

MIL-DTL-38999 Series III Type Environmental Connectors

233-217/233-224 With shielded, crimp removable contacts

HIGH-SPEED CONNECTORS

Part Number Development									
Sample Part Number	233-217	-G6	NF	25	-	8	A	N	-909XX
Series / Basic Part No.	233-217 with Accessory Thread 233-224 Integral Banding Porch								
Connector Style	See Table I, Connector Style								
Material/Finish	NF = Cadmium Olive Drab ME = Electroless Nickel MT = Nickel PTFE ZR = Black Zinc Nickel								
Shell Size	9, 11, 13, 17, 19, 21, 23, 25								
Ground Option	G = Common Ground; See Note 11 - = None								
Insert Arrangement	Per MIL-STD-1560 and custom layouts; See Page C-5 and C-6								
Insert Designator	A = Pin insert, less contacts B = Socket insert, less contacts								
Alternate Polarization	A, B, C, D, E, N = Normal								
Optional Mod Code ⁹	909XX = Supplies connector with contacts Can be added to include contacts listed in the Contact Type table. Combo layouts shall include signal contacts IAW M39029/56 & /58 1213 = Supplies connector with contacts per MIL-STD-1560								

Table I: Connector Style*	
Sym	Description
-G6	Plug, with EMI spring
-05	Receptacle, in-line
-07	Receptacle, jam-nut
-00	Receptacle, wall mount with slotted holes
-CM	Receptacle, wall mount with metric clinch nuts
-CS	Receptacle, wall mount with standard clinch nuts
-D0	Receptacle, wall mount with thru holes
-HM	Receptacle, wall mount with metric helicoils
-HS	Receptacle, wall mount with standard helicoils

*Refer to Section A for recommended panel cutout.

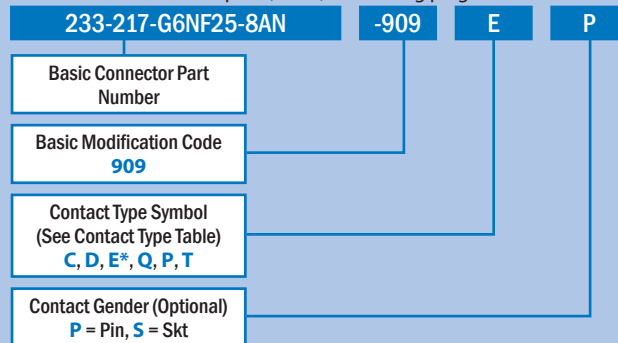
NOTES

1. Insert arrangements IAW MIL-STD-1560. Contact Glenair for additional arrangement options.
2. All contacts, insertion/removal tool, and sealing plugs to be ordered separately. See section J for ordering information.
3. Dimensions in inch (millimeter) are subject to change without notice.
4. See reference information in this section for recommended mounting holes for wall mount and jam-nut receptacles.
5. Consult factory for additional information.
6. Blue color band indicates rear release retention system.
7. All contacts, insertion/removal tool, and sealing plugs to be ordered separately.
8. For contacts with boot, add F suffix.
9. See figure 2 for reference orientation of the inner pins relative to connector main key/keyway.
10. Front panel mount only
11. Ground plane option only available for insert arrangements where all contacts are shielded type

GROMMET FOLLOWER

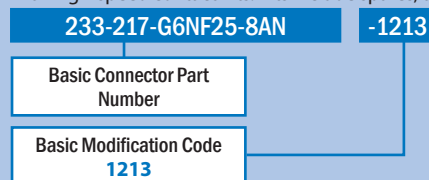
Grommet followers provide wire sealing. Slide boot onto wire before terminating contact. After contact is installed slide boot forward into connector to seal the contact cavity.

Modification code 909xx is used to supply D38999 Series III Type connectors featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs.



*Refer to Table III, el Ochito contact positions table for orientation.

Modification code 1213 is used to supply D38999 Series III Type connectors (233-217 and 233-224) featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs.



