

MICRO-CRIMP RECTANGULAR CONNECTORS

Series 790 High-Density

SERIES™
790
HD

790-027 Panel Plug

- ◆ Crimp, rear-release
- ◆ Rear panel mount
- ◆ Socket contacts



Lightweight, harsh environment. 790-027 rear panel mount plug has snap-in, rear-release M39029-type crimp contacts. High-density size 23 contacts are on .075 inch (1.9mm) centers and accept AWG 22-28 wire. Size 16 and size 12 cavities accept power contacts (supplied with connector) or coaxial RF contacts (ordered separately). Conductive fluorosilicone panel gasket provides low resistance panel bonding and ingress protection. Rear grommet provides environmental protection.

- Aerospace-grade microminiature connector with M39029-type crimp contacts
- 42 insert arrangements with up to 153 contacts
- Environmental

INSERT ARRANGEMENTS

FULL COMPLEMENT OF CONTACTS	#8, #12 OR #16 CONTACTS PURCHASED SEPARATELY	No. of Contacts			
		#23	#16	#12	#8
A-5		5			
B-2P2	B-2W2		2		
B-9		9			
C-13		13			
D-15		15			
D-3P3	D-3W3		3		
D-7P2	D-7W2	5	2		
E-11P2	E-11W2	9	2		
E-19		19			
E-7P3	E-7W3	4	3		
F-14P3	F-14W3	11	3		
F-15P2	F-15W2	13	2		
F-23		23			
F-5P5	F-5W5		5		
G-13P2	G-13W2	11		2	
G-21P1	G-21W1	20		1	
G-3P3	G-3W3			3	
G-33		33			
H-10P4	H-10W4	6		4	
H-29P7	H-29W7	22	7		
H-36P2	H-36W2	34		2	
H-51P1	H-51W1	50		1	
H-54P2	H-54W2	52	2		
H-5P5	H-5W5			5	
H-66		66			
J-17P4	J-17W4	13	4		
J-25P2	J-25W2	23	2		
J-33		33			
J-7P7	J-7W7		7		
K-27P4	K-27W4	23	4		
K-35P2	K-35W2	33	2		
K-43		43			
K-9P9	K-9W9		9		
L-22P4	L-22W4	18		4	
L-48P2	L-48W2	46		2	
L-6P6	L-6W6			6	
L-78		78			
M-17P17	M-17W17		17		
M-102		102			
M-4P4	M-4W4				4
N-13P13	N-13W13			13	
N-153		153			

HOW TO ORDER

Sample Part Number

790-027S F-15P2 MT E P

Basic Part Number **790-027S** Panel Plug, Socket Contacts

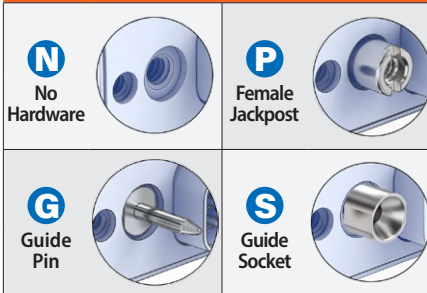
Shell Size-Insert Arr. See "Insert Arrangements" Table

Shell Finish
M Electroless Nickel
MT Nickel / PTFE
NF Olive Drab Cadmium
TZ Tin-Zinc
ZR Black Zinc-Nickel

EMI Spring
E EMI Spring *Shell finishes M and MT only*
N No EMI Spring

Hardware Option Table 1
N No Hardware *Threaded holes*
G Guide Pins *For blind mating*
P Female Jackposts
S Guide Sockets *For blind mating*

TABLE 1 HARDWARE OPTIONS



CONSTRUCTION

- Contacts: Copper alloy, gold over nickel finish
- Shell: Aluminum
- Insulators: High performance thermoplastic
- Wire grommet: Fluorosilicone/silicone blend
- Panel gasket: Cho-Seal 1287 silver-plated aluminum filled fluorosilicone
- Contact retaining clip: Beryllium copper, unplated
- Hardware: Stainless steel

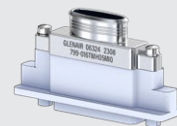
RATINGS

- Voltage (DWV): size 23 contacts 750 VAC, size 8, 12 and 16: 1800 VAC
- Current: #23 5A, #16 13A, #12 23A, #8 46A
- Operating temperature: -65 to +150 °C
- Durability: 500 mating cycles
- Shock: 300 g
- Vibration: 20 g random
- Altitude immersion: 75,000 feet
- Ingress protection: IP67

⚠ 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.

