

MICRO-CRIMP RECTANGULAR CONNECTORS

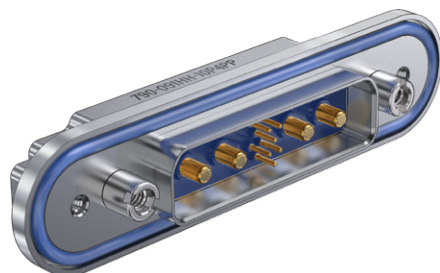
Series 790 High-Density

SERIES™
790
HD

790-091

Panel Receptacle, Hermetic

- ◆ Hermetic
- ◆ O-ring panel seal
- ◆ Pin contacts



790-091 panel 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 hermetic microminiature connector
- Glass-to-metal hermetic seal
- 40 layouts with #23, #16, #12 and #8 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

How to Order

Sample Part Number		790-091	H	G-33	P	G
Basic Part Number	790-091	Panel Receptacle, Hermetic, Pin Contacts				
Finish	H	Nickel Plate				
Shell Size-Insert Arr.	See <i>“Insert Arrangements”</i> Table					
Contact Type	C	Pin / PC Tail				
	P	Pin / Solder Cup				
Hardware Option <i>Table 1</i>	G	Male Guide Pins <i>For blind mating</i>				
	N	No Hardware <i>Threaded holes</i>				
	P	Female Jackposts				
	S	Female Guide Sockets <i>For blind mating</i>				

RATINGS

- Hermeticity: $<1 \times 10^{-7}$ 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

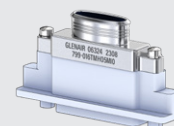
TABLE 1 HARDWARE OPTIONS

N No Hardware		P Female Jackpost	
G Guide Pin		S Guide Socket	

Application Note

EMI Banding Backshell 799-016

See page F-32 for backshell ordering information.



Application Note

Panel Cutout

See page A-60 for panel cutout dimensions.

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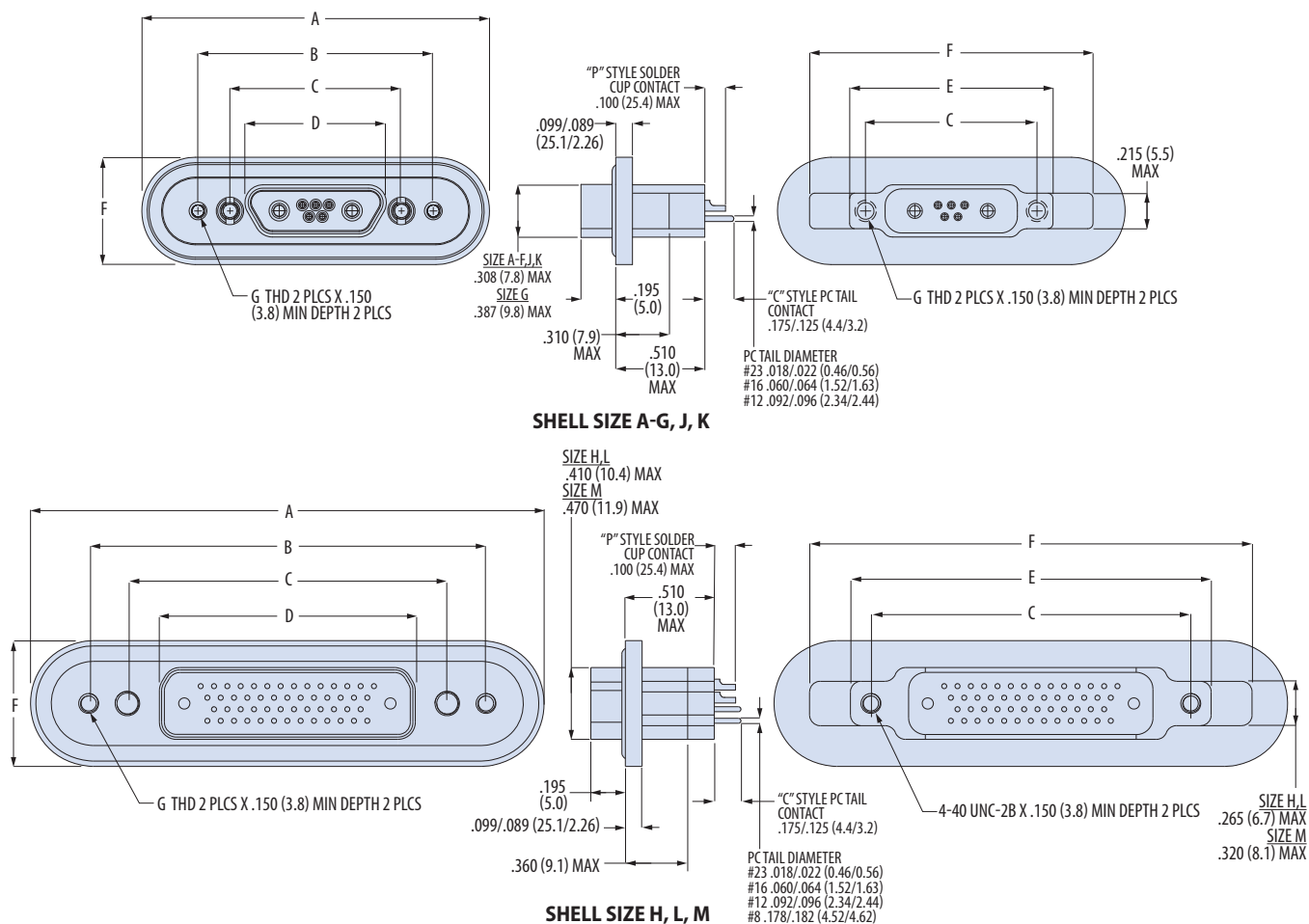


