

Catalog F-001 Rev. F

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THE SCIENCE OF CERTAINTY an Amphenol company

D-SUB FROM SPACE QUALITY PRODUCTS TO INDUSTRIAL APPLICATIONS

HELIUM LEAK RATE: < 5x10 mbar.l/s</li>
 STANDARD CONNECTION SYSTEMS
 SHOCKS & VIBRATION RESISTANT
 MIXED CONTACT CONNECTORS

 Normal Density
 High Density
 Thermocouple
 Power and Coaxial

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THE FEEDTHROUGH SOLUTIONS

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# Positronic Provides Complete Capability

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# **Mission Statement**

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"To utilize product flexibility and application assistance to present quality interconnect solutions which represent value to customers worldwide."

#### Experience

- Founded in 1966
- Involvement in the development of international connector specifications through EIA®, IEC and ISO as well as PICMG®.

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- Introduction of new and unique connector products to the electronics industry.
- Patent holder for many unique connector features and manufacturing techniques.
- Vertically integrated manufacturing raw materials to finished connectors.

# Technology

- Expertise with solid machined contacts provides a variety of high reliability C connectors including high current density power connectors.
  - Quality Assurance lab is capable of testing to IEC, EIA, UL, CUL, military and customer-specified requirements.
  - In-house design and development of connectors based on market need or individual customer requirements.
  - Internal manufacturing capabilities include automatic precision contact machining. injection molding, stamping, plating operations and connector assembly.
  - Manufacturing locations in southwest Missouri, U.S.A. (headquarters); Puerto Rico, France, China, Singapore, and India. Total square footage: 407,441.

#### Support

- Quality Systems: Select locations qualified to ISO 9001, ISO 14001, AS9100, MIL-STD-790 and customer "dock to stock" programs. Applicable products gualified to MIL-DTL-24308, SAE AS39029, DSCC 85039, MIL-DTL-28748, Space D32, GSFC S-311-P-4 and GSFC S-311-P-10.
- Compliance to a variety of international and customer specific environmental requirements.
- Large in-house inventory of finished connectors. Customer specific stocking programs.
- Factory direct technical sales support in major cities worldwide.
- One-on-one customer support from worldwide factory locations.
- World class web site.
- Value-added solutions and willingness to develop custom products with reasonable price and delivery.

# **Regional Headquarters**

Springfield, MO Auch, France



Products described within this catalog may be protected by one or more of the following US patents: #4,900,261 #5,255,580 #5,329,697 #6,260,268 #6,835,079 #7,115,002

Patented in Canada, 1992 Other Patents Pending

#### POSITRONIC® IS AN ITAR REGISTERED COMPANY

Positronic Industries' FEDERAL SUPPLY CODE (Cage Code) FOR MANUFACTURERS is 28198

Unless otherwise specified, dimensional tolerances are:

- ±0.03 mm [0.001 inches] for male contact mating diameters. 1)
- 2) ±0.08 mm [0.003 inches] for contact termination diameters. 3)
  - ±0.13 mm [0.005 inches] for all other diameters.

±0.38 mm [0.015 inches] for all other dimensions. 4)

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THIS CATALOG SHOULD BE ACCOMPANIED BY COPIES OF POSITRONIC INDUSTRIES CONNECTOR CATALOGS AS PICTURED BELOW.



SPACE APPLICATIONS D-SUBMINIATURE CONNECTORS

COMBO-D D-SUBMINIATURE CONNECTORS WITH MIXED CONTACT COMBINATIONS



Positronic Industries www.connectpositronic.com



FRONT RUNNER SERIES CIRCULAR CONNECTORS

CATALOG OF INDUSTRIAL AND MILITARY APPLICATION D-SUBMINIATURE CONNECTORS





# TABLE OF CONTENTS

**Contact PosiBand 1-2** The posiband contact system has many advantages over the legacy split tine design.

Xavac® Series Connectors3-6Xavac® series connectors are D-Subminiature feedthroughs for<br/>space or industrial vacuum applications.

**Savac® Series Connectors ...... 7-10** Savac® series connectors are D-Subminiature feedthroughs for space or industrial vacuum applications.





**Thermocouple Connectors11**The thermocouple connectors are availablein D-Subminiature connectors version and also in hermetic

version (D-subminiature feedthrough).



# TABLE OF CONTENTS

Custom Design24-28Examples of custom design.

Technical Information ...... 29

Xavac®, Savac® & Hivac® are registered trademarks of Positronic Industries S.A.S









What Makes Positronic's New "PosiBand <sup>®</sup> " Contact							
High reliability connectors utilize female <b>closed entry contacts</b> that provide an unbroken ring of solid material at the face of the contact. The closed entry feature is <b>crucial in preventing damage</b> to female contacts used in harsh environments, repeated mating cycles, blind mate applications and applications requiring highest reliability.							
"Split tine" contact design Sleeve	The most common <b>close</b> entry design utilized by connector manufacturers is a split tine and sleeve com See figure 1. With this des both the mechanical forces	ed s cept. sign, s and					
Sleeve placed on contact Sleeve placed on contact electrical interface are provided only at the tip of the female contact.	FIGURE 2	PosiBand®					
Positronic's new <b>PosiBand</b> technology takes a unique approach for closed entry female contacts.	PosiBand* placed on contact	Front view					

contact design. **See figure 2.** Each piece serves a separate function, providing a more mechanically robust contact and more consistent electrical performance.

