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**LIGHTWEIGHT ACCESSORIES FOR
RECTANGULAR CONNECTORS
3401/001 AND 3401/002**

ESCC Detail Specification No. 3401/072

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DCR No.	CHANGE DESCRIPTION
1327	Specification upissued to incorporate changes per DCR.

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1 GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for Lightweight Accessories for Rectangular Connectors (D*M and D*MA). It shall be read in conjunction with ESCC Generic Specification No. 3401, the requirements of which are supplemented herein and ESCC Detail Specifications Nos. 3401/001 and 3401/002.

1.2 COMPONENT TYPE VARIANTS

The type variants of accessories covered by this specification are given in Table 1(a).

1.3 MAXIMUM RATINGS

The maximum ratings, which shall not be exceeded at any time during use or storage, applicable to the accessories specified herein, are given in Table 1(b).

1.4 PARAMETER DERATING INFORMATION

Not applicable.

1.5 PHYSICAL DIMENSIONS

The physical dimensions of the accessories specified herein are shown in Figure 2.

2 APPLICABLE DOCUMENTS

The following documents form part of this specification and shall be read in conjunction with it:

- (a) ESCC Generic Specification No. 3401, Connectors, Electrical, Non-Filtered, Circular and Rectangular.
- (b) ESCC Detail Specification No. 3401/001, Connectors, Electrical, Rectangular, Miniature, Non-removable Solder Bucket, PCB and Wire-Wrap Contacts and Removable Coaxial and Power Contacts, based on Type D*M.
- (c) ESCC Detail Specification No. 3401/002, Connectors, Electrical, Rectangular, Miniature, Removable Crimp Type Contacts and Removable Coaxial and Power Crimp-Type and Solder-Type Contacts, based on Type D*MA.

3 TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESCC Basic specification No. 21300 shall apply.

TABLE 1(a) – TYPE VARIANTS

VARIANT	DESCRIPTION		WEIGHT (g)
01	Screw Lock Assembly Brass (Male/hex. hole 2.38 head screw)	With Back Shell	1.5
02	Screw Lock Assembly Brass (Male/hex. hole 2.38 head screw)	With Back Shell	1.5
03	Screw Lock Assembly Stainless Steel (Male/hex. hole 2.38 head screw)	With Back Shell	1.5
04	Screw Lock Assembly Stainless Steel (Male/hex. hole 2.38 head screw)	With Back Shell	1.5
05	Backshell: Lightweight Design with Saddle Clamps for Strain Relief	Size E	15.5
06	Backshell: Lightweight Design with Saddle Clamps for Strain Relief	Size A	19
07	Backshell: Lightweight Design with Saddle Clamps for Strain Relief	Size B	23
08	Backshell: Lightweight Design with Saddle Clamps for Strain Relief	Size C	29
09	Backshell: Lightweight Design with Saddle Clamps for Strain Relief	Size D	33
10	Backshell: Lightweight D–SUB Shorting Can	Size E	8
11	Backshell: Lightweight D–SUB Shorting Can	Size A	10
12	Backshell: Lightweight D–SUB Shorting Can	Size B	14
13	Backshell: Lightweight D–SUB Shorting Can	Size C	20
14	Backshell: Lightweight D–SUB Shorting Can	Size D	26
15	Backshell: EMI Shielded Straight Cable Outlet - Front Mount	Size E	21
16	Backshell: EMI Shielded Straight Cable Outlet - Front Mount	Size A	26
17	Backshell: EMI Shielded Straight Cable Outlet - Front Mount	Size B	30
18	Backshell: EMI Shielded Straight Cable Outlet - Front Mount	Size C	35
19	Backshell: EMI Shielded Straight Cable Outlet - Front Mount	Size D	40
20	Backshell: EMI Shielded Straight Cable Outlet - Rear Mount	Size E	21
21	Backshell: EMI Shielded Straight Cable Outlet - Rear Mount	Size A	26
22	Backshell: EMI Shielded Straight Cable Outlet - Rear Mount	Size B	30
23	Backshell: EMI Shielded Straight Cable Outlet - Rear Mount	Size C	35
24	Backshell: EMI Shielded Straight Cable Outlet - Rear Mount	Size D	40
25	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Right Cable Outlet	Size E	7
26	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Right Cable Outlet	Size A	10
27	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Right Cable Outlet	Size B	13.5
28	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Right Cable Outlet	Size C	18
29	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Right Cable Outlet	Size D	23
30	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Left Cable Outlet	Size E	7
31	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Left Cable Outlet	Size A	10

VARIANT	DESCRIPTION		WEIGHT (g)
32	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Left Cable Outlet	Size B	13.5
33	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Left Cable Outlet	Size C	18
34	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Left Cable Outlet	Size D	23
35	Backshell: Lightweight Shielded Backshell Straight Cable Outlet	Size E	6.5
36	Backshell: Lightweight Shielded Backshell Straight Cable Outlet	Size A	8.5
37	Backshell: Lightweight Shielded Backshell Straight Cable Outlet	Size B	11.5
38	Backshell: Lightweight Shielded Backshell Straight Cable Outlet	Size C	13.5
39	Backshell: Lightweight Shielded Backshell Straight Cable Outlet	Size D	14.5
40	Backshell: Lightweight Dual Entry Band Termination, 15 Pin	Size A	23
41	Castellated Backshell	Size E	2
42	Castellated Backshell	Size A	2.5
43	Castellated Backshell	Size B	3
44	Castellated Backshell	Size C	3.9
45	Castellated Backshell	Size D	4
46	Backshell: Straight Lightweight Backshell Ultra Elliptical Band Termination	Size E	8
47	Backshell: Straight Lightweight Backshell Ultra Elliptical Band Termination	Size A	13
48	Backshell: Straight Lightweight Backshell Ultra Elliptical Band Termination	Size B	18
49	Backshell: Straight Lightweight Backshell Ultra Elliptical Band Termination	Size C	23
50	Backshell: Straight Lightweight Backshell Ultra Elliptical Band Termination	Size D	28
51	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Right	Size E	10
52	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Right	Size A	14
53	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Right	Size B	20
54	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Right	Size C	26
55	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Right	Size D	33
56	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Left	Size E	10
57	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Left	Size A	14
58	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Left	Size B	20
59	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Left	Size C	26

VARIANT	DESCRIPTION		WEIGHT (g)
60	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Left	Size D	33
61	Backshell: Lightweight D-SUB Extra-Shorting Can	Size E	8
62	Backshell: Lightweight D-SUB Extra-Shorting Can	Size A	10
63	Backshell: Lightweight D-SUB Extra-Shorting Can	Size B	14
64	Backshell: Lightweight D-SUB Extra-Shorting Can	Size C	20
65	Backshell: Lightweight D-SUB Extra-Shorting Can	Size D	26
66	Screw Lock Assembly Brass (Male/hex. hole 2 head screw)	With Back Shell	1.5
67	Screw Lock Assembly Brass (Male/hex. hole 2 head screw)	With Back Shell	1.5
68	Screw Lock Assembly Stainless Steel (Male/hex. hole 2 head screw)	With Back Shell	1.5
69	Screw Lock Assembly Stainless Steel (Male/hex. hole 2 head screw)	With Back Shell	1.5
70	Screw Lock Assembly Stainless Steel (Male/slotted head screw)		1
71	Screw Lock Assembly Stainless Steel (Male/hex. hole head screw)		1
72	Backshell: Lightweight Design with Saddle Clamps for Strain Relief	Size F	37
73	Backshell: Lightweight D-SUB Shorting Can	Size F	30
74	Backshell: EMI Shielded Straight Cable Outlet - Front Mount	Size F	45
75	Backshell: EMI Shielded Straight Cable Outlet - Rear Mount	Size F	45
76	Backshell: Lightweight Shielded Backshell – 90° Longitudinal Right And Left Cable Outlet	Size F	28
77	Backshell: Lightweight Shielded Backshell Straight Cable Outlet	Size F	16.5
78	Backshell: Straight Lightweight Backshell Ultra Elliptical Band Termination	Size F	33
79	Backshell: 45° Lightweight Backshell Ultra Elliptical Band Termination, Right and Left	Size F	40
80	Backshell: Lightweight D-SUB Extra-Shorting Can	Size F	30
81	Screw Lock Assembly Brass (Female) (4-40)	-	2
82	Screw Lock Assembly Stainless Steel (Female) (4-40)	-	2
83	Haloring (see Note 1)	Size E	1.3
84	Haloring (see Note 1)	Size A	1.9
85	Haloring (see Note 1)	Size B	2.9
86	Haloring (see Note 1)	Sizes C & D	4
87	Haloring (see Note 1)	Size F	5.2
88	Backshell: Lightweight without entry	Size E	10.7
89	Backshell: Lightweight without entry	Size A	13.5
90	Backshell: Lightweight without entry	Size B	18
91	Backshell: Lightweight without entry	Size C	23.6
92	Backshell: Lightweight without entry	Size D	24.6
93	Backshell: Lightweight without entry	Size F	26.2
94	Backshell: Lightweight Straight Circular entry	Size E	12

VARIANT	DESCRIPTION		WEIGHT (g)
95	Backshell: Lightweight Straight Circular entry	Size A	14.8
96	Backshell: Lightweight Straight Circular entry	Size B	19.3
97	Backshell: Lightweight Straight Circular entry	Size C	24.9
98	Backshell: Lightweight Straight Circular entry	Size D	26.1
99	Backshell: Lightweight Straight Circular entry	Size F	27.8
100	Backshell: Lightweight Straight Elliptical entry	Size E	12.4
101	Backshell: Lightweight Straight Elliptical entry	Size A	15.5
102	Backshell: Lightweight Straight Elliptical entry	Size B	20
103	Backshell: Lightweight Straight Elliptical entry	Size C	25.6
104	Backshell: Lightweight Straight Elliptical entry	Size D	27
105	Backshell: Lightweight Straight Elliptical entry	Size F	28.8
106	Backshell: Lightweight 45° Circular entry	Size E	13.3
107	Backshell: Lightweight 45° Circular entry	Size A	15.9
108	Backshell: Lightweight 45° Circular entry	Size B	19.2
109	Backshell: Lightweight 45° Circular entry	Size C	24.7
110	Backshell: Lightweight 45° Circular entry	Size D	25.7
111	Backshell: Lightweight 45° Circular entry	Size F	27.7
112	Backshell: Lightweight 45° Elliptical entry	Size E	13.6
113	Backshell: Lightweight 45° Elliptical entry	Size A	16.6
114	Backshell: Lightweight 45° Elliptical entry	Size B	19.9
115	Backshell: Lightweight 45° Elliptical entry	Size C	25.4
116	Backshell: Lightweight 45° Elliptical entry	Size D	26.7
117	Backshell: Lightweight 45° Elliptical entry	Size F	28.7
118	Backshell: Lightweight 90° Circular entry	Size E	14.7
119	Backshell: Lightweight 90° Circular entry	Size A	18.1
120	Backshell: Lightweight 90° Circular entry	Size B	23.6
121	Backshell: Lightweight 90° Circular entry	Size C	30.5
122	Backshell: Lightweight 90° Circular entry	Size D	31.7
123	Backshell: Lightweight 90° Circular entry	Size F	33.8
124	Backshell: Lightweight 90° Elliptical entry	Size E	15.1
125	Backshell: Lightweight 90° Elliptical entry	Size A	18.8
126	Backshell: Lightweight 90° Elliptical entry	Size B	24.3
127	Backshell: Lightweight 90° Elliptical entry	Size C	31.3
128	Backshell: Lightweight 90° Elliptical entry	Size D	32.9
129	Backshell: Lightweight 90° Elliptical entry	Size F	35
130	Backshell: Lightweight 90° Top Circular entry	Size E	8.2
131	Backshell: Lightweight 90° Top Circular entry	Size A	10

VARIANT	DESCRIPTION		WEIGHT (g)
132	Backshell: Lightweight 90° Top Circular entry	Size B	12.9
133	Backshell: Lightweight 90° Top Circular entry	Size C	16.6
134	Backshell: Lightweight 90° Top Circular entry	Size D	17.6
135	Backshell: Lightweight 90° Top Circular entry	Size F	18.9
136	Backshell: Lightweight 90° Top Elliptical entry	Size E	8.3
137	Backshell: Lightweight 90° Top Elliptical entry	Size A	10.3
138	Backshell: Lightweight 90° Top Elliptical entry	Size B	13.6
139	Backshell: Lightweight 90° Top Elliptical entry	Size C	17.3
140	Backshell: Lightweight 90° Top Elliptical entry	Size D	18.6
141	Backshell: Lightweight 90° Top Elliptical entry	Size F	20
142	Backshell: Lightweight 45° Top Circular entry	Size E	8
143	Backshell: Lightweight 45° Top Circular entry	Size A	9.9
144	Backshell: Lightweight 45° Top Circular entry	Size B	12.9
145	Backshell: Lightweight 45° Top Circular entry	Size C	16.8
146	Backshell: Lightweight 45° Top Circular entry	Size D	16.2
147	Backshell: Lightweight 45° Top Circular entry	Size F	17.6
148	Backshell: Lightweight 45° Top Elliptical entry	Size E	8.1
149	Backshell: Lightweight 45° Top Elliptical entry	Size A	10.2
150	Backshell: Lightweight 45° Top Elliptical entry	Size B	13.6
151	Backshell: Lightweight 45° Top Elliptical entry	Size C	17.4
152	Backshell: Lightweight 45° Top Elliptical entry	Size D	17.8
153	Backshell: Lightweight 45° Top Elliptical entry	Size F	18.7

NOTES:

- Halorings are not compatible with every specified backshell type of the appropriate shell size:
 Variant 83 is only compatible with Variants 88, 94, 100, 106, 112, 118, 124, 130, 136, 142, 148.
 Variant 84 is only compatible with Variants 89, 95, 101, 107, 113, 119, 125, 131, 137, 143, 149.
 Variant 85 is only compatible with Variants 90, 96, 102, 108, 114, 120, 126, 132, 138, 144, 150.
 Variant 86 is only compatible with Variants 91, 92, 97, 98, 103, 104, 109, 110, 115, 116, 121, 122, 127, 128, 133, 134, 139, 140, 145, 146, 151, 152.
 Variant 87 is only compatible with Variants 93, 99, 105, 111, 117, 123, 129, 135, 141, 147, 153.

TABLE 1(b) – MAXIMUM RATINGS

No.	Characteristic	Symbol	Maximum Ratings		Unit	Remarks
1	Operating Temperature Range	T _{op}	-55 to +125		°C	T _{amb}
2	Storage Temperature Range	T _{stg}	-55 to +125		°C	
3	Torque Value for Screws	T _{qe}	Brass 3.3	S.S. 4.4	cm.daN	For Male

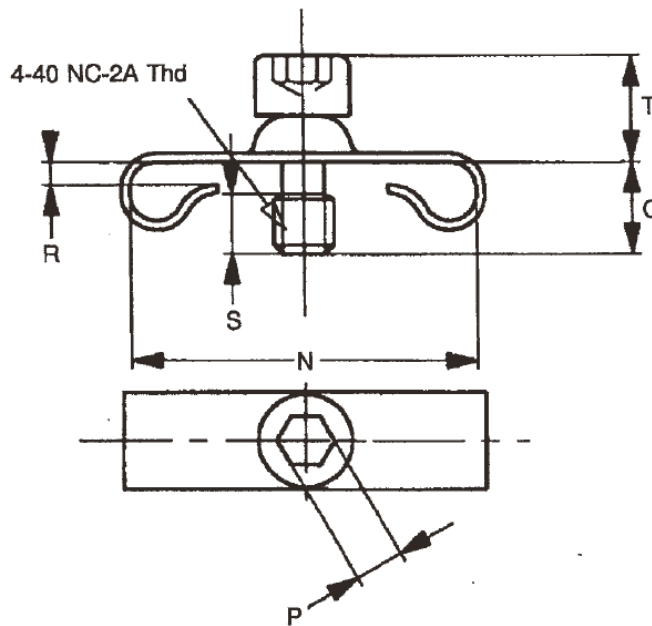
FIGURE 1 – PARAMETER DERATING INFORMATION

Not applicable.