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Panel Receptacle, Hermetic

- ◆ Hermetic
- ◆ O-ring panel seal
- ◆ Pin contacts

SERIES 790 HIGH-DENSITY

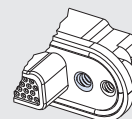


Shell Size	A Max		B ± .005 (0.1)		C ± .005 (0.1)		D Max		E Max		F Max		G THD UNC-2B
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
A	1.490	37.8	.925	23.5	.565	14.4	.401	10.2	.760	19.3	1.215	30.9	2-56
B	1.680	42.7	1.075	27.3	.715	18.2	.551	14.0	.910	23.1	1.365	34.7	2-56
C	1.785	45.3	1.225	31.1	.865	22.0	.701	17.8	1.060	26.9	1.515	38.5	2-56
D	1.975	50.2	1.325	33.7	.965	24.5	.801	20.3	1.160	29.5	1.615	41.0	2-56
E	2.075	52.7	1.475	37.5	1.115	28.3	.951	24.2	1.310	33.3	1.765	44.8	2-56
F	2.175	55.2	1.625	41.3	1.265	32.1	1.101	28.0	1.460	37.1	1.915	48.6	2-56
G	2.130	54.1	1.575	40.0	1.215	30.9	1.079	27.4	1.410	35.8	1.861	47.3	2-56
H	2.900	73.7	2.236	56.8	1.800	45.7	1.450	36.8	2.045	51.9	2.500	63.5	4-40
J	2.665	67.7	1.975	50.2	1.615	41.0	1.460	37.1	1.810	46.0	2.265	57.5	2-56
K	2.960	75.2	2.375	60.3	2.015	51.2	1.860	47.2	2.210	56.1	2.665	67.7	2-56
L	3.100	78.7	2.472	62.8	2.036	51.7	1.686	42.8	2.281	57.9	2.736	69.5	4-40
M	3.475	88.3	2.770	70.4	2.200	55.9	1.745	44.3	2.485	63.1	3.085	78.4	6-32

BLIND MATE TOLERANCES

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

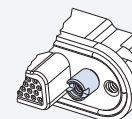
HARDWARE DETAILS



N

No Hardware

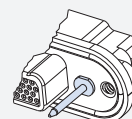
Tapped holes. Size A-G, J, K = 4-40, H, L = 6-32, M = 8-32. .150 (3.8) min. depth



P

Female Jackposts

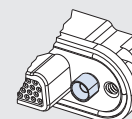
Jackposts are non-removable. Size A-G, J, K = 2-56, H, L = 4-40, M = 6-32.



