

Jerrik Inc.

A CONESYS COMPANY

Filter and Transient
Suppression Connectors



MILITARY



AEROSPACE



TRANSPORTATION

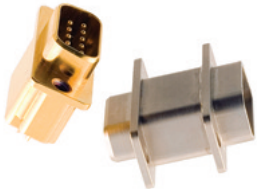


GEOPHYSICAL



INDUSTRIAL

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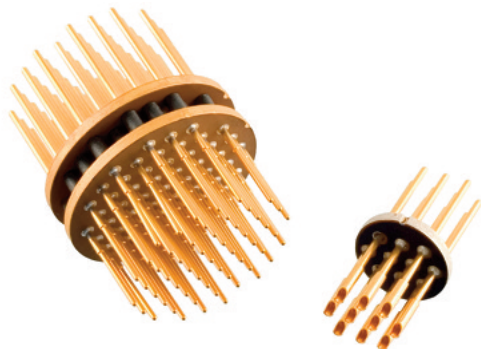
Jerrik, located in Tempe Arizona, is a premiere designer and manufacturer of EMI filter and transient suppression connectors. Our high reliability, high performance products serve many industries including commercial and military avionics, transportation, automotive and telecommunications. The Jerrik facility is certified to ISO9001:2000/AS9100 as well as other customer specific requirements. We specialize in manufacturing connectors that meet various military specifications and custom configurations. These products take advantage of the latest design, material and manufacturing standards in our industry.

Jerrik is continually looking to improve our products and our processes. Our filter connectors offer planar array and chip capacitor solutions for design flexibility or customer preference. In addition, we employ several generations of diode and MOV designs to offer the market the best transient voltage suppression solutions.

We are committed to excellence and quality in our products as well as responsiveness and integrity in our customer service.

As a part of the Conesys family, Jerrik can offer the market even more strengths in connector manufacturing. Our products ship all over the globe, and we take pride in our customer service both domestic and international. This catalog covers many aspects of filter connector selection. Please feel free to contact our facility if you have a custom application or need more information.

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Why Filters in a Connector?

Theory and Types

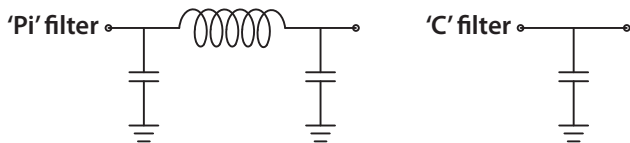
If your circuitry is suffering the ill effects of interference from radio waves, stray transmissions, electric power lines or electric motor noise, you are experiencing EMI (electromagnetic interference). This leads the circuit designer to consider EMI filters. A second issue, EMP (electromagnetic pulse) is driven from the catastrophic effects of extremely high voltage, short duration pulses of energy. Traditionally, concern for nuclear attack was high priority and now in the military and aerospace environments, protection from lightning strikes and similar high energy sources are a top priority. Protection from this sudden unwanted over-voltage situation is more commonly referred to as TVS (transient voltage suppression).

EMI and EMP are looking for a path to your circuits and that path is usually an antenna or a cable set running to the circuit that is acting as an antenna.

The key warrior against EMI is a capacitor element. Typically, we battle transient voltage with a zener diode. Where is the best place to put these elements? Often military and avionics boxes house the critical circuitry. If the cable set is the antenna then the best placement for the filter is at the cable/box interface, preventing the unwanted signals from entering the system. A multi-pin filter or TVS connector is the ideal solution.

Components for EMI

Most filters are low pass, allowing signal to pass while eliminating high frequency noise. In circuit design, two capacitors in parallel running from source to ground, surrounding an inductor in series, is the most effective EMI filter. This is known as a Pi filter (shown below). The advantage of the Pi filter is that it generates the fastest roll-off and highest attenuation levels of any of the popular filter types. The second most popular type, the ‘C’ filter, is comprised of one capacitor element from signal to ground. With fewer components, the ‘C’ filter can often generate the best performance/price ratio.



Other filter types that Jerrik can package include ‘T’ filters, ‘LC’, and ‘CL’. Consult with your Jerrik factory representative for advice on which circuit is best for your application.

Since the connector is the best place for the filter, packaging the ceramic capacitor inside the shell is the design goal. To achieve the maximum filtering performance Jerrik uses planar array capacitors. These monolithic devices have the entire pattern drilled in the ceramic, thus supporting capacitance from signal to ground at every pin in the connector. To build the Pi filter, two arrays are used with a tubular ferromagnetic inductor on every pin (see page 12 for typical connector construction).

Jerrik also filters using off the shelf chip capacitors on printed circuit boards (PCB). This PCB design offers the advantages of lower price at the sacrifice of performance. The attenuation performance will start high at low frequency but will not stay high at higher frequencies, thus demonstrating a ‘knee’ shaped curve. For high frequency applications Jerrik recommends planar capacitors construction.



Components for EMP/TVS

Zener diodes are packaged in the Jerrik TVS connectors for a number of applications. On average every commercial aircraft is struck by lightning twice a year. Aircraft are now being designed structurally with up to 50% composite content and have ‘all electric’ flight control systems. Today’s industry standard for lightning testing of electronics is RTCA DO-160, written for conventional aluminum airframes. As such, it may prove lacking for next generation aircraft. Jerrik designs TVS connectors application specific and meeting industry’s changing requirements. Jerrik Transient Voltage Suppression connectors save space, are lighter, more reliable and more cost effective than current industry standards. Consult with your Jerrik factory representative for the very latest design technology.

Your application

Meeting your EMI/EMP or TVS needs electrically is only half of the Jerrik SOLUTION. You’ll need the connector to fit and function mechanically as well. With filters housed at the box interface, over 90% of our products are box mount or jam nut receptacle style connectors. This is true for circular connectors as well as our high-end ARINC blind mate filter connectors. In addition, Jerrik provides the customer with exact fits for board mounting PC tail contacts. See page 4 for available contact termination styles.

38999 Qualification

Jerrik designs filter connectors to meet today’s military and commercial connector standards. MIL-DTL-38999 is a ‘gold’ standard for performance in many environments. As applicable, all Jerrik connectors are designed with this level of quality and performance. Today’s aerospace and ground troop applications demand even higher performance. Consult your Jerrik factory representative if your application requires testing above and beyond this standard.

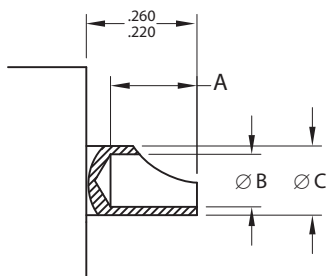


Jerrik Inc.
Design Guide – Termination Selection
Filter and Transient Suppression Connectors

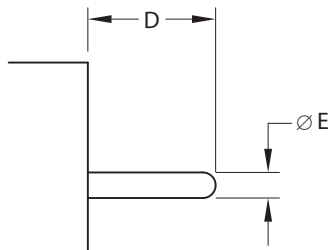


Design Considerations		
Circular	or	Rectangular
MIL-DTL-38999 Series I,II,III,IV		MIL-DTL-24308 MIL-DTL-83513 ARINC 404 ARINC 600 EPX®
MIL-DTL-26482 Series 2		
Mating End Contacts		
Pin	or	Socket
Filter Type		
C and/or Maximum or Mixed Capacitance Requirement?	Pi	and/or TVS _____ pF
Other Electrical?		
Feed Thru Contacts	Ground Contacts	DWV min _____ VDC
Other Environmental?		
Thermal Cycle, Thermal Shock, Burn-In, SEALED		
Other Mechanical?		
Mounting Hardware (clinch nut, helicoil, board mount shell features)		
Contact Terminations		
Soldercup	or	PC Tails (or wirewrap) or Crimp

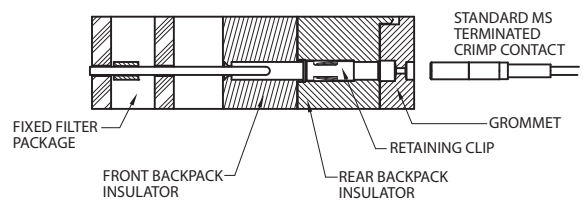
Solder Cup



PC Tail



Crimp



Contact Size	A		Ø B		Ø C		D		Ø E	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
#22	.110/.094	2.79/2.39	.040/.035	1.02/0.89	.049/.047	1.24/1.19	.180/.120	4.57/3.05	.022/.018	0.56/0.46
#20	.110/.094	2.79/2.39	.048/.042	1.22/1.07	.061/.057	1.55/1.45	.180/.120	4.57/3.05	.032/.028	0.81/0.71
#16	.172/.141	4.37/3.58	.082/.069	2.08/1.75	.103/.097	2.62/2.46	.180/.120	4.57/3.05	.042/.038	1.07/0.97
#12	.172/.141	4.37/3.58	.120/.112	3.05/2.85	.142/.136	3.61/3.45	.180/.120	4.57/3.05	.065/.061	1.65/1.55



MIL-DTL-38999
Part Number Development
Circular Filter Connectors

Jerrick Part Number Development

Filter	J	99	1	B	S	C	N	35	B	P	A	N
Shell Configuration												
99 = MIL-DTL-38999												
Series												
1, 2, 3, 4, (for I, II, III, IV)												
Shell Style												
B = Back Panel Mount Wall/Box Mount Receptacle (Series I, II)												
W = Wall Mount Receptacle (Series III, IV)												
J = Jam Nut Receptacle												
F = Front Panel Mount Wall/Box Receptacle (Series I, II)												
Termination Type												
S = Solder Cup												
P = PC Tail												
C = Crimp												
W = Wire Wrap												
Shell Sizes												
A=8/9, B=10/11, C=12/13, D=14/15, E=16/17, F=18/19, G=20/21, H=22/23, J=24/25												
Shell Finish												
N = Electroless Nickel												
O = Olive Drab Cadmium Nickel												
P = Passivated Stainless Steel												
D = Electro-deposited Nickel over Stainless Steel												
Y = Yellow Chromate Cadmium												
Contact Arrangement or Number of Contacts												
See pages 5–7												
Filter Characteristics												
A = PL, B = PM, C = PT, D = PH, E = PVH, F = CL, G = CM, H = CT, J = CH, K = CVH (see pages 10–11)												
Contact Type												
P = Pin												
S = Socket												
Modifier												
A = N/A												
B = #4-40 Clinch Nut												
C = #6-32 Clinch Nut												
D = #4-40 Helicoil												
E = #6-32 Helicoil												
Polarization												
K, N, W, X, Y, Z, A, B, C, or D												

MIL-STD-1560

Insert Arrangement (Pin Front View)

for MIL-DTL-38999 Series I, II, III, and IV Connectors



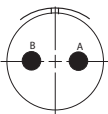
Insert Arrangement Views



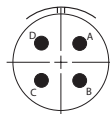
9-35/8-35
A35,
6 # 22D



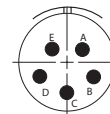
9-98/8-98
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3 # 20



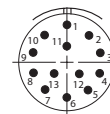
11-2
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2 # 16



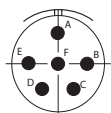
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4 # 20



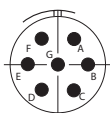
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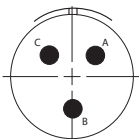
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13 # 22D



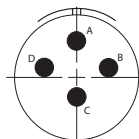
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6 # 20



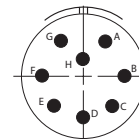
11-99/10-99
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7 # 20



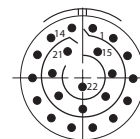
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3 # 16



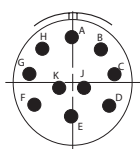
13-4/12-4
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4 # 16



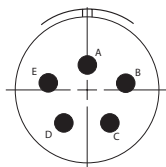
13-8/12-8
C8,
8 # 20



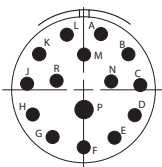
13-35/12-35
C35,
22 # 22D



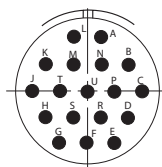
13-98/12-98
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10 # 20



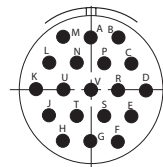
15-5/14-5
D5,
5 # 16



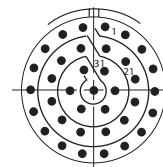
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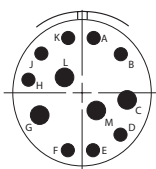
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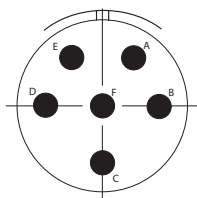
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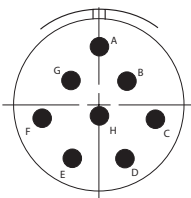
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D35,
37 # 22D



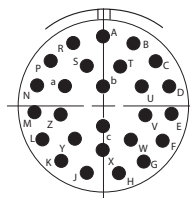
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4 # 16, 8 # 20



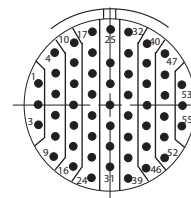
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E6,
6 # 12



17-8/16-8
E8,
8 # 16

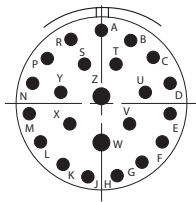


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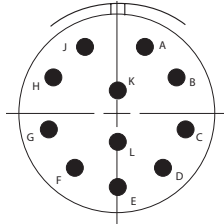


17-35/16-35
E35,
55 # 22D

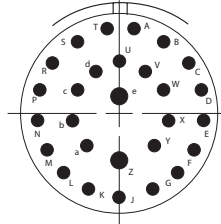
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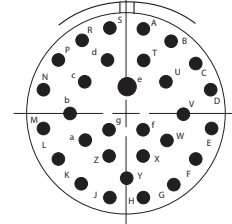
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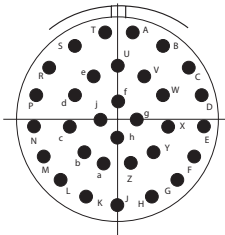
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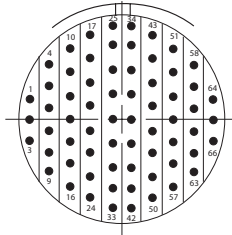
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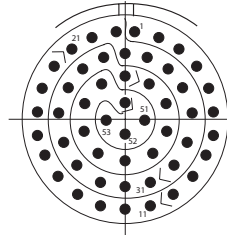
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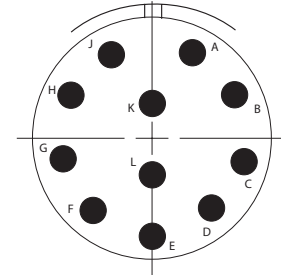
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F32,
32 # 20



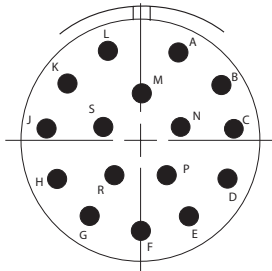
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66 # 22D



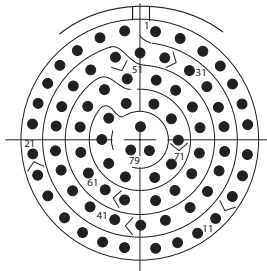
18-53*
53 # 22



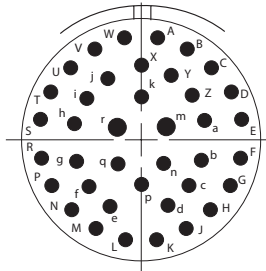
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G11,
11 # 12



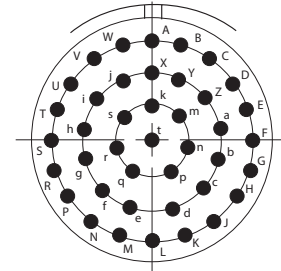
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16 # 16



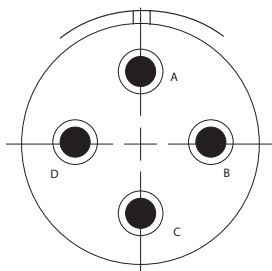
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79 # 22D



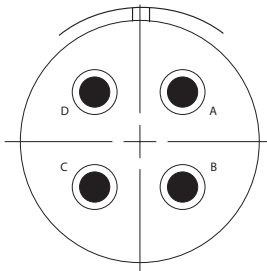
21-39/20-39
G39,
2 # 16, 37 # 20



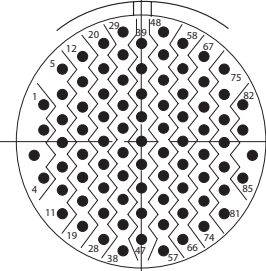
21-41/20-41
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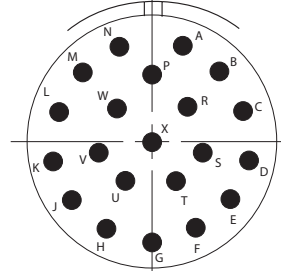
21-48**
G48**
4 # 8 Power



21-75
G75,
4 # 8 Twinax



23-2*/22-2*
85 # 22

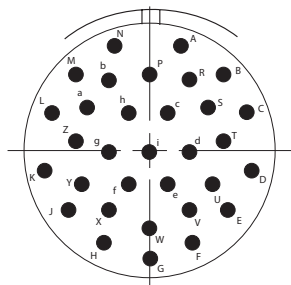


23-21/22-21
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21 # 16

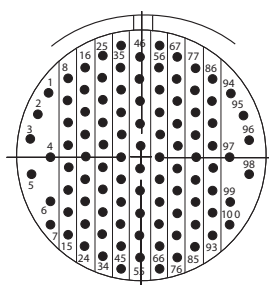
*Inactive for new design (not available in series III).

**Not MIL-STD-1560 layout.

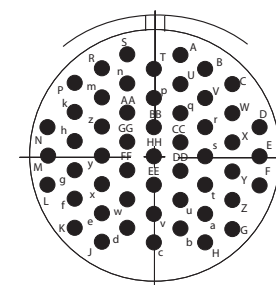
Insert Arrangement Views



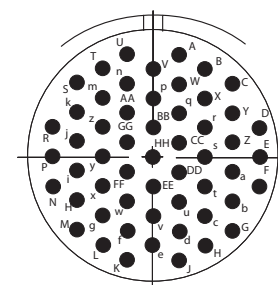
23-32/22-32
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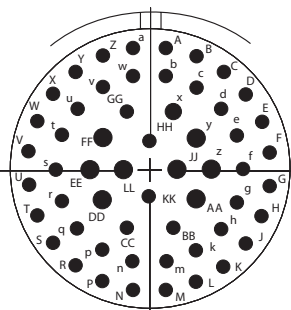
23-35/22-35
H35,
100 # 22D



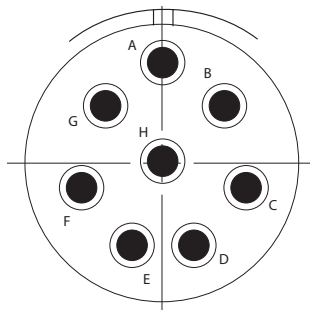
23-53/22-53
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53 # 20



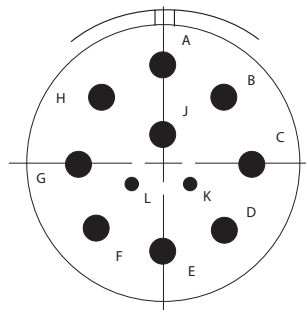
23-55/22-55
H55,
55 # 20



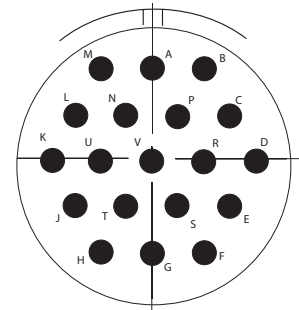
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J4,
8 # 16, 48 # 20



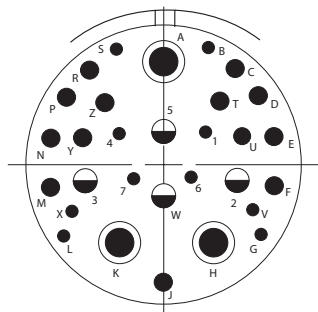
J8
8 # 8 Twinax,



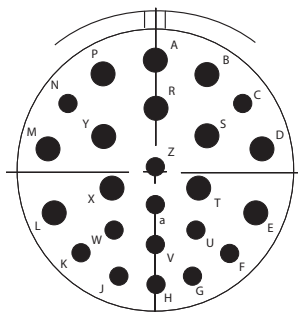
J11
9 # 10, 2 # 20,



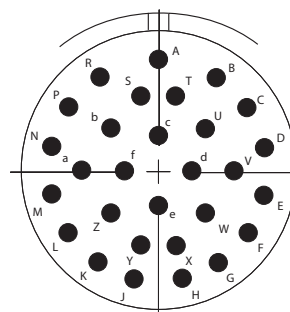
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J19,
19 # 12



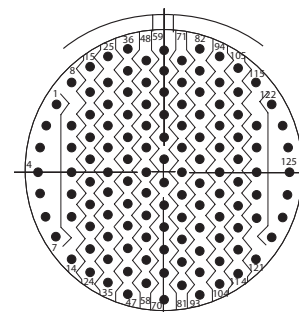
J20
10 # 20, 13 # 16, 4 # 12, 3 # 8 Twinax,



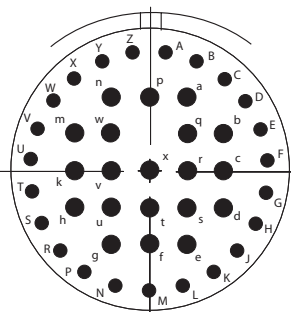
25-24/24-24
J24,
12 # 12, 12 # 16



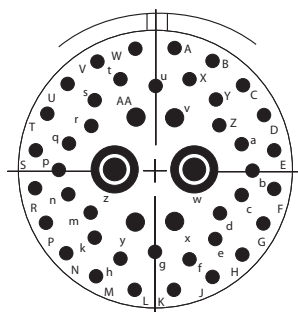
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J29,
29 # 16



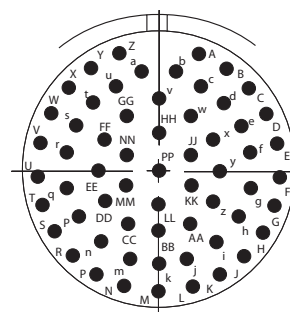
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J35,
128 # 22D



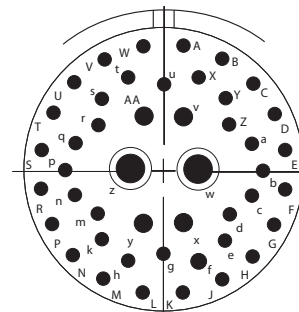
25-43
J43,
20 # 16, 23 # 20



25-46
J46,
40 # 20, 4 # 16, 2 # 8 Coax



25-61/24-61
J61,
61 # 20



J90,
40 # 20, 4 # 16, 2 # 8 Twinax

Typical Mechanical and Environmental Performance

Jerrik connectors are designed to meet customer specifications and the applicable MIL Specification requirements. The following are the typical requirements for M38999 filter connectors.

