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BICC - BURNDY BANTAM CONNECTORS

GENERAL AND TECHNICAL INFORMATION

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Chapter 1—1

BURNDY BANTAM SOLDERED CONNECTORS

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TABLES

ILLUSTRATIONS

LEADING PARTICULARS

B.I.C.C.—Burndy, Bantam connectors	
Current rating (maximum)	
Size 20 *contact*	10*A*
Size 16 *contact*	22*A*
Size 8 *coaxial contact*	75*A*
Contact millivolt drop (maximum) mated	
Size 20 *contact*	45*mV at* 5*A*
Size 16 *contact*	45*mV at* 10*A*
Size 8 *coaxial contact*	45*mV at* 20*A*
Working voltages (maximum)	
Sea level	600*V r.m.s.*
70 000 *ft*	300*V r.m.s.*
Axial loads for contact retention	
Size 20 *contact*	15 *lb*
Size 16 *contact*	25 *lb*
Contact engaging and separating forces (maximum)	
Size 20 *contact*	12 *oz*
Size 16 *contact*	24 *oz*
Flashover voltage	1*kV r.m.s. at* 70 000 *ft*
Insulation resistance	1000 *megohms at* 500*V d.c.*
Durability (minimum)	500 *cycles of engagement*

Introduction

1. The B.I.C.C.—Burndy Bantam Solder Series of bayonet lock connectors is a range of miniature general purpose connectors for the interconnection of multi-core cables and cable-forms. They are available in various insert arrangements in nine shell sizes. Size 16 or size 20 solder type contacts are available depending on the insert arrangement. Either the plug or the receptacle may be fitted with pin or socket contacts.

2. These connectors have been designed to conform to the requirements of the American specification MIL–C–26482 and are intermateable and interchangeable with similar connectors manufactured to that specification.

Significance of part numbers

3. Each connector in the range is completely identified by a grouped part number comprising letters and figures. The significance of the part number together with the MIL–C–26482 equivalents is shown in fig. 1. A typical number would be BT00E–8–3SW.

Insert position (orientation)

4. Several insert-shell orientation arrangements are provided to prevent cross-mating in applications where more than one connector of the same size and insert arrangement is used.

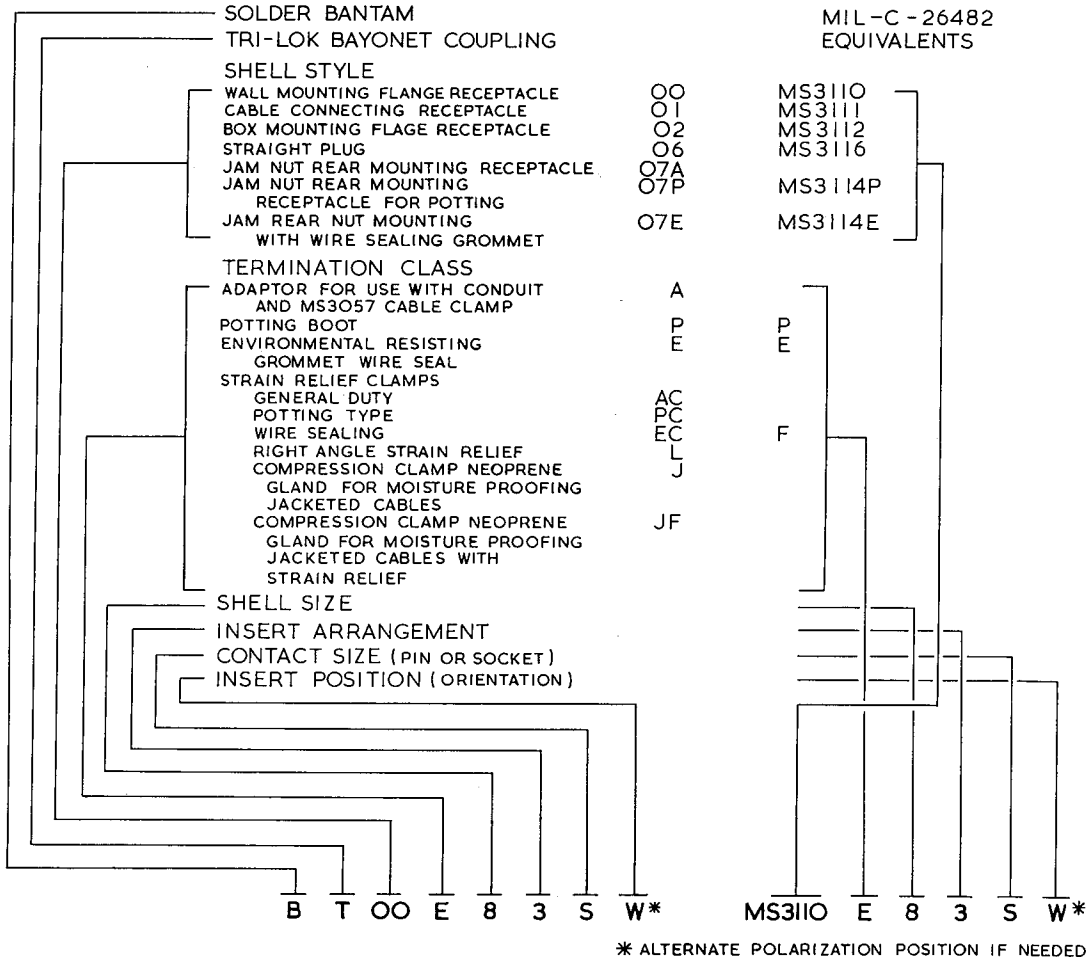


Fig. 1. Significance of part numbers

5. In the normal position the indexing radius coincides with the centre line of the master key or keyway, see fig. 2. When ordering the normal position no suffix letter is required in the part number. For alternative positions the pin type insert is rotated a number of degrees clockwise relative to the centre line of the master key or keyway of the shell as indicated in fig. 3. Similarly the socket type insert is rotated a number of degrees counter-clockwise.

6. Insert orientations are identified by the suffix letters W, X, Y or Z at the end of the part number.

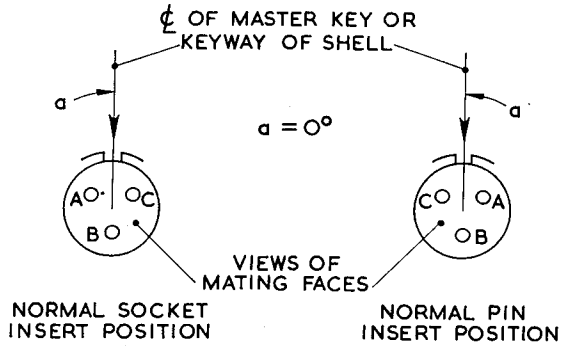


Fig. 2. Normal position of insert

The insert is permanently assembled, with the desired orientation, within the shell during manufacture and therefore cannot be reorientated.

Contacts

7. Pin and socket contacts are machined from high conductivity copper alloy, gold over silver plated. The socket has a closed entry design with a stainless steel contact spring which assures constant pressure for electrical contact. They are available in two sizes and current ratings:—

(1)—Size 20—10A

(2) Size 16—22A.

8. Size 20 contacts accommodate wire of 20-24 A.W.G. range and size 16 accommodate 16-20 A.W.G. range.

9. Standard contacts will accommodate the following cable insulation diameters:—

(1) Size 20

(2) Size 16.

10. The contacts are permanently assembled within the insert and no attempt should be made to remove them.

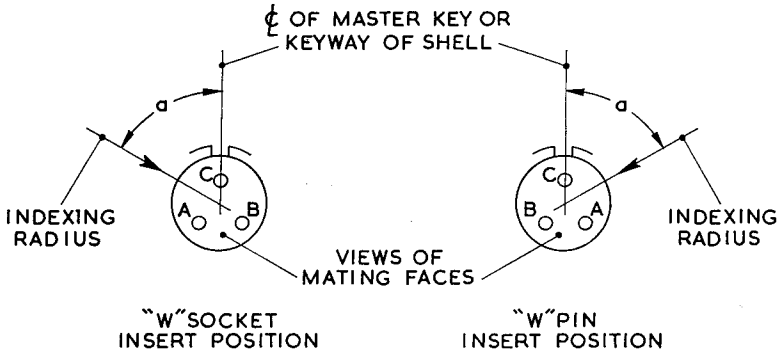


Fig. 3. Orientated position of insert

Contact arrangements

11. Fig. 4. shows the insert arrangements available in each shell size. Also the number and size of contacts fitted to each arrangement.

TABLE 1

Shell finishes

Suffix	Description
J	Alumilite silver grey
K	Alumilite olive drab
L	Cadmium gold chromate
H2	Cadmium olive drab chromate
J2	Alumilite silver grey
K2	Alumilite olive drab
L2	Cadmium gold chromate

Note . . .

If assembly finish plating other than standard is desired, add correct suffix letter to the end of the part number. No suffix letter is required for the standard cadmium plate, olive drab chromate finish, i.e. BT00E–8–4SW–J for alumilite silver grey finish.

TABLE 2

Accessories

Class of accessory	Part No. of separate item
A	B–P36–H
AC external thread	B–AC3–H
PC external thread	B–PC3–H
EC external thread	B–EC3–H
AC internal thread	B–AC–H
PC internal thread	B–PC–H
EC internal thread	B–EC–H
P	B–P103
75 deg. potting boot	B–P64
J	B–JCH

TABLE 3

Shell styles and applicable accessories
(fig. 5 to 13)

Shell style	Accessory
BT00, BT00–2	E, A, P, J, JF
BT01	AC, PC, EC with
BT06	internal thread
BT02, BT02–2	No accessories
BT07E	AC, PC, EC with external thread
BT07A	If a strain relief clamp is required it must be ordered with the connector.
BT07P	

