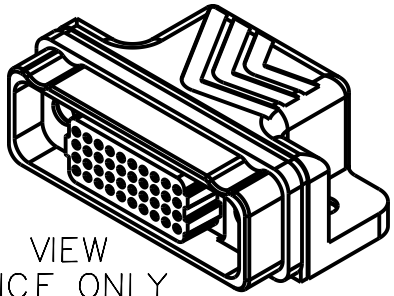


CONNECTOR PART NUMBER BUILD
SAMPLE PART NUMBER: VRRAF-04-10-50-00



ISOMETRIC VIEW
FOR REFERENCE ONLY
(PART NUMBER VRRAF-04-10-50-00 SHOWN)

VRRAF-XX-XX-XX-XX-XX

HARDWARE OPTIONS		
BLANK	STANDARD	2
G	GUIDE SOCKET	4
N	FIXED JACKNUT	4
J	TURNING JACKSCREW	5
L	LOCKING SCREW	5
E	STANDARD/EMI GASKET	4
GE	GUIDE SOCKET/EMI GASKET	4
NE	FIXED JACKNUT/EMI GASKET	4
JE	TURNING JACKSCREW/EMI GASKET	5
LE	LOCKING SCREW/EMI GASKET	5

TERMINATION	
00	PRESS-FIT
01	PASTE-IN-HOLE (PIH)
02	PLATED-THRU-HOLE (PTH) .078" LENGTH
03	PLATED-THRU-HOLE (PTH) .109" LENGTH
04	PLATED-THRU-HOLE (PTH) .140" LENGTH
05	PLATED-THRU-HOLE (PTH) .156" LENGTH
06	PLATED-THRU-HOLE (PTH) .172" LENGTH

CONTACT PLATING	
50	50μIN Au

COLUMNS	
10	10 COLUMNS
20	20 COLUMNS
30	30 COLUMNS
40	40 COLUMNS
50	50 COLUMNS

ROWS	
04	4 ROWS
05	5 ROWS
06	6 ROWS
08	8 ROWS
10	10 ROWS

MATERIAL AND FINISHES		
SOCKET CONTACTS	MATERIAL SOCKET END	BeCu PER ASTM B194
	FINISH SOCKET END	50μIN MIN LOCALIZED Au PER ASTM B488 TYPE II, CODE C OVER 50 μIN MIN Ni PER ASTM B689 TYPE 1
	MATERIAL TERMINATION END	PIH & PTH: BRASS ALLOY PER ASTM B36 PRESS-FIT: BeCu PER ASTM B768
	FINISH TERMINATION END	PIH & PTH: 10μIN MIN LOCALIZED Au FLASH PER ASTM B488 TYPE I, CODE A OR C OVER 50μIN MIN Ni PER ASTM B689 TYPE 1 PRESS-FIT: 50μIN MIN LOCALIZED Au PER ASTM B488 TYPE II, CODE C OVER 50μIN MIN Ni PER ASTM B689 TYPE 1
MOLDED INSULATORS	MATERIAL	GLASS-FILLED LIQUID CRYSTAL POLYMER (LCP) PER ASTM D5138
SHELLS	MATERIAL	ALUMINUM ALLOY 6061-T6 PER SAE AMS-4027 OR 6061-T6511 PER SAE AMS-QQ-A-200/8
	FINISH	500μIN MIN ELECTROLESS Ni PER SAE AMS-2404, CLASS 3
EMBEDMENT	MATERIAL	FREY ENG. CO. INSULATING COMPOUND CF3003-80 OR EQUIVALENT
HARDWARE	MATERIAL	STAINLESS STEEL PER ASTM A484/A484M, ASTM A582/A582M, OR ASTM A320
	FINISH	PASSIVATED PER SAE AMS-2700
WASHERS	MATERIAL	STAINLESS STEEL PER SAE NASM35333 (ASTM A240),
	FINISH	PASSIVATED PER NASM35333 (SAE AMS-2700)
EMI GASKET	MATERIAL	CONDUCTIVE ELASTOMER PER MIL-DTL-83528 TYPE D
SCREW THREAD INSERT J & L OPTIONS ONLY	MATERIAL	NAS1130-02-10

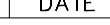
PERFORMANCE	
CONTACT RATING	2 AMPERES MAXIMUM, SEE AIRBORN PTB66 FOR MORE INFO
OPERATING TEMPERATURE	-55° C TO 125° C, SEE AIRBORN PTB66 FOR MORE INFO
CONTACT ENGAGEMENT FORCE	6.0oz MAX*
CONTACT SEPARATION FORCE	0.5oz MIN*
CONNECTOR MATING FORCE	10oz X (# OF CONTACTS) MAX TESTED PER MIL-DTL-83513
CONNECTOR UNMATING FORCE	10oz X (# OF CONTACTS) MAX TESTED PER MIL-DTL-83513
DWV (SEA LEVEL)	600V, RMS, 60Hz, SEE AIRBORN PTB61 FOR MORE INFO
RECOMMENDED MAX OPERATING VOLTAGE	200V, RMS, 60Hz, SEE AIRBORN PTB61 FOR MORE INFO
INSULATION RESISTANCE	5,000 MEGAOHMS MINIMUM @ 500 VDC, TESTED PER MIL-DTL-83513
DURABILITY	2,500 CONNECTOR MATING CYCLES, EXCEEDS MIL-DTL-83513
SINUSOIDAL VIBRATION	20 g, TESTED PER MIL-DTL-83513
SHOCK	50 g, TESTED PER MIL-DTL-83513
OUTGASSING	MAX TML OF 1% AND MAX CVM OF .1% PER MIL-DTL-83513

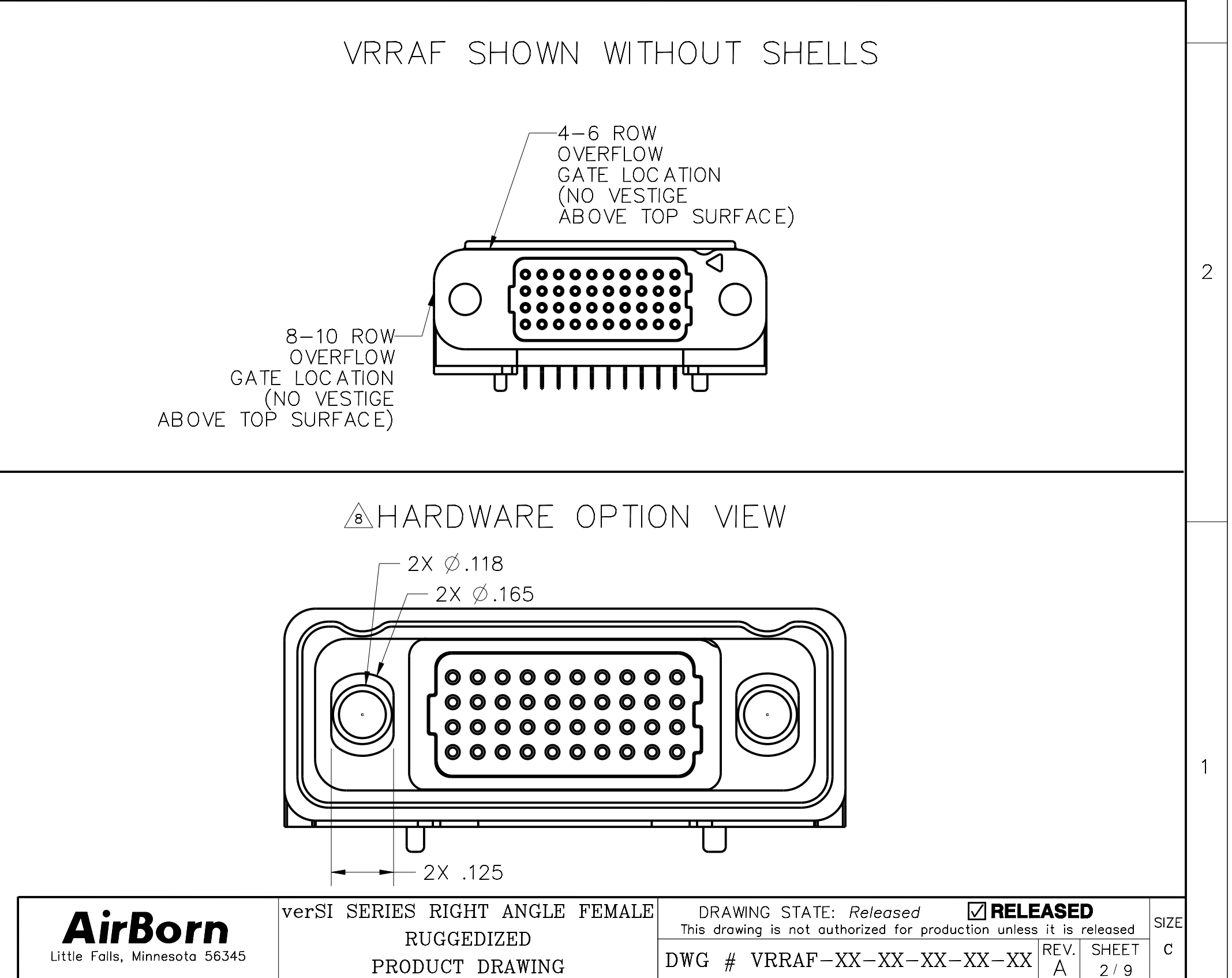
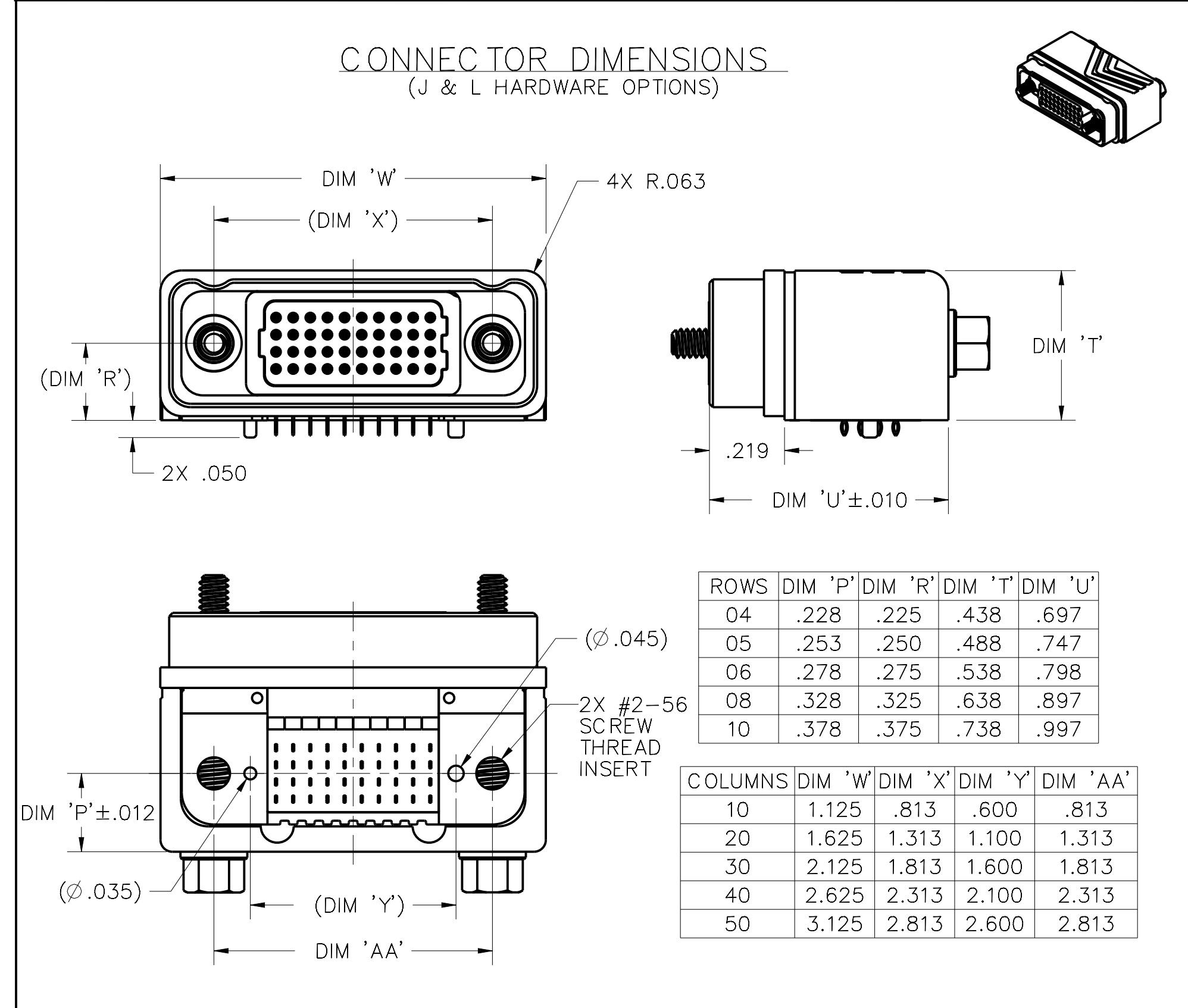
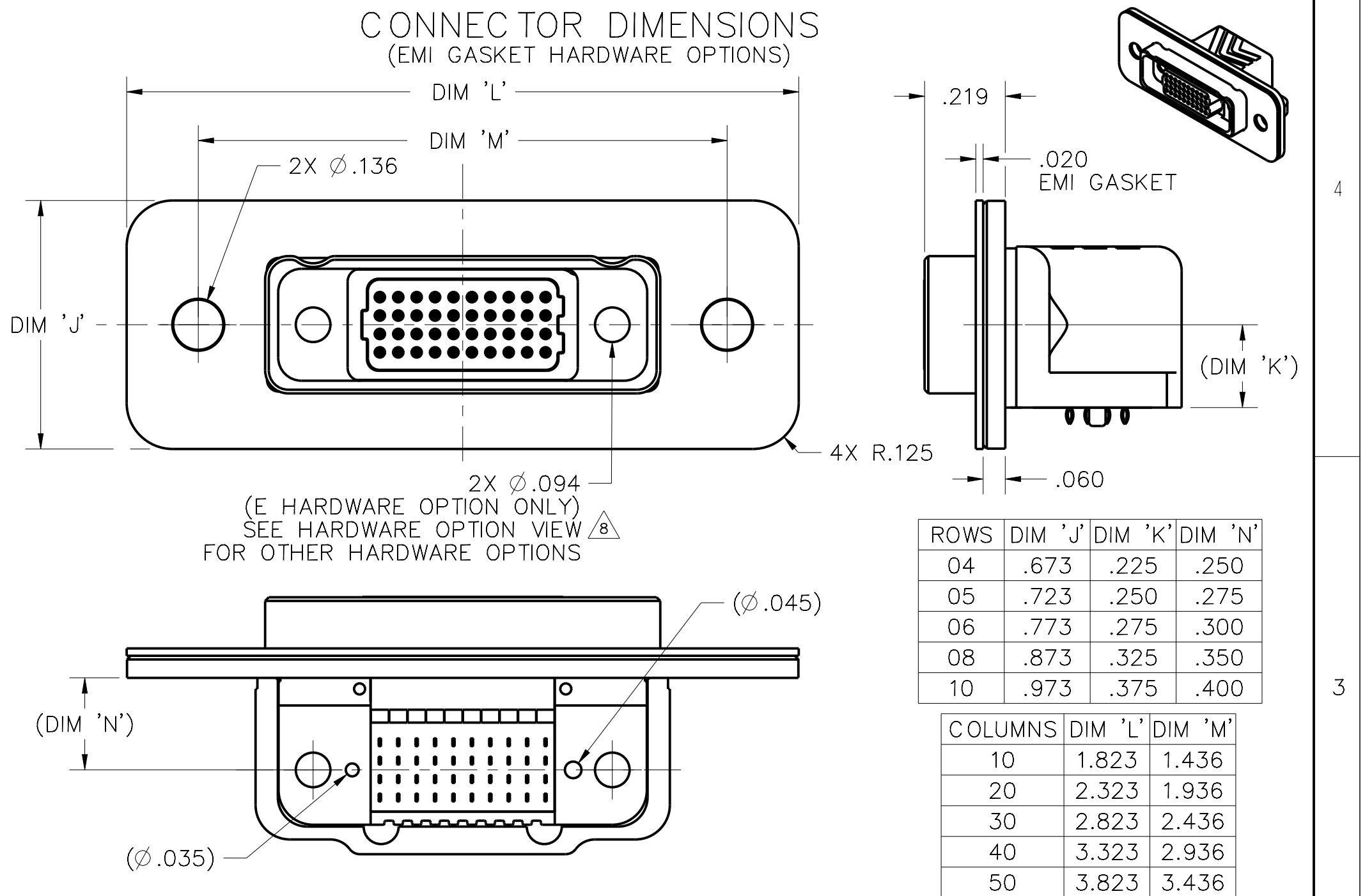
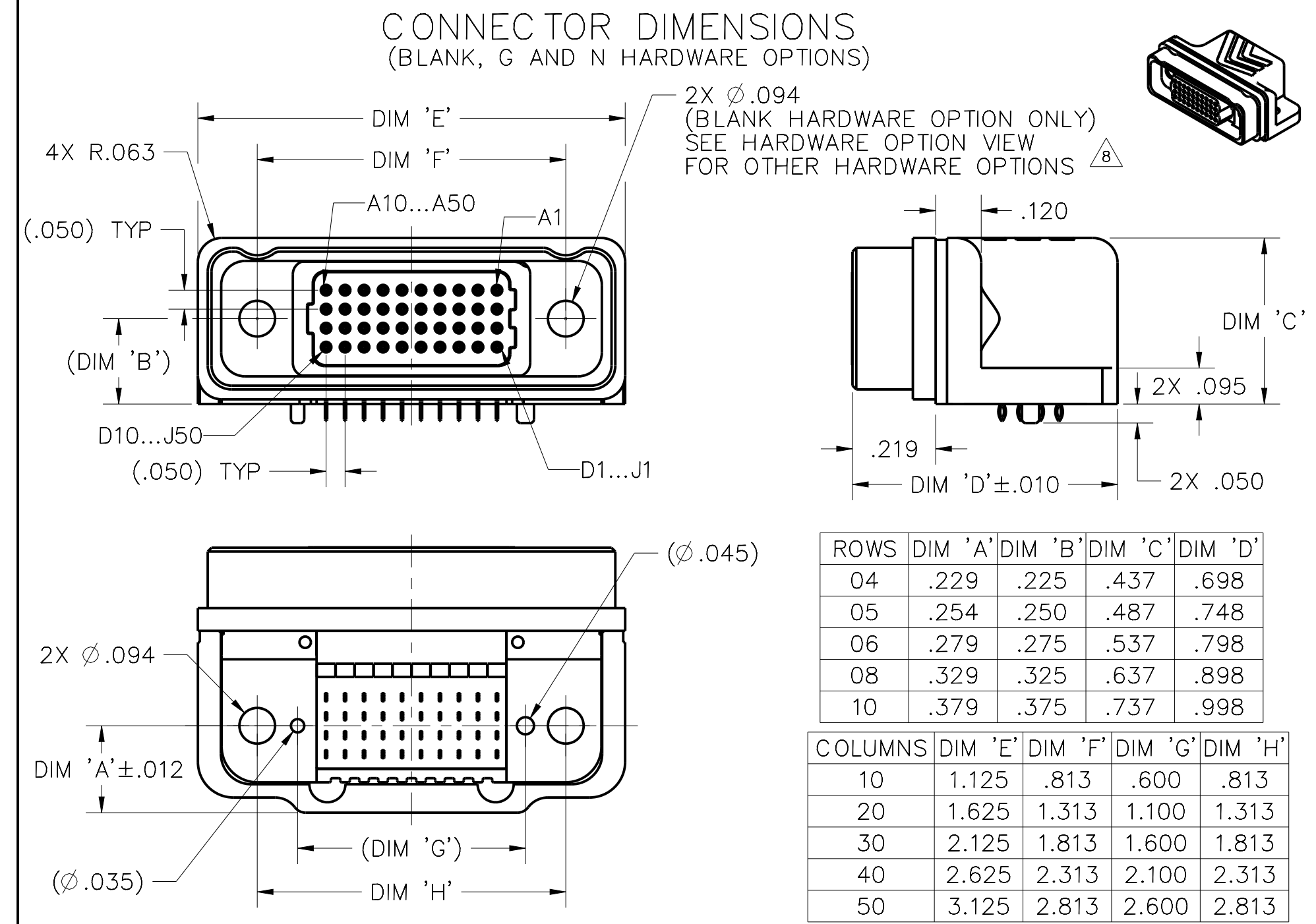
*FORCES TESTED ON SOCKET ONLY. MAX PIN SIZE USED FOR CONTACT ENGAGEMENT FORCE AND MIN PIN SIZE USED FOR CONTACT SEPARATION FORCE.

