# Amphenol

## 162GB Series

Miniature Bayonet Lock Connectors

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# Amphenol 162GB Crimp Connectors

**DESIGNED TO COMPLY WITH MIL-C-26482 AND BS 9522-N0001, THE SUCCESSOR TO DEF 5326 Patt. 603**

Development and manufacture of 162GB miniature bayonet lock connectors has been closely coordinated with the solder version. The entire programme has been carried out at Amphenol's Whitstable Plant. The precision machinery and measurement control processes used for the production of 162GB crimp connectors are the same as those used to produce 62GB solder connectors.

Full intermountability and intermateability are absolutely guaranteed.

162GB Series crimp connectors share many of the features of 62GB solder connectors. Coupling is achieved with a triple-track bayonet locking system which gives positive alignment on all shell sizes. When connector halves are fully mated there is a definite click. Inspection holes in the coupling ring will then reveal the bayonet pins on the receptacle which are clearly marked in yellow.

The Amphenol design means simplified removal of coupling rings for servicing or replacement as they are *front demountable.* In addition there is a rough grip heavy duty style for arduous conditions and a lever coupling ring which allows extremely close mounting of connectors.

The method of sealing is the same as for 62GB connectors; using peripheral seals on the rubber inserts and sealing the mating shells with a square section gasket. Wire sealing is by multiple risers in the rear grommet.

## Derating

Connectors must be derated under the following operating temperatures:

1. At elevated temperatures, the current ratings are reduced as show in the table on page 10.

2. At high altitudes, revised voltage ratings become effective as shown on page 11.

3. When connectors to different specifications are intermated (e.g. BS 9522-N001 and MIL-C-26482), the combination must not be operated under conditions more severe than the less stringent clause of either specification.

   *Amphenol 162GB connectors are designed to meet the most stringent requirements of both specifications.*

## Audio Applications

Contacts are suitable for tinsel cord applications.

## Cable Assemblies

Amphenol is fully equipped to undertake the preparation of all types of cable assemblies complying with the military vehicles and engineering establishments and fighting vehicles requirements of the Ministry of Defence – the Ministry of Environment (Motorways) for motorway control equipment – the Post Office manufacturing code and to the British Standards Institute when applicable to Cable systems. Control procedures carried out in accordance with MIN DEF 05-21. Approval numbers BS 9000, 1043/M and CAA AD/1450/58. Moulded terminations form a specialised service by the company. The process offers such advantages as a waterproof seal between cable and connector back-end, mechanical protection, and a homogeneous joint between moulding and cable.

## Other Amphenol Products

Amphenol products include: printed circuit, rack and panel, microminiature, audio; hermetic and R.F. connectors; integrated circuit components; trimming and precision potentiometers; concentric and digital microdials; cable, cable assemblies; fans and blowers; relays and keys; chokes and coils; R.F. coaxial switches.

# Amphenol 162GB Series

**DESIGNED TO COMPLY WITH MIL-26482**
**SCHEDULE OF TESTS REQUIRED FOR QUALIFICATION APPROVAL**

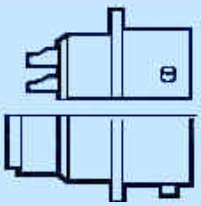
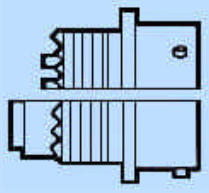
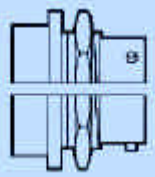
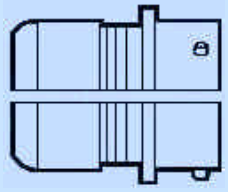
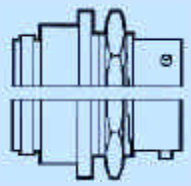
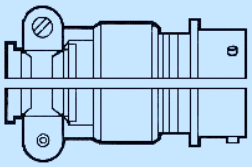
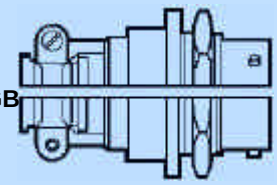
| Tests | Brief Description |
|---|---|
| ***Examination of Product*** | |
| Maintenance Ageing | Crimp only<br>There is no damage to the contacts or connectors after 10 removals and insertions of the contacts |
| Contact Insertion and Removal Forces | Crimp only<br>Insertion – does not exceed 66.7 N (15lbf.) For individual contacts.<br>Removal – does not exceed 44.5N (10lbf.) |
| Contact Retention | Crimp Contact<br>Contact locking mechanisms withstands the following minimum axial forces:<br>CONTACT SIZE 20 16 12<br>FORCE (N) 89 111 133<br>FORCE (LBF) 20 25 30<br>Axial displacement does not exceed 0.304mm (0.012in) when pressure is applied from face side. |
| Operating Forces | Torque measurement of mating and unmating.<br>Ranges from 0.905 Nm. (8 lbf. in.) on shell size 8 to 4.971 Nm. (44 lbf. in.) on shell size 24 couplings. |
| Insulation Resistance, Room Temperature | Unmated connectors tested in accordance with Method 302 test condition B of MIL-STD-202. |
| Dielectric Withstanding Voltage (Sea Level) | Mated and unmated connectors tested in accordance with Method 301 of MIL-STD-202. |
| Dielectric Withstanding Voltage (Altitude) | Tested in accordance with Method 105, test condition C of MIL-STD-202. After 30 minutes tested in accordance with Method 301 of MIL-STD-202 unmated and mated. |
| Initial Contact Resistance | Between 45 and 95 millivolts drop on wire sizes from 24 to 12. Crimp contacts to meet MIL-C-23216. |
| Thermal Shock | Unmated connectors tested in accordance with Method 107, condition B of MIL-STD-202 except min. temp is –55°C. |
| Insulation Resistance at Elevated Temps (Short Time) | Greater than 3 megohms 250 hr at 125°C |
| (Long Time) | Greater than 12 megohms 1000 hr at 105°C |
| Durability | 500 cycles of coupling and uncoupling |
| Vibration | In accordance with Method 204 Condition B of MIL-STD–202 |
| Shock | Impulses of 50 G's duration of 11 ±1 milliseconds |
| Moisture Resistance | In accordance with Method 106 of MIL-STD-202 |
| Corrosion | Salt Spray to Method 101 Condition B of MIL-STD-202 |
| Operating Forces | From 0.905 Nm. (8 lb. In.) for shell size 8 to 4.971 Nm. (44 lb. in.) for shell size 24. |
| Contact Resistance | As per contact resistance test of MIL-C-23216. |
| (a) Solvent Immersion Hydraulic Fluid | Conforming to MIL-H-5606 20 hrs |
| (b) Solvent Immersion Lubricating Oil | Conforming to MIL-H-7808 20 hrs |
| Insert Retention | Effective pressure differential of 5 17.0 KN/m$^2$ (75 p.s.i..) |
| Insert Retention Hermetic | Effective pressure differential of 13 80.0 KN/m$^2$ 200 (p.s.i.) |
| Contact Retention Crimp | Axial loads between 6 6.67 N (15 lbf.) and 111.2 N (25 lbf.) |

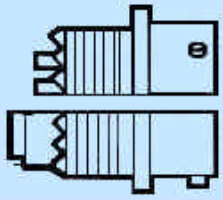
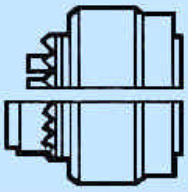
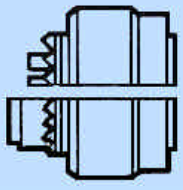
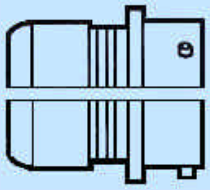
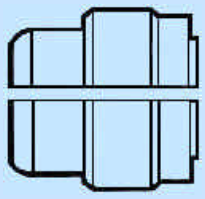
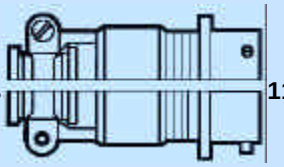
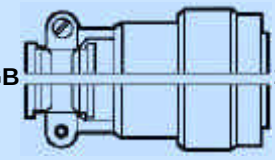
| Protective Covers and Storage | |
|---|---|
| **Tests** | **Brief Description** |
| ***Examination of Product*** | ***Components suitability after storage and use of recommended Protective Covers*** |
| Operating Forces | Measurement of Receptacles, Plugs and Protective Covers mating and unmating forces. |
| Moisture Resistance | Crimp Contacts to Method 106 of MIL-STD-202. |
| Corrosion | Salt Spray to Method 101, Condition B of MIL-STD-202. |
| Cover Chains Tensile Strength | 111.2 N (25 lbf.) from various directions |
| Air Leakage | 69.0 KN/$m^2$ (10 p.s.i.) applied to inside of Protective Covers |

| Crimp Contact Retention Feature | |
|---|---|
| **Tests** | **Brief Description** |
| ***Examination of Product*** | ***Test to establish Crimp effectiveness*** |
| Maintenance Ageing (Contacts only) | Involves repeated insertion/removal of contacts and mating and unmating of connectors. |
| Contact Retention | Loads applied in both directions. |

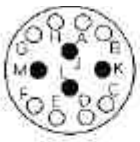
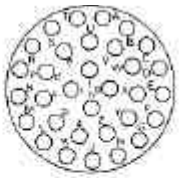
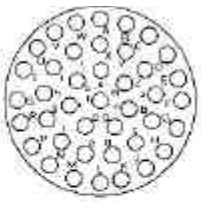
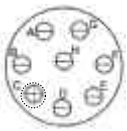
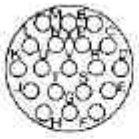
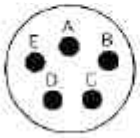
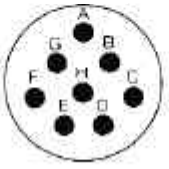
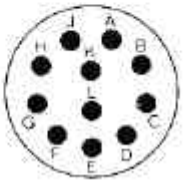
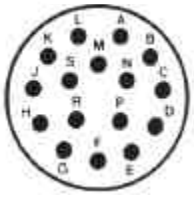
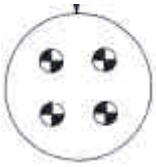
| Connector Assembly – Class J | |
|---|---|
| **Tests** | **Brief Description** |
| ***Examination of Product*** | |
| Thermal Shock | In accordance with Method 107 Condition B of MIL-STD-202 |
| Water Pressure | Immersion 1.829 m (6 ft.) under water for solder type connectors |
| Air Leakage | Solder Receptacles 206.9 KN/$m^2$ (30 p.s.i.) across connectors.<br>Others to Method 112 Condition C, Procedure 1 of MIL-STD-202 |

# Table of Shell Styles

| | BOX MOUNTING RECEPTACLES (4-hole Fixing) Page | BOX MOUNTING RECEPTACLES (4-hole Fixing) Page | SINGLE HOLE FIXING RECEPTACLES Page |
|---|---|---|---|
| **PLAIN SHELL** | | 162GB  12E | |
| **THREADED SHELL** | 162GB  30T | | 162GB  37T |
| **GROMMET SEAL** | 162GB  10E | | 162GB  14E |
| **STRAIN RELIEF CLAMP** (For details of Right Angle Strain Relief Clamps, see Page 20) | 162GB  10F | | 162GB  14F |

| | CABLE MOUNTING RECEPTACLES Page | NON GROUNDED PLUGS Page | GROUNDED PLUGS Page |
|---|---|---|---|
| **THREADED SHELL** | 162GB CC1304  31T | 162GB CC1305  36T | 162GB  36TG |
| **GROMMET SEAL** | 162GB  11E | 162GB  16E | |
| **STRAIN RELIEF CLAMP** (For details of Right Angle Strain Relief Clamps, see Page | 162GB  11F | 162GB  16F | |

# Insert Availability

| 8 | 10 | 12 | 14 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|
| 8-03 | 10-06 | 12-10 | 14-12†  | 16-23* | 18-32  | 20-41  |
| 8-33 | 10-07 | 12-08  | 14-15 | 16-26 | | |
| 8-98 | | | 14-19  | | | |
| | 10-02 | 12-03 | 14-05  | 16-08  | 18-11  | 20-16  |
| | | | | 16-04  | | |

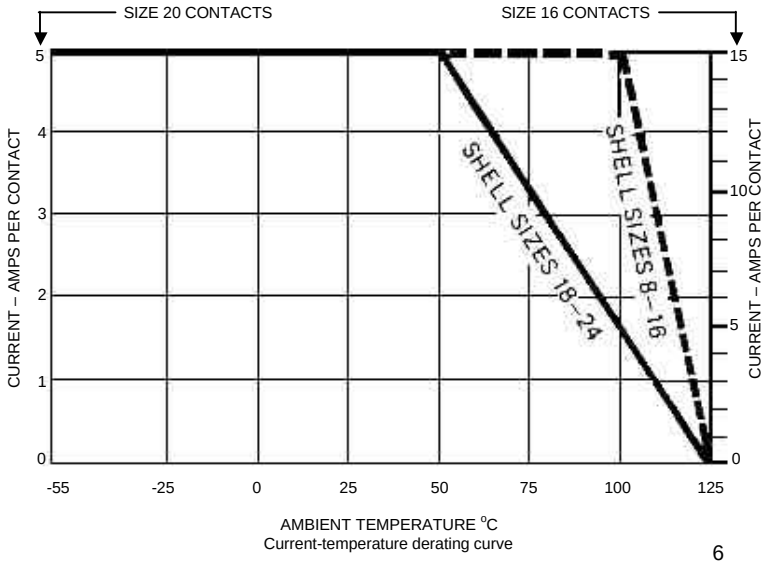
**Notes**

*** These insert arrangements are not included in Pattern 105 but are available and listed in MIL-C-26482.**

† Due to the arrangement of contacts in the 14-12 insert arrangement it is classified, for current derating, in the shell size range 18-24.

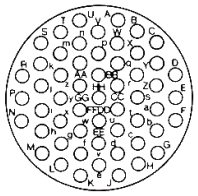
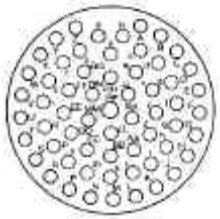
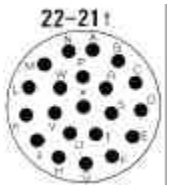
Lettering of inserts shown above corresponds to views of front (mating) surface of pin inserts or rear face (cable accessory end) of socket inserts.

KEY ? No. 16 size contacts
? No. 20 size contacts
No. 12 size contacts



Current-temperature derating curve

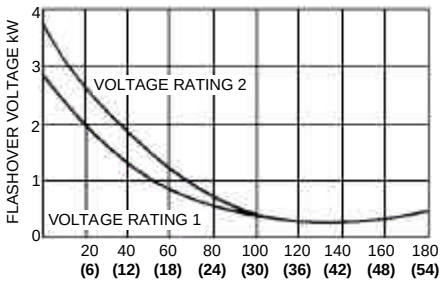
# Insert Availability

| 22 | 24 |
|---|---|
| 22-55  | 24-61  |
| 22-21  | |

| Working Voltage | | | |
|---|---|---|---|
| **Altitude** | **dc Working Voltage** | **ac Working Voltage r.m.s.** | **Proof Voltage** |
| **Rating 1** | | | |
| Sea Level | **700** | **500** | **500** |
| 300mb at 20°C 8.500m (27,800 ft) | 375 | 265 | 265 |
| 44 mb at 20°C 20,000 m (66,000 ft) | 200 | 140 | 140 |
| **Rating 2** | | | |
| Sea Level | **1250** | **900** | **3250** |
| 300mb at 20°C 8.500m (27,800 ft) | 550 | 390 | 1750 |
| 44 mb at 20°C 20,000 m (66,000 ft) | 300 | 210 | 775 |

| **Rating 3** | **Sea Level 1013 mbart** | **8500m (27,900 ft) 320 mbar** | **21,340m (70,000 ft) 44 mbar** |
|---|---|---|---|
| **Working Voltage** | III | III | III |
| **Working Voltages ** (nominal) d.c. or a.c. peak** | 1500 | 800 | 450 |
| **Voltage Proof d.c. or a.c. peak** | 3000 | 1300 | 750 |

(Figures in bold type are from DEF STAN 59-35 (Part 1) Sec. 3 Patt. 105)



Relationship between flashover voltage and altitude for each voltage rating

**NOTES**

Because safe working voltages at altitude above sea-level are dependent upon individual conditions of use, these values are not specified in DEF STAN 59-35 (Part 1) Sec. 3 Patt. 105 but approximate values are included here for the guidance of designs.