PosiBand contacts utilize a two-piece

The main body of the **PosiBand** contact provides a true closed entry opening to enhance robustness. The **PosiBand** spring clip provides normal force on the male contact. Consistent electrical performance is supported through a larger area of contact interface between the male and female contact along the entire "floor" of the contact body. **PosiBand** contacts are QPL listed under **SAE AS39029** and **MIL-DLT-24308** specifications. **PosiBand** is also qualified under **GSFC S-311-P4/08 Rev C** and **GSFC S-311-P4/10 Rev C** to the higher 40 gram contact separation test.

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# The PosiBand<sup>®</sup> contact system has many advantages over the legacy split tine design.

**X** PosiBand is more robust than split tine contact, which can be pried open in harsh environments, resulting in reduced normal force and degradation of electrical performance.

**X** PosiBand has greater surface area at the male and female contact interface, resulting in more consistent electrical performance.

PosiBand has lower average insertion forces, resulting in greater ease in mating, especially in larger high density connectors. The average lower insertion force is accomplished while meeting or exceeding performance requirements.

The **PosiBand's** contact body does not require annealing of the crimp barrels, as does the split tine design. This eliminates concern of unintentionally heat-treating the mating end of the contact, which can cause electrical failure.

PosiBand is qualified under SAE AS39029 and MIL-DTL-24308 specifications. PosiBand is also qualified under GSFC S-311-P4/08 Rev C and GSFC S-311-P4/10 Rev C to the higher 40 gram contact separation test requirement.



For more details about the *advantages of the PosiBand*<sup>®</sup> system, please view the detailed white paper at *www.connectpositronic.com/content/37/* or visit our web site at *www.connectpositronic.com.* 



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#### www.connectpositronic.com

# HERMETIC FEEDTHROUGH FOR SPACE OR INDUSTRIAL VACUUM APPLICATIONS

# XAVAC ®



Both sides contain four threaded mounting holes, an o-ring groove and fixed female jackscrews. These redundant features allow either side of the connector to be mounted toward the vacuum, giving the customer the ultimate in flexibility.

The type of contacts is according to the customer request: with normal density insulators 9, 15, 25, 37, and 50 contacts (AWG20): Male/Female, Male/Male, or Female/Female. With high density insulators: 15, 26, 44, 62, 78 and 104 contacts (AWG22): Male/Female. With mixed contact combinations (Power, Coaxial, and Signal contacts): Male/Female.

#### MATERIALS AND FINISHES

Insulator:	Glass-filled DAP per ASTM-D-5948 or polyester glass-filled per ASTM D 5927, UL94V0, ASTM E-595, NASA- BP-1124				
Contacts: Posiband Spring Clip: Contact Plating:	Precision machined copper alloy. BeCu (Copper alloy). 0,000050 inch (1,25 microns) gold				
Shells:	over copper plate. Brass with 0,000050 inch (1,25 microns) gold over copper plate or stainless steel				
Housing:	Aluminium alloy, golden brown conversion coating.				
O-ring:	Viton (fluorocarbon). Other material per request. One mounting and one for spare part.				
MECHANICAL CHARACTE	RISTICS				
Fixed Contacts:	Size 8 Contact: 0,142 inch (3,61mm) mating diameter. Female contact: Features large surface area (L.S.A.) closed entry design utilizing BeCu mechanical retention member.				
	Size 20 Contact: 0,040 inch (1,02mm) mating diameter. Female Posiband Contact: Closed entry design.				
	Size 22 Contact: 0,030 inch (0,76mm) mating diameter. Female Posiband Contact: Closed entry design.				
Contact Retention In					
Insert: Shells:	9 lbs. (40 N). Male shells may be dimpled for EMI/ESD ground paths.				
Polarization: Mechanical Operations:	Trapezoidally shaped shells. 500 operations, minimum, per IEC 60512-5.				
CLIMATIC CHARACTERIST	TICS				
Temperature Range:	-40 to +85°C. The temperature range can be expended under certain conditions. Consult factory.				
Helium Leak Rate At Ambient Temperature:	< 5x10 <sup>.9</sup> mbar.l/s under a vacuum of 1.5x10 <sup>.2</sup> mbar.				
Outgassing Non- Metallic Material:	Total Mass Loss – TML < 1 %. Collected Volatile Condensable Materials – CVCM < 0.1 %.				



All XAVAC® Series connectors are 100 % leak tested after fabrication.

In addition to the standard options, Positronic can supply XAVAC® connectors as board mount varieties or with flying leads.