MICRO-CRIMP RECTANGULAR CONNECTORS

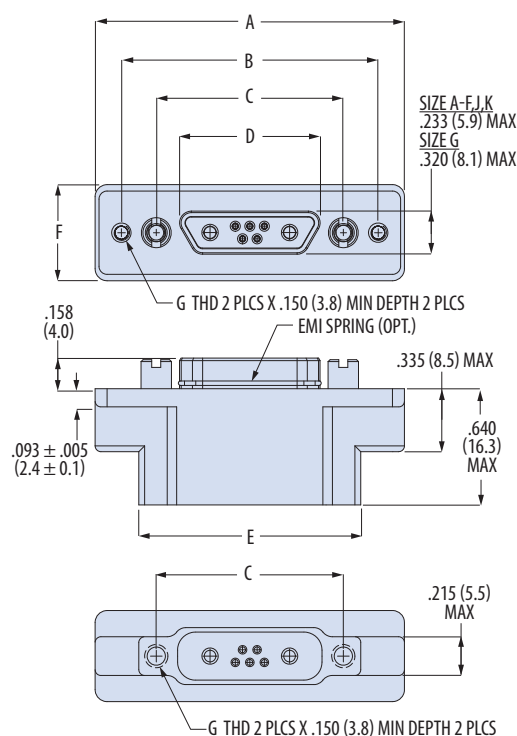
Series 790 High-Density



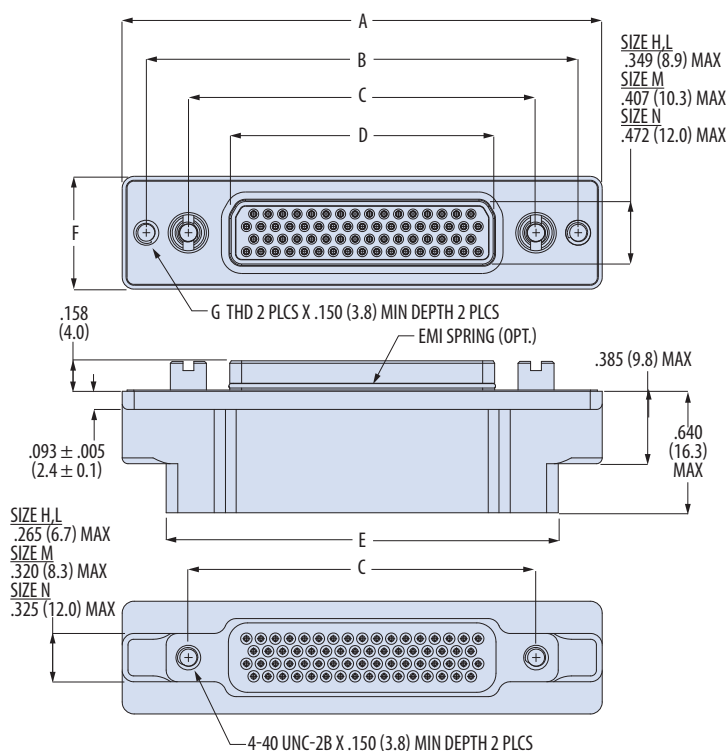
790-027

Panel Plug

- ◆ Crimp, rear-release
- ◆ Rear panel mount
- ◆ Socket contacts



SHELL SIZE A-G, J, K



SHELL SIZE H, L, M, N

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	
A	1.211	30.8	.925	23.5	.565	14.4	.335 8.5 .760 19.3 .485 12.3 2-56
B	1.361	34.6	1.075	27.3	.715	18.2	.485 12.3 .910 23.1 .485 12.3 2-56
C	1.511	38.4	1.225	31.1	.865	22.0	.635 16.1 1.060 26.9 .485 12.3 2-56
D	1.611	40.9	1.325	33.7	.965	24.5	.735 18.7 1.160 29.5 .485 12.3 2-56
E	1.761	44.7	1.475	37.5	1.115	28.3	.885 22.5 1.310 33.3 .485 12.3 2-56
F	1.911	48.5	1.625	41.3	1.265	32.1	1.035 26.3 1.460 37.1 .485 12.3 2-56
G	1.861	47.3	1.575	40.0	1.215	30.9	1.010 25.7 1.410 35.8 .575 14.6 2-56
H	2.500	63.5	2.236	56.8	1.800	45.7	1.385 35.2 2.045 51.9 .600 15.2 4-40
J	2.261	57.4	1.975	50.2	1.615	41.0	1.390 35.3 1.810 46.0 .485 12.3 2-56
K	2.661	67.6	2.375	60.3	2.015	51.2	1.795 45.6 2.210 56.1 .485 12.3 2-56
L	2.736	69.5	2.472	62.8	2.036	51.7	1.623 41.2 2.281 57.9 .600 15.2 4-40