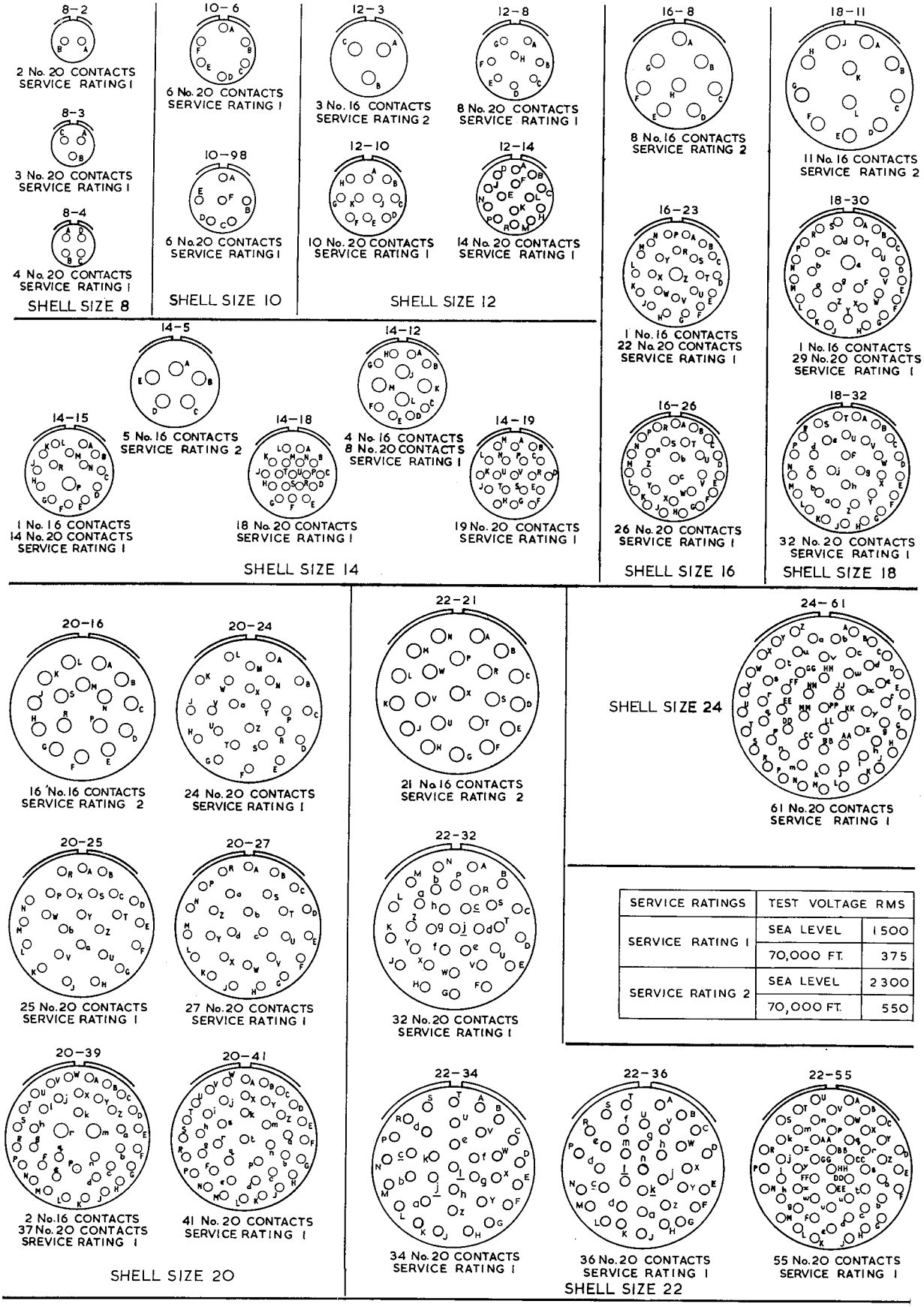
Shell styles and finishes

12. The following shell styles are available within the solder Bantam range. Leading dimensions and panel cut-out details are as shown in Table 4 to 12. Fig. 5 to 13 indicates the dimension code letters used in the tables.

(1) *BT00 Square Flange Receptacle* (fig. 5). The BT00 square flange wall mounting receptacle conforms to MS3110 specification and mates with the BT06 straight plug.

(2) *BT01 Cable Connecting Receptacle* (fig. 6). The BT01 cable connecting receptacle conforms to MS3111 specification and mates with the BT06 straight plug. This receptacle is used when in-line coupling is required on a coupling which has flying leads.

(3) *BT02 Square Flange Receptacle* (fig. 8). The BT02 square flange, box mounting receptacle is used for mounting on components. For this reason no provision is made for accessories or potting on the rear of this style. It conforms to MS3112 specification and mates with the BT06 straight plug.



SERVICE RATINGS	TEST VOLTAGE RMS	
SERVICE RATING 1	SEA LEVEL	1500
	70,000 FT.	375
SERVICE RATING 2	SEA LEVEL	2300
	70,000 FT.	550

Fig. 4. Contact arrangements

(4) *BT06 Straight Plug* (fig. 7). The BT06 straight plug is a free unit and conforms to MS3116 specification. It will mate with all other types in the series.

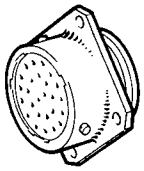
(5) *BT07A Jam Nut Receptacle* (fig. 11). The BT07A jam nut receptacle is single hole panel mounted and mates with the BT06 straight plug. If a strain relief clamp is required it must be ordered with the connector.

(6) *BT07P Jam Nut Receptacle* (fig. 12). The BT07P jam nut receptacle is single hole panel mounted and conforms to MS3114P specification. It has a potting boat fitted at the rear and will mate with the BT06 straight plug.

(7) *BT07E Jam Nut Receptacle* (fig. 13). The BT07E jam nut receptacle is single hole panel mounted and conforms to MS3114E specification. A wire sealing grommet is fitted at the rear, so making it fully environmental. It will mate with the BT06 straight plug. The maximum and minimum panel thicknesses to be used for jam nut receptacles are shown in Tables 10 to 12. Fig. 11 to 13 indicates the dimension code letters used in the table.

(8) *BT00–2 Square Flange Receptacle* (fig. 9). The BT002 square flange wall mounted receptacle is similar to the BT00 style except that the mounting flange is larger.

(9) *BT02–2 Square Flange Receptacle* (fig. 10). The BT02–2 square flange box mounting receptacle is similar to the BT02 style except that the mounting flange is larger.



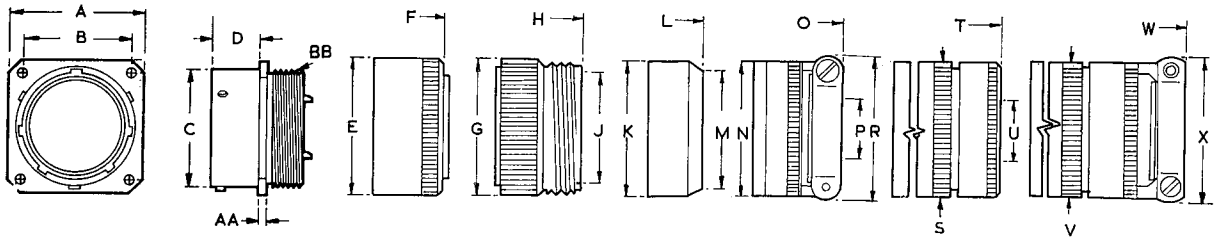


Fig. 5. Wall mounting receptacle, Type BT00 (MS3110)

TABLE 4

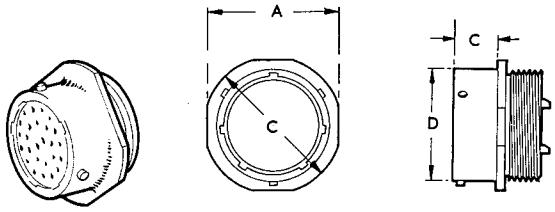
Wall mounting receptacles, Type BT00 (MS3110) (fig. 5)

Shell size	Shell						Dimensions E Termination	
	A	B	C	D	AA	BB	E	F
8	0·828	0·594	0·473	0·431	0·062	0·438–28	0·608	1·281
10	0·954	0·719	0·590	0·431	0·062	0·562–24	0·734	1·281
12	1·047	0·812	0·750	0·431	0·062	0·687–24	0·858	1·281
14	1·141	0·906	0·875	0·431	0·062	0·812–20	0·984	1·281
16	1·234	0·969	1·000	0·431	0·062	0·938–20	1·110	1·281
18	1·328	1·062	1·125	0·431	0·062	1·062–18	1·234	1·281
20	1·453	1·156	1·250	0·556	0·094	1·187–18	1·360	1·531
22	1·578	1·250	1·375	0·556	0·094	1·312–18	1·484	1·531
24	1·703	1·375	1·500	0·589	0·094	1·438 -18	1·610	1·594

TABLE 4 (Continued)

Shell size	Dimensions							
	A General duty			Potting boot			Strain relief clamps	
	G	H	J	K	L	M	N	O
8	0·608	1·453	0·297	0·608	1·453	0·317	0·608	1·844
10	0·734	1·453	0·421	0·734	1·453	0·434	0·734	1·844
12	0·858	1·453	0·546	0·858	1·453	0·548	0·858	1·844
14	0·984	1·453	0·663	0·984	1·453	0·673	0·984	1·844
16	1·110	1·453	0·787	1·110	1·453	0·798	1·110	1·969
18	1·234	1·453	0·879	1·234	1·453	0·899	1·234	1·969
20	1·360	1·699	1·014	1·360	1·672	1·024	1·360	2·234
22	1·484	1·699	1·135	1·484	1·672	1·149	1·484	2·234
24	1·610	1·699	1·259	1·610	1·734	1·274	1·610	2·297

Shell size	Dimensions							
	Strain relief clamps		J Compression clamp			JF Compression clamp		
	P	R	S	T	U	V	W	X
8	0·125	0·828	0·608	1·781	$\frac{0·168}{0·230}$	0·608	2·250	0·828
10	0·188	0·891	0·734	2·125	$\frac{0·550}{0·616}$	0·734	2·250	0·891
12	0·312	1·016	0·858	2·250	$\frac{0·338}{0·442}$	0·858	2·375	1·016
14	0·375	1·141	0·984	2·469	$\frac{0·416}{0·539}$	0·984	2·625	1·141
16	0·500	1·203	1·110	2·703	$\frac{0·550}{0·616}$	1·110	3·000	1·203
18	0·625	1·402	1·234	2·969	$\frac{0·600}{0·672}$	1·234	3·250	1·402
20	0·625	1·402	1·360	3·594	$\frac{0·635}{0·747}$	1·360	3·750	1·412
22	0·750	1·590	1·484	3·750	$\frac{0·670}{0·846}$	1·484	3·812	1·590
24	0·800	1·652	1·610	4·125	$\frac{0·740}{0·894}$	1·610	4·125	1·652



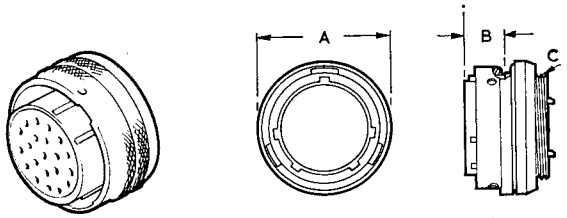
NOTE :- ACCESSORIES ARE AS FOR FIG. 5

Fig. 6. Cable connecting receptacle, Type BT01 (MS3111)

TABLE 5

Cable connecting receptacles, Type BT01 (MS3111) (fig. 6)

Shell size	Dimensions				
	A	B	C	D	E
8	0·844	0·946	0·400	0·473	0·438–28
10	0·969	1·072	0·400	0·590	0·562–24
12	1·062	1·166	0·400	0·750	0·687–24
14	1·156	1·260	0·400	0·875	0·812–20
16	1·250	1·354	0·400	1·000	0·938–20
18	1·344	1·448	0·400	1·125	1·062–18
20	1·469	1·572	0·535	1·250	1·187–18
22	1·594	1·698	0·535	1·375	1·312–18
24	1·719	1·822	0·568	1·500	1·438–18



NOTE :- ACCESSORIES ARE AS FOR FIG. 5

Fig. 7. Straight plug, Type BT06 (MS3116)

TABLE 6

Straight plug, Type BT06 (MS3116) (fig. 7)

Shell size	Dimensions		
	A	B	C
8	0·750	0·337	0·438–28
10	0·859	0·337	0·562–24
12	1·031	0·337	0·687–24
14	1·156	0·337	0·812–20
16	1·281	0·337	0·938–20
18	1·391	0·337	1·062–18
20	1·531	0·399	1·187–18
22	1·656	0·399	1·312–18
24	1·777	0·399	1·438–18

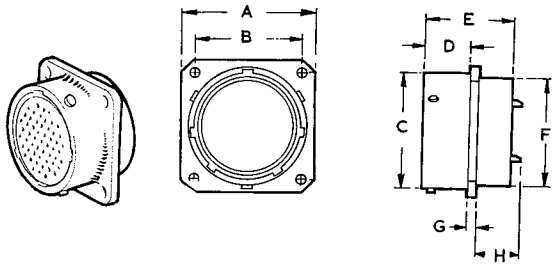


Fig. 8. Box mounting receptacle, Type BT02 (MS3112)

TABLE 7

Box mounting receptacle, Type BT02 (MS3112) (fig. 8)

Shell size	Dimensions							
	A	B	C	D	E	F	G	H
8	0·828	0·594	0·473	0·431	0·805	0·436	0·062	0·501
10	0·954	0·719	0·590	0·431	0·805	0·561	0·062	0·501
12	1·047	0·812	0·750	0·431	0·805	0·686	0·062	0·501
14	1·141	0·906	0·875	0·431	0·805	0·811	0·062	0·501
16	1·234	0·969	1·000	0·431	0·805	0·936	0·062	0·501
18	1·328	1·062	1·125	0·431	0·805	1·061	0·062	0·501
20	1·453	1·156	1·250	0·556	1·056	1·186	0·094	0·562
22	1·578	1·250	1·375	0·556	1·056	1·311	0·094	0·562
24	0·703	1·375	1·500	0·589	1·089	1·436	0·094	0·562