FIGURE 2 – PHYSICAL DIMENSIONS

FIGURE 2(a) – MALE SCREW LOCK ASSEMBLIES

Hex. Hole Head

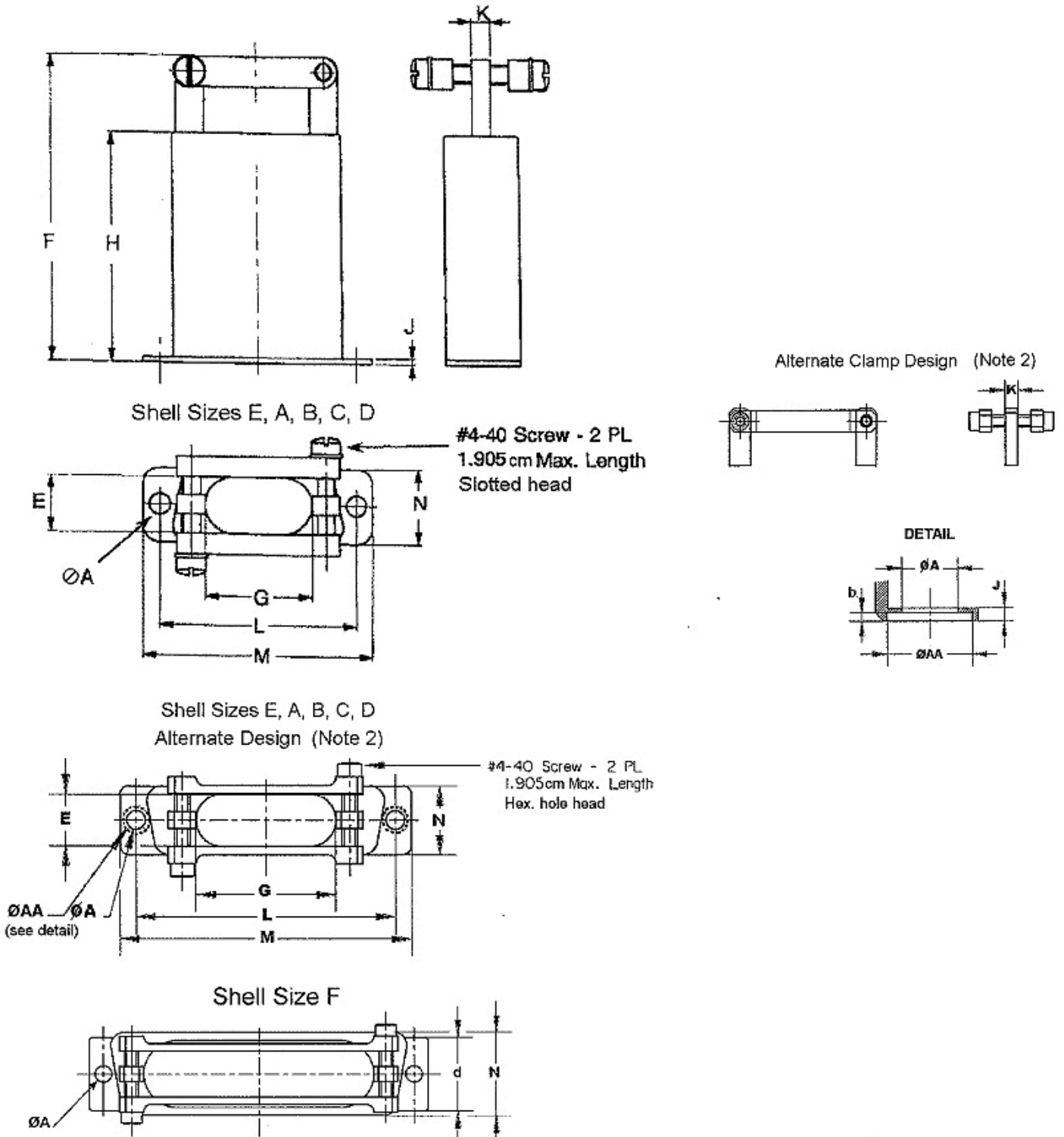


Variants		Use With Shell Size	N		P (2) TYP.	Q		R		S MIN.	T MAX.
Brass	S.S.		MIN.	MAX.		MIN.	MAX.	MIN.	MAX.		
01, 66	03, 68	With Lightweight Backshell	12.96	13.72	2.38	4.4	5.16	2.25	2.45	2.8	5.53
02, 67	04, 69	DA to DC: (P or S) DD (P or S)	15.75	16.26	2.38	4.4	5.16	2.25	2.45	2.8	5.53

NOTES:

2. All dimensions are in millimetres.
3. 2 for Variants 66 to 69.

FIGURE 2(b) – LIGHTWEIGHT BACKSHELL WITH SADDLE CLAMPS FOR STRAIN RELIEF



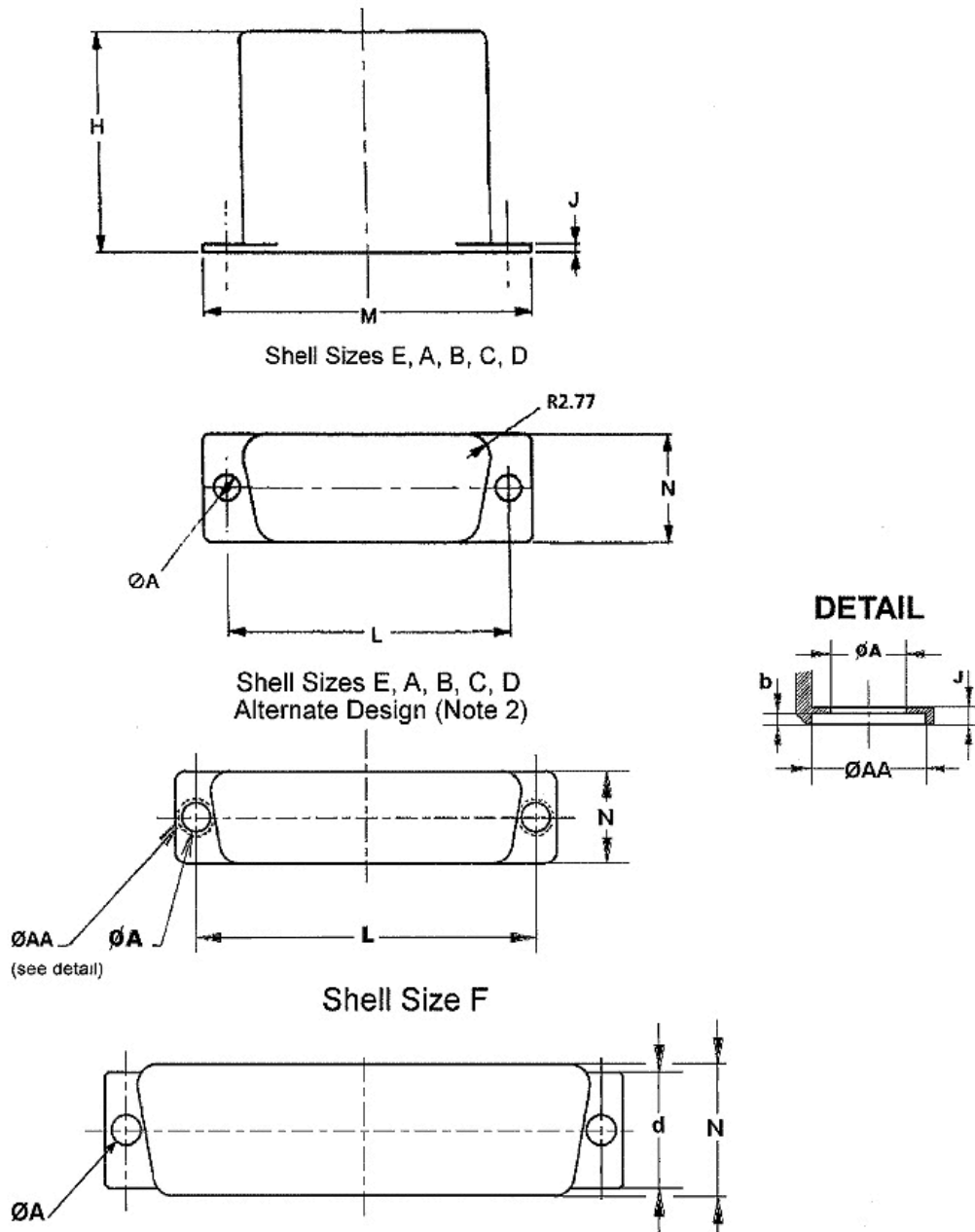
Shell Size	Variant	ØA		E		F		G		H		J		K
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
E	05	3.32	3.58	9.14	9.9	65.95	67.56	9.14	9.9	54.48	55.24	0.68	0.94	3.17
A	06	3.32	3.58	9.14	9.9	65.95	67.56	17.73	18.49	54.48	55.24	0.68	0.94	3.17
B	07	3.32	3.58	9.14	9.9	67.55	69.16	25.02	25.78	54.48	55.24	0.68	0.94	3.17
C	08	3.32	3.58	9.14	9.9	67.55	69.16	34.54	35.3	54.48	55.24	0.68	0.94	3.17
D	09	3.32	3.58	11.5	12.26	67.55	69.16	35.33	36.09	54.48	55.24	0.68	0.94	3.17
F	72	3.32	3.58	13.5	14.26	67.55	69.16	46.63	47.39	54.48	55.24	0.68	0.94	3.17

Shell Size	Variant	L		M		N		ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	05	24.86	25.12	30.18	30.94	12.32	13.08	5.15	5.25	0.45	0.55	-	-
A	06	33.19	33.45	38.51	39.27	12.32	13.08	5.15	5.25	0.45	0.55	-	-
B	07	46.91	47.17	52.4	53.16	12.32	13.08	5.15	5.25	0.45	0.55	-	-
C	08	63.37	63.63	68.66	69.42	12.32	13.08	5.15	5.25	0.45	0.55	-	-
D	09	60.98	61.24	66.29	67.05	15.09	15.85	5.15	5.25	0.45	0.55	-	-
F	72	63.37	63.63	68.94	69.7	17.09	17.85	-	-	-	-	15.15	15.35

NOTES:

1. All dimensions are in millimetres.
2. For Shell Sizes E, A, B, C and D, Backshells are available with an 'Alternate' (characteristic code 'A') design. See Para. 4.5.3.2.

FIGURE 2(c) – LIGHTWEIGHT D-SUB SHORTING CAN

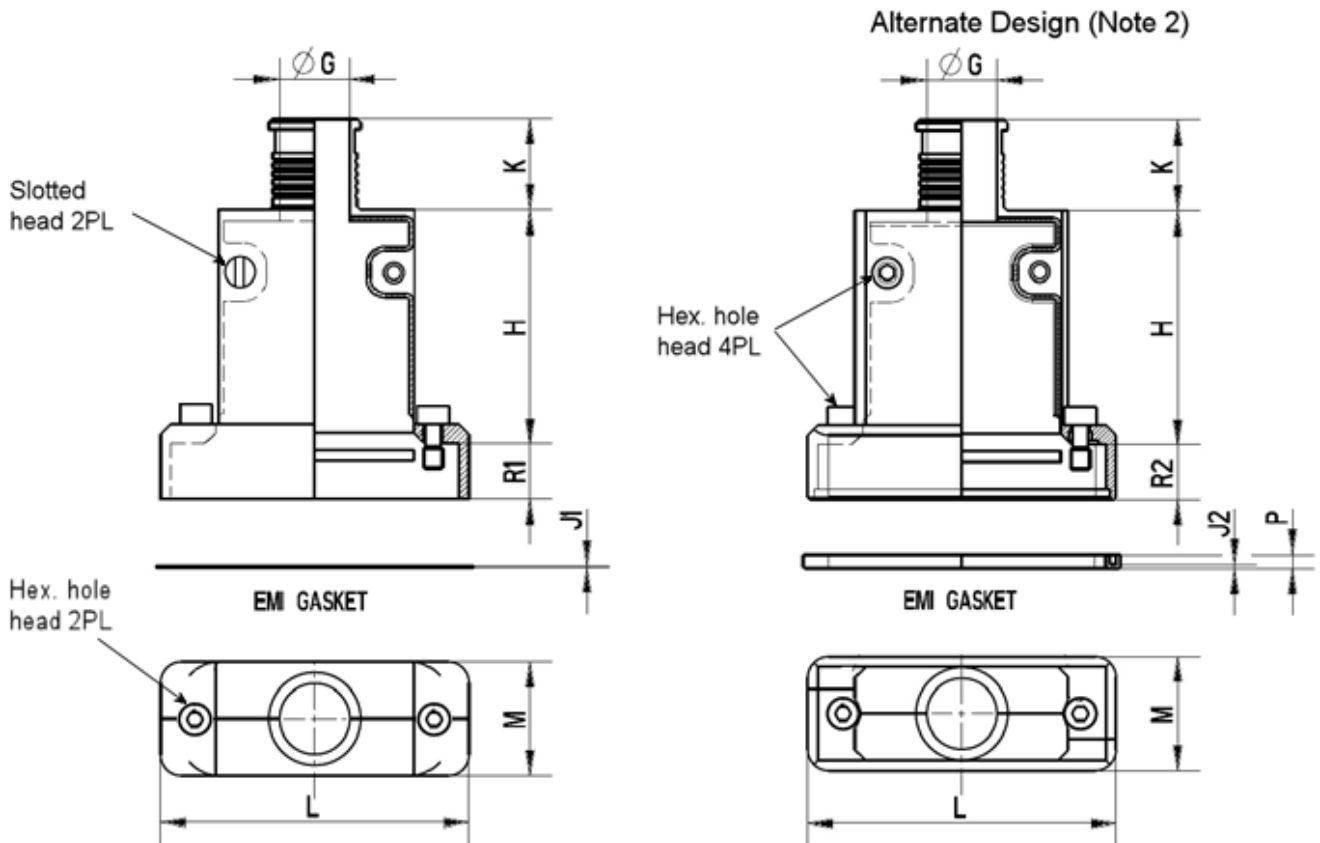


Shell Size	Variant	ØA		H	J	L		M		N		ØAA		b		d	
		MIN	MAX			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
E	10	3.92	4.04	25.4	0.9	24.86	25.12	30.18	30.94	12.32	13.08	5.15	5.25	0.45	0.55	-	-
A	11	3.92	4.04	25.4	0.9	33.19	33.45	38.51	39.27	12.32	13.08	5.15	5.25	0.45	0.55	-	-
B	12	3.92	4.04	25.4	0.9	46.91	47.17	52.4	53.16	12.32	13.08	5.15	5.25	0.45	0.55	-	-
C	13	3.92	4.04	25.4	0.9	63.37	63.63	68.66	69.42	12.32	13.08	5.15	5.25	0.45	0.55	-	-
D	14	3.92	4.04	25.4	0.9	60.98	61.24	66.29	67.05	15.09	15.85	5.15	5.25	0.45	0.55	-	-
F	73	3.92	4.04	25.4	0.9	63.37	63.63	68.94	69.7	17.09	17.85	-	-	-	-	15.15	15.35

NOTES:

- All dimensions are in millimetres.
- For Shell Sizes E, A, B, C and D, D-SUB Shorting Cans are available with an 'Alternate' (characteristic code 'A') design. See Para. 4.5.3.2.

