M83513 / 25-A02PW	MK-225-009-235-2200-0B7	M83513 / 25-B03CW	MK-223-015-245-2200-0B7	M83513 / 25-C03NW	MK-222-021-245-2200-0B7
M83513 / 25-A03CN	MK-223-009-245-0000-900	M83513 / 25-B03NN	MK-222-015-245-0000-900	M83513 / 25-C03PN	MK-225-021-245-0000-900
M83513 / 25-A03CP	MK-223-009-245-2200-900	M83513 / 25-B03NP	MK-222-015-245-2200-900	M83513 / 25-C03PP	MK-225-021-245-2200-900
M83513 / 25-A03CT	MK-223-009-245-0000-0B7	M83513 / 25-B03NT	MK-222-015-245-0000-0B7	M83513 / 25-C03PT	MK-225-021-245-0000-0B7
M83513 / 25-A03CW	MK-223-009-245-2200-0B7	M83513 / 25-B03NW	MK-222-015-245-2200-0B7	M83513 / 25-C03PW	MK-225-021-245-2200-0B7
M83513 / 25-A03NN	MK-222-009-245-0000-900	M83513 / 25-B03PN	MK-225-015-245-0000-900		
M83513 / 25-A03NP	MK-222-009-245-2200-900	M83513 / 25-B03PP	MK-225-015-245-2200-900	M83513 / 25-D01CN	MK-223-025-225-0000-900
M83513 / 25-A03NT	MK-222-009-245-0000-0B7	M83513 / 25-B03PT	MK-225-015-245-0000-0B7	M83513 / 25-D01CP	MK-223-025-225-2200-900
M83513 / 25-A03NW	MK-222-009-245-2200-0B7	M83513 / 25-B03PW	MK-225-015-245-2200-0B7	M83513 / 25-D01CT	MK-223-025-225-0000-0B7
M83513 / 25-A03PN	MK-225-009-245-0000-900			M83513 / 25-D01CW	MK-223-025-225-2200-0B7
M83513 / 25-A03PP	MK-225-009-245-2200-900	M83513 / 25-C01CN	MK-223-021-225-0000-900	M83513 / 25-D01NN	MK-222-025-225-0000-900
M83513 / 25-A03PT	MK-225-009-245-0000-0B7	M83513 / 25-C01CP	MK-223-021-225-2200-900	M83513 / 25-D01NP	MK-222-025-225-2200-900
M83513 / 25-A03PW	MK-225-009-245-2200-0B7	M83513 / 25-C01CT	MK-223-021-225-0000-0B7	M83513 / 25-D01NT	MK-222-025-225-0000-0B7
		M83513 / 25-C01CW	MK-223-021-225-2200-0B7	M83513 / 25-D01NW	MK-222-025-225-2200-0B7
M83513 / 25-B01CN	MK-223-015-225-0000-900	M83513 / 25-C01NN	MK-222-021-225-0000-900	M83513 / 25-D01PN	MK-225-025-225-0000-900
M83513 / 25-B01CP	MK-223-015-225-2200-900	M83513 / 25-C01NP	MK-222-021-225-2200-900	M83513 / 25-D01PP	MK-225-025-225-2200-900
M83513 / 25-B01CT	MK-223-015-225-0000-0B7	M83513 / 25-C01NT	MK-222-021-225-0000-0B7	M83513 / 25-D01PT	MK-225-025-225-0000-0B7
M83513 / 25-B01CW	MK-223-015-225-2200-0B7	M83513 / 25-C01NW	MK-222-021-225-2200-0B7	M83513 / 25-D01PW	MK-225-025-225-2200-0B7

Military Cross Reference Chart

-- Continued from previous page

M83513 / 25 (continued)

