

MIL-DTL-38999 Series III Type

233-284 Bulkhead feed-thru with thermocouple contacts

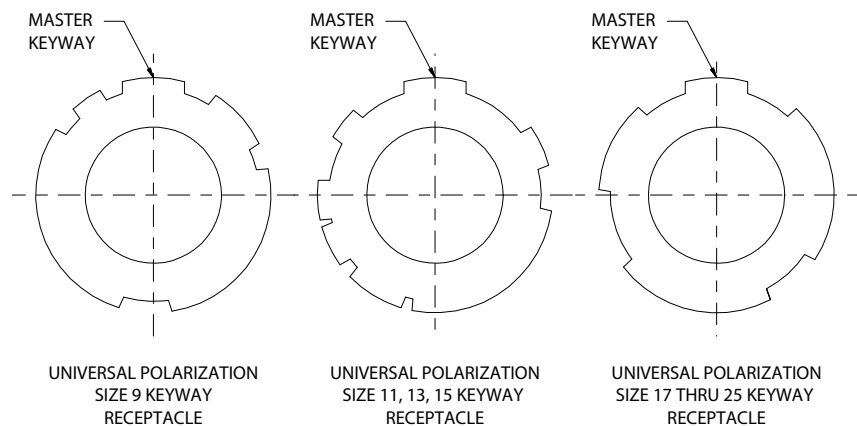
HERMETIC CONNECTORS

Part Number Development												
Sample Part Number	233-284				-H7	Z1	17	-35	K	1	N	-02
Series / Basic Part No.	Series 23 SuperNine Bulkhead Feed-thru											
Connector Style	H2 = Box Mount H7 = Jam-Nut Mount DH7 = Jam-Nut Mount (dual o-ring) H8 = Weld Mount											
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish											
Shell Size	Per MIL-DTL-38999											
Arrangement	Per MIL-STD-1560											
Contact Style	E, J, K, T; T/C Type per table, Pin-Pin only											
Pairs of T/C	See note 4											
Broach Position*	A, B, C, D, E, N = Normal; see section A for key position details											
Panel Thickness	-01 = .125/.062 -02 = .250/.062 -03 = .500/.062; See Panel Thickness Table											

Contact Types			
T/C Types	Positive Legs	Negative Legs	Application Range (°F) ⁵
E	Chromel	Constantan	200° to 1650°
J	Iron	Constantan	200° to 1400°
K	Chromel	Alumel	200° to 2300°
T	Copper	Constantan	-330° to 660°

DWV Voltage Levels at Sea Level	
Service Rating	Voltage AC RMS 60Hz
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

UNIVERSAL POLARIZATION CONFIGURATION



Material/Finish

- Shell and jam-nut: Z1 = 300 Series CRES/Passivated, ZL = 300 Series CRES/nickel plated
- Contact, pins thermocouple = per P/N development/JP=cadmium; TP=gold flash; balance=none; non-thermocouple=nickel alloy/gold plated
- Insulator, hermetic = Fused vitreous glass/none
- Spacers, pins: rigid dielectric/none
- Seals & o-rings: fluorosilicone/none