FIGURE 2(d) – EMI SHIELDED BACKSHELL – STRAIGHT CABLE OUTLET



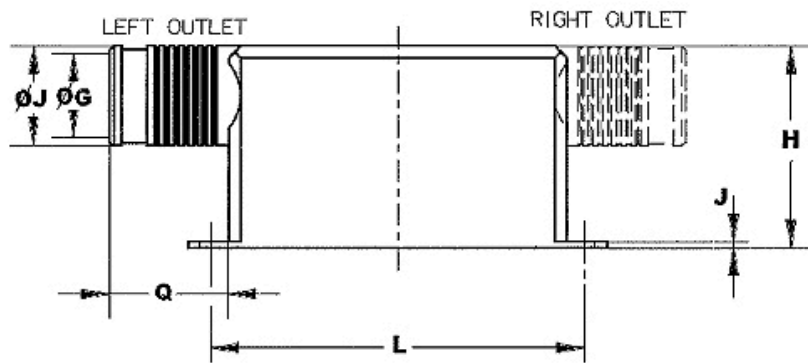
Shell Size	Variant		ϕG		H MAX.	J1	J2		K	M		P MAX
	FRONT MOUNT	REAR MOUNT	MIN	MAX			MIN	MAX		MIN	MAX	
E	15	20	6.48	6.98	33.02	0.51	0.55	0.65	12.7	15.73	16.23	2.2
A	16	21	9.65	10.15	33.02	0.51	0.55	0.65	12.7	15.73	16.23	2.2
B	17	22	10.29	10.79	38.61	0.51	0.55	0.65	12.7	15.73	16.23	2.2
C	18	23	10.29	10.79	38.61	0.51	0.55	0.65	12.7	15.73	16.23	2.2
D	19	24	13.08	13.58	38.61	0.51	0.55	0.65	12.7	18.45	19.04	2.2
F	74	75	15.15	15.65	38.61	-	0.55	0.65	12.7	20.55	21.05	2.2

Shell Size	Variant		L		R1				R2			
	FRONT MOUNT	REAR MOUNT	MIN	MAX	FRONT MOUNT		REAR MOUNT		FRONT MOUNT		REAR MOUNT	
					MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	15	20	34.48	35.28	7.61	7.87	6.19	6.45	7.75	7.8	5.25	5.3
A	16	21	43.11	43.61	7.61	7.87	6.19	6.45	7.75	7.8	5.25	5.3
B	17	22	57	57.5	7.61	7.87	6.19	6.45	7.75	7.8	5.25	5.3
C	18	23	73.28	73.78	7.61	7.87	6.19	6.45	7.75	7.8	5.25	5.3
D	19	24	70.89	71.39	7.61	7.87	6.19	6.45	7.75	7.8	5.25	5.3
F	74	75	73.25	73.75	-	-	-	-	7.75	7.8	5.25	5.3

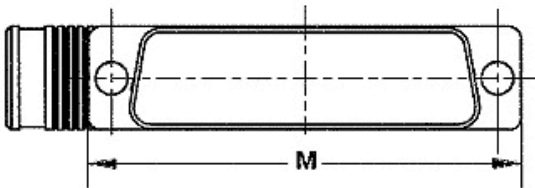
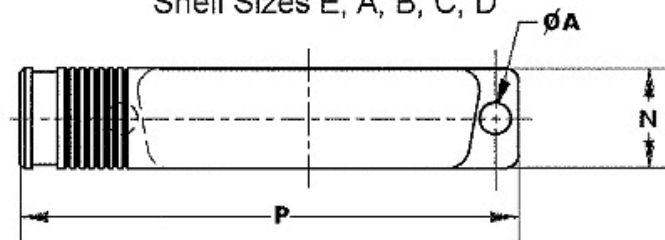
NOTES:

- All dimensions are in millimetres.
- For Shell Sizes E, A, B, C and D, EMI Shielded Backshells are available with an 'Alternate' (characteristic code 'A') design. See Para. 4.5.3.2.

FIGURE 2(e) – LIGHTWEIGHT SHIELDED BACKSHELL – 90° LONGITUDINAL CABLE OUTLET



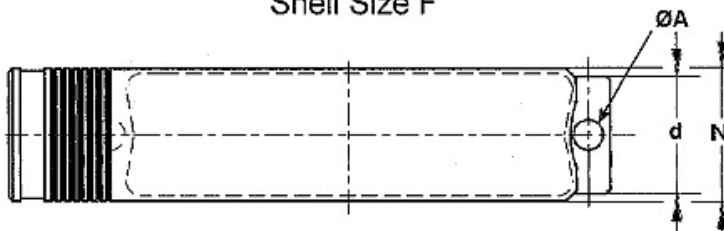
Shell Sizes E, A, B, C, D



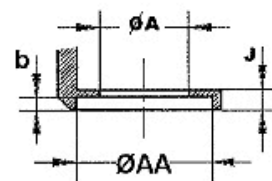
Shell Sizes E, A, B, C, D Alternate Design (Note 2)
(combined left and right configuration)



Shell Size F



DETAIL



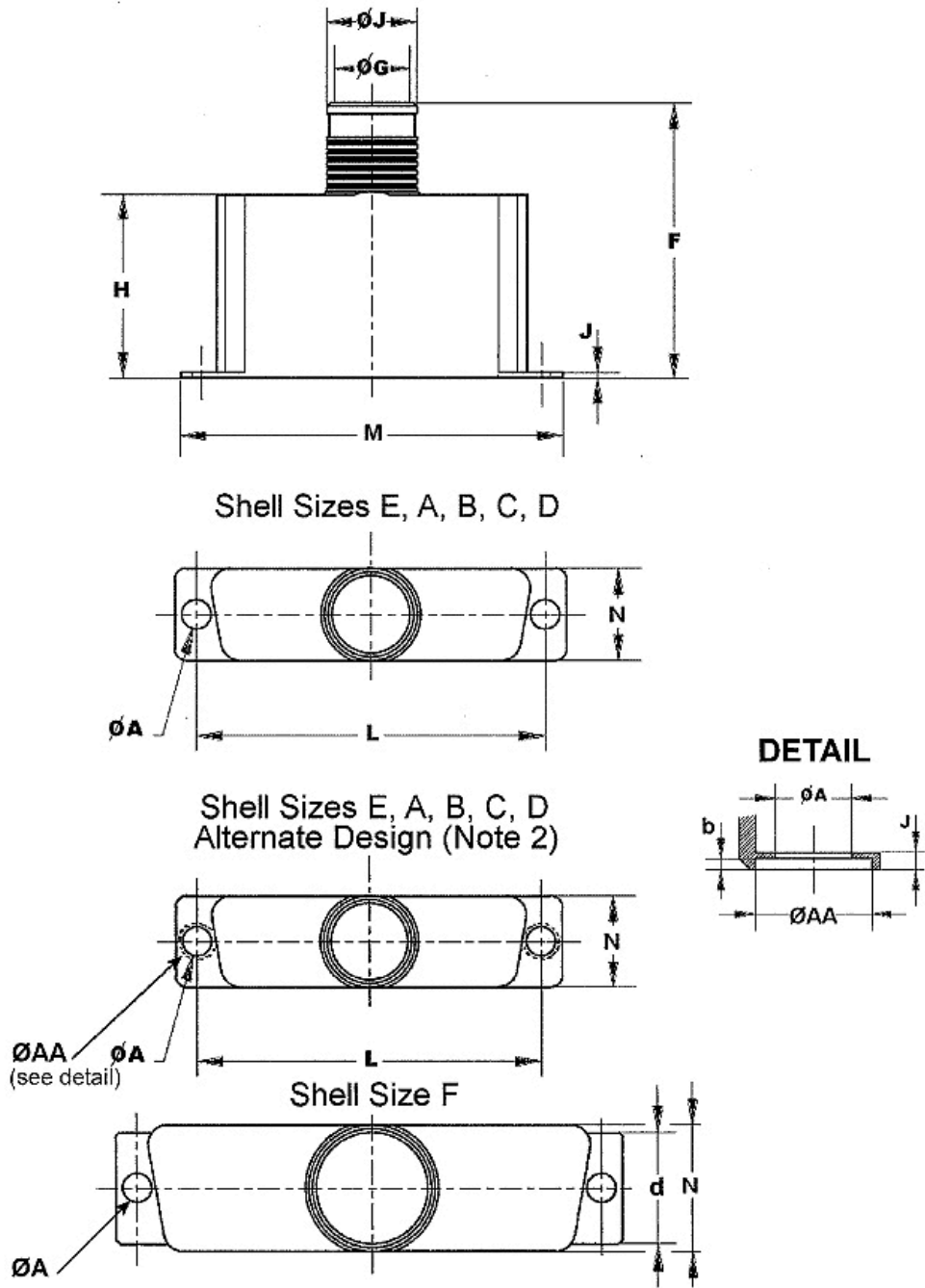
Shell Size	Variant		ØA		ØG		ØJ		H		J	L	
	Right Outlet	Left Outlet	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		MIN	MAX
E	25	30	3.91	4.03	6.47	7.23	8.51	9.26	24.64	26.16	0.89	24.86	25.12
A	26	31	3.91	4.03	9.65	10.41	11.68	12.44	24.64	26.16	0.89	33.19	33.45
B	27	32	3.91	4.03	10.28	11.04	12.32	13.08	24.64	26.16	0.89	46.91	47.17
C	28	33	3.91	4.03	10.28	11.04	12.32	13.08	24.64	26.16	0.89	63.37	63.63
D	29	34	3.91	4.03	13.05	13.81	15.08	15.84	24.64	26.16	0.89	60.98	61.25
F	76	76	3.91	4.03	15.05	15.81	17.08	17.84	34.64	36.16	0.89	63.37	63.63

Shell Size	Variant		M		N		P MAX	Q	ØAA		b		d	
	Right Outlet	Left Outlet	MIN	MAX	MIN	MAX			MIN	MAX	MIN	MAX	MIN	MAX
E	25	30	30.18	30.94	12.32	13.08	41.1	15	5.15	5.25	0.45	0.55	-	-
A	26	31	38.51	39.27	12.32	13.08	49.5	15	5.15	5.25	0.45	0.55	-	-
B	27	32	52.4	53.16	12.32	13.08	63.2	15	5.15	5.25	0.45	0.55	-	-
C	28	33	68.66	69.42	12.32	13.08	81	15	5.15	5.25	0.45	0.55	-	-
D	29	34	66.29	67.16	15.09	15.85	77.2	15	5.15	5.25	0.45	0.55	-	-
F	76	76	68.94	69.7	17.09	17.85	80.4	15	-	-	-	-	15.15	15.35

NOTES:

1. All dimensions are in millimetres.
2. For Shell Sizes E, A, B, C and D, Shielded Backshells are available with an 'Alternate' (characteristic code 'A') design. See Para. 4.5.3.2.

FIGURE 2(f) – LIGHTWEIGHT SHIELDED BACKSHELL – STRAIGHT CABLE OUTLET



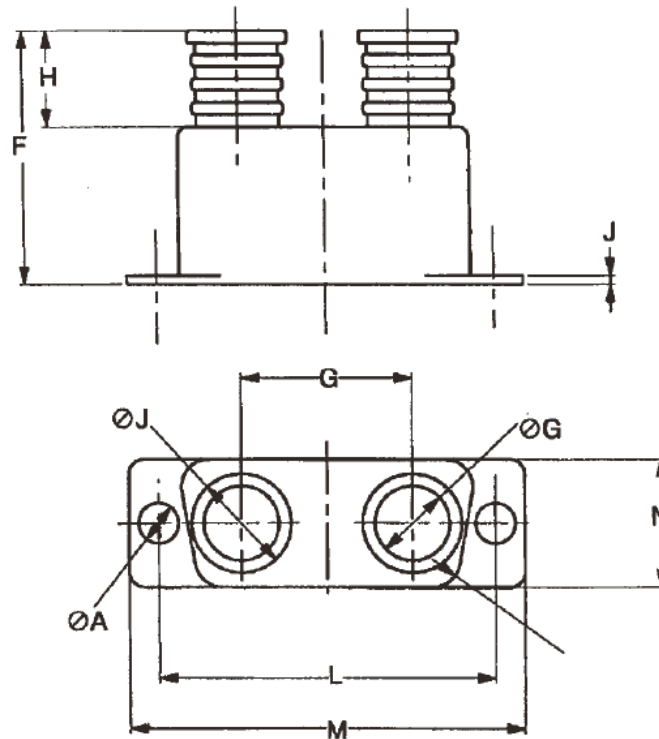
Shell Size	Variant	ØA		ØG		ØJ		F	H	J	L	
		MIN	MAX	MIN	MAX	MIN	MAX				MIN	MAX
E	35	3.91	4.03	6.47	7.23	8.51	9.27	38.1	25.4	0.89	24.86	25.12
A	36	3.91	4.03	9.65	10.41	11.68	12.44	38.1	25.4	0.89	33.19	33.45
B	37	3.91	4.03	10.28	11.04	12.32	13.08	38.1	25.4	0.89	46.91	47.17
C	38	3.91	4.03	10.28	11.04	12.32	13.08	38.1	25.4	0.89	63.37	63.63
D	39	3.91	4.03	13.05	13.81	15.08	15.84	38.1	25.4	0.89	60.98	61.25
F	77	3.91	4.03	15.05	15.81	17.08	17.84	38.1	25.4	0.89	63.37	63.63

Shell Size	Variant	M		N		ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	35	30.18	30.94	12.32	13.08	5.15	5.25	0.45	0.55	-	-
A	36	38.51	39.27	12.32	13.08	5.15	5.25	0.45	0.55	-	-
B	37	52.4	53.16	12.32	13.08	5.15	5.25	0.45	0.55	-	-
C	38	68.66	69.42	12.32	13.08	5.15	5.25	0.45	0.55	-	-
D	39	66.29	67.16	15.09	15.85	5.15	5.25	0.45	0.55	-	-
F	77	68.94	69.7	17.09	17.85	-	-	-	-	15.15	15.35

NOTES:

1. All dimensions are in millimetres.
2. For Shell Sizes E, A, B, C and D, Shielded Backshells are available with an 'Alternate' (characteristic code 'A') design. See Para. 4.5.3.2.