Temperature Range –55°C to +125°C
Voltage Range 100 VDC to 2500 VDC



Test Description	Procedure
Temperature Cycling	Method 1003, MIL-Std-1344, Condition A
Moisture Resistance	MIL-STD-202, Method 106
Durability	500 Matings at a rate of 200 ± 100 cycles per hour
Shock	Method 2004, MIL-STD-1344, Test Condition D
Vibration	Method 2005, MIL-STD-1344, Test Condition VI, Letter J, 8 Hours longitudinal and perpendicular axes
Fluid Immersion	MIL-STD-1344, Method 1016, Fluids (a) and (d)
Salt Spray	MIL-STD-202, Method 101, Condition B
Humidity	MIL-STD-1344, Method 1002, Condition B

Note: Jerrik often designs for stricter environments to meet customer needs. If you have specific requirements, consult the factory.

Cleaning Recommendations

1. Always cap the front of the connector or mate the connector. The mating face of the connector is not sealed until the connector is mated and the seal put in compression.
2. Never submerge the connector in any cleaning fluid.
3. Always position the connector so that cleaning fluids will run off the connector termination area (and will not puddle on the connector).
4. In an aqueous cleaning machine avoid hot cleaning followed by cold rinse cycles (clean and rinse at the same temperature). A hot wash will expand the shell forcing gasses out of the interior of the connector (creating a partial vacuum), a cold rinse will then tend to pull moisture into the connector.

Please see our SEALED connector options to prevent damage to your filter connectors during cleaning operations.

'Pi' Type Filter Characteristics					
Standard Operating Temperature Range	-55°C to +125°C				
Contact Current Rating	Size 12	Size 16	Size 20	Size 22	Micro-D
	23A	15A	7.5A	5A	3A

'Pi' Type Filter Characteristics		PL	PM	PT	PH	PVH
Standard Operating Voltage		100 VDC	200 VDC			
Insulation Resistance / DWV		5000 MΩ min. at 100 VDC		5000 MΩ min. at 500 VDC*		
Capacitance (pF) at 1KHz, .1 VRMS		32,000 45,000	8,000 12,000	3,300 5,000	900 1,300	400 600
Attenuation minimums per MIL-STD-220 at 25°C without bias voltage or current	Frequency (MHz)	Insertion Loss (dB)				
	1	8	2	-	-	-
	5	20	10	6	-	-
	10	40	18	14	3	2
	100	60	60	45	32	23
	500-1000	62	62	55	50	38

* Micro-D contacts, 5000 MΩ min. at 100 VDC

'C' Type Filter Characteristics					
Standard Operating Temperature Range	-55°C to +125°C				
Contact Current Rating (DC)	Size 12	Size 16	Size 20	Size 22	Micro-D
	23A	15A	7.5A	5A	3A

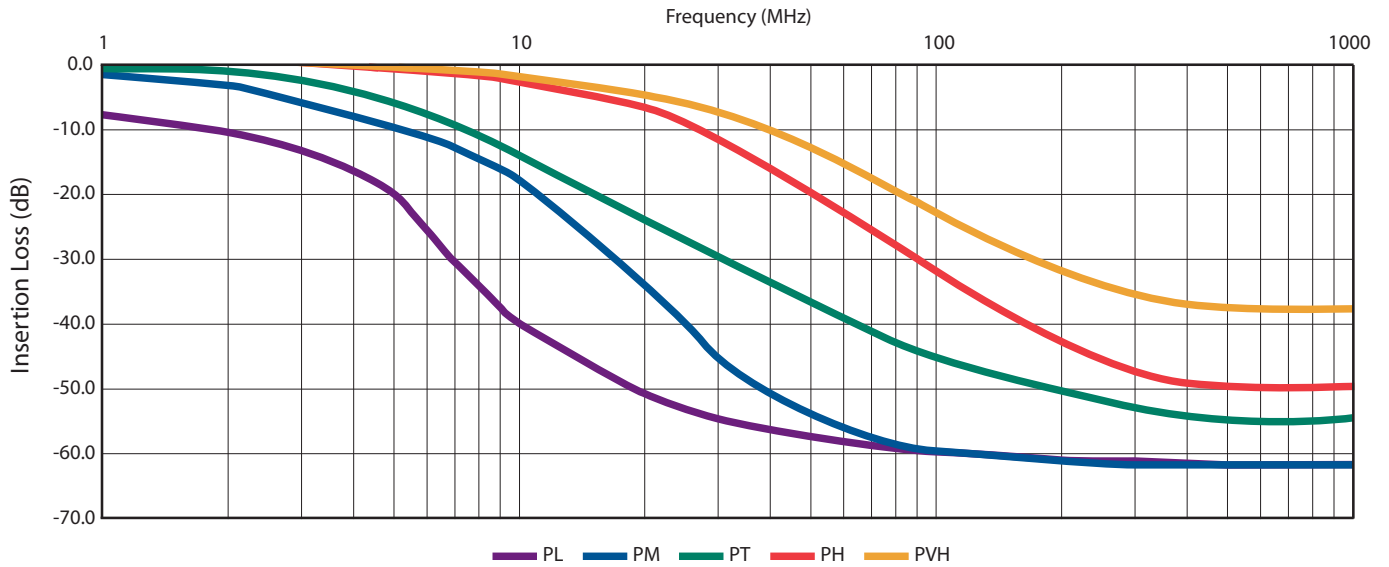
'C' Type Filter Characteristics		CL	CM	CT	CH	CVH
Standard Operating Voltage		100 VDC	200 VDC			
Insulation Resistance / DWV		5000 MΩ min. at 100 VDC		5000 MΩ min. at 500 VDC*		
Capacitance (pF) at 1KHz, .1 VRMS		16,000 22,500	4,000 6,000	1,650 2,500	450 650	200 300
Attenuation minimums per MIL-STD-220 at 25°C without bias voltage or current	Frequency (MHz)	Insertion Loss (dB)				
	1	5	-	-	-	-
	5	15	2	-	-	-
	10	26	8	5	2	-
	100	42	30	25	20	15
	500-1000	50	43	40	33	30

* Micro-D contacts, 5000 MΩ min. at 100 VDC

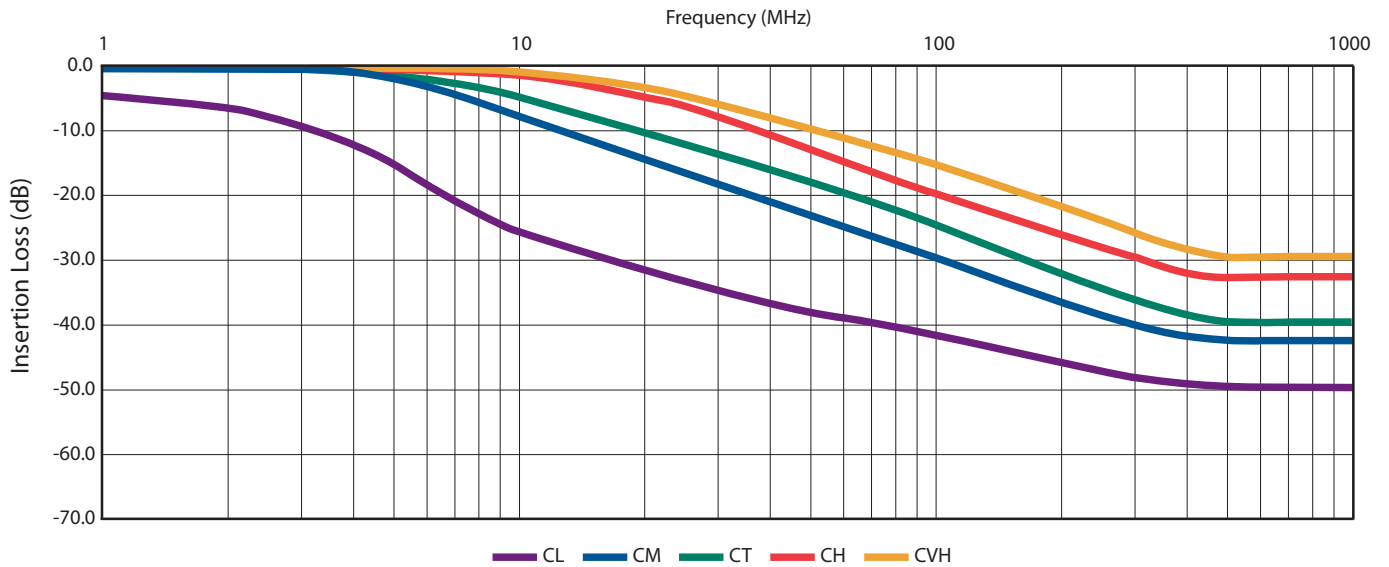


'Pi' and 'C' Insertion Loss Diagrams 'Pi' and 'C' Filters (Planar Construction)

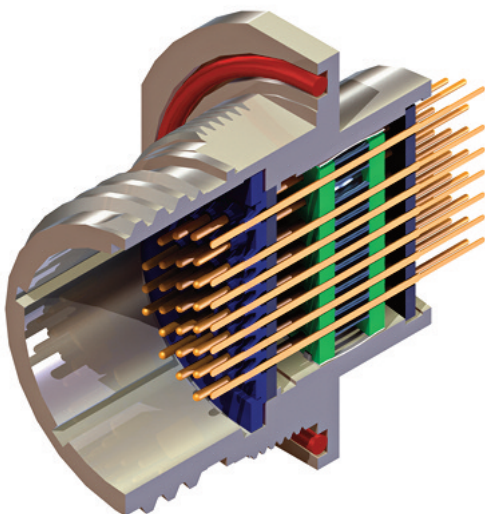
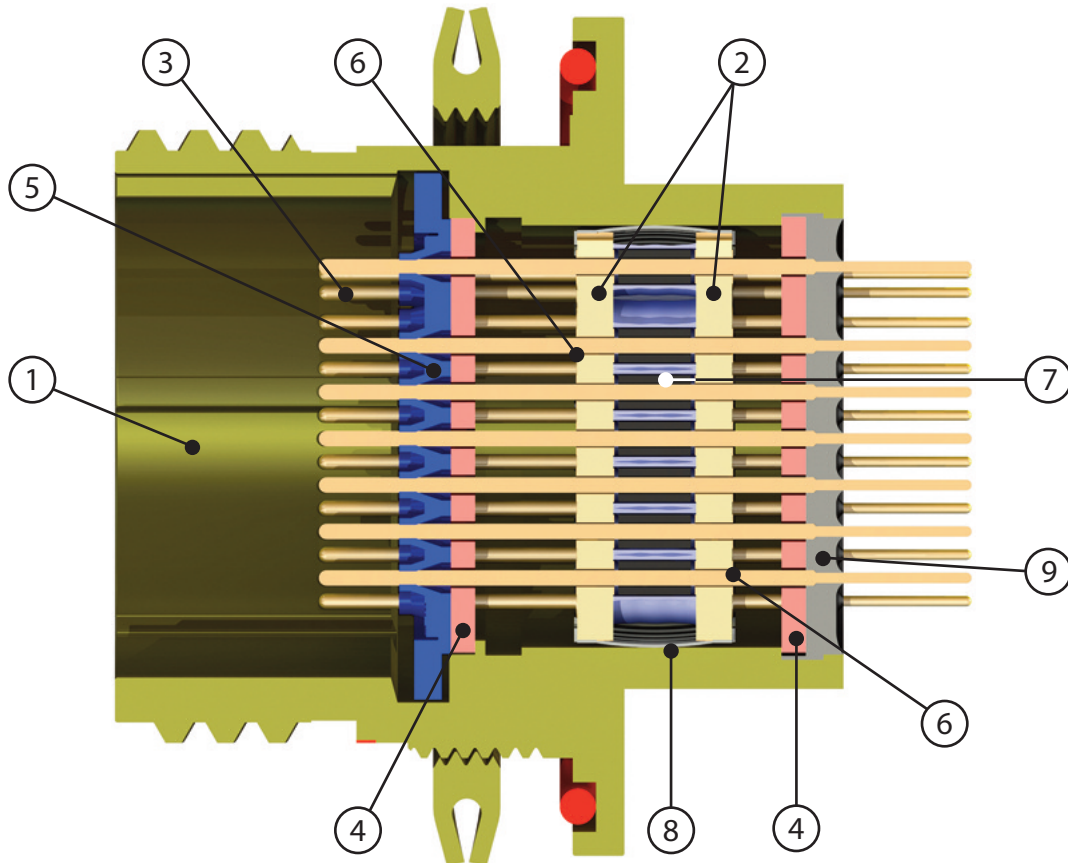
'Pi' Type Filter Attenuation



'C' Type Filter Attenuation



Typical 'Pi' Filter Construction

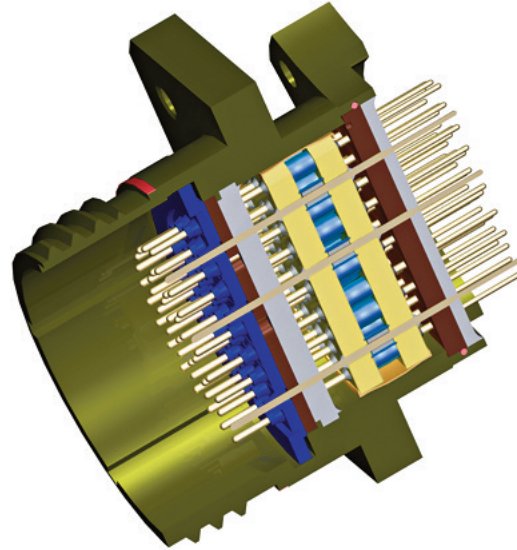


1. **SHELL** – Plated aluminum alloy.
2. **CAPACITORS** – Ceramic, planar.
3. **CONTACTS** – Brass for pin contacts; copper alloy for socket contacts; finish gold plate.
4. **INSULATORS** – High-grade thermoplastic/thermoset or epoxy glass laminate.
5. **INTERFACIAL/PERIPHERAL SEAL** – Typical construction is fluorosilicone.
6. **SOLDER**
7. **INDUCTORS** – Ferrite beads.
8. **GROUND SPRING** – Beryllium copper plated. 360° orientation inside of shell.
9. **EPOXY**

Sealed Connectors

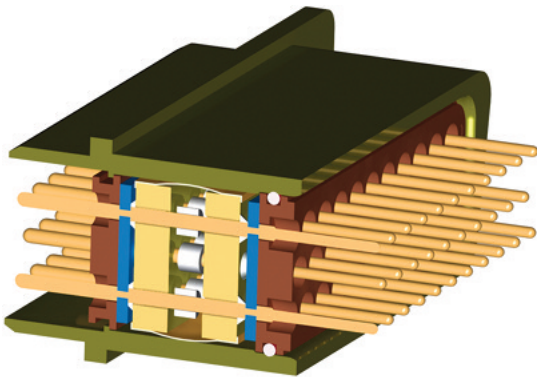
For years filter connectors have been protected from the elements with classic potting methods and materials, both front and rear. The downfall is that following thermal cycling these connectors allowed intrusion of moisture. Today's sophisticated applications demand total prevention of any foreign materials inside the connector housing. Jerrik is meeting these needs.

- Commercial and Military Aircraft
- Extreme Temperature Environments
- Ground Based Warfighter Dunks
- Aggressive PC Board Cleaning
- Sprays & Aqueous Solutions



JERRIK offers:

- **Front Seal**
against outside of box environments
- **Rear Seal**
against immersion and cleaning environments
- **Both**
complete protection of your box or filtered circuitry



Note: Most leak testing is preceded by various levels of temperature cycling

- MIL-STD-1344, Method 1008 Differential Pressure
- MIL-STD-202, Method 112
- 1 Meter Water Immersion at Various Durations



Show us your challenging environment and we'll develop a SEALED connector SOLUTION for your application.

High voltage and lightning protection where it counts!



TVS Connectors

The ideal location for diodes to act as Transient Voltage Suppression devices for modern avionics boards and boxes is inside the interface connectors. When considering the higher density multi-pin connectors commonly used, finding the room to package these diodes is a challenge.

Previous generations of 'cord wood' stacked leaded diode connectors double the size of a non TVS equivalent. Depending on the screening level specified for the diodes, lead times and costs for the diodes can be excessive. The solution to these issues is packaging the diodes with the PCBs and treating the PCB assembly like a planar capacitor. By using this concept of embedding the diodes with the PCBs the designer can make use of tighter packaging and off the shelf die to create a connector that matches the size of EMI filter connectors. Consult with your Jerrik factory representative today and let us put lightning protection WHERE IT COUNTS!

- **Jerrik TVS packages are equivalent in size to standard EMI filter connectors**
- **Off the shelf devices support your project's delivery requirements**
- **Patent pending design provides required protection for aircraft and helicopter applications in smaller, lighter packaging**
- **Ready to meet and exceed requirements of RTCA DO-160 lightning tests**
- **Proven, available lightning protection for 'all electric' control systems**



MIL-DTL-38999 Filter Connectors Features and Application Series I, II, III, and IV

MIL-DTL-38999 Filter Connectors

Incorporating all the mating dimensions, performance and environmental features of the military specification, Jerrick offers all four series of M38999 connectors filtered. See pages 18-26 for outline dimension detail by series. Each connector is comprised of pin or socket contacts, using the MIL-STD-1560 insert arrangements up to 128 contacts. While most projects require receptacle connectors, Jerrick can filter plug style connectors as well. Consult with the factory for more details.

Series I

MIL-DTL-38999 Series I is a bayonet coupling sub-miniature connector design offering high contact density ideal for small wire gauge signal pin applications. This series is environment resisting and the mating is “scoop-proof.” Pins are recessed in elongated shells to prevent the possibility of bending contacts when plugs are scooped across the mating receptacles. Jerrick offers three standard shell styles of receptacle, the front wall mount, the rear box mount and the jam nut. Please see the Conesys/Aero-Electric catalog, *Military Specified Circular Connectors*, for non-filtered plug mates. The Series I connectors offer over 50 insert arrangements, from MIL-STD-1560, to choose from. Contact sizes include 22D, 20, 16, 12, 10 and 8. Jerrick customers can use the sizes 12, 10, or 8 for power based on load requirements. Shells are aluminum base material with electroless nickel or olive drab cadmium, standard. Consult the factory as Jerrick can provide other finishes as well as passivated stainless steel when necessary. The Series I offer closed entry socket inserts raised moisture barriers around each pin for full environment resisting capability.

