

MICRO-CRIMP RECTANGULAR CONNECTORS

Series 790 High-Density

SERIES™
790
HD

790-050

Float Mount Receptacle

- ◆ Crimp, rear-release
- ◆ Float mount blind mate
- ◆ Pin contacts



Lightweight, harsh environment. 790-050 float mount receptacle has snap-in, rear-release M39029-type crimp contacts. Machined aluminum shell has stainless steel float bushings. 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). Rear grommet and face seal provide environmental protection. Shell has rear threads for attaching EMI banding adapter.

- Aerospace-grade microminiature rectangular connector with M39029-type crimp contacts
- Float mount bushings for blind mate rack-to-panel applications
- 40 insert arrangements with up to 102 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

HOW TO ORDER

Sample Part Number		790-050P	L-22P4	M	S
Basic Part Number	790-050P Cable Receptacle, Float Mount Blind Mate, Pin Contacts				
Shell Size-Insert Arr.	See <i>“Insert Arrangements”</i> Table				
Shell Finish	M Electroless Nickel MT Nickel / PTFE NF Olive Drab Cadmium TZ Tin-Zinc ZR Black Zinc-Nickel				
Hardware Option <i>Table 1</i>	N No Hardware <i>Threaded holes</i> G Guide Pins <i>For blind mating</i> S Guide Sockets <i>For blind mating</i>				

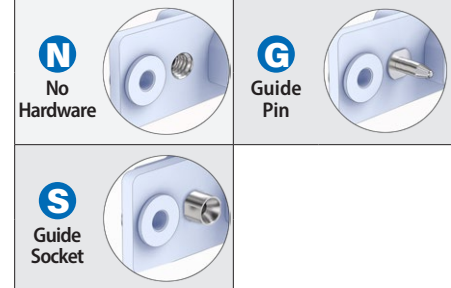
CONSTRUCTION

- Contacts: Copper alloy, gold over nickel finish
- Shell: Aluminum
- Insulators: High performance thermoplastic
- Wire grommet, face seal: Fluorosilicone/silicone blend
- 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

TABLE 1 HARDWARE OPTIONS



Application Note

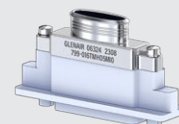
Panel Cutouts

See page A-61 for recommended panel cutout dimensions for Series 790 float mount connectors.

Application Note

EMI Banding Backshell 799-016

See page F-32 for backshell ordering information.