FIGURE 2(g) – LIGHTWEIGHT BACKSHELL, DUAL ENTRY BAND TERMINATION, 15 PIN



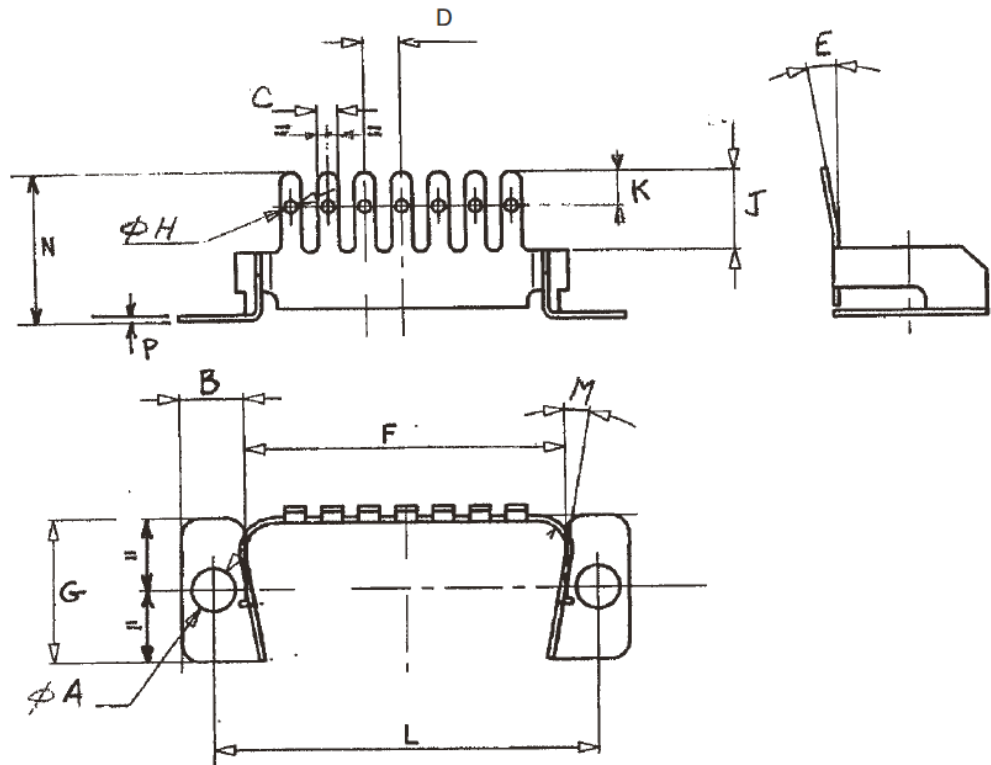
Shell Size	Variant	ØA		ØG		ØJ		F	G	H
		MIN	MAX	MIN	MAX	MIN	MAX			
A	40	3.92	4.02	6.99	7.75	9.4	10.16	25.4	16.89	9.65

Shell Size	Variant	J	L		M		N	
			MIN	MAX	MIN	MAX	MIN	MAX
A	40	0.9	33.07	33.57	38.51	39.27	12.32	13.08

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(h) - CASTELLATED BACKSHELL



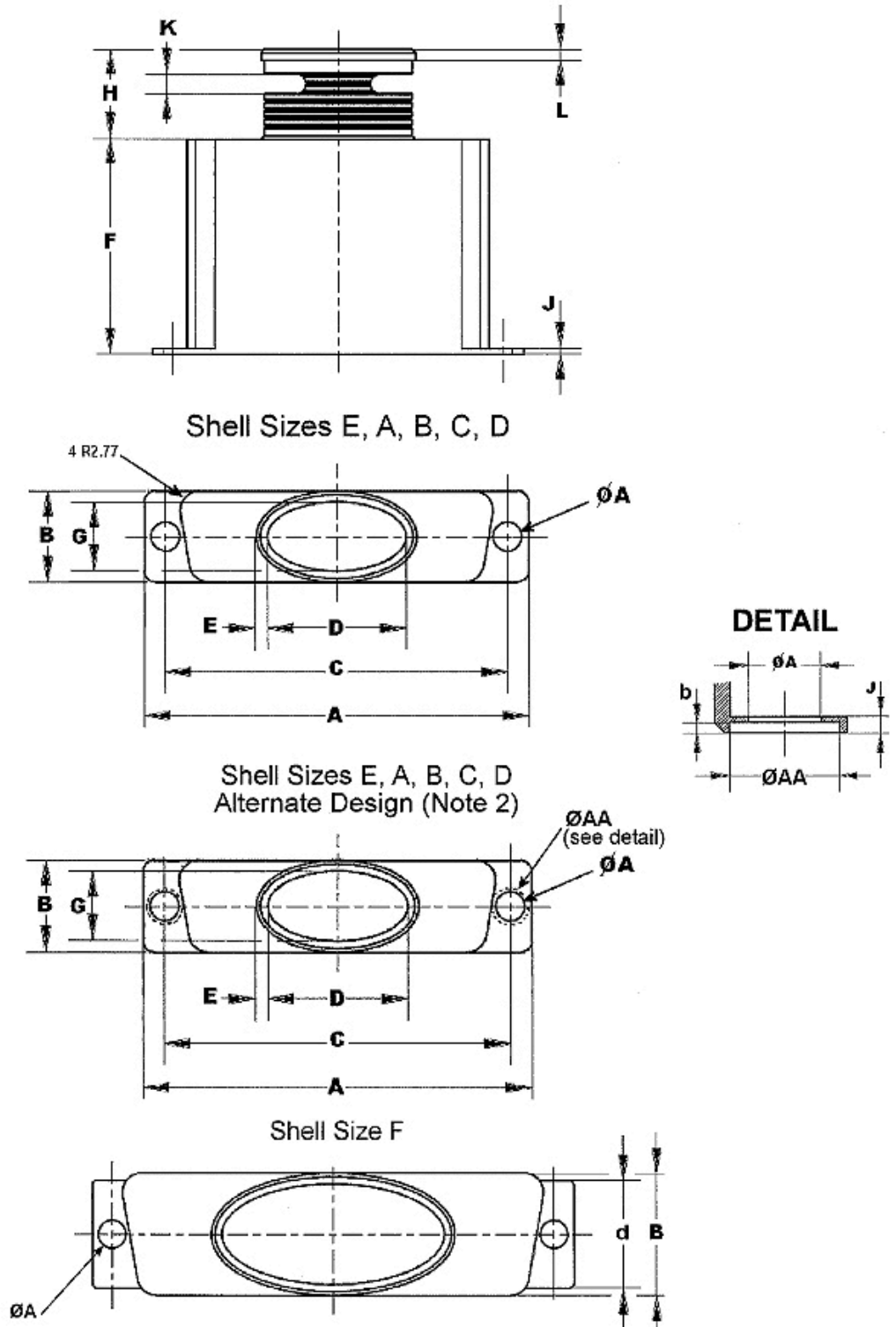
Shell Size	Variant	ØA		B		C		D		No. of Plates	E		F	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX
E	41	3.7	3.9	5.25	5.45	1.7	1.9	3.1	3.3	5	10	15	19.45	19.75
A	42	3.7	3.9	5.25	5.45	1.7	1.9	3.1	3.3	7	10	15	27.7	28
B	43	3.7	3.9	5.25	5.45	1.7	1.9	3.1	3.3	11	10	15	41.35	41.65
C	44	3.7	3.9	5.25	5.45	1.7	1.9	3.1	3.3	16	10	15	57.95	58.25
D	45	3.7	3.9	5.25	5.45	1.7	1.9	3.1	3.3	15	10	15	55.6	55.9

Shell Size	Variant	G		ØH		J		K		L		M		N		P	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	41	12.6	12.8	0.9	1.1	6.8	7.2	2.75	3.25	24.86	25.12	9	11	12.3	13.7	0.4	0.6
A	42	12.6	12.8	0.9	1.1	6.8	7.2	2.75	3.25	33.19	33.45	9	11	12.3	13.7	0.4	0.6
B	43	12.6	12.8	0.9	1.1	6.8	7.2	2.75	3.25	46.91	47.17	9	11	12.3	13.7	0.4	0.6
C	44	12.6	12.8	0.9	1.1	6.8	7.2	2.75	3.25	63.37	63.63	9	11	12.3	13.7	0.7	0.9
D	45	15.3	15.5	0.9	1.1	6.8	7.2	2.75	3.25	60.98	61.24	9	11	12.3	13.7	0.7	0.9

NOTES:

1. All dimensions are in millimetres.
2. All angles are in degrees.

FIGURE 2(i) – STRAIGHT LIGHTWEIGHT BACKSHELL ULTRA ELLIPTICAL BAND TERMINATION



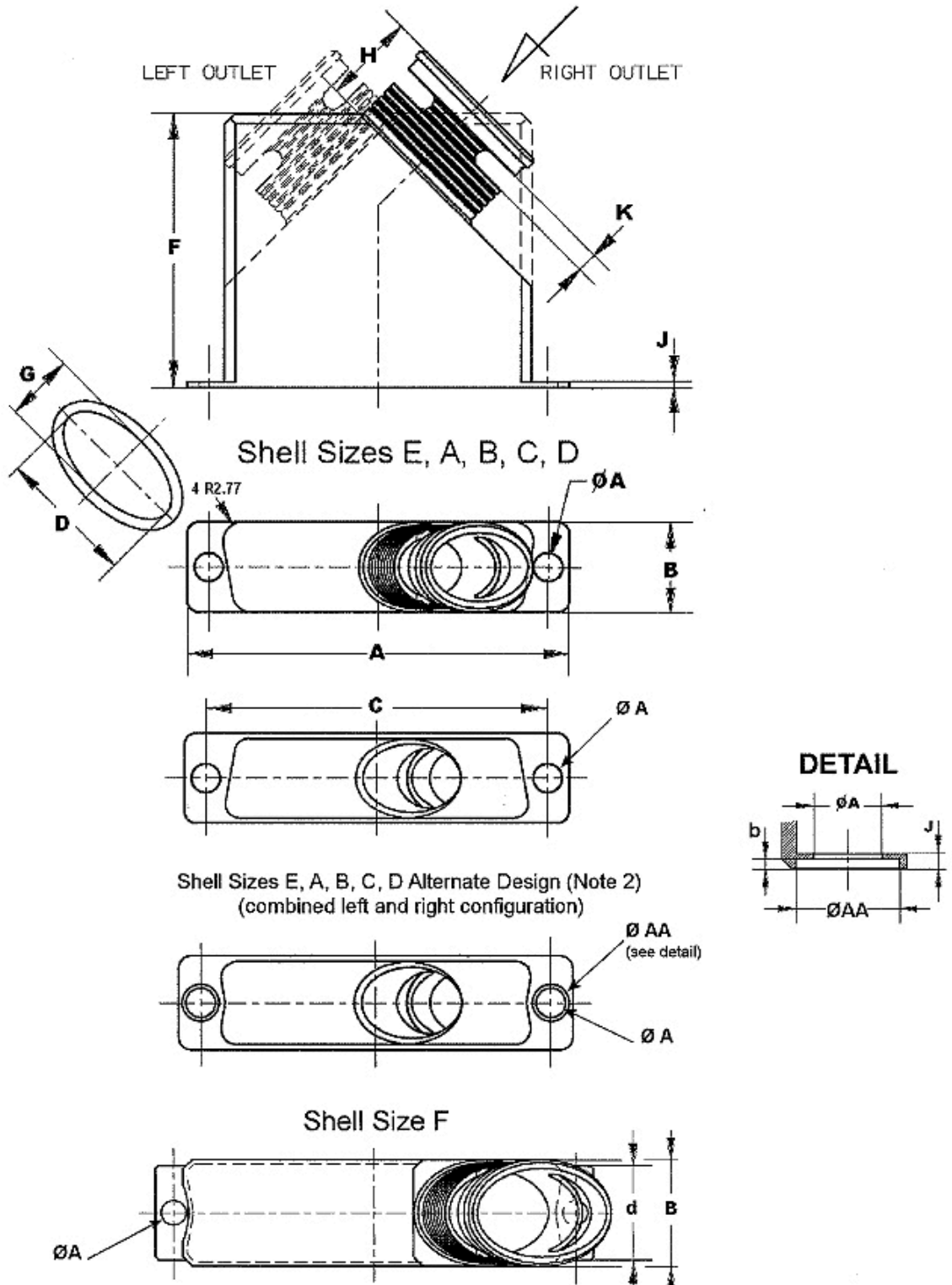
Shell Size	Variant	ØA		A		B		C		D		E	F	G	H	J
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX					
E	46	3.91	4.03	30.16	30.94	12.32	13.08	24.86	25.12	12.32	13.08	1.52	30.48	9.53	12.67	0.9
A	47	3.91	4.03	38.51	39.27	12.32	13.08	33.19	33.45	15.49	16.25	1.52	30.48	9.53	12.67	0.9
B	48	3.91	4.03	52.4	53.16	12.32	13.08	46.89	47.17	18.67	19.43	1.52	30.48	9.53	12.67	0.9
C	49	3.91	4.03	68.66	69.42	12.32	13.08	63.37	63.63	25.02	25.78	1.52	30.48	9.53	12.67	0.9
D	50	3.91	4.03	66.29	67.05	15.09	15.85	60.98	61.24	21.84	22.6	1.52	30.48	12.3	12.67	0.9
F	78	3.91	4.03	68.94	69.7	17.09	17.85	63.37	63.63	31.62	32.38	1.52	30.48	14.3	12.67	0.9

Shell Size	Variant	K	L	ØAA		b		d	
				MIN	MAX	MIN	MAX	MIN	MAX
E	46	2.77	1.52	5.15	5.25	0.45	0.55	-	-
A	47	2.77	1.52	5.15	5.25	0.45	0.55	-	-
B	48	2.77	1.52	5.15	5.25	0.45	0.55	-	-
C	49	2.77	1.52	5.15	5.25	0.45	0.55	-	-
D	50	2.77	1.52	5.15	5.25	0.45	0.55	-	-
F	78	2.77	1.52	-	-	-	-	15.15	15.35

NOTES:

1. All dimensions are in millimetres.
2. For Shell Sizes E, A, B, C and D, Backshells are available with an 'Alternate' (characteristic code 'A') design. See Para. 4.5.3.2.

