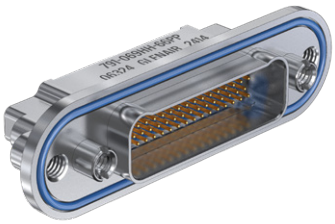
791-069
Panel Receptacle, Hermetic

- Hermetic
- Solder cup or PC tail
- Pin contacts



791-069 receptacle has glass-to-metal hermetic seal. Connector shell is nickel-plated Kovar alloy, Contacts are gold-plated Kovar alloy. Available with solder cup or PC tails. Interfacial seal provides environmental protection. Shell has threaded holes for attaching EMI banding backshell (799-016, sold separately).

- Aerospace-grade ultraminiature connector with rugged scoop-proof duo-lobe shell
- Glass-to-metal hermetic seal
- 40 layouts with M39029-type solder or PC tail contacts

INSERT ARRANGEMENTS

Insert Arrangement	No. of Contacts #23	#16	#12	#8
A-5	5			
B-2P2		2		
B-9	9			
C-13	13			
D-15	15			
D-3P3		3		
D-7P2	5	2		
E-11P2	9	2		
E-19	19			
E-7P3	4	3		
F-14P3	11	3		
F-15P2	13	2		
F-23	23			
F-5P5		5		
G-13P2	11		2	
G-21P1	20		1	
G-3P3			3	
G-33	33			
H-10P4	6		4	
H-29P7	22	7		
H-36P2	34		2	
H-51P1	50		1	
H-54P2	52	2		
H-5P5			5	
H-66	66			
J-17P4	13	4		
J-25P2	23	2		
J-33	33			
J-7P7		7		
K-27P4	23	4		
K-35P2	33	2		
K-43	43			
K-9P9		9		
L-22P4	18		4	
L-48P2	46		2	
L-6P6			6	
L-78	78			
M-17P17		17		
M-102	102			
M-4P4				4

HOW TO ORDER

Sample Part Number	791-069	H	G-33	P	G	B

Basic Part Number	**791-069**	Panel Receptacle, Hermetic, Pin Contacts
Finish	**H**	Nickel Plate
Shell Size-Insert Arr.	See "***Insert Arrangements***" Table	
Contact Type	**C**	Pin / PC Tail
	P	Pin / Solder Cup
Hardware Option *Table 1*	**G**	Male Guide Pins *For blind mating*
	N	No Hardware *Threaded holes*
	P	Female Jackposts
	S	Female Guide Sockets *For blind mating*
Polarization Key Option	Enter Letter Designator for Position **A**, **B**, **C**, **D**, **E**, or **F** per Mod Code 555 (see page B-8 for details) **Omit** for none	

RATINGS

- **Hermeticity:** <1 X 10^{-7} ccHe/sec @ 1 ATM delta
- **Voltage (DWV):** size 23 contacts 500 VAC, size 12 and 16: 1200 VAC, size 8 1000 VAC
- **Operating temperature:** -65 to +150 °C
- **Durability:** 500 mating cycles
- **Shock:** 300 g
- **Vibration:** 20 g random

CONSTRUCTION

- **Contacts:** Kovar alloy, gold plated
- **Shell:** Kovar alloy, nickel plated
- **Insulators:** individual glass beads
- **Interfacial seal:** Fluorosilicone/silicone blend
- **O-ring:** Fluorosilicone
- **Hardware:** Stainless steel, passivated

Application Note
Polarization Key Positions
See Mod Code 555 pg. B-8 for details

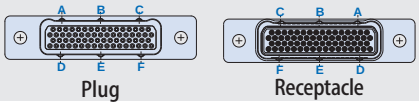
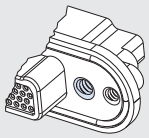
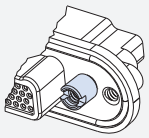


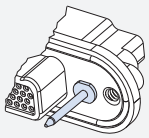
TABLE 1: HARDWARE OPTION



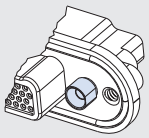
N No Hardware
Threaded holes.
Size A-G, J, K = 6-32 UNC-2B
H, L = 8-32 UNC-2B
M = 10-32 UNF-2B.
.400 (10.2) min. depth



P Female Jackposts
Jackposts are non-removable.
Size A-G, J, K = 4-40 UNC-2B
H, L = 6-32 UNC-2B
M = 8-32 UNC-2B



G Guide Pins
Guide pins for blind mate applications. Non-removable. Requires guide bushing (S) on mating plug.