G

Guide Pins

Guide pins for blind mate applications. Non-removable. Requires guide socket (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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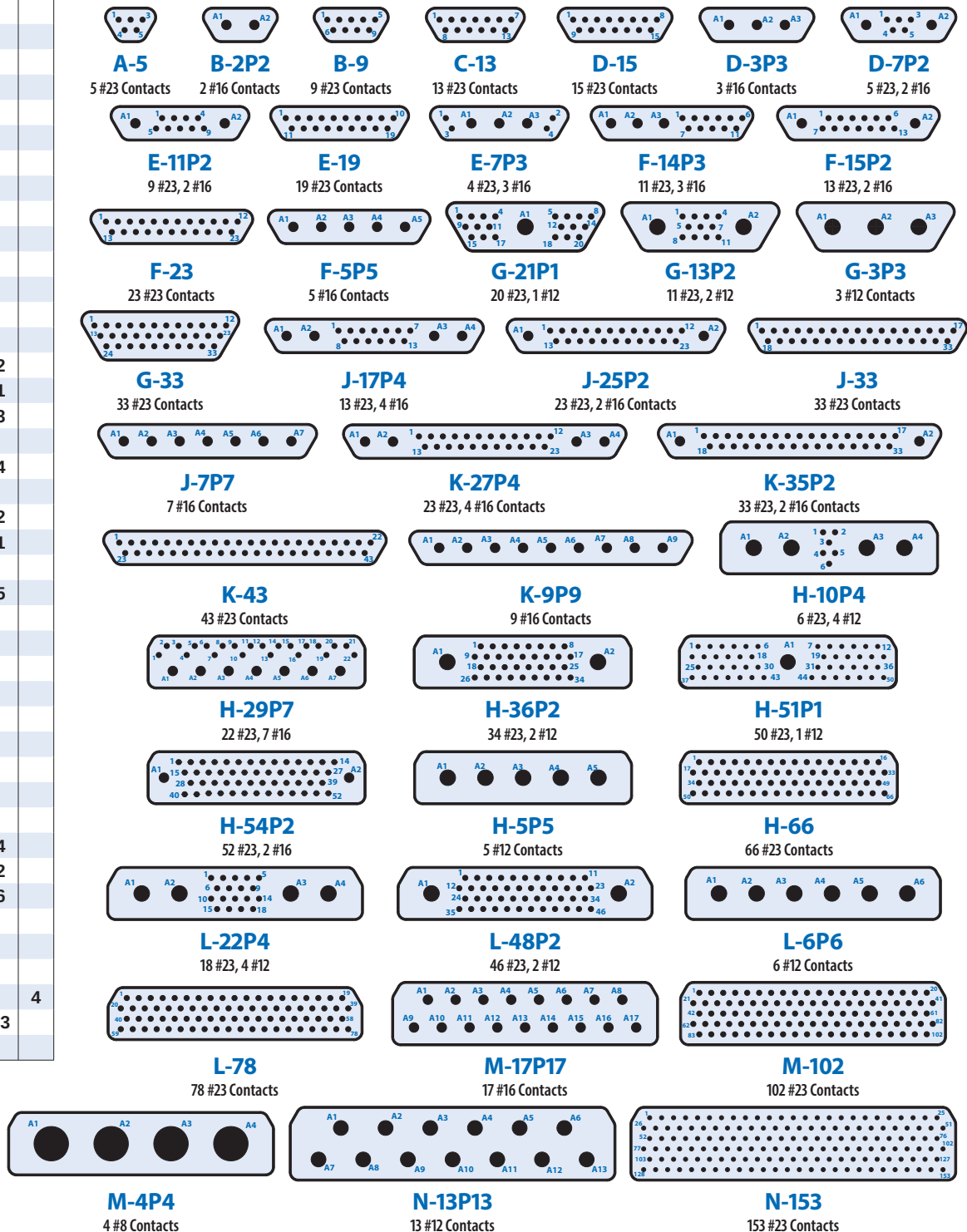
Insert Arrangements

SERIES 790 HIGH-DENSITY

INSERT ARRANGEMENTS				
Insert Arr.	No. of Contacts			
	#23	#16	#12	#8
A-5	5			
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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.



MICRO-CRIMP RECTANGULAR CONNECTORS

Series 790 High-Density



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
Gasket, panel	Cho-Seal 1287 Ag/Al filled fluorosilicone
EMI spring	Stainless steel, gold 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	Contact Size	Current (A)
	#23	5
	#16	13
	#12	23
	#8	46
Operating Temperature	-65 to +150 °C	
Ingress Protection	IP67	
Durability	500 mating cycles	

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

MICRO-CRIMP RECTANGULAR CONNECTORS

Series 790 High-Density



Series 790 Material and Finish Options

SERIES 790 HIGH-DENSITY

The Series 790 Micro-Crimp® 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.

SERIES 790 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.

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.

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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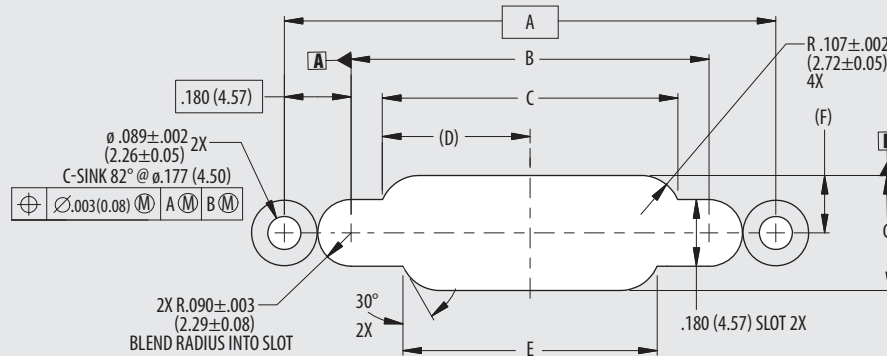
Series 790 High-Density