FIGURE 2(j) – 45° LIGHTWEIGHT BACKSHELL ULTRA ELLIPTICAL BAND TERMINATION



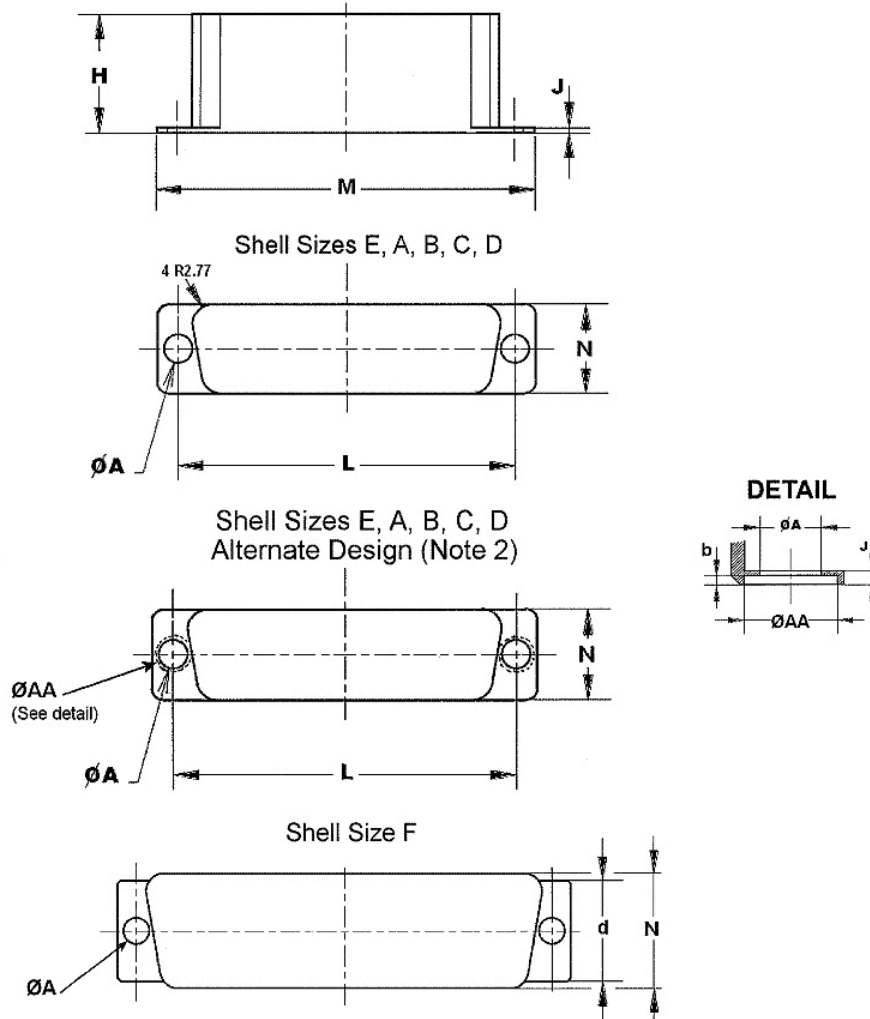
Shell Size	Variant		ØA		A		B		C		D		F	G
	Right Outlet	Left Outlet	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
E	51	56	3.91	4.03	30.18	30.94	12.32	13.08	24.66	25.12	12.32	13.08	38.1	9.53
A	52	57	3.91	4.03	38.51	39.27	12.32	13.08	33.19	33.45	15.49	16.25	38.1	9.53
B	53	58	3.91	4.03	52.4	53.16	12.32	13.08	46.81	47.17	18.67	19.43	38.1	9.53
C	54	59	3.91	4.03	68.56	69.42	12.32	13.08	63.37	63.63	25.02	25.78	38.1	9.53
D	55	60	3.91	4.03	66.29	67.05	15.09	15.85	60.98	61.24	21.84	22.6	38.1	12.3
F	79	79	3.91	4.03	68.94	69.7	17.09	17.85	63.37	63.63	28.62	29.38	38.1	14.3

Shell Size	Variant		H	J	K	ØAA		b		d	
	Right Outlet	Left Outlet				MIN	MAX	MIN	MAX	MIN	MAX
E	51	56	12.67	0.9	2.77	5.15	5.25	0.45	0.55	-	-
A	52	57	12.67	0.9	2.77	5.15	5.25	0.45	0.55	-	-
B	53	58	12.67	0.9	2.77	5.15	5.25	0.45	0.55	-	-
C	54	59	12.67	0.9	2.77	5.15	5.25	0.45	0.55	-	-
D	55	60	12.67	0.9	2.77	5.15	5.25	0.45	0.55	-	-
F	79	79	12.67	0.9	2.77	-	-	-	-	15.15	15.35

NOTES:

1. All dimensions are in millimetres.
2. For Shell Sizes E, A, B, C and D, Backshells are available with an 'Alternate' (characteristic code 'A') design. See Para. 4.5.3.2.

FIGURE 2(k) – LIGHTWEIGHT D-SUB EXTRA SHORTING CAN



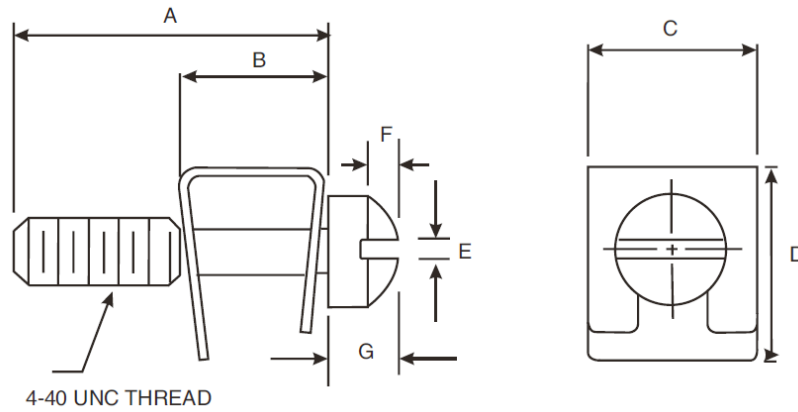
Shell Size	Variant	ØA		H	J	L		M		N	
		MIN	MAX			MIN	MAX	MIN	MAX	MIN	MAX
E	61	3.92	4.04	12.67	0.9	24.86	25.12	30.18	30.94	12.32	13.08
A	62	3.92	4.04	12.67	0.9	33.19	33.45	38.51	39.27	12.32	13.08
B	63	3.92	4.04	12.67	0.9	46.91	47.17	52.4	53.16	12.32	13.08
C	64	3.92	4.04	12.67	0.9	63.37	63.63	68.56	69.42	12.32	13.08
D	65	3.92	4.04	12.67	0.9	60.98	61.24	66.29	67.05	15.09	15.85
F	80	3.92	4.04	12.67	0.9	63.63	68.96	68.94	69.7	17.09	17.85

Shell Size	Variant	ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX
E	61	5.15	5.25	0.45	0.55	-	-
A	62	5.15	5.25	0.45	0.55	-	-
B	63	5.15	5.25	0.45	0.55	-	-
C	64	5.15	5.25	0.45	0.55	-	-
D	65	5.15	5.25	0.45	0.55	-	-
F	80	-	-	-	-	15.15	15.35

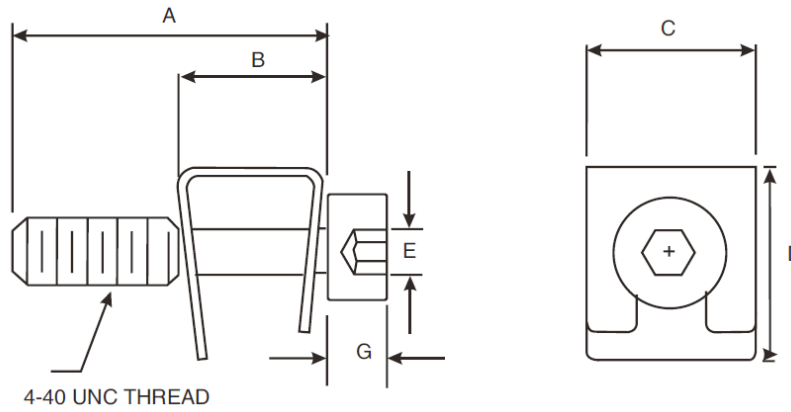
NOTES:

1. All dimensions are in millimetres.
2. For Shell Sizes E, A, B, C and D, D-SUB Extra Shorting Cans are available with an 'Alternate' (characteristic code 'A') design. See Para. 4.5.3.2.

FIGURE 2(L) – MALE SCREW LOCK ASSEMBLY
SLOTTED HEAD



HEX. HEAD

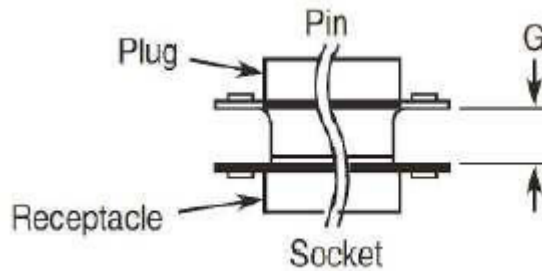


Variant	Head Type	A		B	C		D MAX	E		F		G
		MIN	MAX		MIN	MAX		MIN	MAX	MIN	MAX	
70	Slotted	5.97	6.5	3.35	5.58	7.11	6.8	0.78	0.99	0.89	1.22	2.75
71	Hex.	5.97	6.5	3.35	5.58	7.11	6.8	2.38 TYP.		-	-	2.85

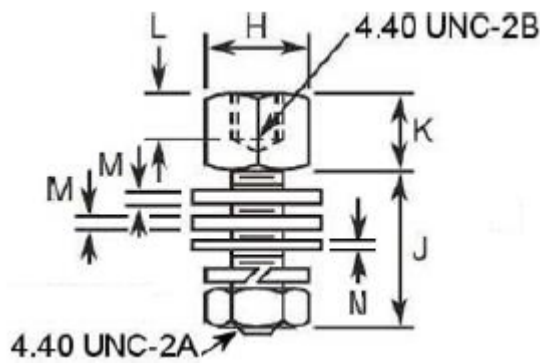
NOTES:

1. All dimensions are in millimetres.

**FIGURE 2(m) – FEMALE SCREW LOCK ASSEMBLY
MATED SPACING BETWEEN SHELL FRONT SURFACES**



FEMALE SCREW LOCK ASSEMBLY (VARIANTS 81 AND 82)

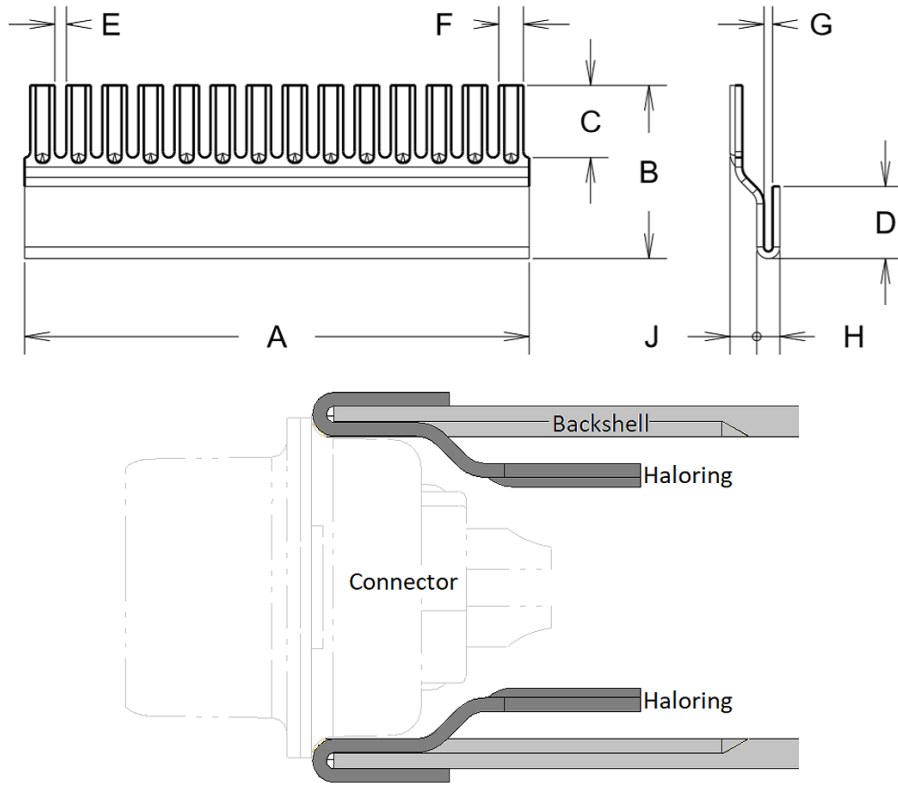


Dimension	Min	Max	Notes
G	6.35	7.11	1
	6.12	6.88	2
H	4.52	4.62	-
J	7.8	8.04	-
K	4.8	4.9	-
L	3.18	-	-
M	0.78	0.82	3
N	0.38	0.42	3

NOTES

1. For shell sizes E and A.
2. For shell sizes B, C and D
3. The spacing between the reference planes of 2 mated connectors shall be adjusted by the use of 3 washers maximum so the spacing is equal to dimension G.
 - Front mounting : Use 2 washers with M thickness
 - Rear mounting panel thickness 1.55 min. / 1.98 max. : No washer is required
 - Rear mounting panel thickness 1.16 min / 1.55 max. : Use 1 washer with N thickness
 - Rear mounting panel thickness 0.77 min. / 1.16 max. : Use 1 washer with M thickness

FIGURE 2(n) – HALORING



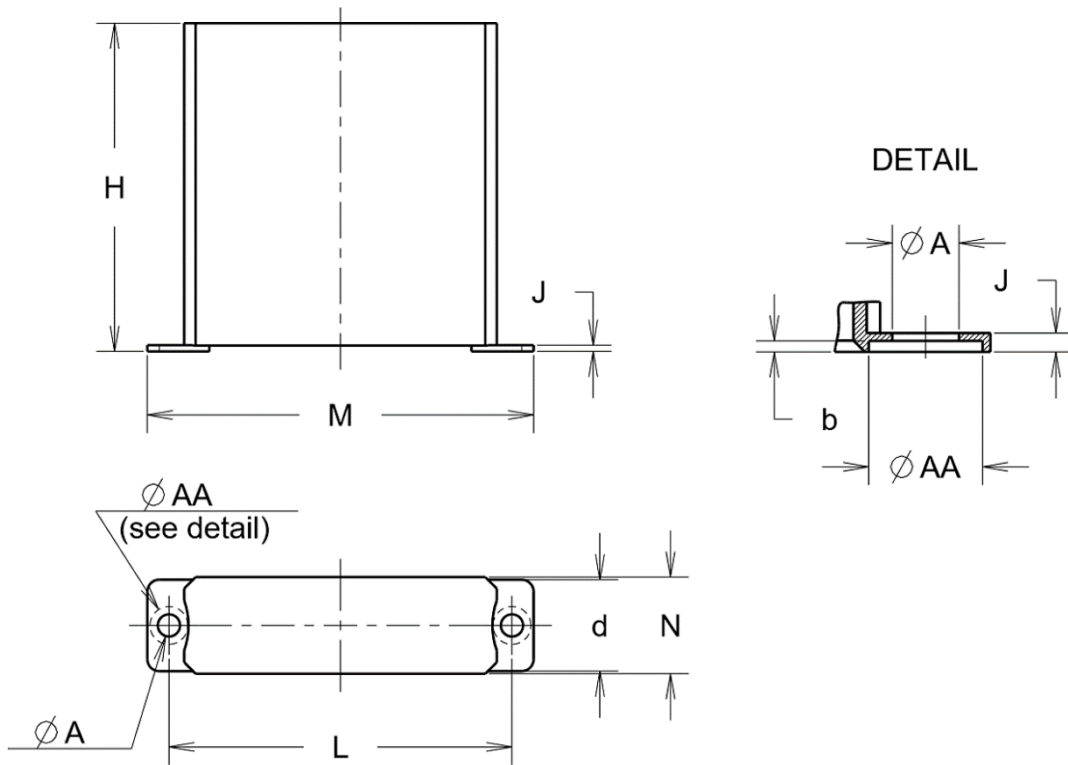
Shell Size	Variant	A		B		C		D		E		F	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	83	14.8	15.2	11.7	12.3	4.8	5.2	4.7	5.3	0.7	0.9	1.6	1.8
A	84	22.3	22.7	11.7	12.3	4.8	5.2	4.7	5.3	0.7	0.9	1.6	1.8
B	85	34.8	35.2	11.7	12.3	4.8	5.2	4.7	5.3	0.7	0.9	1.6	1.8
C & D	86	47.3	47.7	11.7	12.3	4.8	5.2	4.7	5.3	0.7	0.9	1.6	1.8
F	87	52.3	52.7	14.7	15.3	4.8	5.2	4.7	5.3	0.7	0.9	1.6	1.8