S Guide Sockets
Guide sockets for blind mate applications. Non-removable. Requires guide pins (G) on mating plug.

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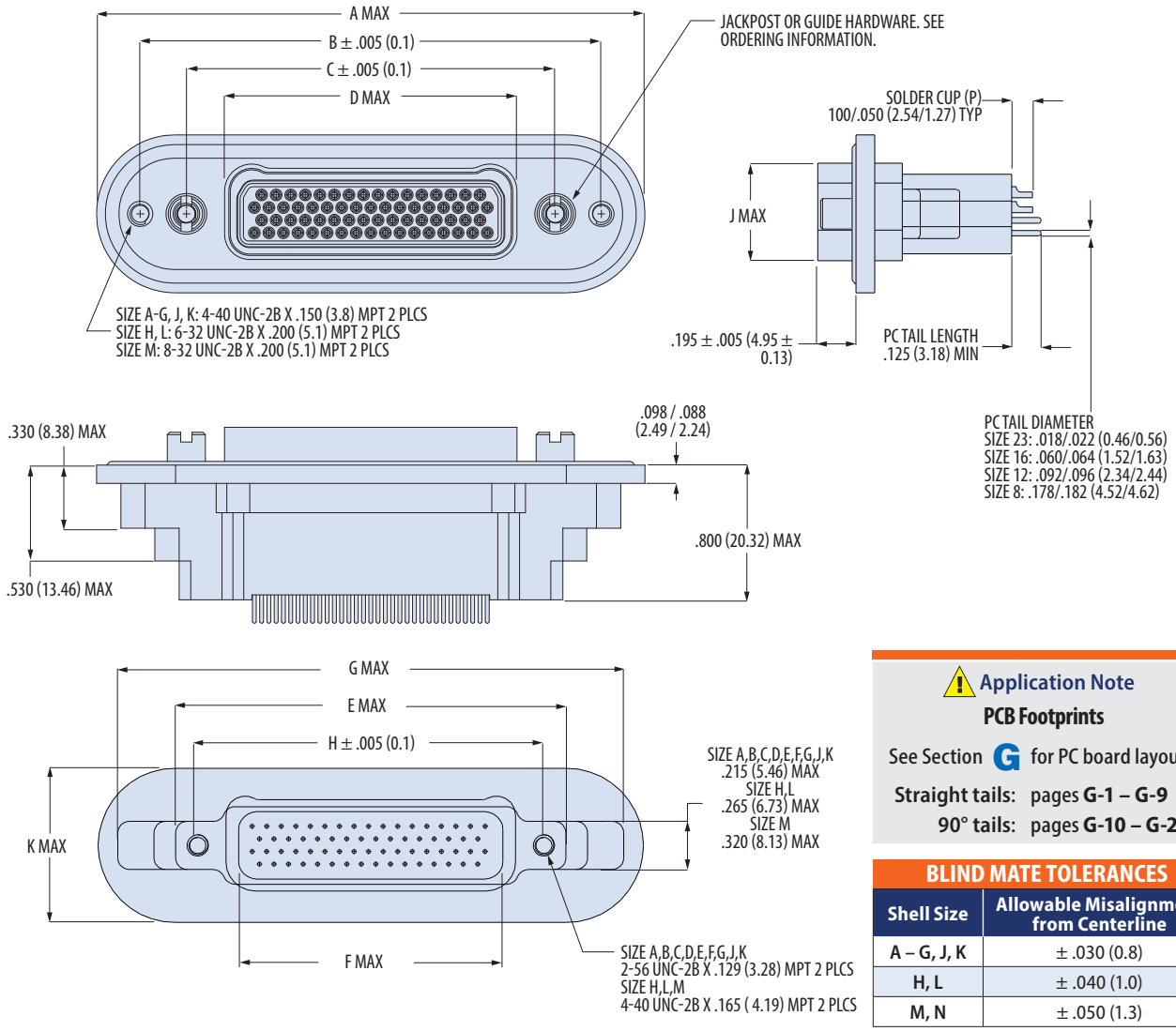
791-069
Panel Receptacle, Hermetic