NOTES:

- SEE AIRBORN SPEC ESL5001 FOR ADDITIONAL APPLICATION INFORMATION
- SEE SHEET 8 FOR REPLACEMENT HARDWARE KITS, SEE SHEET 9 FOR REPLACEMENT GASKETS.
- PACKAGING: CONNECTORS SUPPLIED IN THERMOFORMED TRAYS.
- SHELLS AND HARDWARE SUPPLIED UNINSTALLED
- CONNECTORS COME PRE-ASSEMBLED WITH SHELLS AND HARDWARE.
- NO PCB MOUNTING HARDWARE SUPPLIED WITH CONNECTORS.
- MATES WITH CONNECTOR SERIES: VRM, VRRAM, VRD (MALE), VRW (MALE).

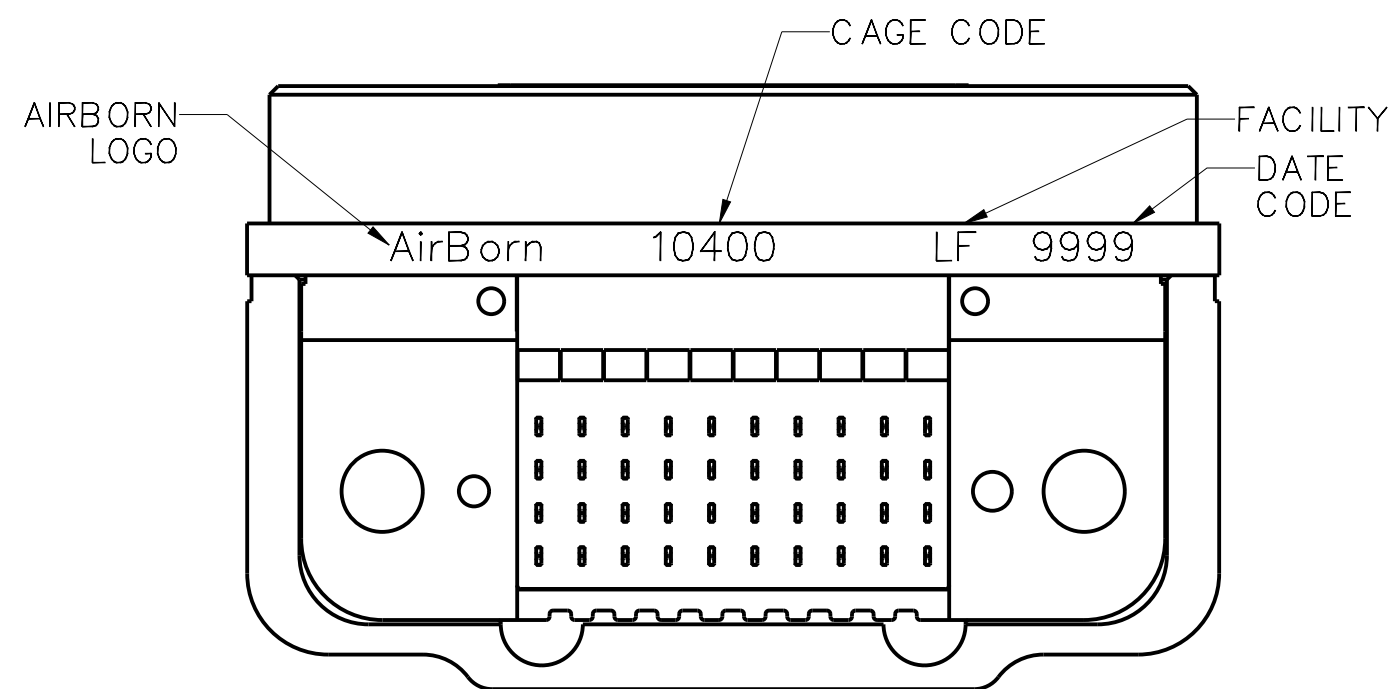
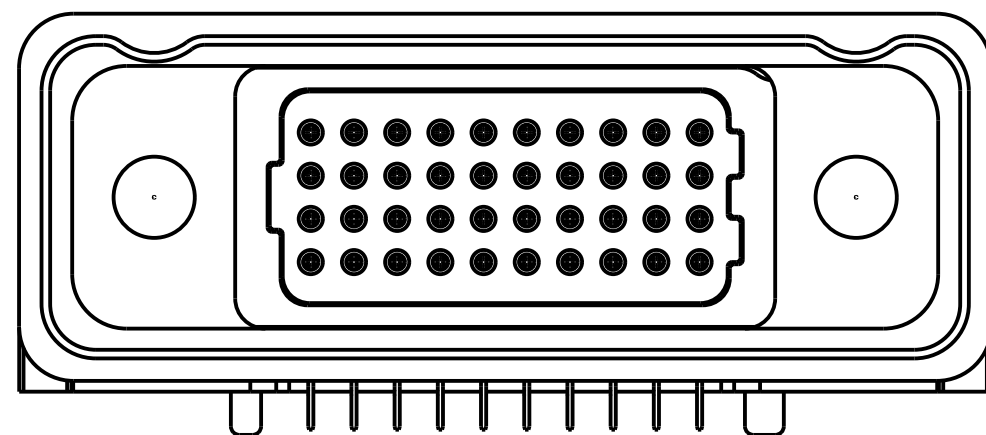
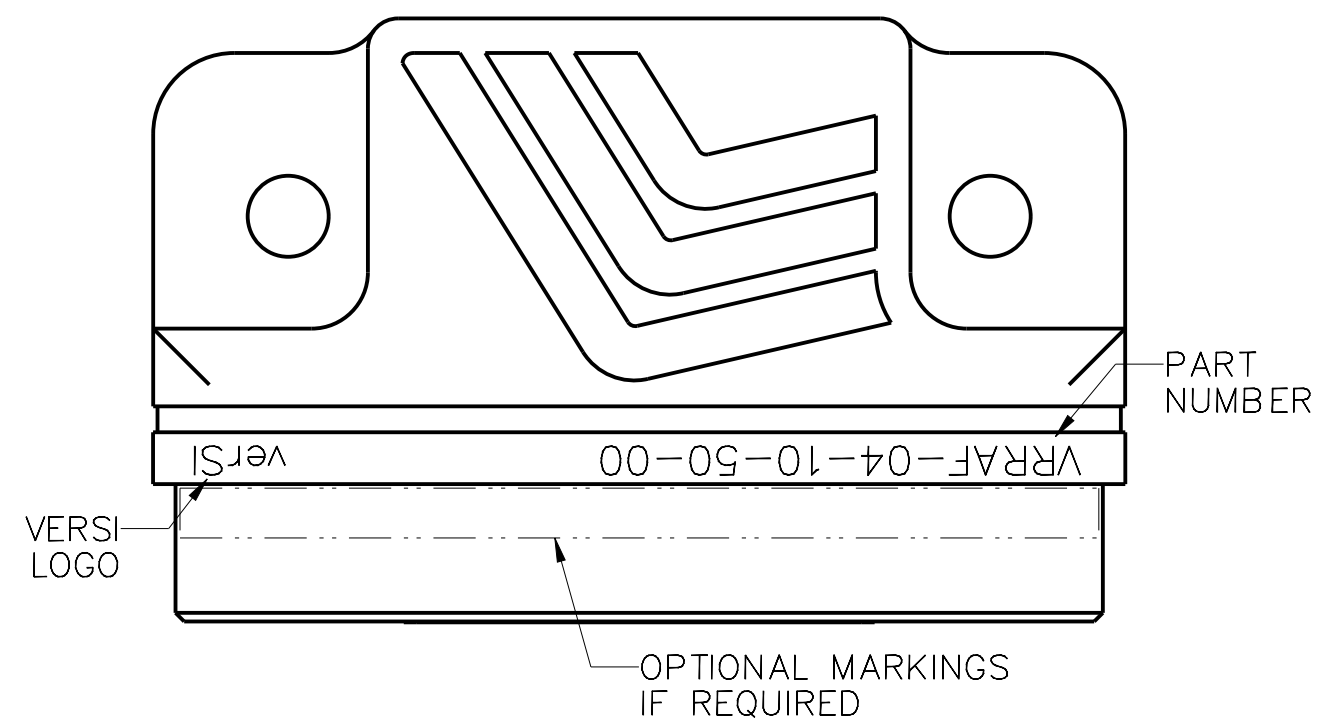