XAVAC® series connectors utilize precision machined contacts for strength and durability. The materials and finishes, as well as the technical characteristics of the XAVAC® series connectors conform to MIL-DTL-24308, Goddard and the SPACE-D32 specifications.

#### ELECTRICAL CHARACTERISTICS AT SEA LEVEL SIGNAL CONTACTS

Contact Current Rating:

Initial Contact Resistance: **Proof Voltage:** 

POWER CONTACTS Contact Current Rating:

Initial Contact Resistance: **Proof Voltage:** 

SHIELDED CONTACTS Initial Contact Resistance: Nominal Impedance: Insertion Loss:

VSWR:

Above values measured using frequency domain techniques.

HIGH VOLTAGE CONTACTS Flash over Voltage: Proof Voltage: Initial Contact Resistance:

CONNECTOR Insulator Resistance: Clearance and Creepage Distance:

Working Voltage: Residual Magnetism For Space Flight Versions :

3600 V r.m.s.

14 A nominal, size 20. 10 A nominal, size 22.

0,005 ohms maximum.

10, 15, 20, 30 and 40 amperes nominal.

0.0005 ohms maximum.

0.008 ohms maximum.

1.15 average at 1 GHz. 1.56 average at 2 GHz.

-0.46 dB at 1 GHz -1.5 dB at 2 GHz.

1000 V r.m.s.

1000 V r.m.s.

50 ohms

2700 V r.m.s. 0.008 ohms maximum.

5 G ohms. 0.039 inch (1.0mm) minimum. 300 V r.m.s.

Consult factory.

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# **XAVAC® DIMENSIONS**



	~	Р	(	Ľ	-	F		
	A	D	C	U	E	Type 0-1-5*	Type 2-3-4*	
SHELL SIZE 1	24,99	34,29	46,37	16,00	28,08	18	24	
SHELL SIZE 2	33,32	43,64	55,79	16,76	28,92	18	24	
SHELL SIZE 3	47,04	56,36	67,42	16,02	27,08	18	24	
SHELL SIZE 4	63,50	73,46	85,38	16,90	28,82	18	24	
SHELL SIZE 5	61,11	71,28	82,99	19,68	31,40	18	24	
SHELL SIZE 6	63,50	73,26	84,38	20,88	32,00	18	24	

\* See ordering information: STEP 5 – Type of contacts

# **XAVAC® MOUNTING**



All dimensions are in mm. All dimensions are subject to change.



# **XAVAC® PANEL CUTOUT INFORMATION**



The depths are identical for all  $\mathsf{XAVAC}\ensuremath{\mathfrak{B}}$  sizes

B-B

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	Α	В	С	D	E	F
SHELL SIZE1	32,00	47,40	34,29	12,50	29,10	16,00
SHELL SIZE2	40,30	56,80	43,64	12,50	29,90	16,76
SHELL SIZE3	54,00	68,40	56,36	12,50	28,10	16,02
SHELL SIZE4	70,50	86,40	73,46	12,50	29,80	16,90
SHELL SIZE5	68,10	84,00	71,28	15,25	32,40	19,68
SHELL SIZE6	70,50	85,40	73,26	16,80	33,00	20,88



# **ORDERING INFORMATION – CODE NUMBERING SYSTEMS**



5\*: Thermocouple contact

	Material	Position of thermocouple contacts:
5 K	Chromel ® (+) Alumel ® (-)	- The first cavity is always loaded.
5 T	Copper (+) with gold flash Constantan (-)	- Even cavities for negative contacts (-)
5 J**	Iron (+) Constantan (-)	
5E**	Chromel ® (+) Constantan (-)	

\*\* Consult sales department

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# HERMETIC FEEDTHROUGH FOR SPACE OR INDUSTRIAL VACUUM APPLICATIONS

# SAVAC ®



SAVAC® Series Connectors **D-Subminiature** are feedthroughs for SPACE or INDUSTRIAL vacuum applications.

Both sides contain two threaded mounting holes (female jackscrews) and a o-ring groove. These redundant features allow either side of the connector to be mounted toward the vacuum, giving the customer the ultimate in flexibility.

The type of contacts is according to the customer request: with normal density insulators 9, 15, 25, 37, and 50 contacts (AWG20): Male/Female, Male/Male, or Female/Female. With high density insulators: 15, 26, 44, 62, 78 and 104 contacts (AWG22): Male/Female. With mixed contact combinations (Power, Coaxial, and Signal contacts): Male/Female.

