

MIL-DTL-38999 Series III Type Environmental Connectors

233-225 dual flange receptacle with PC tail contacts

HIGH-SPEED CONNECTORS

Part Number Development	
Sample Part Number	233-225 -00 NF 17 E - 2 P N
Series / Basic Part	SuperNine® High-Speed, dual flange wall-mount receptacle
Connector Style*	-07 = Receptacle, Jam-Nut with Standard Standoff Thread -17 = Receptacle, Jam-Nut, with Metric Standoff Thread -00 = Receptacle, Wall-Mount with Slotted Holes and Stand Off with Standard Threads -10 = Receptacle, Wall-Mount with Slotted Holes and Stand Off with Metric Threads -CM = Receptacle, Wall-Mount with Metric Clinch Nuts -CS = Receptacle, Wall Mount with Standard Clinch Nuts -HM = Receptacle, Wall Mount with Metric Helicoils -HS = Receptacle, Wall Mount with Standard Helicoils
Material/Finish	NF = Cadmium Olive Drab MT = Nickel PTFE ME = Electroless Nickel ZR = Black Zinc Nickel
Shell Size	9, 11, 13, 17, 19, 21, 23, 25
Contact Type (See Table I)	C = Coax, 50 ohm ¹ C1 = Coax, 75 ohm ¹ D = Differential Twinax E = El Ochito ⁷ P = Power Q = Quadrax T = Triax/Concentric Twinax Omit = Per MIL-STD-1560 PCB footprints on pgs. C-15 thru C-17
Ground Option	G = Common Ground - = None
Insert Arrangement	Per MIL-STD-1560, see page C-5 and C-6
Contact Style	P = Pin, PC Tail S = Socket, PC Tail
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)

*Refer to Section A for alternate key polarization options and recommended panel cutout dimensions

Table I: Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, diff. twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

PC Tail Diameter	
Contact Size	PC Tail ØV
No. 22	.020 (0.51) .018 (0.46)
No. 20	.030 (0.76) .028 (0.71)
No. 16	.040 (1.02) .038 (0.97)
No. 12	.072 (1.78) .070 (1.78)
No. 8	.182 (4.62) .178 (4.52)

* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

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233-225 dual flange receptacle with PC tail contacts

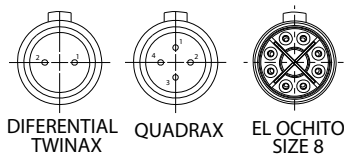


Example Code E7



Example Code E5

FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY



NOTES

- Coax contact mating interfaces in accordance with the following:
 - Size #16 per M39029/76 & /77
 - Size #12 per M39029/102 & /103
 - Size #8, 50 ohm per M39029/50 & /60
- Ground plane option only available for insert arrangements where all contacts are shielded type.
- See page C-4, figure 2 for reference orientation of the inner pins relative to connector main keyway
- Glenair 233-225 wall mount (/20) and jam-nut (/24) receptacle connectors should be mated to Glenair's 233-217 plug with appropriate contacts to optimize performance.
- Glenair's 233-225 receptacle connector is designed to meet or exceed the mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/20, D38999/24 and MIL-STD-1560 except as shown and/or noted.
- All contacts are potted and non-removable.
- Front panel mount only
- El Ochito mating contact shall be in accordance with El Ochito Contact Position Table
- Material/Finish
 - Shell: see part number development
 - Contacts: copper alloy / gold plated
 - Insulators: high grade rigid dielectric/ N.A.
 - For common ground option: aluminum alloy/ manufactures option
 - Seals: fluorosilicone blend / N.A.
 - Potting: epoxy / N.A.