**VOLTAGE RATINGS**
Two categories of voltage rating are specified in DEF STAN 59-35 (Part 1) Sec. 3 Patt. 105.

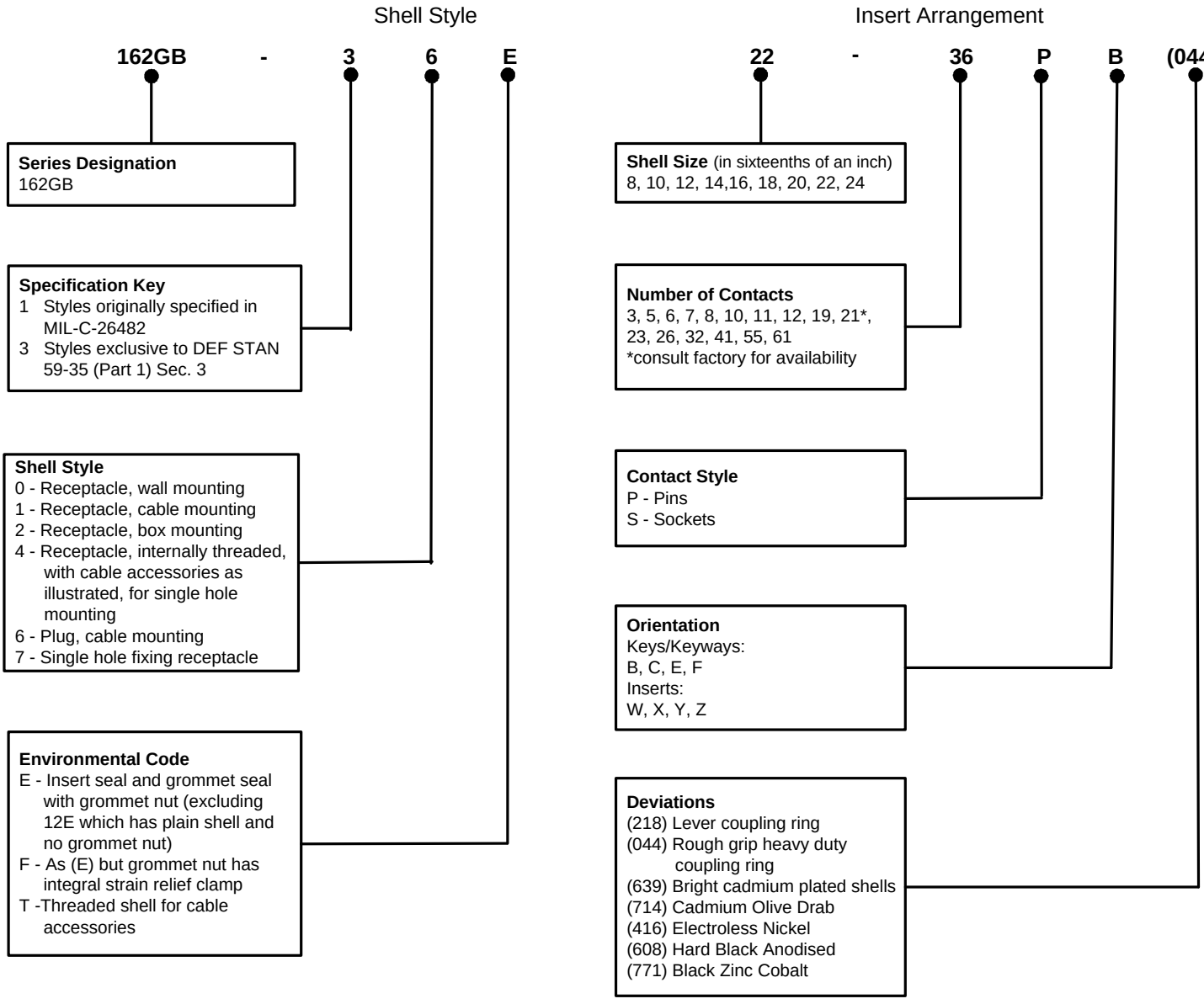
**Rating 1** (700V d.c. working at sea-level)
Applicable to the high contact density inserts shown in the upper section of the insert availability diagram above.

**Rating 2** (1250V d.c. working at sea-level)
Applicable to the inserts shown in the lower section of the insert availability diagram.

**Rating 3** (1500V d.c. working at sea-level)
(a) Maximum current per individual contact (in isolation)* at ambient temperature of 85°C
Contact Size 12: 23A
(b) Maximum current per contact through all contacts simultaneously at an ambient temperature of 85°C
Contact Size 12: 20A

**Altitude Derating**
Information on voltage derating for operation at altitudes above se-level can be obtained from the flashover voltage altitude curves on the left.

# Ordering Amphenol 162GB Series Connectors

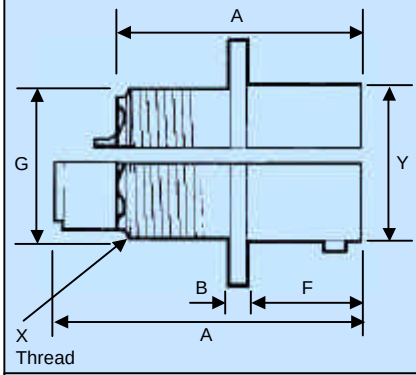
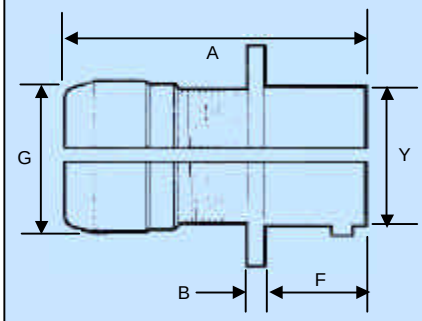
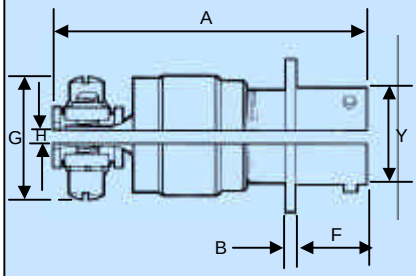
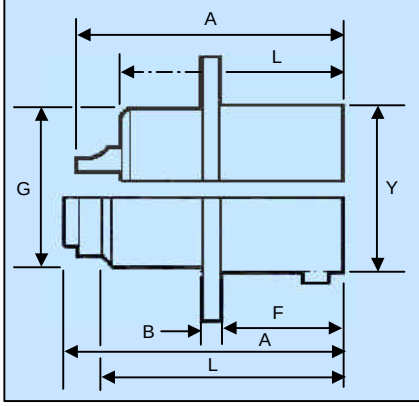



**HOW TO ORDER FROM MS CONNECTOR NUMBERS**

Connector numbers in the AMPHENOL and MS numbering systems. Only alternative insert orientations are specified in MIL-C-26482 which does not include alternative key/keyway orientations

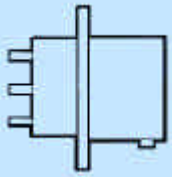
| | | | | | | |
|---|---|---|---|---|---|---|
| **MS31** | **-** | **24** | **E** | **18-11** | **P** | **X** |
| **162GB** | **-** | **14** | **E** | **18-11** | **P** | **X** |

# Box Mounting Receptacles

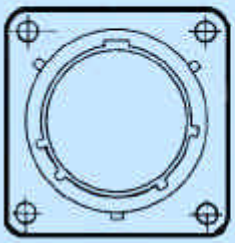
| | | Description | Amphenol Part No | Military No |
|---|---|---|---|---|
|  | **30T** | 4-hole flange mounting with threaded shell to accept standard cable accessories | **162 Series**<br>162GB-30T etc | |
|  | **10E** | 4-hole flange mounting with grommet and grommet nut | **162 Series**<br>162GB-10E etc | MS3120E etc |
|  | **10F** | 4-hole flange mounting with grommet and grommet nut fitted with integral strain relief clamp | **162 Series**<br>162GB-10F etc | MS 3120F etc |
|  | **12E** | 4-hole flange mounting with plain shell for direct wiring to exposed solder buckets. Film wire terminations available on 62 Series as deviation (219). 162 Series style has integral grommet | **162 Series**<br>162GB-12E etc | MS 3122E etc |

# Dimensions and Mounting Details

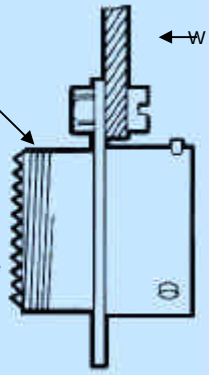
## 162 OVERALL MATED DIMENSIONS



Add the two relevant plug and receptacle overall dimensions and deduct:
- 0.365 (9.271mm) for shell sizes 20, 22, 24
- 0.303 (7.696mm) for all other sizes



When receptacles are mounted on the rear face of the panel, the maximum value for dimension W must not be exceeded otherwise the receptacle cannot be mated to a plug



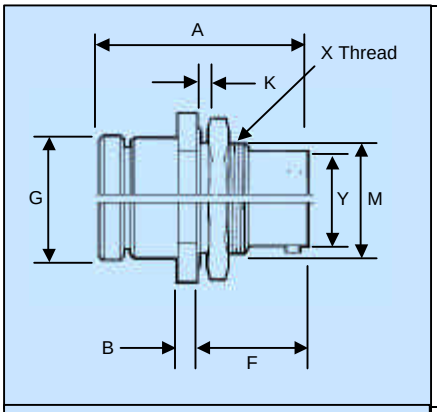
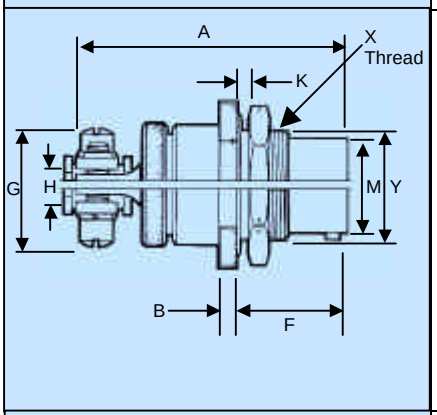
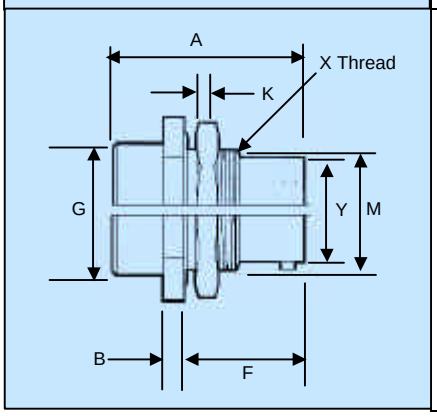

Panel thickness with screw head W max.

| Shell Size | in mm | Shell Size | in mm |
|---|---|---|---|
| 08-18 | 0.100<br>2.540 | 20-24 | 0.210<br>5.330 |

| Shell Size | 'A' Overall Length Max | | | | 'L' Shell Lengths |
|---|---|---|---|---|---|
| | 30T<br>in mm | (162)<br>10E<br>in mm | (162)<br>10F<br>in mm | (162)<br>12E<br>in mm | (162)<br>12E<br>in mm |
| 08 | **1.286**<br>32.665 | **1.320**<br>33.53 | **1.759**<br>44.68 | **1.286**<br>32.665 | **0.917**<br>23.29 |
| 10 | **1.286**<br>32.665 | **1.320**<br>33.53 | **1.759**<br>44.68 | **1.286**<br>32.665 | **0.917**<br>23.29 |
| 12 | **1.286**<br>32.665 | **1.320**<br>33.53 | **1.759**<br>44.68 | **1.286**<br>32.665 | **0.917**<br>23.29 |
| 14 | **1.286**<br>32.665 | **1.320**<br>33.53 | **1.733**<br>44.02 | **1.286**<br>32.665 | **0.917**<br>23.29 |
| 16 | **1.286**<br>32.665 | **1.320**<br>33.53 | **1.873**<br>47.575 | **1.286**<br>32.665 | **0.917**<br>23.29 |
| 18 | **1.286**<br>32.665 | **1.320**<br>33.53 | **1.873**<br>47.575 | **1.286**<br>32.665 | **0.917**<br>23.29 |
| 20 | **1.348**<br>34.24 | **1.382**<br>35.10 | **2.115**<br>53.72 | **1.348**<br>34.24 | **0.980**<br>24.89 |
| 22 | **1.348**<br>34.24 | **1.382**<br>35.10 | **2.115**<br>53.72 | **1.348**<br>34.24 | **0.980**<br>24.89 |
| 24 | **1.348**<br>34.24 | **1.382**<br>35.10 | **2.247**<br>57.075 | **1.348**<br>34.24 | **1.023**<br>29.895 |

| Shell Size | Flange thickness ±0.005 (±0.127) | Flange dim. max. sq. | Flange hole centres TP | Flange holes dia. ±0.005 (±0.127) -0.002 (-0.051) | Mtg. Flange location ±0.005 (±0.127) | Overall Rear dia. max. | | | | Cable sleeve int. dia. ±0.005 (±0.127) | Thread | Shell ext. dia. Max. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B<br>in mm | C<br>in mm | D<br>in mm | E<br>in mm | F<br>in mm | 30T<br>in mm | 12E<br>in mm | G<br>10E<br>in mm | 10F<br>in mm | H<br>10F only<br>in mm | X | Y<br>in mm |
| 08 | **0.062**<br>1.575 | **0.817**<br>20.75 | **0.594**<br>15.09 | **0.120**<br>3.05 | **0.445**<br>11.3 | **0.434**<br>11.02 | **0. 434**<br>11.02 | **0.561**<br>14.25 | **0.828**<br>21.03 | **0.156**<br>3.96 | $^{7}/_{16}$-28 UNEF | **0.473**<br>12.015 |
| 10 | **0.062**<br>1.575 | **0.942**<br>23.925 | **0.719**<br>18.26 | **0.120**<br>3.05 | **0.445**<br>11.3 | **0.558**<br>14.17 | **0.558**<br>14.17 | **0.686**<br>17.425 | **0.891**<br>22.63 | **0.188**<br>4.775 | $^{9}/_{16}$-24 NEF | **0.590**<br>14.99 |
| 12 | **0.062**<br>1.575 | **1.036**<br>26.315 | **0.812**<br>20.625 | **0.120**<br>3.05 | **0.445**<br>11.3 | **0.683**<br>17.35 | **0.683**<br>17.35 | **0.811**<br>20.60 | **1.016**<br>25.805 | **0.312**<br>7.925 | $^{11}/_{16}$-24 NEF | **0.750**<br>19.05 |
| 14 | **0.062**<br>1.575 | **1.130**<br>28.70 | **0.906**<br>23.10 | **0.120**<br>3.05 | **0.445**<br>11.3 | **0.808**<br>20.52 | **0.808**<br>20.52 | **0.936**<br>23.775 | **1.141**<br>28.98 | **0.375**<br>9.575 | $^{13}/_{16}$-20 UNEF | **0.875**<br>22.225 |
| 16 | **0.062**<br>1.575 | **1.223**<br>31.065 | **0.969**<br>24.61 | **0.120**<br>3.05 | **0.445**<br>11.30 | **0.933**<br>23.70 | **0.933**<br>23.70 | **1.061**<br>26.975 | **1.203**<br>30.555 | **0.500**<br>12.7 | $^{15}/_{16}$-20 UNEF | **1.000**<br>25.4 |
| 18 | **0.062**<br>1.575 | **1.317**<br>33.45 | **1.062**<br>26.575 | **0.120**<br>3.05 | **0.445**<br>11.3 | **1.057**<br>26.85 | **1.057**<br>26.85 | **1.186**<br>30.12 | **1.426**<br>36.22 | **0.625**<br>15.875 | $1^{1}/_{16}$-18 NEF | **1.125**<br>28.575 |
| 20 | **0.080**<br>2.03 | **1.442**<br>36.625 | **1.156**<br>29.36 | **0.120**<br>3.05 | **0.555**<br>14.095 | **1.182**<br>30.02 | **1.182**<br>30.02 | **1.311**<br>33.30 | **1.426**<br>36.22 | **0.625**<br>15.875 | $1^{3}/_{16}$-18 NEF | **1.250**<br>31.75 |
| 22 | **0.080**<br>2.03 | **1.567**<br>39.80 | **1.250**<br>31.75 | **0.120**<br>3.05 | **0.555**<br>14.095 | **1.307**<br>33.20 | **1.307**<br>33.20 | **1.436**<br>36.47 | **1.567**<br>39.80 | **0.750**<br>19.05 | $1^{5}/_{16}$-18 NEF | **1.375**<br>34.925 |
| 24 | **0.080**<br>2.03 | **1.692**<br>42.98 | **1.375**<br>34.925 | **0.147**<br>3.735 | **0.590**<br>14.985 | **1.432**<br>36.37 | **1.432**<br>36.37 | **1.561**<br>39.65 | **1.735**<br>44.07 | **0.800**<br>20.32 | $1^{7}/_{16}$-18 NEF | **1.500**<br>38.1 |

# Single Hole Fixing Receptacles

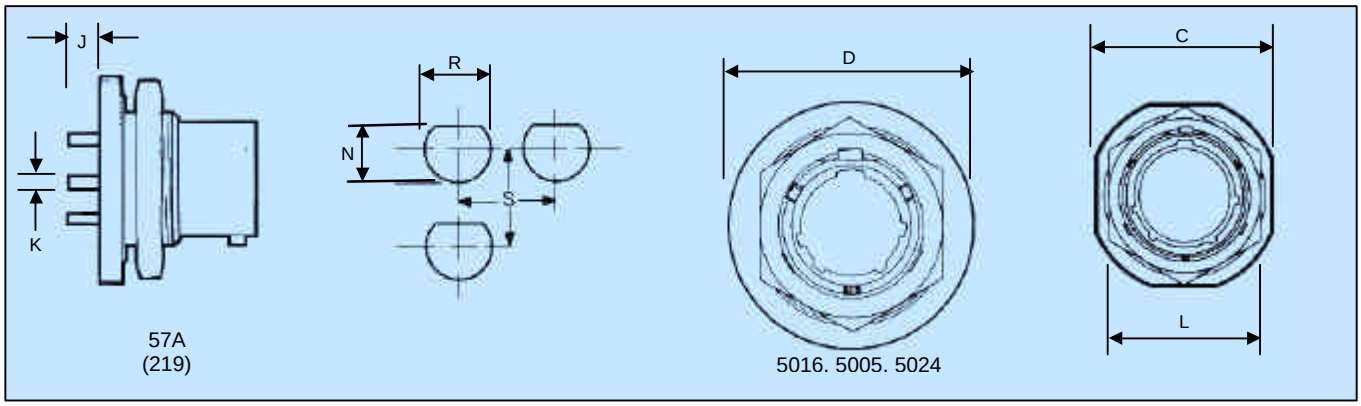
| | | Description | Amphenol Part No | Military No |
|---|---|---|---|---|
|  | **14E** | Single hole fixing with grommet and grommet nut. Has panel O-ring seal | **162 Series**<br>162GB-14E etc | |
|  | **14F** | Single hole fixing with grommet and grommet nut fitted with integral strain relief clamp. Has panel O-ring seal | **162GB Series**<br>162GB-14F etc | |
|  | **37T** | Single hole fixing with threaded shell to accept accessories | **162GB Series**<br>162GB-37T etc | |

# Dimensions and Mounting Details

**162 OVERALL MATED DIMENSIONS**

Add the two relevant plug and receptacle overall dimensions and deduct -

- 0.365 (9.271mm) for shell sizes 20, 22, 24
- 0.303 (7.696mm) for all other sizes

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(219)