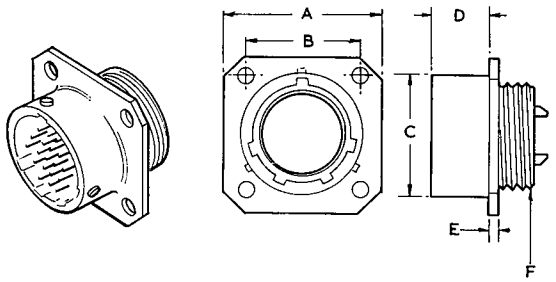


Fig. 9. Large flange wall mounting receptacle, Type BT00–2

TABLE 8

Large flange wall mounting receptacle, Type BT00–2 (fig. 9)

Shell size	Dimensions					
	A	B	C	D	E	F
8	1·062	0·734	0·473	0·462	0·062	0·438–28
10	1·141	0·812	0·590	0·462	0·062	0·562–24
12	1·266	0·938	0·750	0·462	0·062	0·687–24
14	1·350	1·031	0·875	0·462	0·062	0·812–20
16	1·453	1·125	1·000	0·462	0·062	0·938–20
18	1·532	1·203	1·125	0·462	0·062	1·062–18
20	1·688	1·297	1·250	0·556	0·094	1·187–18
22	1·766	1·375	1·375	0·556	0·094	1·312–18
24	1·891	1·500	1·500	0·589	0·094	1·438–18

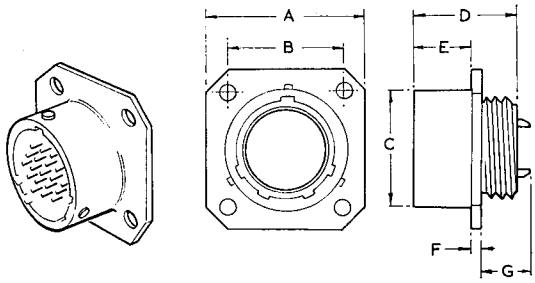


Fig. 10. Large flange box mounting receptacle, Type BT02–2

TABLE 9

Large flange box mounting receptacle, Type BT02–2 (fig. 10)

Shell size	Dimensions						
	A	B	C	D	E	F	G
8	1·062	0·734	0·473	0·805	0·462	0·062	0·585
10	1·141	0·812	0·590	0·805	0·462	0·062	0·585
12	1·266	0·938	0·750	0·805	0·462	0·062	0·585
14	1·360	1·031	0·875	0·805	0·462	0·062	0·585
16	1·453	1·125	1·000	0·805	0·462	0·062	0·585
18	1·532	1·203	1·125	0·805	0·462	0·062	0·585
20	1·688	1·297	1·250	1·056	0·556	0·094	0·546
22	1·766	1·375	1·375	1·056	0·556	0·094	0·546
24	1·891	1·500	1·500	1·089	0·589	0·094	0·513

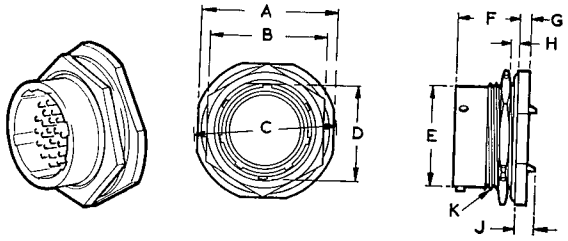


Fig. 11. Jam nut receptacle, Type BT07A

TABLE 10

Jam nut receptacle, Type BT07A (fig. 11)

Shell size	Dimensions									
	A	B	C	D	E	F	G	H	J	K
8	0·954	0·767	1·078	0·530	0·473	0·691	0·117	0·062 / 0·125	0·287	0·562–24
10	1·078	0·892	1·203	0·655	0·590	0·691	0·117	0·062 / 0·128	0·287	0·687–24
12	1·266	1·079	1·391	0·818	0·750	0·691	0·117	0·062 / 0·125	0·287	0·875–20
14	1·391	1·205	1·516	0·942	0·875	0·691	0·117	0·062 / 0·125	0·287	1·000–20
16	1·516	1·329	1·641	1·066	1·000	0·691	0·117	0·062 / 0·125	0·287	1·125–18
18	1·641	1·455	1·766	1·191	1·125	0·691	0·117	0·062 / 0·125	0·287	1·250–18
20	1·828	1·579	1·954	1·316	1·250	0·879	0·148	0·062 / 0·250	0·317	1·375–18
22	1·954	1·705	2·078	1·441	1·375	0·879	1·148	0·062 / 0·250	0·317	1·500–18
24	2·078	1·829	2·203	1·566	1·500	0·912	0·148	0·062 / 0·250	0·284	1·625–18

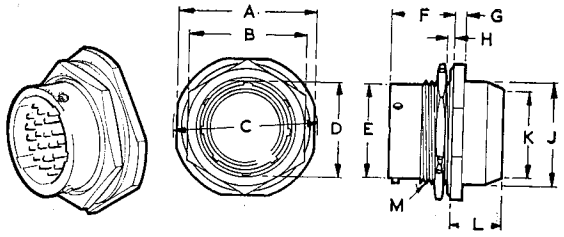


Fig. 12. Jam nut receptacle for potting, Type BT07P (MS3114P)

TABLE 11

Jam nut receptacle for potting, Type BT07P (MS3114P) (fig. 12)

Shell size	Dimensions					
	A	B	C	D	E	F
8	0·954	0·767	1·078	0·530	0·473	0·691
10	1·078	0·892	1·203	0·655	0·590	0·691
12	1·266	1·079	1·391	0·816	0·750	0·691
14	1·391	1·205	1·516	0·942	0·875	0·691
16	1·516	1·329	1·641	1·066	1·000	0·691
18	1·641	1·455	1·766	1·191	1·125	0·691
20	1·828	1·579	1·954	1·316	1·250	0·879
22	1·954	1·705	2·078	1·441	1·375	0·879
24	2·078	1·829	2·203	1·566	1·500	0·912

Shell size	Dimensions					
	G	H	J	K	L	M
8	0·117	$\frac{0·062}{0·125}$	0·608	0·317	0·700	0·562–24
10	0·117	$\frac{0·062}{0·125}$	0·734	0·434	0·700	0·687–24
12	0·117	$\frac{0·062}{0·125}$	0·858	0·548	0·700	0·875–20
14	0·117	$\frac{0·062}{0·125}$	0·984	0·673	0·700	1·000–20
16	0·117	$\frac{0·062}{0·125}$	1·110	0·798	0·700	1·125–18
18	0·117	$\frac{0·062}{0·125}$	1·234	0·899	0·700	1·255–18
20	0·148	$\frac{0·062}{0·250}$	1·360	1·024	0·762	1·375–18
22	0·148	$\frac{0·062}{0·250}$	1·484	1·149	0·762	1·500–18
24	0·148	$\frac{0·062}{0·250}$	1·610	1·274	0·791	1·625–18

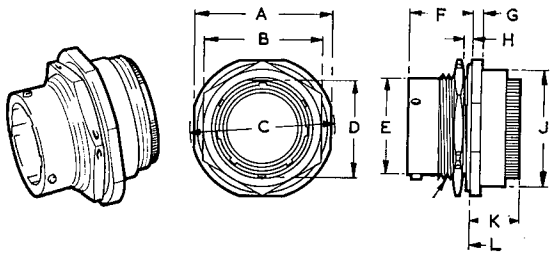


Fig. 13. Jam nut receptacle wire sealing grommet, Type BT07E (MS3144E)

TABLE 12

Jam nut receptacle wire sealing grommet, Type BT07E (MS3114E) (fig. 13)

Shell size	Dimensions					
	A	B	C	D	E	F
8	0·954	0·767	1·078	0·530	0·473	0·691
10	1·078	0·892	1·203	0·655	0·590	0·691
12	1·266	1·079	1·391	0·818	0·750	0·691
14	1·391	1·205	1·516	0·942	0·875	0·691
16	1·516	1·329	1·641	1·066	1·000	0·691
18	1·641	1·455	1·766	1·191	1·125	0·691
20	1·828	1·579	1·954	1·316	1·250	0·879
22	1·954	1·705	2·078	1·441	1·375	0·879
24	2·078	1·829	2·203	1·566	1·500	0·912

Shell size	Dimensions				
	G	H	J	K	L
8	0·117	$\frac{0·062}{0·125}$	0·750	0·653	0·562–24
10	0·117	$\frac{0·062}{0·125}$	0·875	0·653	0·687–24
12	0·117	$\frac{0·062}{0·125}$	1·000	0·653	0·875–20
14	0·117	$\frac{0·062}{0·125}$	1·125	0·653	1·000–20
16	0·117	$\frac{0·062}{0·125}$	1·250	0·653	1·125–18
18	0·117	$\frac{0·062}{0·125}$	1·375	0·653	1·250–18
20	0·148	$\frac{0·062}{0·250}$	1·531	0·715	1·375–18
22	0·148	$\frac{0·062}{0·250}$	1·656	0·715	1·500–18
24	0·148	$\frac{0·062}{0·250}$	1·781	0·729	1·625–18

13. The shell finishes available are shown in Table 1.

Accessories

14. The accessories for the solder type connectors take the form of terminations which reduce the strain or seal the cables. These accessories may be obtained with the connector as indicated in the part number or as separate items. The types of termination available are shown in fig. 5, 14 and 15. When ordered as separate items the part numbers are as shown in Table 2. Reference should be made to fig. 5, 14 and 15 to identify the appropriate accessory.

15. The part numbers for separate items are completed by replacing the dashes with the shell size required, i.e. when ordering a general duty strain relief clamp to mate with shell size 22 the part number is B22 AC–H. The style of connector to which each accessory is applicable is shown in Table 4 to 13.

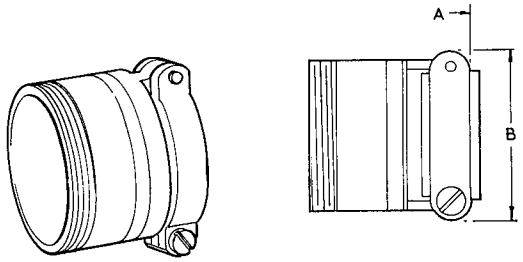


Fig. 14. Strain relief clamps AC, PC, EC

TABLE 13

Strain relief clamps, A.C., P.C., E.C.
(fig. 14)

Shell size	Dimensions	
	A	B
8	1·828	0·828
10	1·828	0·891
12	1·828	1·016
14	1·828	1·141
16	1·969	1·203
18	1·969	1·402
20	2·219	1·402
22	2·219	1·590
24	2·344	1·652

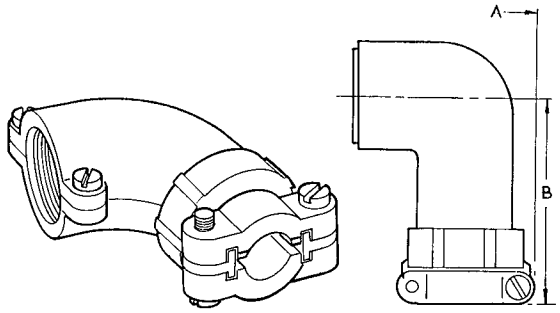


Fig. 15. BT00 L90 deg. strain relief clamp

TABLE 14

BT00 L 90 deg. strain relief clamp
(fig. 15)

Shell size	Demensions	
	A	B
10	1·970	1·500
12	2·139	1·594
14	2·381	1·688
16	2·386	1·781
18	2·708	1·969
20	2·836	2·000
22	2·212	2·125

INSTRUCTIONS FOR USE

Selection of connectors and terminations

16. The appropriate connector and termination should be selected to suit the cable or cable-form conductors and the required application. This may be ascertained from the technical requirements and the information contained in this chapter.