NOTES

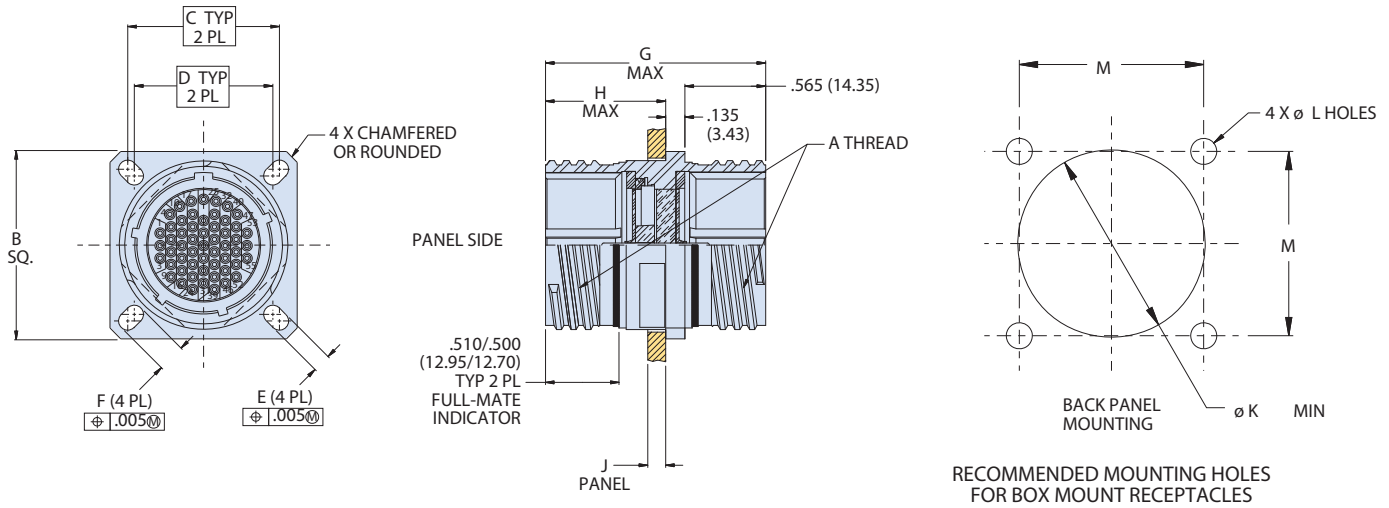
1. Hermeticity: $<1 \times 10^{-7}$ ccHe/sec @ 1 atmosphere delta pressure
2. IR: 5000 MegOhms min @ 500 VDC
3. DWV: Per DWV Voltage at Sea Level table
4. All thermocouple contact pairs will begin at contact #1 (A) as "+", and 2 (B) as "-". Each additional pair of thermocouple contacts will repeat sequentially I.E.: 1&2 (A&B); 3&4 (C&D), etc
5. Application range is for thermocouple, not the connector. Connector temp range is -85 to 392°F
6. Glenair 233-284-H7 is designed to mate to any QPL D38999/26 plug with same shell size, arrangement, polarization, and opposite (socket) contact gender
7. Glenair 233-284-H7 is available as pin-to-pin only

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HERMETIC CONNECTORS

233-284-H2 DUAL O-RING, JAM-NUT FEED-THRU CONNECTOR



RECOMMENDED MOUNTING HOLES FOR BOX MOUNT RECEPTACLES

Dual O-ring, Jam-nut Feed-thru Connector Dimensions						
SHELL SIZE	A THREAD	B SQ.	C BSC	D BSC	E	F
9	.6250-.1P-.3L-TS-2A	0.949 (24.10) 0.925 (23.50)	0.719 (18.26)	0.594 (15.09)	0.136 (3.45) 0.120 (3.05)	0.224 (5.69) 0.208 (5.28)
11	.7500-.1P-.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	0.812 (20.62)	0.719 (18.26)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
13	.8750-.1P-.3L-TS-2A	1.138 (28.91) 1.114 (28.30)	0.906 (23.01)	0.812 (20.62)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
15	1.0000-.1P-.3L-TS-2A	1.232 (31.29) 1.208 (30.68)	0.969 (24.61)	0.906 (23.01)	0.136 (3.45) 0.120 (3.05)	0.181 (4.60) 0.165 (4.19)
17	1.1875-.1P-.3L-TS-2A	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	0.969 (24.61)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
19	1.2500-.1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
21	1.3750-.1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
23	1.5000-.1P-.3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	0.162 (4.11) 0.146 (3.71)	0.250 (6.35) 0.234 (5.94)
25	1.6250-.1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	0.162 (4.11) 0.146 (3.71)	0.250 (6.35) 0.234 (5.94)

Panel Cut-Out Dimensions			
SHELL SIZE	ø K MIN	ø L HOLES	M
9	0.656 (16.66)	0.133 (3.38) 0.123 (3.12)	0.724 (18.39) 0.714 (18.14)
11	0.781 (19.84)	0.133 (3.38) 0.123 (3.12)	0.817 (20.75) 0.807 (20.50)
13	0.921 (23.39)	0.133 (3.38) 0.123 (3.12)	0.911 (23.14) 0.901 (22.89)
15	1.047 (26.59)	0.133 (3.38) 0.123 (3.12)	0.973 (24.71) 0.963 (24.46)
17	1.218 (30.94)	0.133 (3.38) 0.123 (3.12)	1.067 (27.10) 1.057 (26.85)
19	1.296 (32.92)	0.133 (3.38) 0.123 (3.12)	1.161 (29.49) 1.151 (29.24)
21	1.421 (36.09)	0.133 (3.38) 0.123 (3.12)	1.255 (31.88) 1.245 (31.62)
23	1.546 (39.27)	0.159 (4.04) 0.149 (3.78)	1.380 (35.05) 1.370 (34.80)
25	1.672 (42.47)	0.159 (4.04) 0.149 (3.78)	1.505 (38.23) 1.495 (37.97)