5016. 5005. 5024

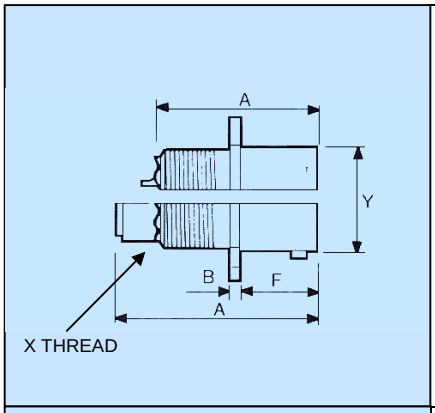
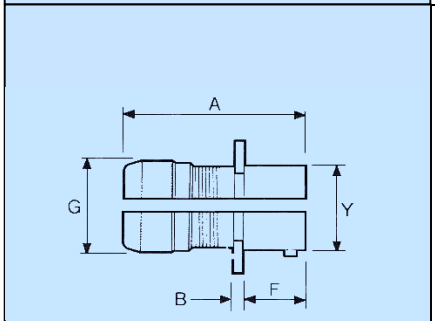
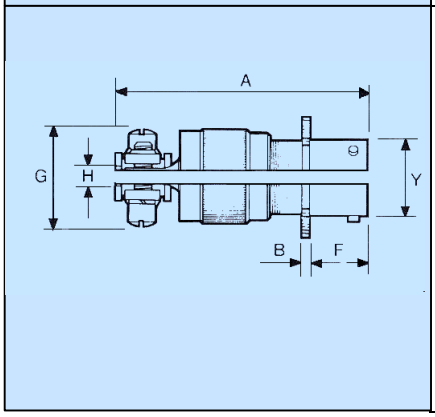
**SINGLE HOLE FIXING RECEPTACLES**
**PANEL PIERCING DETAILS**

| Shell Size | Mounting hole dia. 0.005 (±0.127) R in mm | Mounting hole crs. min. S in mm | Diameter across flat 0.005 (±0.127) N in mm | Panel Thickness K in mm Min. | Panel Thickness K in mm Max. |
|---|---|---|---|---|---|
| 8 | **0.572** | **1.250** | **0.540** | **0.062** | **0.125** |
| | 14.53 | 31.75 | 13.72 | 1.575 | 3.175 |
| 10 | **0.697** | **1.359** | **0.665** | **0.062** | **0.125** |
| | 17.70 | 34.53 | 16.89 | 1.575 | 3.175 |
| 12 | **0.885** | **1.531** | **0.828** | **0.062** | **0.125** |
| | 22.48 | 38.885 | 21.03 | 1.575 | 3.175 |
| 14 | **1.010** | **1.656** | **0.952** | **0.062** | **0.125** |
| | 25.65 | 42.06 | 24.18 | 1.575 | 3.175 |
| 16 | **1.135** | **1.781** | **1.076** | **0.062** | **0.125** |
| | 28.83 | 45.24 | 27.33 | 1.575 | 3.175 |
| 20 | **1.260** | **1.891** | **1.201** | **0.062** | **0.125** |
| | 32.00 | 48.03 | 30.50 | 1.575 | 3.175 |
| 20 | **1.385** | **2.031** | **1.326** | **0.062** | **0.250** |
| | 35.18 | 51.59 | 33.68 | 1.575 | 6.35 |
| 22 | **1.510** | **2.156** | **1.451** | **0.062** | **0.250** |
| | 38.35 | 54.76 | 36.855 | 1.575 | 6.35 |
| 24 | **1.635** | **2.277** | **1.576** | **0.062** | **0.250** |
| | 41.45 | 57.835 | 40.03 | 1.575 | 6.35 |

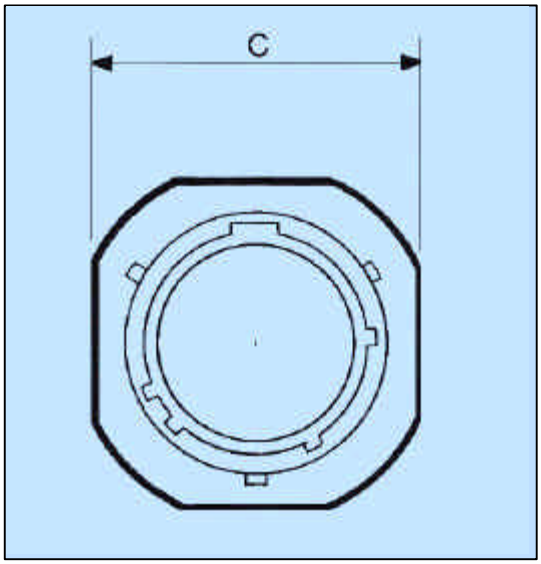
| Shell Size | Overall Length Max. A (162) 14E in mm | Overall Length Max. A (162) 14F in mm |
|---|---|---|
| 8 | **1.355** | **1.759** |
| | 34.42 | 44.68 |
| 10 | **1.355** | **1.759** |
| | 34.42 | 44.68 |
| 12 | **1.355** | **1.759** |
| | 34.42 | 44.68 |
| 14 | **1.355** | **1.733** |
| | 34.42 | 44.02 |
| 16 | **1.355** | **1.873** |
| | 34.42 | 44.575 |
| 18 | **1.355** | **1.873** |
| | 34.42 | 44.575 |
| 20 | **1.576** | **2.105** |
| | 40.03 | 53.47 |
| 22 | **1.576** | **2.105** |
| | 40.03 | 53.47 |
| 24 | **1.609** | **2.247** |
| | 40.87 | 57.075 |

| Shell Size | Flange thick-ness ±0.005 (±0.127) B 14E 14F in mm | Mtg. Flange location ±0.005 (±0.127) F in mm | Overall Rear diameter 14E in mm | Overall Rear diameter G 14F in mm | Cable Sleeve int. dia. ±0.005 (±0.127) H 14F in mm | Fixing Nut A/F L in mm | Fixing nut thread X | Thread flat +0.000 –0.005 (-0.127) M in mm | Shell Ext dia. Max. Y in mm |
|---|---|---|---|---|---|---|---|---|---|
| 08 | **0.117** | **0.706** | **0.713** | **0.828** | **0.156** | **0.750** | $^{9}/_{16}$-24 NEF | **0.527** | **0.473** |
| | 2.97 | 17.93 | 18.11 | 21.03 | 3.96 | 19.05 | | 13.3 | 12.025 |
| 10 | **0.117** | **0.706** | **0.838** | **0.891** | **0.188** | **0.875** | $^{11}/_{16}$-24 NEF | **0.652** | **0.590** |
| | 2.97 | 17.93 | 21.29 | 22.63 | 4.775 | 22.225 | | 16.56 | 14.99 |
| 12 | **0.117** | **0.706** | **0.963** | **1.016** | **0.312** | **1.062** | ? - 20 UNEF | **0.815** | **0.750** |
| | 2.97 | 17.93 | 24.46 | 25.805 | 7.925 | 26.975 | | 20.70 | 19.05 |
| 14 | **0.117** | **0.706** | **1.088** | **1.141** | **0.375** | **1.187** | 1-20 UNEF | **0.939** | **0.875** |
| | 2.97 | 17.93 | 27.625 | 28.97 | 9.525 | 30.15 | | 23.85 | 22.225 |
| 16 | **0.117** | **0.706** | **1.213** | **1.203** | **0.500** | **1.312** | 1? -18 NEF | **1.063** | **1.000** |
| | 2.97 | 17.93 | 30.81 | 30.555 | 12.7 | 33.32 | | 27.00 | 25.40 |
| 18 | **0.117** | **0.706** | **1.338** | **1.426** | **0.625** | **1.437** | 1¼ -18 NEF | **1.188** | **1.125** |
| | 2.97 | 17.93 | 33.975 | 36.22 | 15.875 | 36.50 | | 30.175 | 28.575 |
| 20 | **0.148** | **0.894** | **1.463** | **1.426** | **0.625** | **1.562** | 1? -18 NEF | **1.313** | **1.250** |
| | 3.76 | 22.71 | 37.16 | 36.22 | 15.875 | 38.675 | | 33.35 | 31.75 |
| 22 | **0.148** | **0.894** | **1.588** | **1.567** | **0.750** | **1.687** | 1½ -18 NEF | **1.438** | **1.375** |
| | 3.76 | 22.71 | 40.325 | 39.80 | 19.05 | 42.85 | | 36.53 | 34.925 |
| 24 | **0.148** | **0.927** | **1.713** | **1.735** | **0.800** | **1.812** | 1? -18 NEF | **1.563** | **1.500** |
| | 3.76 | 23.55 | 43.51 | 44.07 | 20.32 | 46.05 | | 39.70 | 38.10 |

# Cable Mounting Receptacles

| | | Description | Amphenol Part No | Military No |
|---|---|---|---|---|
|  | **31T** | Basic cable mounting receptacle with threaded shell to accept standard cable accessories | **162 Series**<br>62GB-31T etc | |
|  | **11E** | Cable mounting receptacle with grommet and grommet nut | **162 Series**<br>162GB-11E etc | |
|  | **11F** | Cable mounting receptacle with grommet and grommet nut fitted with integral strain relief clamp | **162 Series**<br>162GB-11F etc | MS 3121F etc |

# Dimensions and Mounting Details




**162 OVERALL MATED DIMENSIONS –**

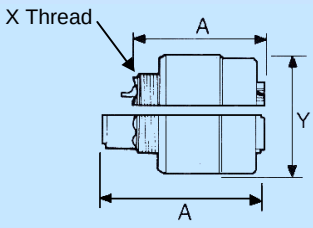
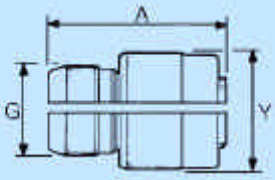
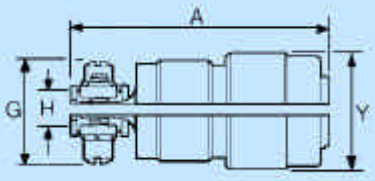
Add the two relevant plug and receptacle overall Dimensions and deduct:

- 0.365 for shell sizes 20, 22, 24 (9.271)
- 0.303 for all other sizes (7.696)

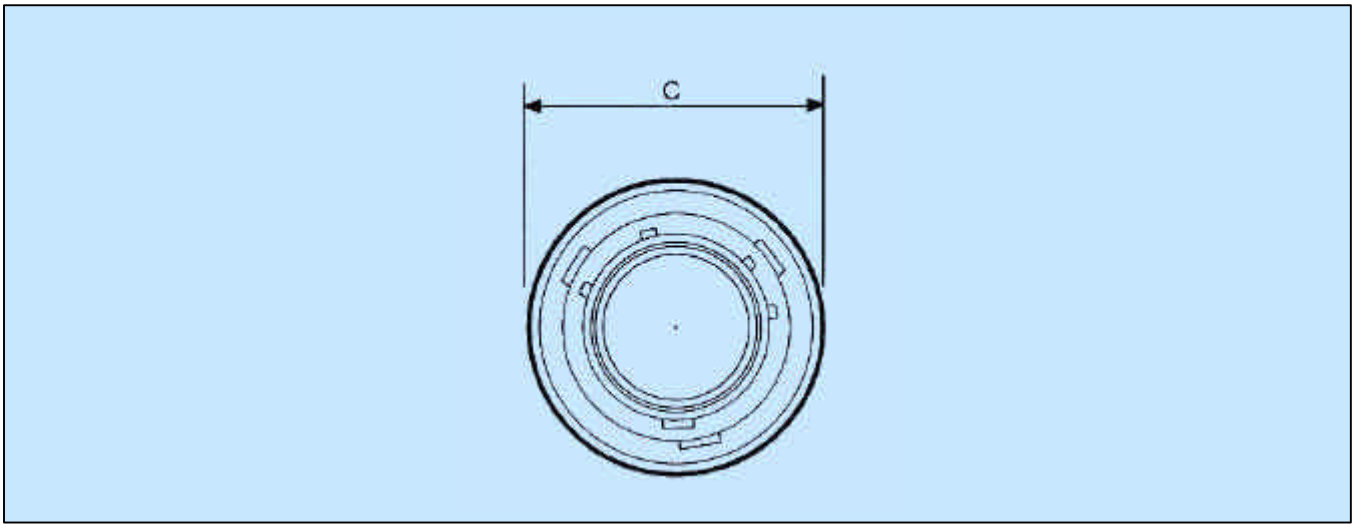
| Shell Size | 'A' Overall Length Max. | | |
|---|---|---|---|
| | 31T in mm | (162) 11E in mm | (162) 11F in mm |
| 08 | **1.286** | **1.320** | **1.759** |
| | 32.665 | 33.53 | 44.68 |
| 10 | **1.286** | **1.320** | **1.759** |
| | 32.665 | 33.53 | 44.68 |
| 12 | **1.286** | **1.320** | **1.759** |
| | 32.665 | 33.53 | 44.68 |
| 14 | **1.286** | **1.320** | **1.733** |
| | 32.665 | 33.53 | 44.02 |
| 16 | **1.286** | **1.320** | **1.873** |
| | 32.665 | 33.53 | 47.575 |
| 18 | **1.286** | **1.320** | **1.873** |
| | 32.665 | 33.53 | 47.575 |
| 20 | **1.348** | **1.382** | **2.115** |
| | 34.24 | 35.10 | 53.72 |
| 22 | **1.348** | **1.382** | **2.115** |
| | 34.24 | 35.10 | 53.72 |
| 24 | **1.348** | **1.382** | **2.247** |
| | 34.24 | 35.10 | 57.07 |

| Shell Size | Flange thickness ±0.005 (±0.127) | Flange dimensions max. sq. | Flange location ±0.005 (±0.127) | Overall rear diameter Max. | | Cable Sleeve int. dia. ±0.005 (±0.127) | Thread | Shell ext. dia. Max. |
|---|---|---|---|---|---|---|---|---|
| | B | C | F | G 11F | 11E | H 11F | X 31T | Y |
| | in mm | in mm | in mm | in mm | in mm | in mm | | in mm |
| 08 | **0.094** | **0.817** | **0.415** | **0.828** | **0.561** | **0.156** | $^{7}/_{16}$-28 UNEF | **0.473** |
| | 2.39 | 20.75 | 10.54 | 21.03 | 14.25 | 3.96 | | 12.025 |
| 10 | **0.094** | **0.942** | **0.415** | **0.891** | **0.686** | **0.188** | $^{9}/_{16}$-24 NEF | **0.590** |
| | 2.39 | 23.925 | 10.54 | 22.63 | 17.425 | 4.775 | | 14.99 |
| 12 | **0.094** | **1.036** | **0.415** | **1.016** | **0.811** | **0.312** | $^{11}/_{16}$-24 NEF | **0.750** |
| | 2.39 | 26.315 | 10.54 | 25.805 | 20.60 | 7.925 | | 19.05 |
| 14 | **0.094** | **1.130** | **0.415** | **1.141** | **0.936** | **0.375** | $^{13}/_{16}$-28 UNEF | **0.875** |
| | 2.39 | 28.70 | 10.54 | 28.97 | 23.775 | 9.525 | | 22.225 |
| 16 | **0.094** | **1.223** | **0.415** | **1.203** | **1.061** | **0.500** | $^{15}/_{16}$-20 UNEF | **1.000** |
| | 2.39 | 31.065 | 10.54 | 30.555 | 26.95 | 12.7 | | 25.4 |
| 18 | **0.094** | **1.317** | **0.415** | **1.426** | **1.186** | **0.625** | $1^{1}/_{16}$-18 NEF | **1.125** |
| | 2.39 | 33.45 | 10.54 | 36.22 | 30.125 | 15.875 | | 28.575 |
| 20 | **0.104/0.100** | **1.442** | **0.535** | **1.426** | **1.311** | **0.625** | $1^{3}/_{16}$-18 NEF | **1.250** |
| | 2.64/2.55 | 36.63 | 13.59 | 36.22 | 33.30 | 15.875 | | 31.75 |
| 22 | **0.104/0.100** | **1.567** | **0.535** | **1.567** | **1.436** | **0.750** | $1^{5}/_{16}$-18 NEF | **1.375** |
| | 2.64/2.55 | 39.80 | 13.59 | 39.80 | 36.745 | 19.05 | | 34.925 |
| 24 | **0.104/0.100** | **1.692** | **0.560/0.574** | **1.735** | **1.561** | **0.800** | $1^{7}/_{16}$-18 NEF | **1.500** |
| | 2.64/2.55 | 42.98 | 14.225/14.58 | 44.07 | 39.65 | 20.32 | | 38.10 |

# Plugs

| | | Description | Amphenol Part No | Military No |
|---|---|---|---|---|
|  | **36T** | Basic plug with threaded shells to accept standard cable accessories | **162 Series**<br>162GB-36T etc | |
| | **36TG** | Basic plug with grounding spring, threaded shell to accept standard cable accessories | **162 Series**<br>162GB-16E etc | |
|  | **16E** | Plug with grommet and grommet nut | **162 Series**<br>162GB-16E etc | MS 3126E etc |
|  | **16F** | Plug with grommet and grommet nut fitted with integral strain relief clamp | **162 Series**<br>162GB-16F etc | MS3126F etc |

# Dimensions and Mounting Details




| Shell Size | 'A' Overall Length max. | | |
|---|---|---|---|
| | 36T and 36TG in mm | 16F in mm | (162) 16E in mm |
| 08 | **1.277** | **1.752** | **1.310** |
| | 32.44 | 44.50 | 33.27 |
| 10 | **1.277** | **1.752** | **1.310** |
| | 32.44 | 44.50 | 33.27 |
| 12 | **1.277** | **1.752** | **1.310** |
| | 32.44 | 44.50 | 33.27 |
| 14 | **1.277** | **1.726** | **1.310** |
| | 32.44 | 43.84 | 33.27 |
| 16 | **1.277** | **1.866** | **1.310** |
| | 32.44 | 47.40 | 33.27 |
| 18 | **1.277** | **1.866** | **1.310** |
| | 32.44 | 47.40 | 33.27 |
| 20 | **1.277** | **2.045** | **1.310** |
| | 32.44 | 51.94 | 33.27 |
| 22 | **1.277** | **2.045** | **1.310** |
| | 32.44 | 51.94 | 33.27 |
| 24 | **1.277** | **2.178** | **1.310** |
| | 32.44 | 55.32 | 33.27 |

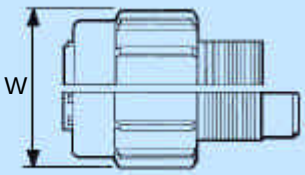
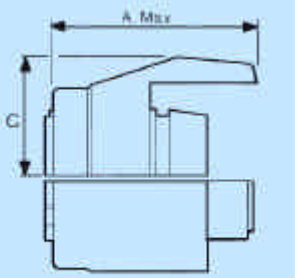
**162 OVERALL MATED DIMENSIONS –**