MICRO-CRIMP RECTANGULAR CONNECTORS

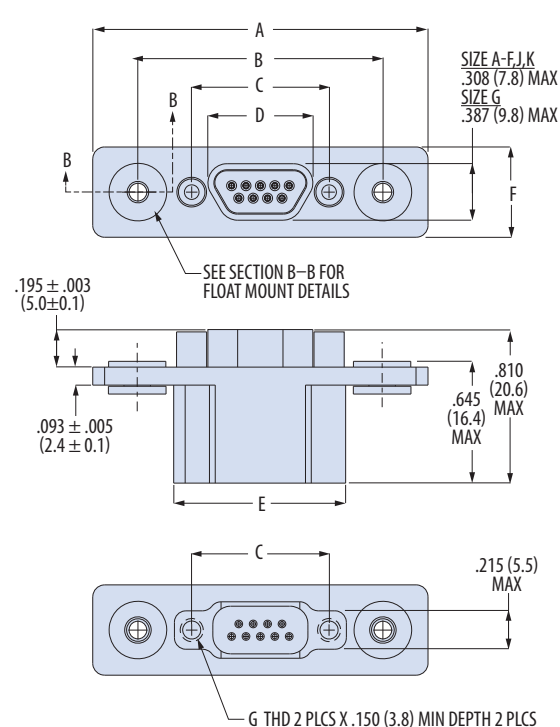
Series 790 High-Density



790-050

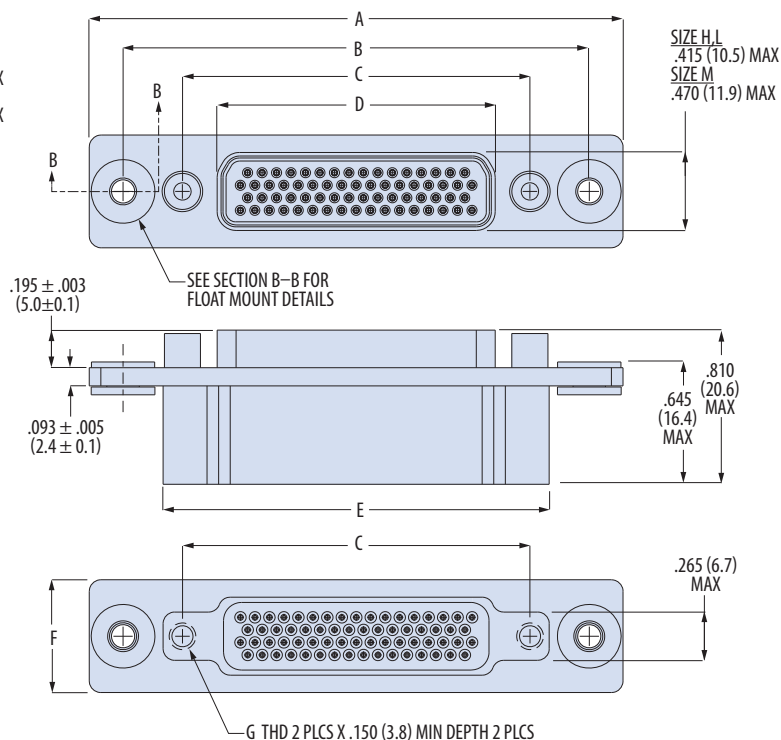
Float Mount Receptacle

- ◆ Crimp, rear-release
- ◆ Float mount blind mate
- ◆ Pin contacts



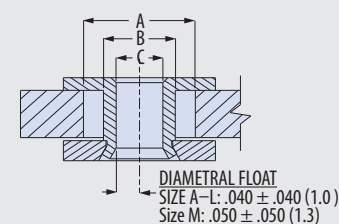
SHELL SIZE A-G, J, K

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	1.600	40.6	1.125	28.6	.565	14.4	.401 10.2
B	1.750	44.5	1.275	32.4	.715	18.2	.551 14.0
C	1.900	48.3	1.425	36.2	.865	22.0	.701 17.8
D	2.000	50.8	1.525	38.7	.965	24.5	.801 20.3
E	2.150	54.6	1.675	42.5	1.115	28.3	.951 24.2
F	2.300	58.4	1.825	46.4	1.265	32.1	1.101 28.0
G	2.250	57.2	1.775	45.1	1.215	30.9	1.079 27.4
H	2.780	70.6	2.415	61.3	1.800	45.7	1.450 36.8
J	2.650	67.3	2.175	55.2	1.615	41.0	1.456 37.1
K	3.050	77.5	2.575	65.4	2.015	51.2	1.860 47.2
L	3.016	76.6	2.651	67.3	2.036	51.7	1.686 42.8
M	3.330	84.6	2.910	73.9	2.200	55.9	1.745 44.3



SHELL SIZE H, L, M

SECTION B-B



Shell Size	A Max		B		C	
	in	mm	in	mm	in	mm
A-G, J,K	.218	5.5	.138	3.5	.093	2.4
H, L	.250	6.4	.170	4.3	.120	3.0
M	.270	6.9	.170	4.3	.120	3.0

CRIMP CONTACTS AND TOOLS

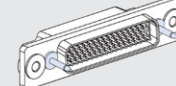
Contacts are bulk packed with connector. Spare contacts are not included with connector and are ordered separately if required. See "Contacts and Tools" section for additional information.

Contact Size	Pin Contact Part No.	AWG Wire Size	Installing and Removal Tool	Tool	Crimp Tools Positioner	Die Assembly
23	809-001	22 - 28	809-088	809-015 (M22520/2-01)	809-005 (K1461)	—
16	809-110	16 - 20	809-131 (M81969/14-03)	809-136 (M22520/1-01)	809-137 (M22520/1-04)	—
12	809-112	12 - 14	809-132 (M81969/14-04)	809-136 (M22520/1-01)	809-137 (M22520/1-04)	—
8	850-014F	8	859-049 (M81969/14-12)	859-025 (M22520/23-01)	859-046 (WA23-395L)	859-026 (M22520/23-02)

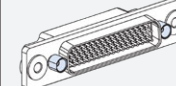
HARDWARE DETAILS



N No Hardware
Tapped holes. Size A-G, J, K = 4-40, H, L = 6-32, M = 8-32. .150 (3.8) min. depth