- Kovar alloy
- Solder cup or PC tail
- Pin contacts



Application Note

PCB Footprints

See Section G for PC board layouts.

Straight tails: pages **G-1 – G-9**

90° tails: pages **G-10 – G-20**

BLIND MATE TOLERANCES

Shell Size	Allowable Misalignment from Centerline
A – G, J, K	± .030 (0.8)
H, L	± .040 (1.0)
M, N	± .050 (1.3)

Shell Size	A Max		B ± .005 (0.1)		C ± .005 (0.1)		D Max		E Max		F Max		G Max		H ± .005 (0.1)		J Max		K Max	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
A	1.750	44.45	1.300	33.02	.750	19.05	.490	12.45	.760	19.30	.350	8.89	1.500	38.10	.565	14.35	.410	10.41	.700	17.78
B	1.950	49.53	1.475	37.47	.900	22.86	.630	16.00	.910	23.11	.500	12.70	1.700	43.18	.715	18.16	.410	10.41	.700	17.78
C	2.025	51.44	1.600	40.64	1.050	26.67	.780	19.81	1.060	26.92	.650	16.51	1.800	45.72	.865	21.97	.410	10.41	.700	17.78
D	2.125	53.98	1.700	43.18	1.125	28.58	.860	21.84	1.160	29.46	.750	19.05	1.900	48.26	.965	24.51	.410	10.41	.700	17.78
E	2.325	59.06	1.800	45.72	1.275	32.39	1.010	25.65	1.310	33.27	.900	22.86	2.100	53.34	1.115	28.32	.410	10.41	.700	17.78
F	2.325	59.06	1.925	48.90	1.425	36.20	1.160	29.46	1.460	37.08	1.050	26.67	2.100	53.34	1.265	32.13	.410	10.41	.700	17.78
G	2.500	63.50	2.000	50.80	1.388	35.26	1.120	28.45	1.410	35.81	1.020	25.91	2.250	57.15	1.215	30.86	.490	12.45	.800	20.32
H	3.050	77.47	2.500	63.50	1.900	48.26	1.510	38.35	2.045	51.94	1.385	35.18	2.850	72.39	1.800	45.72	.510	12.95	.820	20.83
J	2.915	74.04	2.400	60.96	1.800	45.72	1.530	38.86	1.810	45.97	1.405	35.69	2.650	67.31	1.615	41.02	.410	10.41	.700	17.78
K	3.110	78.99	2.675	67.95	2.175	55.25	1.910	48.51	2.210	56.13	1.805	45.85	2.900	73.66	2.015	51.18	.410	10.41	.700	17.78
L	3.250	82.55	2.700	68.58	2.136	54.25	1.740	44.20	2.281	57.9	1.625	41.28	3.100	78.74	2.036	51.71	.510	12.95	.820	20.83
M	3.375	85.73	2.870	72.90	2.200	55.88	1.800	45.72	2.485	63.12	1.690	42.93	3.200	81.28	2.200	55.88	.600	15.24	.950	24.13