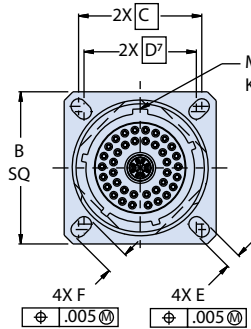
El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

HIGH-SPEED CONNECTORS

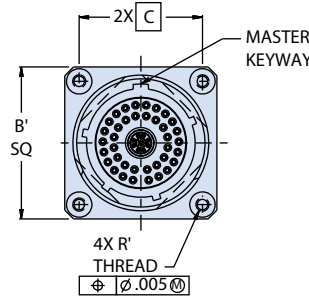
MIL-DTL-38999 Series III Type Environmental Connectors
233-225 dual flange receptacle with PC tail contacts

HIGH-SPEED CONNECTORS

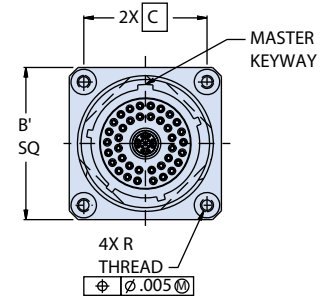
00, CM, CS, HM, HS - WALL MOUNT RECEPTACLES



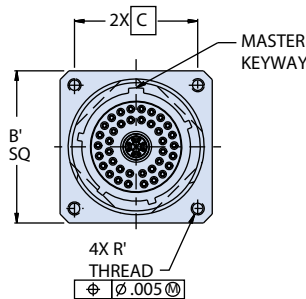
00 - WALL MOUNT RECEPTACLE WITH SLOTTED HOLES



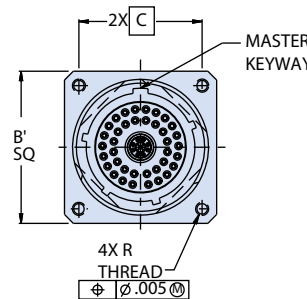
CM - WALL MOUNT RECEPTACLE WITH METRIC CLINCH NUTS



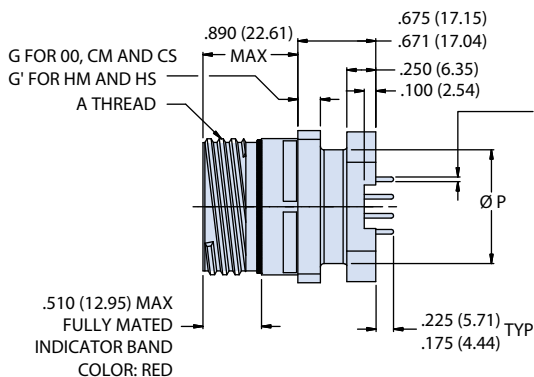
CS - WALL MOUNT RECEPTACLE WITH STANDARD CLINCH NUTS (SEE TABLE IV)



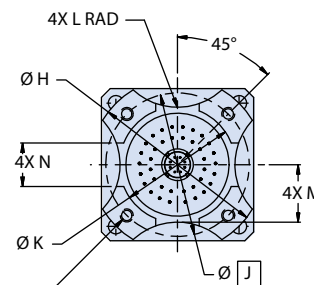
HM - WALL MOUNT RECEPTACLE WITH METRIC HELICOILS (SEE TABLE IV)



HS - WALL MOUNT RECEPTACLE WITH STANDARD HELICOIL (SEE TABLE IV)



Ø V
SEE PC TAIL DIAMETER TABLE



STYLE 00 4X R OR R' SELF-LOCKING INSERTS	STYLE CM AND HM 4X M3 X 0.5 SELF-LOCKING INSERTS	STYLE CS AND HS 4X #4-40 UNC-2B SELF-LOCKING INSERTS
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STYLE 00 SHOWN FOR REFERENCE ONLY