Add the two relevant plug and receptacle overall Dimensions and deduct:

- 0.365 (9.271mm) for shell sizes 20, 22, 24
- 0.303 (7.696mm) for all other sizes

| Shell Size | Overall dia. Max. | Coupling Ring dia. max. | Overall rear diameter Max. | | Cable Sleeve int. dia. ±0.005 (±0.127) |
|---|---|---|---|---|---|
| | C | Y | G | | H |
| | | | 16E | 16F | 16F |
| | in mm | in mm | in mm | in mm | in mm |
| 08 | **0.750** | **0.750** | **0.561** | **0.828** | **0.156** |
| | 19.05 | 19.05 | 14.25 | 21.03 | 3.96 |
| 10 | **0.859** | **0.859** | **0.686** | **0.891** | **0.188** |
| | 21.82 | 21.82 | 17.425 | 22.63 | 4.775 |
| 12 | **1.031** | **1.031** | **0.811** | **1.016** | **0.312** |
| | 26.19 | 26.19 | 20.60 | 25.805 | 7.925 |
| 14 | **1.156** | **1.156** | **0.936** | **1.141** | **0.375** |
| | 29.36 | 29.36 | 23.775 | 28.97 | 9.525 |
| 16 | **1.281** | **1.281** | **1.061** | **1.203** | **0.500** |
| | 32.54 | 32.54 | 26.95 | 30.555 | 12.7 |
| 18 | **1.391** | **1.391** | **1.186** | **1.426** | **0.625** |
| | 35.33 | 35.33 | 30.125 | 36.22 | 15.875 |
| 20 | **1.531** | **1.531** | **1.311** | **1.426** | **0.625** |
| | 38.89 | 38.89 | 33.30 | 36.22 | 15.875 |
| 22 | **1.656** | **1.656** | **1.436** | **1.567** | **0.750** |
| | 42.06 | 42.06 | 36.745 | 39.80 | 19.05 |
| 24 | **1.777** | **1.777** | **1.561** | **1.735** | **0.800** |
| | 45.135 | 45.135 | 39.65 | 44.07 | 20.32 |

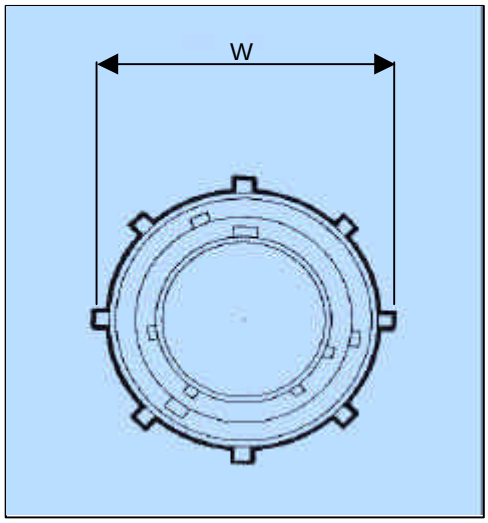
# Plugs with optional Coupling Rings

| | | Description | Amphenol Part No |
|---|---|---|---|
|  | **(044)** | Heavy duty coupling ring.<br>Available for any of the plugs listed on page 22<br>To order complete assembly, add deviation (044) to connector number | **162 Series**<br>162GB-XXXXX-XX(044) |
|  | **(218)** | Lever coupling ring. Mating and unmating only requires 120° movement.<br>Available in shell size 14 and 16 only. Other sizes to special order. | **162 Series**<br>162GB-XXXXX-XX(218) |

# Dimensions and Mounting Details

**HEAVY DUTY COUPLING RINGS**

| Shell Size | Overall dia. max. W (044) in mm |
|---|---|
| 08 | **0.870**<br>22.1 |
| 10 | **0.979**<br>24.865 |
| 12 | **1.151**<br>29.235 |
| 14 | **1.276**<br>32.41 |
| 16 | **1.401**<br>35.585 |
| 18 | **1.505**<br>38.225 |
| 20 | **1.651**<br>41.935 |
| 22 | **1.776**<br>45.11 |
| 24 | **1.897**<br>48.18 |




**LEVER COUPLING RINGS**

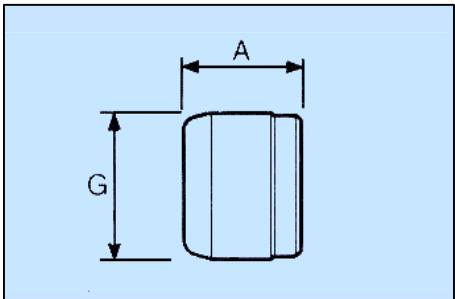
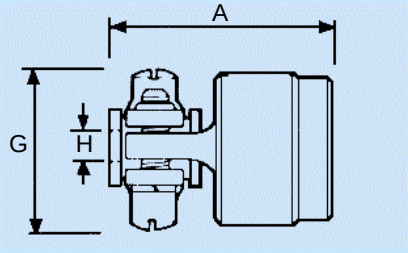
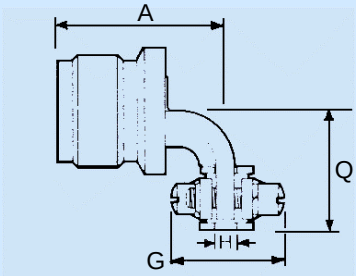
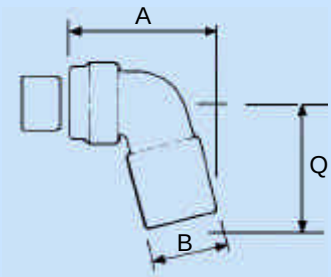
| Shell Size | A Max in mm | C Max. in mm |
|---|---|---|
| 14 | **1.444**<br>36.67 | **0.787**<br>19.98 |
| 16 | **1.444**<br>36.67 | **0.844**<br>21.43 |

**AUDIO CONNECTORS FOR TINSEL CORD**

| Shell Size | A Max in mm | | B dia. Max in mm | H Cable Outlet Min in mm |
|---|---|---|---|---|
| | 162GB-0506-10-6PX<br>162GB-0506-10-7PX | 162GB-5001-10-7SX | | |
| 10 | **2.375**<br>60.325 | **2.75**<br>69.85 | **0.875**<br>22.225 | **0.276**<br>7.01 |

# Cable Accessories

**SUITABLE FOR ALL EXTERNALLY THREADED PLUG OR RECEPTACLE SHELLS**

| | | Description | Amphenol Part No |
|---|---|---|---|
|  | **214** | Grommet seal and nut. Provides an environmental seal for the exposed solder buckets in the openback class T shells.<br><br>Grommet nut only for 162 Series. | **162 Series**<br>162GB-214-XX†<br>For Shell sizes 08-24 respectively |
|  | **129** | Grommet and nut with strain relief clamp. The clamp prevents the flexing of the wires in the immediate vicinity of he risers, so avoiding the risk of leaks.<br><br>Grommet nut with strain relief clamp only for 162 Series. | **162Series**<br>162GB-239-XX† |
|  | **201** | Grommet and nut with right-angled strain relief clamp. The clamp prevents flexing of the wires in the immediate vicinity of the risers, so avoiding the risk of leaks (these are supplied to separate order only for use with style T shells).<br>Grommet nut with strain relief clamp only for 162 Series. | **162GB Series**<br>162GB-201-XX† |
|  | **5000** | 75° Clamp for screened jacketed cable with grommet. Effective sealing is provided over the range of cables covered by DEF 10 (Pattern C) as specified in DEF 5325-3. These are supplied to separate order only and are intended for use with style T shells. | **162 Series**<br>162GB-5000-XX-†-XX** |

* The suffix XX-XP or S enables the grommet to be matched to the insert arrangement (e.g. 12-3P).
** The suffix XX specifies the cable size.
† The suffix XX specifies the shell size.

# Dimensions and Mounting Details

## SJ CLAMPS

The 162 series clamps are identical to the 62 series clamps except that the grommet is omitted. It is however, still necessary to quote the full planform because the piece parts vary to suit the appropriate cable.

SJ clamps are available in 62 series **only where there is an appropriate cable to DEF 10 or DEF STAN 61-12 part 5 available for the planform.**

162 series availability is similar according to the planforms tooled. These are marked C on the table.

**Part Number Examples:**

162GB-151-14-12 (no grommet supplied)

**CABLES TO DEF STAN 10 and DEF STAN 61-12 part 5**
**e.g. def 10-3A or DEF STAN 16-2-3A**

| PLANFORM | **CABLE** DEF 10-etc DEF STAN 16-2 etc | PLANFORM | **CABLE** DEF 10 etc DEF STAN 16-2 etc | PLANFORM | **CABLE** DEF 10-etc DEF STAN 16-2 etc |
|---|---|---|---|---|---|
| 8-3 | 3A,3B,3C,2B | 14-12 C | 12A,12B,12C | 20-16 | - |
| 8-3 3 C | 3A,3B,3C,2B | 14-15 | - | 20-41 C | 36C |
| 10-2 | 2A,2B,2C,2Q• | 16-8 | - | 22-55 | - |
| 10-6 C | 6A,6B,6C,4C | 16-23 C | - | 24-61 C | 60C |
| 12-3 C | 3A,3B,3C,2Q• | 16-26 | 25A,25B,25C | | |
| 12-10 | 10C | 18-11 | - | - | - |

• Applicable to DEF10 only

**Type A Cables:** PVC outer sheath, no overall screen, L.T. (14/.0076) unscreened cores (equivalent DEF STAN 16-2 wire size)

**Type B Cables:** Outer screen, inner PVC sheath, L.T. (14.0076) unscreened cores (equivalent DEF STAN 16-2 wire size)

**Type C Cables:** Outer PVC sheath, inner screen, L.T. (14.0076) unscreened cores (equivalent DEF STAN 16-2 wire size)

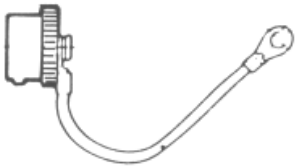
**Type Q Cables:** Outer screen, inner PVC sheath, L.T. (36/.012) unscreened cores (DEF 10 only)

| Shell Size | Overall Length (max.) | | | Straight SJ Clamps 162GB-151-XX max | | 75° SJ Clamps 162GB-5000-XX max | |
|---|---|---|---|---|---|---|---|
| | 162GB-201-XX | 162GB-129-XX in mm | 162GB-160-168 in mm | Length including plug in mm | Length including receptacle in mm | Length including plug in mm | Length including receptacle in mm |
| 08 | $1^{5}/_{32}$ | **0.991** | **0.545** | **2.732** | **2.742** | **2.375** | **2.416** |
| | | 25.17 | 13.84 | 69.39 | 69.64 | 60.235 | 61.365 |
| 10 | $1^{3}/_{16}$ | **0.991** | **0.545** | **2.742** | **2.752** | **2.532** | **2.573** |
| | | 25.17 | 13.84 | 69.64 | 69.90 | 64.39 | 65.35 |
| 12 | $1^{7}/_{32}$ | **0.991** | **0.545** | **3.152** | **3.162** | **2.625** | **2.666** |
| | | 25.17 | 13.84 | 80.06 | 80.31 | 66.675 | 67.715 |
| 14 | $1^{1}/_{4}$ | **0.965** | **0.545** | **3.152** | **3.162** | **2.719** | **2.760** |
| | | 24.51 | 13.84 | 80.06 | 80.31 | 69.035 | 70.095 |
| 16 | $1^{5}/_{16}$ | **1.105** | **0.545** | **3.272** | **3.282** | **2.750** | **2.790** |
| | | 28.065 | 13.84 | 83.10 | 83.36 | 69.80 | 70.87 |
| 18 | $1^{3}/_{8}$ | **1.105** | **0.545** | **-** | **-** | **-** | **-** |
| | | 28.065 | 13.84 | - | - | - | - |
| 20 | $1^{3}/_{8}$ | **1.285** | **0.545** | **3.272** | **3.345** | **3.250** | **3.312** |
| | | 32.64 | 13.84 | 83.10 | 84.96 | 82.55 | 84.125 |
| 22 | $1^{29}/_{64}$ | **1.285** | **0.545** | **-** | **-** | **-** | **-** |
| | | 32.64 | 13.84 | - | - | - | - |
| 24 | $1^{15}/_{32}$ | **1.373** | **0.501** | **3.696** | **3.768** | **3.375** | **3.500** |
| | | 34.875 | 12.725 | 93.87 | 95.70 | 85.725 | 88.90 |

| Shell Size | B dia. max | G | | | J | K | L |
|---|---|---|---|---|---|---|---|
| | 162GB-151-XX 162GB-5000-XX in mm | 162GB-129-XX in mm | 162GB-214 P or S in mm | All SJ Clamps in mm | Cable Sleeve Int. dia. ±0.005 ±0.127 | 162GB-201-XX in mm | 36T 162GB-5000-XX in mm |
| 08 | **0.676** | **0.828** | **0.561** | **0.775** | **0.161** | **0.733** | **1.750** |
| | 17.17 | 21.03 | 14.25 | 19.68 | 4.09 | 18.62 | 44.45 |
| 10 | **0.676** | **0.891** | **0.686** | **0.902** | **0.193** | **0.795** | **1.875** |
| | 17.17 | 22.63 | 17.425 | 22.91 | 4.90 | 20.19 | 47.625 |
| 12 | **0.812** | **1.016** | **0.811** | **1.030** | **0.317** | **0.858** | **2.125** |
| | 20.62 | 25.805 | 20.60 | 26.16 | 8.05 | 21.79 | 53.975 |
| 14 | **0.926** | **1.141** | **0.936** | **1.157** | **0.380** | **0.915** | **2.125** |
| | 23.52 | 28.98 | 23.775 | 29.385 | 9.65 | 23.24 | 53.975 |
| 16 | **1.051** | **1.203** | **1.061** | **1.284** | **0.505** | **1.010** | **2.062** |
| | 26.695 | 30.555 | 26.95 | 32.61 | 12.83 | 25.65 | 52.375 |
| 18 | **-** | **1.426** | **1.186** | **-** | **0.630** | **1.070** | **-** |
| | - | 36.22 | 30.125 | - | 16.00 | 27.18 | - |
| 20 | **1.280** | **1.426** | **1.311** | **1.539** | **0.630** | **1.140** | **2.062** |
| | 32.51 | 36.22 | 33.30 | 39.09 | 16.00 | 28.955 | 52.375 |
| 22 | **-** | **1.567** | **1.436** | **-** | **0.755** | **1.170** | **-** |
| | - | 39.80 | 36.745 | - | 19.175 | 29.72 | - |
| 24 | **1.620** | **1.735** | **1.561** | **1.783** | **0.805** | **1.260** | **2.187** |
| | 41.15 | 44.07 | 39.65 | 45.29 | 20.45 | 32.00 | 55.55 |

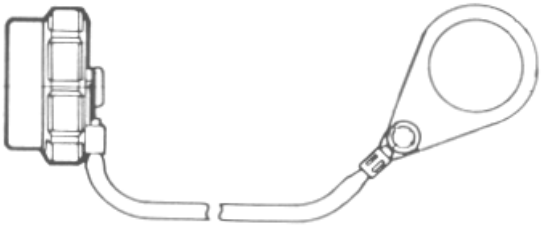
# Dust Caps

**TABLE OF STYLES**

| | | |
|---|---|---|
| **62GB-736** | | |
| **62GB-738** | | |
| **62GB-742** | | |
| **62GB-810** | |  |
| **62GB-812** | | |
| **62GB-813** | | |

# Dust Caps

**TABLE OF STYLES**

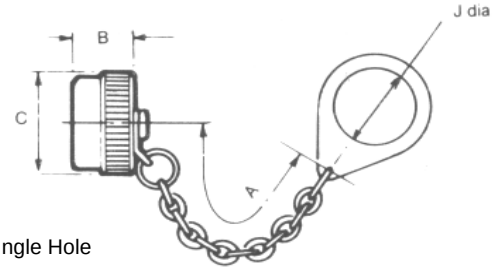
| | | |
|---|---|---|
| **62GB-997** | | |
| **62GB-998** | | |
| **62GB-1069** | |  |
| **62GB-1070** | | |

# Dust Caps

## TABLE OF STYLES

### 736

### 62GB-736

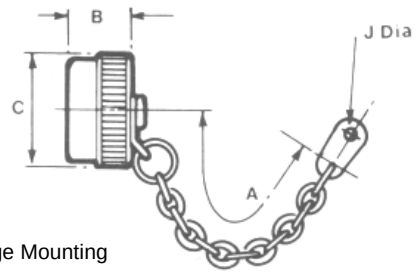



Caps and Chains for Single Hole Mounting Receptacles

| Shell Size | A ± 0.25 (± 6.35) | B ± 0.005 (± 0.13) | C dia. Max | J ± 0.005 (± 0.127) |
|---|---|---|---|---|
| **08** | **3.0** | **0.521** | **0.734** | 0.578 |
| | 76.2 | 13.23 | 18.64 | **14.68** |
| **10** | **3.0** | **0.521** | **0.859** | 0.703 |
| | 76.2 | 13.23 | 21.82 | **17.86** |
| **12** | **3.5** | **0.521** | **1.000** | **0.891** |
| | 88.9 | 13.23 | 25.4 | 22.63 |
| **14** | **3.5** | **0.521** | **1.125** | **1.016** |
| | 88.9 | 13.23 | 28.57 | 25.81 |
| **16** | **3.5** | **0.521** | **1.250** | **1.141** |
| | 88.9 | 13.23 | 31.75 | 29.39 |
| **18** | **3.5** | **0.521** | **1.375** | **1.266** |
| | 88.9 | 13.23 | 34.92 | 32.16 |
| **20** | **4.0** | **0.521** | **1.500** | **1.391** |
| | 101.6 | 13.23 | 38.1 | 35.33 |
| **22** | **4.0** | **0.521** | **1.625** | **1.516** |
| | 101.6 | 13.23 | 41.27 | 38.51 |
| **24** | **4.0** | **0.556** | **1.750** | **1.641** |
| | 101.6 | 14.12 | 44.45 | 41.68 |