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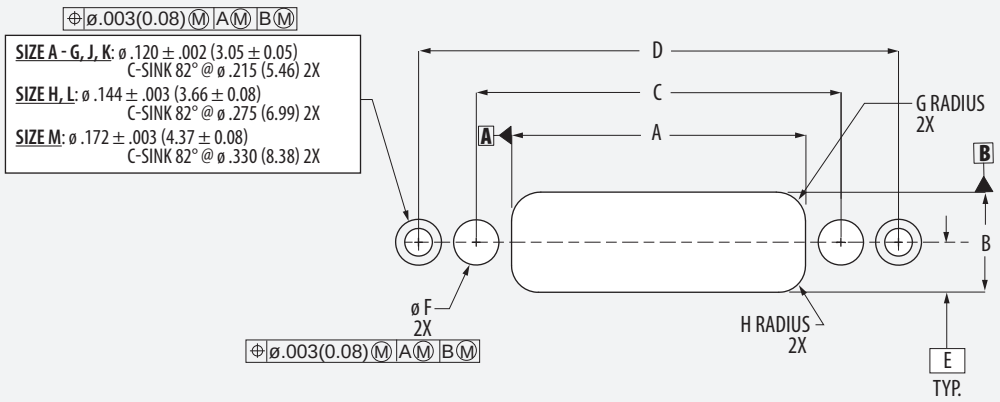
791-069
Panel Receptacle, Hermetic

- Kovar alloy
- Solder cup or PC tail
- Pin contacts

PANEL CUTOUT FOR 791-069 HERMETIC RECEPTACLE CONNECTORS



Shell Size	A ± .002 (0.05)		B ± .002 (0.05)		C Basic		D Basic		E Typ		ø F ± .002 (0.05)		G ± .002 (0.05)		H ± .002 (0.05)	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
A	.505	12.83	.418	10.62	.750	19.05	1.300	33.02	.199	5.05	.210	5.33	.110	2.79	.164	4.17
B	.655	16.64	.418	10.62	.900	22.86	1.475	37.47	.199	5.05	.210	5.33	.110	2.79	.164	4.17
C	.805	20.45	.418	10.62	1.050	26.67	1.600	40.64	.199	5.05	.210	5.33	.110	2.79	.164	4.17
D	.880	22.35	.418	10.62	1.125	28.58	1.700	43.18	.199	5.05	.210	5.33	.110	2.79	.164	4.17
E	1.030	26.16	.418	10.62	1.275	32.39	1.800	45.72	.199	5.05	.210	5.33	.110	2.79	.164	4.17
F	1.180	29.97	.418	10.62	1.425	36.20	1.925	48.90	.199	5.05	.210	5.33	.110	2.79	.164	4.17
G	1.142	29.01	.506	12.85	1.388	35.26	2.000	50.80	.244	6.20	.210	5.33	.110	2.79	.164	4.17
H	1.531	38.89	.521	13.23	1.900	48.26	2.500	63.50	.250	6.35	.236	5.99	.150	3.81	.139	3.53
J	1.555	39.50	.418	10.62	1.800	45.72	2.400	60.96	.199	5.05	.210	5.33	.110	2.79	.164	4.17
K	1.930	49.02	.418	10.62	2.175	55.25	2.675	67.95	.199	5.05	.210	5.33	.110	2.79	.164	4.17
L	1.767	44.88	.521	13.23	2.136	54.25	2.700	68.58	.250	6.35	.236	5.99	.150	3.81	.139	3.53
M	1.850	46.99	.623	15.82	2.200	55.88	2.870	72.90	.290	7.37	.262	6.65	.163	4.14	.153	3.89