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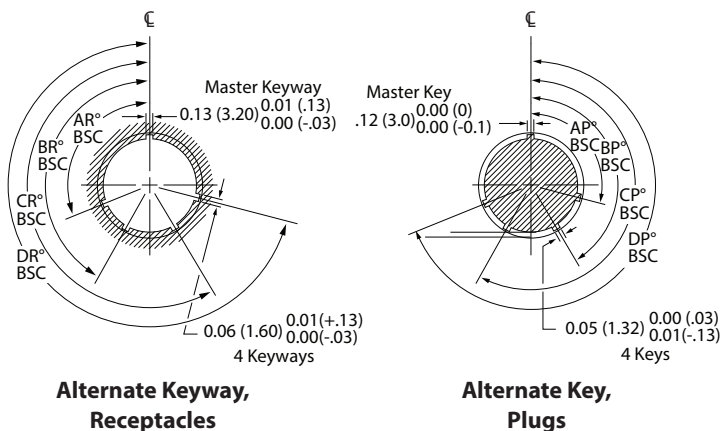
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Table II: Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave 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, differential 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/40G 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 Quadrx	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

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

ALTERNATE KEY AND KEYWAY POLARIZATION

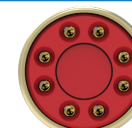


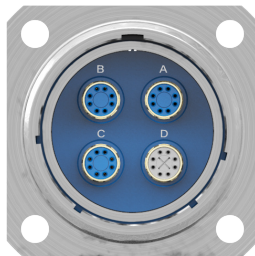
Series III Alternate Key and Keyway Polarization					
Shell Size	Key and Keyway Code	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
11 13 15	E	91	131	197	240
	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
17 19 21 23 25	D	119	146	176	298
	E	51	141	184	242
	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

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El Ochito Protocols		
		
WHITE	BLUE	RED
40GBASE-T	USB 3.0	Multi Gigabit 100 ohm protocols HDMI, SATA, DisplayPort 1.4