Cable preparation

17. The cable-forms or cables should be prepared as follows:—

(1) For cable, cut back the outer sheath sufficiently to allow the conductors to reach the peripheral contacts, but not so far as to allow the sheath to clear the connector cable clamp. Cable-forms should be whipped at a point within the connector termination when it has been assembled.

(2) Cut the conductor insulations and bare the conductors to a length to suit the depth of the appropriate contact solder cup or crimp end.

(3) Tin the bared ends of the conductors, using resin cored solder, Ref. No. 30B/1606.

Connector assembly to cables

18. The cable and cable-form conductors should be assembled to the connectors, in accordance with the following procedures:—

(1) Solder contacts:—Fit suitable insulating sleeves over each conductor and insert each conductor through the appropriate holes in the cable gland after fitting the appropriate terminations over the cable. Solder each conductor into its appropriate contact solder cup. After soldering slide the sleeve down over the joint and fit the terminations to the shell.

Chapter 1—2

BURNDY BANTAM SMOOTH (CRIMP) CONNECTORS

CONTENTS

TABLES

ILLUSTRATIONS

Introduction

1. The B.I.C.C. Smooth Bantam range of miniature general purpose connectors is similar in construction to the Solder Bantam range (Chap. 1—1) except that it has crimped removable contacts. They are available in various insert arrangements in 8 shell sizes and size 12, 16 and 20 contacts depending on the insert configuration. Coaxial contacts to fit these connectors are also available which accommodate a wide range of cable sizes. A size 12 contact, interchangeable with the standard size 12 contact, allows any combination of coaxial or single conductor to be used in the same connector. A size 8 contact for larger diameter cables, completes the range.

2. These connectors have been designed to conform to the requirements of the American specification MIL–C–26482 and are intermateable and interchangeable with similar connectors manufactured to that specification.

Significance of part numbers

3. Each connector in the range is completely identified by a grouped part number comprising both letters and figures. The significance of the part number together with the MIL–C–26482 equivalents is shown in fig. 1. A typical number would be L10TF–6–POW'A'*. 'A'* indicates that the connector is complete with standard contacts. Size and number of contacts depends on the insert arrangements called up.

Insert positions (orientation)

4. The insert positions of the smooth (crimp) connectors is similar to that given in Chap. 1—1.

Contacts

5. The standard pin and socket contacts are machined from high conductivity copper alloy, gold over silver plated. Socket contacts are of closed entry design with an internal beryllium copper contact spring. In addition to the standard contacts, coaxial contacts are available to fit certain insert arrangements. These smooth geometry coaxial contacts consist of three components, an inner contact, an outer body and braid ferrule. An insulating bushing is part of the

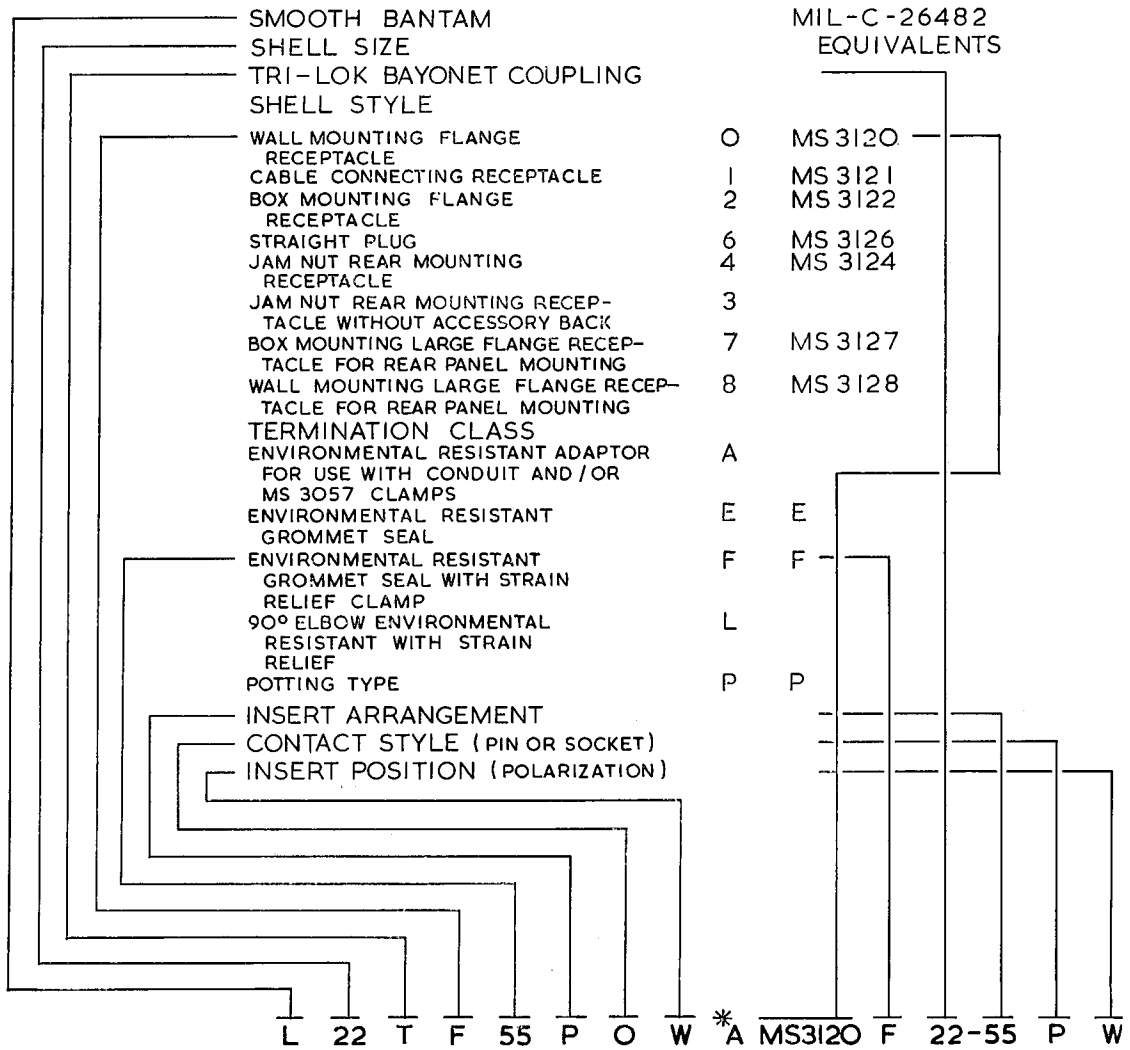


Fig. 1. Significance of part numbers

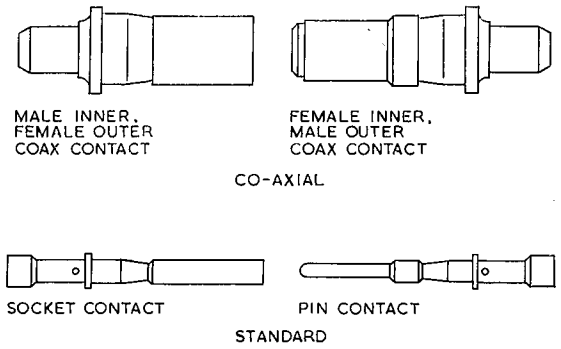


Fig. 2. Contacts

outer body. Refer to contact arrangements fig. 4 for connectors that will accept coaxial contacts and to Table 4 and 5 for the cable size to be used. An example of both types of contacts is shown in fig. 2.

6. For thermo-couple applications chromel/alumel and iron/constantan contacts are available. Also size 16 and size 20 contacts may be obtained to accept larger diameter cables. For details refer to Table 4 and 5.

7. The significance of the contact part number is shown in fig. 3.

Contact arrangements

8. Fig. 4 shows the contact arrangements available in each shell size. Also the number and size of contacts fitted to each arrangement.

Shell styles and finishes

9. The shell styles available are the same as for the solder type as described in Chapter 1—1. Leading dimensions and panel cut-out details are as shown in Tables 7 to 14. Fig. 10 to 17 indicates the dimension code letters used in the table.

10. The standard shell finish is olive drab chromate over cadmium plate.

Accessories

11. The accessories available are shown in fig. 10, 13 and 17. Only the wire sealing type of straight strain relief clamp is available.

12. An addition to the range is a general duty environmental adapter with external threads for use with conduit or strain relief clamp. This is only used with the L–T–4 style of connector.

13. As with the solder type the accessories are available as separate items. The part numbers are as shown in Table 1. Reference should be made to fig. 10, 13 and 17 to identify class of accessory.

14. The part numbers for separate items are completed by replacing the dashes with the shell size required, i.e. when ordering an environment resisting grommet seal with strain relief clamp to mate with shell size 22 the part number is L22F–H.

15. The style of connector to which each accessory is applicable is shown in Table 7 to 14.

INSTRUCTIONS FOR USE

Tools

16. The tools required for use with the crimp connectors are given in Table 3.

Preparation and crimping (size 20, 16 and 12 contacts)

17. Strip insulation and crimp contact using stripping length and crimp tool with locator called up in Table 4 and 5 and fig. 5 and 6. Check contact for proper wire installation, wire strands should be visible through inspection hole (fig. 7(a)).

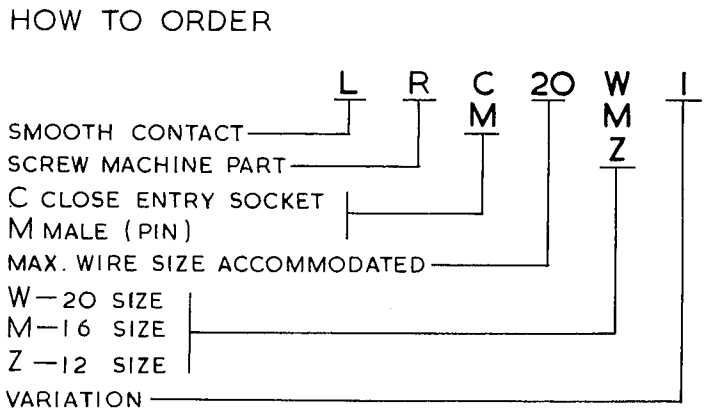


Fig. 3. Contact part numbers

SERVICE RATINGS	TEST VOLTAGE RMS	
SERVICE RATING 1	SEA LEVEL	1500
	70,000 FT.	375
SERVICE RATING 2	SEA LEVEL	2300
	70,000 FT.	550