M83513 / 25-D02CN	MK-223-025-235-0000-900	M83513 / 25-E01PN	MK-225-031-225-0000-900	M83513 / 25-F01NN	MK-222-037-225-0000-900
M83513 / 25-D02CP	MK-223-025-235-2200-900	M83513 / 25-E01PP	MK-225-031-225-2200-900	M83513 / 25-F01NP	MK-222-037-225-2200-900
M83513 / 25-D02CT	MK-223-025-235-0000-0B7	M83513 / 25-E01PT	MK-225-031-225-0000-0B7	M83513 / 25-F01NT	MK-222-037-225-0000-0B7
M83513 / 25-D02CW	MK-223-025-235-2200-0B7	M83513 / 25-E01PW	MK-225-031-225-2200-0B7	M83513 / 25-F01NW	MK-222-037-225-2200-0B7
M83513 / 25-D02NN	MK-222-025-235-0000-900	M83513 / 25-E02CN	MK-223-031-235-0000-900	M83513 / 25-F01PN	MK-225-037-225-0000-900
M83513 / 25-D02NP	MK-222-025-235-2200-900	M83513 / 25-E02CP	MK-223-031-235-2200-900	M83513 / 25-F01PP	MK-225-037-225-2200-900
M83513 / 25-D02NT	MK-222-025-235-0000-0B7	M83513 / 25-E02CT	MK-223-031-235-0000-0B7	M83513 / 25-F01PT	MK-225-037-225-0000-0B7
M83513 / 25-D02NW	MK-222-025-235-2200-0B7	M83513 / 25-E02CW	MK-223-031-235-2200-0B7	M83513 / 25-F01PW	MK-225-037-225-2200-0B7
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M83513 / 25-D02PP	MK-225-025-235-2200-900	M83513 / 25-E02NP	MK-222-031-235-2200-900	M83513 / 25-F02CP	MK-223-037-235-2200-900
M83513 / 25-D02PT	MK-225-025-235-0000-0B7	M83513 / 25-E02NT	MK-222-031-235-0000-0B7	M83513 / 25-F02CT	MK-223-037-235-0000-0B7
M83513 / 25-D02PW	MK-225-025-235-2200-0B7	M83513 / 25-E02NW	MK-222-031-235-2200-0B7	M83513 / 25-F02CW	MK-223-037-235-2200-0B7
M83513 / 25-D03CN	MK-223-025-245-0000-900	M83513 / 25-E02PN	MK-225-031-235-0000-900	M83513 / 25-F02NN	MK-222-037-235-0000-900
M83513 / 25-D03CP	MK-223-025-245-2200-900	M83513 / 25-E02PP	MK-225-031-235-2200-900	M83513 / 25-F02NP	MK-222-037-235-2200-900
M83513 / 25-D03CT	MK-223-025-245-0000-0B7	M83513 / 25-E02PT	MK-225-031-235-0000-0B7	M83513 / 25-F02NT	MK-222-037-235-0000-0B7
M83513 / 25-D03CW	MK-223-025-245-2200-0B7	M83513 / 25-E02PW	MK-225-031-235-2200-0B7	M83513 / 25-F02NW	MK-222-037-235-2200-0B7
M83513 / 25-D03NN	MK-222-025-245-0000-900	M83513 / 25-E03CN	MK-223-031-245-0000-900	M83513 / 25-F02PN	MK-225-037-235-0000-900
M83513 / 25-D03NP	MK-222-025-245-2200-900	M83513 / 25-E03CP	MK-223-031-245-2200-900	M83513 / 25-F02PP	MK-225-037-235-2200-900
M83513 / 25-D03NT	MK-222-025-245-0000-0B7	M83513 / 25-E03CT	MK-223-031-245-0000-0B7	M83513 / 25-F02PT	MK-225-037-235-0000-0B7
M83513 / 25-D03NW	MK-222-025-245-2200-0B7	M83513 / 25-E03CW	MK-223-031-245-2200-0B7	M83513 / 25-F02PW	MK-225-037-235-2200-0B7
M83513 / 25-D03PN	MK-225-025-245-0000-900	M83513 / 25-E03NN	MK-222-031-245-0000-900	M83513 / 25-F03CN	MK-223-037-245-0000-900
M83513 / 25-D03PP	MK-225-025-245-2200-900	M83513 / 25-E03NP	MK-222-031-245-2200-900	M83513 / 25-F03CP	MK-223-037-245-2200-900
M83513 / 25-D03PT	MK-225-025-245-0000-0B7	M83513 / 25-E03NT	MK-222-031-245-0000-0B7	M83513 / 25-F03CT	MK-223-037-245-0000-0B7
M83513 / 25-D03PW	MK-225-025-245-2200-0B7	M83513 / 25-E03NW	MK-222-031-245-2200-0B7	M83513 / 25-F03CW	MK-223-037-245-2200-0B7
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M83513 / 25-E01CN	MK-223-031-225-0000-900	M83513 / 25-E03PP	MK-225-031-245-2200-900	M83513 / 25-F03NP	MK-222-037-245-2200-900
M83513 / 25-E01CP	MK-223-031-225-2200-900	M83513 / 25-E03PT	MK-225-031-245-0000-0B7	M83513 / 25-F03NT	MK-222-037-245-0000-0B7
M83513 / 25-E01CT	MK-223-031-225-0000-0B7	M83513 / 25-E03PW	MK-225-031-245-2200-0B7	M83513 / 25-F03NW	MK-222-037-245-2200-0B7
M83513 / 25-E01CW	MK-223-031-225-2200-0B7			M83513 / 25-F03PN	MK-225-037-245-0000-900
M83513 / 25-E01NN	MK-222-031-225-0000-900	M83513 / 25-F01CN	MK-223-037-225-0000-900	M83513 / 25-F03PP	MK-225-037-245-2200-900
M83513 / 25-E01NP	MK-222-031-225-2200-900	M83513 / 25-F01CP	MK-223-037-225-2200-900	M83513 / 25-F03PT	MK-225-037-245-0000-0B7
M83513 / 25-E01NT	MK-222-031-225-0000-0B7	M83513 / 25-F01CT	MK-223-037-225-0000-0B7	M83513 / 25-F03PW	MK-225-037-245-2200-0B7
M83513 / 25-E01NW	MK-222-031-225-2200-0B7	M83513 / 25-F01CW	MK-223-037-225-2200-0B7		

M83513 / 26

M83513 / 26-G01CN	MK-323-051-225-0000-900	M83513 / 26-G02CN	MK-323-051-235-0000-900	M83513 / 26-G03CN	MK-323-051-245-0000-900
M83513 / 26-G01CP	MK-323-051-225-2200-900	M83513 / 26-G02CP	MK-323-051-235-2200-900	M83513 / 26-G03CP	MK-323-051-245-2200-900
M83513 / 26-G01CT	MK-323-051-225-0000-0B7	M83513 / 26-G02CT	MK-323-051-235-0000-0B7	M83513 / 26-G03CT	MK-323-051-245-0000-0B7
M83513 / 26-G01CW	MK-323-051-225-2200-0B7	M83513 / 26-G02CW	MK-323-051-235-2200-0B7	M83513 / 26-G03CW	MK-323-051-245-2200-0B7
M83513 / 26-G01NN	MK-322-051-225-0000-900	M83513 / 26-G02NN	MK-322-051-235-0000-900	M83513 / 26-G03NN	MK-322-051-245-0000-900
M83513 / 26-G01NP	MK-322-051-225-2200-900	M83513 / 26-G02NP	MK-322-051-235-2200-900	M83513 / 26-G03NP	MK-322-051-245-2200-900
M83513 / 26-G01NT	MK-322-051-225-0000-0B7	M83513 / 26-G02NT	MK-322-051-235-0000-0B7	M83513 / 26-G03NT	MK-322-051-245-0000-0B7
M83513 / 26-G01NW	MK-322-051-225-2200-0B7	M83513 / 26-G02NW	MK-322-051-235-2200-0B7	M83513 / 26-G03NW	MK-322-051-245-2200-0B7
M83513 / 26-G01PN	MK-325-051-225-0000-900	M83513 / 26-G02PN	MK-325-051-235-0000-900	M83513 / 26-G03PN	MK-325-051-245-0000-900
M83513 / 26-G01PP	MK-325-051-225-2200-900	M83513 / 26-G02PP	MK-325-051-235-2200-900	M83513 / 26-G03PP	MK-325-051-245-2200-900
M83513 / 26-G01PT	MK-325-051-225-0000-0B7	M83513 / 26-G02PT	MK-325-051-235-0000-0B7	M83513 / 26-G03PT	MK-325-051-245-0000-0B7
M83513 / 26-G01PW	MK-325-051-225-2200-0B7	M83513 / 26-G02PW	MK-325-051-235-2200-0B7	M83513 / 26-G03PW	MK-325-051-245-2200-0B7