Example Code E7



Example Code E5

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

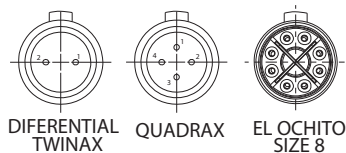
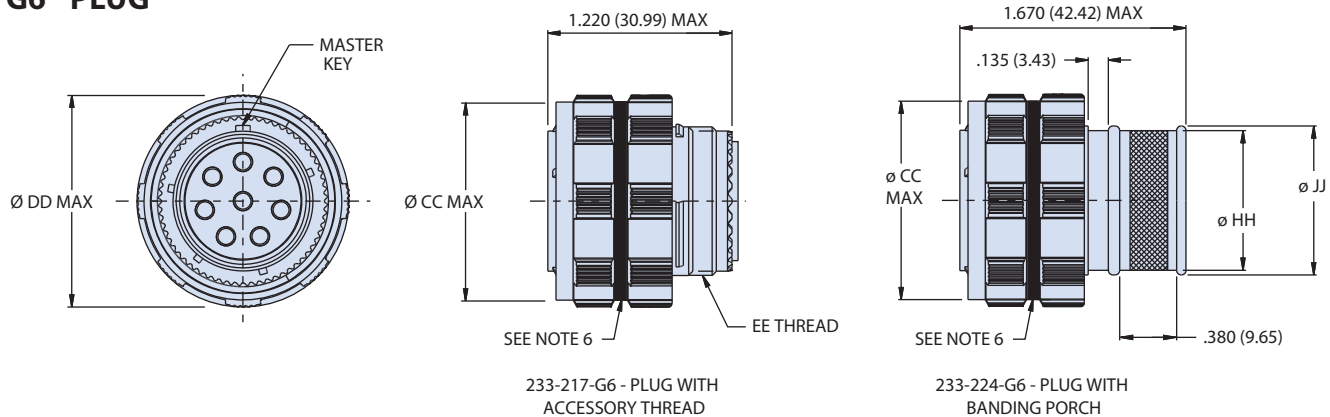
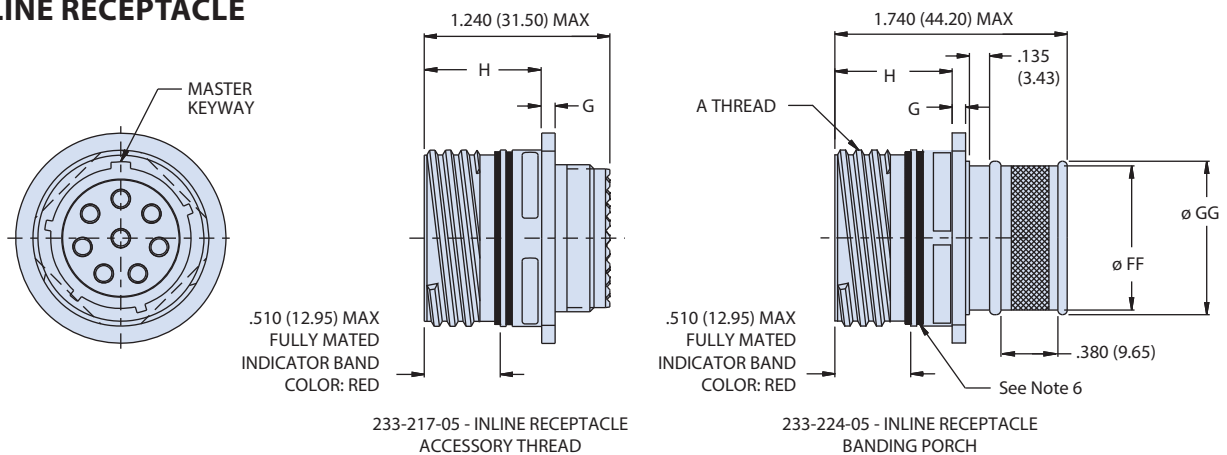
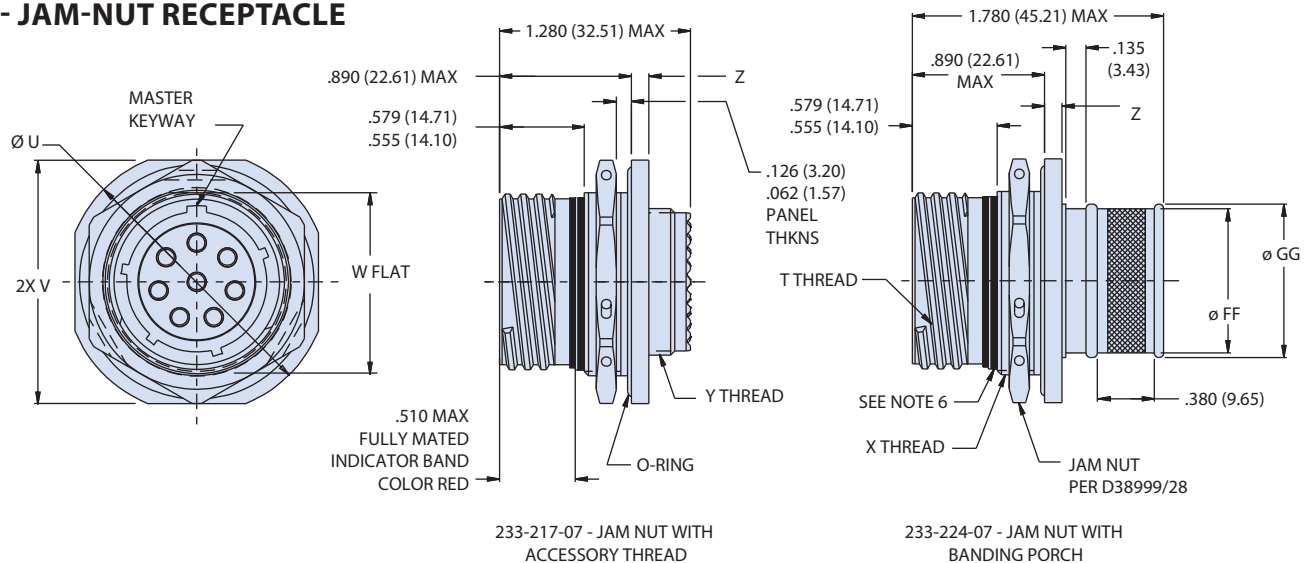


Table III: El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	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

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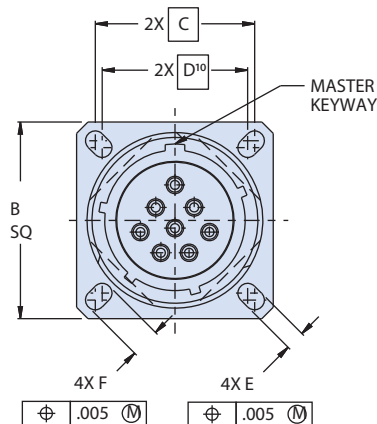
G6 - PLUG**05 - IN-LINE RECEPTACLE****07 - JAM-NUT RECEPTACLE**