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Panel Cutouts for Series 790 Panel Mount Connectors

SERIES 790 HIGH-DENSITY

PANEL CUTOUT FOR SERIES 790 PLUG AND RECEPTACLE SIZES A-G, J-K

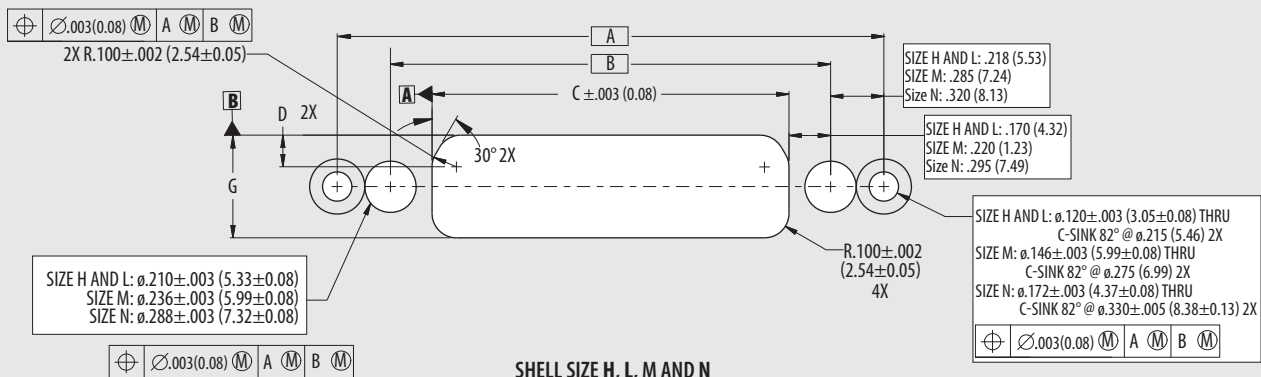


SHELL SIZE A-G, J, AND K

		Shell Size	A Basic		B ± .002 (0.05)		C		D		E		F		G	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
Use this cutout for Series 790 connectors with panel mount flange, shell sizes A–G, J, K	790-026															
	790-027	A	.925	23.50	.565	14.35	.396	10.06	.198	5.03	.286	7.26	.157	3.99	.314	7.98
	790-028	B	1.075	27.31	.715	18.16	.546	13.87	.273	6.93	.436	11.07	.157	3.99	.314	7.98
	790-029	C	1.225	31.12	.865	21.97	.696	17.68	.348	8.84	.586	14.88	.157	3.99	.314	7.98
	790-036	D	1.325	33.66	.965	24.51	.796	20.22	.398	10.11	.686	17.42	.157	3.99	.314	7.98
	790-037	E	1.475	37.47	1.115	28.32	.946	24.03	.473	12.01	.836	21.23	.157	3.99	.314	7.98
	790-091	F	1.625	41.28	1.265	32.13	1.096	27.84	.548	13.92	.986	25.04	.157	3.99	.314	7.98
	797-744	G	1.575	40.01	1.215	30.86	1.086	27.58	.543	13.79	.906	23.01	.203	5.16	.406	10.31
	240-790-028															
	240-790-029	J	1.975	50.17	1.615	41.02	1.448	36.78	.724	18.39	1.345	34.16	.157	3.99	.314	7.98
240-790-071	K	2.375	60.33	2.015	51.18	1.848	46.94	.924	23.47	1.740	44.20	.157	3.99	.314	7.98	
240-790-072																

Use this cutout for Series 790 connectors with panel mount flange, shell sizes A-G, J, K

PANEL CUTOUT FOR SERIES 790 PLUG AND RECEPTACLE SIZES H,L,M,N



SHELL SIZE H, L, M AND N

Use this cutout for Series 790 connectors with panel mount flange, shell sizes H, L, M, N	790-026	797-744	Shell Size	A Basic		B ± .002 (0.05)		C		D		G	
	790-027	240-790-028		in	mm	in	mm	in	mm	in	mm	in	mm
	790-028	240-790-029	H	2.236	63.50	1.800	45.72	1.460	37.08	.129	3.28	.420	10.67
	790-029	240-790-071	L	2.472	69.49	2.036	51.71	1.696	43.08	.166	4.22	.420	10.67
	790-036	240-790-072	M	2.770	78.36	2.200	55.88	1.760	44.70	.156	3.96	.480	12.19
	790-037		N	3.365	85.47	2.725	69.22	2.135	54.23	.162	4.11	.545	13.84
790-091													

Use this cutout for Series 790 connectors with panel mount flange, shell sizes H, L, M, N