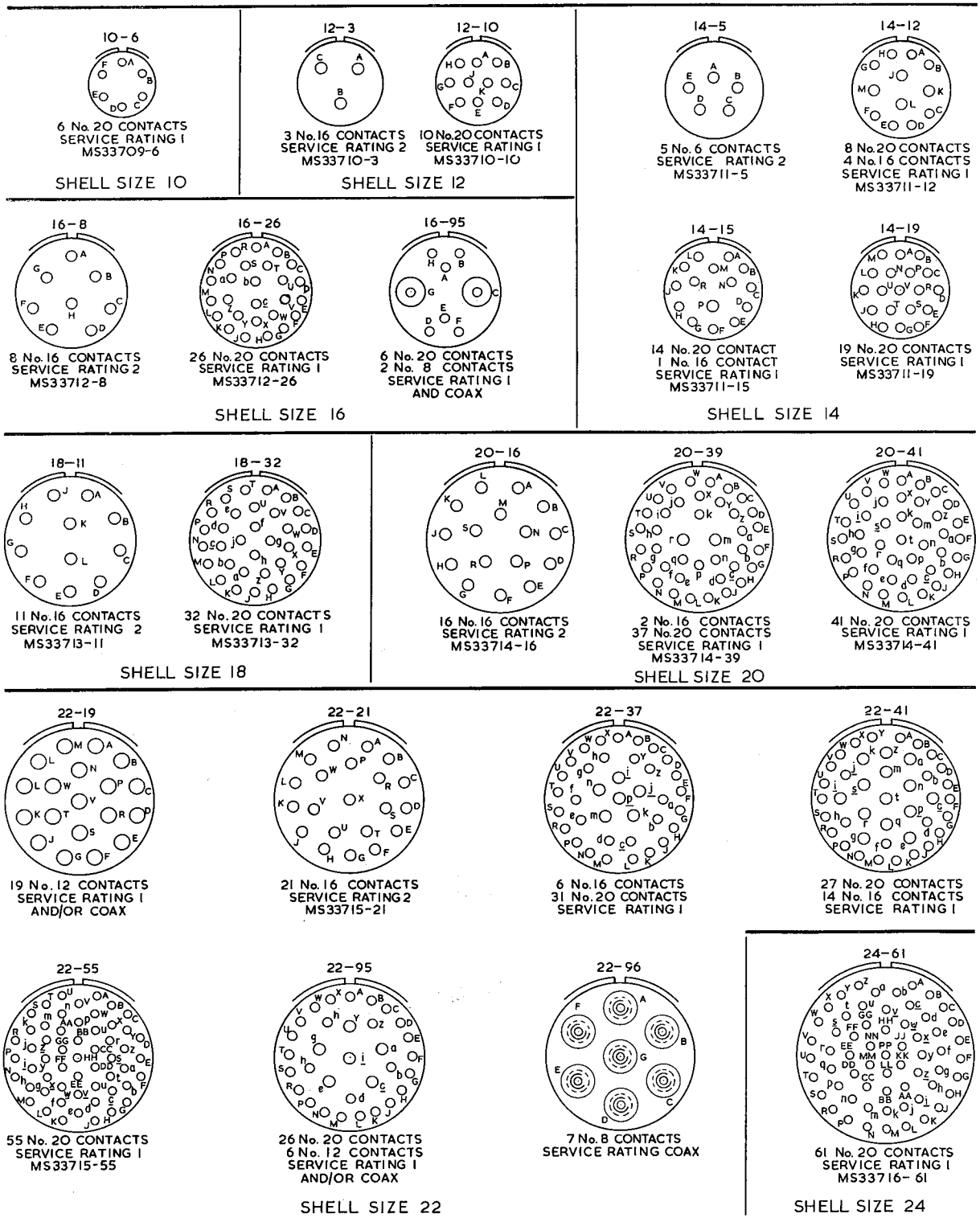


Fig. 4. Contact arrangements

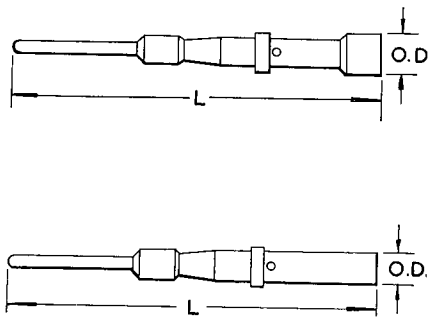


Fig. 5. Pin contacts

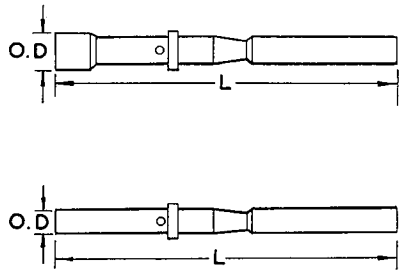


Fig. 6. Socket contacts

Contact insertion

18. (1) Remove pressure nut or strain relief clamp and pressure ring from rear of connector and slide them over the wire bundle in that order (fig. 7(b)). For ease of assembly when using strain relief clamp, remove one clamp screw.

(2) Place the crimped contact into the grommet hole at the rear of the connector (fig. 7(c)). Contacts are more easily loaded from centre outward concentrically.

(3) Use proper insertion tool:—
Size 20 contacts use RTM20–5
Size 16 contacts use RTM16–2
Size 12 contacts use RTM–5.

(4) Size 16 and size 12 contacts—position the insertion tool (RTM16–2) or (RTM12–5) so that the tip of the tool bears against the back of the wire barrel, training the wire in the groove of the tool (fig. 7(d)).

(5) Size 20 contacts—position the insertion tool (RTM20–5) so that the tip of the tool passes into the shroud barrel between the insulation and the shroud wall, training the wire with thumb in the groove of the tool (fig. 7(e)).

(6) Push the contact slowly into the connector until it snaps into position. Be careful not to cock the tool during insertion.

Caution . . .

Do not use bent or damaged contacts.

(7) Sealing: When a fully wired connector is not required, use grommet sealing plugs in the unused contact holes. They are supplied with the connector and should be inserted from the rear of the connector (fig. 7(c)).

(8) Assembly: After all the holes have been filled, bring the pressure ring and pressure nut into position and tighten nut. After tightening the strain relief clamp, replace screw (fig. 7(f)).

19. Spare grommet sealing plugs may be obtained. The part numbers are as shown in Table 6.

Contact removal

20. (1) Tool description: The tool assembly consists of a partially split spring release sleeve, a movable plunger assembly, a body, a return spring and a slider. The body nose cap is coloured for easy identification. The tool assembly is shown in fig. 9(a)). These tools are intended for extraction of both pin and socket contacts (MIL–C–23216 and MIL–C–26636), see Table 3.

Caution . . .

Do not attempt to use extraction tool in any contact hole unless a contact is locked in place.

(2) Remove pressure nut or strain relief clamp and pressure ring from rear of connector and slide them over the wire bundle.

(3) Hold tool with thumb, forefinger and middle finger gripping taper of slider and knob resting against palm of hand (fig. 9(c)).

(4) Place spring release sleeve over contact to be extracted. Hold tool as nearly perpendicular as possible to face of connector. (A slight angle of 10 deg. will help when first inserting sleeve over socket contacts.)

(5) Push on knob with palm of hand so that spring release sleeve enters hole in socket or pin face of connector and engages contact retention spring. Most of the force is required to push through the rubber: only a small amount of force is required on the tool to open retention spring. A 'feel' can easily be developed for the right amount of force.

(6) While continuing to push with palm of hand on knob, so as to hold contact retention spring in unlocked position, move the slider forward with fingers and thumb. This will move the plunger forward and push the contact out of the retention spring. Push the

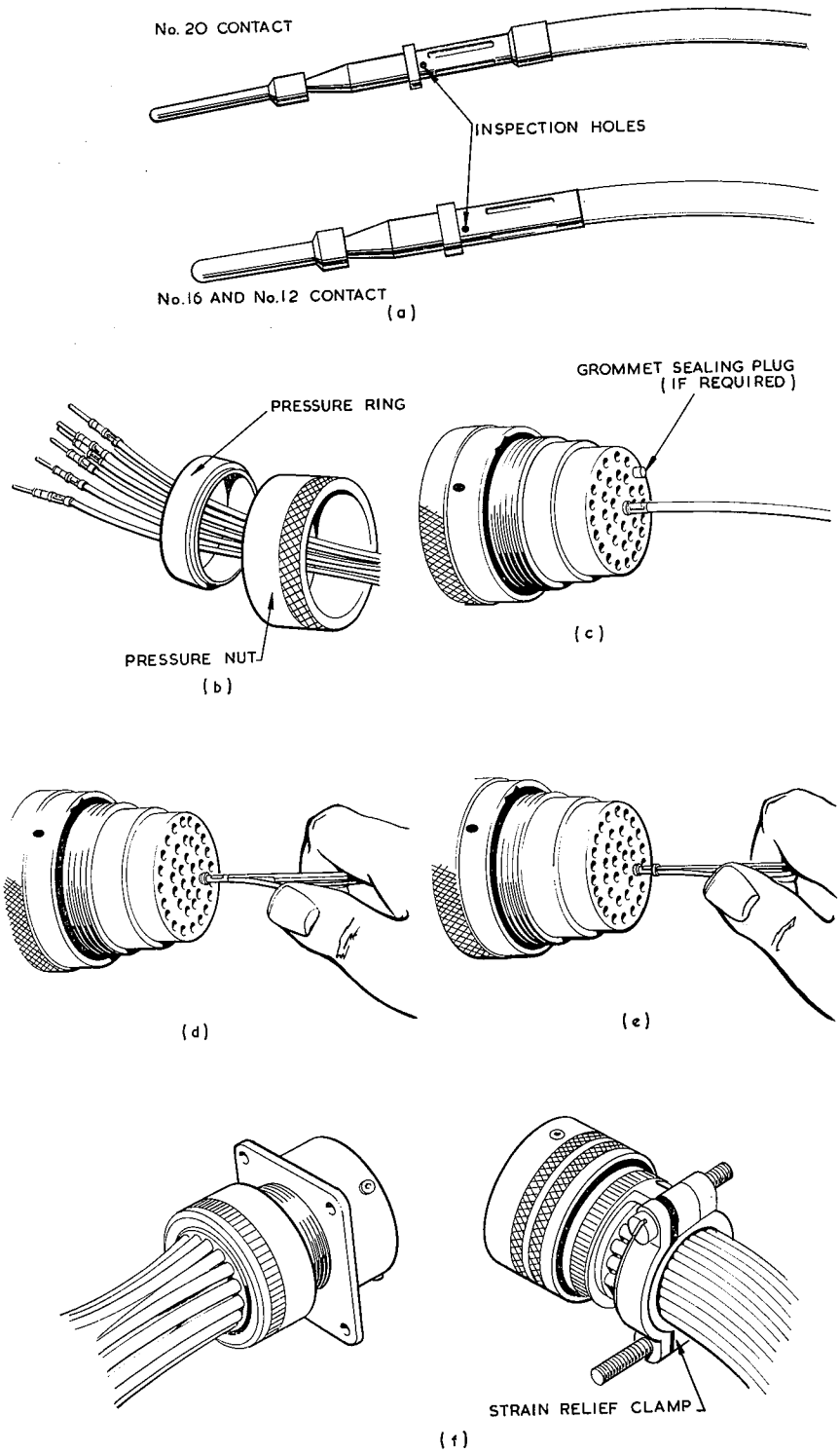


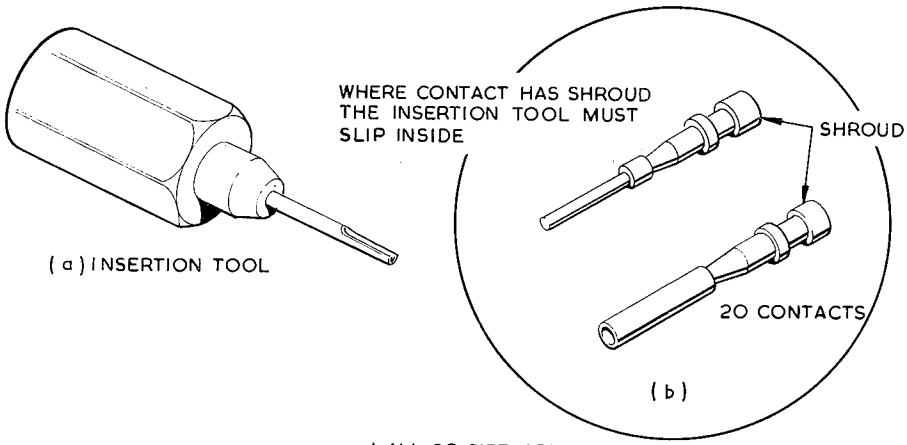
Fig. 7. Contact insertion

slider forward until it stops. (Fig. 9(b) shows a cross section of the release sleeve in the extraction position. If contact should fail to extract, remove tool from connector, rotate approximately $\frac{1}{4}$ turn, and repeat steps.