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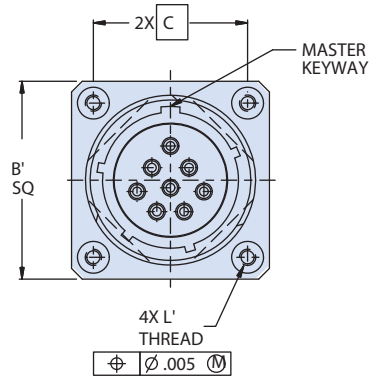
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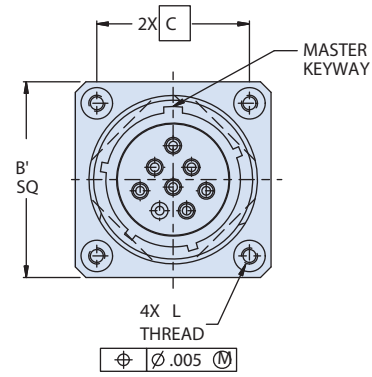
00, CM, CS, DO, HM AND HS WALL MOUNT RECEPTACLES WITH ACCESSORY THREAD OR INTEGRAL BANDING PORCH



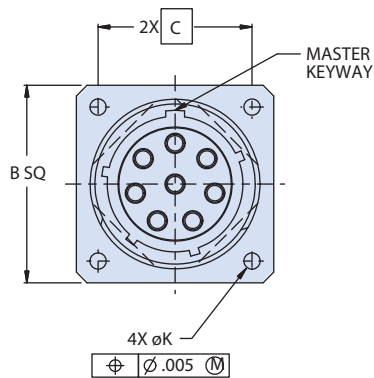
00 - WALL MOUNT RECEPTACLE
WITH SLOTTED HOLES



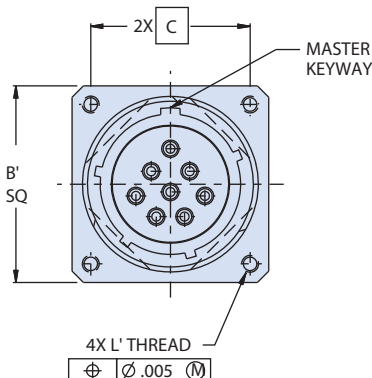
CM - WALL MOUNT RECEPTACLE
WITH METRIC CLINCH NUTS



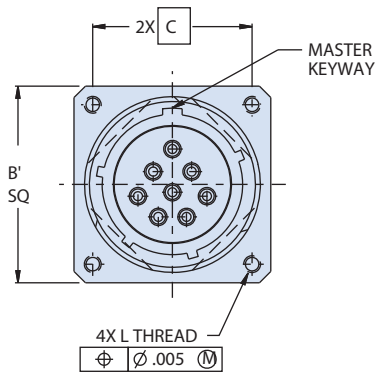
CS - WALL MOUNT RECEPTACLE
WITH STANDARD CLINCH NUTS



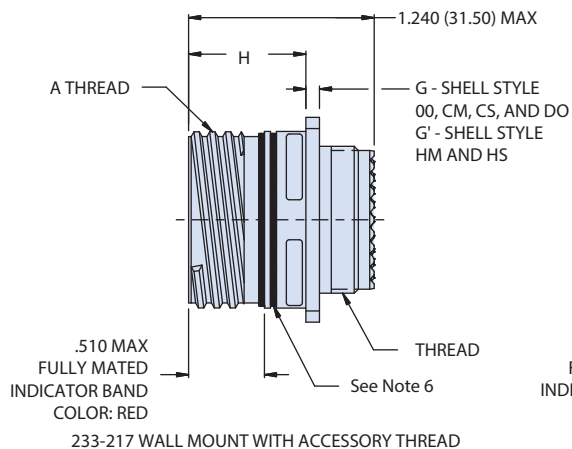
DO - WALL MOUNT RECEPTACLE
WITH THRU HOLES



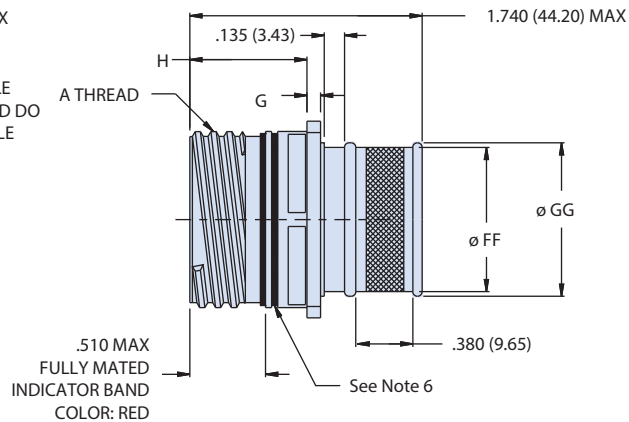
HM - WALL MOUNT RECEPTACLE
WITH METRIC HELICOILS