#### MATERIALS AND FINISHES

Insulator:	Glass-filled DAP per ASTM-D-5948 or polyester glass-filled per ASTM D 5927, UL94V0, ASTM E-595, NASA- RP-1124.
Contacts:	Precision machined copper alloy.
Posiband Spring Clip:	BeCu (Copper alloy).
Contact Plating:	0,000050 inch (1,25 microns) gold
-	over copper plate.
Shells:	Brass with 0.000050 inch (1.25
	microns) gold over copper plate or
	stainless steel
Housina:	Aluminium alloy golden brown
	conversion coating
O-ring:	Viton (fluorocarbon) Other material
e mg.	per request. One mounting and one for
	share part
MECHANICAL CHARACTE	RISTICS
Fixed Contacts:	Size 8 Contact: 0,142 inch (3,61mm)
	mating diameter. Female contact:
	Features large surface area (L.S.A.)
	closed entry design utilizing BeCu
	mechanical retention member.
	Size 20 Contact: 0 040 inch (1 02mm)
	mating diameter Female Posiband
	Contact: Closed entry design.
	Size 22 Contact: 0.030 inch (0.76mm)
	mating diameter. Female Posiband
	Contact: Closed entry design.
Contact Retention In	g
Insert:	9 lbs (40 N)
Shells:	Male shells may be dimpled for
	FMI/FSD ground paths
Polarization ·	Trapezoidally shaped shells
Mechanical Operations	500 operations minimum per IFC
incentation operationer	60512-5
CLIMATIC CHARACTERIS	
Temperature Range:	40 to +85°C. The temperature range
	can be expended under certain
	conditions. Consult factory.
Hellum Leak Rate	
At Ambient Temperature:	< 5x10 °mbar.l/s under a vacuum of
-	1.5x10 <sup></sup> mbar.
Outgassing Non-	
Metallic Material:	Total Mass Loss – TML < 1 %.
	Collected Volatile Condensable
	Materials – CVCM < 0,1 %.

All SAVAC® Series connectors are 100 % leak tested after fabrication.

In addition to the standard options, Positronic can supply SAVAC® connectors as board mount varieties or with flying leads.

SAVAC® series connectors utilize precision machined contacts for strength and durability. The materials and finishes, as well as the technical characteristics of the SAVAC® series connectors conform to MIL-DTL-24308, Goddard, and the SPACE-D32 specifications.

#### ELECTRICAL CHARACTERISTICS AT SEA LEVEL

SIGNAL CONTACTS **Contact Current Rating:** 

**Initial Contact Resistance: Proof Voltage:** 

POWER CONTACTS **Contact Current Rating:** 

**Initial Contact Resistance: Proof Voltage:** 

SHIELDED CONTACTS Initial Contact Resistance: Nominal Impedance: Insertion Loss:

VSWR:

Above values measured using frequency domain techniques.

HIGH VOLTAGE CONTACTS Flash Over Voltage: **Proof Voltage:** Initial Contact Resistance:

CONNECTOR Insulator Resistance: **Clearance And Creepage Distance:** 

Working Voltage: **Residual Magnetism For Space** Flight Versions :

3600 V r.m.s. 2700 V r.m.s. 0.008 ohms maximum.

14 A nominal, size 20.

10 A nominal, size 22.

0,005 ohms maximum.

10, 15, 20, 30 and 40 amperes nominal.

0.0005 ohms maximum.

0.008 ohms maximum.

1.15 average at 1 GHz. 1.56 average at 2 GHz.

-0.46 dB at 1 GHz -1.5 dB at 2 GHz.

1000 V r.m.s.

1000 V r.m.s.

50 ohms.

5 G ohms. 0.039 inch (1.0mm) minimum. 300 V r.m.s.

Consult factory.

Positronic Industries www.connectpositronic.com

# SAVAC® DIMENSIONS



	^	Р	6	I	כ
	A	D	0	Type 0-1-5*	Type 2-3-4*
SHELL SIZE 1	24.99	39.37	21.08	18	24
SHELL SIZE 2	33.32	47.7	21.08	18	24
SHELL SIZE 3	47.04	61.42	21.08	18	24
SHELL SIZE 4	63.5	77.88	21.08	18	24
SHELL SIZE 5	61.11	75.49	23.9	18	24
SHELL SIZE 6	63.5	77.88	25.5 18		24

\*See ordering information: STEP 5 – Type of contacts

# SAVAC® MOUNTING



All dimensions are in mm. All dimensions are subject to change.



# SAVAC® PANEL CUTOUT INFORMATION

4 x R2

$   \begin{array}{c}     4 \times \mathbf{R4,30} & 10^{\circ} \\     2 \times \emptyset 3,2 &                                  $	
	Radius 3,2

	Α	В	С	D	E
SHELL SIZE 1	19.70	24.99	40.40	11.70	22.10
SHELL SIZE 2	28.10	33.32	48.70	11.70	22.10
SHELL SIZE 3	41.90	47.04	62.50	11.70	22.10
SHELL SIZE 4	58.40	63.50	78.90	11.70	22.10
SHELL SIZE 5	55.20	61.11	76.50	14.70	24.90
SHELL SIZE 6	58.40	63.50	78.90	16.00	26.50