M83513 / 27

M83513 / 27-H01CN	MK-423-100-225-0000-900	M83513 / 27-H01NT	MK-422-100-225-0000-0B7	M83513 / 27-H02CN	MK-423-100-235-0000-900
M83513 / 27-H01CP	MK-423-100-225-6200-900	M83513 / 27-H01NW	MK-422-100-225-6200-0B7	M83513 / 27-H02CP	MK-423-100-235-6200-900
M83513 / 27-H01CT	MK-423-100-225-0000-0B7	M83513 / 27-H01PN	MK-425-100-225-0000-900	M83513 / 27-H02CT	MK-423-100-235-0000-0B7
M83513 / 27-H01CW	MK-423-100-225-6200-0B7	M83513 / 27-H01PP	MK-425-100-225-6200-900	M83513 / 27-H02CW	MK-423-100-235-6200-0B7
M83513 / 27-H01NN	MK-422-100-225-0000-900	M83513 / 27-H01PT	MK-425-100-225-0000-0B7	M83513 / 27-H02NN	MK-422-100-235-0000-900
M83513 / 27-H01NP	MK-422-100-225-6200-900	M83513 / 27-H01PW	MK-425-100-225-6200-0B7	M83513 / 27-H02NP	MK-422-100-235-6200-900

M83513 / 27 (continued)

M83513 / 27-H02NT	MK-422-100-235-0000-0B7	M83513 / 27-H03CN	MK-423-100-245-0000-900	M83513 / 27-H03NT	MK-422-100-245-0000-0B7
M83513 / 27-H02NW	MK-422-100-235-6200-0B7	M83513 / 27-H03CP	MK-423-100-245-6200-900	M83513 / 27-H03NW	MK-422-100-245-6200-0B7
M83513 / 27-H02PN	MK-425-100-235-0000-900	M83513 / 27-H03CT	MK-423-100-245-0000-0B7	M83513 / 27-H03PN	MK-425-100-245-0000-900
M83513 / 27-H02PP	MK-425-100-235-6200-900	M83513 / 27-H03CW	MK-423-100-245-6200-0B7	M83513 / 27-H03PP	MK-425-100-245-6200-900
M83513 / 27-H02PT	MK-425-100-235-0000-0B7	M83513 / 27-H03NN	MK-422-100-245-0000-900	M83513 / 27-H03PT	MK-425-100-245-0000-0B7
M83513 / 27-H02PW	MK-425-100-235-6200-0B7	M83513 / 27-H03NP	MK-422-100-245-6200-900	M83513 / 27-H03PW	MK-425-100-245-6200-0B7