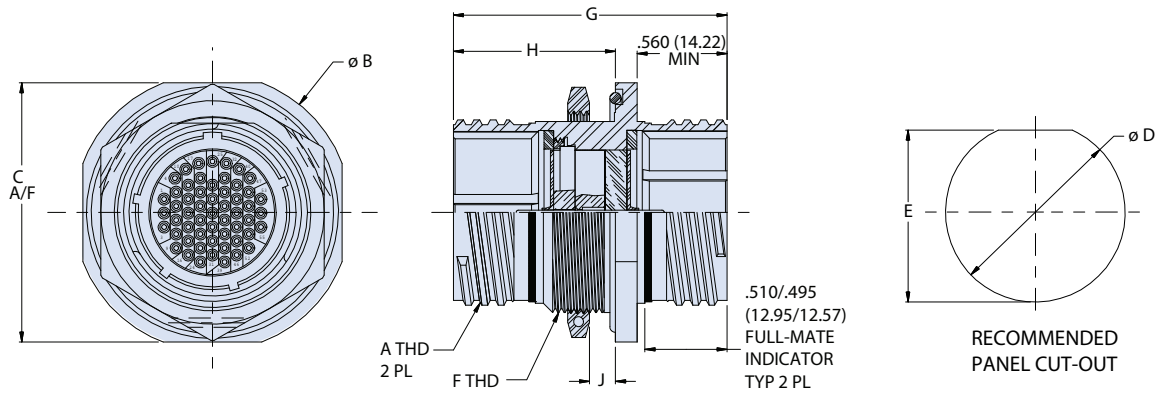
Panel Thickness			
Code	G DIM, OAL	H DIM, MAX	J DIM, PANEL
-01	1.670 (42.42) MAX	0.960 (24.38)	.250/.062 (6.35/ 1.57)
-02	1.780 (45.21) MAX	1.090 (27.69)	.375/.062 (9.52/ 1.57)
-03	2.030 (51.56) MAX	1.340 (34.04)	.625/.062 (15.88/ 1.57)

MIL-DTL-38999 Series III Type

233-284 Bulkhead feed-thru with thermocouple contacts

HERMETIC CONNECTORS

233-284-H7 JAM-NUT FEED-THRU CONNECTOR



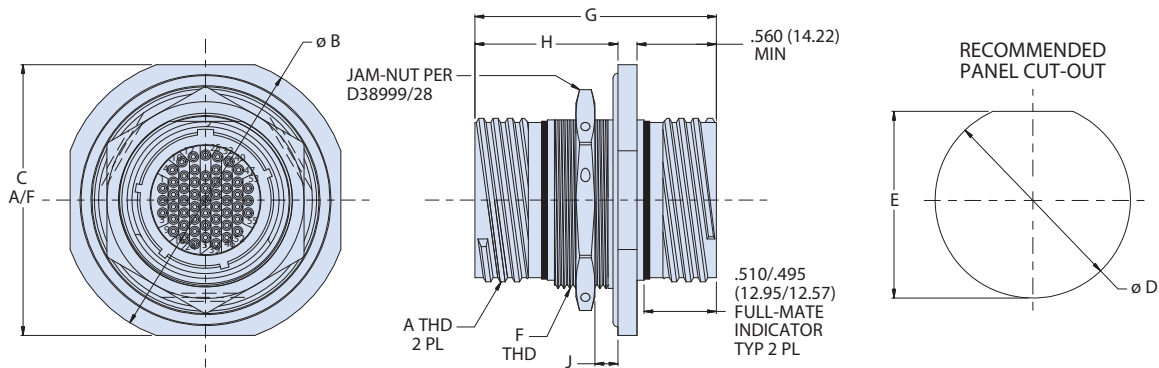
Dimensions						
SHELL SIZE	A THREAD 0.1P-0.3L-TS-2	B DIA	C	D DIA	E DIM	F THREAD METRIC
9	0.6250	1.189 (30.20)	1.063 (27.00)	.703 (17.86) .693 (17.60)	.661 (16.79) .655 (16.64)	M17 X 1.0-6g
11	0.7500	1.375 (34.92)	1.252 (31.80)	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	M20 X 1.0-6g
13	0.8750	1.500 (38.10)	1.374 (34.90)	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)	M25 X 1.0-6g
15	1.0000	1.626 (41.30)	1.500 (38.10)	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	M28 X 1.0-6g
17	1.1875	1.752 (44.50)	1.626 (41.30)	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)	M32 X 1.0-6g
19	1.2500	1.937 (49.20)	1.811 (46.00)	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)	M35 X 1.0-6g
21	1.3750	2.063 (52.40)	1.937 (49.20)	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)	M38 X 1.0-6g
23	1.5000	2.189 (55.60)	2.063 (52.40)	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)	M41 X 1.0-6g
25	1.6250	2.311 (58.70)	2.189 (55.60)	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)	M44 X 1.0-6g