Shell Size	Variant	G		H		J		Number of Plates
		MIN	MAX	MIN	MAX	MIN	MAX	
E	83	0.5	0.7	1.5	1.7	1.7	2	6
A	84	0.5	0.7	1.5	1.7	1.7	2	9
B	85	0.5	0.7	1.5	1.7	1.7	2	14
C & D	86	0.5	0.7	1.5	1.7	1.7	2	19
F	87	0.5	0.7	1.5	1.7	1.7	2	21

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(o) – HALORING BACKSHELL - LIGHTWEIGHT D-SUB SHORTING CAN

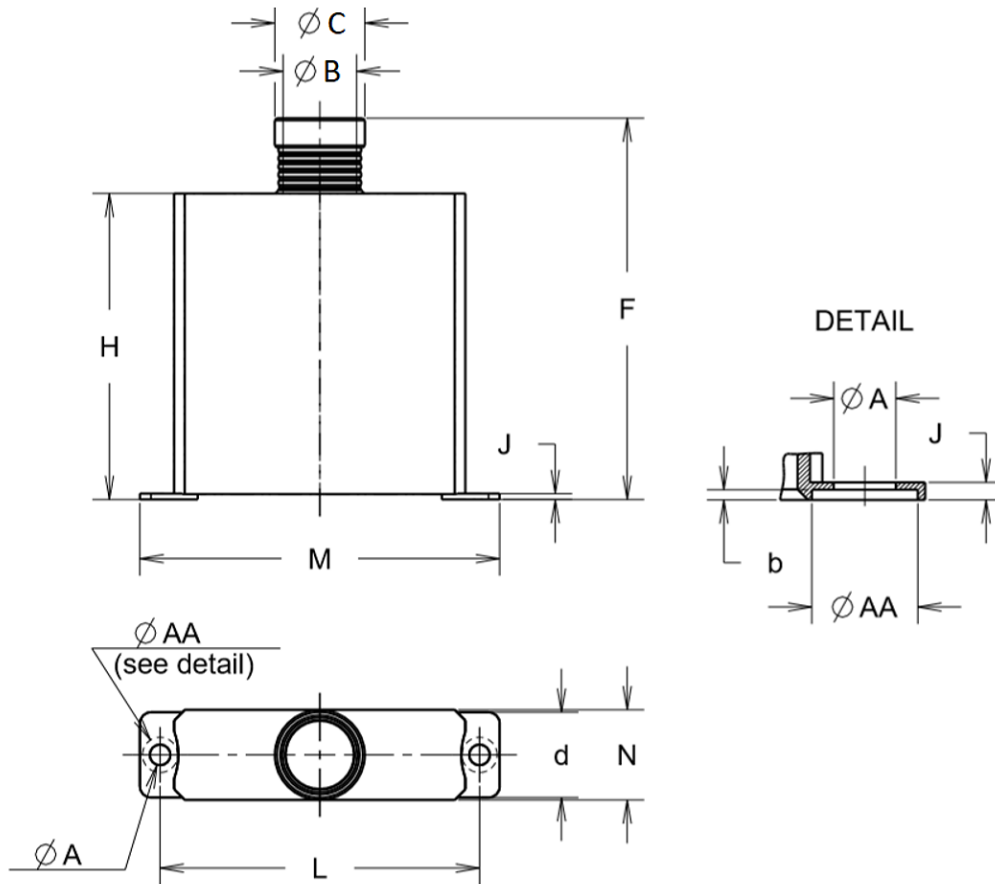


Shell Size	Variant	ØA		H	J	L		M		N		ØAA		b		d	
		MIN	MAX			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
E	88	3	3.1	45	0.9	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	89	3	3.1	45	0.9	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	90	3	3.1	45	0.9	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	91	3	3.1	45	0.9	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	92	3	3.1	45	0.9	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	93	3	3.1	45	0.9	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(p) – HALORING BACKSHELL - STRAIGHT CIRCULAR CABLE OUTLET



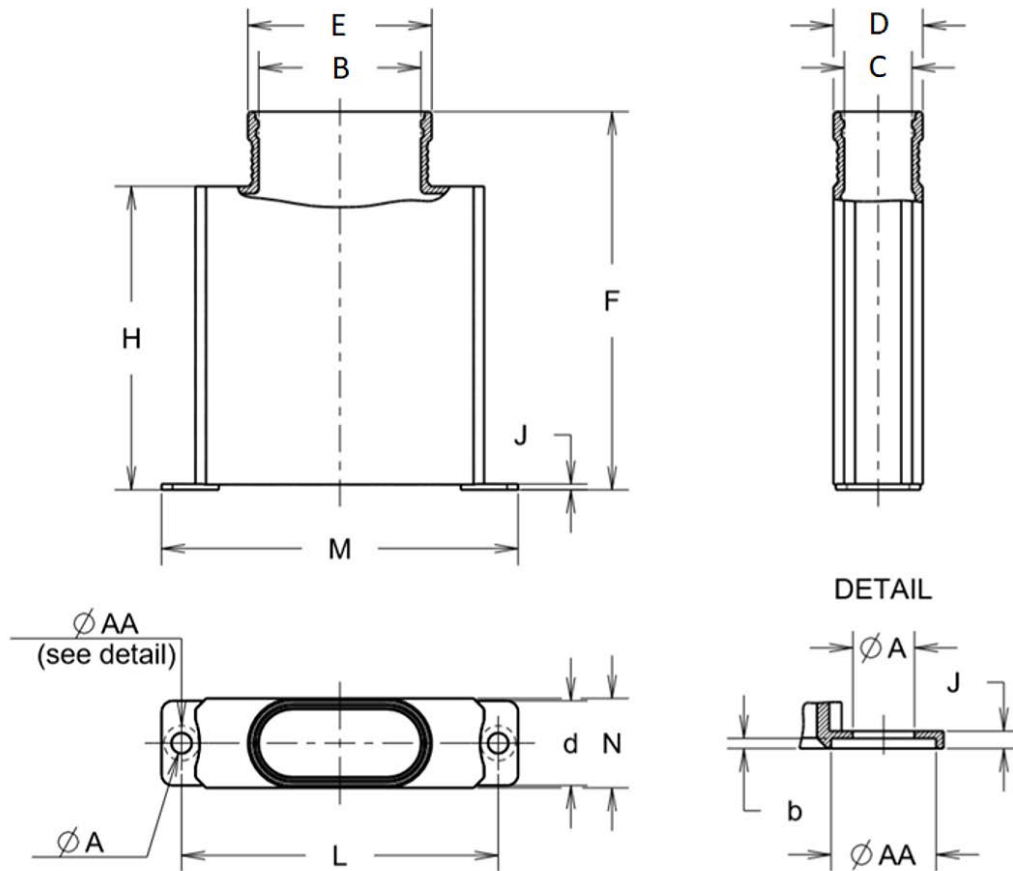
Shell Size	Variant	ØA		ØB		ØC		F	H	J	L	
		MIN	MAX	MIN	MAX	MIN	MAX				MIN	MAX
E	94	3	3.1	9.95	10.15	13.16	13.36	56.1	45	0.9	24.86	25.12
A	95	3	3.1	9.95	10.15	13.16	13.36	56.1	45	0.9	33.19	33.45
B	96	3	3.1	9.95	10.15	13.16	13.36	56.1	45	0.9	46.91	47.17
C	97	3	3.1	9.95	10.15	13.16	13.36	56.1	45	0.9	63.37	63.63
D	98	3	3.1	12.75	12.95	15.26	15.46	56.1	45	0.9	60.98	61.25
F	99	3	3.1	14.75	14.95	17.96	18.16	56.1	45	0.9	63.37	63.63

Shell Size	Variant	M		N		ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	94	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	95	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	96	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	97	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	98	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	99	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(q) – HALORING BACKSHELL - STRAIGHT ELLIPTICAL CABLE OUTLET



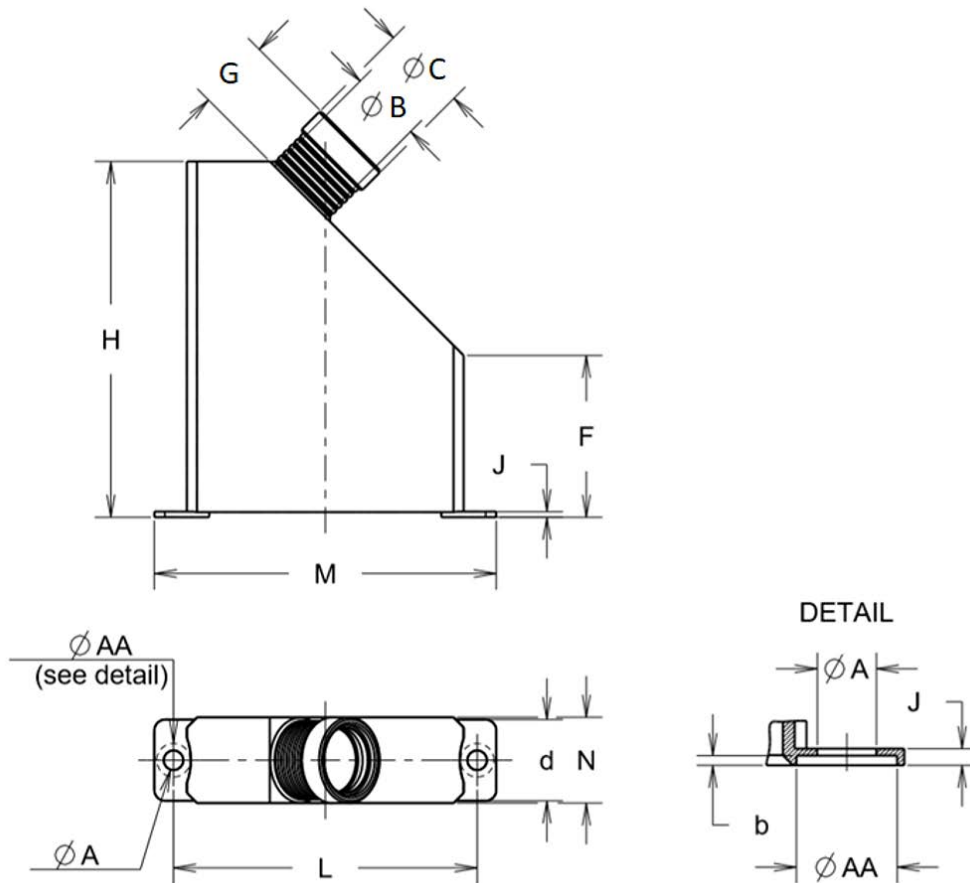
Shell Size	Variant	ØA		B		C		D		E		F	H	J
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX			
E	100	3	3.1	16.45	16.75	9.95	10.15	13.16	13.36	19.66	19.96	56.1	45	0.9
A	101	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	56.1	45	0.9
B	102	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	56.1	45	0.9
C	103	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	56.1	45	0.9
D	104	3	3.1	33.95	34.25	9.95	10.15	13.16	13.36	37.16	37.46	56.1	45	0.9
F	105	3	3.1	37.45	37.75	9.95	10.15	13.16	13.36	40.66	40.96	56.1	45	0.9

Shell Size	Variant	L		M		N		ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	100	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	101	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	102	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	103	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	104	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	105	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(r) – HALORING BACKSHELL - 45° CIRCULAR LONGITUDINAL CABLE OUTLET



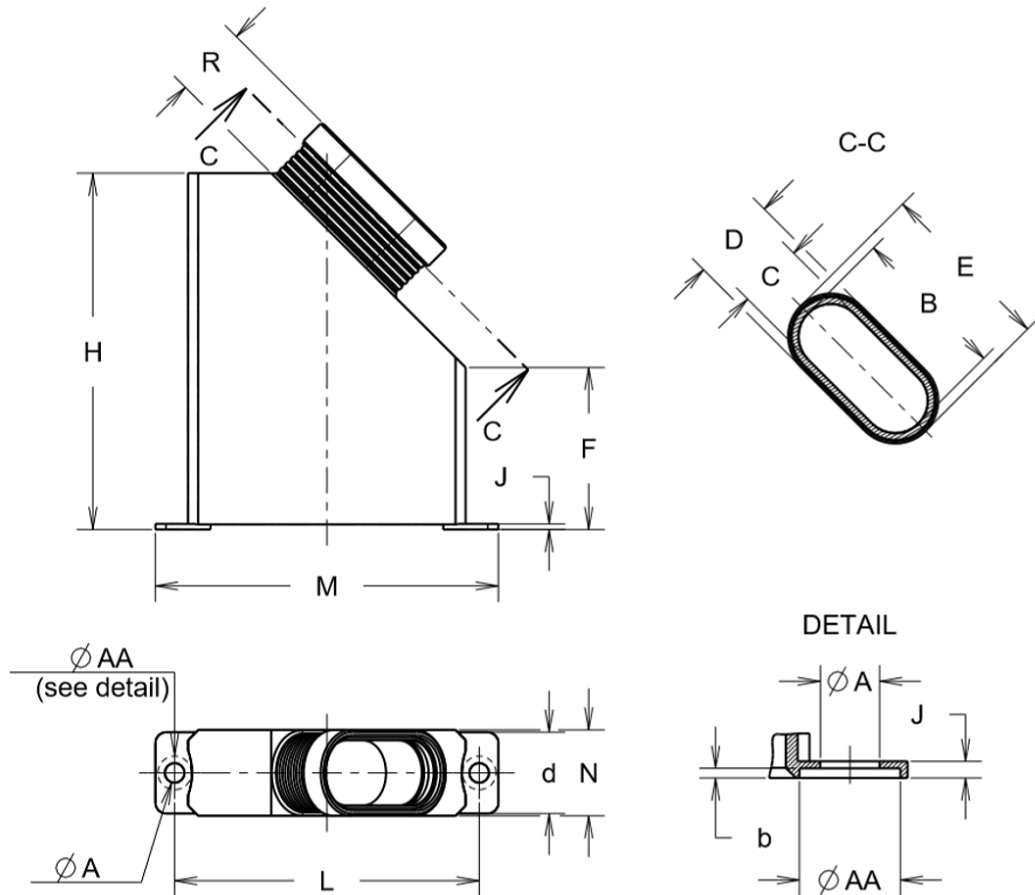
Shell Size	Variant	ØA		ØB		ØC		F	G		H	J
		MIN	MAX	MIN	MAX	MIN	MAX		MIN	MAX		
E	106	3	3.1	9.95	10.15	13.16	13.36	40	11	11.2	55	0.9
A	107	3	3.1	9.95	10.15	13.16	13.36	35	11	11.2	55	0.9
B	108	3	3.1	9.95	10.15	13.16	13.36	25	11	11.2	55	0.9
C	109	3	3.1	9.95	10.15	13.16	13.36	20	11	11.2	55	0.9
D	110	3	3.1	12.75	12.95	15.26	15.46	20	11	11.2	55	0.9
F	111	3	3.1	14.75	14.95	17.96	18.16	20	11	11.2	55	0.9