MATERIAL: SEE NOTES Temper: Per Spec.: R/M P/N ref: Certification required: NO		UNLESS OTHERWISE SPECIFIED, TOLERANCES ARE: Decimals: .XX ± .010 Concentricity: .002 T.I.R. Decimals: .XXX ± .005 Angles: ± 3° Decimals: .XXXX ± .0005 Radius: Parts are to be symmetrical about centerline within ± .002 Surfaces to be flat, perpendicular parallel within .002 T.I.R. Dimensions are in inches/DO NOT SCALE PRINT Surface finish to be 32/ or better				AirBorn Little Falls, Minnesota 56345		Cage Code 10400			
HEAT TREAT: Per Spec.: Certification required: NO						DRAWING STATE: Released This drawing is not authorized for production unless it is released				☒ RELEASED	
FINISH: SEE NOTES Per Spec.: Certification required: NO						APPLICATION: verSI SERIES				verSI SERIES RIGHT ANGLE FEMALE	
MAKE FROM: NEXT ASSY: N/A		A	INITIAL RELEASE	KTR 072418	W57940 KTR 072418	DR. KTR 041918	T I T L E	RUGGEDIZED PRODUCT DRAWING			
		REV	DESCRIPTION	DR. BY DATE	ECO NO. APPD. BY	CK. TJW 041918		DWG # VRRAF-XX-XX-XX-XX-XX			
		► = CRITICAL CHARAC TERISTIC ● = MAJOR CHARAC TERISTIC		THIRD ANGLE PROJECTION	 REL. KTR 041918	APPD. TJW 041918		REV. A	SHEET 1/9		



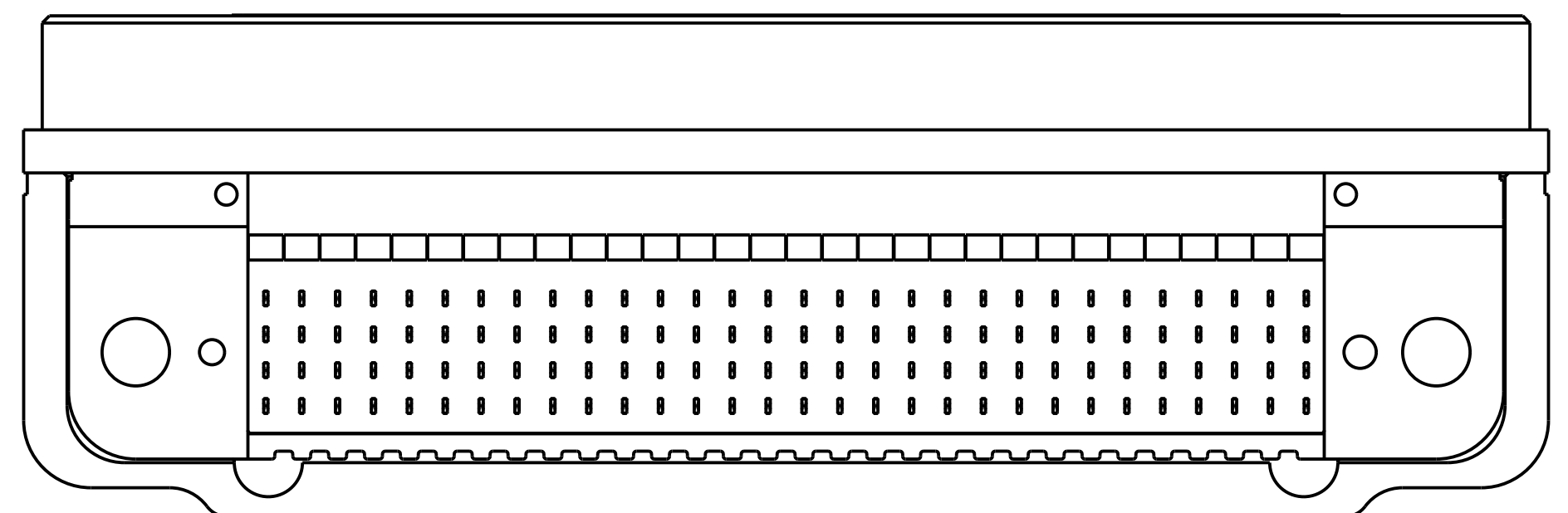
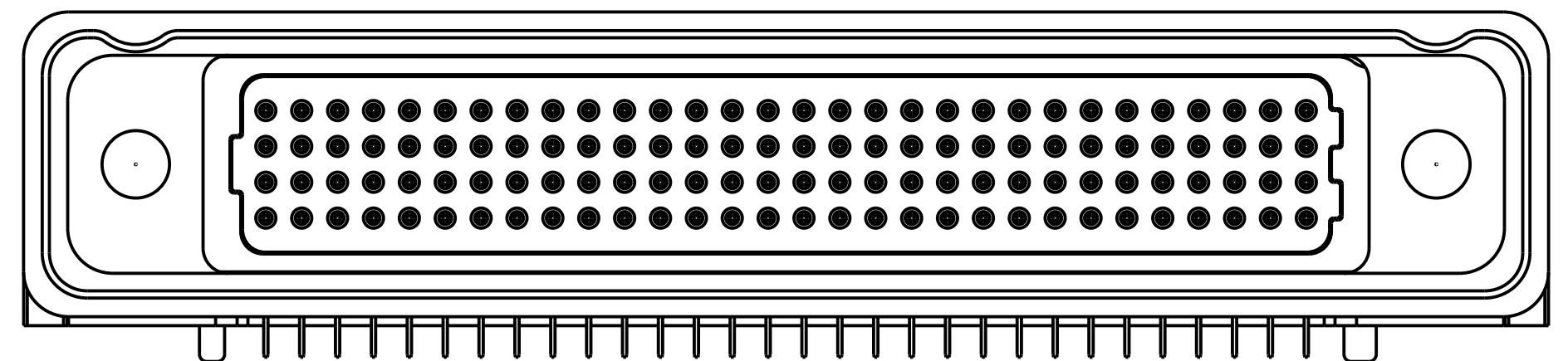
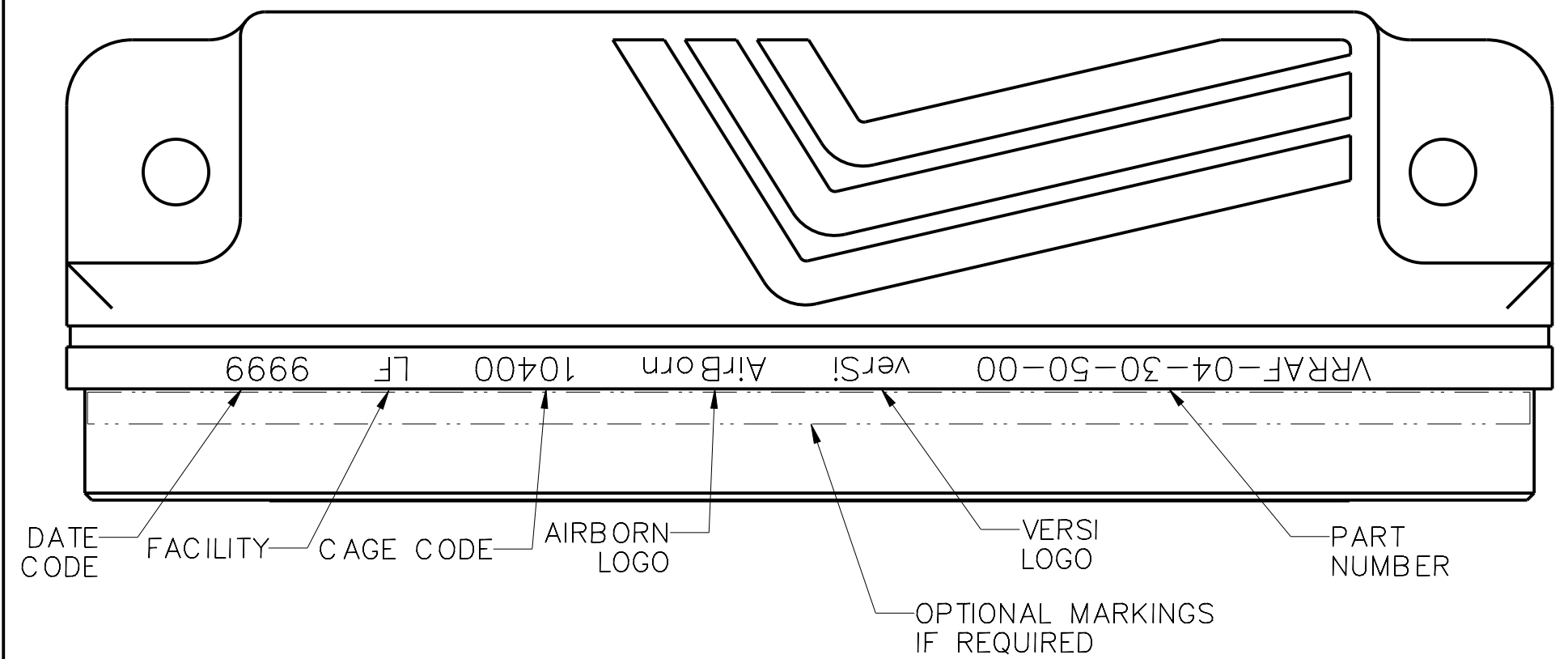
FORMAT: CERNPROG.FRM A.7

PART MARKINGS
(10 & 20 COLUMNS)



(VRRAF-04-10-XX-XX-XX SHOWN)

PART MARKINGS
(30, 40 & 50 COLUMNS)



(VRRAF-04-30-XX-XX-XX SHOWN)