### 738

### 62GB-738




Caps and Chains for Flange Mounting Receptacles

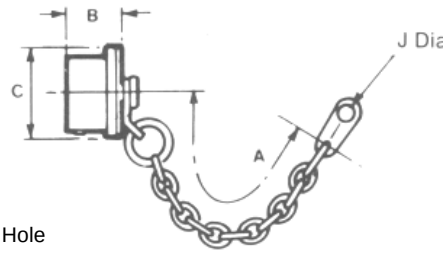
| Shell Size | A ± 0.25 (± 6.35) | B ± 0.005 (± 0.13) | C dia. Max | J ± 0.005 (± 0.127) |
|---|---|---|---|---|
| **08** | **3.0** | **0.521** | **0.734** | **0.125** |
| | 76.2 | 13.23 | 18.64 | 3.18 |
| **10** | **3.0** | **0.521** | **0.859** | **0.125** |
| | 76.2 | 13.23 | 21.82 | 3.18 |
| **12** | **3.5** | **0.521** | **1.000** | **0.125** |
| | 88.9 | 13.23 | 25.4 | 3.18 |
| **14** | **3.5** | **0.521** | **1.125** | **0.125** |
| | 88.9 | 13.23 | 28.57 | 3.18 |
| **16** | **3.5** | **0.521** | **1.250** | **0.125** |
| | 88.9 | 13.23 | 31.75 | 3.18 |
| **18** | **3.5** | **0.521** | **1.375** | **0.125** |
| | 88.9 | 13.23 | 34.92 | 3.18 |
| **20** | **4.0** | **0.521** | **1.500** | **0.125** |
| | 101.6 | 13.23 | 38.1 | 3.18 |
| **22** | **4.0** | **0.521** | **1.625** | **0.125** |
| | 101.6 | 13.23 | 41.27 | 3.18 |
| **24** | **4.0** | **0.556** | **1.750** | **0.152** |
| | 101.6 | 14.12 | 44.45 | 3.66 |

# Dust Caps

## TABLE OF STYLES

### 742

### 62GB-742




Caps and Chains for Single Hole Mounting Receptacles

| Shell Size | A ± 0.25 (± 6.35) | B ± 0.005 (± 0.13) | C dia. Max | J ± 0.005 (± 0.127) |
|---|---|---|---|---|
| **08** | **3.0** | **0.522** | **0.719** | **0.125** |
| | 76.2 | 13.25 | 18.26 | 3.18 |
| **10** | **3.0** | **0.522** | **0.844** | **0.125** |
| | 76.2 | 13.25 | 21.43 | **3.18** |
| **12** | **3.5** | **0.522** | **1.000** | **0.125** |
| | 88.9 | 13.25 | 25.4 | 3.18 |
| **14** | **3.5** | **0.522** | **1.125** | **0.125** |
| | 88.9 | 13.25 | 28.57 | **3.18** |
| **16** | **3.5** | **0.522** | **1.250** | **0.125** |
| | 88.9 | 13.25 | 31.75 | 3.18 |
| **18** | **3.5** | **0.522** | **1.357** | **0.125** |
| | 88.9 | 13.25 | 34.92 | **3.18** |
| **20** | **4.0** | **0.584** | **1.500** | **0.125** |
| | 101.6 | 14.83 | 38.1 | 3.18 |
| **22** | **4.0** | **0.584** | **1.625** | **0.125** |
| | 101.6 | 14.83 | 41.27 | **3.18** |
| **24** | **4.0** | **0.617** | **1.750** | 0.152 |
| | 101.6 | 15.67 | 44.45 | 3.86 |

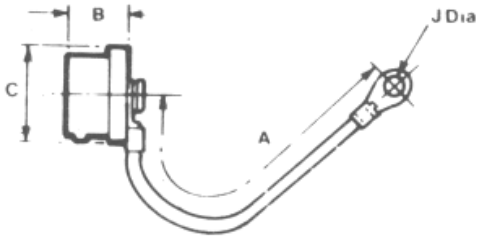
# Dust Caps

**TABLE OF STYLES**

## 810

## 62GB-810

BS9522-F0017-A2012



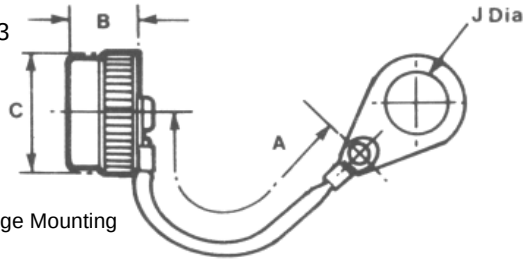

Caps and Cords for Plugs

| Shell Size | A<br>± 0.25<br>(± 6.35) | B<br>± 0.005<br>(± 0.13) | C dia. Max | J<br>± 0.005<br>(± 0.127) |
|---|---|---|---|---|
| **08** | **3.0** | **0.522** | **0.719** | **0.145** |
| | 76.2 | 13.25 | 18.26 | 3.68 |
| **10** | **3.0** | **0.522** | **0.844** | **3.685** |
| | 76.2 | 13.25 | 21.43 | **3.68** |
| **12** | **3.5** | **0.522** | **1.000** | **0.145** |
| | 88.9 | 13.25 | 25.4 | 3.68 |
| **14** | **3.5** | **0.522** | **1.125** | **0.145** |
| | 88.9 | 13.25 | 28.57 | **3.68** |
| **16** | **3.5** | **0.522** | **1.250** | **0.145** |
| | 88.9 | 13.25 | 31.75 | 3.68 |
| **20** | **4.0** | **0.584** | **1.500** | **0.145** |
| | 101.6 | 14.83 | 38.1 | **3.68** |
| **22** | **4.0** | **0.584** | **1.625** | **0.145** |
| | 101.6 | 14.83 | 41.27 | 3.68 |
| **24** | **4.0** | **0.617** | **1.750** | **0.171** |
| | 101.6 | 15.67 | 44.45 | **4.34** |

## 812

## 62GB-812

BS9522-F0017-A2013



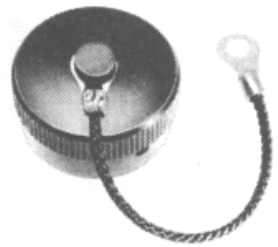

Caps and Cords for Flange Mounting Receptacles

| Shell Size | A<br>± 0.25<br>(± 6.35) | B<br>± 0.005<br>(± 0.13) | C dia. Max | J<br>± 0.005<br>(± 0.127) |
|---|---|---|---|---|
| **08** | **3.0** | **0.521** | **0.734** | **0.145** |
| | 76.2 | 13.23 | 18.64 | 3.68 |
| **10** | **3.0** | **0.521** | **0.859** | **0.145** |
| | 76.2 | 13.23 | 21.82 | **3.68** |
| **12** | **3.5** | **0.521** | **1.000** | **0.145** |
| | 88.9 | 13.23 | 25.4 | 3.68 |
| **14** | **3.5** | **0.521** | **1.125** | **0.145** |
| | 88.9 | 13.23 | 28.57 | **3.68** |
| **16** | **3.5** | **0.521** | **1.250** | **0.145** |
| | 88.9 | 13.23 | 31.75 | 3.68 |
| **18** | **3.5** | **0.521** | **1.375** | **0.145** |
| | 88.9 | 13.23 | 34.92 | **3.68** |
| **20** | **4.0** | **0.521** | **1.500** | **0.145** |
| | 101.6 | 13.23 | 38.1 | 3.68 |
| **22** | **4.0** | **0.521** | **1.625** | **0.145** |
| | 101.6 | 13.23 | 41.27 | 3.68 |
| **24** | **4.0** | **0.556** | **1.750** | **0.171** |
| | 101.6 | 14.12 | 44.45 | **4.34** |

# Dust Caps

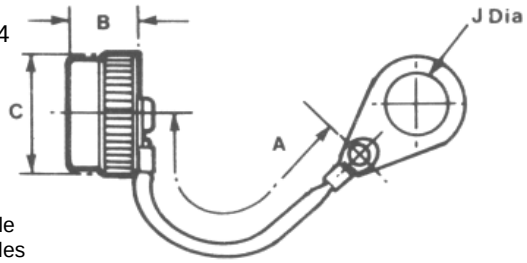
## TABLE OF STYLES

### 813



### 62GB-813

BS9522-F0017-A2014




Caps and Cords for Single Hole Mounting Receptacles

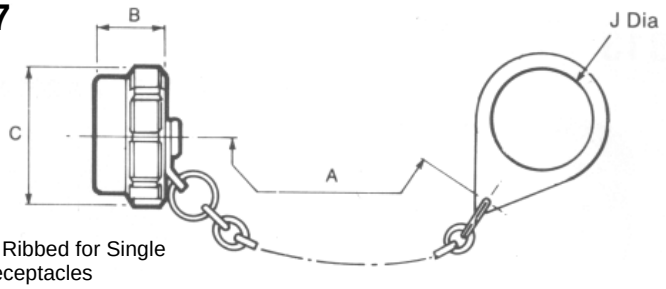
| Shell Size | A ± 0.25 (± 6.35) | B ± 0.005 (± 0.13) | C dia. Max | J ± 0.005 (± 0.127) |
|---|---|---|---|---|
| **08** | **3.0** | **0.521** | **0.734** | **0.578** |
| | 76.2 | 13.23 | 18.64 | 14.68 |
| **10** | **3.0** | **0.521** | **0.859** | **0.703** |
| | 76.2 | 13.23 | 21.82 | **17.86** |
| **12** | **3.5** | **0.521** | **1.000** | **0.891** |
| | 88.9 | 13.23 | 25.4 | 22.63 |
| **14** | **3.5** | **0.521** | **1.125** | **1.016** |
| | 88.9 | 13.23 | 28.57 | **25.81** |
| **16** | **3.5** | **0.521** | **1.250** | **1.141** |
| | 88.9 | 13.23 | 31.75 | 29.39 |
| **18** | **3.5** | **0.521** | **1.375** | **1.266** |
| | 88.9 | 13.23 | 34.92 | **32.16** |
| **20** | **4.0** | **0.521** | **1.500** | **1.391** |
| | 101.6 | 13.23 | 38.1 | 35.33 |
| **22** | **4.0** | **0.521** | **1.625** | **1.516** |
| | 101.6 | 13.23 | 41.27 | 38.56 |
| **24** | **4.0** | **0.556** | **1.750** | **1.641** |
| | 101.6 | 14.12 | 44.45 | **41.68** |

# Dust Caps

## TABLE OF STYLES

### 997

### 62GB-997

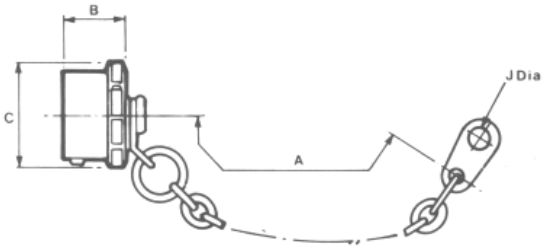



Caps and Chains Ribbed for Single Hole Mounting Receptacles

| Shell Size | A ± 0.25 (± 6.35) | B ± 0.005 (± 0.13) | C dia. Max | J ± 0.005 (± 0.127) |
|---|---|---|---|---|
| **08** | **3.0** | **0.521** | **0.892** | **0.578** |
| | 76.2 | 13.23 | 22.66 | 14.69 |
| **10** | **3.0** | **0.521** | **1.017** | **0.703** |
| | 76.2 | 13.23 | 26.84 | **17.86** |
| **12** | **3.5** | **0.521** | **1.142** | **0.891** |
| | 88.9 | 13.23 | 29.01 | 22.64 |
| **14** | **3.5** | **0.521** | **1.267** | **1.016** |
| | 88.9 | 13.23 | 32.19 | **25.81** |
| **16** | **3.5** | **0.521** | **1.454** | **1.141** |
| | 88.9 | 13.23 | 36.94 | 28.99 |
| **18** | **3.5** | **0.521** | **1.563** | **1.266** |
| | 88.9 | 13.23 | 39.70 | **32.16** |
| **20** | **4.0** | **0.521** | **1.687** | **1.391** |
| | 101.6 | 13.23 | 42.85 | 35.34 |
| **22** | **4.0** | **0.521** | **1.797** | **1.516** |
| | 101.6 | 13.23 | 45.65 | **38.51** |
| **24** | **4.0** | **0.556** | **1.922** | 1.641 |
| | 101.6 | 14.12 | 48.82 | 41.69 |

### 998

### 62GB-998




Caps and Chains Ribbed for Plugs

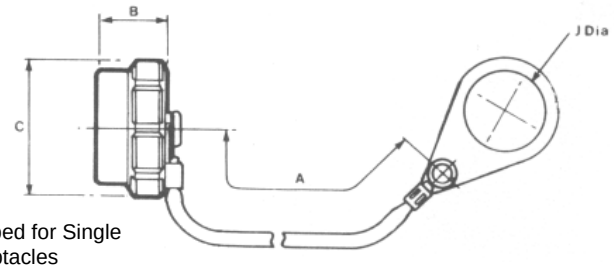
| Shell Size | A ± 0.25 (± 6.35) | g max | C dia. Max | J ± 0.005 (± 0.127) |
|---|---|---|---|---|
| **08** | **3.0** | **0.562** | **0.892** | **0.124** |
| | 76.2 | 14.28 | 22.66 | 3.18 |
| **10** | **3.0** | **0.562** | **1.017** | **0.124** |
| | 76.2 | 14.28 | 25.84 | 3.18 |
| **12** | **3.5** | **0.562** | **1.142** | **0.124** |
| | 88.9 | 14.28 | 29.01 | 3.18 |
| **14** | **3.5** | **0.562** | **1.267** | **0.124** |
| | 88.9 | 14.28 | 32.19 | 3.18 |
| **16** | **3.5** | **0.562** | **1.454** | **0.124** |
| | 88.9 | 14.28 | 36.94 | 3.18 |
| **18** | **3.5** | **0.562** | **1.563** | **0.124** |
| | 88.9 | 14.28 | 39.70 | 3.18 |
| **20** | **4.0** | **0.624** | **1.687** | **0.124** |
| | 101.6 | 15.85 | 42.85 | 3.18 |
| **22** | **4.0** | **0.624** | **1.797** | **0.124** |
| | 101.6 | 15.85 | 45.65 | 3.18 |
| **24** | **4.0** | **0.624** | **1.922** | **0.147** |
| | 101.6 | 15.85 | 48.82 | **3.74** |

# Dust Caps

## TABLE OF STYLES

### 1069

### 62GB-1069

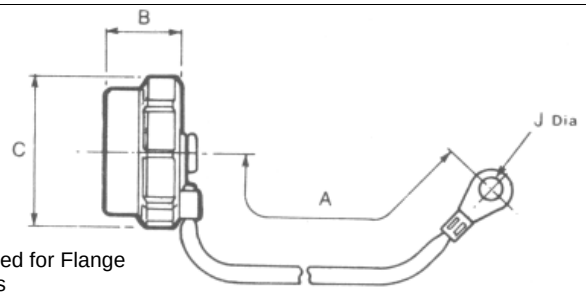



Caps and Cords Ribbed for Single Hole Mounting Receptacles

| Shell Size | A ± 0.25 (± 6.35) | B ± 0.005 (± 0.13) | C dia. Max | J ± 0.010 (± 0.25) |
|---|---|---|---|---|
| **08** | **3.0** | **0.521** | **0.892** | **0.578** |
| | 76.2 | 13.23 | 22.66 | 14.69 |
| **10** | **3.0** | **0.521** | **1.017** | **0.703** |
| | 76.2 | 13.23 | 26.84 | **17.86** |
| **12** | **3.5** | **0.521** | **1.142** | **0.891** |
| | 88.9 | 13.23 | 29.01 | 22.64 |
| **14** | **3.5** | **0.521** | **1.267** | **1.016** |
| | 88.9 | 13.23 | 32.19 | **25.81** |
| **16** | **3.5** | **0.521** | **1.454** | **1.141** |
| | 88.9 | 13.23 | 36.94 | 28.99 |
| **18** | **3.5** | **0.521** | **1.563** | **1.266** |
| | 88.9 | 13.23 | 39.70 | **32.16** |
| **20** | **4.0** | **0.521** | **1.687** | **1.391** |
| | 101.6 | 13.23 | 42.85 | 35.34 |
| **22** | **4.0** | **0.521** | **1.797** | **1.516** |
| | 101.6 | 13.23 | 45.65 | **38.51** |
| **24** | **4.0** | **0.556** | **1.922** | 1.641 |
| | 101.6 | 14.12 | 48.82 | 41.696 |

### 1070

### 62GB-1070




Caps and Cords Ribbed for Flange Mounting Receptacles

| Shell Size | A ± 0.25 (± 6.35) | B ± 0.005 (± 0.13) | C dia. Max | J ± 0.005 (± 0.127) |
|---|---|---|---|---|
| **08** | **3.0** | **0.521** | **0.892** | **0.117** |
| | 76.2 | 13.23 | 22.66 | 3.03 |
| **10** | **3.0** | **0.521** | **1.017** | **0.119** |
| | 76.2 | 13.23 | 22.66 | 3.03 |
| **12** | **3.5** | **0.521** | **1.142** | **0.119** |
| | 88.9 | 13.23 | 29.01 | 3.03 |
| **14** | **3.5** | **0.521** | **1.267** | **0.119** |
| | 88.9 | 13.23 | 32.19 | 3.03 |
| **16** | **3.5** | **0.521** | **1.454** | **0.119** |
| | 88.9 | 13.23 | 36.94 | 3.03 |
| **18** | **3.5** | **0.521** | **1.563** | **0.119** |
| | 88.9 | 13.23 | 39.70 | 3.03 |
| **20** | **4.0** | **0.521** | **1.687** | **0.110** |
| | 101.6 | 13.23 | 42.85 | 3.03 |
| **22** | **4.0** | **0.521** | **1.797** | **0.119** |
| | 101.6 | 13.23 | 45.65 | 3.03 |
| **24** | **4.0** | **0.556** | **1.922** | **0.147** |
| | 101.6 | 14.12 | 48.82 | **3.74** |

# Interconnection Accessories

**5001 BACKSHELL SERIES**

- For use on 162GB connector styles
- The 5001 Backshells are suitable for termination using Bandit, Zetalock and Heatshrink product
- The 5001 Backshell is designed to give 360° screening