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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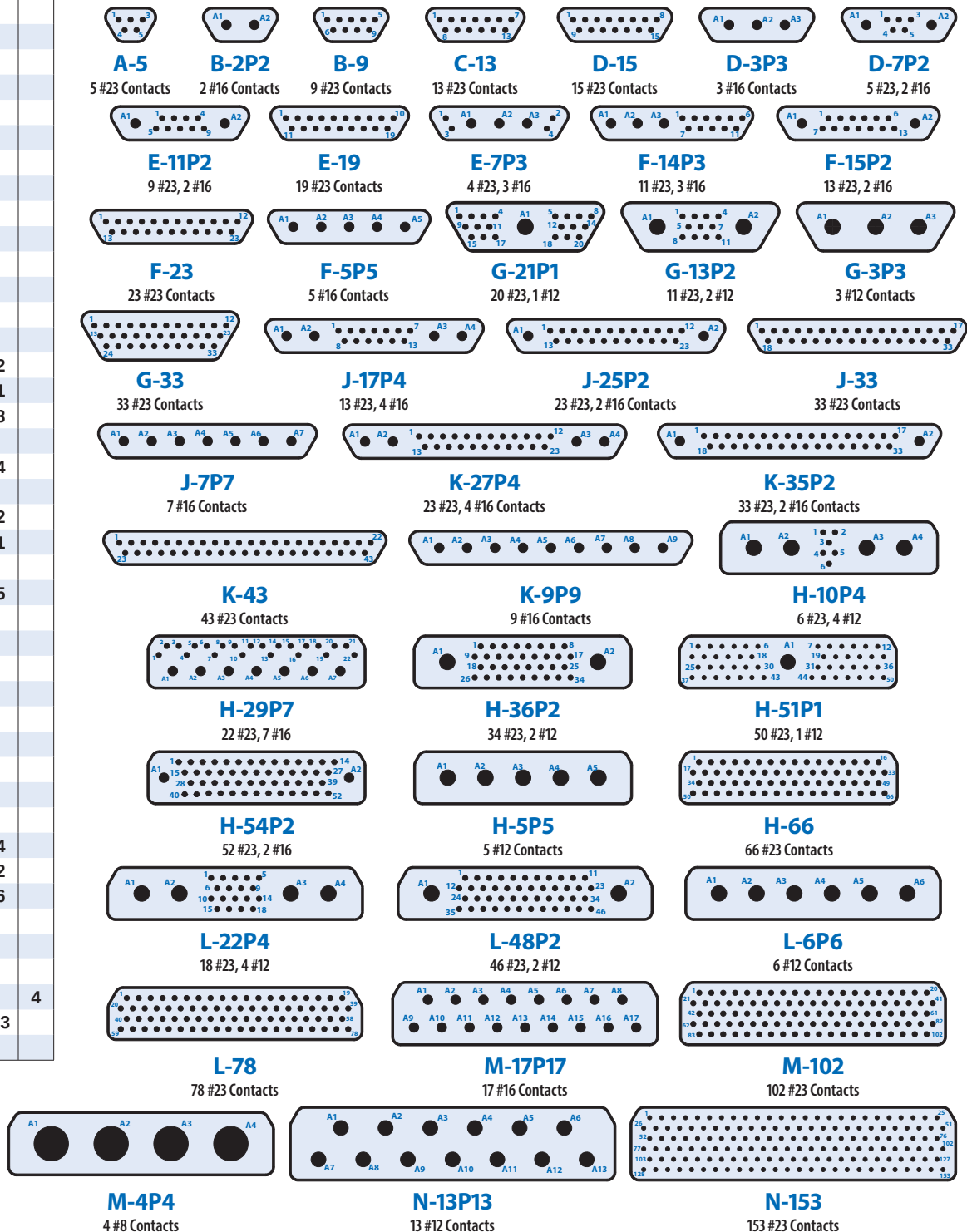
Insert Arrangements