Series II

Featuring the bayonet coupling system with a low profile design, the Series II are perfect where the external shell should be lower and lighter weight. When filtered, Jerrick offers both the box mount and jam nut receptacles. Typically shells are aluminum base material with electroless nickel or olive drab cadmium, however, Jerrick can provide other finishes as well as passivated stainless

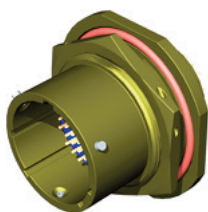
steel. Jerrick can offer over 50 insert arrangements for this family, with contact sizes including 22D, 20, 16, 12. See the Aero-Electric catalog for plug style mates. While not scoop-proof this series does offer the closed-entry socket inserts and raised moisture barriers around each pin contact like the series I. Jerrick offers all the shell key/keyway positions found in the military specification.

Series III

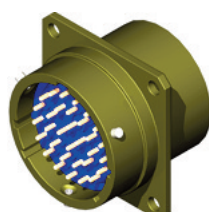
MIL-DTL-38999 Series III is the cylindrical connector designed for highest performance in general purpose and severe environment applications. These connectors feature an improved ‘one-turn’ coupling system, utilizing a self-locking acme thread. Blunting the threads of both plug and receptacle eliminates cross threading. Jerrick offers standard designs for both the wall mount and jam-nut receptacles. The Series III connectors offer insert arrangements common to Series I, from MIL-STD-1560. Jerrick can offer more than 50 insert arrangements for this family, with contact sizes including 22D, 20, 16, 12, 10 and 8. Jerrick customers can use the sizes 12, 10, or 8 for power based on load. This family offers scoop-proof design, closed entry socket inserts and raised moisture barriers on the pin interfacial seals. Normally plated aluminum, this series from Jerrick can also be firewall capable by specifying stainless steel shells.

Series IV

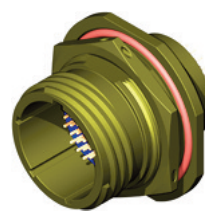
Jerrick, Inc offers the receptacle style for filtered Series IV only. The Series IV family makes a logical next generation to previous 38999 families. The quarter turn mate and release are designed with rack and panel and warfighter applications in mind. Due to the scoop-proof design and the shell grounding prior to engagement of contacts, reliability is very high. The Series IV performs very well in settings where vibration and shock are critical. Meanwhile, the nature of the mechanics of the quick lock coupling also offers good EMI performance, further enhanced with our internal low band pass filter.



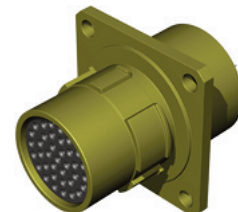
Series I



Series II

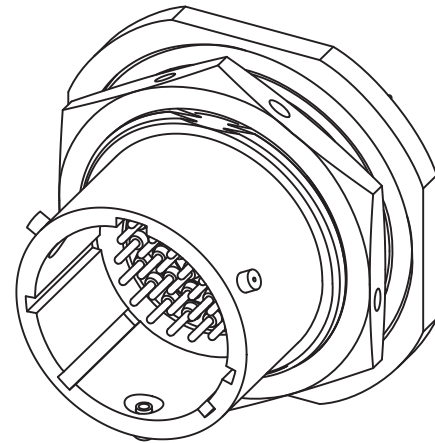
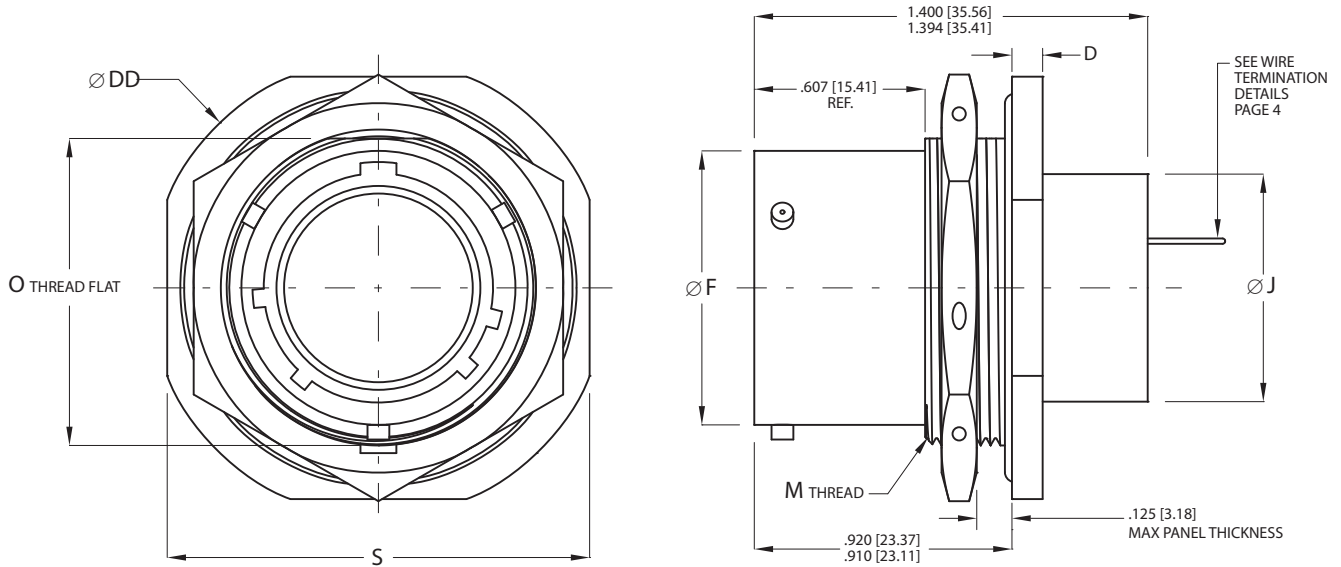


Series III



Series IV

MIL-DTL-38999 Series I
J991J (based on MS27468)
Jam Nut Receptacle

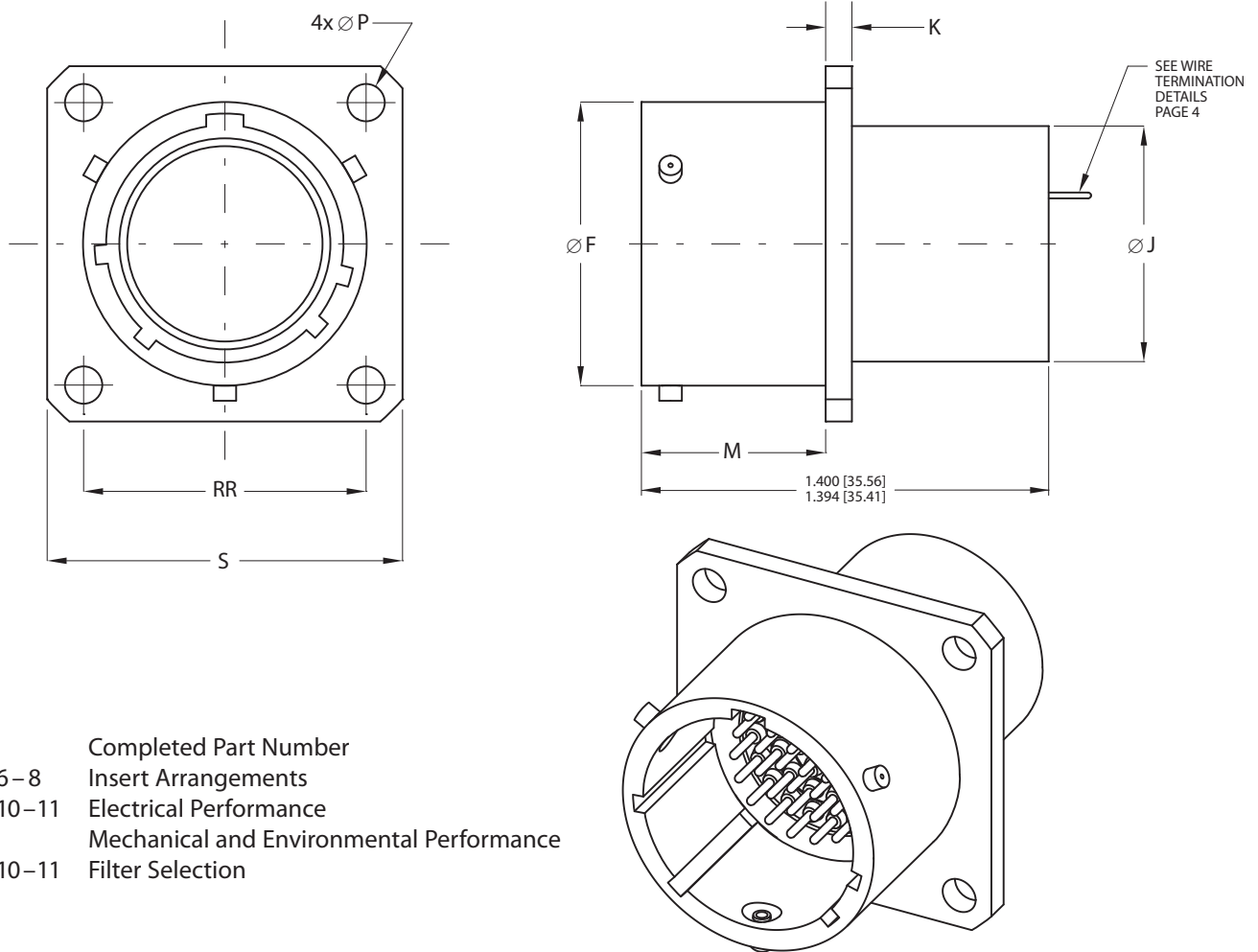


- Page 5 Completed Part Number
- Pages 6–8 Insert Arrangements
- Pages 10–11 Electrical Performance
- Page 9 Mechanical and Environmental Performance
- Pages 10–11 Filter Selection

Shell Size	Ø F		Ø J		K		S		Ø DD		M	O	
	±.003 inch	±.08 mm	Maximum inch	±.010 mm	±.010 inch	±.25 mm	±.016 inch	±.40 mm	±.010 inch	±.25 mm	Thread Class 2A	±.005 inch	±.13 mm
9	.570	14.48	.486	12.34	.109	2.77	1.062	26.97	1.188	30.18	.6875-24 UNEF	.650	16.51
11	.698	17.73	.595	15.11	.109	2.77	1.250	31.75	1.375	34.93	.8125-20 UNEF	.750	19.05
13	.848	21.54	.720	18.29	.109	2.77	1.375	34.93	1.500	38.10	1.0000-20 UNEF	.937	23.80
15	.973	24.71	.876	22.25	.109	2.77	1.500	38.10	1.625	41.28	1.1250-18 UNEF	1.061	26.95
17	1.098	27.89	.986	25.04	.109	2.77	1.625	41.28	1.750	44.45	1.2500-18 UNEF	1.186	30.12
19	1.205	30.61	1.111	28.22	.140	3.56	1.812	46.02	1.938	49.23	1.3750-18 UNEF	1.311	33.30
21	1.330	33.78	1.236	31.39	.140	3.56	1.938	49.23	2.062	52.37	1.5000-18 UNEF	1.436	36.47
23	1.455	36.96	1.345	34.16	.140	3.56	2.062	52.37	2.188	55.58	1.6250-18 UNEF	1.561	39.65
25	1.580	40.13	1.454	36.93	.140	3.56	2.188	55.58	2.312	58.72	1.7500-18 UNS	1.686	42.82



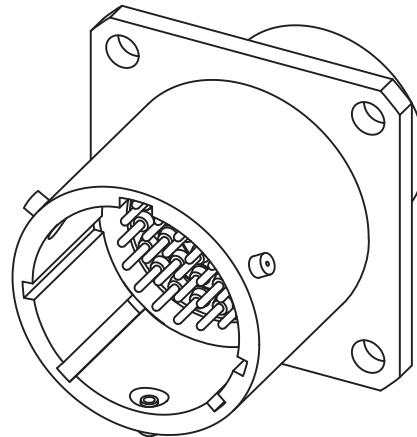
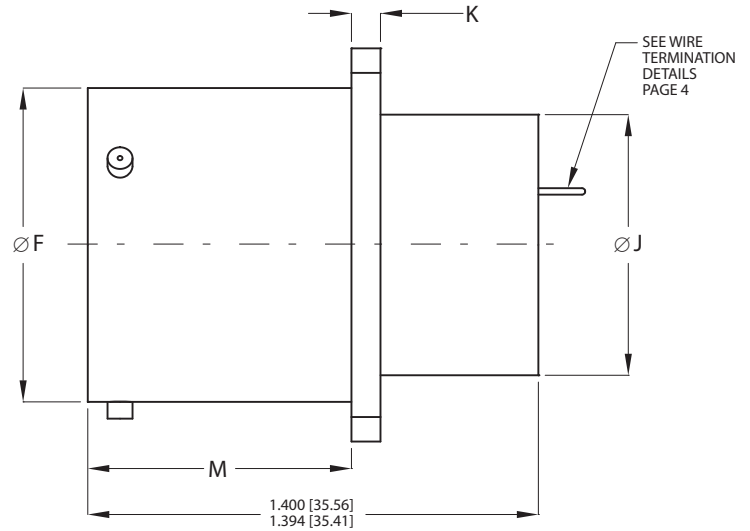
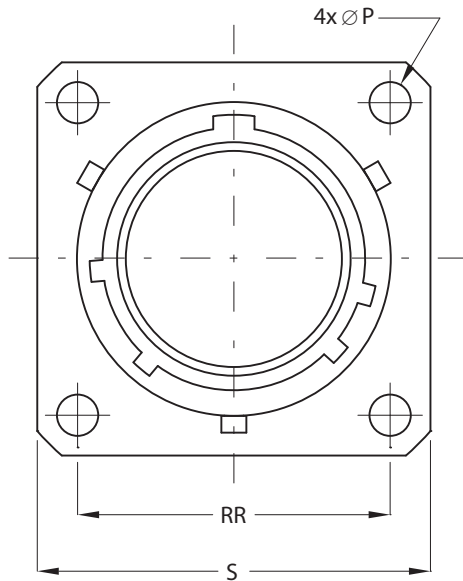
MIL-DTL-38999 Series I
J991F (based on MS27466 and/or MS27496)
Wall Mount, Square Flange Receptacle



Page 5 Completed Part Number
 Pages 6–8 Insert Arrangements
 Pages 10–11 Electrical Performance
 Page 9 Mechanical and Environmental Performance
 Pages 10–11 Filter Selection

Shell Size	Ø F		Ø J		M		K		S		RR		Ø P	
	±.003	±.08	Maximum		+0.00	+0.00	±.005	±.13	±.020	±.50	Basic		±.005	±.13
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
9	.570	14.48	.486	12.34	.632	16.05	.090	2.29	.938	23.83	.719	18.26	.128	3.25
11	.698	17.73	.595	15.11	.632	16.05	.090	2.29	1.031	26.19	.812	20.62	.128	3.25
13	.848	21.54	.720	18.29	.632	16.05	.090	2.29	1.125	28.58	.906	23.01	.128	3.25
15	.973	24.71	.876	22.25	.632	16.05	.090	2.29	1.219	30.96	.969	24.61	.128	3.25
17	1.098	27.89	.986	25.04	.632	16.05	.090	2.29	1.312	33.32	1.062	26.97	.128	3.25
19	1.205	30.61	1.111	28.22	.632	16.05	.090	2.29	1.438	36.53	1.156	29.36	.128	3.25
21	1.330	33.78	1.236	31.39	.602	15.29	.120	3.05	1.562	39.67	1.250	31.75	.128	3.25
23	1.455	36.96	1.345	34.16	.602	15.29	.120	3.05	1.688	42.88	1.375	34.93	.147	3.73
25	1.580	40.13	1.454	36.93	.602	15.29	.120	3.05	1.812	46.02	1.500	38.10	.147	3.73

MIL-DTL-38999 Series I
J991B (based on MS27505)
Back Panel, Box Mount, Square Flange Receptacle

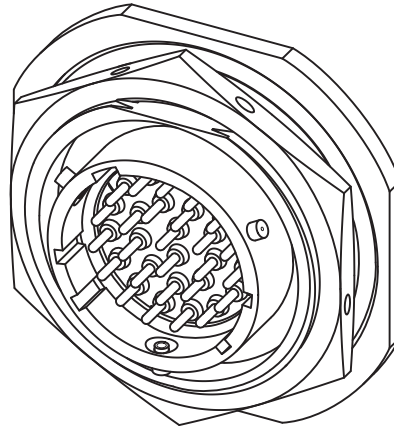
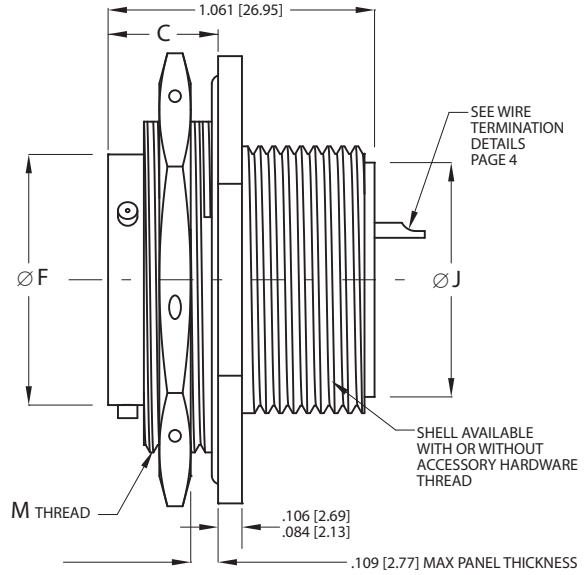
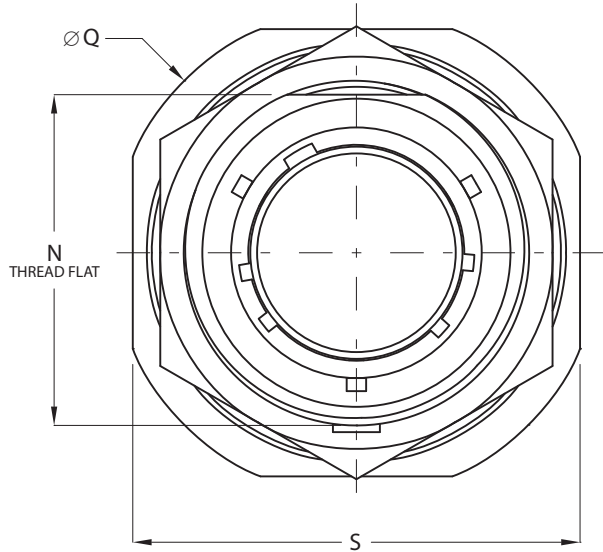


Page 5 Completed Part Number
 Pages 6–8 Insert Arrangements
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 Pages 10–11 Filter Selection

Shell Size	Ø F		Ø J		M		K		S		RR		Ø P	
	±.003	±.08	Maximum		+0.00	+0.00	±.005	±.13	±.020	±.50	Basic		±.005	±.13
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
9	.570	14.48	.486	12.34	.820	20.83	.090	2.29	.938	23.83	.719	18.26	.128	3.25
11	.698	17.73	.595	15.11	.820	20.83	.090	2.29	1.031	26.19	.812	20.62	.128	3.25
13	.848	21.54	.720	18.29	.820	20.83	.090	2.29	1.125	28.58	.906	23.01	.128	3.25
15	.973	24.71	.876	22.25	.820	20.83	.090	2.29	1.219	30.96	.969	24.61	.128	3.25
17	1.098	27.89	.986	25.04	.820	20.83	.090	2.29	1.312	33.32	1.062	26.97	.128	3.25
19	1.205	30.61	1.111	28.22	.820	20.83	.090	2.29	1.438	36.53	1.156	29.36	.128	3.25
21	1.330	33.78	1.236	31.24	.790	20.07	.120	3.05	1.562	39.67	1.250	31.75	.128	3.25
23	1.455	36.96	1.345	34.16	.790	20.07	.120	3.05	1.688	42.88	1.375	34.93	.147	3.73
25	1.580	40.13	1.454	36.93	.790	20.07	.120	3.05	1.812	46.02	1.500	38.10	.147	3.73