M83513 / 28

M83513 / 28-A01CN	MK-233-009-125-0000	M83513 / 28-B01PT	MK-235-015-125-0000-0B7	M83513 / 28-C02PN	MK-235-021-135-0000
M83513 / 28-A01CP	MK-233-009-125-2200	M83513 / 28-B01PW	MK-235-015-125-2200-0B7	M83513 / 28-C02PP	MK-235-021-135-2200
M83513 / 28-A01CT	MK-233-009-125-0000-0B7	M83513 / 28-B02CN	MK-233-015-135-0000	M83513 / 28-C02PT	MK-235-021-135-0000-0B7
M83513 / 28-A01CW	MK-233-009-125-2200-0B7	M83513 / 28-B02CP	MK-233-015-135-2200	M83513 / 28-C02PW	MK-235-021-135-2200-0B7
M83513 / 28-A01NN	MK-232-009-125-0000	M83513 / 28-B02CT	MK-233-015-135-0000-0B7	M83513 / 28-C03CN	MK-233-021-145-0000
M83513 / 28-A01NP	MK-232-009-125-2200	M83513 / 28-B02CW	MK-233-015-135-2200-0B7	M83513 / 28-C03CP	MK-233-021-145-2200
M83513 / 28-A01NT	MK-232-009-125-0000-0B7	M83513 / 28-B02NN	MK-232-015-135-0000	M83513 / 28-C03CT	MK-233-021-145-0000-0B7
M83513 / 28-A01NW	MK-232-009-125-2200-0B7	M83513 / 28-B02NP	MK-232-015-135-2200	M83513 / 28-C03CW	MK-233-021-145-2200-0B7
M83513 / 28-A01PN	MK-235-009-125-0000	M83513 / 28-B02NT	MK-232-015-135-0000-0B7	M83513 / 28-C03NN	MK-232-021-145-0000
M83513 / 28-A01PP	MK-235-009-125-2200	M83513 / 28-B02NW	MK-232-015-135-2200-0B7	M83513 / 28-C03NP	MK-232-021-145-2200
M83513 / 28-A01PT	MK-235-009-125-0000-0B7	M83513 / 28-B02PN	MK-235-015-135-0000	M83513 / 28-C03NT	MK-232-021-145-0000-0B7
M83513 / 28-A01PW	MK-235-009-125-2200-0B7	M83513 / 28-B02PP	MK-235-015-135-2200	M83513 / 28-C03NW	MK-232-021-145-2200-0B7
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M83513 / 28-A02CP	MK-233-009-135-2200	M83513 / 28-B02PW	MK-235-015-135-2200-0B7	M83513 / 28-C03PP	MK-235-021-145-2200
M83513 / 28-A02CT	MK-233-009-135-0000-0B7	M83513 / 28-B03CN	MK-233-015-145-0000	M83513 / 28-C03PT	MK-235-021-145-0000-0B7
M83513 / 28-A02CW	MK-233-009-135-2200-0B7	M83513 / 28-B03CP	MK-233-015-145-2200	M83513 / 28-C03PW	MK-235-021-145-2200-0B7
M83513 / 28-A02NN	MK-232-009-135-0000	M83513 / 28-B03CT	MK-233-015-145-0000-0B7		
M83513 / 28-A02NP	MK-232-009-135-2200	M83513 / 28-B03CW	MK-233-015-145-2200-0B7	M83513 / 28-D01CN	MK-233-025-125-0000
M83513 / 28-A02NT	MK-232-009-135-0000-0B7	M83513 / 28-B03NN	MK-232-015-145-0000	M83513 / 28-D01CP	MK-233-025-125-2200
M83513 / 28-A02NW	MK-232-009-135-2200-0B7	M83513 / 28-B03NP	MK-232-015-145-2200	M83513 / 28-D01CT	MK-233-025-125-0000-0B7
M83513 / 28-A02PN	MK-235-009-135-0000	M83513 / 28-B03NT	MK-232-015-145-0000-0B7	M83513 / 28-D01CW	MK-233-025-125-2200-0B7
M83513 / 28-A02PP	MK-235-009-135-2200	M83513 / 28-B03NW	MK-232-015-145-2200-0B7	M83513 / 28-D01NN	MK-232-025-125-0000
M83513 / 28-A02PT	MK-235-009-135-0000-0B7	M83513 / 28-B03PN	MK-235-015-145-0000	M83513 / 28-D01NP	MK-232-025-125-2200
M83513 / 28-A02PW	MK-235-009-135-2200-0B7	M83513 / 28-B03PP	MK-235-015-145-2200	M83513 / 28-D01NT	MK-232-025-125-0000-0B7
M83513 / 28-A03CN	MK-233-009-145-0000	M83513 / 28-B03PT	MK-235-015-145-0000-0B7	M83513 / 28-D01NW	MK-232-025-125-2200-0B7
M83513 / 28-A03CP	MK-233-009-145-2200	M83513 / 28-B03PW	MK-235-015-145-2200-0B7	M83513 / 28-D01PN	MK-235-025-125-0000
M83513 / 28-A03CT	MK-233-009-145-0000-0B7			M83513 / 28-D01PP	MK-235-025-125-2200
M83513 / 28-A03CW	MK-233-009-145-2200-0B7	M83513 / 28-C01CN	MK-233-021-125-0000	M83513 / 28-D01PT	MK-235-025-125-0000-0B7
M83513 / 28-A03NN	MK-232-009-145-0000	M83513 / 28-C01CP	MK-233-021-125-2200	M83513 / 28-D01PW	MK-235-025-125-2200-0B7
M83513 / 28-A03NP	MK-232-009-145-2200	M83513 / 28-C01CT	MK-233-021-125-0000-0B7	M83513 / 28-D02CN	MK-233-025-135-0000
M83513 / 28-A03NT	MK-232-009-145-0000-0B7	M83513 / 28-C01CW	MK-233-021-125-2200-0B7	M83513 / 28-D02CP	MK-233-025-135-2200
M83513 / 28-A03NW	MK-232-009-145-2200-0B7	M83513 / 28-C01NN	MK-232-021-125-0000	M83513 / 28-D02CT	MK-233-025-135-0000-0B7
M83513 / 28-A03PN	MK-235-009-145-0000	M83513 / 28-C01NP	MK-232-021-125-2200	M83513 / 28-D02CW	MK-233-025-135-2200-0B7
M83513 / 28-A03PP	MK-235-009-145-2200	M83513 / 28-C01NT	MK-232-021-125-0000-0B7	M83513 / 28-D02NN	MK-232-025-135-0000
M83513 / 28-A03PT	MK-235-009-145-0000-0B7	M83513 / 28-C01NW	MK-232-021-125-2200-0B7	M83513 / 28-D02NP	MK-232-025-135-2200
M83513 / 28-A03PW	MK-235-009-145-2200-0B7	M83513 / 28-C01PN	MK-235-021-125-0000	M83513 / 28-D02NT	MK-232-025-135-0000-0B7
		M83513 / 28-C01PP	MK-235-021-125-2200	M83513 / 28-D02NW	MK-232-025-135-2200-0B7
M83513 / 28-B01CN	MK-233-015-125-0000	M83513 / 28-C01PT	MK-235-021-125-0000-0B7	M83513 / 28-D02PN	MK-235-025-135-0000
M83513 / 28-B01CP	MK-233-015-125-2200	M83513 / 28-C01PW	MK-235-021-125-2200-0B7	M83513 / 28-D02PP	MK-235-025-135-2200
M83513 / 28-B01CT	MK-233-015-125-0000-0B7	M83513 / 28-C02CN	MK-233-021-135-0000	M83513 / 28-D02PT	MK-235-025-135-0000-0B7
M83513 / 28-B01CW	MK-233-015-125-2200-0B7	M83513 / 28-C02CP	MK-233-021-135-2200	M83513 / 28-D02PW	MK-235-025-135-2200-0B7
M83513 / 28-B01NN	MK-232-015-125-0000	M83513 / 28-C02CT	MK-233-021-135-0000-0B7	M83513 / 28-D03CN	MK-233-025-145-0000
M83513 / 28-B01NP	MK-232-015-125-2200	M83513 / 28-C02CW	MK-233-021-135-2200-0B7	M83513 / 28-D03CP	MK-233-025-145-2200
M83513 / 28-B01NT	MK-232-015-125-0000-0B7	M83513 / 28-C02NN	MK-232-021-135-0000	M83513 / 28-D03CT	MK-233-025-145-0000-0B7
M83513 / 28-B01NW	MK-232-015-125-2200-0B7	M83513 / 28-C02NP	MK-232-021-135-2200	M83513 / 28-D03CW	MK-233-025-145-2200-0B7
M83513 / 28-B01PN	MK-235-015-125-0000	M83513 / 28-C02NT	MK-232-021-135-0000-0B7	M83513 / 28-D03NN	MK-232-025-145-0000
M83513 / 28-B01PP	MK-235-015-125-2200	M83513 / 28-C02NW	MK-232-021-135-2200-0B7	M83513 / 28-D03NP	MK-232-025-145-2200

Military Cross Reference Chart

-- Continued from previous page

M83513 / 28 (continued)