SERIES 790 HIGH-DENSITY

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

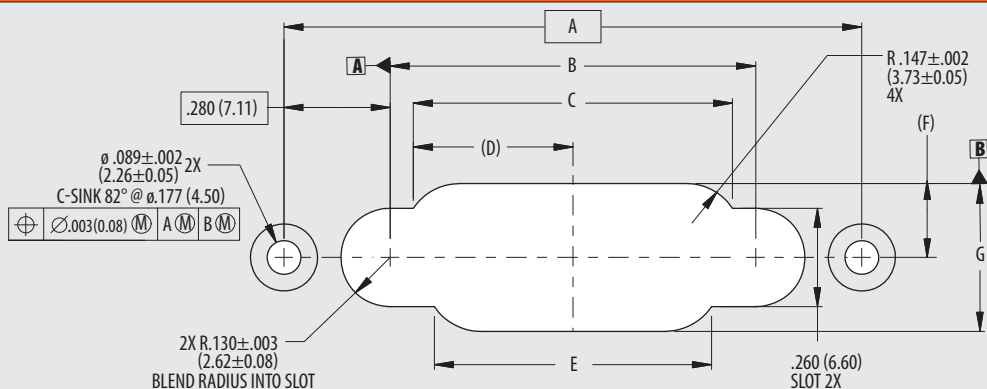
MICRO-CRIMP RECTANGULAR CONNECTORS

Series 790 High-Density



Panel Cutouts for Series 790 Float Mount Connectors

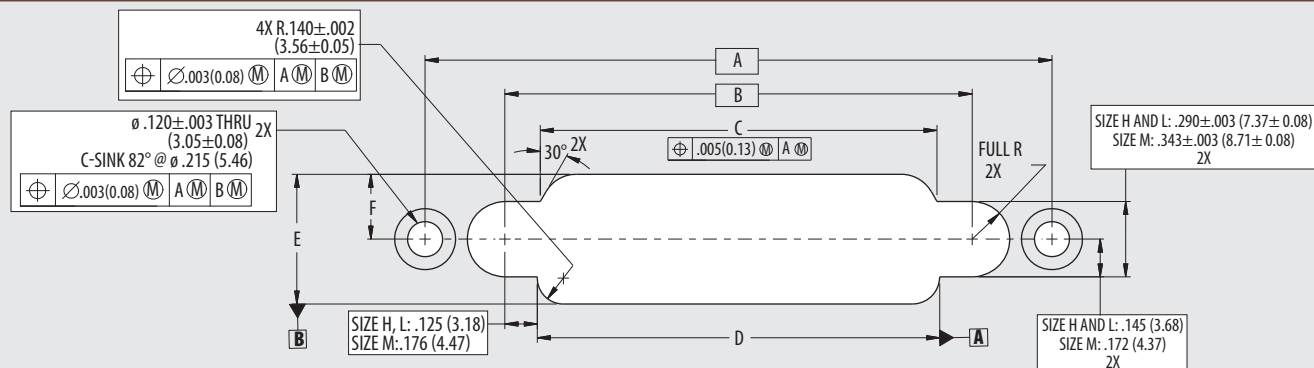
PANEL CUTOUT FOR SERIES 790 FLOAT MOUNT PLUG AND RECEPTACLE SIZES A-G, J-K



PANEL CUTOUT FOR 790-049 AND 790-050 FLOAT MOUNT CONNECTORS
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 float mount flange, shell sizes A-G, J, K: 790-049 790-050	A	1.125	28.58	.565	14.35	.442	11.23	.221	5.61	.332	8.43	.197	5.00	.394	10.01
	B	1.275	32.39	.715	18.16	.592	15.04	.296	7.52	.482	12.24	.197	5.00	.394	10.01
	C	1.425	36.20	.865	21.97	.742	18.85	.371	9.42	.632	16.05	.197	5.00	.394	10.01
	D	1.525	38.74	.965	24.51	.842	21.39	.421	10.69	.730	18.54	.197	5.00	.394	10.01
	E	1.675	42.55	1.115	28.32	.992	25.20	.496	12.60	.880	22.35	.197	5.00	.394	10.01
	F	1.825	46.36	1.265	32.13	1.142	29.01	.571	14.50	1.030	26.16	.197	5.00	.394	10.01
	G	1.775	45.09	1.215	30.86	1.158	29.41	.579	14.71	.952	24.18	.243	6.17	.486	12.34
	J	2.175	55.25	1.615	41.02	1.492	37.90	.746	18.95	1.380	35.05	.197	5.00	.394	10.01
	K	2.575	65.41	2.015	51.18	1.892	48.06	.946	24.03	1.780	45.21	.197	5.00	.394	10.01

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



PANEL CUTOUT FOR 790-049 AND 790-050 FLOAT MOUNT CONNECTORS
SHELL SIZE H, L, AND M

	Shell Size	A Basic		B Basic		C ± .003 (0.08)		D ± .003 (0.08)		E ± .003 (0.08)		F	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
Use this cutout for Series 790 connectors with float mount flange, shell sizes H, L, M: 790-049 790-050	H	2.415	61.34	1.800	45.72	1.528	38.81	1.550	39.37	.500	12.70	.250	6.35
	L	2.651	67.34	2.036	51.71	1.764	44.81	1.786	45.36	.500	12.70	.250	6.35
	M	2.910	73.91	2.200	55.88	1.793	45.54	1.848	46.94	.580	14.73	.290	7.37