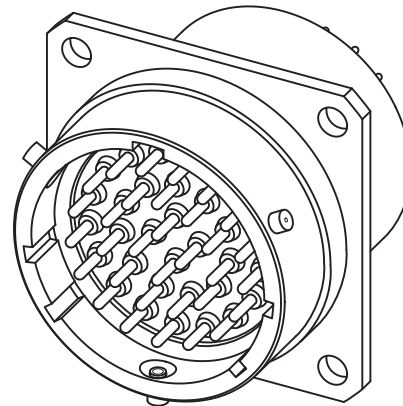
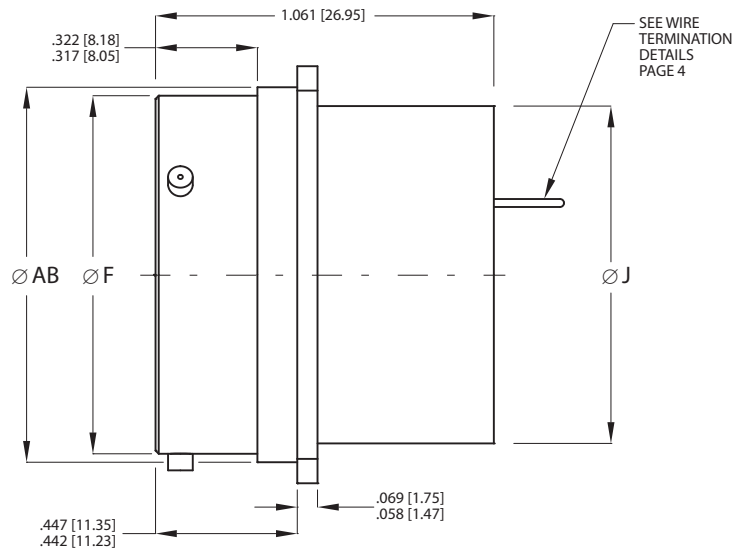
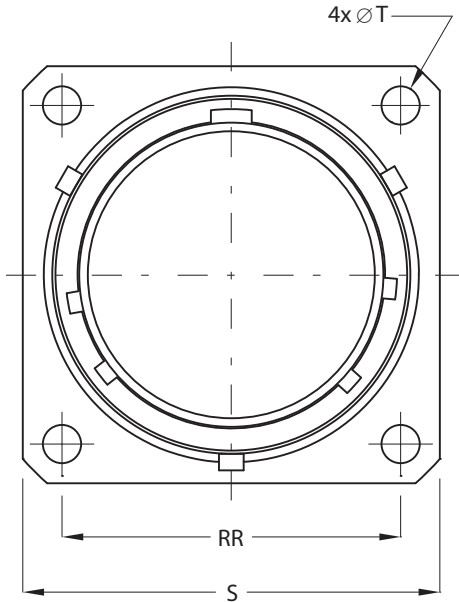
MIL-DTL-38999 Series II
J992J (based on MS27474)
Jam Nut Receptacle



Page 5 Completed Part Number
 Pages 6–8 Insert Arrangements
 Pages 10–11 Electrical Performance
 Page 9 Mechanical and Environmental Performance
 Pages 10–11 Filter Selection

Shell Size	Ø F		Ø J		C		S		Ø Q		M	N	
	±.003	±.08	Maximum		±.003	±.08	±.010	±.25	±.010	±.25	Thread	±.003	±.08
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	2A	inch	mm
8	.471	11.96	.486	12.34	.438	11.13	1.250	31.75	1.375	34.93	.875-20 UNEF	.814	20.68
10	.588	14.94	.595	15.11	.438	11.13	1.375	34.93	1.500	38.10	1.000-20 UNEF	.938	23.83
12	.748	19.00	.720	18.29	.438	11.13	1.500	38.10	1.625	41.28	1.125-18 UNEF	1.062	26.97
14	.873	22.17	.876	22.25	.438	11.13	1.625	41.28	1.750	44.45	1.250-18 UNEF	1.187	30.15
16	.998	25.35	.986	25.04	.438	11.13	1.781	45.24	1.938	49.23	1.375-18 UNEF	1.317	33.45
18	1.123	28.52	1.111	28.22	.438	11.13	1.890	48.01	2.016	51.21	1.500-18 UNEF	1.437	36.50
20	1.248	31.70	1.236	31.39	.464	11.79	2.016	51.21	2.141	54.38	1.625-18 UNEF	1.562	39.67
22	1.373	34.87	1.345	34.16	.464	11.79	2.140	54.36	2.265	57.53	1.750-18 UNS	1.687	42.85
24	1.498	38.05	1.454	36.93	.464	11.79	2.265	57.53	2.390	60.71	1.875-16 UN	1.812	46.02

MIL-DTL-38999 Series II
J992B (based on MS27508 and/or MS27497)
Back Panel, Wall and Box Mount, Square Flange Receptacle

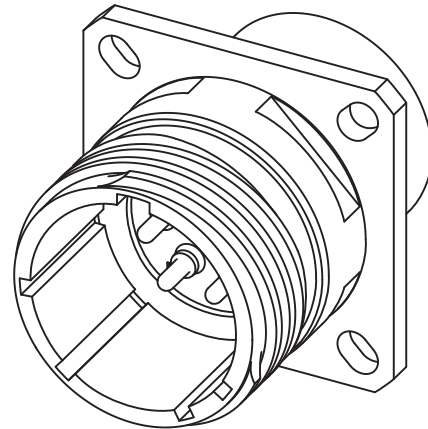
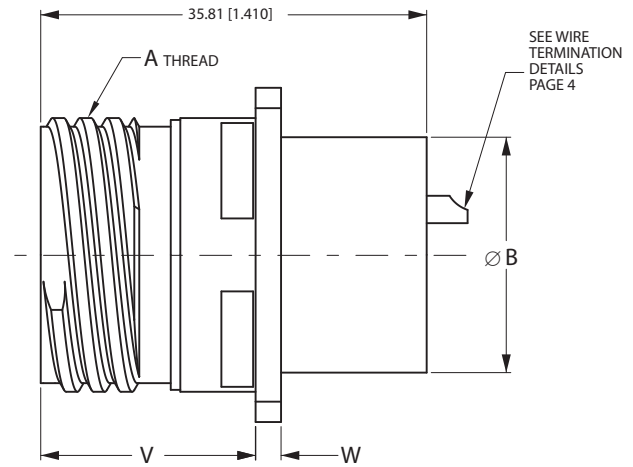
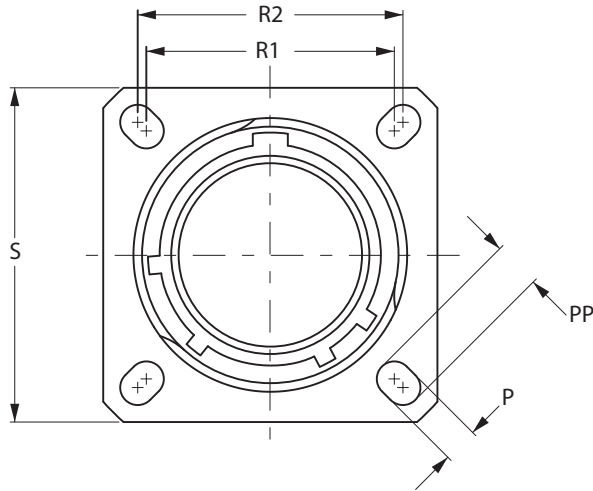


Page 5 Completed Part Number
 Pages 6–8 Insert Arrangements
 Pages 10–11 Electrical Performance
 Page 9 Mechanical and Environmental Performance
 Pages 10–11 Filter Selection

Shell Size	Ø F		Ø J		S		RR		Ø T		Ø AB	
	±.003	±.08	Maximum		±.005	±.13	Basic		±.005	±.13	Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8	.471	11.96	.486	12.34	.808	20.52	.594	15.09	.120	3.05	.547	13.89
10	.588	14.94	.595	15.11	.934	23.72	.719	18.26	.120	3.05	.672	17.07
12	.748	19.00	.720	18.29	1.027	26.09	.812	20.62	.120	3.05	.844	21.44
14	.873	22.17	.876	22.25	1.121	28.47	.906	23.01	.120	3.05	.969	24.61
16	.998	25.35	.986	25.04	1.214	30.84	.969	24.61	.120	3.05	1.094	27.79
18	1.123	28.52	1.111	28.22	1.308	33.22	1.062	26.97	.120	3.05	1.219	30.96
20	1.248	31.70	1.236	31.39	1.433	36.40	1.156	29.36	.120	3.05	1.344	34.14
22	1.373	34.87	1.345	34.16	1.558	39.57	1.250	31.75	.120	3.05	1.469	37.31
24	1.498	38.05	1.454	36.93	1.683	42.75	1.375	34.93	.147	3.73	1.594	40.49



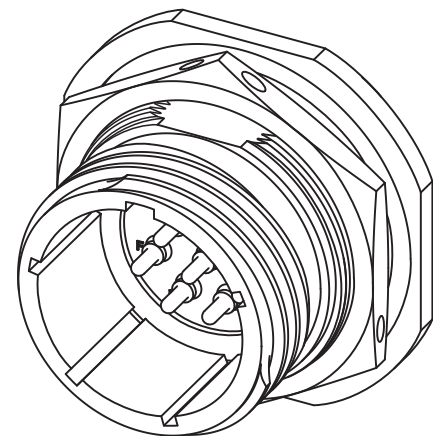
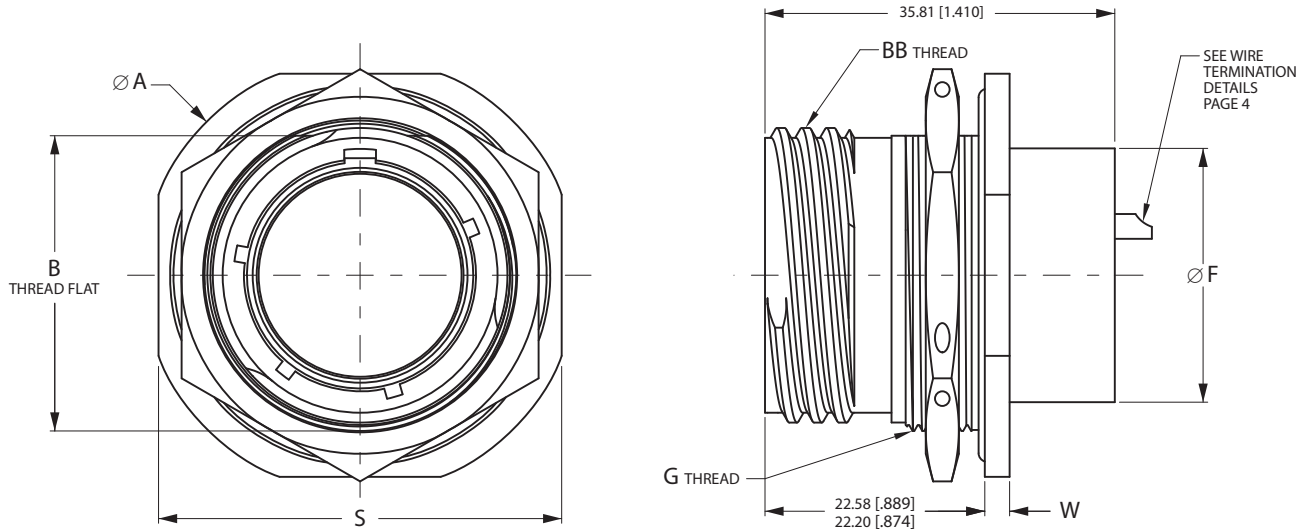
MIL-DTL-38999 Series III
J993W (based on 38999/20)
Wall Mount, Square Flange Receptacle



Page 5 Completed Part Number
 Pages 6–8 Insert Arrangements
 Pages 10–11 Electrical Performance
 Page 9 Mechanical and Environmental Performance
 Pages 10–11 Filter Selection

Shell Size	A		Ø B		S		R1		R2		P		PP		V		W	
	Thread		Maximum		±.010	±.25	Basic		Basic		±.005	±.13	±.005	±.13	Maximum			
	0.1P-0.3L-2A		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
9	.6250	0.486	12.34	0.937	23.80	0.719	18.26	0.594	15.09	0.128	3.25	0.216	5.49	0.82	20.83	.098/.083	2.50/2.10	
11	.7500	0.595	15.11	1.031	26.20	0.812	20.62	0.719	18.26	0.128	3.25	0.194	4.93	0.82	20.83	.098/.083	2.50/2.10	
13	.8750	0.72	18.29	1.126	28.60	0.906	23.01	0.812	20.62	0.128	3.25	0.194	4.93	0.82	20.83	.098/.083	2.50/2.10	
15	1.0000	0.876	22.25	1.220	31.00	0.969	24.61	0.906	23.01	0.128	3.25	0.173	4.39	0.82	20.83	.098/.083	2.50/2.10	
17	1.1875	0.986	25.04	1.311	33.30	1.062	26.97	0.969	24.61	0.128	3.25	0.194	4.93	0.82	20.83	.098/.083	2.50/2.10	
19	1.2500	1.111	28.22	1.437	36.50	1.156	29.36	1.062	26.97	0.128	3.25	0.194	4.93	0.82	20.83	.098/.083	2.50/2.10	
21	1.3750	1.236	31.39	1.563	39.70	1.250	31.75	1.156	29.36	0.128	3.25	0.194	4.93	0.79	20.07	.125/.083	3.20/2.10	
23	1.5000	1.345	34.16	1.689	42.90	1.375	34.93	1.250	31.75	0.154	3.91	0.242	6.15	0.79	20.07	.125/.083	3.20/2.10	
25	1.6250	1.454	36.93	1.811	46.00	1.5	38.10	1.375	34.93	0.154	3.91	0.242	6.15	0.79	20.07	.125/.083	3.20/2.10	

MIL-DTL-38999 Series III
J993J (based on 38999/24)
Jam Nut Receptacle

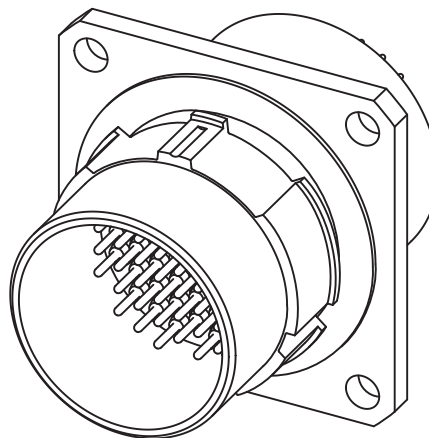
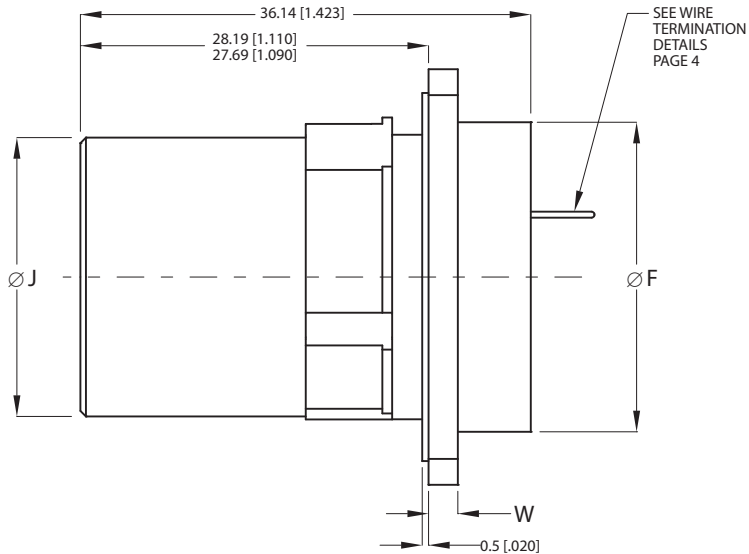
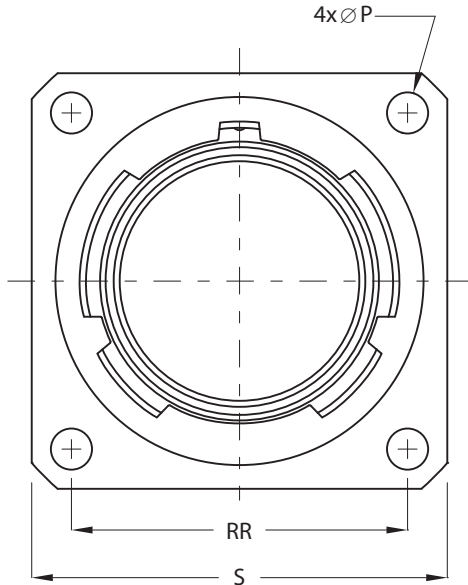


Page 5 Completed Part Number
 Pages 6–8 Insert Arrangements
 Pages 10–11 Electrical Performance
 Page 9 Mechanical and Environmental Performance
 Pages 10–11 Filter Selection

Shell Size	BB		Ø F		W		S		Ø A		G		B	
	Thread		Maximum		±.005	±.13	±.005	±.13	±.005	±.13	Thread	±.004	±.10	
	-01P-0.3L-2A	inch	mm	inch	mm	inch	mm	inch	mm	x1.0-6g 0.100R	inch	mm		
9	.6250	.486	12.34	.100	2.54	1.062	27.00	1.188	30.20	M17	.650	16.53		
11	.7500	.595	15.11	.100	2.54	1.250	31.80	1.375	34.90	M20	.750	19.07		
13	.8750	.720	18.29	.100	2.54	1.375	34.90	1.500	38.10	M25	.937	23.82		
15	1.0000	.876	22.25	.100	2.54	1.500	38.10	1.625	41.30	M28	1.062	26.97		
17	1.1875	.986	25.04	.100	2.54	1.625	41.30	1.750	44.50	M32	1.187	30.15		
19	1.2500	1.111	28.22	.130	3.30	1.812	46.00	1.938	49.20	M35	1.312	33.32		
21	1.3750	1.236	31.39	.130	3.30	1.938	49.20	2.062	52.40	M38	1.437	36.50		
23	1.5000	1.345	34.16	.130	3.30	2.062	52.40	2.188	55.60	M41	1.562	39.67		
25	1.6250	1.454	36.93	.130	3.30	2.188	55.60	2.312	58.70	M44	1.687	42.85		



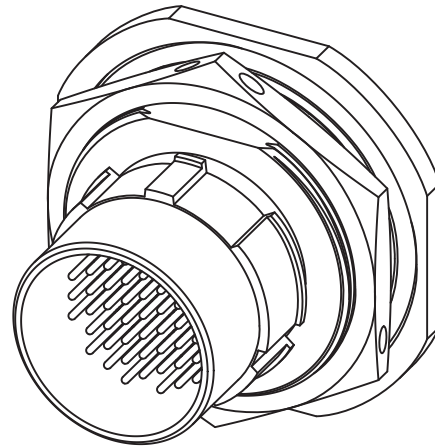
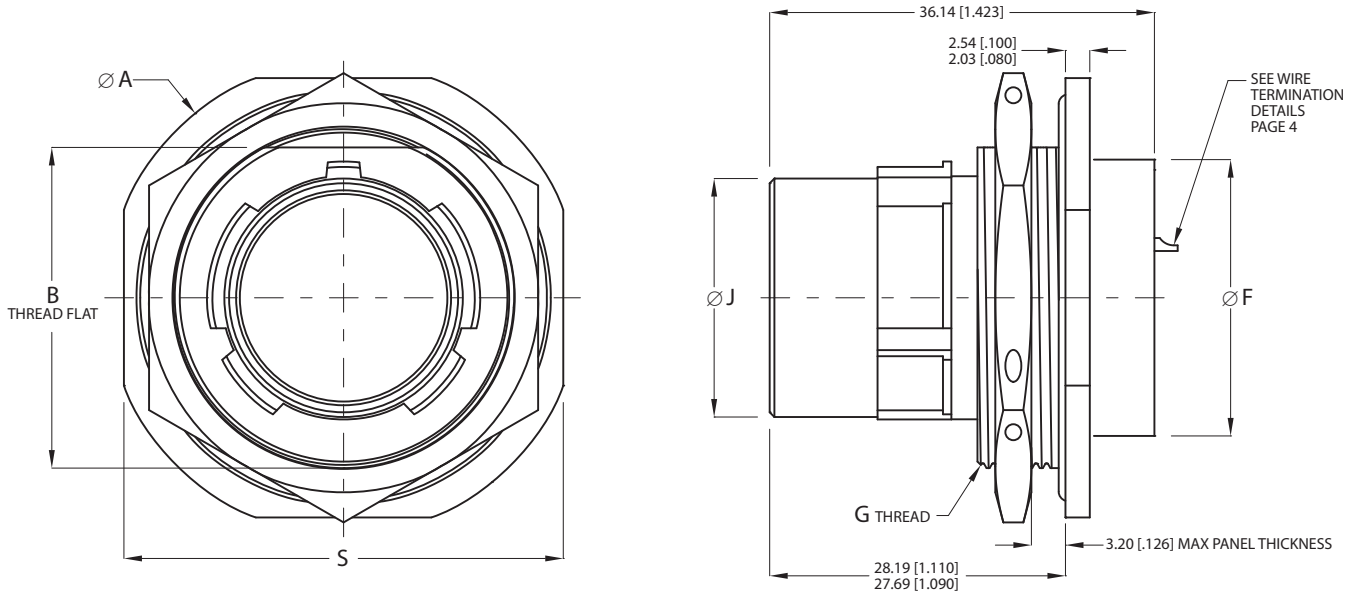
MIL-DTL-38999 Series IV
J994W (based on 38999/40)
Wall Mount, Square Flange Receptacle



- Page 5 Completed Part Number
- Pages 6–8 Insert Arrangements
- Pages 10–11 Electrical Performance
- Page 9 Mechanical and Environmental Performance
- Pages 10–11 Filter Selection

Shell Size	Ø J		Ø F		W		S		RR		Ø P	
	±.003	±.08	Maximum		±.005	±.25	±.005	±.13	±.005	±.13	±.005	±.13
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
11	.506	12.85	.595	15.11	.093	2.35	1.375	34.93	.812	20.62	.129	3.28
13	.631	16.02	.720	18.29	.093	2.35	1.500	38.10	.906	23.02	.129	3.28
15	.756	19.20	.876	22.25	.093	2.35	1.625	41.28	.969	24.62	.129	3.28
17	.882	22.40	.986	25.04	.093	2.35	1.750	44.45	1.062	26.98	.129	3.28
19	1.006	25.55	1.111	28.22	.093	2.35	1.938	49.23	1.156	29.36	.129	3.28
21	1.131	28.72	1.236	31.39	.124	3.15	2.062	52.37	1.250	31.76	.129	3.28
23	1.256	31.90	1.345	34.16	.124	3.15	2.188	55.58	1.375	34.92	.150	3.81
25	1.381	35.08	1.454	36.93	.124	3.15	2.312	58.72	1.500	38.10	.150	3.81

MIL-DTL-38999 Series IV
J994J (based on 38999/44)
Jam Nut Receptacle



Page 5 Completed Part Number
 Pages 6–8 Insert Arrangements
 Pages 10–11 Electrical Performance
 Page 9 Mechanical and Environmental Performance
 Pages 10–11 Filter Selection

Shell Size	Ø J		Ø F		S		Ø A		G	B	
	±.003	±.08	±.005	±.13	±.005	±.13	±.005	±.13	Thread	±.004	±.08
	inch	mm	inch	mm	inch	mm	inch	mm	1.0-6g±0.100R	inch	mm
11	.506	12.85	.584	14.83	1.374	34.90	1.500	38.10	M25	.938	23.83
13	.631	16.02	.702	17.83	1.500	38.10	1.622	41.20	M28	1.062	26.97
15	.756	19.20	.860	21.84	1.622	41.20	1.748	44.40	M31	1.188	30.18
17	.882	22.40	.978	24.84	1.779	45.20	1.937	49.20	M34	1.318	33.48
19	1.006	25.55	1.0966	27.84	1.889	48.00	2.016	51.20	M38	1.438	36.53
21	1.131	28.72	1.214	30.84	2.016	51.20	2.138	54.30	M41	1.562	39.67
23	1.256	31.90	1.332	33.83	2.138	54.30	2.264	57.50	M44	1.688	42.88
25	1.381	35.08	.1450	36.83	2.264	57.50	2.390	60.70	M47	1.812	46.02

MIL-DTL-26482 Filter Connectors

Jerrik offers M26482 Series 2 that is interchangeable with Series 1 styles. All Jerrik M26482 filter connectors meet or exceed the applicable performance and environmental portions of the military specification. See the following pages for standard outline dimensions and insert arrangements. Each connector is comprised of pin or socket contacts, using the MIL-STD-1669 insert arrangements up to 61 contacts.