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M83513 / 28-D03PP	MK-235-025-145-2200
M83513 / 28-D03PT	MK-235-025-145-0000-0B7
M83513 / 28-D03PW	MK-235-025-145-2200-0B7
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M83513 / 28-E01CP	MK-233-031-125-2200
M83513 / 28-E01CT	MK-233-031-125-0000-0B7
M83513 / 28-E01CW	MK-233-031-125-2200-0B7
M83513 / 28-E01NN	MK-232-031-125-0000
M83513 / 28-E01NP	MK-232-031-125-2200
M83513 / 28-E01NT	MK-232-031-125-0000-0B7
M83513 / 28-E01NW	MK-232-031-125-2200-0B7
M83513 / 28-E01PN	MK-235-031-125-0000
M83513 / 28-E01PP	MK-235-031-125-2200
M83513 / 28-E01PT	MK-235-031-125-0000-0B7
M83513 / 28-E01PW	MK-235-031-125-2200-0B7
M83513 / 28-E02CN	MK-233-031-135-0000
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M83513 / 28-E02CT	MK-233-031-135-0000-0B7
M83513 / 28-E02CW	MK-233-031-135-2200-0B7
M83513 / 28-E02NN	MK-232-031-135-0000
M83513 / 28-E02NP	MK-232-031-135-2200
M83513 / 28-E02NT	MK-232-031-135-0000-0B7
M83513 / 28-E02NW	MK-232-031-135-2200-0B7
M83513 / 28-E02PN	MK-235-031-135-0000
M83513 / 28-E02PP	MK-235-031-135-2200
M83513 / 28-E02PT	MK-235-031-135-0000-0B7
M83513 / 28-E02PW	MK-235-031-135-2200-0B7
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M83513 / 28-E03CP	MK-233-031-145-2200
M83513 / 28-E03CT	MK-233-031-145-0000-0B7
M83513 / 28-E03CW	MK-233-031-145-2200-0B7
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M83513 / 28-E03NP	MK-232-031-145-2200
M83513 / 28-E03NT	MK-232-031-145-0000-0B7
M83513 / 28-E03NW	MK-232-031-145-2200-0B7
M83513 / 28-E03PN	MK-235-031-145-0000
M83513 / 28-E03PP	MK-235-031-145-2200
M83513 / 28-E03PT	MK-235-031-145-0000-0B7
M83513 / 28-E03PW	MK-235-031-145-2200-0B7
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M83513 / 28-F01CT	MK-233-037-125-0000-0B7
M83513 / 28-F01CW	MK-233-037-125-2200-0B7
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M83513 / 28-F01NT	MK-232-037-125-0000-0B7
M83513 / 28-F01NW	MK-232-037-125-2200-0B7
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M83513 / 28-F01PT	MK-235-037-125-0000-0B7
M83513 / 28-F01PW	MK-235-037-125-2200-0B7
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M83513 / 28-F02CP	MK-233-037-135-2200
M83513 / 28-F02CT	MK-233-037-135-0000-0B7
M83513 / 28-F02CW	MK-233-037-135-2200-0B7
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M83513 / 28-F02NP	MK-232-037-135-2200
M83513 / 28-F02NT	MK-232-037-135-0000-0B7
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M83513 / 28-F03CT	MK-233-037-145-0000-0B7
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M83513 / 28-F03NP	MK-232-037-145-2200
M83513 / 28-F03NT	MK-232-037-145-0000-0B7
M83513 / 28-F03NW	MK-232-037-145-2200-0B7
M83513 / 28-F03PN	MK-235-037-145-0000
M83513 / 28-F03PP	MK-235-037-145-2200
M83513 / 28-F03PT	MK-235-037-145-0000-0B7
M83513 / 28-F03PW	MK-235-037-145-2200-0B7

M83513 / 29

M83513 / 29-G01CN	MK-333-051-125-0000
M83513 / 29-G01CP	MK-333-051-125-2200
M83513 / 29-G01CT	MK-333-051-125-0000-0B7
M83513 / 29-G01CW	MK-333-051-125-2200-0B7
M83513 / 29-G01NN	MK-332-051-125-0000
M83513 / 29-G01NP	MK-332-051-125-2200
M83513 / 29-G01NT	MK-332-051-125-0000-0B7
M83513 / 29-G01NW	MK-332-051-125-2200-0B7
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M83513 / 29-G01PP	MK-335-051-125-2200
M83513 / 29-G01PT	MK-335-051-125-0000-0B7
M83513 / 29-G01PW	MK-335-051-125-2200-0B7
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M83513 / 29-G02CP	MK-333-051-135-2200
M83513 / 29-G02CT	MK-333-051-135-0000-0B7
M83513 / 29-G02CW	MK-333-051-135-2200-0B7
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M83513 / 29-G02NP	MK-332-051-135-2200
M83513 / 29-G02NT	MK-332-051-135-0000-0B7
M83513 / 29-G02NW	MK-332-051-135-2200-0B7
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M83513 / 29-G02PP	MK-335-051-135-2200
M83513 / 29-G02PT	MK-335-051-135-0000-0B7
M83513 / 29-G02PW	MK-335-051-135-2200-0B7
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M83513 / 29-G03CP	MK-333-051-145-2200
M83513 / 29-G03CT	MK-333-051-145-0000-0B7
M83513 / 29-G03CW	MK-333-051-145-2200-0B7
M83513 / 29-G03NN	MK-332-051-145-0000
M83513 / 29-G03NP	MK-332-051-145-2200
M83513 / 29-G03NT	MK-332-051-145-0000-0B7
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M83513 / 29-G03PP	MK-335-051-145-2200
M83513 / 29-G03PT	MK-335-051-145-0000-0B7
M83513 / 29-G03PW	MK-335-051-145-2200-0B7