HS - WALL MOUNT RECEPTACLE
WITH STANDARD HELICOIL



233-217 WALL MOUNT WITH ACCESSORY THREAD



233-224 WALL MOUNT WITH INTEGRAL BANDING PORCH

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Plug Dimension				
Shell Size Code	Shell Size	Ø CC Max	Ø DD Max	EE Thd
A	9	.811 (20.60)	.858 (21.79)	M12 X 1.0-6g 0.100R
B	11	.929 (23.60)	.984 (24.99)	M15 X 1.0-6g 0.100R
C	13	1.008 (25.60)	1.157 (29.39)	M18 X 1.0-6g 0.100R
E	17	1.358 (34.49)	1.406 (35.71)	M25 X 1.0-6g 0.100R
F	19	1.469 (37.31)	1.516 (38.51)	M28 X 1.0-6g 0.100R
G	21	1.594 (40.49)	1.642 (41.71)	M31 X 1.0-6g 0.100R
H	23	1.720 (43.69)	1.768 (44.91)	M34 X 1.0-6g 0.100R
J	25	1.843 (46.81)	1.890 (48.01)	M37 X 1.0-6g 0.100R

Jam-nut Dimensions								
Shell Size Code	Shell Size	T Thd .1P-.3L-TS-2A	ØU	V	W Flat	X Thd (1.0-6g 0.100R)	Y Thd (1.0-6g 0.100R)	Z
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X	M12 X	.122 (3.10) .083 (2.11)
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	M15 X	
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X	M18 X	
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	M25 X	.153 (3.89) .114 (2.90)
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	M28 X	
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	M31 X	
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	M34 X	
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	M37 X	

Wall Mount Dimensions																
Shell Size Code	Shell Size	A Thd .1P-.3L-TS-2A	B Sq	B' Sq	C Bsc	D Bsc ⁷	E	F	G	G'	H	J Thd 1.0-6g 0.100R	ØK	L Thd	L' Thd	ØM
A	9	.6250	.949 (24.10) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26) .594 (15.09)			.224 (5.69) .208 (5.28)				M12				.858 (21.79)
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62) .719 (18.26)							M15				.984 (24.99)
C	13	.8750	1.138 (28.91) 1.114 (28.30)	1.226 (31.14) 1.186 (30.12)	.906 (23.01) .812 (20.62)				.098 (2.49) .083 (2.11)	.179 (4.55) .140 (3.56)	.820 (20.83) .771 (19.58)	M18	.136 (3.45) .120 (3.05)	.112-40 UNC	M3X0.5	1.157 (29.39)
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97) .969 (24.61)	.136 (3.45) .120 (3.05)	.202 (5.13) .186 (4.72)					M25				1.406 (35.71)
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36) 1.062 (26.97)							M28				1.516 (38.51)
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75) 1.156 (29.36)				.126 (3.20) .083 (2.11)	.190 (4.83) .170 (4.32)	.790 (20.07) .741 (18.82)	M31				1.642 (41.71)
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92) 1.250 (31.75)	.162 (4.11) .146 (3.71)	.250 (6.35) .234 (5.94)					M34	.162 (4.11) .146 (3.71)	.138-32 UNC	M4X0.7	1.768 (44.91)
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10) 1.375 (34.92)							M37				1.890 (48.01)

Integral Banding Porch Dimensions					
Shell Size Code	Shell Size	Ø FF	Ø GG	Ø HH	Ø JJ
A	09	.475 (12.07)	.538 (13.67)	.420 (10.67)	.465 (11.81)
B	11	.600 (15.24)	.662 (16.81)	.550 (13.97)	.595 (15.11)
C	13	.700 (17.78)	.762 (19.35)	.670 (17.02)	.715 (18.16)
D	15	.835 (21.21)	.898 (22.81)	.815 (20.70)	.860 (21.84)
E	17	.960 (24.38)	1.022 (25.96)	.945 (24.00)	.990 (25.15)
F	19	1.062 (26.97)	1.125 (28.58)	1.050 (26.67)	1.100 (27.94)
G	21	1.188 (30.18)	1.250 (31.75)	1.170 (29.72)	1.220 (30.99)
H	23	1.275 (32.39)	1.338 (33.99)	1.290 (32.77)	1.340 (34.04)
J	25	1.475 (37.47)	1.538 (39.07)	1.400 (35.56)	1.450 (36.83)