Shell Size	Variant	L		M		N		ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	106	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	107	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	108	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	109	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	110	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	111	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(s) – HALORING BACKSHELL - 45° ELLIPTICAL LONGITUDINAL CABLE OUTLET



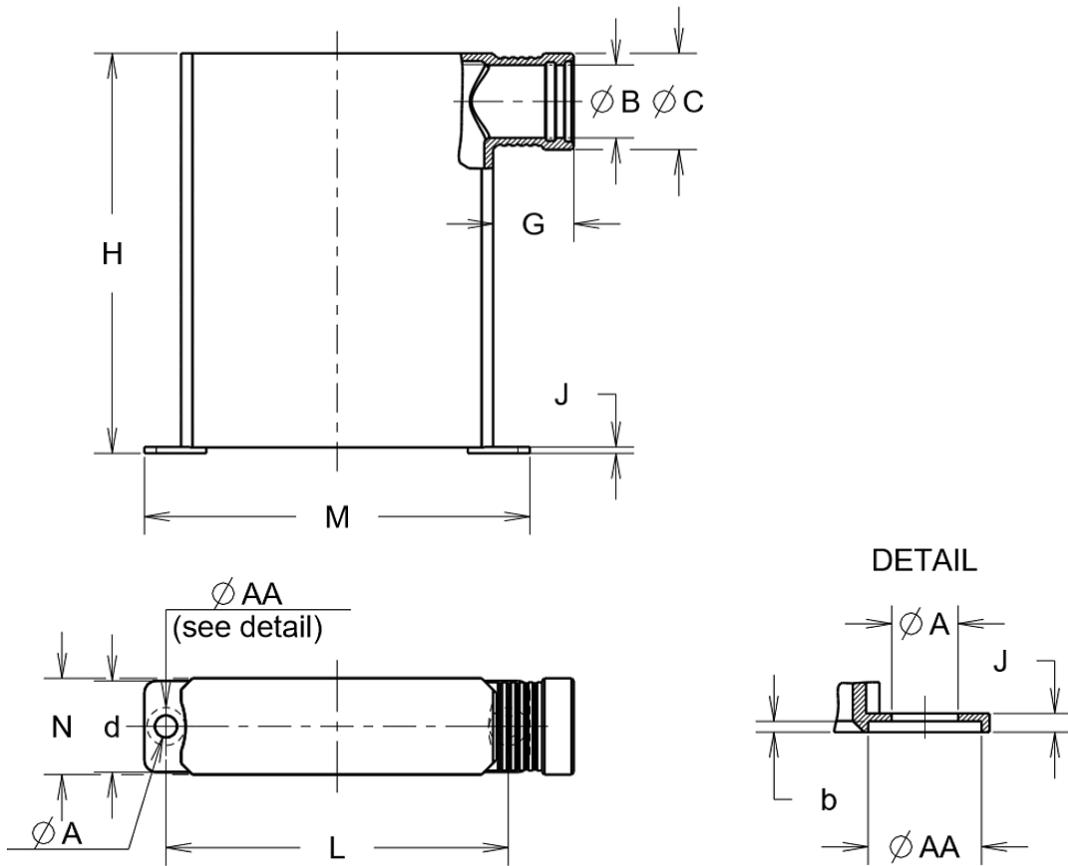
Shell Size	Variant	ØA		B		C		D		E		F	H	J
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX			
E	112	3	3.1	16.45	16.75	9.95	10.15	13.16	13.36	19.66	19.96	40	55	0.9
A	113	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	35	55	0.9
B	114	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	25	55	0.9
C	115	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	20	55	0.9
D	116	3	3.1	33.95	34.25	9.95	10.15	13.16	13.36	37.16	37.46	20	55	0.9
F	117	3	3.1	37.45	37.75	9.95	10.15	13.16	13.36	40.66	40.96	20	55	0.9

Shell Size	Variant	L		M		N		ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	112	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	113	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	114	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	115	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	116	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	117	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(t) – HALORING BACKSHELL - 90° CIRCULAR LONGITUDINAL CABLE OUTLET



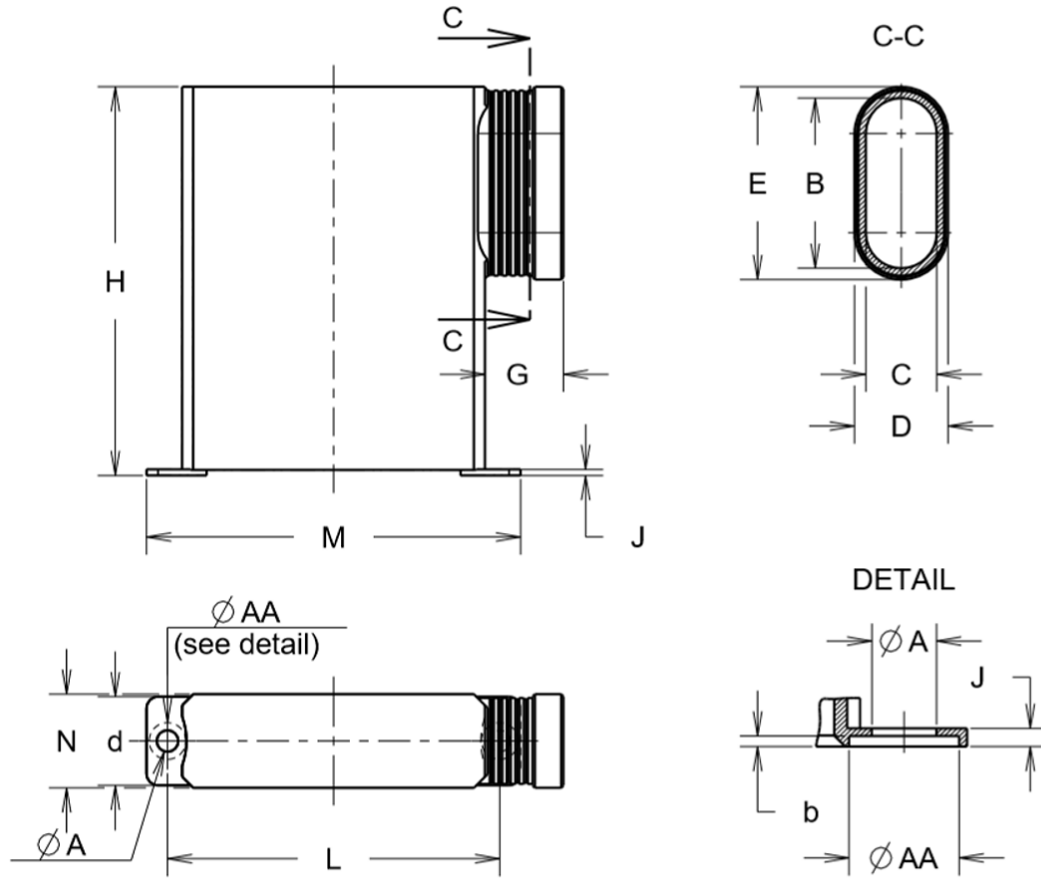
Shell Size	Variant	ØA		ØB		ØC		G		H	J
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
E	118	3	3.1	9.95	10.15	13.16	13.36	11	11.2	55	0.9
A	119	3	3.1	9.95	10.15	13.16	13.36	11	11.2	55	0.9
B	120	3	3.1	9.95	10.15	13.16	13.36	11	11.2	55	0.9
C	121	3	3.1	9.95	10.15	13.16	13.36	11	11.2	55	0.9
D	122	3	3.1	12.75	12.95	15.26	15.46	11	11.2	55	0.9
F	123	3	3.1	14.75	14.95	17.96	18.16	11	11.2	55	0.9

Shell Size	Variant	L		M		N		ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	118	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	119	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	120	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	121	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	122	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	123	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(u) – HALORING BACKSHELL - 90° ELLIPTICAL LONGITUDINAL CABLE OUTLET



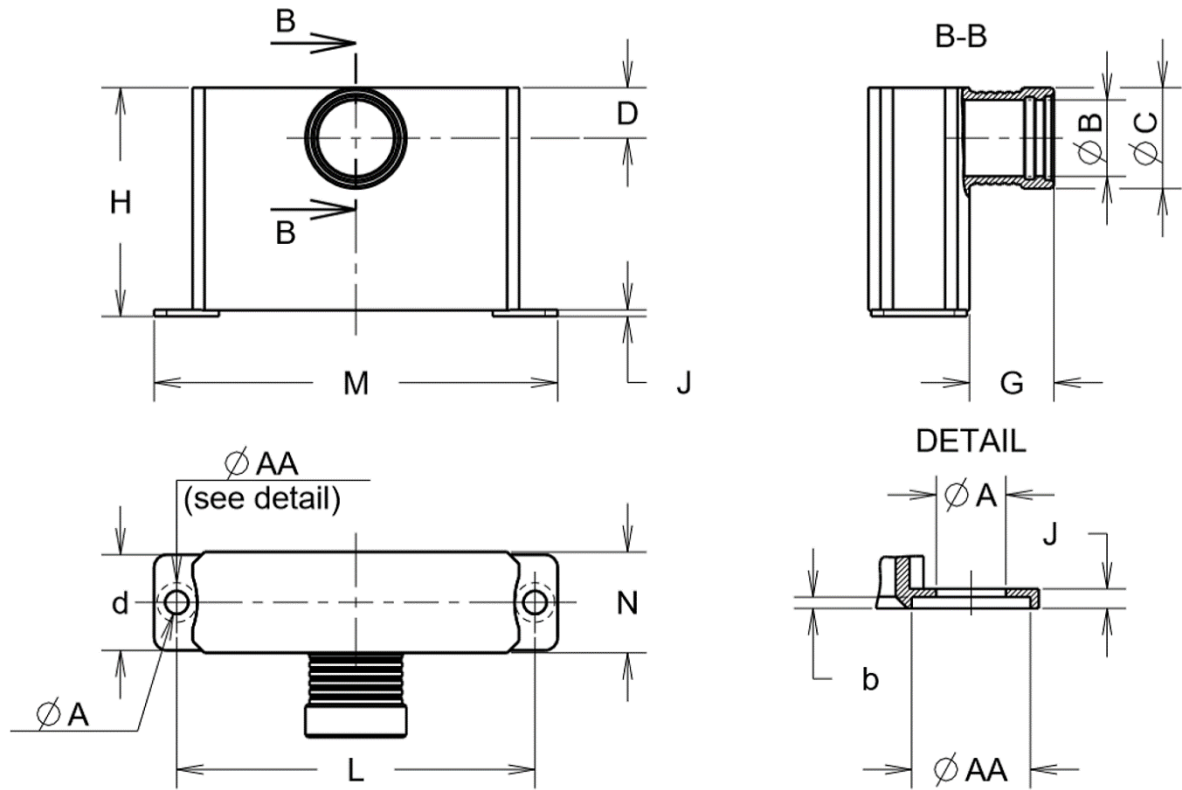
Shell Size	Variant	ØA		B		C		D		E		G		H
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
E	124	3	3.1	16.45	16.75	9.95	10.15	13.16	13.36	19.66	19.96	11	11.2	55
A	125	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	11	11.2	55
B	126	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	11	11.2	55
C	127	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	11	11.2	55
D	128	3	3.1	33.95	34.25	9.95	10.15	13.16	13.36	37.16	37.46	11	11.2	55
F	129	3	3.1	33.95	34.25	9.95	10.15	13.16	13.36	37.16	37.46	11	11.2	55

Shell Size	Variant	J	L		M		N		ØAA		b		d	
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	124	0.9	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	125	0.9	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	126	0.9	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	127	0.9	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	128	0.9	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	129	0.9	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(v) – HALORING BACKSHELL - 90° CIRCULAR TOP CABLE OUTLET



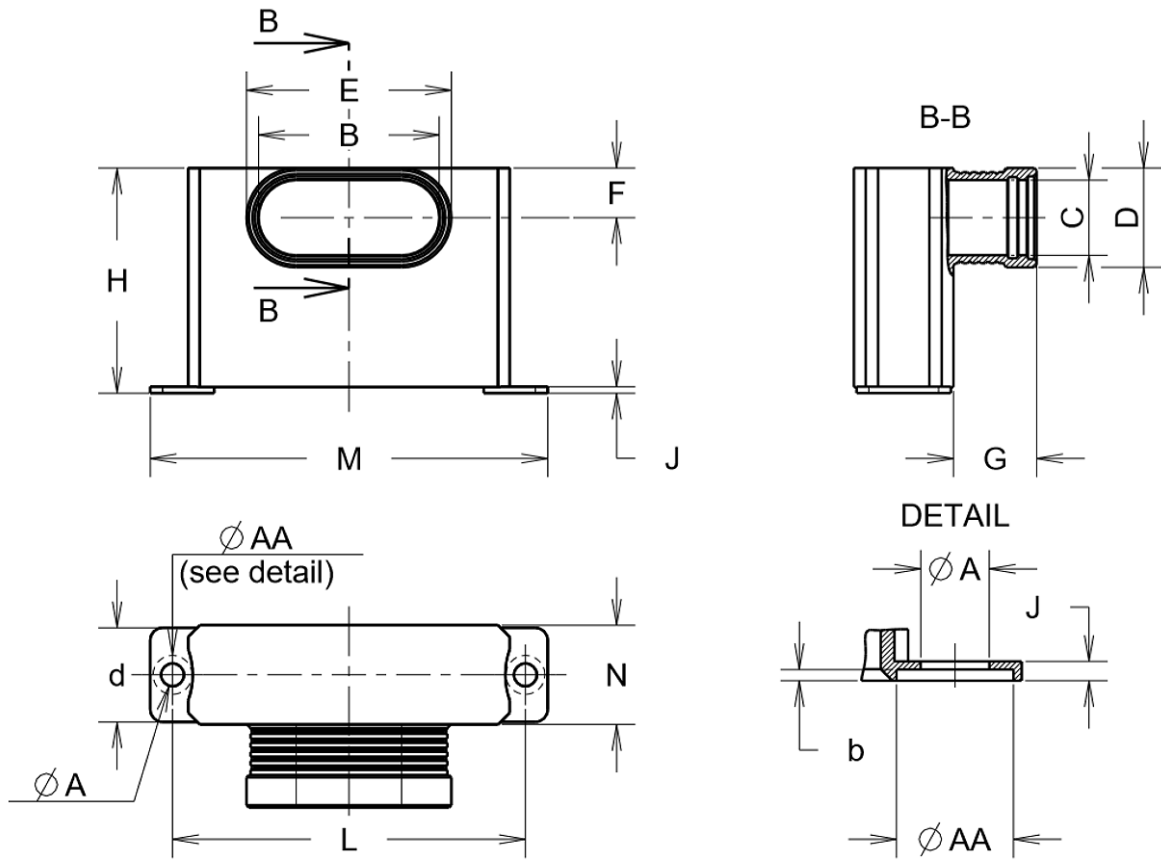
Shell Size	Variant	ØA		ØB		ØC		D		G		H	J
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
E	130	3	3.1	9.95	10.15	13.16	13.36	6.5	6.7	11	11.2	30	0.9
A	131	3	3.1	9.95	10.15	13.16	13.36	6.5	6.7	11	11.2	30	0.9
B	132	3	3.1	9.95	10.15	13.16	13.36	6.5	6.7	11	11.2	30	0.9
C	133	3	3.1	9.95	10.15	13.16	13.36	6.5	6.7	11	11.2	30	0.9
D	134	3	3.1	12.75	12.95	15.26	15.46	7.9	8.1	11	11.2	30	0.9
F	135	3	3.1	14.75	14.95	17.96	18.16	8.9	9.1	11	11.2	30	0.9