M83513 / 30

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M83513 / 30-H01CP	MK-433-100-125-6200
M83513 / 30-H01CT	MK-433-100-125-0000-0B7
M83513 / 30-H01CW	MK-433-100-125-6200-0B7
M83513 / 30-H01NN	MK-432-100-125-0000
M83513 / 30-H01NP	MK-432-100-125-6200
M83513 / 30-H01NT	MK-432-100-125-0000-0B7
M83513 / 30-H01NW	MK-432-100-125-6200-0B7
M83513 / 30-H01PN	MK-435-100-125-0000
M83513 / 30-H01PP	MK-435-100-125-6200
M83513 / 30-H01PT	MK-435-100-125-0000-0B7
M83513 / 30-H01PW	MK-435-100-125-6200-0B7
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M83513 / 30-H02CP	MK-433-100-135-6200
M83513 / 30-H02CT	MK-433-100-135-0000-0B7
M83513 / 30-H02CW	MK-433-100-135-6200-0B7
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M83513 / 30-H02NP	MK-432-100-135-6200
M83513 / 30-H02NT	MK-432-100-135-0000-0B7
M83513 / 30-H02NW	MK-432-100-135-6200-0B7
M83513 / 30-H02PN	MK-435-100-135-0000
M83513 / 30-H02PP	MK-435-100-135-6200
M83513 / 30-H02PT	MK-435-100-135-0000-0B7
M83513 / 30-H02PW	MK-435-100-135-6200-0B7
M83513 / 30-H03CN	MK-433-100-145-0000
M83513 / 30-H03CP	MK-433-100-145-6200
M83513 / 30-H03CT	MK-433-100-145-0000-0B7
M83513 / 30-H03CW	MK-433-100-145-6200-0B7
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M83513 / 30-H03NP	MK-432-100-145-6200
M83513 / 30-H03NT	MK-432-100-145-0000-0B7
M83513 / 30-H03NW	MK-432-100-145-6200-0B7
M83513 / 30-H03PN	MK-435-100-145-0000
M83513 / 30-H03PP	MK-435-100-145-6200
M83513 / 30-H03PT	MK-435-100-145-0000-0B7
M83513 / 30-H03PW	MK-435-100-145-6200-0B7

M83513 / 31

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M83513 / 31-A01CP	MK-243-009-225-2200-900
M83513 / 31-A01CT	MK-243-009-225-0000-0B7
M83513 / 31-A01CW	MK-243-009-225-2200-0B7
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M83513 / 31-A01NP	MK-242-009-225-2200-900
M83513 / 31-A01NT	MK-242-009-225-0000-0B7
M83513 / 31-A01NW	MK-242-009-225-2200-0B7
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M83513 / 31-A01PP	MK-245-009-225-2200-900
M83513 / 31-A01PT	MK-245-009-225-0000-0B7
M83513 / 31-A01PW	MK-245-009-225-2200-0B7
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M83513 / 31-A02CT	MK-243-009-235-0000-0B7
M83513 / 31-A02CW	MK-243-009-235-2200-0B7
M83513 / 31-A02NN	MK-242-009-235-0000-900
M83513 / 31-A02NP	MK-242-009-235-2200-900
M83513 / 31-A02NT	MK-242-009-235-0000-0B7
M83513 / 31-A02NW	MK-242-009-235-2200-0B7
M83513 / 31-A02PN	MK-245-009-235-0000-900
M83513 / 31-A02PP	MK-245-009-235-2200-900
M83513 / 31-A02PT	MK-245-009-235-0000-0B7
M83513 / 31-A02PW	MK-245-009-235-2200-0B7
M83513 / 31-A03CN	MK-243-009-245-0000-900
M83513 / 31-A03CP	MK-243-009-245-2200-900
M83513 / 31-A03CT	MK-243-009-245-0000-0B7
M83513 / 31-A03CW	MK-243-009-245-2200-0B7
M83513 / 31-A03NN	MK-242-009-245-0000-900
M83513 / 31-A03NP	MK-242-009-245-2200-900
M83513 / 31-A03NT	MK-242-009-245-0000-0B7
M83513 / 31-A03NW	MK-242-009-245-2200-0B7
M83513 / 31-A03PN	MK-245-009-245-0000-900
M83513 / 31-A03PP	MK-245-009-245-2200-900
M83513 / 31-A03PT	MK-245-009-245-0000-0B7
M83513 / 31-A03PW	MK-245-009-245-2200-0B7
M83513 / 31-B01CN	MK-243-015-225-0000-900
M83513 / 31-B01CP	MK-243-015-225-2200-900
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M83513 / 31-B01NW	MK-242-015-225-2200-0B7
M83513 / 31-B01PN	MK-245-015-225-0000-900
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M83513 / 31-B02CT	MK-243-015-235-0000-0B7
M83513 / 31-B02CW	MK-243-015-235-2200-0B7
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M83513 / 31-B02PT	MK-245-015-235-0000-0B7
M83513 / 31-B02PW	MK-245-015-235-2200-0B7
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M83513 / 31-B03NP	MK-242-015-245-2200-900
M83513 / 31-B03NT	MK-242-015-245-0000-0B7
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M83513 / 31-B03PW	MK-245-015-245-2200-0B7
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M83513 / 31-C01NW	MK-242-021-225-2200-0B7
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M83513 / 31-C01PP	MK-245-021-225-2200-900
M83513 / 31-C01PT	MK-245-021-225-0000-0B7
M83513 / 31-C01PW	MK-245-021-225-2200-0B7
M83513 / 31-C02CN	MK-243-021-235-0000-900
M83513 / 31-C02CP	MK-243-021-235-2200-900
M83513 / 31-C02CT	MK-243-021-235-0000-0B7
M83513 / 31-C02CW	MK-243-021-235-2200-0B7
M83513 / 31-C02NN	MK-242-021-235-0000-900
M83513 / 31-C02NP	MK-242-021-235-2200-900
M83513 / 31-C02NT	MK-242-021-235-0000-0B7
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M83513 / 31-C02PP	MK-245-021-235-2200-900
M83513 / 31-C02PT	MK-245-021-235-0000-0B7
M83513 / 31-C02PW	MK-245-021-235-2200-0B7
M83513 / 31-C03CN	MK-243-021-245-0000-900
M83513 / 31-C03CP	MK-243-021-245-2200-900
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M83513 / 31-C03CW	MK-243-021-245-2200-0B7
M83513 / 31-C03NN	MK-242-021-245-0000-900
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M83513 / 31-C03PP	MK-245-021-245-2200-900
M83513 / 31-C03PT	MK-245-021-245-0000-0B7
M83513 / 31-C03PW	MK-245-021-245-2200-0B7
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M83513 / 31-D01CP	MK-243-025-225-2200-900
M83513 / 31-D01CT	MK-243-025-225-0000-0B7
M83513 / 31-D01CW	MK-243-025-225-2200-0B7
M83513 / 31-D01NN	MK-242-025-225-0000-900
M83513 / 31-D01NP	MK-242-025-225-2200-900
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M83513 / 31-D01NW	MK-242-025-225-2200-0B7
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M83513 / 31-D01PP	MK-245-025-225-2200-900
M83513 / 31-D01PT	MK-245-025-225-0000-0B7
M83513 / 31-D01PW	MK-245-025-225-2200-0B7
M83513 / 31-D02CN	MK-243-025-235-0000-900
M83513 / 31-D02CP	MK-243-025-235-2200-900
M83513 / 31-D02CT	MK-243-025-235-0000-0B7
M83513 / 31-D02CW	MK-243-025-235-2200-0B7
M83513 / 31-D02NN	MK-242-025-235-0000-900
M83513 / 31-D02NP	MK-242-025-235-2200-900
M83513 / 31-D02NT	MK-242-025-235-0000-0B7
M83513 / 31-D02NW	MK-242-025-235-2200-0B7
M83513 / 31-D02PN	MK-245-025-235-0000-900
M83513 / 31-D02PP	MK-245-025-235-2200-900
M83513 / 31-D02PT	MK-245-025-235-0000-0B7
M83513 / 31-D02PW	MK-245-025-235-2200-0B7
M83513 / 31-D03CN	MK-243-025-245-0000-900
M83513 / 31-D03CP	MK-243-025-245-2200-900
M83513 / 31-D03CT	MK-243-025-245-0000-0B7
M83513 / 31-D03CW	MK-243-025-245-2200-0B7
M83513 / 31-D03NN	MK-242-025-245-0000-900
M83513 / 31-D03NP	MK-242-025-245-2200-900
M83513 / 31-D03NT	MK-242-025-245-0000-0B7
M83513 / 31-D03NW	MK-242-025-245-2200-0B7
M83513 / 31-D03PN	MK-245-025-245-0000-900
M83513 / 31-D03PP	MK-245-025-245-2200-900
M83513 / 31-D03PT	MK-245-025-245-0000-0B7
M83513 / 31-D03PW	MK-245-025-245-2200-0B7
M83513 / 31-E01CN	MK-243-031-225-0000-900
M83513 / 31-E01CP	MK-243-031-225-2200-900
M83513 / 31-E01CT	MK-243-031-225-0000-0B7
M83513 / 31-E01CW	MK-243-031-225-2200-0B7
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M83513 / 31-E01NP	MK-242-031-225-2200-900
M83513 / 31-E01NT	MK-242-031-225-0000-0B7
M83513 / 31-E01NW	MK-242-031-225-2200-0B7
M83513 / 31-E01PN	MK-245-031-225-0000-900
M83513 / 31-E01PP	MK-245-031-225-2200-900
M83513 / 31-E01PT	MK-245-031-225-0000-0B7
M83513 / 31-E01PW	MK-245-031-225-2200-0B7
M83513 / 31-E02CN	MK-243-031-235-0000-900
M83513 / 31-E02CP	MK-243-031-235-2200-900
M83513 / 31-E02CT	MK-243-031-235-0000-0B7
M83513 / 31-E02CW	MK-243-031-235-2200-0B7
M83513 / 31-E02NN	MK-242-031-235-0000-900
M83513 / 31-E02NP	MK-242-031-235-2200-900