The depths are identical for all SAVAC sizes



# **ORDERING INFORMATION – CODE NUMBERING SYSTEMS**

STEP	1	2	3	4	5	]	6	
EXAMPLE	SAVAC	15	M/S	G	.0	-	S****	
STEP 1 – BASIC SAVAC series	SERIES						STEP 6 – Consult Sal	SPECIAL OPTIONS es Department
STEP 2 – CONNECTOR VARIANTS Normal density 9-15-25-37-50 High density 15-26-44-62-78-104 Mixed combinations (Consult Combo-D catalog) 2WK2 up to 46W4						ST	EP 5 – TY 0 : Norma 1 : High dd 2 : Power 3 : Coax a 4 : High vi 5* : Therm	PE OF CONTACTS I density ensity and/or mixed combinations und/or mixed combinations oltage occuple contact (only normal density)
<ul> <li>STEP 3 – CONNECTOR GENDER</li> <li>M/S : Male/Female Posiband</li> <li>M/M : Male/Male Marking inverted on the two insulators front side Not available for high density / mixed combinations</li> <li>S/S : Female Posiband/Female Posiband Marking inverted on the two insulators front side Not available for high density / mixed combinations</li> </ul>					STEP G D S	2 4 : :	- TYPE O Gold for Spa Gold and Dir Stainless-ste Residual ma Stainless-ste	F APPLICATIONS ince version mpled for Space version eel for Space version gnetism, consult factory eel for Industrial version

5\*: Thermocouple contact

	Material	Position of thermocouple contacts:
5 K	Chromel ® (+) Alumel ® (-)	- The first cavity is always loaded.
5 T	Copper (+) with gold flash Constantan (-)	- Even cavities for negative contacts (-)
5 J**	Iron (+) Constantan (-)	
5E**	Chromel ® (+) Constantan (-)	

\*\* Consult sales department



# THERMOCOUPLE CONNECTORS



**D-subminiature connectors** with thermocouple crimp contacts.



**D-subminiature feed through** equipped with thermocouple contacts and the counterparts with thermocouple crimp contacts.

The thermocouple connectors are available in D-subminiature connectors version and also in hermetic version (D-subminiature feed-through).

#### **D-subminiature Connector**

See Positronic D-subminiature connectors catalog (Standard and Space Versions).

#### Thermocouple crimp contacts:

- Dimensional conformity to SAE AS39029.
- Precision machined contacts.
- Size 20 contacts.
- Thermocouple alloy.

	Female and male crimp contacts Part-Number								
	Material	Male	Female	Color code					
Type K	Chromel <sup>®</sup> (+)	MC6020DCH	FC6020D2CH	White					
турек	Alumel <sup>®</sup> (-)	MC6020DAL	FC6020D2AL	Green					
Town of T	Copper (+) with gold flash	MC6020DCU	FC6020D2CU	Red					
Type T	Constantan (-)	MC6020DCO	FC6020D2CO	Yellow					
Type J*	Iron (+)	MC6020DIR	FC6020D2IR	Black					
	Constantan (-)	MC6020DCO	FC6020D2CO	Yellow					
Type F*	Chromel <sup>®</sup> (+)	MC6020DCH	FC6020D2CH	White					
Type E	Constantan (-)	MC6020DCO	FC6020D2CO	Yellow					

\* Consult sales department

#### D-subminiature feed-through:

- Conform to MIL-DTL-24308
- Size 20 contacts
- Type of contacts : Male/Female
- Type of contacts : Type K "Chromel<sup>®</sup> (+) / Alumel<sup>®</sup> (-)
  - Type T "Copper (+) with gold flash / Constantan (-)
  - Type J "Iron (+) / Constantan (-)
  - Type E "Chromel<sup>®</sup> (+) / Constantan (-)
  - \* Consult sales department

#### Position of thermocouple contacts:

- The first cavity is always loaded.
- Even cavities for negative contacts (-)
- Odd cavities for positive contacts (+)

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# HIVAC ®

HIVAC® Series Connectors are feedthroughs equipped with D-Subminiature Adapter Connectors for SPACE or INDUSTRIAL vacuum applications.

The HIVAC® Connector configuration requires three separate units to function properly. The center unit is the feedthrough. This feedthrough requires two adapter units, one for the atmospheric side and one for the vacuum side.

Both sides of the feedthrough contain four threaded mounting holes and an o-ring groove. These redundant features allow either side of the connector to be mounted toward the vacuum, giving the customer the ultimate in flexibility.

The feedthrough has always Female/Female contacts.

The contact type of Adapter Connector is always as male next to the feedthrough and the other sides are according to the Customer request, Male/Male or Male/Female for the normal density, and for the high density it is systematically Male/Female.

A feedthrough has 5 types of insulators: 37 or 50 contacts for normal D and 44, 62 and 104 contacts for high D.

#### MATERIALS AND FINISHES

Insulator:	Glass-filled DAP per ASTM-D-5948 or polyester glass-filled per ASTM D 5927, UL94V0, ASTM E-595, NASA-RP-1124.				
Contacts:	Precision machined copper alloy.				
Posiband Spring Clip:	BeCu (Copper alloy).				
Contact Plating:	0,000050 inch (1,25 microns) gold over copper plate.				
Shells:	Brass with 0,000050 inch (1,25 microns) gold over copper plate or stainless steel.				
Housing:	Aluminium alloy, golden brown conversion coating.				
O-ring:	Viton (fluorocarbon). Other material per request. One mounting and one for spare part.				