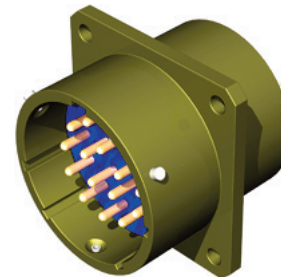
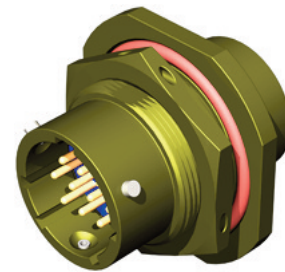
Featuring bayonet coupling, Series 2 were designed as an upgrade to MIL-DTL-26482 Series 1. The Series 2 mating interfaces are intermountable and interchangeable with both solder and front release crimp Series 1. The Jerrik Series 2 filter connectors have fixed contacts with larger rear shell dimensions to house the filter components. They also can substitute for the inactivated MIL-DTL-83723 Series I connectors, again from the perspective of the mating side.

Series 2 connectors are widely used on commercial, military and aerospace systems requiring general purpose, miniature cylindrical bayonet coupling connectors.

Jerrik offers two receptacle shell styles as standard, the wall mount square flange based on MS3470 narrow flange and the jam nut with 'O'-ring seal. See the Conesys Aero-Electric catalog for the plug style mating connectors. This series offers insert arrangements from MIL-STD-1669 in patterns from 2 to 61 contacts. Contact sizes are 20, 16 and 12.

Connector construction includes plated aluminum shells with electroless nickel and olive drab cadmium finishes. Consult the factory, if necessary, as Jerrik can provide other finishes as well as passivated stainless steel.

Important environment resisting features include closed entry socket inserts and raised moisture barriers around each pin contact.



MIL-DTL-26482 Series 2
Part Number Development
Circular Filter Connectors



Jerrick Part Number Development

Filter	J	82	2	W	S	B	N	6	A	P	A	N
Shell Configuration												
82 = MIL-DTL-26482												
Series												
2												
Shell Style												
W = Wall Mount Receptacle (Narrow based on MS 3470)												
J = Jam Nut Receptacle												
Termination Type												
S = Solder Cup												
P = PC Tail												
C = Crimp												
W = Wire Wrap												
Shell Sizes												
A=8, B=10, C=12, D=14, E=16, F=18, G=20, H=22, J=24												
Shell Finish												
N = Electroless Nickel												
O = Olive Drab Cadmium Nickel												
P = Passivated Stainless Steel												
D = Electro-deposited Nickel over Stainless Steel												
Y = Yellow Chromate Cadmium												
Contact Arrangement or Number of Contacts												
See pages 27–28												
Filter Characteristics												
A = PL, B = PM, C = PT, D = PH, E = PVH, F = CL, G = CM, H = CT, J = CH, K = CVH (see pages 10–11)												
Contact Type												
P = Pin												
S = Socket												
Modifier												
A = N/A												
B = #4-40 Clinch Nut												
C = #6-32 Clinch Nut												
D = #4-40 Helicoil												
E = #6-32 Helicoil												
Polarization												
N, W, X, Y, Z, A, B, C, or D												

Insert Arrangement Views



8-2
2 # 20



8-3
3 # 20



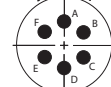
8-4
4 # 20



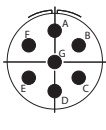
8-33
3 # 20



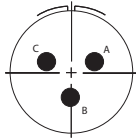
8-98
3 # 20



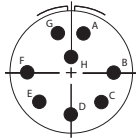
10-6
6 # 20



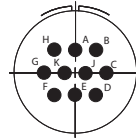
10-7*
7 # 20



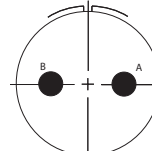
12-3
3 # 16



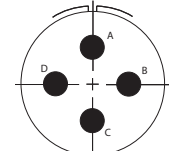
12-8
8 # 20



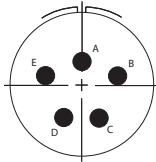
12-10
10 # 20



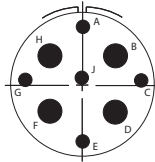
14-2*
2 # 12



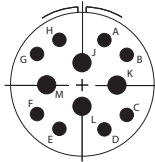
14-4
4 # 12



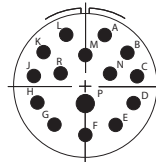
14-5
5 # 16



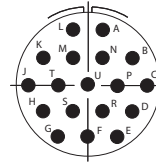
14-9
5 # 20, 4 # 12



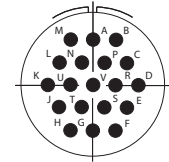
14-12
4 # 16, 8 # 20



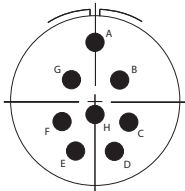
14-15
1 # 16, 14 # 20



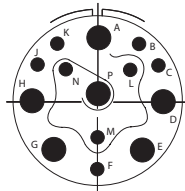
14-18
18 # 20



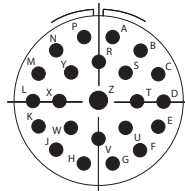
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19 # 20



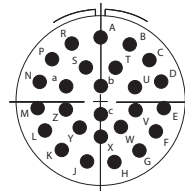
16-8
8 # 16



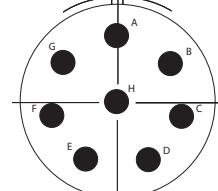
16-14
8 # 20, 6 # 12



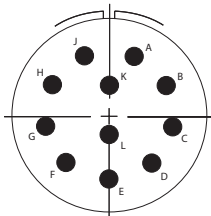
16-23
1 # 16, 22 # 20



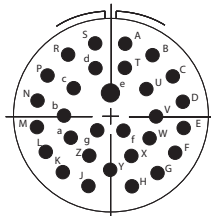
16-26
26 # 20



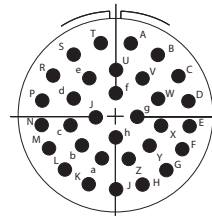
18-8
8 # 12



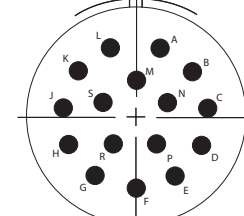
18-11
11 # 16



18-30
1 # 16, 29 # 20



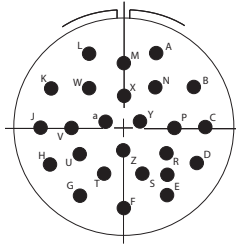
18-32
32 # 20



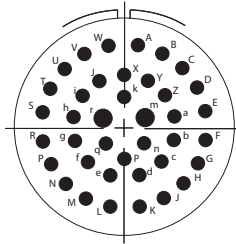
20-16
16 # 16

*Not MIL-STD-1669 layout.

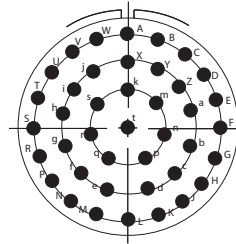
Insert Arrangement Views



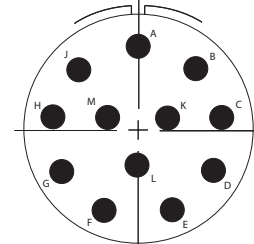
20-24
24 # 20



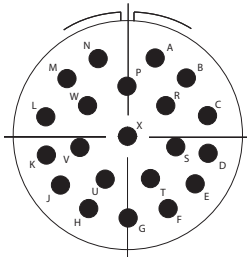
20-39
2 # 16, 37 # 20



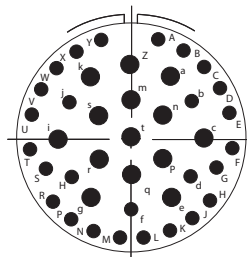
20-41
41 # 20



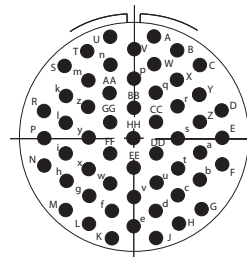
22-12
12 # 12



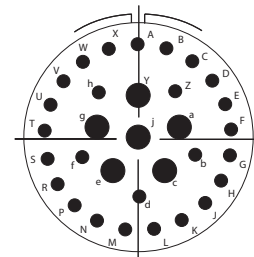
22-21
21 # 16



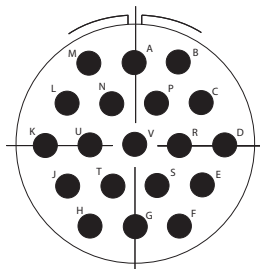
22-41
14 # 16, 27 # 20



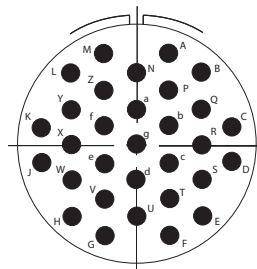
22-55
55 # 20



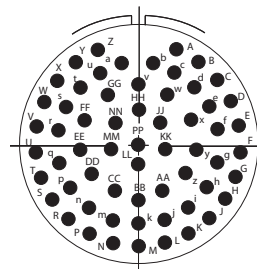
22-95
6 # 12, 26 # 20



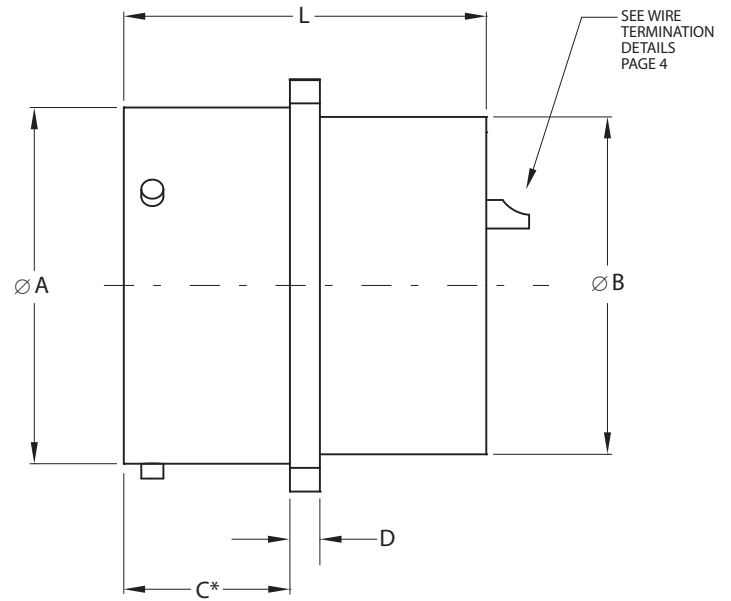
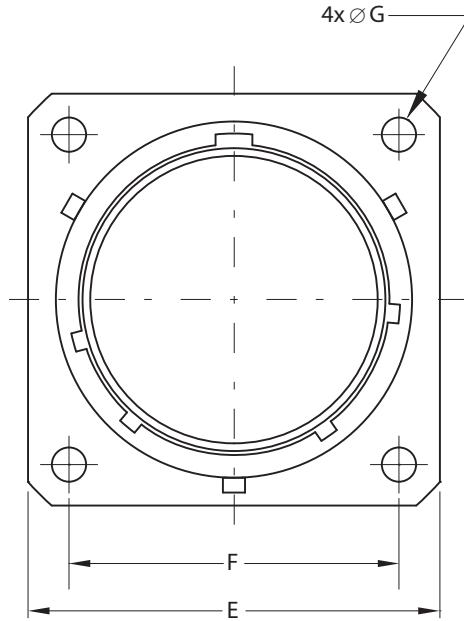
24-19
19 # 12



24-31
31 # 16



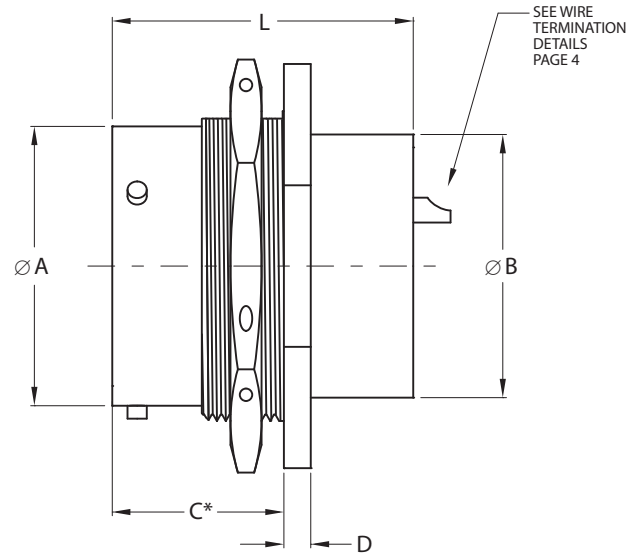
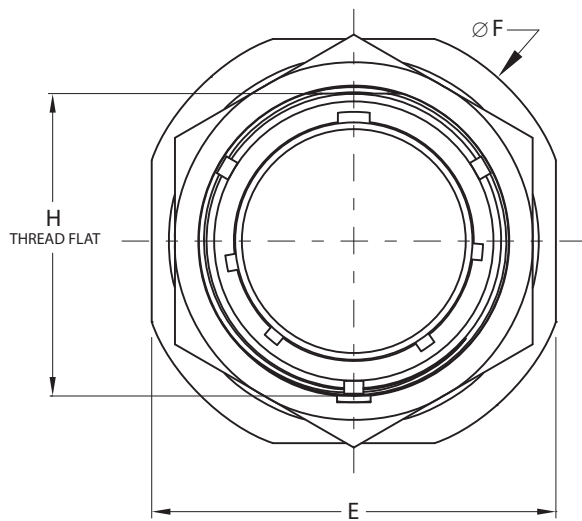
24-61
61 # 20



Page 26 Completed Part Number
 Pages 27 – 28 Insert Arrangements
 Pages 10–11 Electrical Performance
 Page 9 Mechanical and Environmental Performance
 Pages 10–11 Filter Selection

Shell Size	$\varnothing A$		$\varnothing B$		C		D		E		F		$\varnothing G$		L	
	± 0.003	± 0.08	± 0.003	± 0.08	± 0.005	± 0.13	± 0.005	± 0.13	± 0.005	± 0.13	Basic		± 0.005	± 0.13	± 0.005	± 0.13
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8	.471	11.96	.495	12.57	.457	11.61	.073	1.85	.823	20.90	.594	15.09	.120	3.05	1.210	30.73
10	.588	14.94	.625	15.87	.457	11.61	.073	1.85	.949	24.10	.719	18.26	.120	3.05	1.210	30.73
12	.748	19.00	.745	18.92	.457	11.61	.073	1.85	1.042	26.46	.812	20.62	.120	3.05	1.210	30.73
14	.873	22.17	.870	22.10	.457	11.61	.073	1.85	1.136	28.85	.906	23.01	.120	3.05	1.210	30.73
16	.998	25.35	.995	25.27	.457	11.61	.073	1.85	1.229	31.22	.969	24.61	.120	3.05	1.210	30.73
18	1.123	28.52	1.058	26.87	.457	11.61	.073	1.85	1.323	33.60	1.062	26.97	.120	3.05	1.210	30.73
20	1.248	31.70	1.183	30.05	.582	14.78	.105	2.67	1.448	36.78	1.156	29.36	.120	3.05	1.270	32.26
22	1.373	34.87	1.308	33.22	.582	14.78	.105	2.67	1.573	39.95	1.250	31.75	.120	3.05	1.270	32.26
24	1.498	38.05	1.433	36.40	.615	15.62	.105	2.67	1.698	43.13	1.375	34.93	.147	3.73	1.270	32.26

MIL-DTL-26482 Series 2
J822J (based on MS3474)
Jam Nut Receptacle



Page 26 Completed Part Number
 Pages 27 – 28 Insert Arrangements
 Pages 10–11 Electrical Performance
 Page 9 Mechanical and Environmental Performance
 Pages 10–11 Filter Selection

Shell Size	Ø A		Ø B		C		D		E		Ø F		G	H		L	
	±.003	±.08	±.003	±.08	±.003	±.08	±.003	±.08	±.003	±.08	±.005	±.13	Thread UNEF-2A	±.003	±.08	±.003	±.08
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	inch	mm	inch	mm
8	.471	11.96	.495	12.57	.690	17.53	.108	2.74	0.939	23.85	1.062	26.97	.5625-24	.525	13.34	1.210	30.73
10	.588	14.94	.625	15.87	.700	17.78	.108	2.74	1.062	26.97	1.187	30.15	.6875-24	.650	16.51	1.210	30.73
12	.748	19.00	.745	18.92	.690	17.53	.108	2.74	1.25	31.75	1.375	34.93	.875-20	.813	20.65	1.210	30.73
14	.873	22.17	.870	22.10	.690	17.53	.108	2.74	1.375	34.93	1.500	38.10	1.000-20	.937	23.80	1.210	30.73
16	.998	25.35	.995	25.27	.690	17.53	.108	2.74	1.500	38.10	1.625	41.28	1.125-18	1.061	26.95	1.210	30.73
18	1.123	28.52	1.058	26.87	.690	17.53	.108	2.74	1.625	41.28	1.75	44.45	1.250-18	1.186	30.12	1.210	30.73
20	1.248	31.70	1.183	30.05	.760	19.30	.143	3.63	1.812	46.02	1.938	49.23	1.375-18	1.311	33.30	1.270	32.26
22	1.373	34.87	1.308	33.22	.760	19.30	.143	3.63	1.938	49.23	2.062	52.37	1.500-18	1.436	36.47	1.270	32.26
24	1.498	38.05	1.433	36.40	.760	19.30	.143	3.63	2.062	52.37	2.187	55.55	1.625-18	1.561	39.65	1.270	32.26



MIL-DTL-24308 D-Sub and MIL-DTL-83513 Micro-D Part Number Development

Jerrick Part Number Development

Filter	J	08	5	P	S	3	N	25	A	P	A
Shell Configuration											
08 = MIL-DTL-24308											
13 = MIL-DTL-83513											
Series											
5 = NA											
Shell Style											
P = Plug (Pin)											
R = Receptacle (Socket)											
Termination Type											
S = Solder Cup											
P = PC Tail											
C = Crimp											
W = Wire Wrap											
T = Insulated Wire											
U = Uninsulated Wire											
Shell Sizes											
1, 2, 3, 4, 5, or 6											
Shell Finish											
N = Electroless Nickel											
G = Gold											
P = Passivated Stainless Steel											
D = Electro-deposited Nickel over Stainless Steel											
Y = Yellow Chromate Cadmium											
Contact Arrangement or Number of Contacts											
9, 15, 21, 25, 26, 31, 37, 44, 50, 62, 78, or 104											
Filter Characteristics											
A = PL, B = PM, C = PT, D = PH, E = PVH, F = CL, G = CM, H = CT, J = CH, K = CVH											
Contact Type											
P = Pin (Plug)											
S = Socket (Receptacle)											
Modifier											
A = N/A											
B = #4-40 Clinch Nut											
C = #6-32 Clinch Nut											
D = #4-40 Helicoil											
E = #6-32 Helicoil											

MIL-DTL-24308 Filter Connectors Features and Application Plug and Receptacle



MIL-DTL-24308 Filter Connectors

Filtered D-Sub connectors meet the harsher requirements of the military specification while offering the same insertion loss and attenuation performance found in our circular connectors. Note, that in this series, the pin contacts represent the 'plug' style connector while the socket mating contacts are the 'receptacle'. Jerrick offers both standard and high density arrangements for both shell types.