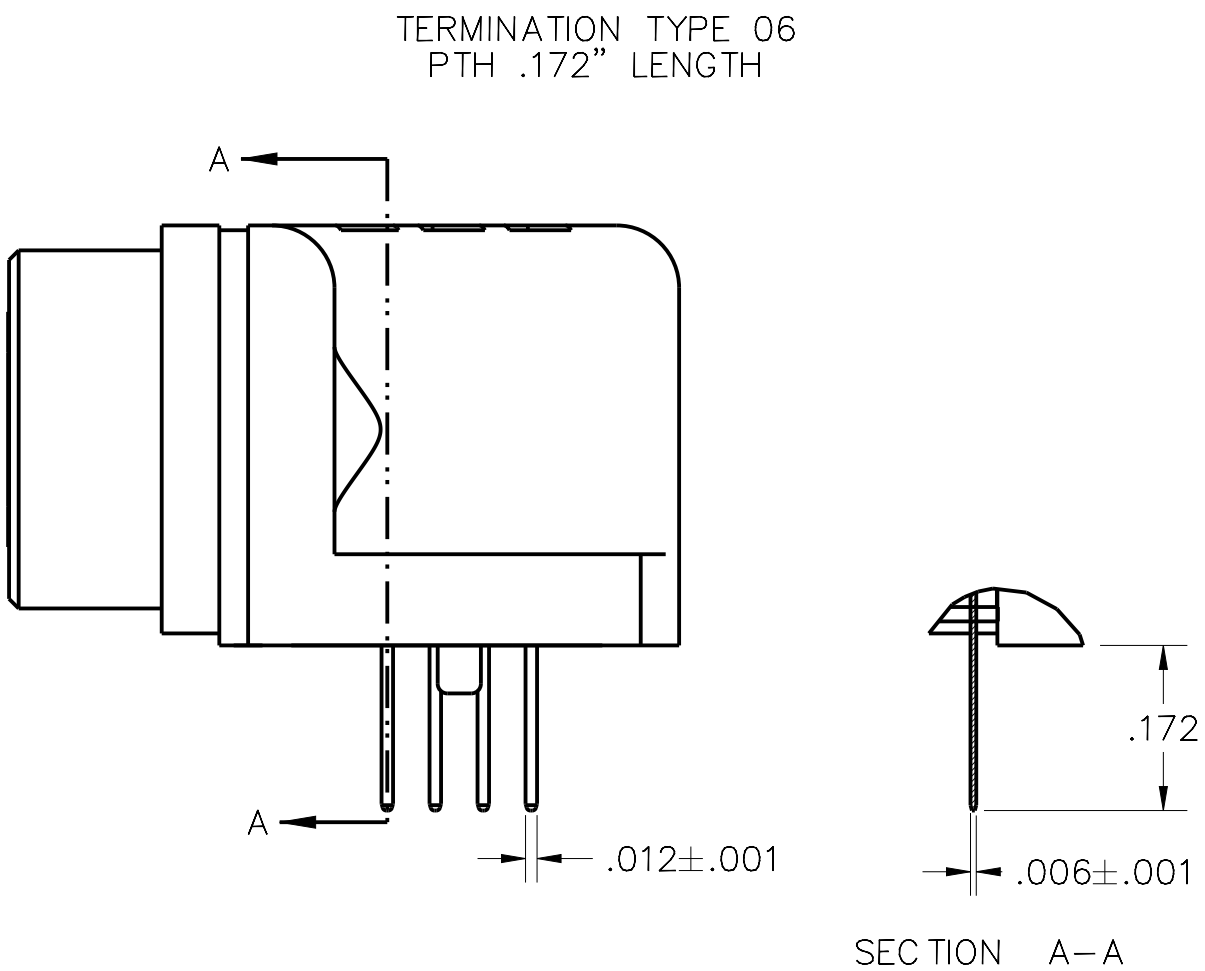
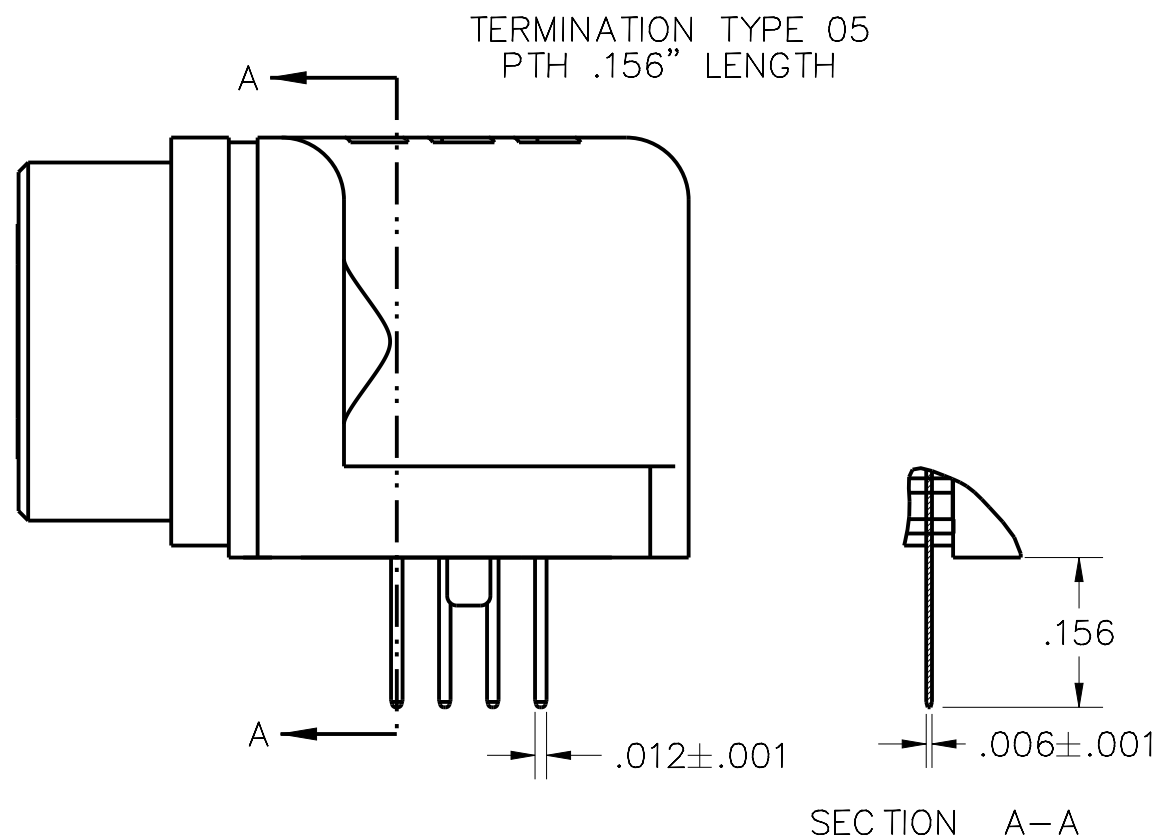
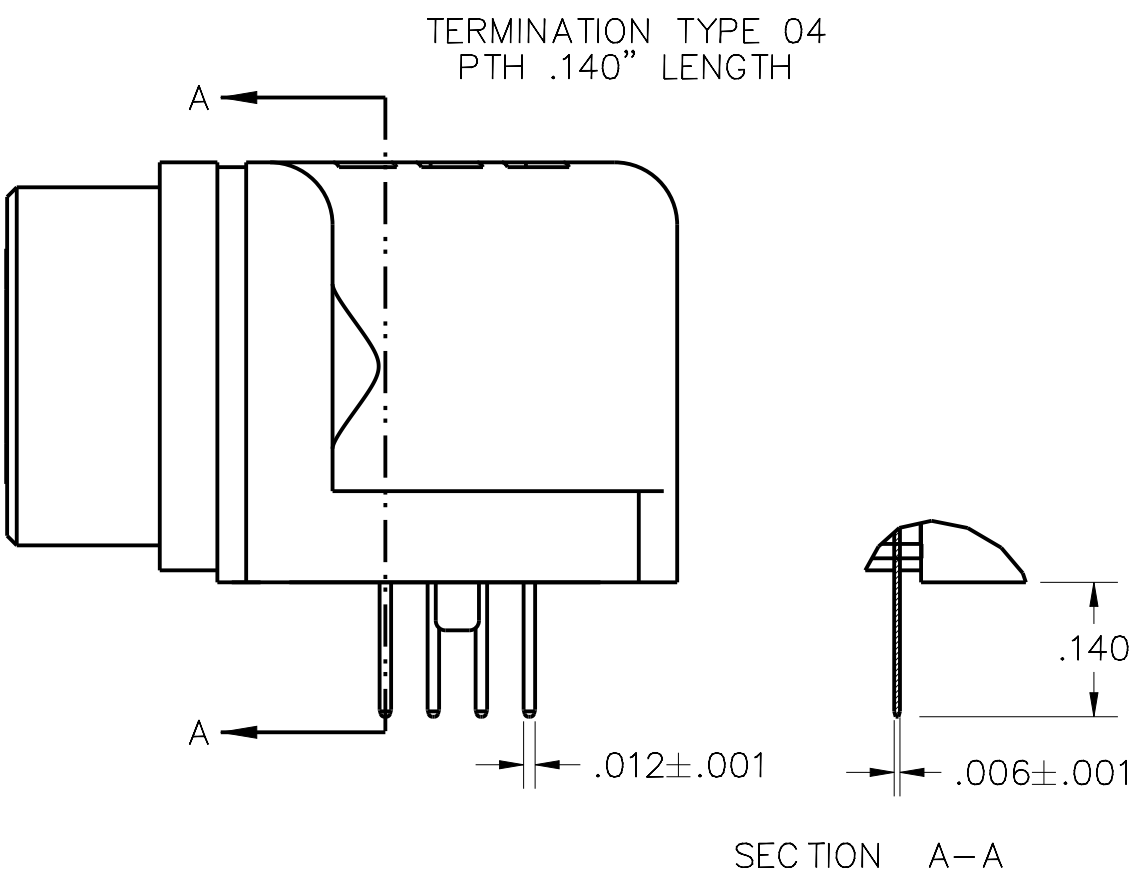
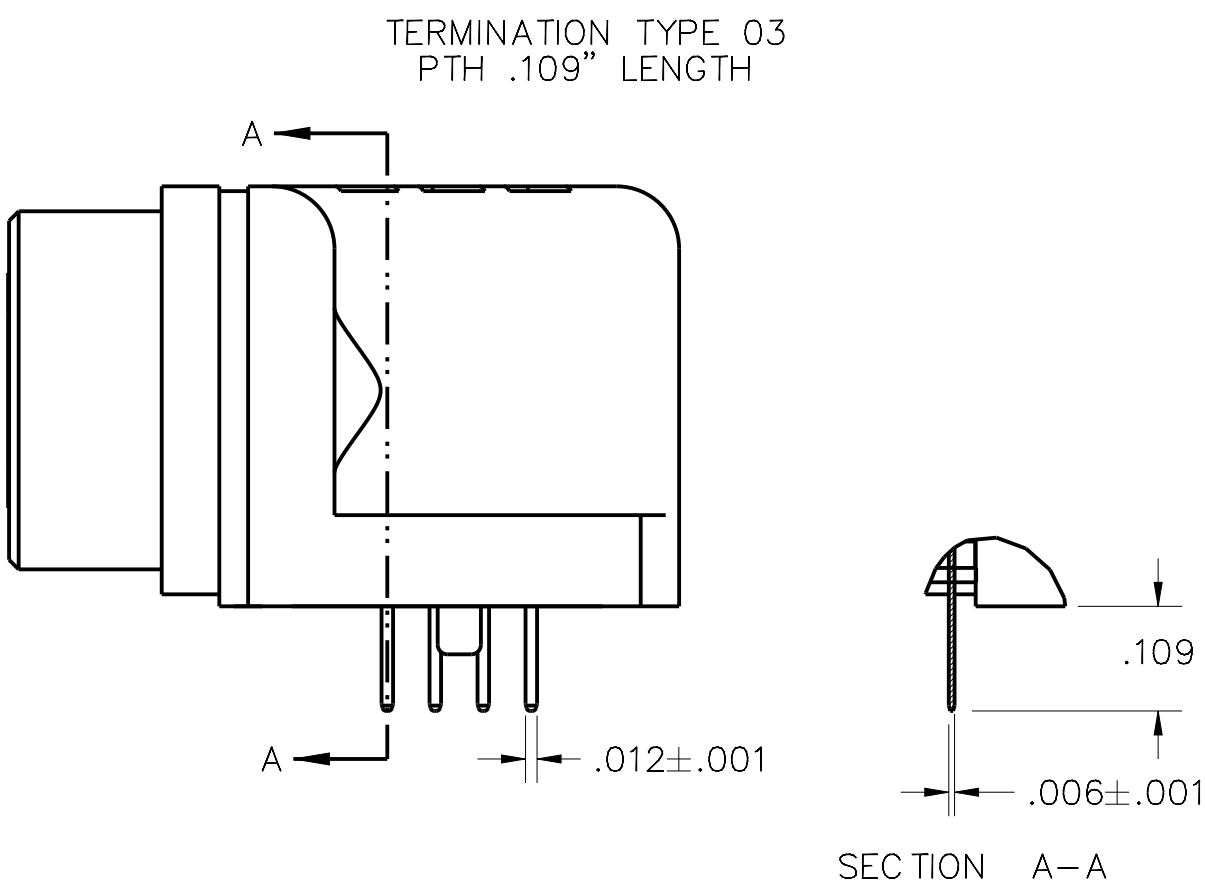
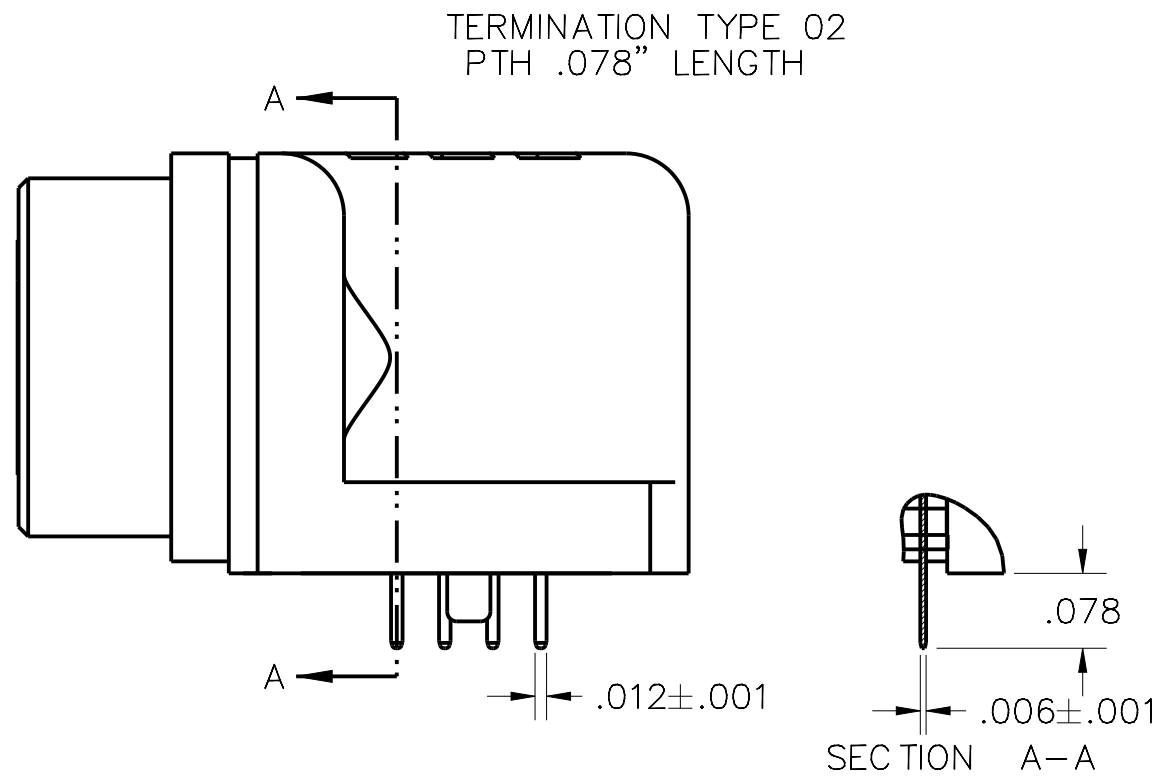
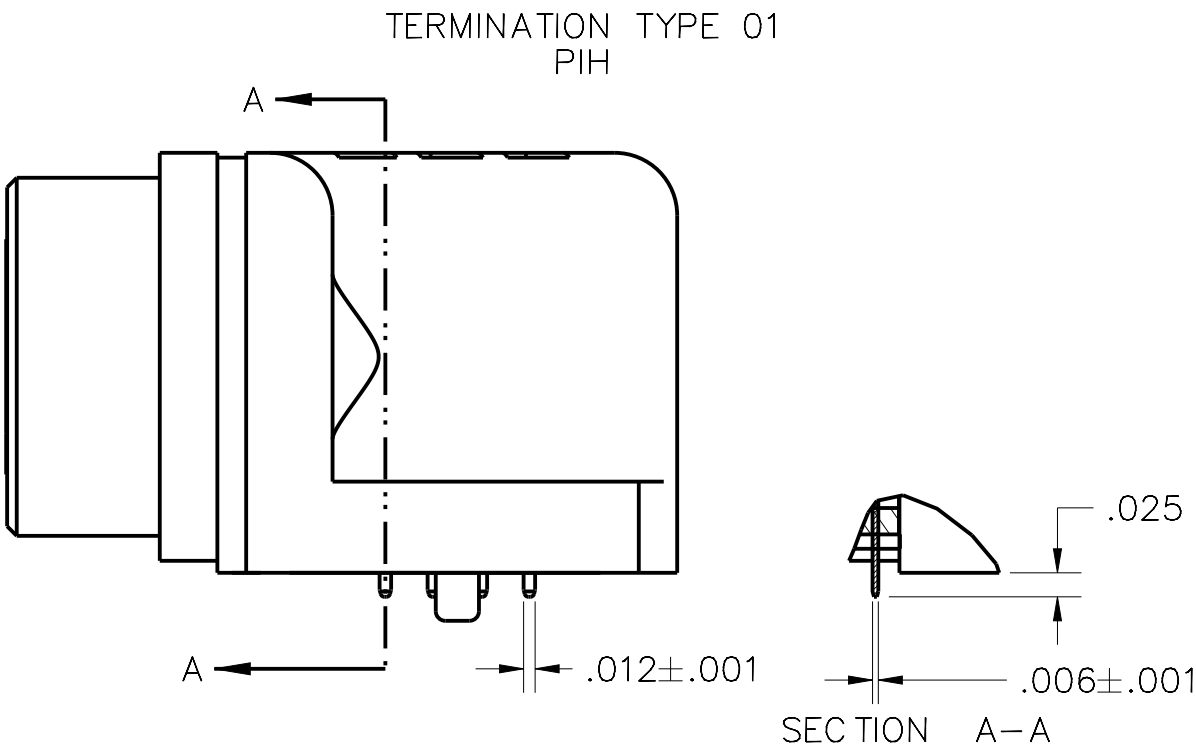
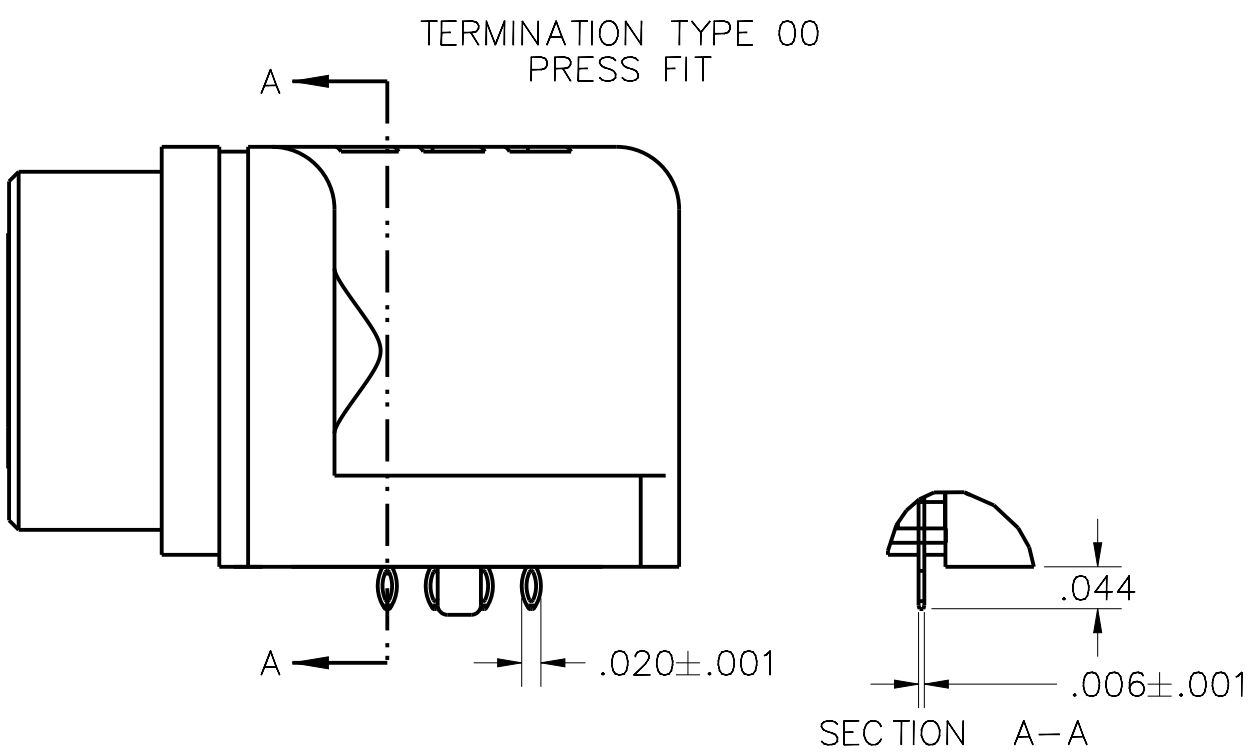
AirBorn
Little Falls, Minnesota 56345