M	3.085	78.4	2.770	70.4	2.200	55.9	1.675 42.5 2.485 63.1 .660 16.8 6-32
N	3.740	95.0	3.365	85.5	2.725	69.2	2.050 52.1 2.645 67.2 .724 18.4 8-32

CRIMP CONTACTS AND TOOLS

Contacts are bulk packed with connector. Spare contacts are not included with connector and are ordered separately if required. See "Contacts and Tools" section for additional information.

Contact Size	Socket Contact Part No.	AWG Wire Size	Installing and Removal Tool	Tool	Crimp Tools	Die Assembly
23	809-002	22 - 28	809-088	809-015	809-005	—
16	857-448-16	16 - 20	809-131	809-136	809-137	—
12	857-448-12	12 - 14	809-132	809-136	809-137	—
8	850-138F	8	859-049	859-025	859-046	859-026

HARDWARE DETAILS

N No Hardware Tapped holes. Size A-G, J, K = 4-40, H, L = 6-32, M = 8-32, N = 10-32. .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, N = 8-32.
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.

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)

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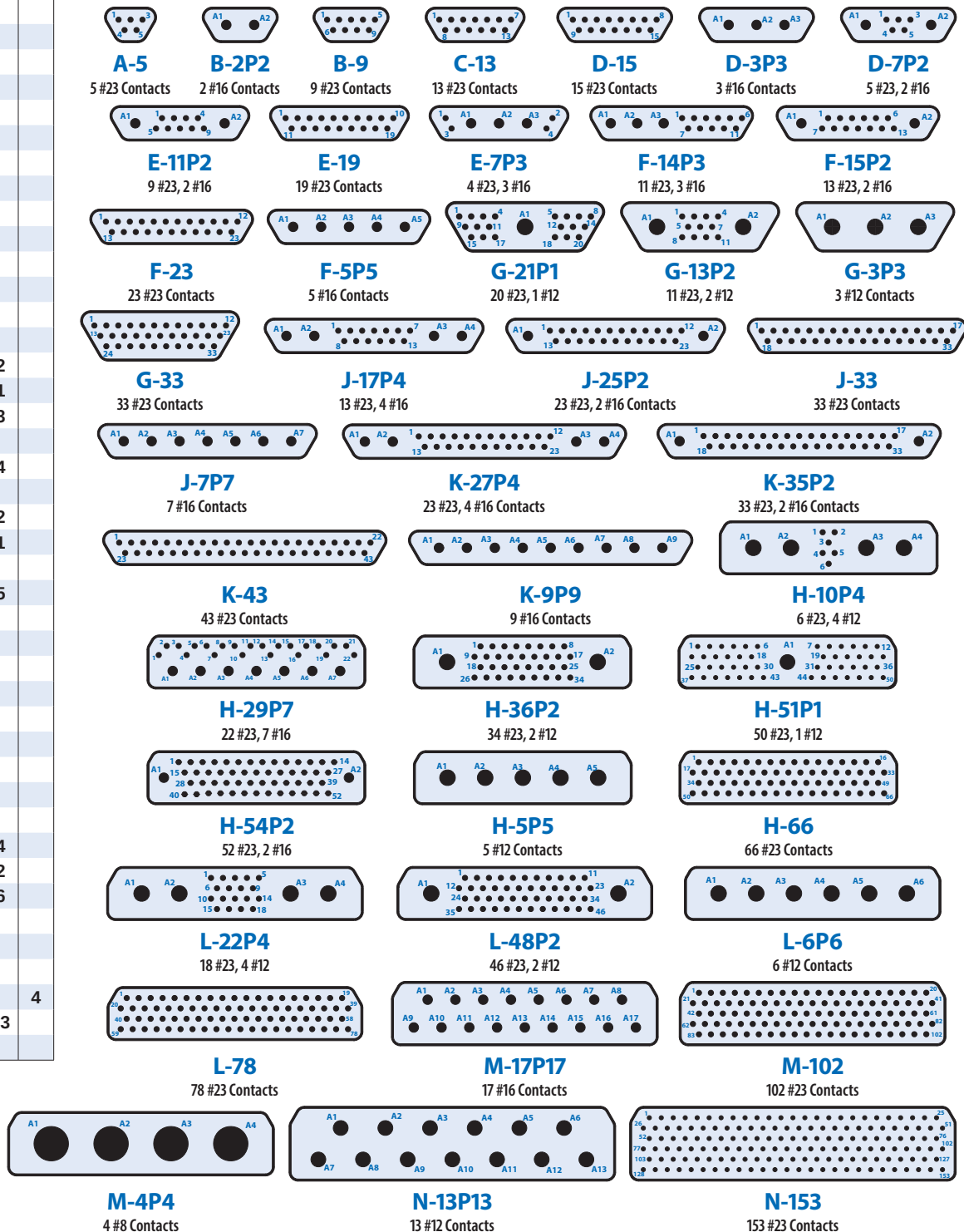
Insert Arrangements