## Part Numbering Information

**AIA50 01 XX XX XX XX XX XX**

**Denotes Backshell Style**
50 – Zeta Lock Termination with Heatshrink Boot Groove
51 – Spin Coupler to take Heatshrink Boot

**Denotes Connector Style**
01 – Series 2 162GB

**Denotes Connector Shell Size**
8, 10, 12, 14, 16, 18, 20, 22, 24

**Denotes Backshell Inlet Size**
See Chart for Inlet Standard
Consult Factory for alternatives

**Denotes Backshell Exit Angle**
00 = 0°
45 – 45°
90 – 90°
Consult Factory for alternatives

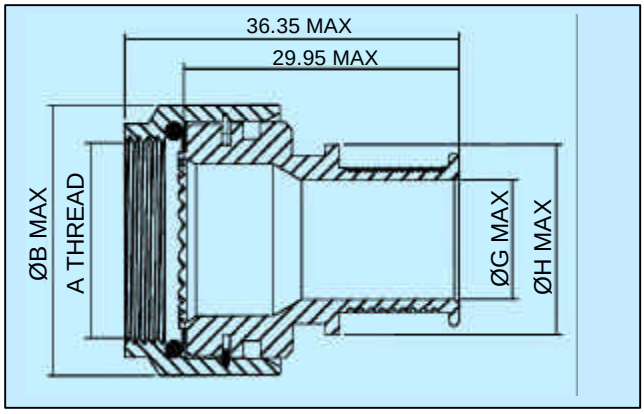
**Denotes Working Length**
10 – Standard
Consult Factory for alternatives

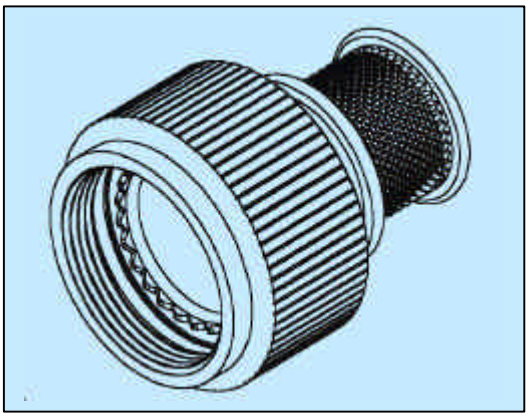
**Denotes Backshell Material**
AA – Aluminium Alloy
RB – Aluminium Bronze
SS – Stainless Steel

**Denotes Backshell Plating Finish**
01 – Unplated
02 – Electroless Nickel
03 – Cadmium with Olive Drab Chromate Passivation
04 – Zinc Cobalt with Green Chromate Passivation
05 – Zinc Cobalt with Black Chromate Passivation

# Interconnection Accessories

## 5001 BACKSHELL SERIES - STRAIGHT



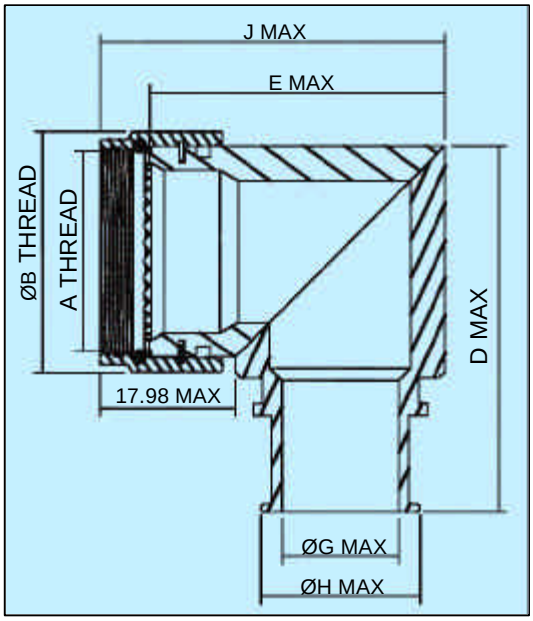



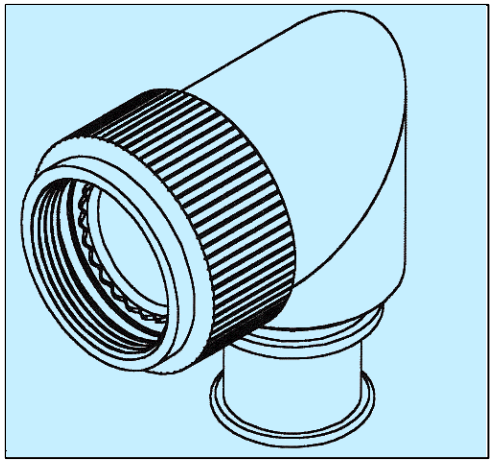
| Part Number | A-Thread | ØB MAX | ØG MAX | ØH MAX | Rec Hellerman Boot 90° | Rec Hellerman Boot Straight | Spring Ref |
|---|---|---|---|---|---|---|---|
| 5001-08-00-00-10-AA-XX | 7/16-28 UNEF | 18.14 | 6.48 | 14.04 | 1152-4-GW24 | 152-42-GW24 | HE 050 |
| 5001-10-00-00-10-AA-XX | 9/16-24 UNEF | 20.45 | 8.05 | 15.61 | 1154-4-GW24 | 154-42-GW24 | HE 100 |
| 5001-12-00-00-10-AA-XX | 11/16-24 UNEF | 24.64 | 11.25 | 18.81 | 1155-4-GW24 | 155-42-GW24 | HE 100 |
| 5001-14-00-00-10-AA-XX | 13/16-20 UNEF | 29.13 | 12.83 | 20.39 | 1155-4-GW24 | 155-42-GW24 | HE 200 |
| 5001-16-00-00-10-AA-XX | 15/16-20 UNEF | 32.13 | 16.00 | 23.57 | 1156-4-GW24 | 155-42-GW24 | HE 200 |
| 5001-18-00-00-10-AA-XX | 1 1/16-18 UNEF | 32.64 | 19.18 | 26.74 | 1156-4-GW24 | 156-42-GW24 | HE 300 |
| 5001-20-00-00-10-AA-XX | 1 3/16-18 UNEF | 39.78 | 22.38 | 29.92 | 1157-4-GW24 | 157-43-GW24 | HE 300 |
| 5001-22-00-00-10-AA-XX | 1 5/16-18 UNEF | 43.28 | 25.55 | 33.09 | 1157-4-GW24 | 157-43-GW24 | HE 300 |
| 5001-24-00-00-10-AA-XX | 1 7/16-18 UNEF | 44.25 | 25.55 | 33.09 | 1157-4-GW24 | 157-43-GW24 | HE 300 |
| 5001-08-06-00-10-AA-XX | 7/16-28 UNEF | 18.14 | 4.83 | 14.04 | 1152-4-GW24 | 152-42-GW24 | HE 050 |
| 5001-10-08-00-10-AA-XX | 9/16-24 UNEF | 20.45 | 6.48 | 14.04 | 1154-4-GW24 | 154-42-GW24 | HE 050 |
| 5001-12-10-00-10-AA-XX | 11/16-24 UNEF | 24.64 | 8.05 | 15.61 | 1155-4-GW24 | 155-42-GW24 | HE 100 |
| 5001-14-12-00-10-AA-XX | 13/16-20 UNEF | 29.13 | 11.25 | 18.81 | 1155-4-GW24 | 155-42-GW24 | HE 100 |
| 5001-16-14-00-10-AA-XX | 15/16-20 UNEF | 32.13 | 12.83 | 20.39 | 1156-4-GW24 | 156-42-GW24 | HE 200 |
| 5001-18-16-00-10-AA-XX | 1 1/16-18 UNEF | 32.64 | 16.00 | 23.57 | 1156-4-GW24 | 156-42-GW24 | HE 200 |
| 5001-20-18-00-10-AA-XX | 1 3/16-18 UNEF | 39.78 | 19.18 | 26.74 | 1157-4-GW24 | 157-43-GW24 | HE 300 |
| 5001-22-20-00-10-AA-XX | 1 5/16-18 UNEF | 43.28 | 22.38 | 29.92 | 1157-4-GW24 | 157-43-GW24 | HE 300 |
| 5001-24-22-00-10-AA-XX | 1 7/16-18 UNEF | 44.25 | 25.55 | 33.09 | 1157-4-GW24 | 157-43-GW24 | HE 300 |

All dimensions in mm

# Interconnection Accessories

## 5001 BACKSHELL SERIES – RIGHT ANGLE

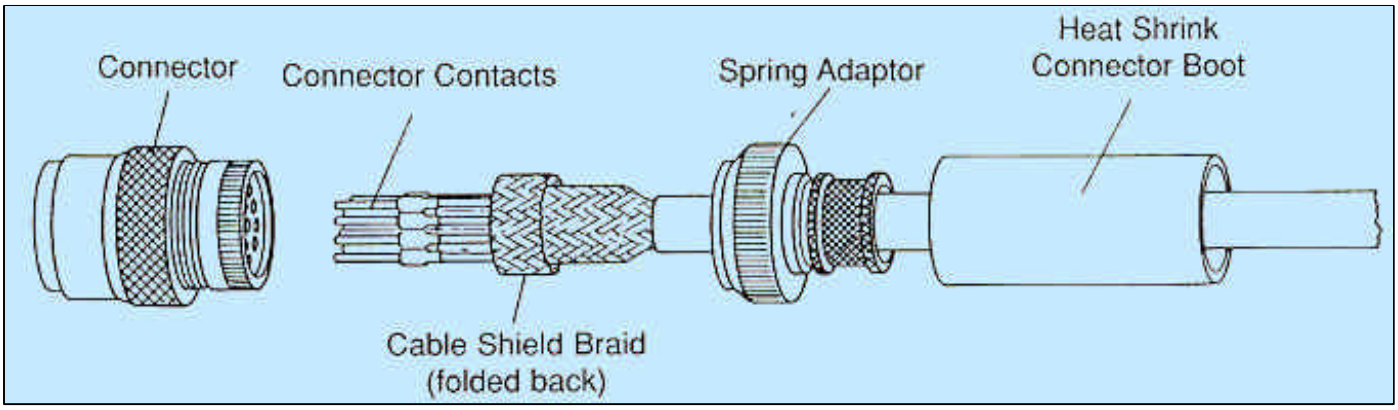


| Part Number | A-Thread | D MAX | ØB MAX | E MAX | ØG MAX | ØH MAX | J MAX | Rec Hellerman Boot Straight | Spring Ref |
|---|---|---|---|---|---|---|---|---|---|
| 5001-08-00-90-AA-XX | 7/16-28 UNEF | 35.18 | 18.14 | 25.98 | 6.48 | 14.04 | 32.39 | 152-42-GW24 | HE 050 |
| 5001-10-00-90-AA-XX | 9/16-24 UNEF | 38.35 | 20.45 | 29.16 | 8.05 | 15.61 | 35.56 | 154-42-GW24 | HE 100 |
| 5001-12-00-90-AA-XX | 11/16-24 UNEF | 39.75 | 24.64 | 32.33 | 11.25 | 18.81 | 38.74 | 155-42-GW24 | HE 100 |
| 5001-14-00-90-AA-XX | 13/16-20 UNEF | 46.30 | 29.13 | 37.11 | 12.83 | 20.39 | 43.51 | 155-42-GW24 | HE 200 |
| 5001-16-00-90-AA-XX | 15/16-20 UNEF | 47.70 | 32.13 | 40.28 | 16.00 | 23.57 | 46.69 | 156-42-GW24 | HE 200 |
| 5001-18-00-90-AA-XX | 1 1/16-18 UNEF | 47.70 | 32.64 | 40.28 | 19.18 | 26.74 | 46.69 | 156-42-GW24 | HE 300 |
| 5001-20-00-90-AA-XX | 1 3/16-18 UNEF | 55.63 | 39.78 | 48.21 | 22.38 | 29.92 | 54.61 | 157-43-GW24 | HE 300 |
| 5001-22-00-90-AA-XX | 1 5/16-18 UNEF | 58.80 | 43.28 | 51.38 | 25.55 | 33.09 | 57.79 | 157-43-GW24 | HE 300 |
| 5001-24-00-90-AA-XX | 1 7/16-18 UNEF | 58.80 | 44.25 | 51.38 | 25.55 | 33.09 | 57.79 | 157-43-GW24 | HE 300 |
| 5001-08-06-90-AA-XX | 7/16-28 UNEF | 33.40 | 18.14 | 25.98 | 4.83 | 14.04 | 32.39 | 152-42-GW24 | HE 050 |
| 5001-10-08-90-AA-XX | 9/16-24 UNEF | 36.58 | 20.45 | 29.16 | 6.48 | 14.04 | 35.56 | 154-42-GW24 | HE 050 |
| 5001-12-10-90-AA-XX | 11/16-24 UNEF | 39.75 | 24.64 | 32.33 | 8.05 | 15.61 | 38.74 | 155-42-GW24 | HE 100 |
| 5001-14-12-90-AA-XX | 13/16-20 UNEF | 44.53 | 29.13 | 37.11 | 11.25 | 18.81 | 43.51 | 155-42-GW24 | HE 100 |
| 5001-16-14-90-AA-XX | 15/16-20 UNEF | 47.70 | 32.13 | 40.28 | 12.83 | 20.39 | 46.69 | 156-42-GW24 | HE 200 |
| 5001-18-16-90-AA-XX | 1 1/16-18 UNEF | 47.70 | 32.64 | 40.28 | 16.00 | 23.57 | 46.69 | 156-42-GW24 | HE 200 |
| 5001-20-18-90-AA-XX | 1 3/16-18 UNEF | 55.63 | 39.78 | 48.21 | 19.18 | 26.74 | 54.61 | 157-43-GW24 | HE 300 |
| 5001-22-20-90-AA-XX | 1 5/16-18 UNEF | 58.80 | 43.28 | 51.38 | 22.38 | 29.92 | 57.79 | 157-43-GW24 | HE 300 |
| 5001-24-22-90-AA-XX | 1 7/16-18 UNEF | 58.80 | 44.25 | 51.38 | 25.55 | 33.09 | 57.79 | 157-43-GW24 | HE 300 |

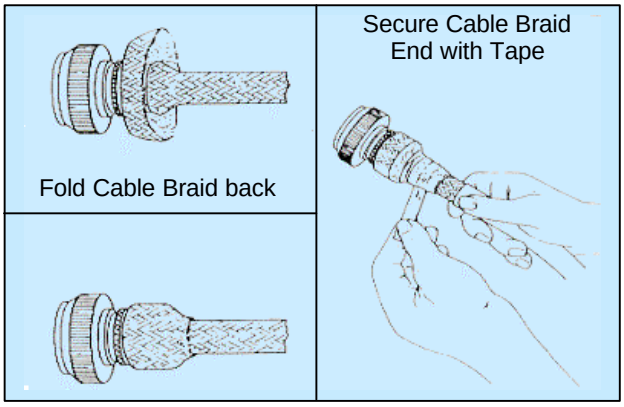
All dimensions in mm

- Prepare the cable making sure that a sufficient length of shield is available, so that it fits against the front shoulder of the lip groove.
- Before insertion of connector contacts, slide the heat-shrinkable connector boot onto the cable followed by the Spring Adapter.

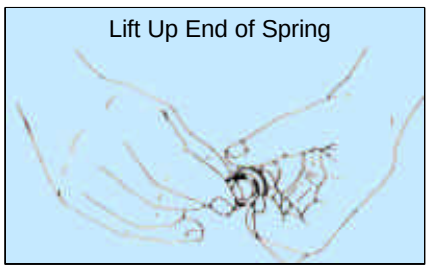


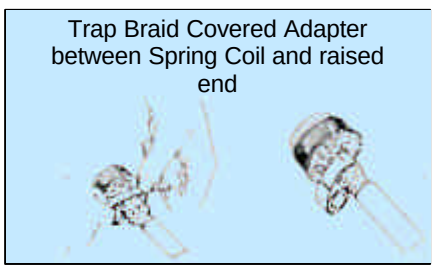

- Position the heatshrinkable boot, Spring Adapter, and shield braid out of the way and insert the connector contacts. Depending upon the shielding braid size, it can either be folded back onto itself or bunched up concertina style out of the way for easy access to the cable conductors.
- Screw the Spring Adapter onto the connector and tighten to the torque value specified by the connector manufacturer. Typical torque values are shown in table on Page 7. It is recommended that the connector threads are lubricated with a suitable compound if a liquid thread lock is not used. The adapter should be hand tightened to ensure proper thread alignment and then tightened with a strap wrench and torque meter to the specified torque.
- Bring the cable shield braid up onto the adapter body so that it fits against the front shoulder of the lip groove. Alternatively extend the braid past the lip groove.

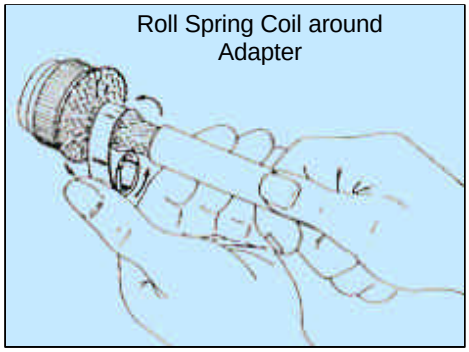
**NOTE:** After assembly, braid can be trimmed with side cutters or folded back and secured with high temperature tape




- Open up the constant force spring and wrap it around the cable braid section that is positioned over the constant force spring slot area of the adapter. This is most easily accomplished by lifting up the end of the spring and trapping the braid covered adapter between the spring coil and raised end. The spring will now stay in place and can be installed by simply rolling the coil around the braid covered adapter. Refer to appropriate code of practice for procedure to install heatshrink shape.



### Re-Entry Procedure

- Reheat the heatshrink shape, remove to expose the Zetalok™ spring and braid.
- Once spring is exposed, lift up the edge of the Zetalok™ spring and push it around the circumference of the assembly to form a coil which can then be rolled around the assembly to remove the spring.
- Lift the cable screen braid off the backshell and push it back out of the way.
- Unscrew the backshell and push it back out to facilitate repairs at the connector or exposed connector area.
- Follow the practice detailed in these instructions to re-install the Zetalok™ spring backshell

*Note: The Zetalok™ spring can be installed and removed an infinite number of times if not bent or distorted in any way during the removal process.*

1. Prepare Cable Braid for termination process (Figure 1)

2. Push Braid forward over Adapter Retention Lip to the Adapter Incline Point (or .4" [10.2mm] minimum braid length). Milk Braid as required to remove slack and ensure a snug fit around the shield termination area (Figure 2).