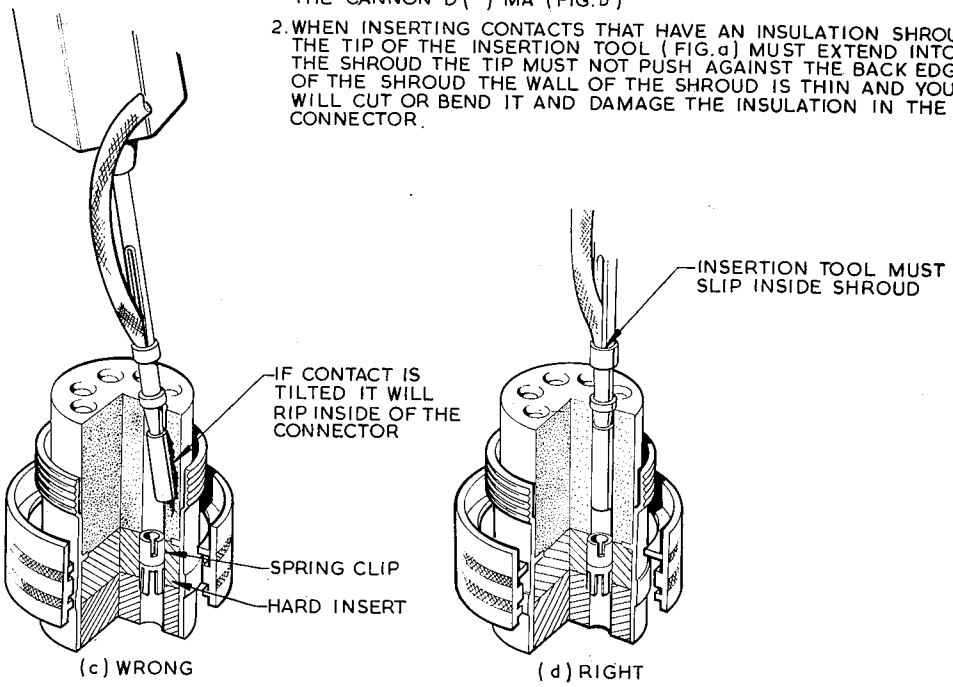
Note . . .

Do not twist or turn tool while extracting.

21. Approximately every 50 extractions examine spring release sleeve. If sleeve is ever damaged, it must be replaced. Unscrew and remove body end cap to replace damaged spring release sleeve. Wipe return spring with a coating of light weight machine oil prior to re-assembly.



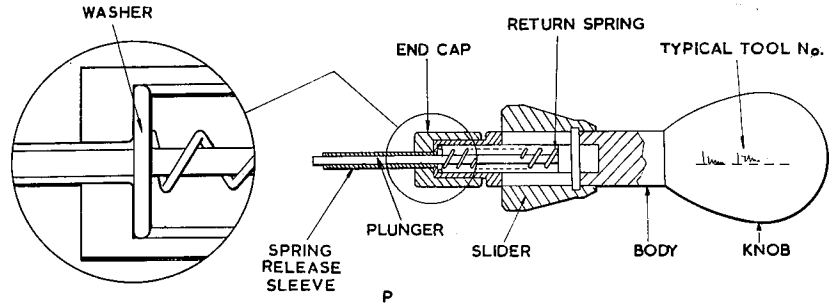
1. ALL 20 SIZE CRIMP TYPE CONTACTS BOTH PIN AND SOCKETS HAVE AN INSULATION SHROUD EXCEPT THE DEUTSCH DS AND THE CANNON D( ) MA (FIG.b)
2. WHEN INSERTING CONTACTS THAT HAVE AN INSULATION SHROUD THE TIP OF THE INSERTION TOOL (FIG.a) MUST EXTEND INTO THE SHROUD THE TIP MUST NOT PUSH AGAINST THE BACK EDGE OF THE SHROUD THE WALL OF THE SHROUD IS THIN AND YOU WILL CUT OR BEND IT AND DAMAGE THE INSULATION IN THE CONNECTOR.



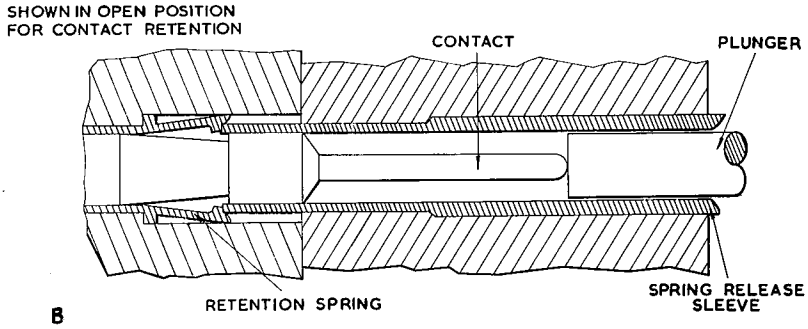
DIRECTION IS VERY CRITICAL WHEN PUSHING A CONTACT INTO A CONNECTOR

1. THE CONTACT AND TOOL MUST BE PUSHED INTO THE CONNECTOR IN A STRAIGHT LINE (FIG.d)
2. IF YOU ATTEMPT TO PUSH THE CONTACT IN AT A SLIGHT ANGLE (FIG.c) IT WILL NOT LINE UP WITH THE HOLE IN THE HARD INSERT IF THE CONTACT DOES NOT LINE UP PROPERLY IT WILL PINCH THE RUBBER INSULATION IF YOU CONTINUE TO PUSH WHEN YOU FEEL THE CONTACT STOP YOU WILL TEAR OR CUT THE RUBBER INSULATION.
3. YOU CANNOT SEE IF YOU HAVE DAMAGED THE CONNECTOR INSIDE YOU CAN ONLY FEEL DURING INSERTION.
4. AS YOU INSERT A CONTACT IF IT DOESNT GO IN SMOOTHLY AND EASILY DO NOT FORE IT WITHDRAW THE CONTACT SLIGHTLY CORRECT YOUR ALIGNMENT AND RE-INSERT.

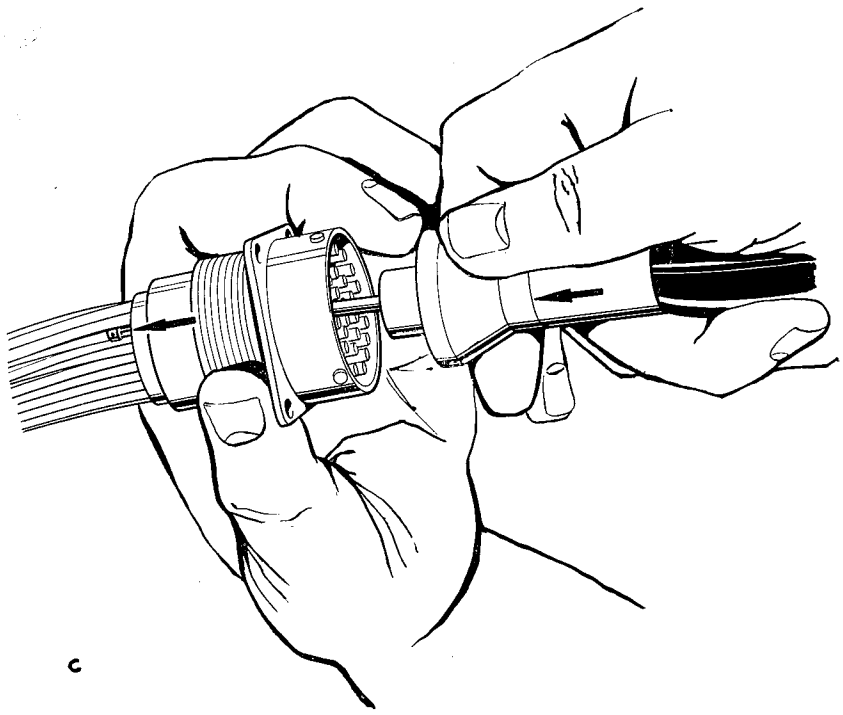
Fig. 8. Contact insertion (method)



A



B



C

Fig. 9. Contact removal

TABLE 1

Accessory classification

Class of Accessory	Part No. of separate item
E P L	L–P158
F Internal Thread	L–F–H
F. External Thread	L–F4–H
A Internal Thread	L–P200H
A External Thread	

TABLE 2

Shell styles related to accessories

Shell style	Accessory
L–T–O	E. F. P. L
L–T–1	A, internal thread
L–T–6	
L–T–8	
L–T–7	
L–T–2	No accessories
L–T–3	
L–T–4	E.F.P. A, external thread

TABLE 3

Tools

Tool	Part No.	Sec/Ref.
Crimping tool	MS3191-1	1H/279
Locator size 20	611062	1H/414
Locator size 16	602520-3	1H/415
Locator size 12	602520-4	1H/416
Locator size 16 small bracket	604561-1	
Locator size 20 small bracket	604561-2	
Insertion tool size 20	RTM20-5	
Insertion tool size 16	RTM16-2	
Insertion tool size 12	RTM12-5	
Insertion tool size 20 small bracket	RTM16-3	
Extraction tool size 20	RX20-24 (Colour-red)	
Extraction tool size 16	RX16-7 (colour-blue)	
Extraction tool size 12	RX12-7 (colour-black)	

TABLE 4

Pin contacts

	Contact Size (Note 1)	Pin Dia.	Description	Contact Catalogue Number	Dimensions in inches				Installation tools			
					Fig. No.	Cable Length Strip	L	O.D.	Crimp Tool MS3191-1 Locators	Extraction Tool Cat. No.	Insertion Tool Cat. No.	A.W.G.
STANDARD CONTACTS PER MIL-C-23216	20	·040	MS3192A20A	LRM20W-5	1	·218	·92	·105	611062	RX20-24	RTM20-5	No. 20, No. 22, No. 24
	16	·062	MS3192-16A	LRM16M-5	2	·281	·91	·103	602520-3	RX16-7	RTM16-2	No. 16, No. 18, No. 20
	12	·094	MS3192-12A	LRM12Z-5	2	·281	·91	·150	602520-4	RX12-7	RTM12-5	No. 12, No 14
CONTACT VARIATIONS FOR OTHER APPLICATIONS	16	·062	No. 16 Contact For No. 24-No. 20 Wire Size	LRM20M-1	1	·218	·91	·105	604561-1	RX16-7	RTM20-5	No. 20, No. 22, No. 24
	20	·040	No. 20 Contact For No. 20-No. 16 Wire Size	LRM16W-2	2	·281	·92	·103	604561-2	RX20-24	RTM16-3	No 16, No. 18, No. 20
	20	·040	MATERIAL ALUMEL	LRM20W-9	1	*	·91	·105	611062	RX20-24	RTM20-5	
	20*	·040	MATERIAL CHROMEL	LRM20W-10	1	*	·91	·105	611062	RX20-24	RTM20-5	
	20	·040	MATERIAL IRON	LRM20W-11	1	*	·91	·105		RX20-24	RTM20-5	
	20	·040	MATERIAL CONSTANTAN	LRM20W-12	1	*	·91	·105		RX20-24	RTM20-5	

*Cable strip length ·218 if cable jacket outer dia. is less than ·093. ·281 if outer dia. is ·093 or greater.
Note 1: Contact sizes are compatible with insert arrangements shown on fig. 9.