MIL-DTL-38999 Series III Type Environmental Connectors

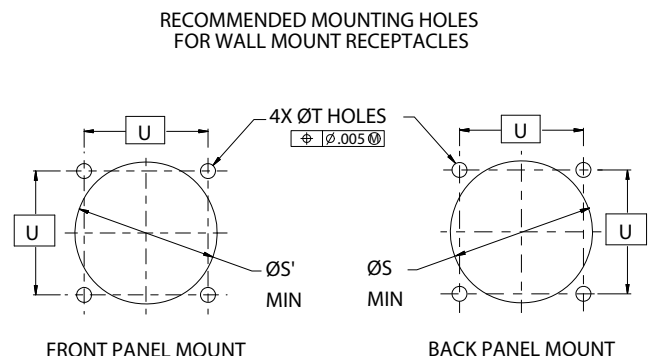
233-225 dual flange receptacle with PC tail contacts

HIGH-SPEED CONNECTORS

Dimensions										
Shell Size Code	Shell Size	A Thread	B Sq	B' Sq	C Bsc	D Bsc ⁸	E	F	G	G'
A	9	.6250 -0.1P-0.3L-TS-2A	.948 (24.08) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)		.224 (5.69) .208 (5.28)		
B	11	.7500 -0.1P-0.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)		
C	13	.8750 -0.1P-0.3L-TS-2A	1.137 (28.88) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)	.136 (3.45) .120 (3.05)	.181 (4.60) .165 (4.19)	.122 (3.10) .083 (2.11)	.179 (4.55) .140 (3.56)
D	15	1.0000 -0.1P-0.3L-TS-2A	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.202 (5.13) .186 (4.72)		
E	17	1.1875 -0.1P-0.3L-TS-2A	1.299 (32.99) 1.323 (33.60)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)				
F	19	1.2500 -0.1P-0.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)				
G	21	1.3750 -0.1P-0.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)	.162 (4.11) .146 (3.71)	.250 (6.35) .234 (5.94)	.153 (3.89) .114 (2.90)	
H	23	1.5000 -0.1P-0.3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)				
J	25	1.6250 -0.1P-0.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)				

Dimensions (Continued)										
Shell Size Code	Shell Size	ØH ±.005 (0.13)	ØJ Bsc	ØK ±.005 (0.13)	L Rad ±.020 (0.51)	M ±.020 (0.51)	N ±.010 (0.25)	ØP ±.005 (0.13)	R Thd	R' Thd
A	9	1.016 (25.81)	.752 (19.10)	.532 (13.51)	.225 (5.72)	.275 (6.99)	.225 (5.72)	.535 (13.59)	.112-40 UNC	M3X0.5
B	11	1.062 (26.97)	.850 (21.59)	.595 (15.11)	.250 (6.35)	.290 (7.37)	.250 (6.35)	.560 (14.22)		
C	13	1.250 (31.75)	.994 (25.25)	.720 (18.29)	.375 (9.52)	.370 (9.40)	.250 (6.35)	.700 (17.78)		
D	15	1.375 (34.92)	1.119 (28.42)	.843 (21.41)	.438 (11.13)	.440 (11.18)	.325 (8.25)	.857 (21.77)		
E	17	1.500 (38.10)	1.237 (31.42)	1.000 (25.40)	.562 (14.27)	.495 (12.57)	.375 (9.52)	.980 (24.89)		
F	19	1.625 (41.28)	1.379 (35.03)	1.125 (28.58)	.875 (22.23)	.540 (13.72)	.500 (12.70)	1.060 (26.92)		
G	21	1.750 (44.45)	1.489 (37.82)	1.240 (31.50)	1.170 (29.72)	.625 (15.88)	.562 (14.27)	1.210 (30.73)		
H	23	1.875 (47.63)	1.619 (41.12)	1.328 (33.73)	1.250 (31.75)	.660 (16.76)	.688 (17.48)	1.310 (33.27)	.138-32 UNC	M4X0.7
J	25	2.000 (50.80)	1.744 (44.30)	1.453 (36.91)	1.375 (34.92)	.740 (18.80)	.750 (19.05)	1.460 (37.08)		