3. Prepare the Band in the following manner:

   ***IMPORTANT: Due to Connector/ Adapter circumference, it may be necessary to prepare the Band around the Cable or Retention Area.***

   a) Roll Band through the Buckle Slot twice (Bands must be double-coiled).

   b) Pull on Band until Mark (▷|) is within approximately (.250 inch (6.4mm) of Buckle Slot (Figure 3). The Band may be tightened further if desired.

   ***NOTE: Prepared Band should have (▷|) Mark visible approximately where shown in Figure 3.***

**<u>SHIELD TERMINATION CLAMPING PROCESS</u> (Figures 4 through 8):**

***NOTE: To free Tool Handles, move Holding Clips to centre of Tool.***

4. Squeeze Gripper Release Lever and insert Band into the front end opening of the Tool. (NOTE: Circular portion of looped band must always be face downward).

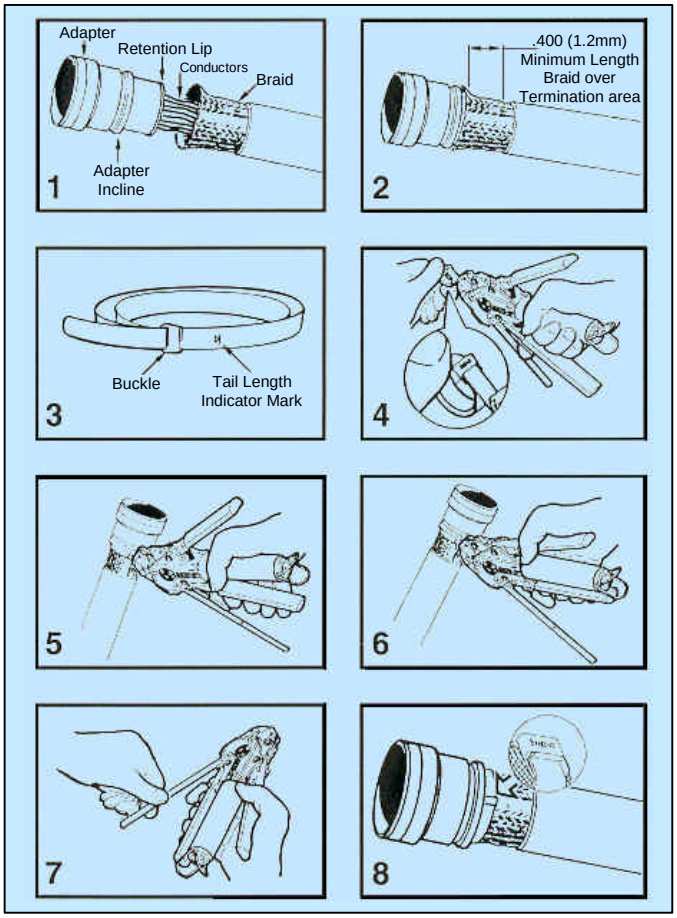
5. Aligning the Band and Tool with the Shield Termination Area, squeeze Black Pull-Up Handle repeatedly using short strokes until it locks against the Tool Body. (This indicates the Band is compressed to the Tool Precalibrated Tension).

   ***NOTE: If alignment of band and shield is unsatisfactory, tension on band can be relaxed by pushing on slotted release lever on top of tool. Make adjustments as necessary and again squeeze black pull-up handle.***

6. Complete the Clamping Process by squeezing the Grey Cut-Off Handle.

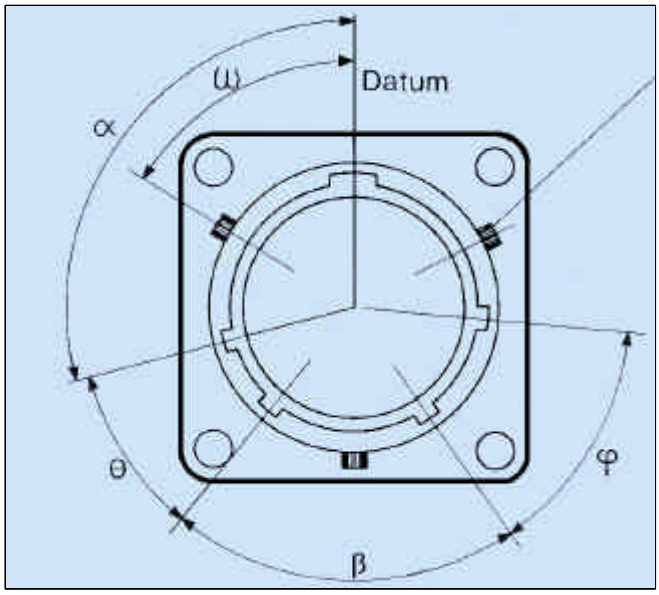
7. Remove excess Band from Tool.

8. Inspect Shield Termination.



# Key/Keyway Orientations

**FOR Patt. 105 DEF STAN 59-35 (Part 1) Sec. 3**




3 Pins spaced
120° apart

Datum is always taken from major key or keyway. In receptacles the major keyway always remains fixed in relation to the mounting flange. For the A*, B, C, D*, E and F orientations, the three bayonet locations and associated minor keyways are rotated complete, in accordance with the table below.

N.B. The accompanying diagram shows a receptacle shell, with keyways. Corresponding key orientations for a mating plug shell are therefore alwavs clockwise.

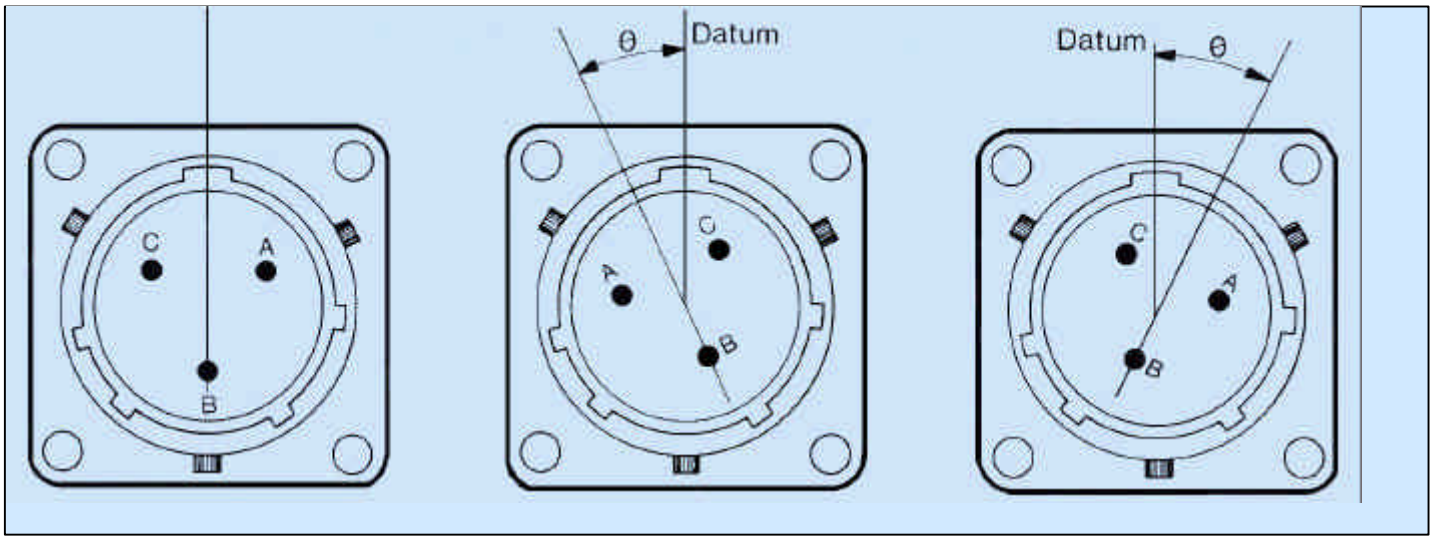
| Shell Size | Values for a(degrees) | | | | | | | Values for ? (degrees) | | | | | | | Values for ß (degrees) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | A* | B | C | D* | E | F | N | A* | B | C | D* | E | F | N | A* | B | C | D* | E | F |
| 8 | 105 | 92 | - | - | 118 | 118 | 82 | 35 | 35 | - | - | 35 | 30 | 50 | 75 | 75* | - | - | 75 | 100 | 75 |
| 10 | 105 | 95 | 85 | 125 | 115 | 115 | 85 | 35 | 35 | 35 | 35 | 35 | 30 | 50 | 75 | 75 | 75 | 75 | 75 | 100 | 75 |
| 12 | 105 | 97 | 89 | 121 | 113 | 115 | 85 | 35 | 35 | 35 | 35 | 35 | 30 | 50 | 75 | 75 | 75 | 75 | 75 | 100 | 75 |
| 14 | 105 | 98 | 91 | 119 | 112 | 75 | 120 | 35 | 35 | 35 | 35 | 35 | 30 | 50 | 75 | 75 | 75 | 75 | 75 | 100 | 75 |
| 16 | 105 | 99 | 93 | 117 | 111 | 75 | 120 | 35 | 35 | 35 | 35 | 35 | 30 | 50 | 75 | 75 | 75 | 75 | 75 | 100 | 75 |
| 18 | 105 | 100 | 95 | 115 | 110 | 75 | 120 | 35 | 35 | 35 | 35 | 35 | 30 | 50 | 75 | 75 | 75 | 75 | 75 | 100 | 75 |
| 20 | 105 | 100 | 95 | 115 | 110 | 75 | 120 | 35 | 35 | 35 | 35 | 35 | 30 | 50 | 75 | 75 | 75 | 75 | 75 | 100 | 75 |
| 22 | 105 | 101 | 97 | 113 | 109 | 75 | 120 | 35 | 35 | 35 | 35 | 35 | 30 | 50 | 75 | 75 | 75 | 75 | 75 | 100 | 75 |
| 24 | 105 | 101 | 97 | 113 | 109 | 75 | 120 | 35 | 35 | 35 | 35 | 35 | 30 | 50 | 75 | 75 | 75 | 75 | 75 | 100 | 75 |

| Shell Size | Values for f (degrees) Orientation | | | | | | | Values for ? (degrees) Orientation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | A* | B | C | D* | E | F | N | A* | B | C | D* | E | F |
| 8 | 50 | 50 | - | - | 50 | 30 | 45 | 60 | 47 | - | - | 73 | 73 | 47 |
| 10 | 50 | 50 | 50 | 50 | 50 | 30 | 45 | 60 | 50 | 40 | 80 | 70 | 70 | 50 |
| 12 | 50 | 50 | 50 | 50 | 50 | 30 | 45 | 60 | 52 | 44 | 76 | 68 | 70 | 50 |
| 14 | 50 | 50 | 50 | 50 | 50 | 30 | 35 | 60 | 53 | 46 | 74 | 67 | 30 | 75 |
| 16 | 50 | 50 | 50 | 50 | 50 | 30 | 35 | 60 | 54 | 48 | 72 | 66 | 30 | 75 |
| 18 | 50 | 50 | 50 | 50 | 50 | 30 | 35 | 60 | 55 | 50 | 70 | 65 | 30 | 75 |
| 20 | 50 | 50 | 50 | 50 | 50 | 30 | 35 | 60 | 55 | 50 | 70 | 65 | 30 | 75 |
| 22 | 50 | 50 | 50 | 50 | 50 | 30 | 35 | 60 | 56 | 52 | 68 | 64 | 30 | 75 |
| 24 | 50 | 50 | 50 | 50 | 50 | 30 | 35 | 60 | 56 | 52 | 68 | 64 | 30 | 75 |

* now inactive for new designs against Pattern 105 but available for replacement purposes. Superseded in DEF STAN 59-35 (Part 1) Sec. 3. by orientations E and F.

# Insert Orientations

**FOR MIL-C-26482 AND REPLACEMENT PURPOSES**
**IN Patt. 105 OF DEF STAN 59-35 (Part 1) Sec. 3**




Normal Position
with Pin Contacts

Alternative Position of Insert
with Socket Contacts
(Ø counterclockwise)

Alternate Position of Insert
with Pin Contacts
(Ø clockwise)

Each diagram shows mating face of insert

| Insert Arrangement | Normal | Orientation 0 (degrees) | | | Z |
|---|---|---|---|---|---|
| | | W | X | Y | |
| 8-3 | 0 | 60 | 210 | - | - |
| 8-33 | 0 | 90 | - | - | - |
| 8-98 | 0 | - | - | - | - |
| 10-2 | 0 | - | - | - | - |
| 10-6 | 0 | 90 | - | - | - |
| 10-7 | 0 | - | - | - | - |
| 12-3 | 0 | - | - | 180 | - |
| 12-10 | 0 | 60 | 155 | 270 | 295 |
| 14-5 | 0 | 40 | 92 | 184 | 273 |
| 14-12 | 0 | 43 | 90 | - | - |
| 14-19 | 0 | 30 | 165 | 315 | - |
| 16-8 | 0 | 54 | 152 | 180 | 331 |
| 16-23 | 0 | 158 | 270 | - | - |
| 16-26 | 0 | 60 | - | 275 | 338 |
| 18-11 | 0 | 62 | 119 | 241 | 340 |
| 18-32 | 0 | 85 | 138 | 222 | 265 |
| 20-41 | 0 | 45 | 126 | 225 | - |
| 22-21 | 0 | 16 | 135 | 175 | 349 |
| 22-55 | 0 | 30 | 142 | 226 | 314 |
| 24-61 | 0 | 90 | 180 | 270 | 324 |

# Assembly Instructions

**FOR AMPHENOL STRAIGHT S.J. CLAMPS TO DEF STAN 59-35 (Part 1) Sec. 3 FOR INTERNALLY AND EXTERNALLY SCREENED AND UNSCREENED CABLES**

**INTERNALLY SCREENED JACKETED CABLE TYPE C**

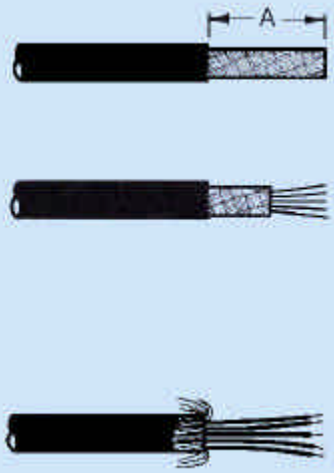
### Cable and Wire Stripping

Strip the outer P.V.C. Jacket of the cable back to dim 'A' to expose the internal braid. Trim the braid back to within 19.05mm (0.75 in) of P.V.C. jacket and fold back 'B'

| Size | A Dimension | |
|---|---|---|
| | mm | in |
| 08 | 34.93 | 1.375 |
| 10 | 36.51 | 1.437 |
| 12 & 14 | 41.27 | 1.625 |
| 16 & 20 | 44.45 | 1.750 |
| 24 | 49.21 | 1.937 |

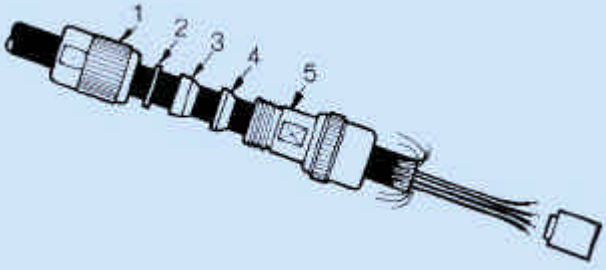
### FOR 162 SERIES

Strip 5.6mm (0.220 in) to 6.6mm (0.260 in) of insulation from each wire taking care not to cut or nick strands. If ends fray twist them back to their original lay.




### INITIAL ASSEMBLY

Slide onto the cable the following items in this order (1) Nut (2) Washer (3) Gasket (4) Braid Clamp and (5) Clamp Body




### CRIMP CONNECTION TO CONTACTS (162 SERIES)

Using the recommended tools, crimp the contacts to the wires and insert them in the connector as described in the Amform instructions, which are supplied with each 162 series assembly.

Bring up clamp body taking care not to drag the braid forward. (If necessary a small amount of thin tape may be used to hold the braid in position whilst carrying out this operation). Screw the clamp body onto the connector accessory thread, making sure that the connector serrations engage with those on clamp body. Fold the braid out at right angles to the cable and slide forward the braid clamp. Smooth back braid onto the braid clamp and trim off the surplus. Slide up gasket, washer, screw on nut and tighten.