verSI SERIES RIGHT ANGLE FEMALE
RUGGEDIZED
PRODUCT DRAWING

DRAWING STATE: *Released* ☒ **RELEASED**
This drawing is not authorized for production unless it is released
DWG # VRRAF-XX-XX-XX-XX-XX REV. A SHEET 3 / 9

SIZE
C

TERMINATION DIMENSIONS



RECOMMENDED PCB THICKNESS FOR EACH TERMINATION TYPE	
TERMINATION	PCB THICKNESS
-00	.062" MIN
-01	.025" MIN
-02	.068" MAX
-03	.099" MAX
-04	.130" MAX
-05	.146" MAX
-06	.162" MAX

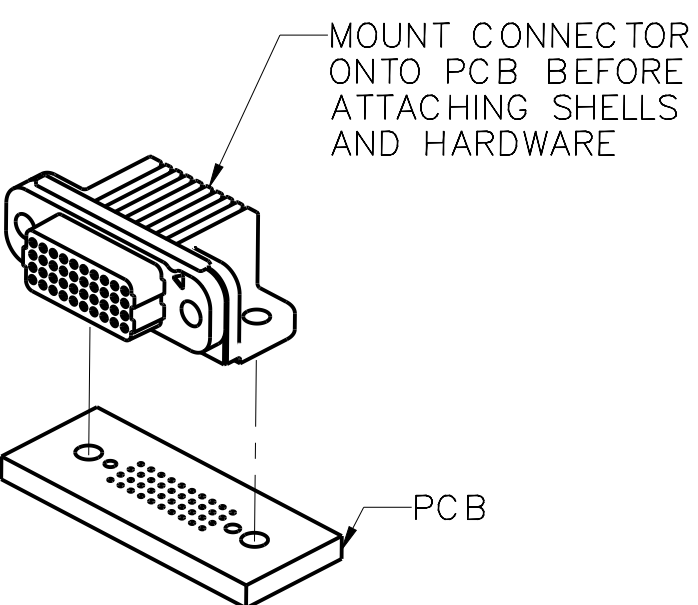
AirBorn
Little Falls, Minnesota 56345

verSI SERIES RIGHT ANGLE FEMALE
RUGGEDIZED
PRODUCT DRAWING

DRAWING STATE: *Released* ☒ **RELEASED**
This drawing is not authorized for production unless it is released
DWG # VRRAF-XX-XX-XX-XX-XX REV. A SHEET 4 / 9

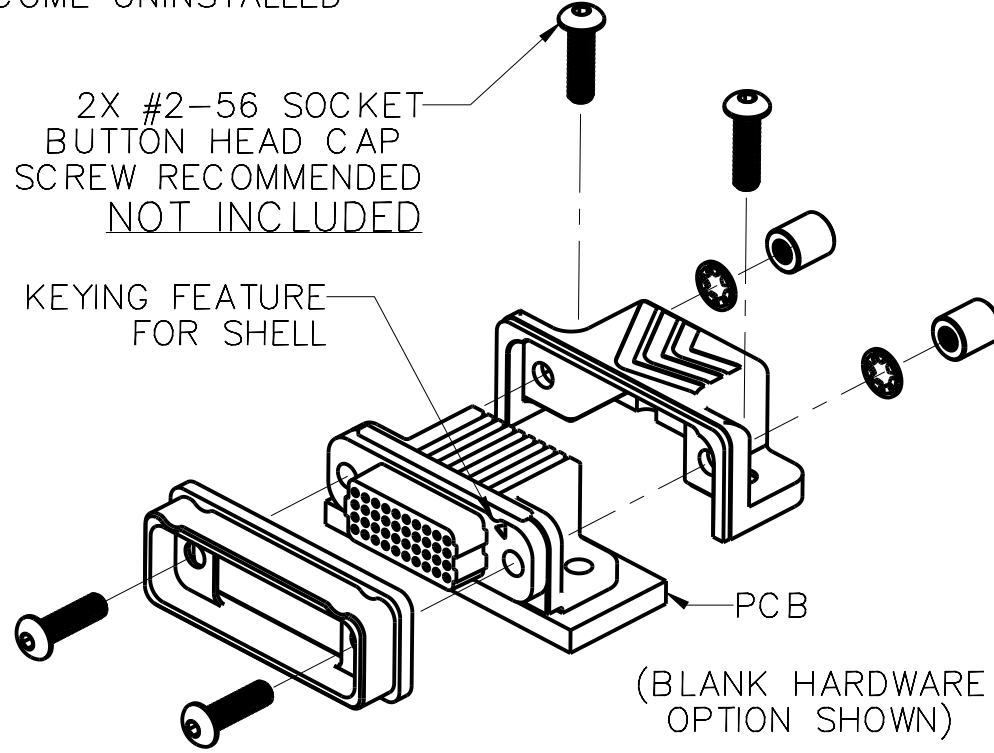
SIZE
C

PCB MOUNTING INSTRUCTIONS
(BLANK, G, N, E, NE, GE HARDWARE OPTIONS)
SHELLS AND HARDWARE COME UNINSTALLED



MOUNT CONNECTOR ONTO PCB BEFORE ATTACHING SHELLS AND HARDWARE

PCB



2X #2-56 SOCKET
BUTTON HEAD CAP
SCREW RECOMMENDED
NOT INCLUDED

KEYING FEATURE
FOR SHELL

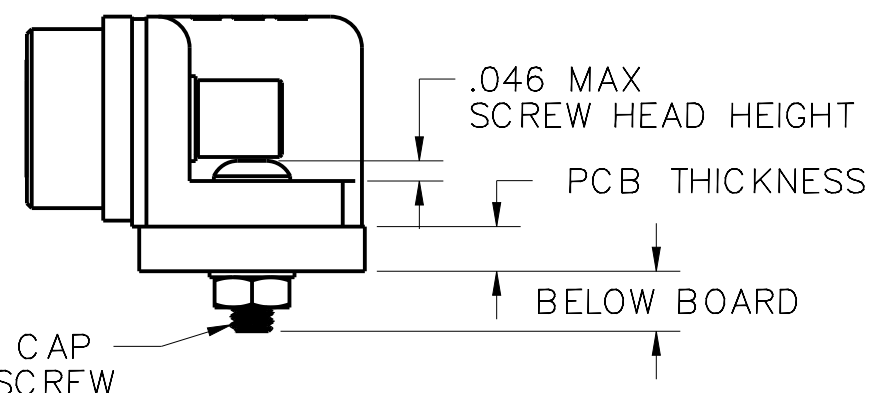
PCB

(BLANK HARDWARE
OPTION SHOWN)

STEP 1:
PTH OR PIH: SOLDER CONNECTOR ONTO PCB
PRESS-FIT: PRESS CONNECTOR ONTO PCB
(SEE ESL5001 FOR MORE DETAILS ON INSTALLING
THE CONNECTOR ONTO THE PCB)

STEP 2:
ATTACH SHELLS AND HARDWARE
(SEE ESL5001 FOR ADDITIONAL DETAILS
AND HARDWARE TORQUE SPECIFICATIONS)

RECOMMENDED PCB MOUNTING HARDWARE
MOUNTING HARDWARE NOT INCLUDED



.046 MAX
SCREW HEAD HEIGHT

PCB THICKNESS

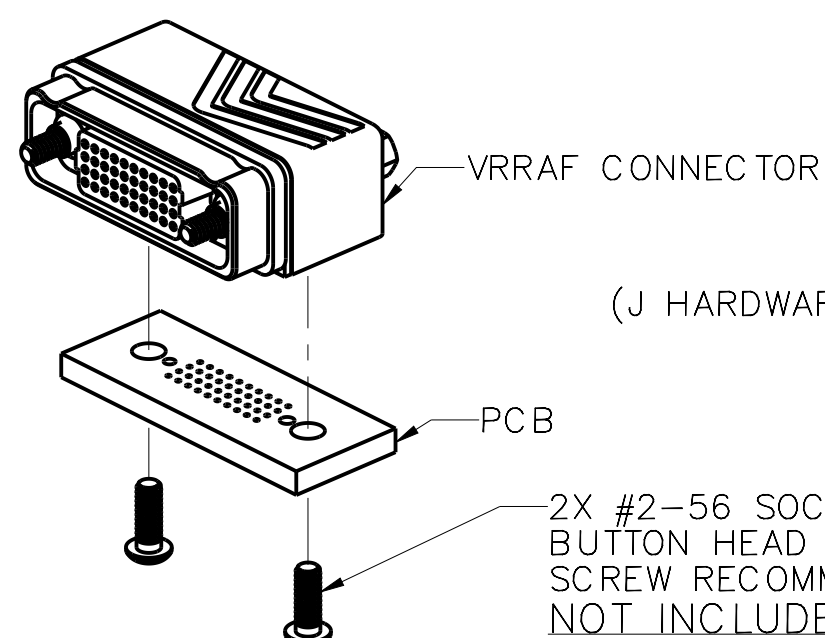
BELOW BOARD

CAP SCREW

RECOMMENDED SCREWS FOR
COMMON PCB THICKNESSES

PCB THICKNESS	BUTTON HEAD CAP SCREW	BELOW BOARD
.062	#2-56 X 1/4"	(.094)
.094	#2-56 X 5/16"	(.125)