Military Cross Reference Chart

-- Continued from previous page

M83513 / 31 (continued)

M83513 / 31-E02NT	MK-242-031-235-0000-0B7	M83513 / 31-F01CN	MK-243-037-225-0000-900	M83513 / 31-F02NT	MK-242-037-235-0000-0B7
M83513 / 31-E02NW	MK-242-031-235-2200-0B7	M83513 / 31-F01CP	MK-243-037-225-2200-900	M83513 / 31-F02NW	MK-242-037-235-2200-0B7
M83513 / 31-E02PN	MK-245-031-235-0000-900	M83513 / 31-F01CT	MK-243-037-225-0000-0B7	M83513 / 31-F02PN	MK-245-037-235-0000-900
M83513 / 31-E02PP	MK-245-031-235-2200-900	M83513 / 31-F01CW	MK-243-037-225-2200-0B7	M83513 / 31-F02PP	MK-245-037-235-2200-900
M83513 / 31-E02PT	MK-245-031-235-0000-0B7	M83513 / 31-F01NN	MK-242-037-225-0000-900	M83513 / 31-F02PT	MK-245-037-235-0000-0B7
M83513 / 31-E02PW	MK-245-031-235-2200-0B7	M83513 / 31-F01NP	MK-242-037-225-2200-900	M83513 / 31-F02PW	MK-245-037-235-2200-0B7
M83513 / 31-E03CN	MK-243-031-245-0000-900	M83513 / 31-F01NT	MK-242-037-225-0000-0B7	M83513 / 31-F03CN	MK-243-037-245-0000-900
M83513 / 31-E03CP	MK-243-031-245-2200-900	M83513 / 31-F01NW	MK-242-037-225-2200-0B7	M83513 / 31-F03CP	MK-243-037-245-2200-900
M83513 / 31-E03CT	MK-243-031-245-0000-0B7	M83513 / 31-F01PN	MK-245-037-225-0000-900	M83513 / 31-F03CT	MK-243-037-245-0000-0B7
M83513 / 31-E03CW	MK-243-031-245-2200-0B7	M83513 / 31-F01PP	MK-245-037-225-2200-900	M83513 / 31-F03CW	MK-243-037-245-2200-0B7
M83513 / 31-E03NN	MK-242-031-245-0000-900	M83513 / 31-F01PT	MK-245-037-225-0000-0B7	M83513 / 31-F03NN	MK-242-037-245-0000-900
M83513 / 31-E03NP	MK-242-031-245-2200-900	M83513 / 31-F01PW	MK-245-037-225-2200-0B7	M83513 / 31-F03NP	MK-242-037-245-2200-900
M83513 / 31-E03NT	MK-242-031-245-0000-0B7	M83513 / 31-F02CN	MK-243-037-235-0000-900	M83513 / 31-F03NT	MK-242-037-245-0000-0B7
M83513 / 31-E03NW	MK-242-031-245-2200-0B7	M83513 / 31-F02CP	MK-243-037-235-2200-900	M83513 / 31-F03NW	MK-242-037-245-2200-0B7
M83513 / 31-E03PN	MK-245-031-245-0000-900	M83513 / 31-F02CT	MK-243-037-235-0000-0B7	M83513 / 31-F03PN	MK-245-037-245-0000-900
M83513 / 31-E03PP	MK-245-031-245-2200-900	M83513 / 31-F02CW	MK-243-037-235-2200-0B7	M83513 / 31-F03PP	MK-245-037-245-2200-900
M83513 / 31-E03PT	MK-245-031-245-0000-0B7	M83513 / 31-F02NN	MK-242-037-235-0000-900	M83513 / 31-F03PT	MK-245-037-245-0000-0B7
M83513 / 31-E03PW	MK-245-031-245-2200-0B7	M83513 / 31-F02NP	MK-242-037-235-2200-900	M83513 / 31-F03PW	MK-245-037-245-2200-0B7