Panel Thickness			
Code	G DIM, OAL	H DIM, MAX	J DIM, PANEL
-01	1.600 (40.64)	.843 (21.41)	.125/.062 (3.17/1.57)
-02	1.730 (43.94)	1.040 (26.42)	.250/.062 (6.35/1.57)
-03	2.000 (50.80)	1.290 (32.77)	.500/.062 (12.70/1.57)

MIL-DTL-38999 Series III Type

233-284 Bulkhead feed-thru with thermocouple contacts

233-284-DH7 DUAL O-RING, JAM-NUT FEED-THRU CONNECTOR



Dimensions						
SHELL SIZE	A THREAD .1P-.3L-TS-2A	ø B MAX	C MAX	Panel Cut-out Dimensions		F THREAD METRIC 0.100R
				ø D	E DIM	
9	0.6250	1.500 (38.10)	1.375 (34.92)	.703 (17.86) .693 (17.60)	.661 (16.79) .655 (16.64)	M17 X 1.0-6g
11	0.7500	1.625 (41.28)	1.500 (38.10)	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	M20 X 1.0-6g
13	0.8750	1.752 (44.50)	1.626 (41.30)	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)	M25 X 1.0-6g
15	1.0000	1.937 (49.20)	1.811 (46.00)	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	M28 X 1.0-6g
17	1.1875	2.063 (52.40)	1.937 (49.20)	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)	M32 X 1.0-6g ⁶
19	1.2500	2.189 (55.60)	2.063 (52.40)	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)	M35 X 1.0-6g
21	1.3750	2.311 (58.70)	2.189 (55.60)	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)	M38 X 1.0-6g
23	1.5000	2.500 (63.50)	2.300 (58.42)	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)	M41 X 1.0-6g
25	1.6250	2.625 (66.68)	2.400 (60.96)	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)	M44 X 1.0-6g

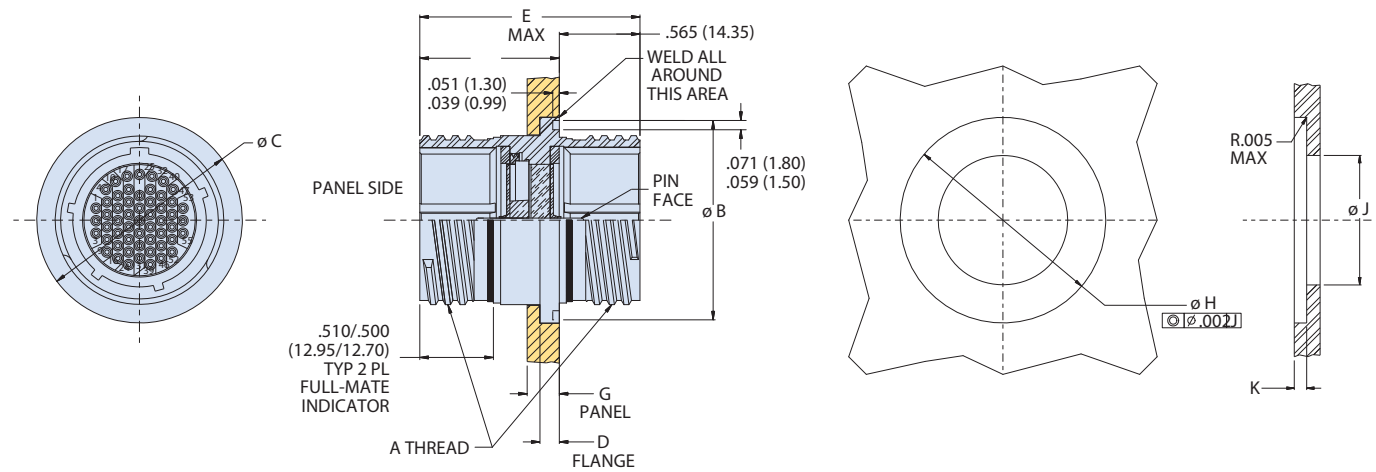
Panel Thickness			
Code	G DIM, OAL	H DIM, MAX	J DIM, PANEL
-01	1.670 (42.42) MAX	0.980 (24.89)	.125/.062 (3.17/ 1.57)
-02	1.780 (45.21) MAX	1.090 (27.69)	.250/.062 (6.35/ 1.57)
-03	2.030 (51.56) MAX	1.340 (34.04)	.500/.062 (12.70/ 1.57)