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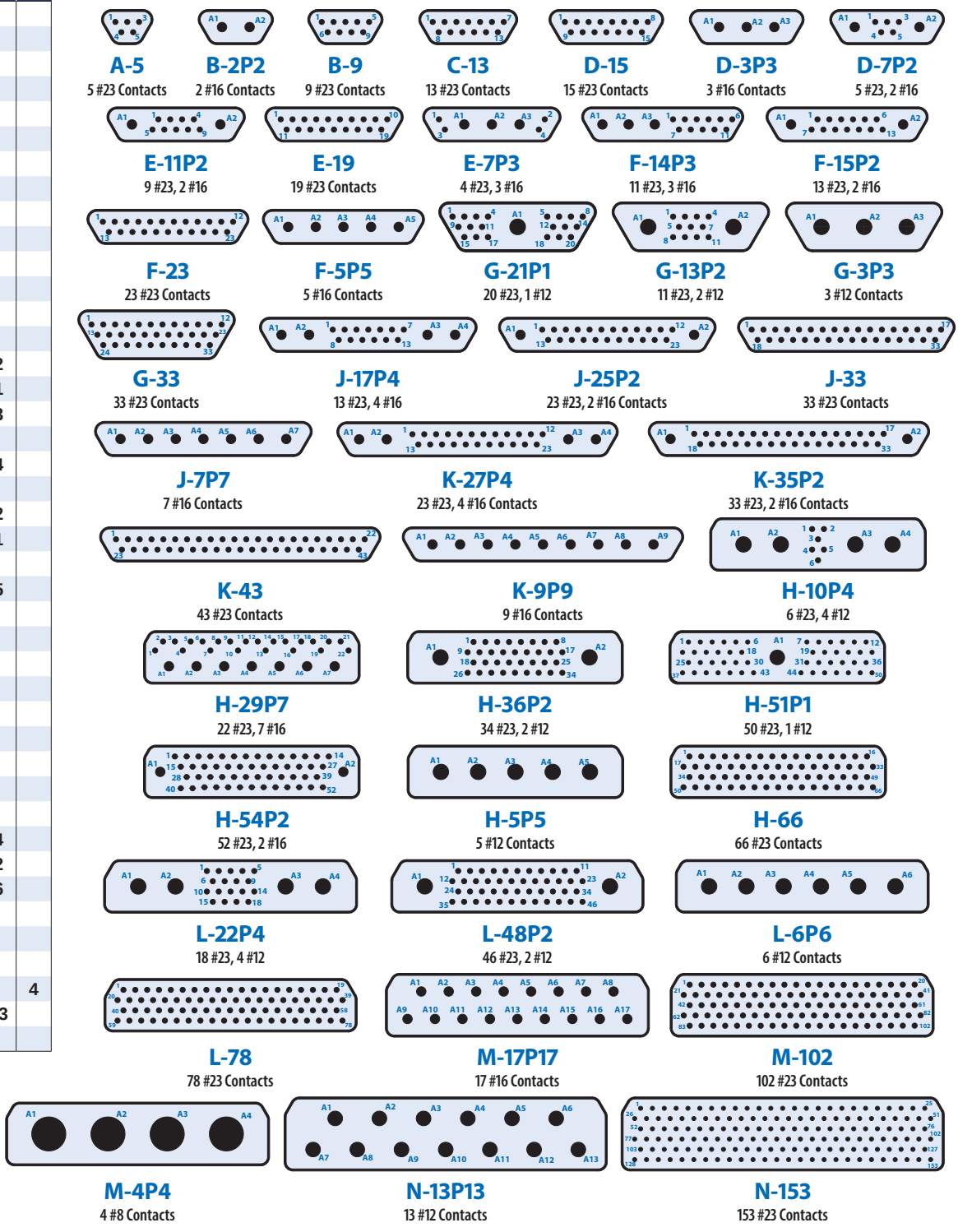
Insert Arrangements

INSERT ARRANGEMENTS

Insert Arr.	No. of Contacts #23	#16	#12	#8
A-5	5			
B-2P2		2		
B-9	9			
C-13	13			
D-15	15			
D-3P3		3		
D-7P2	5	2		
E-11P2	9	2		
E-19	19			
E-7P3	4	3		
F-14P3	11	3		
F-15P2	13	2		
F-23	23			
F-5P5		5		
G-13P2	11		2	
G-21P1	20		1	
G-3P3			3	
G-33	33			
H-10P4	6		4	
H-29P7	22	7		
H-36P2	34		2	
H-51P1	50		1	
H-54P2	52	2		
H-5P5			5	
H-66	66			
J-17P4	13	4		
J-25P2	23	2		
J-33	33			
J-7P7		7		
K-27P4	23	4		
K-35P2	33	2		
K-43	43			
K-9P9		9		
L-22P4	18		4	
L-48P2	46		2	
L-6P6			6	
L-78	78			
M-17P17		17		
M-102	102			
M-4P4				4
N-13P13			13	
N-153	153			

⚠ Cavity Numbers

Cavity numbers shown are for mating face of receptacle (pin) connector. Plug (socket) numbers are reversed.