M83513 / 32

M83513 / 32-G01CN	MK-343-051-225-0000-900	M83513 / 32-G02CN	MK-343-051-235-0000-900	M83513 / 32-G03CN	MK-343-051-245-0000-900
M83513 / 32-G01CP	MK-343-051-225-2200-900	M83513 / 32-G02CP	MK-343-051-235-2200-900	M83513 / 32-G03CP	MK-343-051-245-2200-900
M83513 / 32-G01CT	MK-343-051-225-0000-0B7	M83513 / 32-G02CT	MK-343-051-235-0000-0B7	M83513 / 32-G03CT	MK-343-051-245-0000-0B7
M83513 / 32-G01CW	MK-343-051-225-2200-0B7	M83513 / 32-G02CW	MK-343-051-235-2200-0B7	M83513 / 32-G03CW	MK-343-051-245-2200-0B7
M83513 / 32-G01NN	MK-342-051-225-0000-900	M83513 / 32-G02NN	MK-342-051-235-0000-900	M83513 / 32-G03NN	MK-342-051-245-0000-900
M83513 / 32-G01NP	MK-342-051-225-2200-900	M83513 / 32-G02NP	MK-342-051-235-2200-900	M83513 / 32-G03NP	MK-342-051-245-2200-900
M83513 / 32-G01NT	MK-342-051-225-0000-0B7	M83513 / 32-G02NT	MK-342-051-235-0000-0B7	M83513 / 32-G03NT	MK-342-051-245-0000-0B7
M83513 / 32-G01NW	MK-342-051-225-2200-0B7	M83513 / 32-G02NW	MK-342-051-235-2200-0B7	M83513 / 32-G03NW	MK-342-051-245-2200-0B7
M83513 / 32-G01PN	MK-345-051-225-0000-900	M83513 / 32-G02PN	MK-345-051-235-0000-900	M83513 / 32-G03PN	MK-345-051-245-0000-900
M83513 / 32-G01PP	MK-345-051-225-2200-900	M83513 / 32-G02PP	MK-345-051-235-2200-900	M83513 / 32-G03PP	MK-345-051-245-2200-900
M83513 / 32-G01PT	MK-345-051-225-0000-0B7	M83513 / 32-G02PT	MK-345-051-235-0000-0B7	M83513 / 32-G03PT	MK-345-051-245-0000-0B7
M83513 / 32-G01PW	MK-345-051-225-2200-0B7	M83513 / 32-G02PW	MK-345-051-235-2200-0B7	M83513 / 32-G03PW	MK-345-051-245-2200-0B7

M83513 / 33

M83513 / 33-H01CN	MK-443-100-225-0000-900	M83513 / 33-H02CN	MK-443-100-235-0000-900	M83513 / 33-H03CN	MK-443-100-245-0000-900
M83513 / 33-H01CP	MK-443-100-225-6200-900	M83513 / 33-H02CP	MK-443-100-235-6200-900	M83513 / 33-H03CP	MK-443-100-245-6200-900
M83513 / 33-H01CT	MK-443-100-225-0000-0B7	M83513 / 33-H02CT	MK-443-100-235-0000-0B7	M83513 / 33-H03CT	MK-443-100-245-0000-0B7
M83513 / 33-H01CW	MK-443-100-225-6200-0B7	M83513 / 33-H02CW	MK-443-100-235-6200-0B7	M83513 / 33-H03CW	MK-443-100-245-6200-0B7
M83513 / 33-H01NN	MK-442-100-225-0000-900	M83513 / 33-H02NN	MK-442-100-235-0000-900	M83513 / 33-H03NN	MK-442-100-245-0000-900
M83513 / 33-H01NP	MK-442-100-225-6200-900	M83513 / 33-H02NP	MK-442-100-235-6200-900	M83513 / 33-H03NP	MK-442-100-245-6200-900
M83513 / 33-H01NT	MK-442-100-225-0000-0B7	M83513 / 33-H02NT	MK-442-100-235-0000-0B7	M83513 / 33-H03NT	MK-442-100-245-0000-0B7
M83513 / 33-H01NW	MK-442-100-225-6200-0B7	M83513 / 33-H02NW	MK-442-100-235-6200-0B7	M83513 / 33-H03NW	MK-442-100-245-6200-0B7
M83513 / 33-H01PN	MK-445-100-225-0000-900	M83513 / 33-H02PN	MK-445-100-235-0000-900	M83513 / 33-H03PN	MK-445-100-245-0000-900
M83513 / 33-H01PP	MK-445-100-225-6200-900	M83513 / 33-H02PP	MK-445-100-235-6200-900	M83513 / 33-H03PP	MK-445-100-245-6200-900
M83513 / 33-H01PT	MK-445-100-225-0000-0B7	M83513 / 33-H02PT	MK-445-100-235-0000-0B7	M83513 / 33-H03PT	MK-445-100-245-0000-0B7
M83513 / 33-H01PW	MK-445-100-225-6200-0B7	M83513 / 33-H02PW	MK-445-100-235-6200-0B7	M83513 / 33-H03PW	MK-445-100-245-6200-0B7

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