See the outline dimensions for both the connectors and the panel cutouts on the following pages. Optional mounting hardware, not shown, is available. The mounting choices include through hole, clinch nut and board mount brackets integral to the shell.

This family of connectors offers mating interface dimensions straight from the MIL-DTL-24308 while the 'rear' of the connector is larger to house the filter components. Other popular shell configurations include adapters, board mounts, right angle terminations and our newest SEALED D-SUBS.

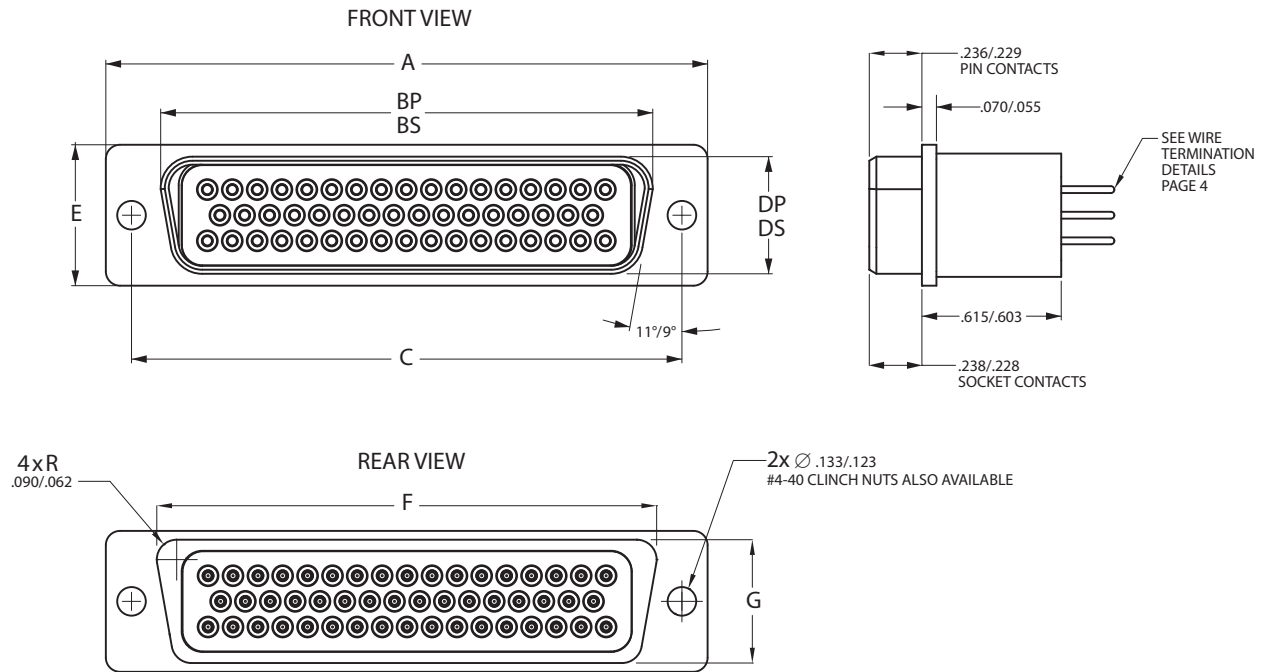
Contact arrangements come in standard 9 to 50 contacts or high density patterns from 15 to 104 contacts. Jerrick also offers the several non-standard patterns to include higher power pins on the same connector as signal pins. These patterns include the 36W4 and 8W8. Consult with the factory for assistance when combining power and signal pins.

The Jerrick 24308 shells are machined aluminum alloy and are offered with electroless nickel, gold, and cadmium finishes. In addition, stainless steel shells are offered with passivation or with an electro-deposited nickel finish.

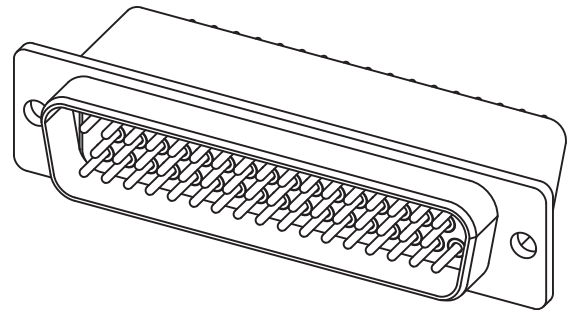
This family also offers three termination styles, PC tails, solder cup and crimp configurations. See page 4 for more termination dimensional detail.

For a relatively inexpensive, effective box mount connector offering flexibility in a small package, the Jerrick MIL-DTL-24308 are a great solution.





Page 31 Completed Part Number
 (See Table) Insert Arrangements
 Pages 10–11 Electrical Performance
 Page 9 Mechanical and Environmental Performance
 Pages 10–11 Filter Selection

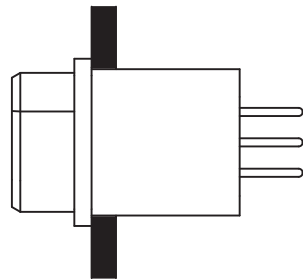


Shell Size	Standard Layout #20 Contact	High Density Layout #22D Contact	A		B		B		C		D		D		E		F		G	
			±.015	±.38	for pin ±.005	for pin ±.13	for socket ±.005	for socket ±.13	±.005	±.13	for pin ±.005	for pin ±.13	for socket ±.005	for socket ±.13	±.015	±.38	±.010	±.25	±.010	±.25
			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
1	9	15	1.213	30.81	.666	16.92	.643	16.33	.984	24.99	.329	8.36	.309	7.85	.494	12.55	.759	19.28	.422	10.72
2	15	26	1.541	39.14	.994	25.25	.971	24.66	1.312	33.32	.329	8.36	.309	7.85	.494	12.55	1.083	27.51	.422	10.72
3	25	44	2.088	53.04	1.534	38.96	1.511	38.38	1.852	47.04	.329	8.36	.309	7.85	.494	12.55	1.625	41.28	.422	10.72
4	37	62	2.729	69.32	2.182	55.42	2.159	54.84	2.500	63.50	.329	8.36	.309	7.85	.494	12.55	2.272	57.71	.422	10.72
5	50	78	2.635	66.93	2.079	52.81	2.064	52.43	2.406	61.11	.441	11.20	.423	10.74	.605	15.37	2.178	55.32	.534	13.56
6	-	104	2.729	69.32	2.212	56.18	2.189	55.60	2.500	63.50	.503	12.78	.485	12.32	.668	16.97	2.302	58.47	.596	15.14

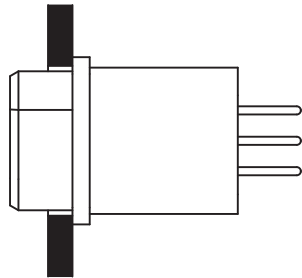
MIL-DTL-24308 D-Sub
J085P/R
Mounting Dimensions



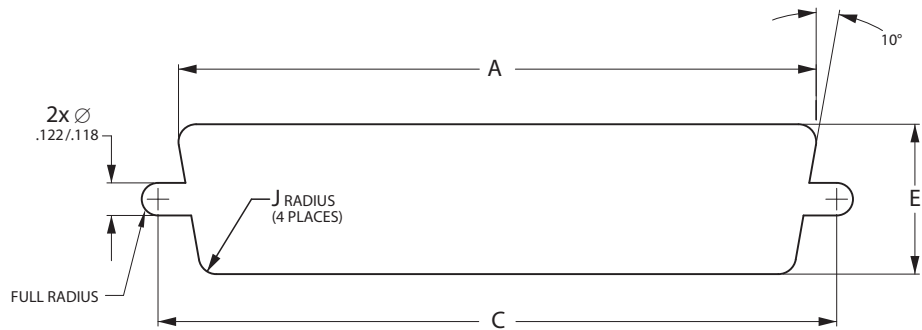
D-Subminiature Connectors



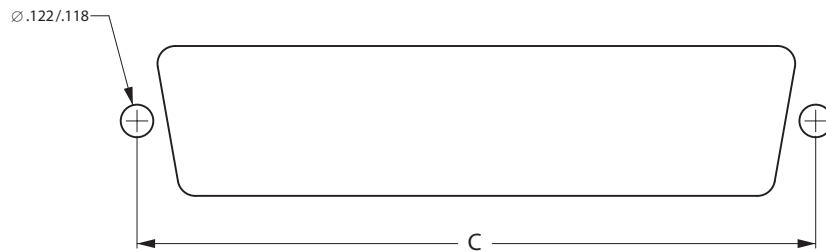
FRONT MOUNTING



REAR MOUNTING



STANDARD CUTOUT (Front or Rear Mount)

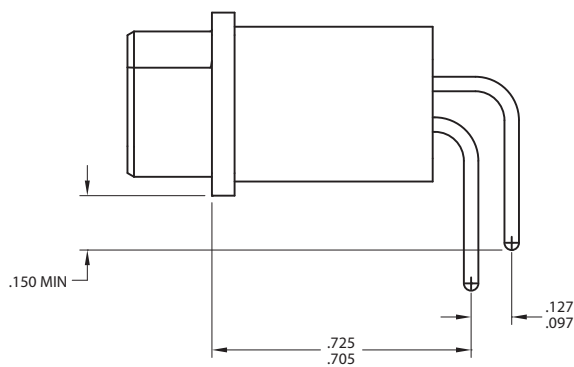


OPTIONAL CUTOUT (for Rear Mounting)

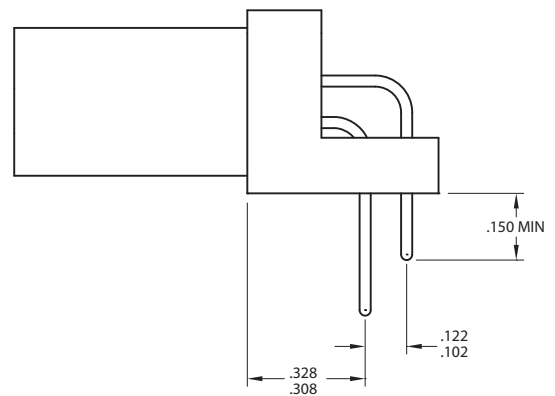
Shell Size	A		A		C		C		E		E		J		J	
	Front Mount		Rear Mount		Front Mount		Rear Mount		Front Mount		Rear Mount		Front Mount		Rear Mount	
	±.005 inch	±.13 mm	±.005 inch	±.13 mm	±.005 inch	±.13 mm	±.005 inch	±.13 mm	±.005 inch	±.13 mm	±.005 inch	±.13 mm	±.005 inch	±.13 mm	±.005 inch	±.13 mm
1	.833	21.16	.806	20.47	.984	24.99	.984	24.99	.485	12.32	.449	11.40	.065	1.65	.132	3.35
2	1.161	29.49	1.134	28.80	1.312	33.32	1.312	33.32	.485	12.32	.449	11.40	.065	1.65	.132	3.35
3	1.700	43.18	1.674	42.52	1.852	47.04	1.852	47.04	.485	12.32	.449	11.40	.065	1.65	.132	3.35
4	2.349	59.66	2.326	59.08	2.500	63.50	2.500	63.50	.485	12.32	.449	11.40	.065	1.65	.132	3.35
5	2.254	57.25	2.218	56.34	2.406	61.11	2.406	61.11	.593	15.06	.555	14.10	.065	1.65	.132	3.35
6	2.372	60.25	2.250	57.15	2.500	63.50	2.500	63.50	.655	16.64	.617	15.67	.065	1.65	.132	3.35

Right Angle Printed Circuit Termination

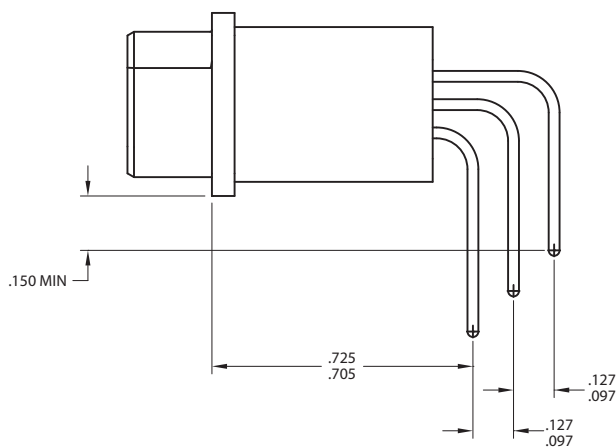
A popular variation of the D-Sub family is the right angle contact termination. Jerrik can provide the 90° contact bending for signal and some power pins (non standard arrangements). We also supply two configurations of shells, shown here in both 2 row and 3 row versions. While the original design relies on the contacts soldered to the board to support the assembly, the customer can use the newer board mount style for added mechanical integrity in vibration.



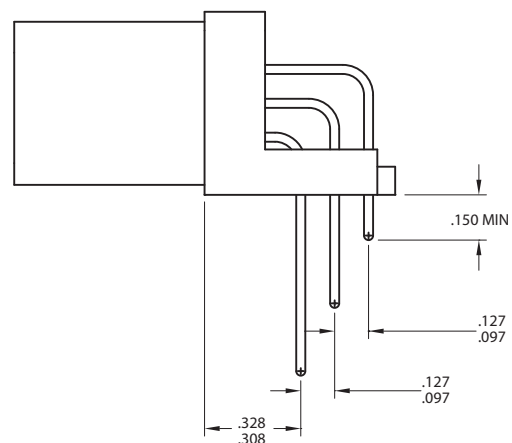
2 ROW CONFIGURATION (9, 15, 25, 37 Contact Arrangements)



2 ROW BOARD-MOUNT CONFIGURATION



3 ROW CONFIGURATION (50 Contact Arrangements)



3 ROW BOARD-MOUNT CONFIGURATION

MIL-DTL-83513 Filter Connectors

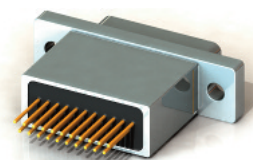
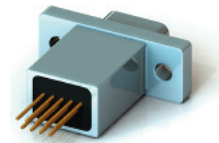
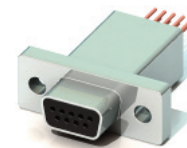
Offering space savings over the more popular D-Sub connectors, these filtered Micro-D connectors meet the harsher requirements of the military specification while offering the same insertion loss and attenuation performance found in our circular connectors. Note, that in this series, the pin contacts represent the 'plug' style connector while the socket mating contacts are the 'receptacle'. Jerrik offers a full complement of shell sizes and arrangements for both shell types. See the outline dimensions for both on the following pages.

Like the D-Sub family, the shell size varies based on the number of contacts specified. This family offers six arrangements from 9 to 37 pins. Jerrik offers a variety of contact tail lengths that are specified by the customer. The bases for the standard Jerrik Micro-D family are the M83513/03 pin and M83513/04 socket connectors, pre-wired with straight wire tails. Other higher pin count configurations are available but require special packaging. Please consult the factory with your requirements. In addition to straight wire tails, the customer can also request pig tail cable terminations for longer cable stretches inside their next level assembly.

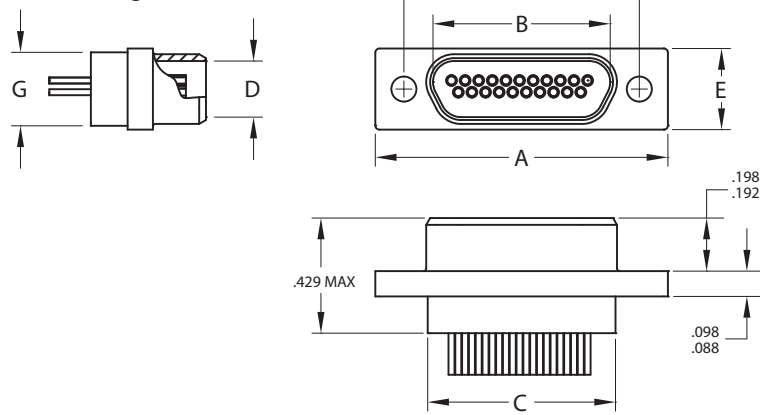
High quality dielectric materials include a Liquid Crystal Polymer insulator over the pins. The interfacial seals are fluoro-silicone rubber. Contact materials are copper and beryllium copper with gold over nickel plating for pins and copper alloy with gold over nickel plating for sockets. Current rating for these very high density connectors is 3 amps maximum. The insulation resistance is 5000 Meg-ohms at 500 volts DC.

Plated aluminum alloy shells and stainless steel shells are offered with various finish detail, just like the D-Sub family. Shell options also include board mount styles and hex nut mounting accessories. Let us know your needs.

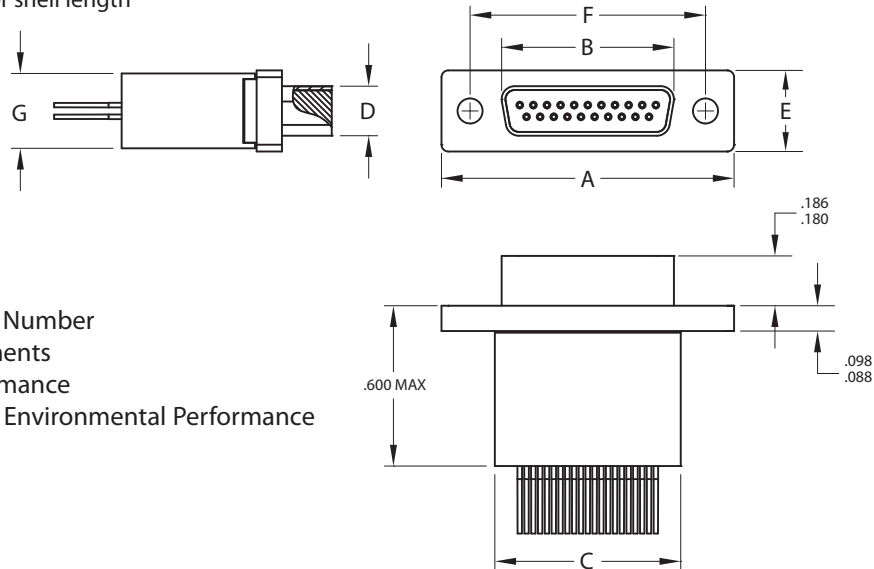
Advantages of this family include space savings and enhanced EMI protection via shell design and the twist pin male contact. This style of pin offers reliability of continuous contact in severe vibration and temperature environments while maintaining low electrical resistance for mated pairs.



Socket Receptacle shown with 'C' filter shell length



Pin Plug shown with 'Pi' filter shell length



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 Pages 10–11 Filter Selection

Shell Size	Arrangement	A		B*		C		D*		E		F		G	
		±.010	±.25	Basic	±.014	±.36	Basic	±.010	±.25	±.005	±.13	±.010	±.25		
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		
1	9	.775	19.69	.334	8.48	.386	9.80	.185	4.70	.298	7.57	.565	14.35	.260	6.60
2	15	.925	23.50	.484	12.29	.536	13.61	.185	4.70	.298	7.57	.715	18.16	.260	6.60
3	21	1.075	27.31	.634	16.10	.686	17.42	.185	4.70	.298	7.57	.865	21.97	.260	6.60
4	25	1.175	29.85	.734	18.64	.786	19.96	.185	4.70	.298	7.57	.965	24.51	.260	6.60
5	31	1.325	33.66	.884	22.45	.936	23.77	.185	4.70	.298	7.57	1.115	28.32	.260	6.60
6	37	1.475	37.47	1.034	26.26	1.086	27.58	.185	4.70	.298	7.57	1.265	32.13	.260	6.60

*Dimensions shown are inside shell dimensions for socket receptacle and outside shell dimensions for pin plug.