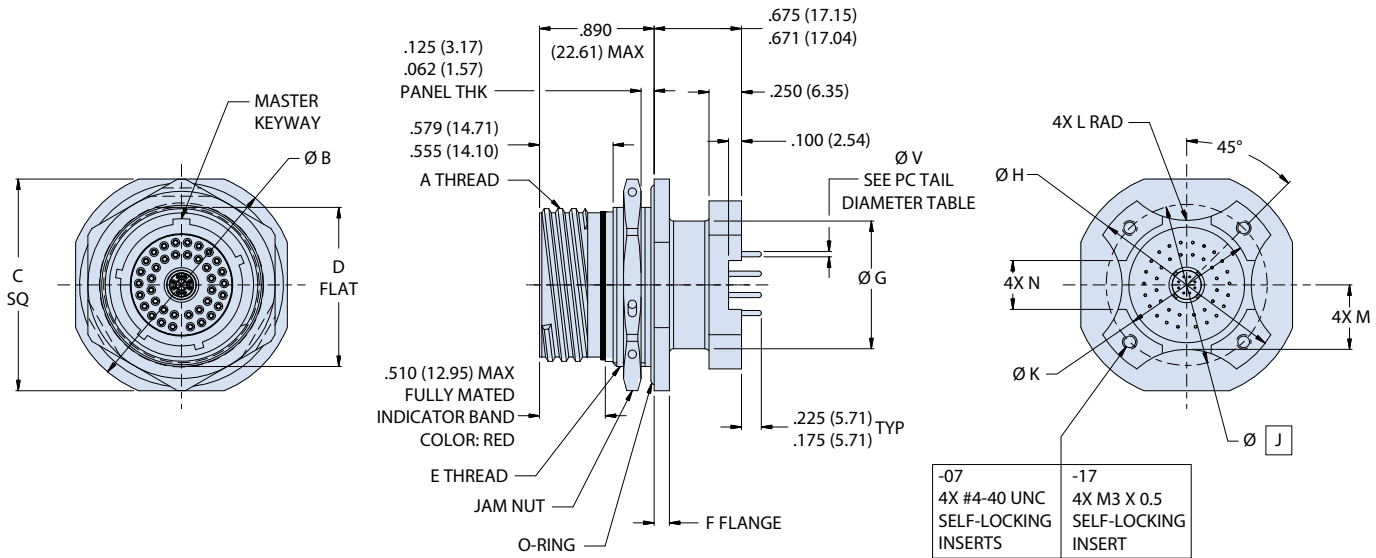
Wall Mount, Mounting Hole Dimensions					
Shell Size Code	Shell Size	ØS Min	ØS' Min ⁸	ØT Holes	U Bsc
A	9	.656 (16.66)	.516 (13.11)	.133 (3.38) .123 (3.12)	.719 (18.26)
B	11	.796 (20.22)	.625 (15.88)		.812 (20.62)
C	13	.922 (23.42)	.750 (19.05)		.906 (23.01)
D	15	1.047 (26.59)	.906 (23.01)		.969 (24.61)
E	17	1.219 (30.96)	1.016 (25.81)		1.062 (26.97)
F	19	1.297 (32.94)	1.141 (28.98)		1.156 (29.36)
G	21	1.422 (36.12)	1.266 (32.16)		1.250 (31.75)
H	23	1.547 (39.29)	1.375 (34.92)	.159 (4.04) .149 (3.78)	1.375 (34.92)
J	25	1.672 (42.47)	1.484 (37.69)	.155 (3.94) .145 (3.68)	1.500 (38.10)



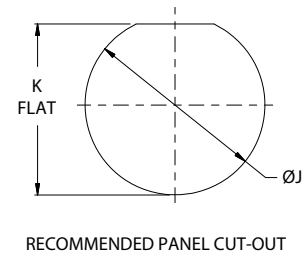
MIL-DTL-38999 Series III Type Environmental Connectors 233-225 dual flange receptacle with PC tail contacts