#### ELECTRICAL CHARACTERISTICS AT SEA LEVEL

		remperature nange:	-40 10 +85 0.		
Contact Current Rating:	7,5A nominal, size 20		The temperature range can be		
	5A nominal, size 22		expended under certain		
Initial Contact Resistance:	0.005 ohms maximum.		conditions. Consult factory.		
Proof Voltage:	1000 V r.m.s.	Helium Leak Rate	- Evil 0 <sup>-9</sup> mbox 1/2 under a		
Insulator Resistance:	5 G ohms.	At Ambient temperature:	vacuum of 1.5x10 <sup>-2</sup> mbar.		
Clearance And Creepage		Outgassing Non-Metallic			
Distance:	0.039 inch (1,0 mm) minimum.	Material:	Total Mass Loss – TML < 1 %.		
Working Voltage:	300 V r.m.s.		Collected Volatile Condensable		
Residual Magnetism for			Materials – CVCM < 0,1 %.		
Space Flight Versions :	Consult factory.				

An Adapter Connector allows several combinations with a feedthrough.

The advantage of this system is that it allows the user the flexibility to purchase a single feedthrough and use it with a variety of adapters.

HIVAC® series connectors utilize precision machined contacts for strength and durability. The materials and finishes, as well as the technical characteristics of the HIVAC® series connectors, conform to MIL-DTL-24308, Goddard and SPACE-D32 specifications.

All HIVAC  $\!$  Series connectors are 100 % leak tested after fabrication.

#### MECHANICAL CHARACTERISTICS

Fixed Contacts:	Size 20 Contact: 0,040 inch (1,02mm) mating diameter. Female Posiband contact: Closed entry design				
	Size 22 Contact: 0,030 inch (0,76mm) mating diameter. Female Posiband Contact: Closed entry design.				
Contact Adapter:	Male to female.				
Contact Retention In Insert:	9 lbs. (40 N).				
Shells:	Male shells may be dimpled for EMI/ESD ground paths.				
Polarization:	Trapezoidally shaped shells.				
Mechanical Operations:	500 operations, minimum, per IEC 60512-5.				
CLIMATIC CHARACTERISTICS					
Temperature Range:	-40 to +85℃.				
	The temperature range can be expended under certain conditions. Consult factory.				
Helium Leak Rate At Ambient temperature:	< 5x10 <sup>-9</sup> mbar.l/s under a vacuum of 1.5x10 <sup>-2</sup> mbar.				
Outgassing Non-Metallic Material	Total Mass Loss – TML < 1 %				



# **HIVAC® FEEDTHROUGH DIMENSIONS**



#### **HIVAC® ADAPTER DIMENSIONS**



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# HIVAC® FEEDTHROUGH PANEL CUTOUT INFORMATION



# HIVAC® FEEDTHROUGH AND HIVAC ADAPTER MOUNTING





#### **ORDERING INFORMATION – CODE NUMBERING SYSTEMS**

#### FEEDTHROUGH PART-NUMBERS



# **ADAPTER PART-NUMBERS**

STEP	1	2	3	4	5	6		
EXAMPLE	HIVAC	37	.25	М	G	- S****		
STEP 1 – BASIC SERIES HIVAC ADAPTER					STEP 6 – SPECIAL OPTIONS Consult Sales Department			
STEP 2 – HIV Normal density 37-50 High density 44-62-104	AC FEED-THROUG	ìΗ		STEP 5 – TYPE OF APPLICATIONS G : Gold for Space version D : Gold and Dimpled for Space Version S : Stainless-steel for Space version Residual magnetism, consult factory				
STEP 3 – HIV VARIANTS Normal density 9-2X9-15-25-37 Normal density 9-2X9-15-25-50 High density wi 15-26-44 High density wi 62 High density wi 78-104	<b>/AC ADAPTER CON</b> with 37 variant with 50 variant th 44 variant th 62 variant th 104 variant	NTACT			STE M F V F	<b>EP 4 – ADAPTER GENDER</b> M : Male contact S : Female Posiband MM-SS: Use only with 37.2X9 and 50.2X9 Hivac Adapter MS : Use only with 37.2X9 Hivac Adapter For normal density : 2 Male Hivac Adapters or 1 Male Hivac Adapter with 1 Female Hivac Adapter For high density : 1 Male Hivac Adapter with 1 Female Hivac Adapter		