TABLE 5

Socket contacts

	Contact Size (Note 1)	Pin Dia.	Description	Contact Catalogue Number	Dimensions in inches				Installation tools				
					Fig. No.	Cable Length Strip	L	O.D.	Crimp Tool MS3191-1 Locators	Extraction Tool Cat. No.	Insertion Tool Cat. No.	A.W.G.	
STANDARD CONTACTS PER MIL-C-23216	20	·400	MS3193A20A	LRC20W-5	3	·218	·85	·105	611062	RX20-24	RTM20-5	No. 20, No. 22, No. 24	
	16	·062	MS3193-16A	LRC16M-5	4	·281	·84	·103	602520-3	RX16-7	RTM16-2	No. 16, No. 18, No. 20	
	12	·094	MS3193-12A	LRC12Z-5	4	·281	·84	·150	602520-4	RX12-7	RTM12-5	No. 12, No 14	
CONTACT VARIATIONS FOR OTHER APPLICATIONS	16	·062	No. 16 Contact For No. 24-No. 20 Wire Size	LRC20M-1	3	·218	·85	·105	604561-1	RX16-7	RTM20-5	No. 20, No. 22, No. 24	
	20	·040	No. 20 Contact For No. 20-No. 16 Wire Size	LRC16W-2	4	·281	·85	·103	604561-2	RX20-24	RTM16-3	No. 16, No. 18, No. 20	
	20	·040	MATERIAL ALUMEL	LRC20W-9	3	*	·85	·105	611062	RX20-24	RTM20-5		
	20	·040	MATERIAL CHROMEL	LRC20W-10	3	*	·85	·105	611062	RX20-24	RTM20-5		
	20	·040	MATERIAL IRON	LRC20W-11	3	*	·85	·105		RX20-24	RTM20-5		
	20	·040	MATERIAL CONSTANTAN	LRC20W-12	3	*	·85	·105		RX20-24	RTM20-5		

*Cable strip length ·218 if cable jacket outer dia. is less than ·093. ·281 if outer dia. is ·093 or greater.
Note 1: Contact sizes are compatible with insert arrangements shown on fig. 9.

TABLE 6

Grommet sealing plugs

Contact size	Grommet sealing plug Part No.
Size 20	L24 P230/20
Size 16	L24 P230/16
Size 12	L24 P230/12

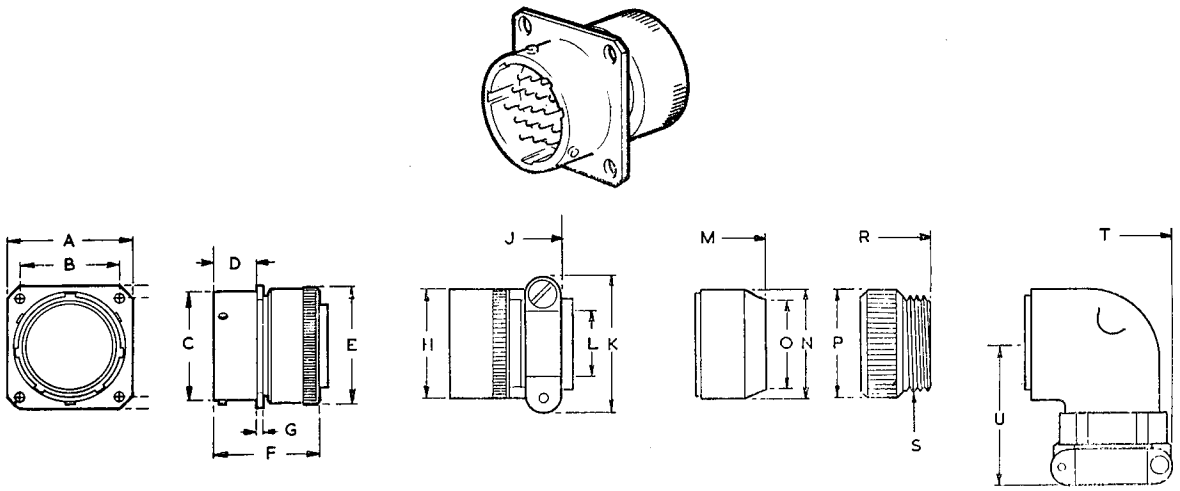


Fig. 10. Wall mounting flange receptacle, Type 0 (MS31120)

TABLE 7

Wall mounting flange receptacle, Type 0 (MS31120)

Shell size	Dimensions						
	A	B	C	D	E	F	G
10	0·954	0·719	0·590	0·431	0·734	1·319	0·062
12	1·047	0·812	0·750	0·431	0·858	1·319	0·062
14	1·141	0·906	0·875	0·431	0·964	1·319	0·062
16	1·234	0·969	1·000	0·431	1·110	1·319	0·062
18	1·328	1·062	1·125	0·431	1·234	1·319	0·062
20	1·453	1·156	1·250	0·556	1·360	1·586	0·094
22	1·578	1·250	1·375	0·556	1·484	1·586	0·094
24	1·703	1·375	1·500	0·589	1·610	1·709	0·094

TABLE 7 (Continued)

Shell size	Dimensions						
	H	J	K	L	M	N	O
10	0·734	1·808	0·891	0·188	1·656	0·734	0·434
12	0·858	1·802	1·015	0·312	1·656	0·858	0·548
14	0·984	1·802	1·141	0·375	1·656	0·984	0·673
16	1·110	1·934	1·203	0·500	1·656	1·110	0·796
18	1·234	1·934	1·469	0·625	1·656	1·234	0·899
20	1·360	2·200	1·469	0·625	1·750	1·360	1·024
22	1·484	2·200	1·656	0·750	1·750	1·484	1·149
24	1·610	2·264	1·750	0·800	1·782	1·610	1·274

Shell size	Dimensions				
	P	R	S	T	U
10	0·717	1·771	0·625–24	2·064	1·500
12	0·834	1·771	0·750–20	2·235	1·594
14	0·970	1·771	0·875–20	2·475	1·688
16	1·088	1·771	1·000–20	2·480	1·781
18	1·216	1·771	1·188–18	2·802	1·969
20	1·332	1·904	1·188–18	2·930	2·000
22	1·460	1·904	1·438–18	3·306	2·125
24	1·587	2·030	1·438–18	—	—

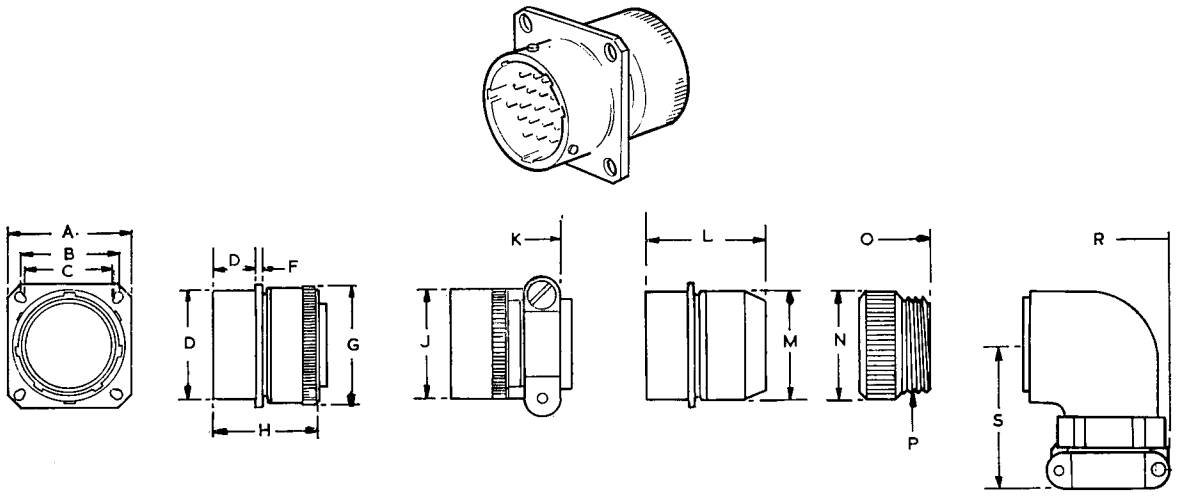


Fig. 11. Large flange wall mounting receptacle for back panel mounting, Type 8 (MS3128)

TABLE 8

Large flange wall mounting receptacle for back panel mounting, Type 8 (MS3128)

Shell size	Dimensions								
	A	B	C	D	E	F	G	H	J
10	1·141	0·812	0·719	0·590	0·462	0·062	0·734	1·319	0·734
12	1·266	0·938	0·812	0·750	0·462	0·062	0·858	1·319	0·858
14	1·360	1·031	0·906	0·875	0·462	0·062	0·984	1·319	0·984
16	1·453	1·125	0·969	1·000	0·462	0·062	1·110	1·319	1·110
18	1·532	1·203	1·062	1·125	0·462	0·062	1·234	1·319	1·234
20	1·688	1·297	1·156	1·250	0·556	0·094	1·360	1·536	1·360
22	1·766	1·375	1·250	1·375	0·556	0·094	1·484	1·586	1·484
24	1·891	1·500	1·375	1·500	0·589	0·094	1·610	1·709	1·610

Shell size	Dimensions							
	K	L	M	N	O	P	R	S
10	1·808	1·656	0·734	0·717	1·771	0·625–24	2·064	1·500
12	1·802	1·656	0·858	0·834	1·771	0·750–20	2·235	1·594
14	1·802	1·656	0·984	0·970	1·771	0·875–20	2·475	1·688
16	1·934	1·656	1·110	1·088	1·771	1·000–20	2·480	1·781
18	1·934	1·656	1·234	1·216	1·771	1·188–18	2·802	1·969
20	2·200	1·750	1·360	1·332	1·904	1·188–18	2·930	2·000
22	2·200	1·750	1·484	1·460	1·904	1·438–18	3·306	2·125
24	2·264	1·782	1·610	1·587	2·030	1·438–18	—	—

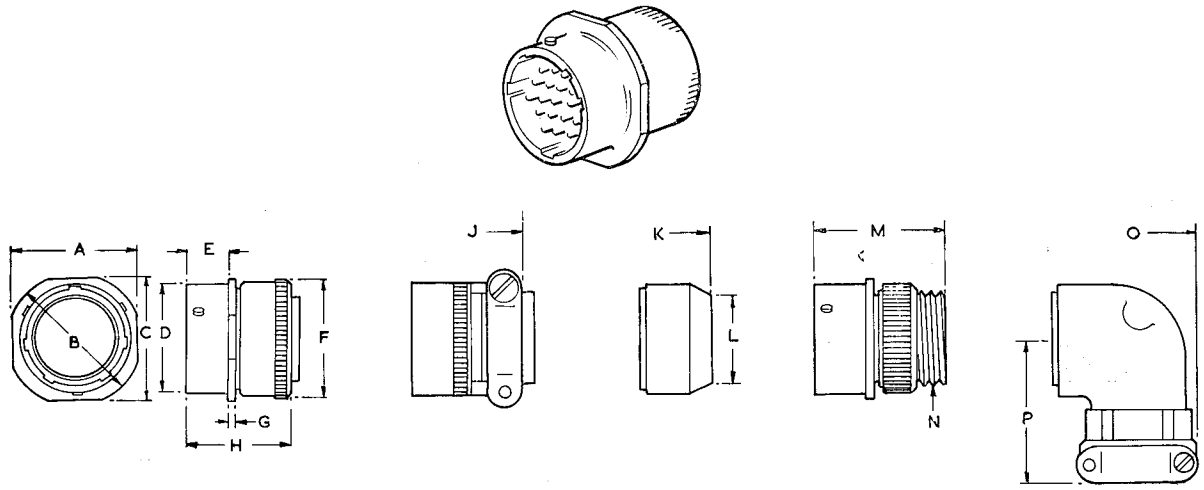


Fig. 12. Cable connecting receptacle, Type 1 (MS3121)

TABLE 9

Cable connecting receptacle, Type 1 (MS3121)

Shell size	Dimensions							
	A	B	C	D	E	F	G	H
10	0·954	1·082	0·954	0·590	0·400	0·734	0·094	1·319
12	1·047	1·176	1·047	0·750	0·400	0·858	0·094	1·319
14	1·141	1·270	1·141	0·875	0·400	0·984	0·094	1·319
16	1·234	1·364	1·234	1·000	0·400	1·110	0·094	1·319
18	1·328	1·458	1·328	1·125	0·400	1·234	0·094	1·319
20	1·453	1·582	1·453	1·250	0·535	1·360	0·115	1·586
22	1·578	1·708	1·578	1·375	0·535	1·484	0·115	1·586
24	1·703	1·832	1·703	1·500	0·568	1·610	0·115	1·709