Surplus Braid Trimmed

# Assembly Instructions

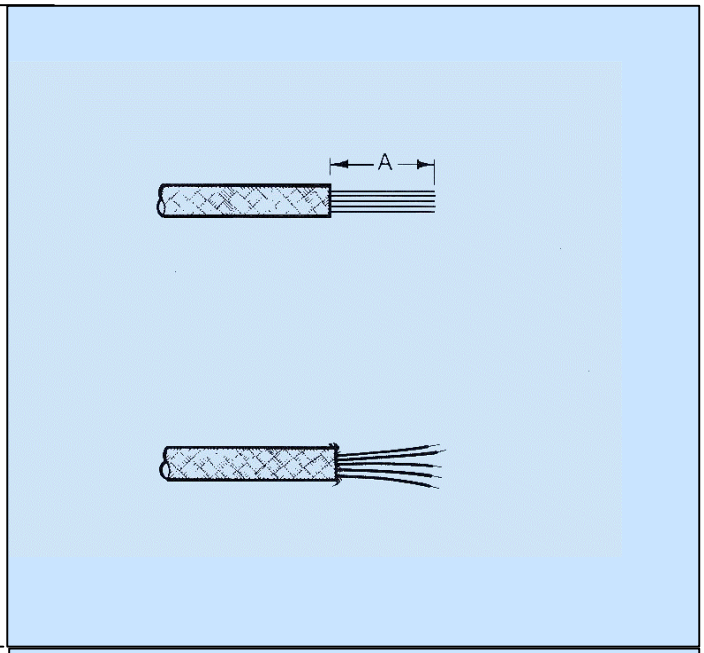
**FOR AMPHENOL STRAIGHT S.J. CLAMPS TO DEF STAN 59-35 (Part 1) Sec. 3 FOR INTERNALLY AND EXTERNALLY SCREENED AND UNSCREENED CABLES**

## EXTERNALLY SCREENED JACKETED CABLE TYPES 'B & Q'

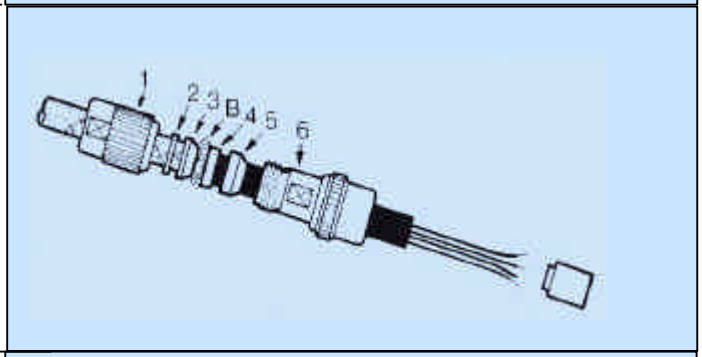
**Cable and Wire Stripping**
Strip the outer braid and internal P.V.C. jacket of the cable back to dim 'A'

| Size | A Dimension | |
|---|---|---|
| | mm | in |
| 08 | 33.32 | 1.312 |
| 10 | 34.93 | 1.375 |
| 12 & 14 | 39.70 | 1.563 |
| 16 & 20 | 42.85 | 1.687 |
| 24 | 47.63 | 1.875 |

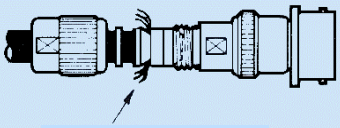
**FOR 162 SERIES**
Strip 5.6mm (0.220 in) to 6.6mm (0.260 in) of insulation from each wire taking care not to cut or nick strands. If ends fray twist them back to their original lay.




**INITIAL ASSEMBLY**
Slide onto the cable the following items in this order (1) Nut (2) Washer (3) Male Braid Clamp Convolute Screen (See B) as far as possible, and slide on times (4) Female Braid Clamp (5) Gasket and (6) Clamp Body




**CRIMP CONNECTION TO CONTACTS (162 SERIES)**
Using the recommended tools, crimp the contacts to the wires and insert them in the connector as described in the Amform instructions, which are supplied with each 162 series assembly. Bring up clamp body and screw onto the connector accessory thread, making sure that the connector serrations engage with those on clamp body. Slide forward gasket and female braid clamp. Push forward screen and fold out at right angles braid which does not return to original position. Slide up male braid clamp. Smooth back braid onto male braid clamp and trim off surplus. Slide up washer. Screw on nut and tighten.




**UNSCREENED JACKETED CABLES TYPE 'A'**
All procedures concerning this type of cable to be as for internally screened jacketed cable but all references to screen (Braid) to be disregarded.

# Assembly Instructions

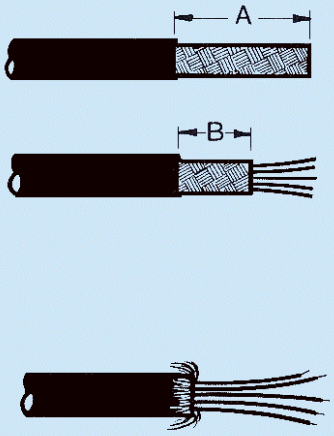
**FOR AMPHENOL ANGLED S.J. CLAMPS TO DEF STAN 59-35 (Part 1) Sec. 3 FOR INTERNALLY AND EXTERNALLY SCREENED AND UNSCREENED CABLES**

**INTERNALLY SCREENED JACKETED CABLE TYPE 'C'**

### Cable and Wire Stripping

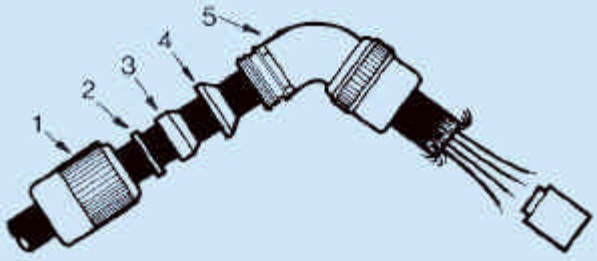
Strip the outer P.V.C. jacket of the cable back to dim 'A' to expose the internal braid. Trim the braid back to within 19.05mm (0.75 in) of P.V.C. jacket and fold back 'B'.

| Size | A Dimension | |
|---|---|---|
| | mm | in |
| 08 | 58.15 | 2.890 |
| 10/12 & 14 | 66.68 | 2.625 |
| 16 | 69.85 | 2.750 |
| 20 | 88.90 | 3.500 |
| 24 | 95.25 | 3.750 |

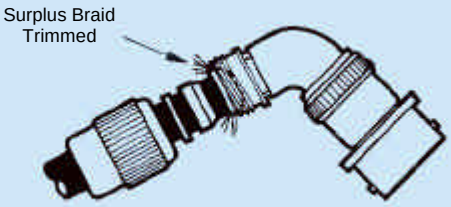



**FOR 162 SERIES**
Strip 5.6mm (0.220 in) to 6.6mm (0.260 in) of insulation from each wire taking care not to cut or nick strands. If ends fray twist them back to their original lay.

**INITIAL ASSEMBLY**
Slide onto the cable the following items in this order (1) Nut (2) Washer (3) Gasket (4) Braid Clamp (5) 75° Angled Body




**CRIMP CONNECTION TO CONTACTS (162 SERIES)**
Using the recommended tools, crimp the contacts to the wires and insert them in the connector as described in the Amform instructions, which are supplied with each 162 series assembly. Bring up clamp body taking care not to drag the braid forward. (If necessary a small amount of thin tape may be used to hold the braid in position whilst carrying out this operation). Screw the clamp body onto the connector accessory thread, making sure that the connector serrations engage with those on the clamp body. Fold the braid out at right angles to the cable and slide forward the braid clamp. Smooth back braid onto the braid clamp and trim off the surplus. Slide up gasket, washer, screw on nut and tighten.



# Assembly Instructions

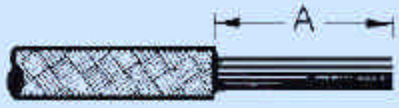
**FOFOR AMPHENOL ANGLED S.J. CLAMPS TO DEF STAN 59-35 (Part 1) Sec. 3 FOR INTERNALLY AND EXTERNALLY SCREENED AND UNSCREENED CABLES**

## EXTERNALLY SCREENED JACKETED CABLES TYPES 'B' & 'Q'

### Cable and Wire Stripping

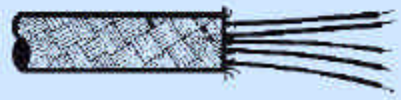
Strip the outer braid and internal P.V.C. jacket of the cable back to dim 'A'.

| Size | A Dimension | |
|---|---|---|
| | mm | in |
| 08 | 58.15 | 2.890 |
| 10, 12 & 14 | 66.68 | 2.625 |
| 16 | 69.85 | 2.750 |
| 20 | 88.90 | 3.500 |
| 24 | 95.25 | 3.750 |



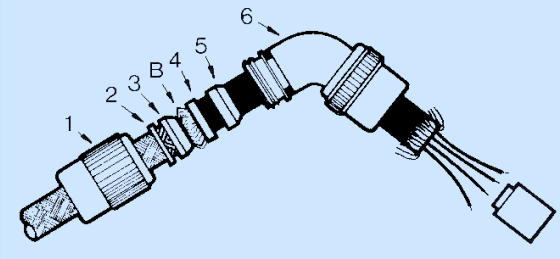

### FOR 162 SERIES

Strip 5.6mm (0.220 in) to 6.6mm (0.260 in) of insulation from each wire taking care not to cut or nick strands. If ends fray twist them back to their original lay.



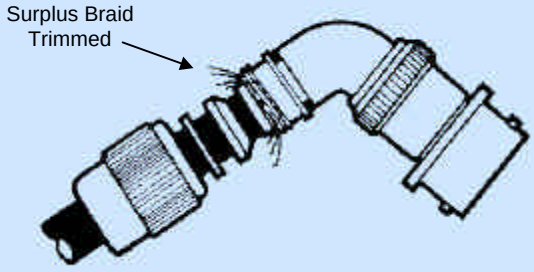
### INITIAL ASSEMBLY

Slide onto the cable the following items in this order:
(1) Nut (2) Washer (3) Male Braid Clamp – Convolute Screen (See B) as far as possible and slide on items (4) Female Braid Clamp (5) Gasket (6) 75° Right Angled Body




### CRIMP CONNECTION TO CONTACTS (162 SERIES)

Using the recommended tools, crimp the contacts to the wires and insert them in the connector as described in the Amform instructions, which are supplied with each 162 series assembly. Bring up clamp body taking care not to drag the braid forward. (If necessary a small amount of thin tape may be used to hold the braid in position whilst carrying out this operation). thread, making sure that the connector serrations engage with those on the clamp body. Fold the braid out at right angles to the cable and slide forward the braid clamp. Smooth back braid onto the braid clamp and trim off the surplus. Slide up gasket, washer, screw on nut and tighten.




## UNSCREENED JACKETED CABLES 'TYPE A'

All procedures concerning this type of cable to be as for internally screened jacketed cable but all references to screen (Braid) to be disregarded.

## WIRE STRIPPING – 162GB SERIES

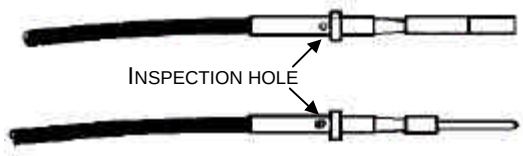
Strip 5.6mm (.220 in) to 6.6mm (.260 in) of insulation from end of wire for both size 20 and 16 contacts taking care not to cut or nick strands. If ends fray twist them back to their original lay.

### CONTACT AND WIRE DATA – 162GB SERIES

| Contact Size | Colour Code | Contact Part Nos | Suitable Wire Sizes | | Permissible Insulation O.D. range for Grommet Sealing | Stripping Lengths |
|---|---|---|---|---|---|---|
| | | | A.W.G. | in mm | | in mm |
| 20 | RED | Pin: 162GB-149-20000-05<br>Skt: 162GB-101-20000-05 | 20, 22, 24 | 0.032 – 0.020<br>0.81-0.51 | 0.047 – 0.085<br>1.19 - 2.16 | 0.220-0.260<br>5.6 - 6.6 |
| 16 | BLUE | Pin: 162GB-149-16000-05<br>Skt: 162GB-101-16000-05 | 16, 18, 20 | 0.051 – 0.032<br>1.295 – 0.81 | 0.066 – 0.109<br>1.675 – 2.77 | 0.220 – 0.260<br>5.6 – 6.6 |

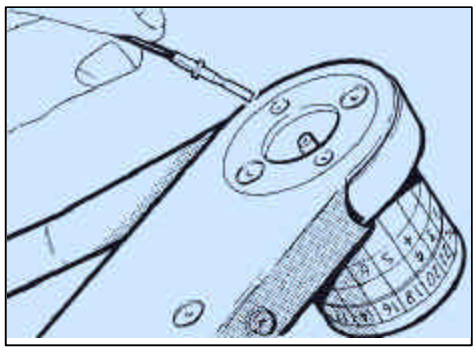
## CRIMP WIRE CONTACTS

Use Amphenol 294-542 Crimp Tool (M22520/1-01) with 294-1889-01 Turret Head (M22520/1-02). Release and rotate Turret Knob to proper contact size (as per colour code) and lock adjust Selector Knob on handle to correct wire size [see table].
Insert stripped wire into Contact Pocket until it is visible through inspection hole. Fully seat Contact in Crimp Tool Positioner and close handles in one full stroke. (The Ratchet will not release until tool has completed full stroke). Inspect Crimp for wire visibility through Inspection Hole.




## CRIMPING JAW SETTING

| Contact Size | Wire Size | Crimp Jaw Setting |
|---|---|---|
| 20 | 24<br>22<br>20 | No. 2<br>No.3<br>No.4 |
| 16 | 20<br>18<br>16 | No. 4<br>No. 5<br>No. 6 |



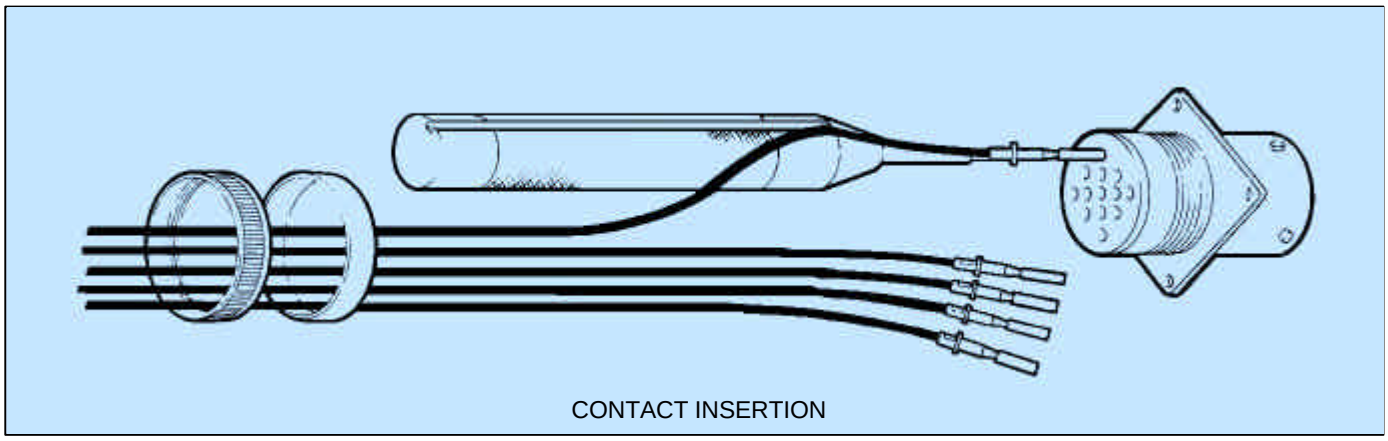
## CRIMPING WIRE TO CONTACT

### CONTACT INSERTION

Select the proper insertion tool for the size of contact Table 1. The Insertion Tool and procedure are the same for both pin and socket contacts. Slide rear accessory and sleeve over wire bundle. Lay wire in groove of insertion tool and slide contact into front of tool until it is properly located in tool probe. Insert contact into the correct hole in the rear face of the grommet. Keeping contact in line with the axis of the hole, apply a smooth even push on the tool until the contact is fully seated in position. Note: it is essential that the contact and tool are correctly aligned with the axis of hole during insertion to prevent damage to contacts. Withdraw tool at right angles to grommet surface until complete free of connector. All contacts must be inserted whether in circuit or not and the appropriate size sealing plug used behind any contacts that are not wired. Push the sealing plug in by hand until it is fully seated.

**TABLE 1**

| Contact Size | Colour Code | Insertion Tool Part No. | | Grommet Sealing Plug |
|---|---|---|---|---|
| | | Amphenol | M.S. | |
| 20 | RED | 294GB-5000-20 | - | 162GB-130-20000 |
| 16 | BLUE | 294-96 | MS 24256A-16 | 162GB-130-16000 |



CONTACT INSERTION

**Contact Size**

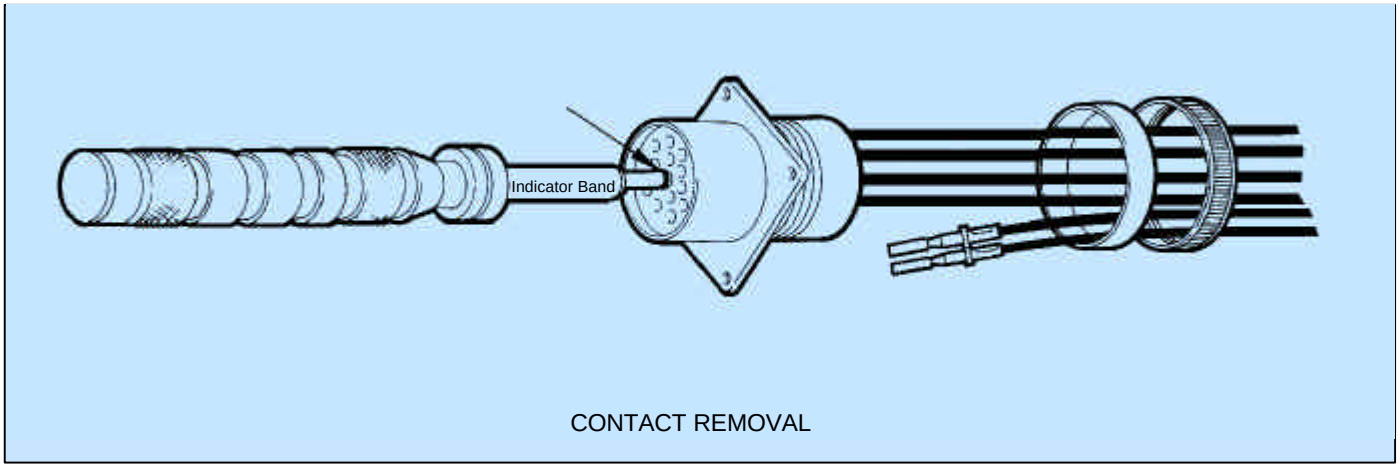
CAUTION: extra care is required in this operation to prevent damage to the connector.

Remove the rear accessory and sleeve and slide back on wire bundle. Select the proper removal tool for the size of contact from table 2. The same tool is used for both pin and socket contacts. Position the removal tool over the contacts to be removed and push until tool probe is fully bottomed, shown when indicator band enters insert hole. Tool is inserted to first band only when removing pin contacts and to the second band for socket contact removal. Slide the plunger know forward to remove contact.

*Details of operator training are available from Amphenol upon request.*

**TABLE 2**

| Contact Size | Colour Code | Removal Tool Part Number | |
|---|---|---|---|
| | | Amphenol | M.S. |
| 20 | RED | 294-89 | MS 24256R-20 |
| 16 | BLUE | 294-97 | MS 25246R-16 |




CONTACT REMOVAL

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