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RECAPITULATIVE PART-NUMBERS									
With All Adapter Variants									
						ı			
	+		<b>→</b>			t		<b>→</b>	
HIVAC Adapter		HIVAC Feedthrough		HIVAC Adapter	HIVAC Adapter		HIVAC Feedthrough		HIVAC Adapter
HIVAC37.9M*		HIVAC37.0		HIVAC37.9S*	HIVAC50.9M*		HIVAC50.0		HIVAC50.9S*
HIVAC37.9M*				HIVAC37.9M*	HIVAC50.9M*				HIVAC50.9M*
HIVAC37.9S*				HIVAC37.9S*	HIVAC50.9S*				HIVAC50.9S*
					HIVAC50.2X9MM*				HIVAC50.2X9SS*
HIVAC37.2X9MS*				HIVAC37.2X9SM*	HIVAC50.15M*				HIVAC50.15S*
HIVAC37.2X9MS*				HIVAC37.2X9MS*	HIVAC50.15M*				HIVAC50.15M*
HIVAC37.2X9MM*				HIVAC37.2X9SS*	HIVAC50.15S*				HIVAC50.15S*
HIVAC37.2X9MM*				HIVAC37.2X9MM*	HIVAC50.25M*				HIVAC50.25S*
HIVAC37.2X9MM*				HIVAC37.2X9MS*	HIVAC50.25M*				HIVAC50.25M*
HIVAC37.2X9MM*				HIVAC37.2X9SM*	HIVAC50.25S*				HIVAC50.25S*
HIVAC37.2X9SS*				HIVAC37.2X9SS*	HIVAC50.50M*				HIVAC50.50S*
HIVAC37.2X9SS* HIVAC37.2X9SS*				HIVAC37.2X9MS* HIVAC37.2X9SM*	HIVAC50.50M* HIVAC50.50S*				HIVAC50.50M* HIVAC50.50S*
HIVAC37.15M*				HIVAC37.15S*	HIVAC44.15M*		HIVAC44.1		HIVAC44.15S*
HIVAC37.15M*				HIVAC37.15M*	HIVAC44.26M*				HIVAC44.26S*
HIVAC37.15S <sup>*</sup>				HIVAC37.15S*	HIVAC44.44M <sup>^</sup>				HIVAC44.44MS <sup>^</sup>
HIVAC37.25M*				HIVAC37.25S*					
HIVAC37.25M* HIVAC37.25S*				HIVAC37.25M* HIVAC37.25S*	HIVAC62.62M*		HIVAC62.1		HIVAC62.62S*
HIVAC37.37M*				HIVAC37.37S*	HIVAC104.78M*		HIVAC104.1		HIVAC104.78S*
HIVAC37.37M*				HIVAC37.37M*	HIVAC104.15M*				HIVAC104.15S*
HIVAC37.37S*				HIVAC37.37S*	HIVAC104.104M*				HIVAC104.104S*

\* Type of application: G, D or S (See Code Numbering System). \*\* For high density: 1 Male HIVAC adapter with 1 Female HIVAC adapter.



Example: HIVAC50.2x9MMS



HERMETIC CONNECTORS / FEEDTHROUGH CUSTOM DESIGN

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# 124 FEMALE SIZE 22 CONTACTS 124 FEMALE SIZE 22 CONTACTS WITH PCB EXTENSIONS



# HERMETIC CONNECTORS / FEEDTHROUGH CUSTOM DESIGN

# HERMETIC ROUND FLANGES FOR INTERCONNECTION SYSTEM

# **10 D-SUBMINIATURE FEEDTHROUGHS**



237 MALE / FEMALE SIZE 20 CONTACTS

HERMETIC ROUND FLANGES FOR VACUUM CHAMBERS

# 2 XAVAC® CONNECTORS



5 MALE/FEMALE SIZE 8 CONTACTS 20 MALE/FEMALE SIZE 20 CONTACTS

# 7 SAVAC® CONNECTORS



546 MALE/FEMALE SIZE 22 CONTACTS

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# HERMETIC FLANGE FOR VACUUM CHAMBERS

# 16 XAVAC® CONNECTORS



548 MALE/FEMALE SIZE 20 CONTACTS

# HERMETIC ROUND FLANGE FOR VACUUM CHAMBERS

# **39 XAVAC® CONNECTORS**



174 MALE / FEMALE SIZE 20 CONTACTS 1884 MALE / FEMALE SIZE 22 CONTACTS



# HERMETIC CONNECTORS / FEEDTHROUGH CUSTOM DESIGN

Our Hermetic Connectors are widely recognized for their reliability, durability and performance capabilities. They are utilized worldwide in Scientific Laboratories and Space Industries.

For quality and service at a competitive price, Positronic Industries is unbeaten. Give us a try.