A-5
5 #23 Contacts

B-2P2
2 #16 Contacts

B-9
9 #23 Contacts

C-13
13 #23 Contacts

D-15
15 #23 Contacts

D-3P3
3 #16 Contacts

D-7P2
5 #23, 2 #16

E-11P2
9 #23, 2 #16

E-19
19 #23 Contacts

E-7P3
4 #23, 3 #16

F-14P3
11 #23, 3 #16

F-15P2
13 #23, 2 #16

F-23
23 #23 Contacts

F-5P5
5 #16 Contacts

G-21P1
20 #23, 1 #12

G-13P2
11 #23, 2 #12

G-3P3
3 #12 Contacts

G-33
33 #23 Contacts

J-17P4
13 #23, 4 #16

J-25P2
23 #23, 2 #16 Contacts

J-33
33 #23 Contacts

J-7P7
7 #16 Contacts

K-27P4
23 #23, 4 #16 Contacts

K-35P2
33 #23, 2 #16 Contacts

K-43
43 #23 Contacts

K-9P9
9 #16 Contacts

H-10P4
6 #23, 4 #12

H-29P7
22 #23, 7 #16

H-36P2
34 #23, 2 #12

H-51P1
50 #23, 1 #12

H-54P2
52 #23, 2 #16

H-5P5
5 #12 Contacts

H-66
66 #23 Contacts

L-22P4
18 #23, 4 #12

L-48P2
46 #23, 2 #12

L-6P6
6 #12 Contacts

L-78
78 #23 Contacts

M-17P17
17 #16 Contacts

M-102
102 #23 Contacts

M-4P4
4 #8 Contacts

N-13P13
13 #12 Contacts

N-153
153 #23 Contacts

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Series 791 Material and Finish Options

The Series 791 Scoop-Proof connector is available in five preferred finishes: electroless nickel, nickel-PTFE, tin-zinc, cadmium, and zinc-nickel.

Additional material and finish options are available. Replace the preferred plating code with the alternate code from the table below.

TIN-ZINC PLATING

The United States Department of Defense (DOD) has mandated the elimination of cadmium from DOD weapons systems because of toxicity concerns. The European Union has also restricted the use of cadmium on electronics equipment (RoHS). Tin-Zinc is a RoHS cadmium-free sacrificial finish that offers high conductivity and shielding performance, corrosion resistance, solderability, and proven compatibility with legacy cadmium and zinc-nickel finishes. Tin-Zinc is DLA-qualified and RoHS compliant.

SERIES 791 SHELL FINISH OPTIONS

	Electroless Nickel	Nickel-PTFE	Tin-Zinc	Olive Drab Cadmium	Black Zinc-Nickel
Glenair Code	M	MT	TZ	N	ZR
Corrosion Resistance	Fair	Excellent	Excellent	Excellent	Excellent
Salt Spray Hours	48	500	500	500	500
Conductivity	Excellent	Excellent	Very Good	Very Good	Very Good
RoHS Compliant[1]	Yes	Yes	Yes	No	Yes

[1] Does not contain cadmium or hexavalent chromium. Meets EU requirements.