PCB MOUNTING INSTRUCTIONS
(J, L, JE & LE HARDWARE OPTIONS)
SHELLS AND HARDWARE COME INSTALLED



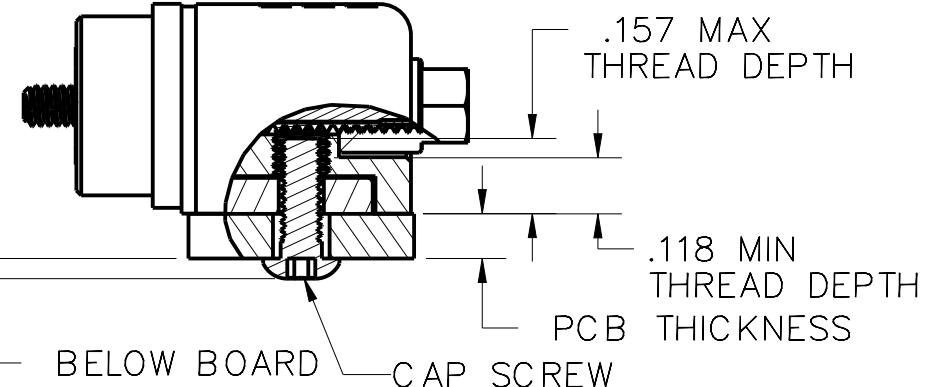
VRRAF CONNECTOR

PCB

(J HARDWARE OPTION SHOWN)

2X #2-56 SOCKET
BUTTON HEAD CAP
SCREW RECOMMENDED
NOT INCLUDED

RECOMMENDED PCB MOUNTING HARDWARE
MOUNTING HARDWARE NOT INCLUDED



.157 MAX
THREAD DEPTH

.118 MIN
THREAD DEPTH

PCB THICKNESS

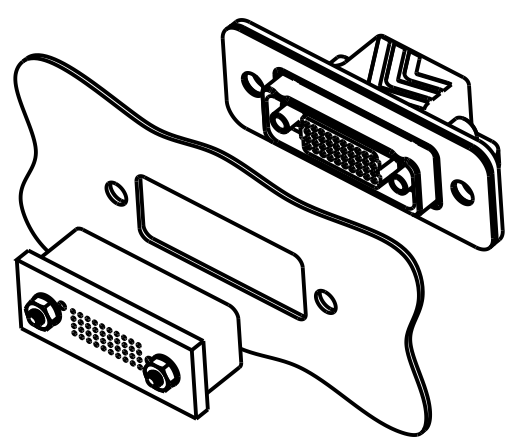
BELOW BOARD

CAP SCREW

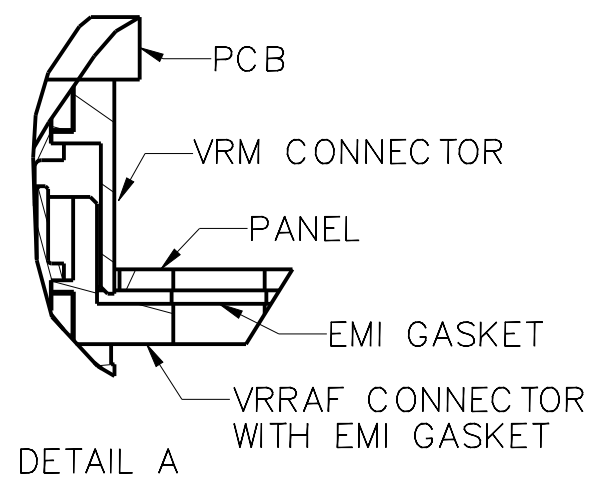
RECOMMENDED SCREWS FOR
COMMON PCB THICKNESSES

PCB THICKNESS	BUTTON HEAD CAP SCREW	BELOW BOARD
.062	#2-56 X 3/16"	(.046)
.094	#2-56 X 1/4"	(.046)

PANEL MOUNTING INSTRUCTIONS
(EMI GASKET HARDWARE OPTIONS)



ISOMETRIC VIEW
FOR REFERENCE ONLY



PCB

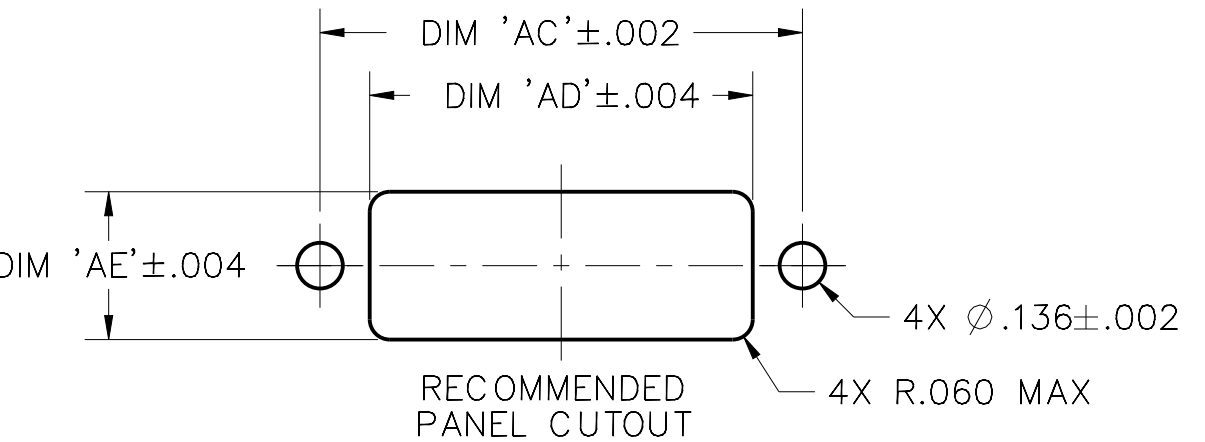
VRM CONNECTOR

PANEL

EMI GASKET

VRRAF CONNECTOR WITH EMI GASKET

DETAIL A



DIM 'AC' ±.002

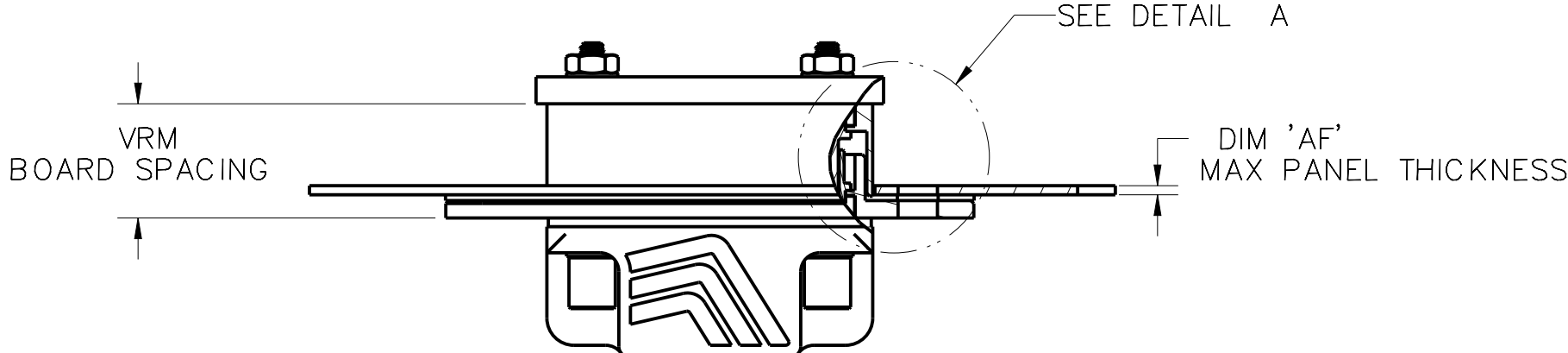
DIM 'AD' ±.004

DIM 'AE' ±.004

4X Ø.136 ±.002

4X R.060 MAX

RECOMMENDED
PANEL CUTOUT



VRM BOARD SPACING

SEE DETAIL A

DIM 'AF'
MAX PANEL THICKNESS

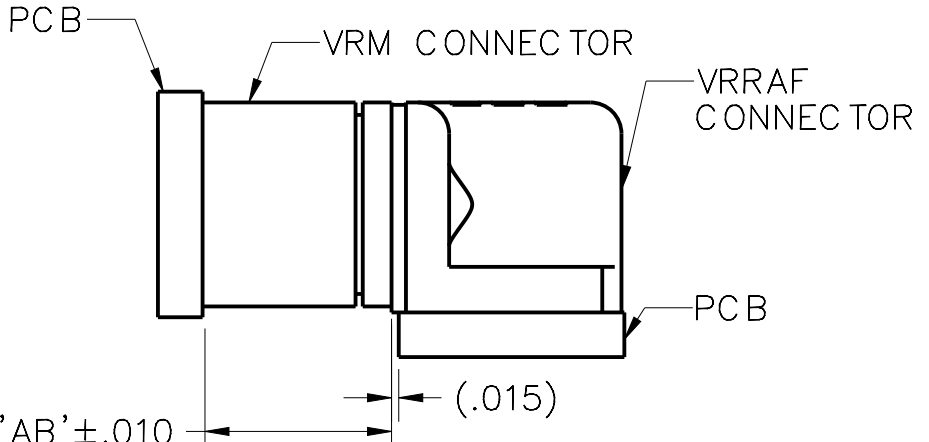
ROWS	DIM 'AE'
04	.440
05	.490
06	.540
08	.640
10	.740

COLUMNS	DIM 'AC'	DIM 'AD'
10	1.436	1.140
20	1.936	1.640
30	2.436	2.140
40	2.936	2.640
50	3.436	3.140

VRM BOARD SPACING	DIM 'AF'
.315 [8mm]	.235
.394 [10mm]	.314
.473 [12mm]	.392
.630 [16mm]	.550
.788 [20mm]	.707
.985 [25mm]	.904

SEE SHEET 9 FOR REPLACEMENT GASKETS

VRRAF CONNECTOR MATED TO VRM CONNECTOR

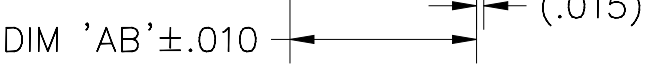


PCB

VRM CONNECTOR

VRRAF CONNECTOR

PCB



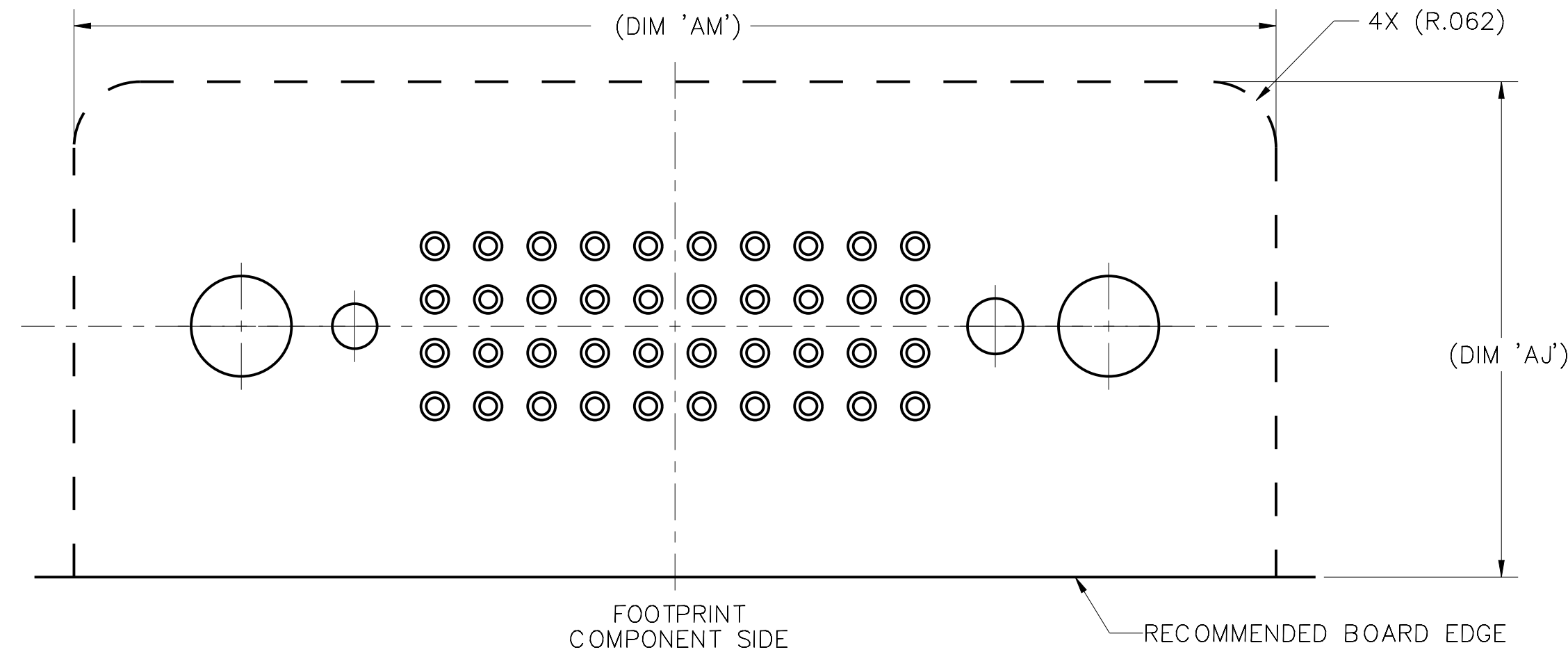
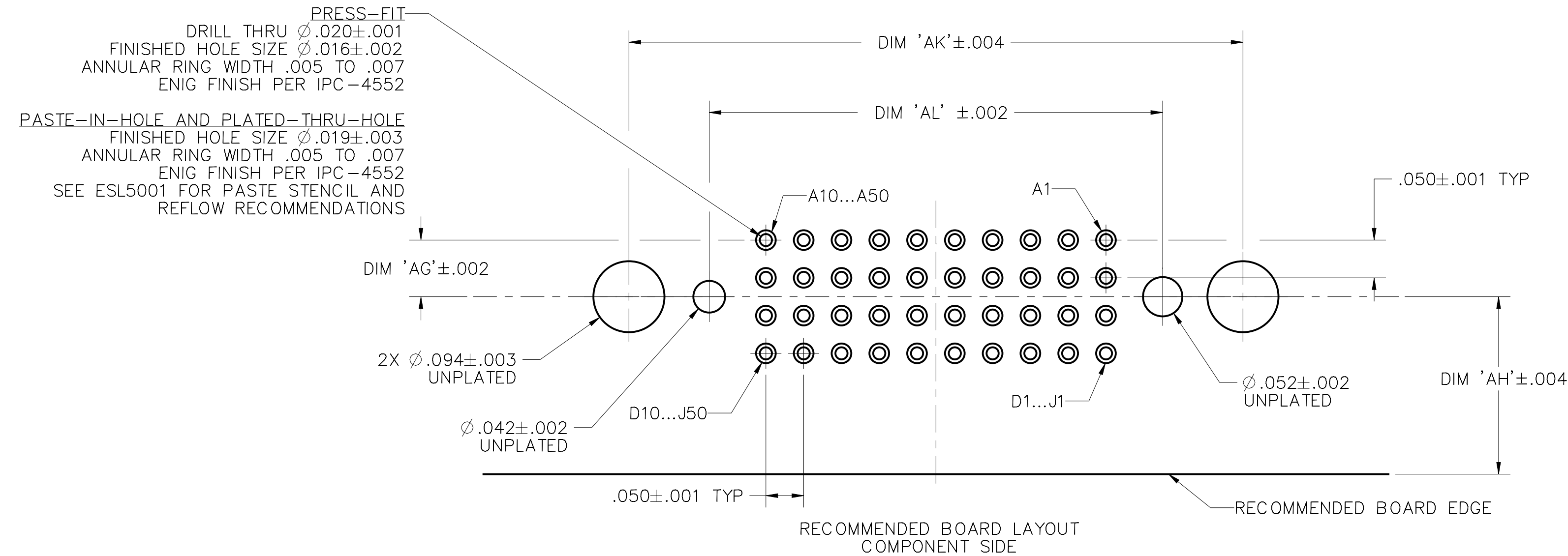
DIM 'AB' ±.010