MIL-DTL-38999 Series III Type

233-284 Bulkhead feed-thru with thermocouple contacts

HERMETIC CONNECTORS

233-284-H8 WELD MOUNT FEED-THRU CONNECTOR



Dimensions					
SHELL SIZE CODE	SHELL SIZE	A THREAD	ø B	ø C	D
A	9	.6250-.1P-.3L-TS-2A	0.941 (23.90) 0.929 (23.60)	0.984 (24.99) 0.972 (24.69)	0.134 (3.40) 0.118 (3.00)
B	11	.7500-.1P-.3L-TS-2A	1.063 (27.00) 1.051 (26.70)	1.106 (28.09) 1.094 (27.79)	0.134 (3.40) 0.118 (3.00)
C	13	.8750-.1P-.3L-TS-2A	1.189 (30.20) 1.177 (29.90)	1.232 (31.29) 1.220 (30.99)	0.134 (3.40) 0.118 (3.00)
D	15	1.0000-.1P-.3L-TS-2A	1.315 (33.40) 1.303 (33.10)	1.358 (34.49) 1.346 (34.19)	0.134 (3.40) 0.118 (3.00)
E	17	1.1875-.1P-.3L-TS-2A	1.402 (35.61) 1.390 (35.31)	1.445 (36.70) 1.433 (36.40)	0.134 (3.40) 0.118 (3.00)
F	19	1.2500-.1P-.3L-TS-2A	1.547 (39.29) 1.535 (38.99)	1.591 (40.41) 1.579 (40.11)	0.134 (3.40) 0.118 (3.00)
G	21	1.3750-.1P-.3L-TS-2A	1.689 (42.90) 1.677 (42.60)	1.732 (43.99) 1.720 (43.69)	0.134 (3.40) 0.118 (3.00)
H	23	1.5000-.1P-.3L-TS-2A	1.854 (47.09) 1.842 (46.79)	1.898 (48.21) 1.886 (47.90)	0.165 (4.19) 0.149 (3.78)
J	25	1.6250-.1P-.3L-TS-2A	1.941 (49.30) 1.929 (49.00)	1.984 (50.39) 1.972 (50.09)	0.165 (4.19) 0.149 (3.78)

Recommended Panel Cutout			
SHELL SIZE	ø H	ø J ±.005 (0.13)	DEPTH K ±.005 (0.13)
9	.990 (25.15) .985 (25.02)	0.635 (16.13)	0.126 (3.20)
11	1.112 (28.24) 1.107 (28.12)	0.760 (19.30)	0.126 (3.20)
13	1.238 (31.45) 1.233 (31.32)	0.885 (22.48)	0.126 (3.20)
15	1.364 (34.65) 1.359 (34.52)	1.010 (25.65)	0.126 (3.20)
17	1.451 (36.86) 1.446 (36.73)	1.195 (30.35)	0.126 (3.20)
19	1.597 (40.56) 1.592 (40.44)	1.260 (32.00)	0.126 (3.20)
21	1.738 (44.15) 1.733 (44.02)	1.385 (35.18)	0.126 (3.20)
23	1.894 (48.11) 1.899 (48.23)	1.510 (38.35)	0.157 (3.99)
25	1.990 (50.55) 1.985 (50.42)	1.635 (41.53)	0.157 (3.99)

Panel Thickness			
Code	E Dim, OAL	F Dim, Max	G Dim, Panel
-01	1.670 (42.42) Max	1.090 (27.69)	.510/.175
-02	1.780 (45.21) Max	1.200 (30.48)	.625/.175
-03	2.030 (51.56) Max	1.450 (36.83)	.870/.175