ALTERNATE SHELL MATERIAL AND FINISH CODES

Code	Shell Material	Shell Finish	Finish Specification	Salt Spray Hrs.	Electrical Conductivity	RoHS[1]
C	Alum	Anodize, Black	MIL-PRF-8625	48	Non-Conductive	✓
E[2]	Alum	Chem Film, Gold	MIL-DTL-5541	168	Conductive	
J	Alum	Cadmium, Yellow	AMS-QQ-P-416	500	Conductive	
Z1	SST	Passivate	AMS2700	500	Conductive	✓
Z2	Alum	Gold	MIL-DTL-45204	48	Conductive	✓
ZM	SST	Electroless Nickel	AMS-C-26074	500	Conductive	✓
ZMT	SST	Nickel-PTFE	AMS2454	1000	Conductive	✓
ZW	SST	Cadmium, Olive Drab	AMS-QQ-P-416	500	Conductive	
ZZR	SST	Zinc-Nickel, Black	ASTM B841	500	Conductive	✓

[1] Does not contain cadmium or hexavalent chromium. Meets EU requirements.
[2] Maximum temperature = +125°C

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Specifications

Construction

Contacts	Copper alloy, gold over nickel finish
Hood, socket contact	Stainless steel, passivated
Clip, contact retaining	Beryllium copper
Clip, insert retaining	Beryllium copper
Insulators	High performance thermoplastic
Grommet and face seal	Fluorosilicone/silicone blend
Shell	Aluminum
O-ring	Fluorosilicone
EMI spring	Beryllium copper, electroless nickel plated
EMI shroud (90° PCB)	Aluminum
Encapsulant (PCB)	Epoxy
Hardware	Stainless steel, passivated

Ratings

Voltage (DWV)	Size 23 contacts: 750 VAC Size 8, 12 and 16 contacts: 1800 VAC
Current Rating	See table below
Operating Temperature	-65 to +150 °C
Ingress Protection	IP67
Durability	500 mating cycles

Contact Size	Current (A)
#23	5
#16	13
#12	23
#8	46

Product Specifications

Description	Requirement	Procedure
Contact Resistance	SAE AS39029 Table 5	EIA-364-06
Low Level Contact Resistance	SAE AS39029 Table 4	EIA-364-23
Insulation Resistance	5000 megohms minimum	EIA-364-21
Dielectric Withstanding Voltage	#23 contacts 750 volts, #8, 12 & 16 contacts 1800 volts	EIA-364-20
Current Rating	#23: 5A, #16: 13A, #12: 23A, #8: 46A	EIA-364-70 Method 1
Shell-to-shell Resistance	2.5 millivolt drop maximum (connector with EMI spring)	EIA-364-83
Shielding Effectiveness	100 – 1000MHz: >50 dB, 1 – 4GHz: >41dB, 4 – 10GHz: >35 dB	EIA-364-66
Ingress Protection	IP67 rating	IEC-60529
Vibration, Sine	20 g	EIA-364-28 Test Condition IV
Vibration, Random	16.91 g rms	EIA-364-28 Test Condition V Letter E
Mechanical Shock	300 g	EIA-364-27 Condition D
Thermal Shock	-65 to +150 °C	EIA-364-32 Test Condition IV
Humidity	10 Day, +25 to +65° C	EIA-364-31 Method IV, Step 7b vibration deleted
Mechanical Durability	500 mating cycles	EIA-364-09
Salt Spray	Plating code M: 48 hours, MT, ZR, N, TZ: 500 hours	EIA-364-26
Solderability, PC Tail Contacts	95% solder coverage. Smooth, bright and even finish.	EIA-364-52 Category 3, 8 hours steam aging
Resistance To Soldering Heat	260° C, 10 seconds	EIA-364-56
Fluid Immersion	No damage from immersion in various fuels and oils.	EIA-364-10
Altitude Immersion	75,000 feet	EIA-364-03
Contact Retention	MIL-DTL-38999 Table XVIII	EIA-364-29
Contact Separation Force	SAE AS39029 Table 9	EIA-364-37
Magnetic Permeability	2 µ maximum.	EIA-364-54

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Series 791 Polarization Keying Option

OPTIONAL POLARIZATION KEYS

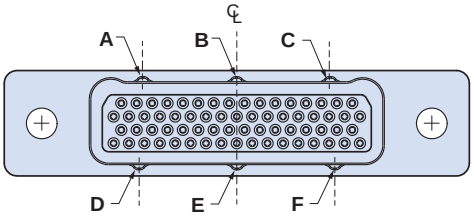
To prevent mis-mating of identical shell size and insert arrangement connectors

Series 791 connectors are available with an integral polarizing key. Keyed plug connectors have a raised boss on the shell. Receptacles have corresponding keyway. Ordering is simple—just add the keying position letter designator to the end of the part number.