(.015)

VRM BOARD SPACING	*DIM 'AB'
.315 [8mm]	.315 NOMINAL (.350 MAX)
.394 [10mm]	.394 NOMINAL (.429 MAX)
.473 [12mm]	.472 NOMINAL (.507 MAX)
.630 [16mm]	.630 NOMINAL (.665 MAX)
.788 [20mm]	.787 NOMINAL (.822 MAX)
.985 [25mm]	.984 NOMINAL (1.02 MAX)

*MAX VALUES FOR DIM 'AB' ARE AT MAXIMUM ALLOWABLE SEPARATION BETWEEN MATED CONNECTORS

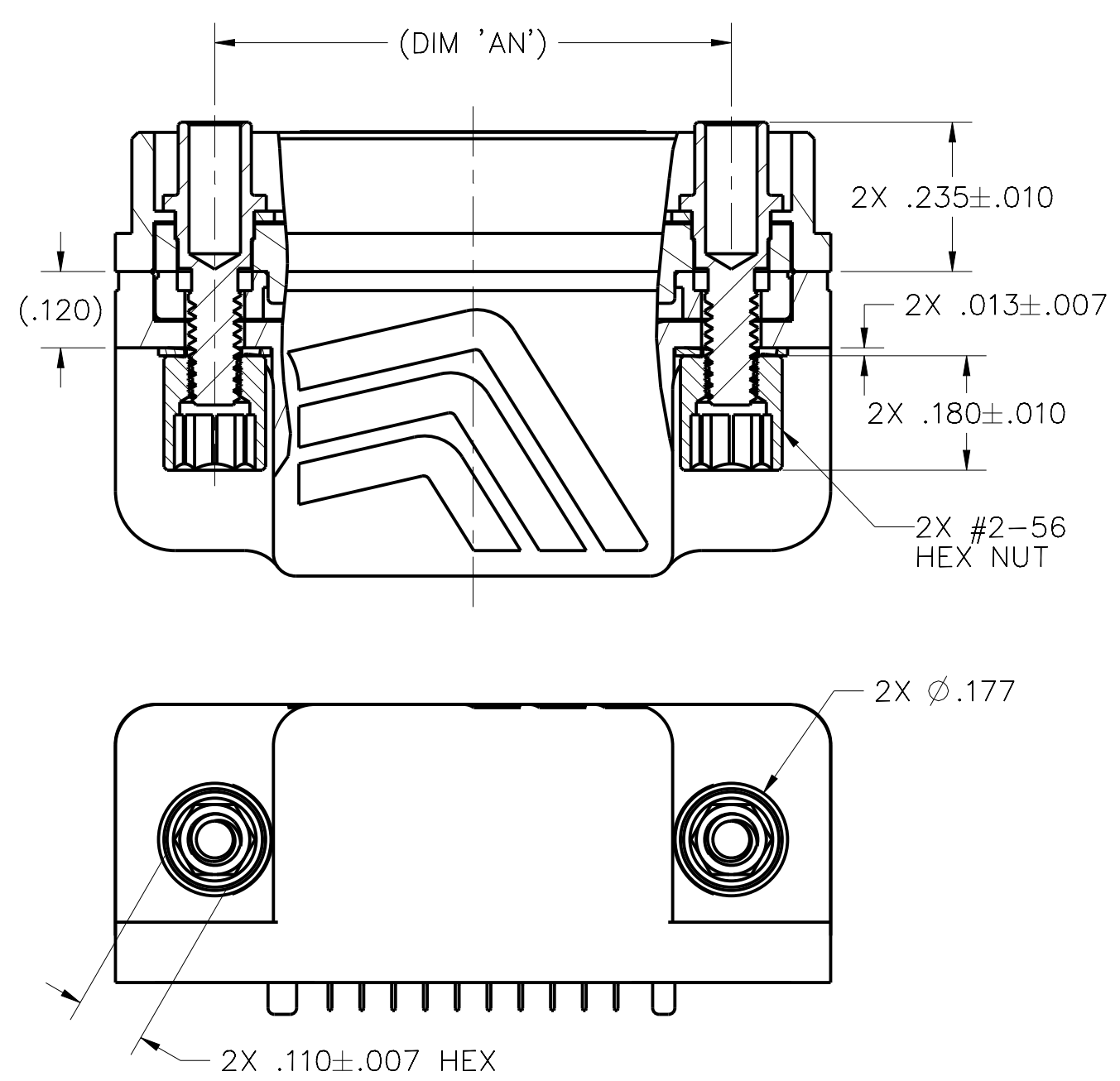
RECOMMENDED PCB LAYOUT



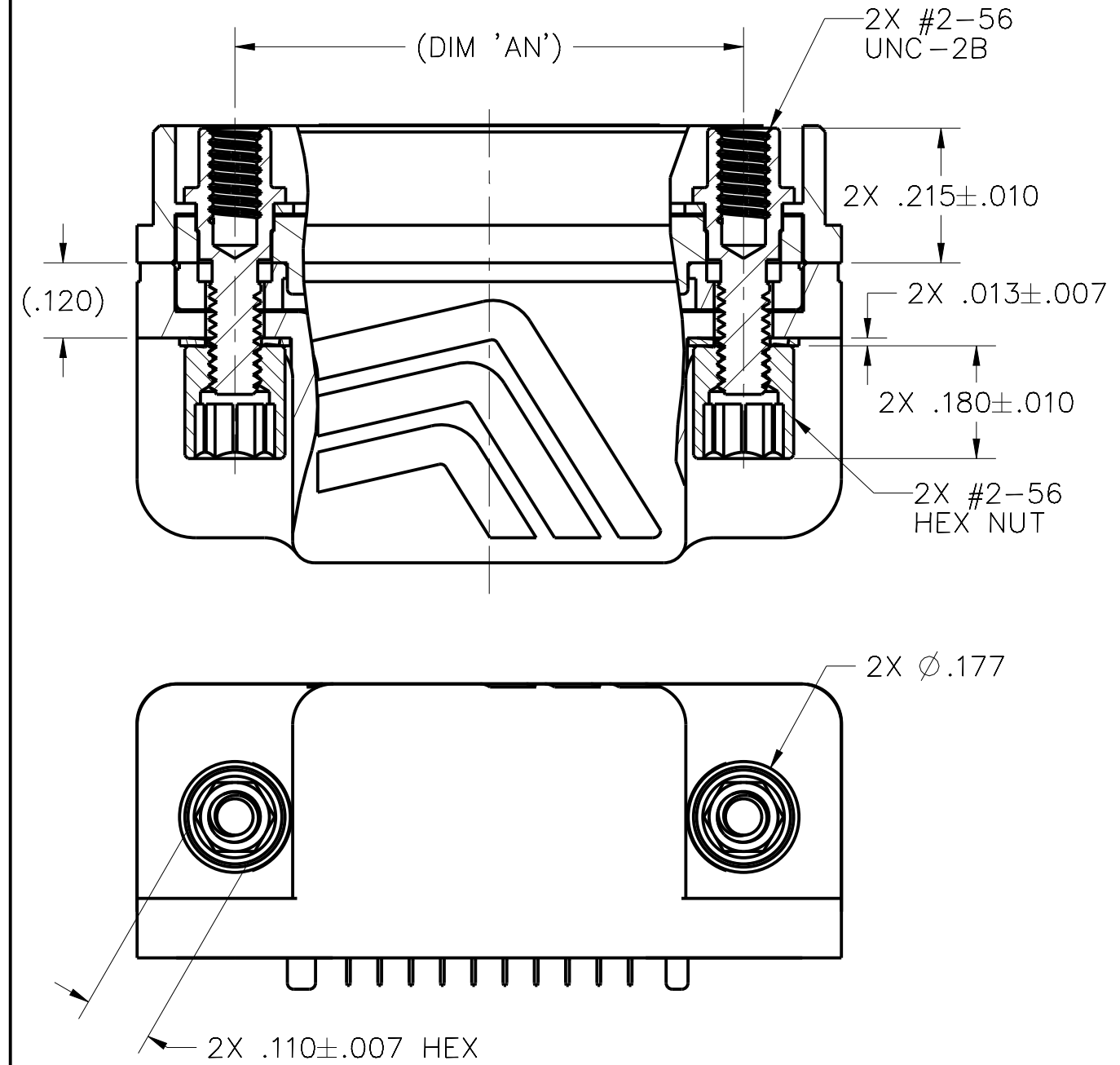
ROWS	DIM 'AG'	DIM 'AH'	DIM 'AJ'
04	.075	.235	.464
05	.100	.260	.514
06	.125	.285	.564
08	.175	.335	.664
10	.225	.385	.764

COLUMNS	DIM 'AK'	DIM 'AL'	DIM 'AM'
10	.813	.600	1.125
20	1.313	1.100	1.625
30	1.813	1.600	2.125
40	2.313	2.100	2.625
50	2.813	2.600	3.125

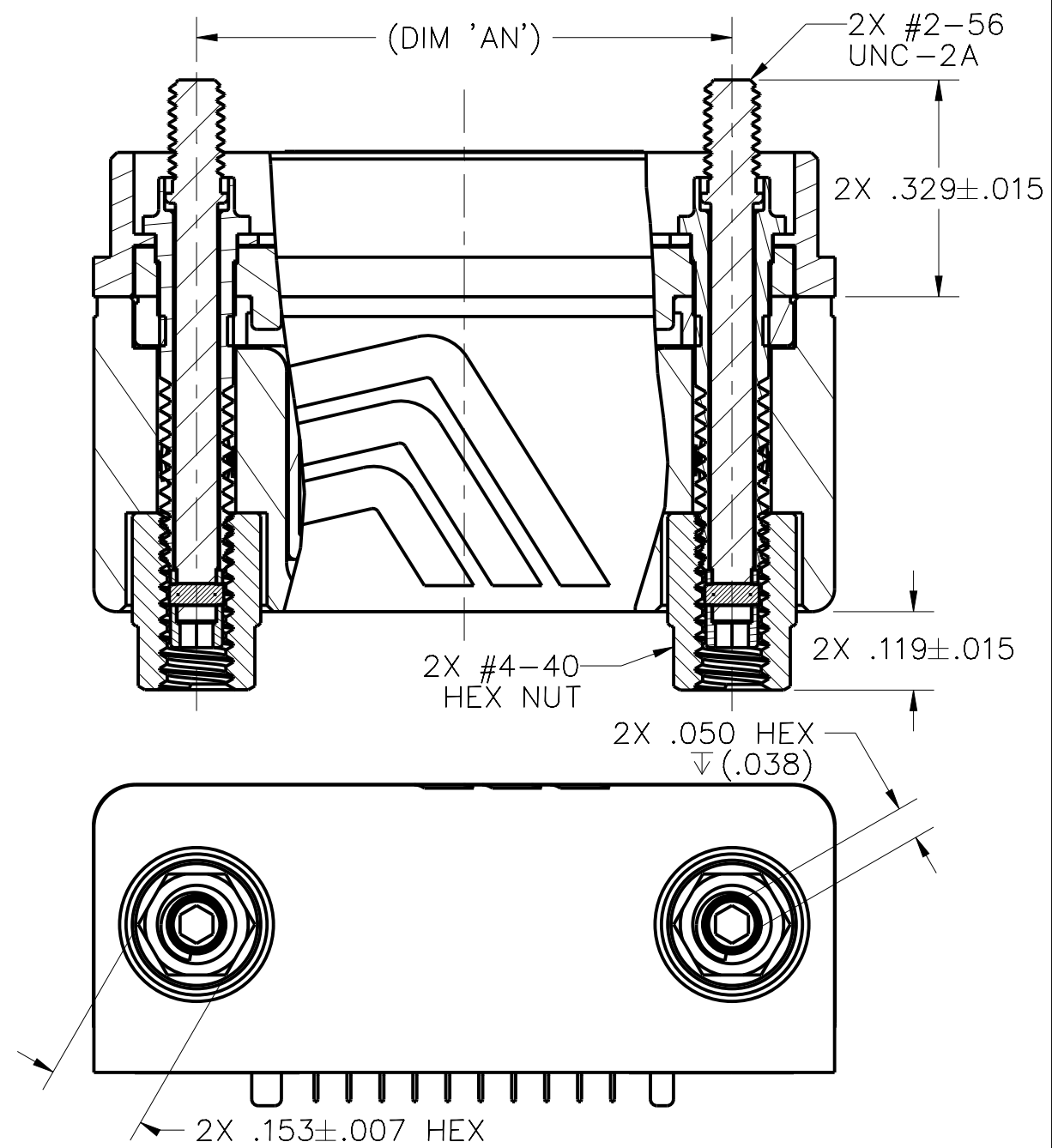
GUIDE SOCKET DIMENSIONS (HARDWARE OPTION G)