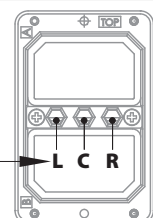
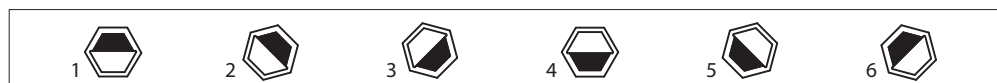
ARINC 404, ARINC 600, and EPX® Part Number Development Rack and Panel Filter Connectors



Jerrick Part Number Development

Filter	J	4	1	R	2	XXX	C	121	B	P	*	Y	D
Series													
4 = ARINC 404													
6 = ARINC 600													
7 = EPX													
Class (Class 1 only for EPX)													
1 = Environmental													
2 = Non-Environmental (without Interfacial Seal)													
Shell Style													
R = Receptacle													
P = Plug													
Shell Sizes													
1, 2, 3, or 4 (ARINC 404)													
1, 2, or 3 (ARINC 600)													
2 (EPX)													
Polarization (See Diagram Below)													
XXX = ARINC 404 and ARINC 600 Left (1–6), Center (1–6), Right (1–6)													
002 = EPX Shell Size 2 Device A to F delivered unassembled													
003 = EPX Shell Size 2 Device N to Z delivered unassembled													
Termination Type													
S = Solder Cup													
P = PC Tail													
C = Crimp													
W = Wire Wrap													
Contact Arrangement													
ARINC 404 = D8, 26, 40, 45, 57, 67, 106, 33C4, 33C2, 32C2, 32T2, 32C4, 32T4, 36C7, 36T7													
ARINC 600 = 5C2, 40, 60, 30T2, 100, 85, 34, 59, 13C2, 6T6, 150, 120T2, 60, 71C1, 121, C4, C2													
EPX = C3, 06, 13C1, 14, 17, 20C1, 22, 28, 30, 34, 40													
Filter Type													
A = PL, B = PM, C = PT, D = PH, E = PVH, F = CL, G = CM, H = CT, J = CH, K = CVH (see pages 10–11)													
Contact Type													
P = Pin													
S = Socket													
* = Repeat Contact Arrangement, Filter Type and Contact Type for each gang, as needed, respectively													
Shell Finish													
N = Electroless Nickel (ARINC 404, ARINC 600, or EPX)													
A = Aladine 1200 (ARINC 600)													
Y = Yellow Chromate Cadmium (ARINC 404)													
Modifier Mounting													
A = All Holes (ARINC 404 = .122 inch diameter; ARINC 600 = .148 inch diameter; EPX = 3.10 millimeter diameter)													
B = EPX with No Mounting Holes													
C = #4-40 Clinch Nut All Holes													
D = #6-32 Clinch Nut All Holes													

Polarization Coding: Dark area represents the polarizing post. Clear portion represents the key hole. Left, Center, Right shall be determined viewing the mating side of the connector with the 'A' gang at the top, as shown here.



ARINC 404 Filter Connectors

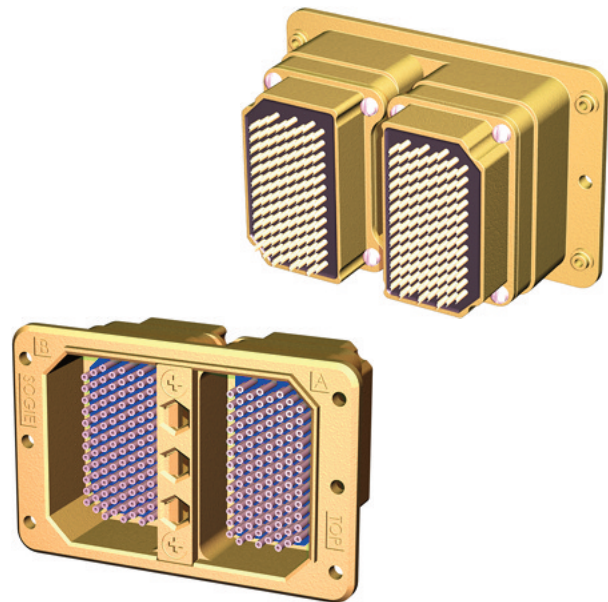
The Jerrick ARINC 404 filter connectors feature the complete line of standard ARINC layouts and meet the applicable performance and environmental portions of the ARINC and SAE specifications. These connectors provide the key interface for rack and panel avionics equipment. As with all avionics boxes, signal integrity is paramount and filtering is a must. Our designs feature a modular approach using standard shells and inserts and a filtered backpack. This approach allows the backpack to be removable and, if necessary, the #22 socket contacts can be front release and front removable.

Due to the rack and panel mating ARINC 404 connectors are used in commercial and military aircraft, including helicopters. They are also found in in-flight instrumentation, flight simulators and radar systems. Combining power and signal contacts are common to this family.

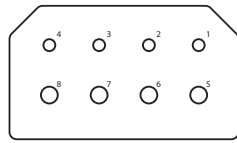
Jerrick offers all shell sizes (1 thru 4) and a wide variety of insert arrangements that include all standard contact sizes including coax.

Aluminum shell construction is offered with yellow chromate cadmium or electroless nickel finish.

Contact terminations include PC tail, solder cup and crimp configurations. See page 4 for more termination dimensional detail.

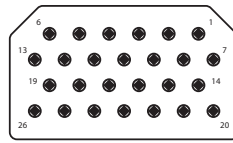


Insert Arrangement Views

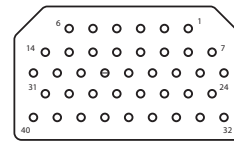


**4-#12
4-#16 COAX
D8**

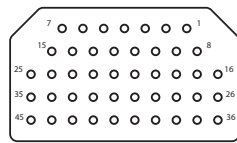
QUANTITY AND SIZE OF CONTACTS →
ARRANGEMENTS →



**26-#16
26**

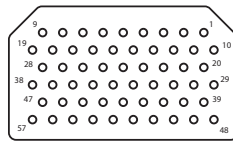


**40-#20
40**

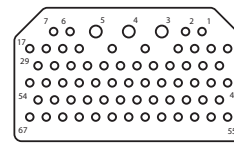


**45-#20
45**

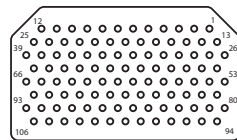
QUANTITY AND SIZE OF CONTACTS →
ARRANGEMENTS →



**57-#20
57**

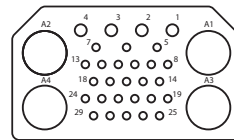


**64-#20
3-#16
67**



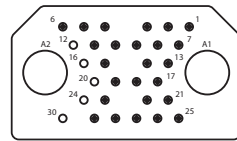
**106-#22
106**

QUANTITY AND SIZE OF CONTACTS →
ARRANGEMENTS →



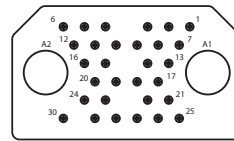
**25-#20
4-#16
4-#5 COAX
33C4**

Shell Size 14/15



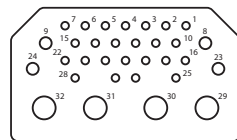
**30-#20
2-#5 COAX
32C2**

QUANTITY AND SIZE OF CONTACTS →
ARRANGEMENTS →



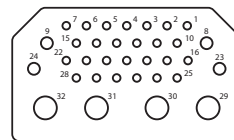
**30-#20
2-#5 COAX
32T2**

SIZE 5 CONTACT CAVITIES GROUNDED TO THE SHELL.



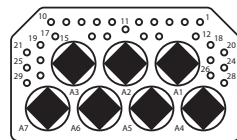
**24-#20
4-#16
4-#9 COAX
32C4**

QUANTITY AND SIZE OF CONTACTS →
ARRANGEMENTS →



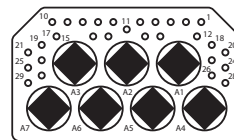
**24-#20
4-#16
4-#9 COAX
32T4**

SIZE 9 CONTACT CAVITIES GROUNDED TO THE SHELL.



**29-#22
7-#5 COAX
36C7**

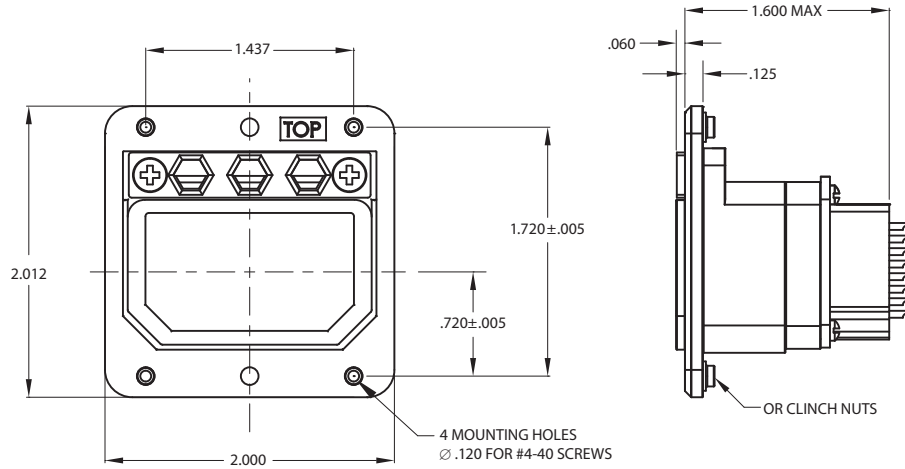
QUANTITY AND SIZE OF CONTACTS →
ARRANGEMENTS →



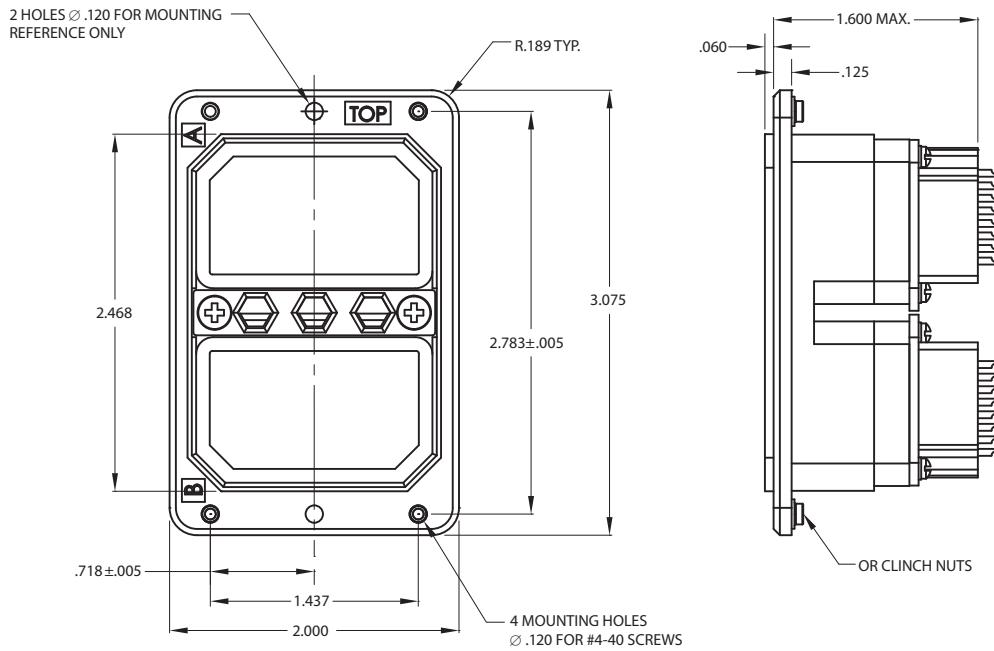
**29-#22
7-#5 COAX
36T7**

SIZE 5 CONTACT CAVITIES GROUNDED TO THE SHELL.

Size 1 Receptacle



Size 2 Receptacle

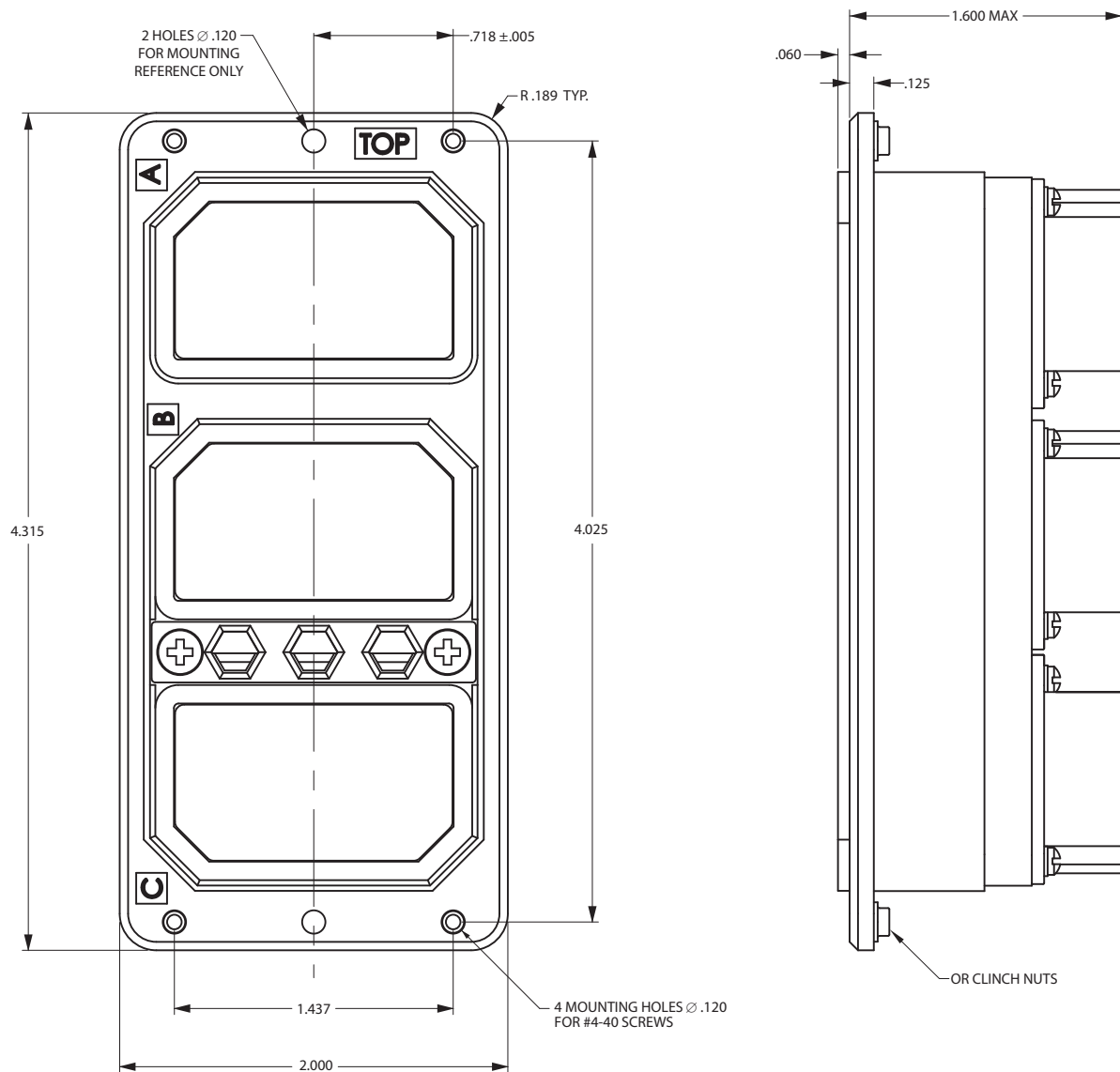


Page 38	Completed Part Number
Page 40	Insert Arrangements
Pages 10–11	Electrical Performance
Page 9	Mechanical and Environmental Performance
Pages 10–11	Filter Selection

ARINC 404/MIL-C-81659
J4*R3
Rack and Panel Filter Connectors

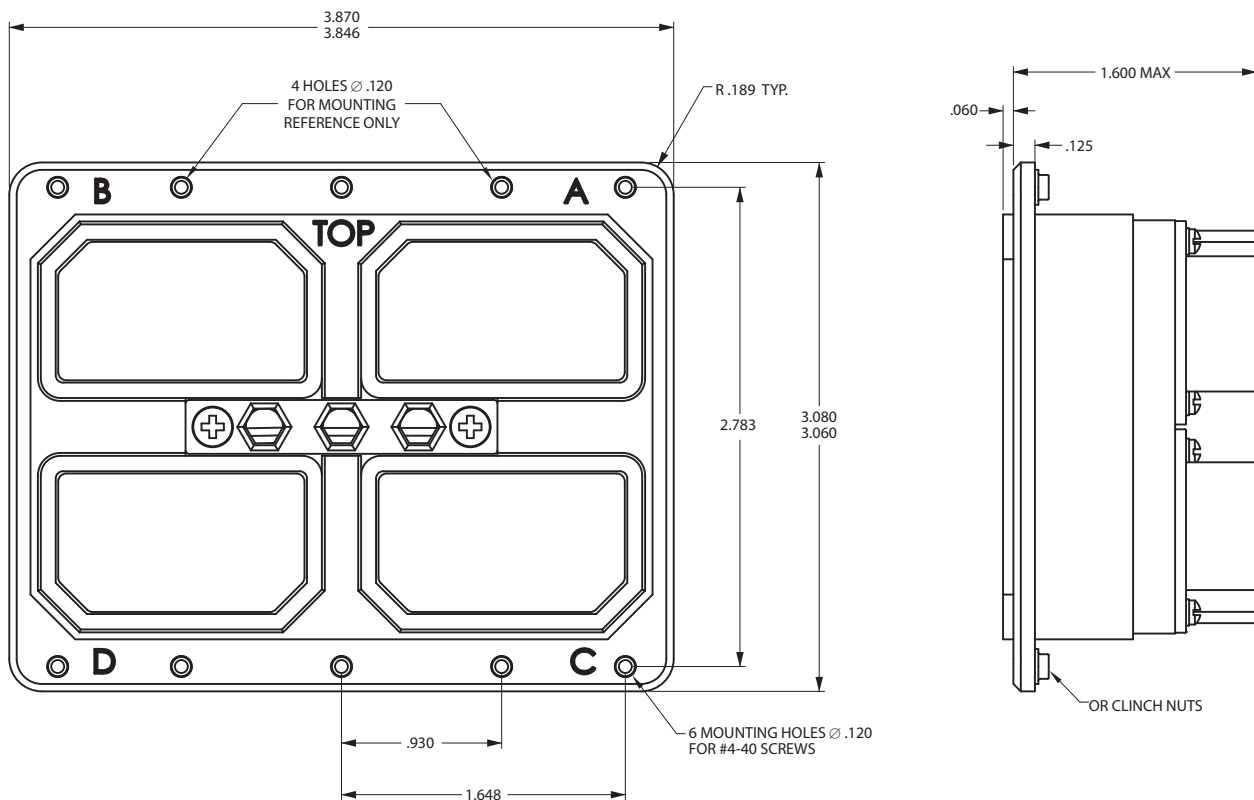


Size 3 Receptacle



- Page 38 Completed Part Number
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- Pages 10–11 Electrical Performance
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- Pages 10–11 Filter Selection

Size 4 Receptacle



Page 38	Completed Part Number
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Page 9	Mechanical and Environmental Performance
Pages 10–11	Filter Selection

ARINC 600 Filter Connectors

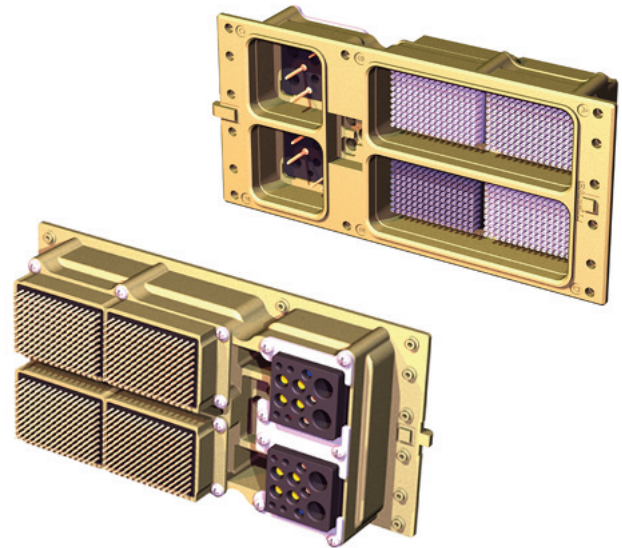
The Jerrik ARINC 600 connectors feature the complete line of layouts and meet the applicable performance and environmental portions of the ARINC specifications. This family of connectors offer higher contact counts, shell polarization, power and signal contacts and low mating forces. Jerrik designs feature a modular approach using standard shells and inserts with a filtered backpack. This approach allows the backpack to be removable and, if necessary, the #22 size socket contacts can be front release and front removable.

Following the ARINC document, Jerrik offers receptacle shell sizes 1, 2 and 3. Size 1 shells are a 3 gang style, housing the narrower 11.1mm inserts. Size 2 and size 3 shells use the standard 26.34mm wide inserts with 3 and 6 gangs respectively. Jerrik offers a wide variety of insert arrangements that include all standard contact sizes including coax, quadrax and fiber optic. Seventeen contact arrangements offered include a variety of contact sizes. These sizes range from size 22 signal contact down to size 1 coaxial contacts. Sizes 20, 16, and 12 are also available. Jerrik also provides size 8 and size 5 coaxial contacts for this family.