Shell size	Dimensions						
	J	K	L	M	N	O	P
10	1·808	1·656	0·434	1·771	0·625–24	2·064	1·500
12	1·802	1·656	0·548	1·771	0·750–20	2·235	1·594
14	1·802	1·656	0·673	1·771	0·875–20	2·475	1·688
16	1·934	1·656	0·798	1·771	1·000–20	2·480	1·781
18	1·934	1·656	0·899	1·771	1·188–18	2·802	1·869
20	2·200	1·750	1·024	1·904	1·188–18	2·930	2·000
22	2·200	1·750	1·149	1·904	1·438–18	3·306	2·125
24	2·264	1·782	1·274	2·030	1·438–18	—	—

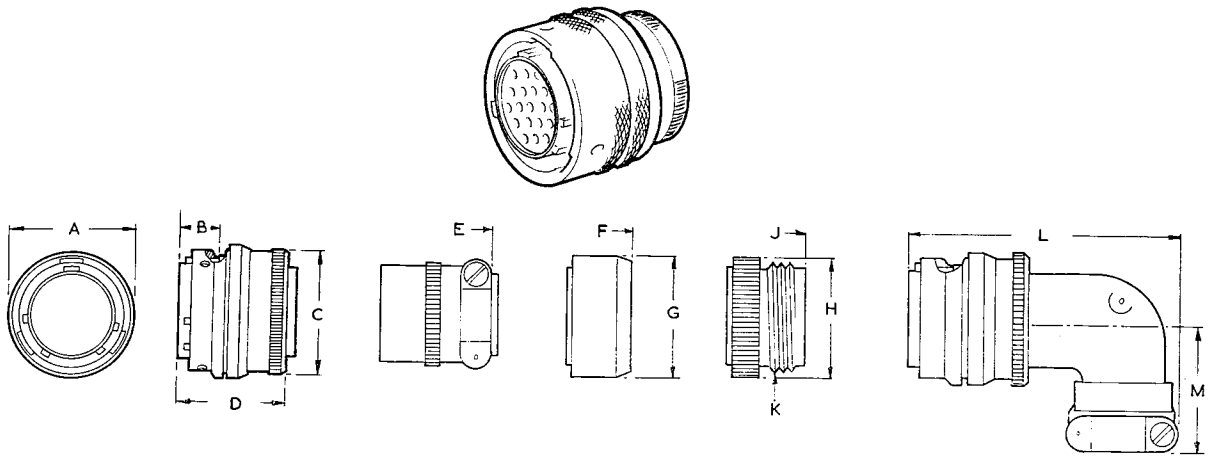


Fig. 13. Straight plug, Type 6 (MS3126)

TABLE 10

Straight plug, Type 6 (MS3126)

Shell size	Dimensions					
	A	B	C	D	E	F
10	0·859	0·353	0·734	1·310	1·799	1·750
12	1·031	0·353	0·858	1·310	1·793	1·750
14	1·156	0·353	0·984	1·310	1·793	1·750
16	1·281	0·353	1·110	1·310	1·925	1·750
18	1·391	0·353	1·234	1·310	1·925	1·750
20	1·531	0·415	1·360	1·515	2·129	1·750
22	1·156	0·415	1·484	1·515	2·129	1·750
24	1·777	0·415	1·610	1·638	2·192	1·766

Shell size	Dimensions					
	G	H	J	K	L	M
10	0·734	0·717	1·762	0·625–24	2·655	1·500
12	0·858	0·834	1·762	0·750–20	2·225	1·594
14	0·984	0·970	1·762	0·875–20	2·466	1·688
16	1·110	1·088	1·762	1·000–20	2·471	1·781
18	1·234	1·216	1·762	1·188–18	2·793	1·969
20	1·360	1·332	1·833	1·188–18	2·859	2·000
22	1·484	1·460	1·833	1·438–18	3·235	2·125
24	1·610	1·587	2·030	1·438–18	—	—

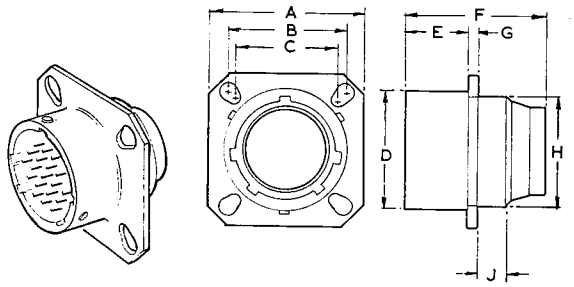


Fig. 14. Large flange box mounting receptacle, for back panel mounting, Type 7 (MS3127)

TABLE 11

Large flange box mounting receptacle, for back panel mounting, Type 7 (MS3127)

Shell size	Dimensions								
	A	B	C	D	E	F	G	H	J
10	1·141	0·812	0·719	0·590	0·462	1·266	0·062	0·561	0·312
12	1·266	0·938	0·812	0·750	0·462	1·266	0·062	0·686	0·312
14	1·350	1·031	0·906	0·875	0·462	1·266	0·062	0·811	0·312
16	1·453	1·125	0·969	1·000	0·462	1·266	0·062	0·936	0·312
18	1·532	1·203	1·062	1·125	0·462	1·266	0·062	1·061	0·312
20	1·688	1·297	1·156	1·250	0·556	1·328	0·094	1·186	0·406
22	1·766	1·375	1·250	1·375	0·556	1·328	0·094	1·311	0·406
24	1·891	1·500	1·375	1·500	0·589	1·390	0·094	1·436	0·406

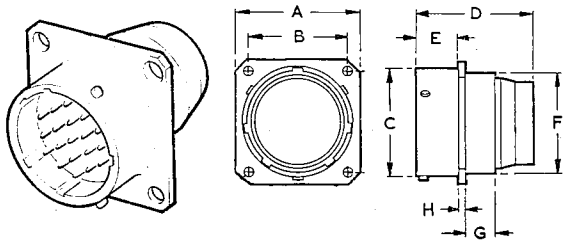


Fig. 15. Box mounting flange receptacle, Type 2 (MS3122)

TABLE 12

Box mounting flange receptacle, Type 2 (MS3122)

Shell size	Dimensions							
	A	B	C	D	E	F	G	H
10	0·954	0·719	0·590	1·266	0·431	0·561	0·312	0·062
12	1·047	0·812	0·750	1·266	0·431	0·686	0·312	0·062
14	1·141	0·906	0·875	1·266	0·431	0·811	0·312	0·062
16	1·234	0·969	1·000	1·266	0·431	0·936	0·312	0·062
18	1·328	1·062	1·125	1·266	0·431	1·061	0·312	0·062
20	1·453	1·156	1·250	1·328	0·556	1·186	0·406	0·094
22	1·578	1·250	1·375	1·328	0·556	1·311	0·406	0·094
24	1·703	1·375	1·500	1·390	0·589	1·436	0·406	0·094

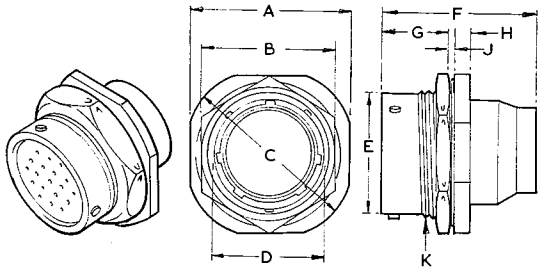
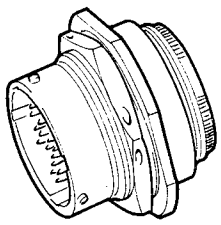


Fig. 16. Jam nut rear mounting receptacle, Type 3

TABLE 13

Jam nut rear mounting receptacle, Type 3

Shell size	Dimensions									
	A	B	C	D	E	F	G	H	J	K
10	1·078	0·092	1·203	0·655	0·590	1·266	0·691	0·117	0·062 / 0·125	0·688–24
12	1·266	1·079	1·391	0·818	0·750	1·266	0·691	0·117	0·062 / 0·125	0·875–20
14	1·391	1·205	1·516	0·942	0·875	1·266	0·691	0·117	0·062 / 0·125	1·000–20
16	1·516	1·329	1·641	1·066	1·000	1·266	0·691	0·117	0·062 / 0·125	1·125–18
18	1·641	1·455	1·766	1·191	1·125	1·266	0·691	0·117	0·062 / 0·125	1·256–18
20	1·828	1·579	1·954	1·316	1·250	1·328	0·879	0·148	0·062 / 0·125	1·375–18
22	1·954	1·705	2·078	1·441	1·375	1·328	0·879	0·148	0·062 / 0·125	1·500–18
24	1·078	1·829	2·203	1·566	1·500	1·390	0·912	0·148	0·062 / 0·250	1·625–18



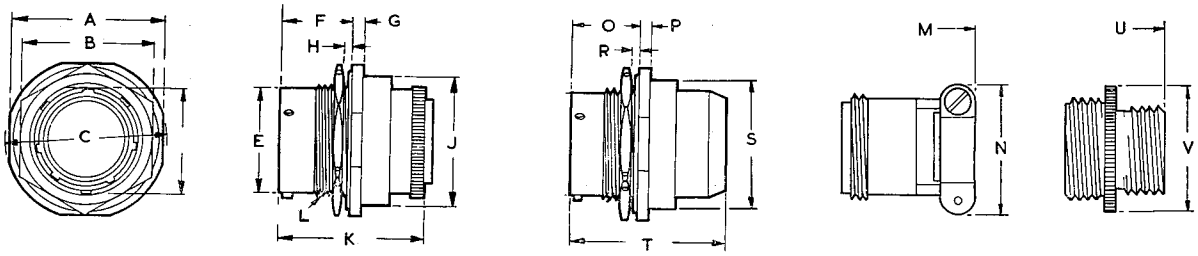


Fig. 17. Jam nut rear mounting receptacle, Type 4 (MS3124)

TABLE 14

Jam nut rear mounting receptacle, Type 4 (MS3124)

Shell size	Dimensions									
	A	B	C	D	E	F	G	H	J	K
10	1·078	0·892	1·203	0·655	0·590	0·691	0·117	0·062 / 0·125	0·895	1·401
12	1·266	1·079	1·391	0·818	0·750	0·691	0·117	0·062 / 0·125	1·000	1·401
14	1·391	1·205	1·516	0·942	0·875	0·691	0·117	0·062 / 0·125	1·125	1·401
16	1·516	1·329	1·641	1·066	1·000	0·691	0·117	0·062 / 0·125	1·250	1·401
18	1·641	1·455	1·766	1·191	1·125	0·691	0·117	0·062 / 0·125	1·375	1·401
20	1·828	1·579	1·954	1·316	1·250	0·879	0·148	0·062 / 0·250	1·531	1·709
22	1·954	1·705	2·078	1·441	1·375	0·879	0·148	0·062 / 0·250	1·656	1·709
24	2·078	1·829	2·203	1·566	1·500	0·912	0·148	0·062 / 0·250	1·781	1·709

Shell size	Dimensions									
	L	M	N	O	P	R	S	T	U	V
10	0·608–24	1·915	0·091	0·691	0·117	0·062 / 0·125	0·875	1·656	1·805	0·072
12	0·875–20	1·915	1·018	0·691	0·117	0·062 / 0·125	1·000	1·656	1·805	0·997
14	1·000–20	1·915	1·141	0·691	0·117	0·062 / 0·125	1·125	1·656	1·805	1·122
16	1·125–18	2·051	1·203	0·691	0·117	0·062 / 0·125	1·250	1·656	1·805	1·247
18	1·250–18	2·051	1·469	0·691	0·117	0·062 / 0·125	1·375	1·656	1·805	1·375
20	1·375–18	2·318	1·469	0·879	0·148	0·062 / 0·250	1·531	1·922	2·162	1·528
22	1·500–18	2·318	1·656	0·879	0·148	0·062 / 0·250	1·656	1·922	2·103	1·653
24	1·625–18	2·381	1·750	0·912	0·148	0·062 / 0·250	1·781	1·951	2.166	1·778

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