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# 34 HIVAC® CONNECTORS

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# HERMETIC ROUND FLANGE FOR VACUUM CHAMBERS



# HERMETIC OBTURATOR





# **TECHNICAL INFORMATION**

# **CONVERSION TABLE**

	Pascal	Bar	Kg/cm <sup>2</sup>	Atmosph.
Pascal	1	10 <sup>-5</sup>	1,02.10 <sup>-5</sup>	0,9869.10 <sup>-5</sup>
Bar	105	1	1,02	0,9869
Kg/cm <sup>2</sup>	0,980.10 <sup>-5</sup>	0,980	1	0,968
Atmosph.	1013.10 <sup>-5</sup>	1,013	1,033	1
Torr	133,3	0,1333.10 <sup>-2</sup>	1,36.10 <sup>-3</sup>	1315.10 <sup>-3</sup>
Mbar	100	01.10 <sup>-2</sup>	1,02.10 <sup>-3</sup>	0,9869.10 <sup>-3</sup>
Inch.Hg	3386	3,386.10 <sup>-2</sup>	0,03453	0,03345
Psi	6990	6,89.10 <sup>-2</sup>	0,0703	0,008

	Torr	Mbar	Inch.hg	Psi
Pascal	0,75.10 <sup>-2</sup>	10 <sup>-2</sup>	0,2953.10 <sup>-3</sup>	0,1451.10 <sup>-3</sup>
Bar	750	1000	29,53	14,51
Kg/cm <sup>2</sup>	735	980	28,96	14,22
Atmosph.	760	1013	29,95	14,70
Torr	1	1,333	0,03937	0,01934
Mbar	0,750	1	0,02953	0,01451
Inch.Hg	25,4	33,86	1	0,4910
Psi	51,75	69,947	2,041	1







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an Amphenol company

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# **Mouser Electronics**

Authorized Distributor

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#### **Positronic:**

XAVAC15M/SI.1/AA XAVAC25M/MG.0 XAVAC37M/SG.0 XAVAC37M/SI.0/AA XAVAC15S/SI.0 XAVAC37M/MS.5T XAVAC50M/MG.0 XAVAC15M/SG.1/AA XAVAC62M/SI.1 XAVAC26M/SI.1 XAVAC25M/SI.0/AA XAVAC26M/SS.1/AA XAVAC9M/SG.0/AA XAVAC5W5M/SG.2 XAVAC50M/SI.0 XAVAC104M/SI.1 XAVAC15M/MG.0 XAVAC25M/SG.0 XAVAC9M/MI.0/AA XAVAC5W5M/SG.3 XAVAC62M/SS.1/AA XAVAC26M/SD.1/AA XAVAC9W4M/SG.2/AA XAVAC44M/SS.1/AA XAVAC25M/SG.0/AA XAVAC15M/SI.0 XAVAC50M/SD.0/AA XAVAC50M/SG.0/AA XAVAC15M/SI.5T XAVAC25M/SI.0 XAVAC37M/SI.0 XAVAC104M/SD.1/AA XAVAC9M/MG.0 XAVAC9M/SS.0/AA XAVAC17W2M/SG.3/AA XAVAC9M/SI.0 XAVAC9M/SI.0/AA XAVAC50M/SI.0/AA XAVAC15M/SG.0/AA XAVAC26M/SG.1 XAVAC8W8M/SG.3/AA XAVAC50M/SS.0/AA XAVAC5W5M/SG.2/AA XAVAC37M/MG.0 XAVAC3W3M/SG.3 XAVAC9M/SG.0 XAVAC37M/SS.0/AA XAVAC37M/MS.5T/AA XAVAC37M/SG.0/AA XAVAC78M/SI.1/AA XAVAC15M/SG.1 XAVAC26M/SG.1/AA XAVAC8W8M/SI.3/AA XAVAC15M/SI.0/AA XAVAC3W3M/SG.2 XAVAC78M/SG.1/AA XAVAC15M/MI.0/AA XAVAC25M/SI.5K/AA XAVAC44M/SG.1 XAVAC8W8M/SG.2 XAVAC62M/SG.1/AA XAVAC78M/SG.1 XAVAC104M/SG.1 XAVAC44M/SD.1/AA XAVAC50M/SG.0 XAVAC26M/SI.1/AA XAVAC44M/SI.1 XAVAC104M/SS.1/AA XAVAC25M/MI.0/AA XAVAC25M/SD.0/AA XAVAC37M/SD.0/AA XAVAC44M/SG.1/AA XAVAC44M/SI.1/AA XAVAC8W8M/SG.2/AA XAVAC15M/SS.0/AA HIVAC44.1 SAVAC15M/MI.0/AA SAVAC9M/SI.0/AA HIVAC50.0 SAVAC9W4M/SI.2 SAVAC9M/SG.0/AA SAVAC78M/SI.1/AA XAVAC78M/SS.1/AA SAVAC15M/SG.0/AA SAVAC62M/SI.1 SAVAC15M/SI.1 SAVAC104M/SG.1/AA SAVAC8W8M/SI.3/AA SAVAC9M/MI.0/AA XAVAC62M/SI.1/AA SAVAC15M/SI.1/AA SAVAC9M/SI.0 HIVAC50.50MG SAVAC104M/SI.1/AA SAVAC25M/SI.0 SAVAC25M/SG.0/AA SAVAC25M/MI.0/AA SAVAC15M/SI.0/AA SAVAC50M/MI.0 XAVAC15M/SG.0