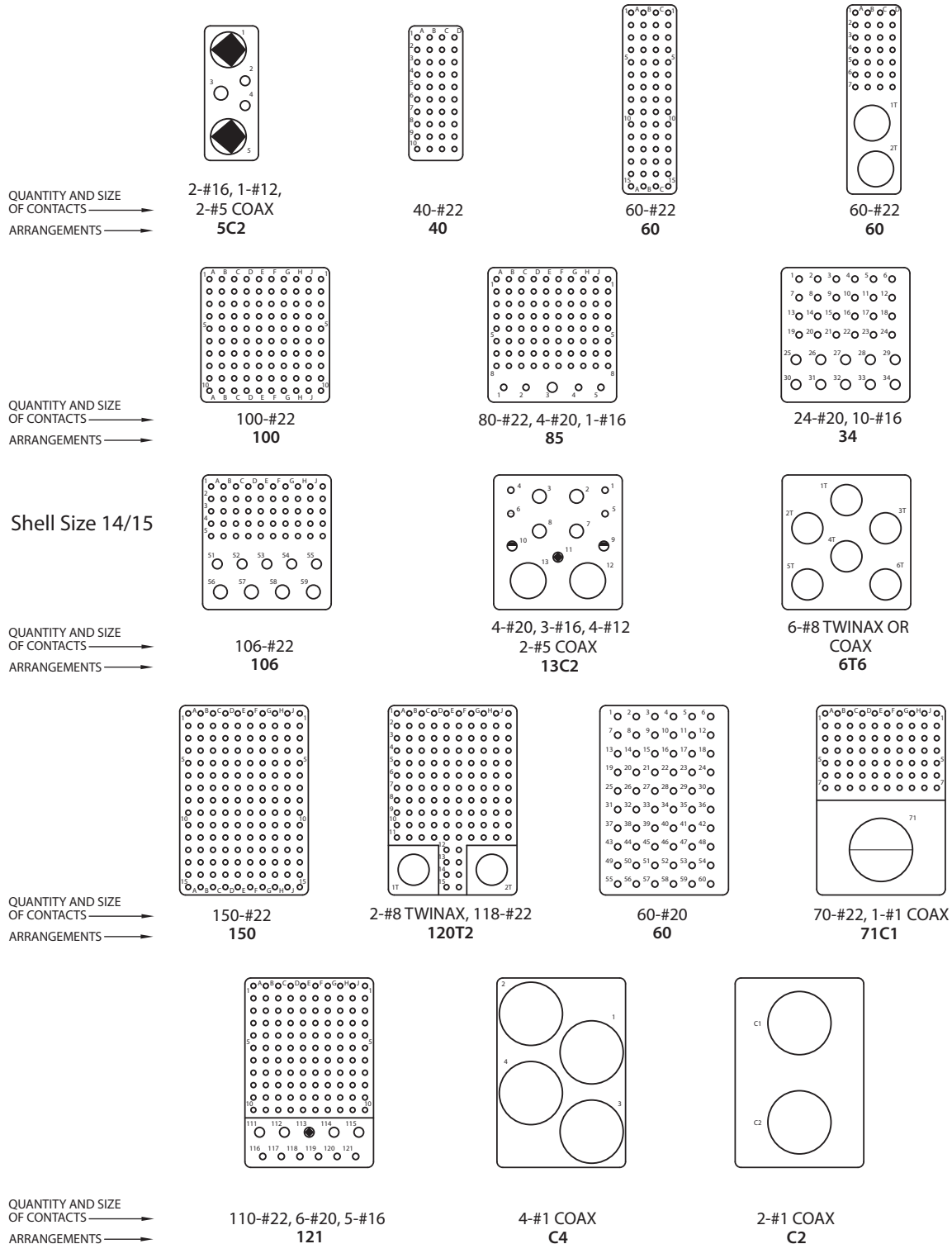
This rack and panel family was designed for high density with up to 800 contacts potential in one connector mating. Like any box mounted receptacle, these Jerrik connectors offer the perfect solution for housing the EMI filter to keep stray noise out.

Aluminum shell construction is offered with Alodine 1200 finish, or electroless nickel as an alternative.

Contact terminations include PC tail, solder cup and crimp configurations. See page 4 for more termination dimensional detail.



Insert Arrangement Views



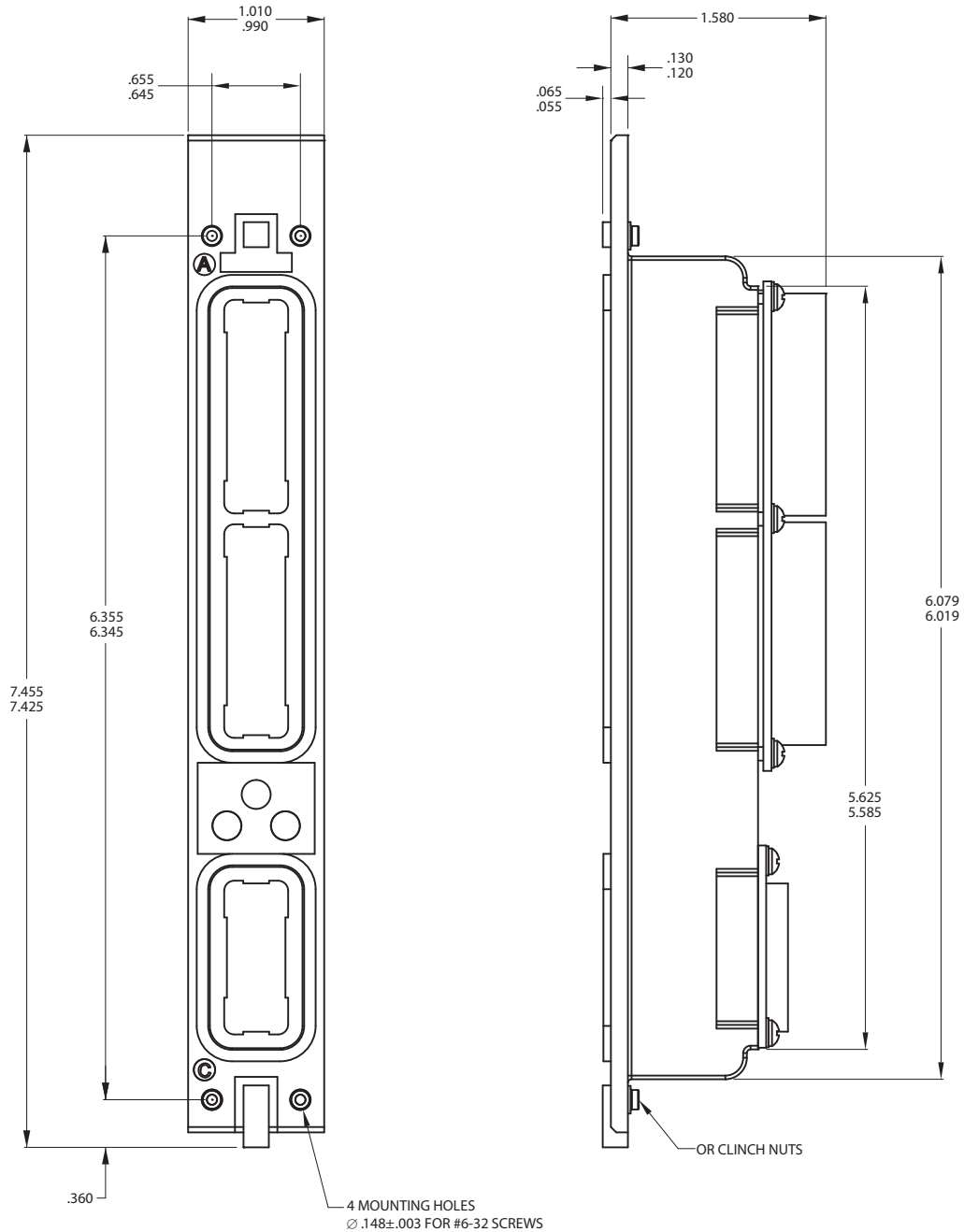
ARINC 600

J6*R1

Rack and Panel Filter Connectors

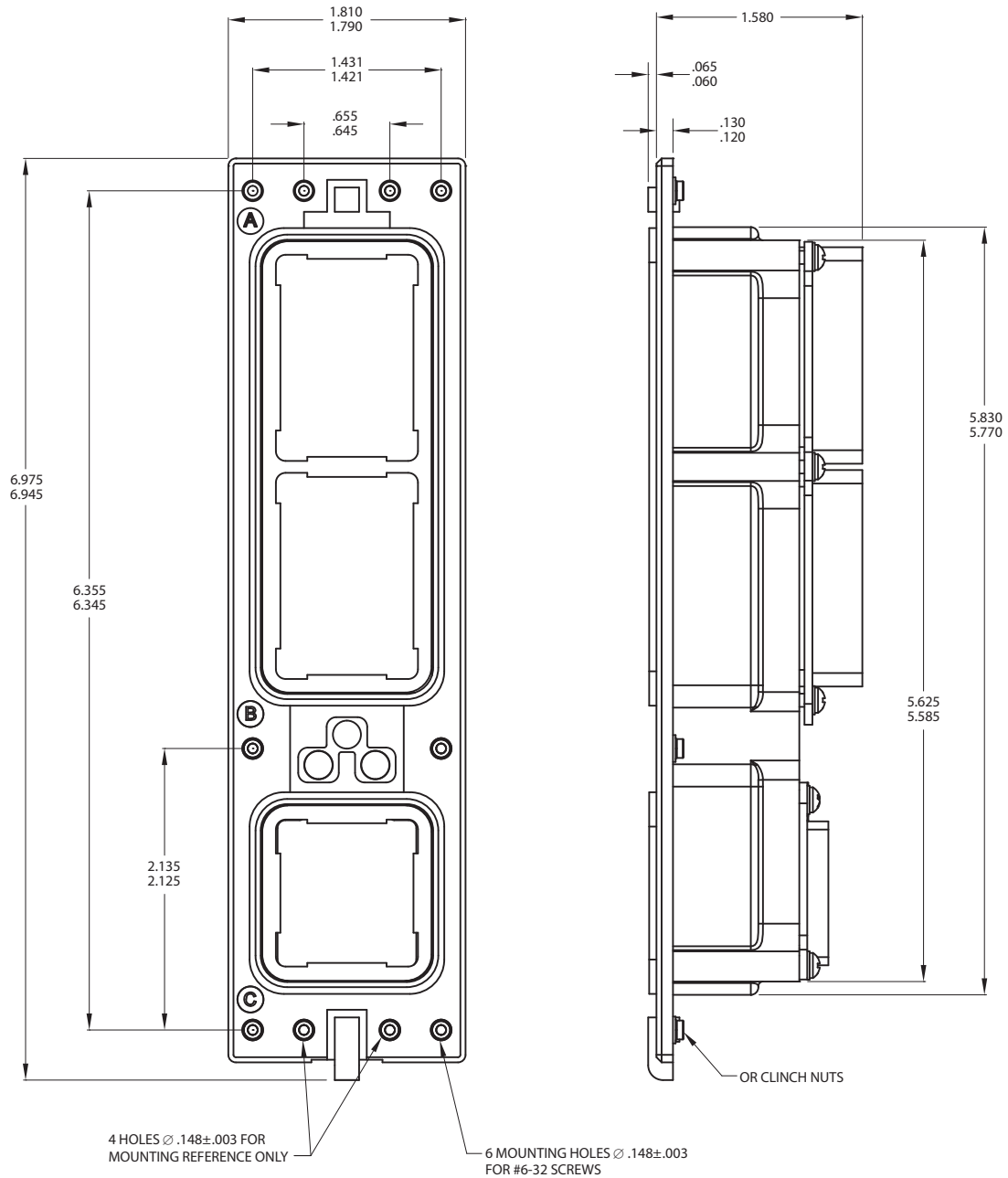


Size 1 Receptacle



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Page 9	Mechanical and Environmental Performance
Pages 10–11	Filter Selection

Size 2 Receptacle



Page 38	Completed Part Number
Page 45	Insert Arrangements
Pages 10–11	Electrical Performance
Page 9	Mechanical and Environmental Performance
Pages 10–11	Filter Selection

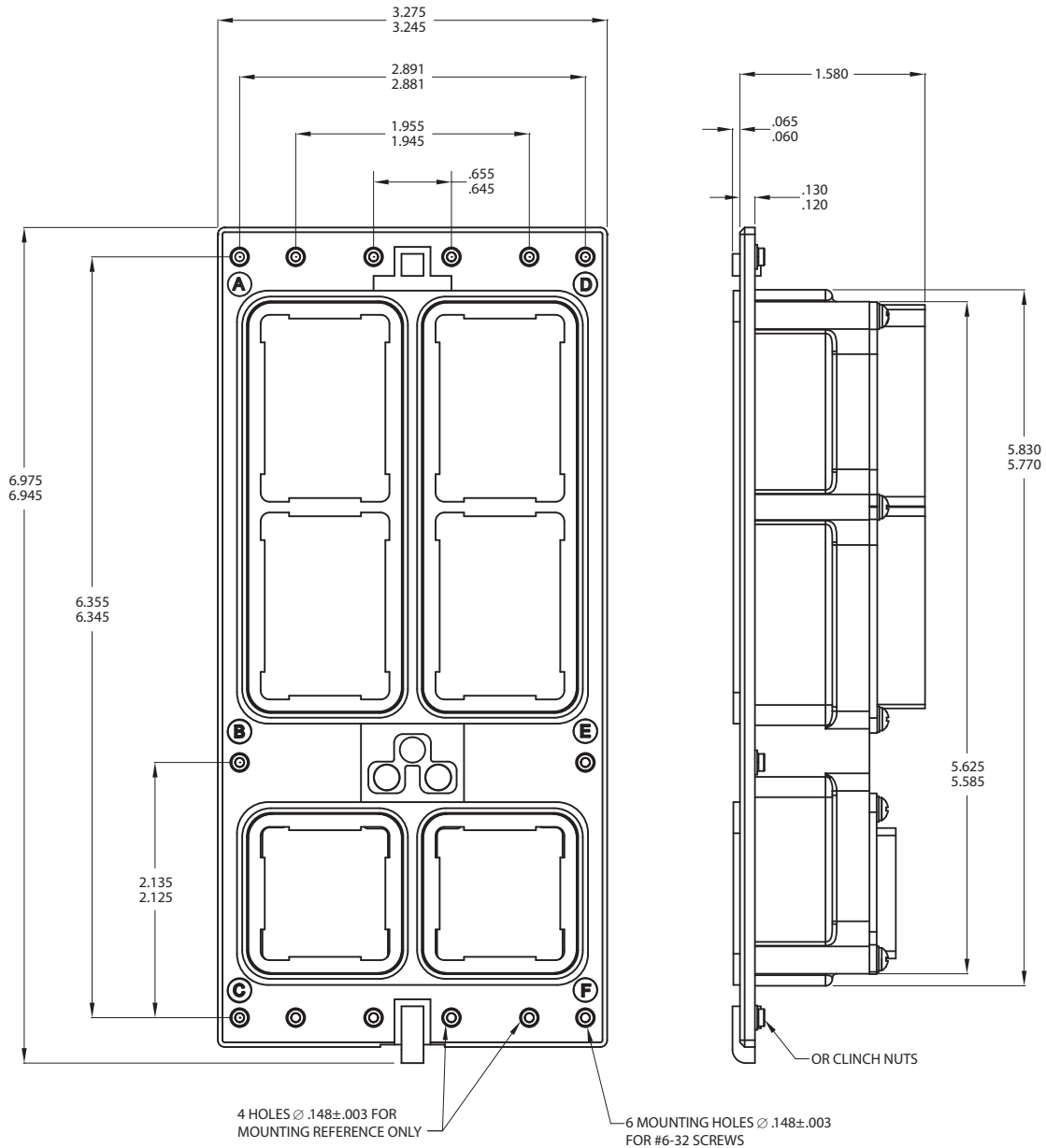
ARINC 600

J6*R3

Rack and Panel Filter Connectors



Size 3 Receptacle



Page 38	Completed Part Number
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Page 9	Mechanical and Environmental Performance
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EPX® Filter Connectors

Jerrik has added filtering to the modular EPX® line of connectors. This family of connectors was developed by Jerrik's former parent company, Radiall. Expanding on the flexibility of this connector family's modular design, the filter modules replace the existing insert assemblies. These connectors may be stacked for space savings and can be used in cable to cable as well as rack and panel applications. The modules are available in all standard arrangements with signal and power contacts.

Compared to circular connectors, the EPX® offers a slim shell design with high density insert arrangements that can use up to three times less space. The Jerrik filter inserts can be removed and wired at the bench level prior to final installation. Each filter module could be replaced in the field if the insert arrangement or filter type required change.

Standard shell plating for this family is electroless nickel over aluminum alloy shells. Contact terminations include PC tail, solder cup and crimp configurations.

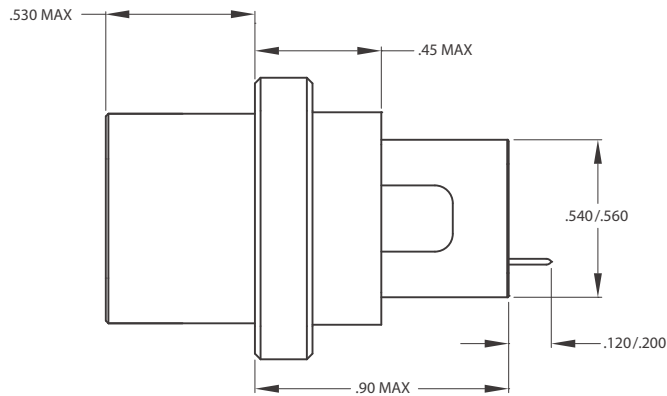
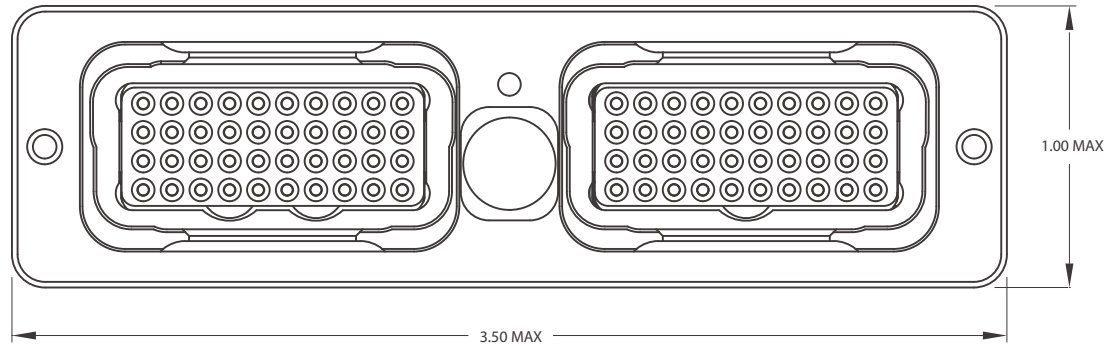
The standard for this family is the 2 gang EPXB2 configuration which can house up to 80 contacts and uses a central shell locking and polarizing device. Individual insert modules are keyed to the shell cavities to prevent mislocation during assembly. Compared to a standard 79 pin high density circular this two gang EPX with 40 pin modules occupies approximately half the required real estate!





EPX® Filter Connectors
J71R2
Rack and Panel Filter Connectors



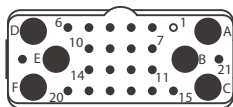
Size B2 Receptacle



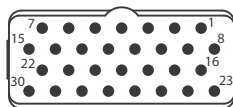
Page 38 Completed Part Number
 (See Below) Insert Arrangements
 Pages 10–11 Electrical Performance
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Note 1: In an EPXB2 shell, one insert must be "A" keyed and the other one must be "B" keyed →  

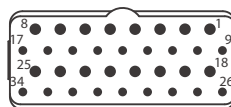
Note 2: Pin inserts: mating faces shown above



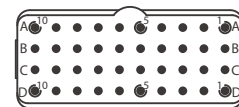
22-#22
 QUANTITY AND SIZE OF CONTACTS → 6-#15 or #16
 ARRANGEMENTS → 28



30-#20
 QUANTITY AND SIZE OF CONTACTS → 6-#15 or #16
 ARRANGEMENTS → 30



18-#22
 16-#20
 QUANTITY AND SIZE OF CONTACTS → 6-#15 or #16
 ARRANGEMENTS → 34



40-#22
 QUANTITY AND SIZE OF CONTACTS → 6-#15 or #16
 ARRANGEMENTS → 40

Jerrik Inc., A Conesys Company

**Jerrik Inc. – CAGE CODE: 4KVE4
Catalog JK101 (9/2008)**

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