SERIES 790 HIGH-DENSITY

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.



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

MICRO-CRIMP RECTANGULAR CONNECTORS

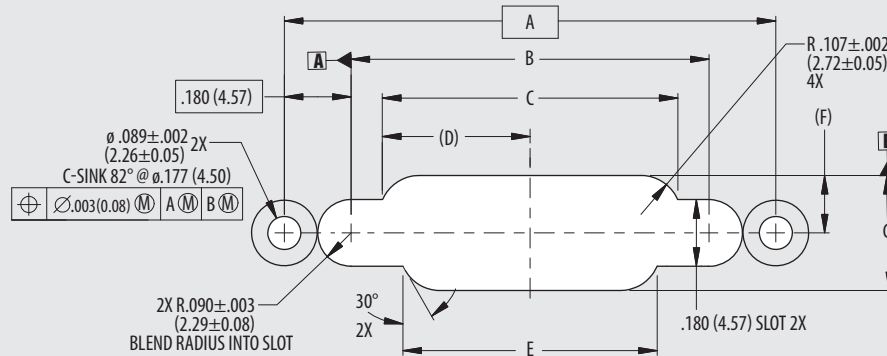
Series 790 High-Density

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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

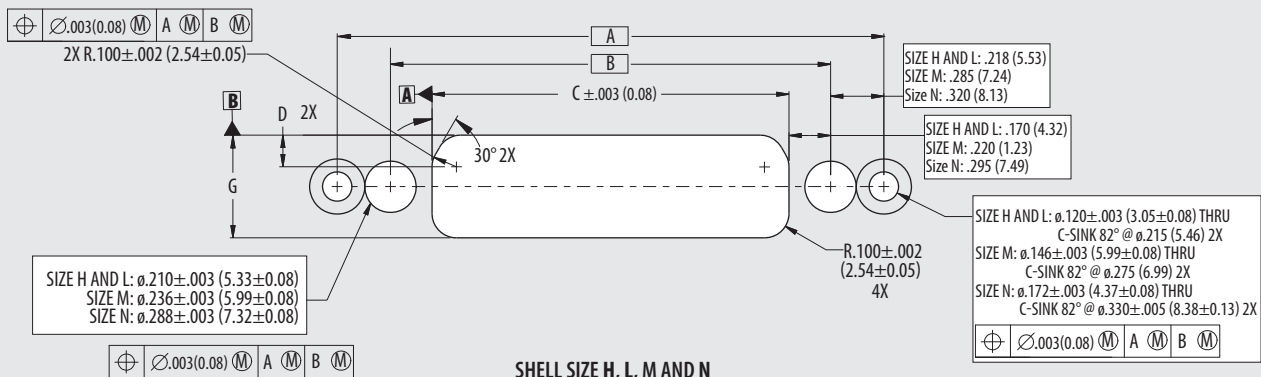


SHELL SIZE A-G, J, AND K

		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