Shell Size	Variant	L		M		N		ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	130	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	131	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	132	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	133	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	134	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	135	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(w) – HALORING BACKSHELL - 90° ELLIPTICAL TOP CABLE OUTLET



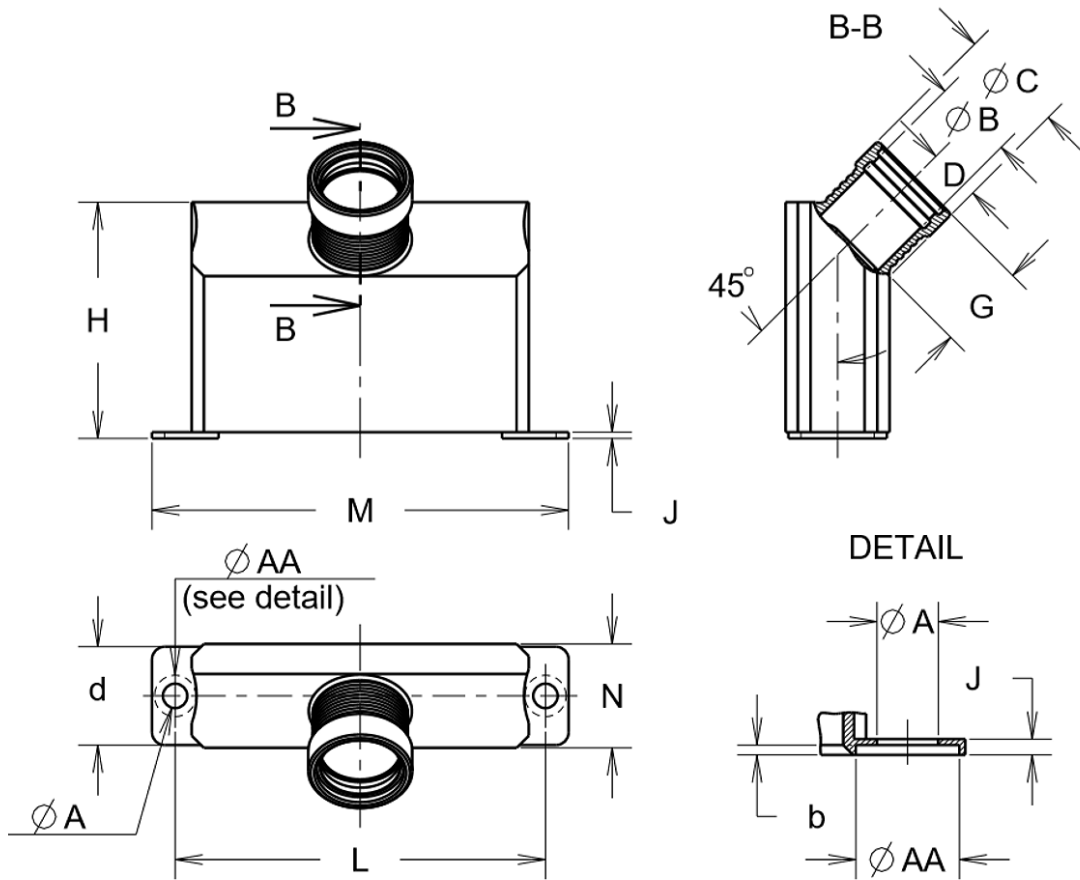
Shell Size	Variant	ØA		B		C		D		E		F		G		H
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
E	136	3	3.1	11.7	12	9.95	10.15	13.16	13.36	14.91	15.21	6.5	6.7	11	11.2	30
A	137	3	3.1	16.45	16.75	9.95	10.15	13.16	13.36	19.66	19.96	6.5	6.7	11	11.2	30
B	138	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	6.5	6.7	11	11.2	30
C	139	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	6.5	6.7	11	11.2	30
D	140	3	3.1	33.95	34.25	9.95	10.15	13.16	13.36	37.16	37.46	6.5	6.7	11	11.2	30
F	141	3	3.1	33.95	34.25	9.95	10.15	13.16	13.36	37.16	37.46	6.5	6.7	11	11.2	30

Shell Size	Variant	J	L		M		N		ØAA		b		d	
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	136	0.9	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	137	0.9	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	138	0.9	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	139	0.9	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	140	0.9	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	141	0.9	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(x) – HALORING BACKSHELL - 45° CIRCULAR TOP CABLE OUTLET



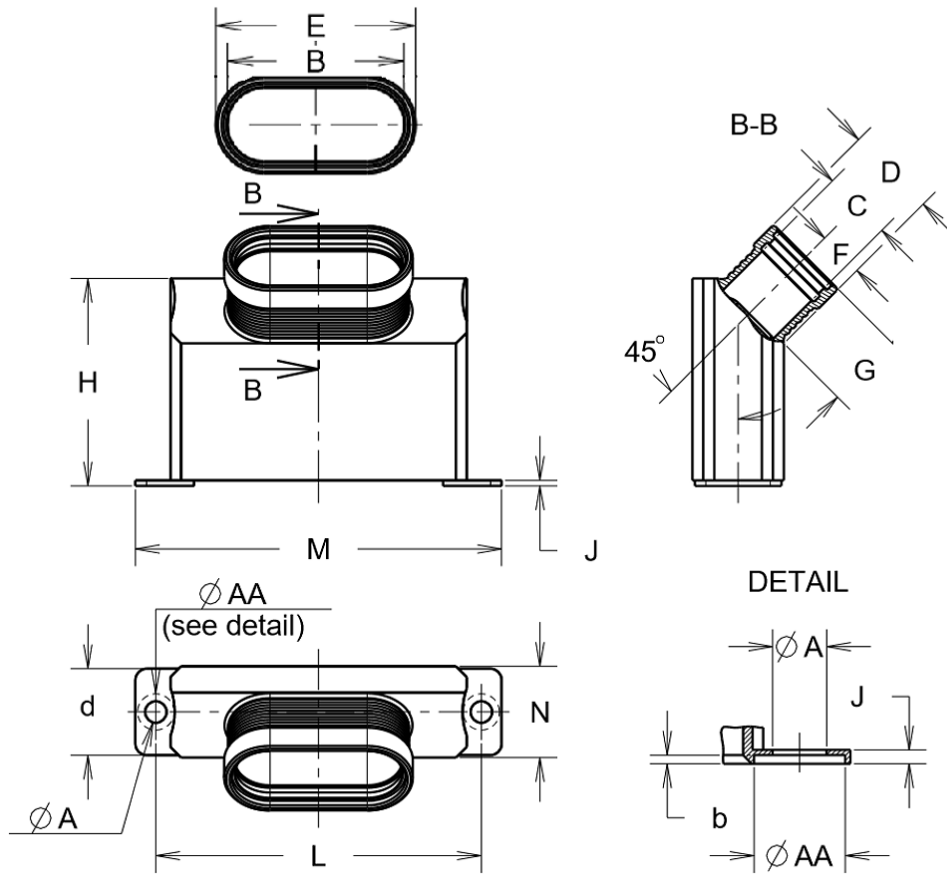
Shell Size	Variant	ØA		ØB		ØC		D		G		H	J
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		
E	142	3	3.1	9.95	10.15	13.16	13.36	6.5	6.7	11	11.2	30	0.9
A	143	3	3.1	9.95	10.15	13.16	13.36	6.5	6.7	11	11.2	30	0.9
B	144	3	3.1	9.95	10.15	13.16	13.36	6.5	6.7	11	11.2	30	0.9
C	145	3	3.1	9.95	10.15	13.16	13.36	6.5	6.7	11	11.2	30	0.9
D	146	3	3.1	12.75	12.95	15.26	15.46	7.55	7.75	11	11.2	30	0.9
F	147	3	3.1	14.75	14.95	17.96	18.16	8.9	9.1	11	11.2	30	0.9

Shell Size	Variant	L		M		N		ØAA		b		d	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	142	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	143	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	144	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	145	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	146	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	147	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

FIGURE 2(y) – HALORING BACKSHELL - 45° ELLIPTICAL TOP CABLE OUTLET



Shell Size	Variant	ØA		B		C		D		E		F		G		H
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
E	148	3	3.1	11.7	12	9.95	10.15	13.16	13.36	14.91	15.21	6.5	6.7	11	11.2	30
A	149	3	3.1	16.45	16.75	9.95	10.15	13.16	13.36	19.66	19.96	6.5	6.7	11	11.2	30
B	150	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	6.5	6.7	11	11.2	30
C	151	3	3.1	23.95	24.25	9.95	10.15	13.16	13.36	27.16	27.46	6.5	6.7	11	11.2	30
D	152	3	3.1	33.95	34.25	9.95	10.15	13.16	13.36	37.16	37.46	7.55	7.75	11	11.2	30
F	153	3	3.1	33.95	34.25	9.95	10.15	13.16	13.36	37.16	37.46	8.9	9.1	11	11.2	30

Shell Size	Variant	J	L		M		N		ØAA		b		d	
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
E	148	0.9	24.86	25.12	30.18	30.94	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
A	149	0.9	33.19	33.45	38.51	39.27	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
B	150	0.9	46.91	47.17	52.4	53.16	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
C	151	0.9	63.37	63.63	68.66	69.42	13.16	13.36	5.15	5.25	0.45	0.55	12.45	12.65
D	152	0.9	60.98	61.25	66.29	67.05	15.26	15.46	5.15	5.25	0.45	0.55	15.25	15.45
F	153	0.9	63.37	63.63	68.94	69.7	17.96	18.16	-	-	-	-	17.25	17.45

NOTES:

1. All dimensions are in millimetres.

4 REQUIREMENTS

4.1 GENERAL

The complete requirements for procurement of the accessories specified herein shall be as stated in this specification and ESCC Generic Specification No. 3401. Deviations from the Generic Specification, applicable to this specification only, are listed in Para 4.2.

Deviations from the Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESCC requirements and do not affect the components' reliability, are listed in the appendices attached to this specification.

4.2 DEVIATIONS FROM GENERIC SPECIFICATION

4.2.1 Deviations from Special In-Process Controls

- (a) Para. 5.2.2, Gold Plating Porosity: Not applicable.
- (b) Para. 5.2.3, Plating Thickness: Not applicable.

4.2.2 Deviations from Final Production Tests (Chart II)

Only the following tests shall be performed:

- (a) Para. 9.5, Magnetism Level (applies to Variants 01, 02, 05 to 67, 72 to 81, 83 to 153).
- (b) Para. 4.4, Marking.
- (c) Para. 9.6, Dimension Check.
- (d) Para. 9.7, External Visual Inspection. The magnification shall be $\times 3$.

4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)

Not applicable.

4.2.4 Deviations from Qualification Tests (Chart IV)

Not applicable.

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

Not applicable.

4.3 MECHANICAL REQUIREMENTS

4.3.1 Dimension Check

The dimensions of the accessories specified herein shall be verified in accordance with the requirements set out in Para. 9.6 of ESCC Generic Specification No. 3401 and shall conform to those shown in Figure 2 of this specification.

4.3.2 Weight

The maximum weight of the accessories specified herein shall be as shown in Table 1(a) of this specification.

4.3.3 Torque Value

The torque value to be used for tightening the screws of the accessories specified herein shall be as mentioned in Table 1(b) of this specification.

4.4 MATERIALS AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the components specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 Screw Lock Assemblies (Male and Female)

Material shall be brass plated with gold (0.7µm minimum) over copper (1µm minimum) or passivated stainless steel.

4.4.2 Lightweight Backshell

4.4.2.1 Shell and Clamps (if applicable)

Material shall be aluminium alloy with:

(a) Standard finish, for all lightweight backshell Variants: gold (0.7µm minimum) over nickel (20µm minimum)

or

(b) Alternate finish, for Variants 05 to 39, 46 to 65, 72 to 80 (characteristic code 'A174'; see Para. 4.5.3.3): nickel (25.4µm minimum)

4.4.2.2 Screws

Material shall be brass plated with gold (0.7µm minimum) over copper (1µm minimum).

4.4.3 Castellated Backshell

Material shall be copper alloy plated with gold (0.7µm minimum) over copper (1µm minimum).

4.4.4 EMI Gasket

Material shall be conductive silicone elastomer.

4.4.5 Magnetism Level

The allowable value of magnetism shall not exceed that specified for the relevant level (see Para. 4.5.3.1).

4.4.6 Haloring

Material shall be copper alloy plated with Silver (5µm minimum).

4.5 MARKING

4.5.1 General

The marking of components delivered to this specification shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and the following paragraphs. When the component is too small to accommodate all of the marking specified, as much as space permits shall be marked and the marking information, in full, shall accompany the component in its primary package.

The information to be marked, and the order of precedence, shall be as follows:

- (a) The ESCC Component Number.
- (b) Characteristics.
- (c) Traceability Information.

4.5.2 The ESCC Component Number

Each component shall bear the ESCC Component Number which shall be constituted and marked as follows:

Example: 340107205B

- Detail Specification Number: 3401072
- Type Variant (see Table 1(a)): 05
- Testing Level: B (Note: this is mandatory, as Testing Level 'C' is not applicable).

4.5.3 Characteristics

The characteristics to be marked in the following order of precedence are:

- (a) Magnetism Level.
- (b) Alternate Design.
- (c) Alternate Finish

Where applicable, the information shall be constituted and marked as follows:

Example: NMBA A174

- Magnetism level: NMB
- Alternate design code: A
- Alternate finish code: A174

4.5.3.1 *Magnetism Level (for all Variants, except Variants 03, 04, 68 to 71, 82)*

The following code shall be used for magnetism level:

CODE	DEFINITION
NMB	Magnetism Level: \leq 200 gamma

4.5.3.2 *Alternate Design*

Variants 05 to 39, 46 to 65 are available in 'Standard' and 'Alternate' designs. If the alternate design is required, the code letter "A" must be included in the characteristics marking. If the "A" is omitted, it shall be assumed that the 'Standard' design is required.

4.5.3.3 *Alternate Finish*

Variants 05 to 39, 46 to 65, 72 to 80 are available with 'Standard' and 'Alternate' finishes. If the 'alternate' finish is required, the code "A174" must be included in the characteristics marking. If the "A174" is omitted, it shall be assumed that the 'Standard' finish is required.

4.5.4 Traceability Information

Traceability information shall be marked in accordance with ESCC Basic Specification No. [21700](#).

4.6 ELECTRICAL MEASUREMENTS (TABLES 2 AND 3)

Not applicable.

4.7 BURN-IN AND ELECTRICAL MEASUREMENTS (TABLES 4 AND 5)

Not applicable.

4.8 ENVIRONMENTAL AND ENDURANCE TESTS (TABLE 6)

Not applicable.