HIGH-SPEED CONNECTORS

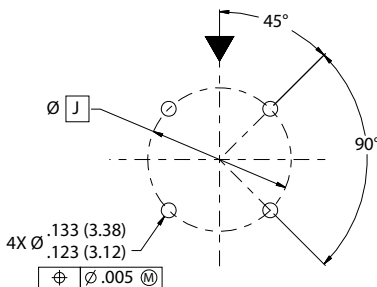
07 AND 17 - JAM-NUT MOUNT RECEPTACLE



Jam-Nut Mount, Mounting Hole Dimensions							
Shell Size Code	Shell Size	ØJ	ØK Flat	Shell Size Code	Shell Size	ØJ	ØK Flat
A	9	.703 (17.86) .693 (17.60)	.661 (16.79) .654 (16.61)	E	17	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)
B	11	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	F	19	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)
C	13	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)	G	21	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)
D	15	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	H	23	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)
				J	25	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)



RECOMMENDED PCB FOOTPRINT FOR WALL MOUNT AND JAM-NUT RECEPTACLES



RECOMMENDED PCB MOUNTING HOLE LOCATIONS

MIL-DTL-38999 Series III Type Environmental Connectors
233-225 dual flange receptacle with PC tail contacts

HIGH-SPEED CONNECTORS

Dimensions							
Shell Size Code	Shell Size	A Thread -0.1P-0.3L-TS-2A	ØB	C Sq	D Flat	E Thread ISO Metric	F
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	0.654 (16.61) 0.645 (16.38)	M17 X 1.0-6g 0.100R	.122 .083
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	0.755 (19.18) 0.745 (18.92)	M20 X 1.0-6g 0.100R	
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	0.942 (23.93) 0.932 (23.67)	M25 X 1.0-6g 0.100R	
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g 0.100R	
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g 0.100R*	
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g 0.100R	.153 .114
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g 0.100R	
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g 0.100R	
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g 0.100R	

* Modified major diameter 31.95 31.80 (1.257 - 1.252)

Dimensions								
Shell Size Code	Shell Size	Ø G ±.005 (0.00)	Ø H ±.005 (0.00)	Ø J Bsc	Ø K ±.005 (0.00)	L Rad ±.020 (0.00)	M ±.020 (0.00)	N ±.010 (0.00)
A	9	.535 (13.59)	1.016 (25.81)	.752 (19.10)	.532 (13.51)	.225 (5.72)	.275 (6.99)	.225 (5.72)
B	11	.560 (14.22)	1.062 (26.97)	.850 (21.59)	.595 (15.11)	.250 (6.35)	.290 (7.37)	.250 (6.35)
C	13	.700 (17.78)	1.250 (31.75)	.994 (25.25)	.720 (18.29)	.375 (9.52)	.370 (9.40)	.250 (6.35)
D	15	.857 (21.77)	1.375 (34.92)	1.119 (28.42)	.843 (21.41)	.438 (11.13)	.440 (11.18)	.325 (8.25)
E	17	.980 (24.89)	1.500 (38.10)	1.237 (31.42)	1.000 (25.40)	.562 (14.27)	.495 (12.57)	.375 (9.52)
F	19	1.060 (26.92)	1.625 (41.28)	1.379 (35.03)	1.125 (28.58)	.875 (22.23)	.540 (13.72)	.500 (12.70)
G	21	1.210 (30.73)	1.750 (44.45)	1.489 (37.82)	1.240 (31.50)	1.170 (29.72)	.625 (15.88)	.562 (14.27)
H	23	1.310 (33.27)	1.875 (47.63)	1.619 (41.12)	1.328 (33.73)	1.250 (31.75)	.660 (16.76)	.688 (17.48)
J	25	1.460 (37.08)	2.000 (50.80)	1.744 (44.30)	1.453 (36.91)	1.375 (34.92)	.740 (18.80)	.750 (19.05)