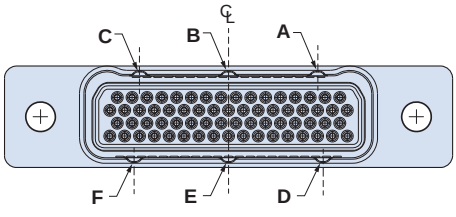
Note: keyed receptacles will mate with unkeyed plugs. Additional polarization keying positions are available, consult the factory for designators and key locations.

HOW TO ORDER		
Step 1	**Create a Series 791 connector part number:**	**791-003SH-66MP**
Step 2	**Add the keying position letter designator A, B, C, D, E, or F to the part number.**	**791-003SH-66MPB**

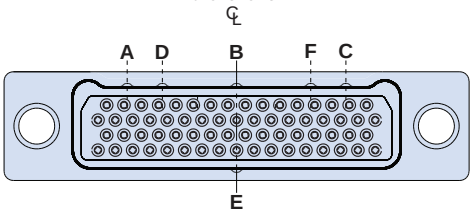
MOD-555 KEY LOCATIONS PLUG CONNECTOR MATING FACE
For Shell Sizes A-M



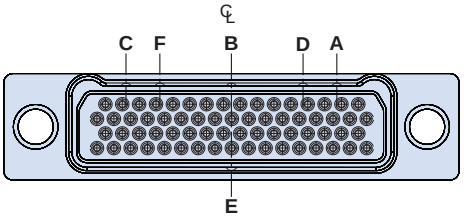
MOD-555 KEY LOCATIONS RECEPTACLE CONNECTOR MATING FACE
For Shell Sizes A-M



MOD-555 KEY LOCATIONS PLUG CONNECTOR MATING FACE
For Shell Size N



MOD-555 KEY LOCATIONS RECEPTACLE CONNECTOR MATING FACE
For Shell Size N



POLARIZING KEY LOCATIONS SHELL SIZES A–M

Shell Size	Key Position Offset From Vertical Centerline											
	Position A		Position B		Position C		Position D		Position E		Position F	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
A	N/A	N/A	.000	0.00	N/A	N/A	.025	0.64	.000	0.00	.025	0.64
B	.090	2.29	.000	0.00	.090	2.29	.050	1.27	.000	0.00	.050	1.27
C	.130	3.30	.000	0.00	.130	3.30	.100	2.54	.000	0.00	.100	2.54
D	.180	4.57	.000	0.00	.180	4.57	.125	3.18	.000	0.00	.125	3.18
E	.200	5.08	.000	0.00	.200	5.08	.150	3.81	.000	0.00	.150	3.81
F	.300	7.62	.000	0.00	.300	7.62	.250	6.35	.000	0.00	.250	6.35
G	.300	7.62	.000	0.00	.300	7.62	.200	5.08	.000	0.00	.200	5.08
H	.450	11.43	.000	0.00	.450	11.43	.500	12.70	.000	0.00	.500	12.70
J	.450	11.43	.000	0.00	.450	11.43	.400	10.16	.000	0.00	.400	10.16
K	.650	16.51	.000	0.00	.650	16.51	.550	13.97	.000	0.00	.550	13.97
L	.550	13.97	.000	0.00	.550	13.97	.600	15.24	.000	0.00	.600	15.24
M	.550	13.97	.000	0.00	.550	13.97	.600	15.24	.000	0.00	.600	15.24
N	.700	17.78	.000	0.00	.700	17.78	.475	12.06	.000	0.00	.475	12.06

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Dimensions in Inches (millimeters) are subject to change without notice.