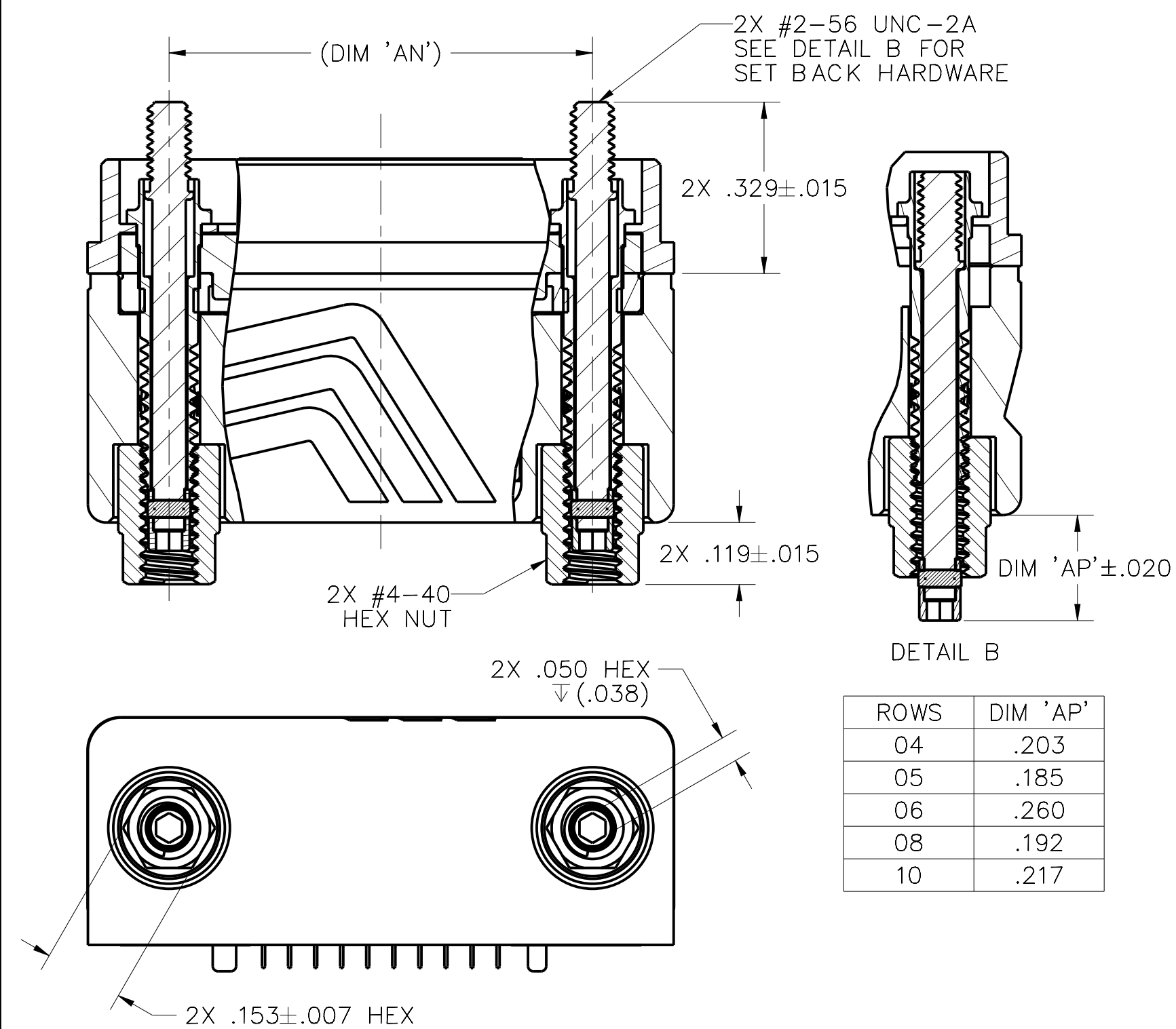
FIXED JACKNUT DIMENSIONS (HARDWARE OPTION N)



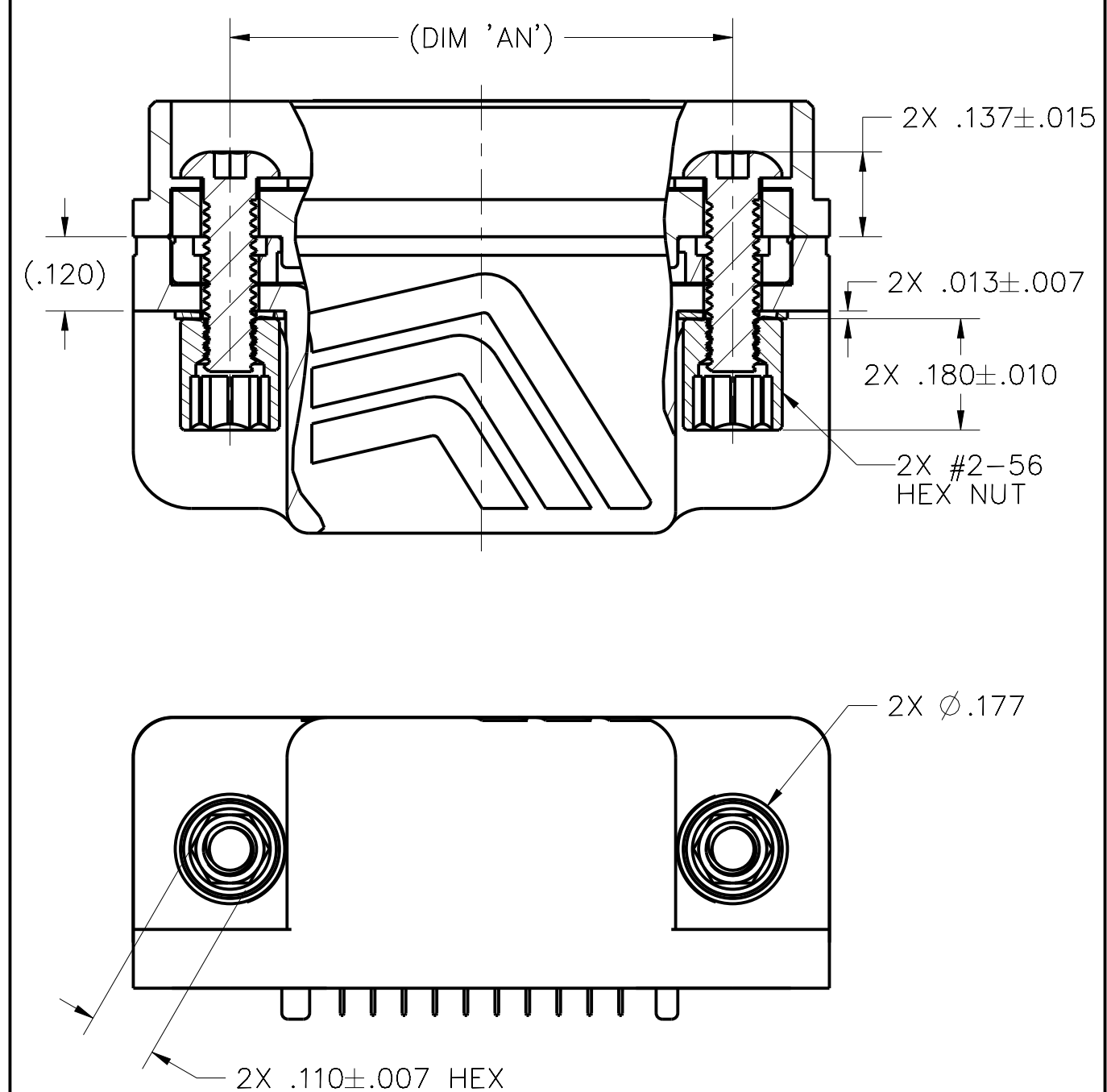
TURNING JACKSCREW DIMENSIONS (HARDWARE OPTION J)



LOCKING SCREW DIMENSIONS (HARDWARE OPTION L)



STANDARD HARDWARE (HARDWARE OPTION BLANK)



COLUMNS	DIM 'AN'
10	.813
20	1.313
30	1.813
40	2.313
50	2.813



verSI SERIES RIGHT ANGLE FEMALE
RUGGEDIZED
PRODUCT DRAWING

DRAWING STATE: *Released* ☒ **RELEASED**
This drawing is not authorized for production unless it is released
DWG # VRRAF-XX-XX-XX-XX-XX REV. A SHEET 7 / 9

FORMAT: CERNIPRO.FRM A.7

HARDWARE KIT PART NUMBER BUILD

SAMPLE PART NUMBER: VRRAF-00-00-00-00-G

VRRAF-00-00-00-00-X

HARDWARE OPTIONS	
BLANK	STANDARD
G	GUIDE SOCKET
N	FIXED JACKNUT

VRRAF-XX-00-00-00-X

ROWS	
04	4 ROWS
05	5 ROWS
06	6 ROWS
08	8 ROWS
10	10 ROWS

HARDWARE OPTIONS	
J	TURNING JACKSCREW
L	LOCKING SCREW

G, N, J & L HARDWARE KITS
CANNOT BE INSTALLED ON CONNECTOR
WITH BLANK OR E HARDWARE OPTIONS.

ISOMETRIC VIEW
FOR REFERENCE ONLY
(PART NUMBER VRRAF-00-00-00-00-G SHOWN)

STANDARD KIT
(BLANK HARDWARE OPTION)

GUIDE SOCKET KIT
(G HARDWARE OPTION)

FIXED JACKNUT KIT
(N HARDWARE OPTION)

TURNING JACKSCREW KIT
(J HARDWARE OPTION)

LOCKING SCREW KIT
(L HARDWARE OPTION)

AirBorn

Little Falls, Minnesota 56345

verSI SERIES RIGHT ANGLE FEMALE
RUGGEDIZED
PRODUCT DRAWING

DRAWING STATE: Released

☒ RELEASED

This drawing is not authorized for production unless it is released

DWG # VRRAF-XX-XX-XX-XX-XX

REV. A

SHEET 8 / 9

SIZE C

FORMAT: CERNPROG.FRM A.7

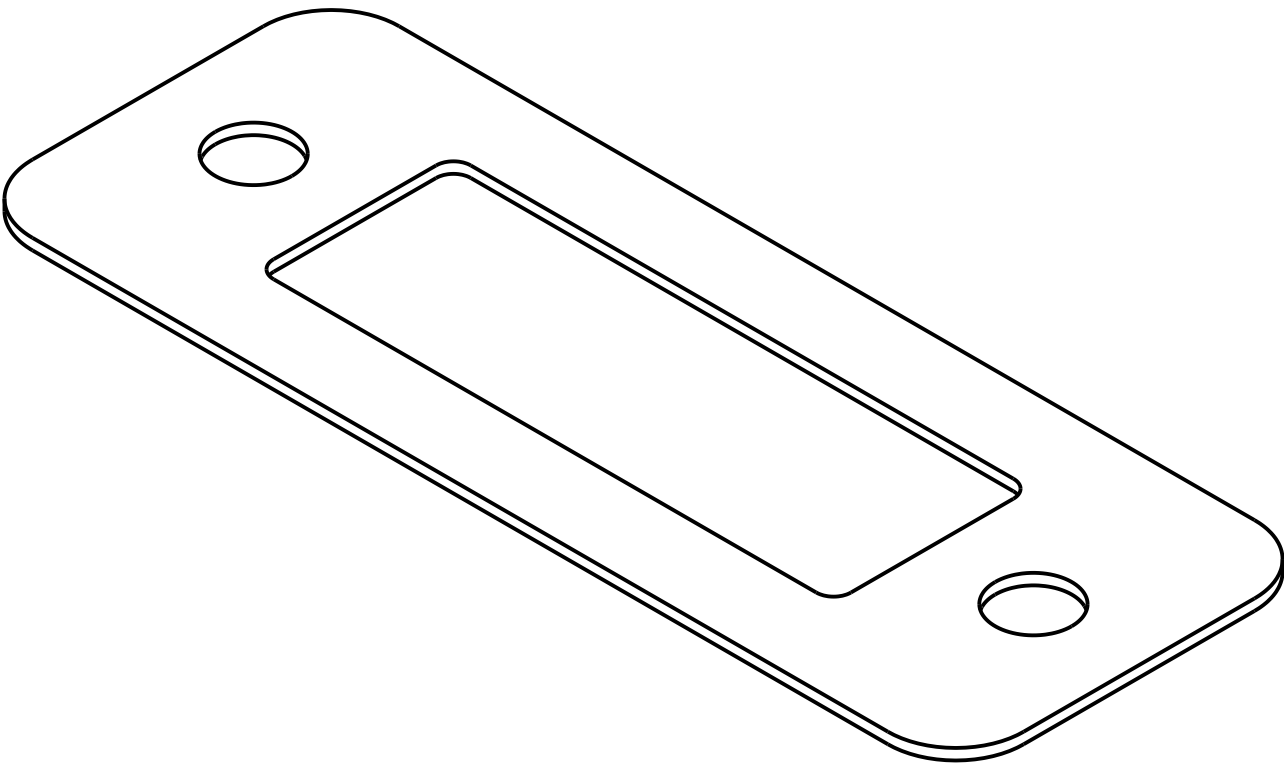
GASKET PART NUMBER BUILD
SAMPLE PART NUMBER: VGF-04-10-E

VGF-XX-XX-E

OPTION	
E	EMI GASKET

COLUMNS	
10	10 COLUMNS
20	20 COLUMNS
30	30 COLUMNS
40	40 COLUMNS
50	50 COLUMNS

ROWS	
04	4 ROWS
05	5 ROWS
06	6 ROWS
08	8 ROWS
10	10 ROWS



ISOMETRIC VIEW
FOR REFERENCE ONLY
(PART NUMBER VGF-04-10-E SHOWN)

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

AirBorn:

[VRRAF-08-20-50-04-N](#)