

# Amphenol

164-SERIES  
WATERPROOF AUDIO CONNECTORS  
ACR 164 0709

Amphenol



Amphenol

**Amphenol**

## Introduction

Amphenol 164 series connectors are water resistant, five & six pin contact electrical connectors for use in low voltage audio frequency circuits & applications. They employ three-point bayonet coupling for quick disconnect & self wipe contact.

These connectors are extensively used in military communication equipments, where high reliability is paramount & severe environmental conditions are encountered.

Amphenol 164 series connectors are designed & qualified to MIL specification MIL-C-55116. They are intermatable with any other manufacturers product which is designed as per MIL-C-55116.

These connectors are also approved to Indian Defense Standard Joint Services Specification JSS 50831, Certified by the Electronic Components Standardization Organization (LCSO), Bangalore, India.

### Page Contents

2	Specifications, Material & Finishes
3-4	QPL Approval Letter
5	Five & Six Pin Audio Plug Connector Crimp Sleeve Terminal (U-229-Type) Products
6	Five & Six Pin Audio Plug Connector Solder Cup Terminal (U-229S-Type) Products
7	Five & Six Pin Audio Plug Connector Crimp Sleeve Terminal (U-182-Type) Products
8	Five & Six Pin Audio Plug Connector Solder Cup Terminal (U-182S-Type) Products
9	Five & Six Pin Audio Receptacle Panel Mount Connector-Solder (U-183/U Type & U-283/U Type) Products
10	Five & Six Pin Audio Receptacle Connector Crimp Sleeve Terminal (U-228/U Type & U-328/U Type) Products
11	Five & Six Pin Audio Receptacle Connector Solder Cup Terminal (U-228/U Type & U-328/U Solder Type) Products
12	List Of Part Numbers
13	Ordering Information
15-20	Special Products

**Specifications****ELECTRICAL**

Operating Current	500 mA per contact
Operating Voltage	60V max.
Contact Resistance	0.050 ohms max.
Insulation Resistance	1000 M ohm @ 100 V DC
Dielectric Strength	500V rms

**MECHANICAL**

Number of Contacts	5 or 6
Air Pressure	2.5 PSI
Durability	3000 cycles, mate & unmate.
Immersion	48 hrs. At 6ft.

**Environmental**

Operating Temperature	-55° C to +85° C.
-----------------------	-------------------

**Material & Finishes**

Part	Material	Finish
Shell & Nut	Stainless Steel	Sand Blasted
Insulator	Diallyphthalate as per ASTM D5948 Type SDG-F	-
Contact	Copper Alloy -Brass	0.75µm Gold over Nickel

## QPL Approval Letter



**Defence Logistics Agency**  
 Defence Supply Centre, Columbus  
 Post Office Box 3990  
 Columbus, OH 43218-3990

MAR 18 2009

DSCC-VQP-09-017606 (Mr. Funk/614-692-6608/jf)  
 Subject: Qualification for MIL-DTL-55116  
 DSCC Test Report Number 55116-2285-08  
 FSC 5935, Preparing Activity:DLA-CC

Amphenol Interconnect India Pvt. Ltd.  
 105, Bhosari Industrial Estate  
 Pune-411026 (India)

We have received Amphenol Interconnect India's test report and supporting data dated February 18, 2009. Qualification of your products is granted under the Military Specification Sheets listed below as a result of providing exhibit samples that demonstrate your capability to manufacture these products to Military Specification MIL-DTL-55116.

<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>	<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>
Government Designation: M55116/1-( )	Government Designation: M55116/2-( )
Manufacturer's Designation: 164-229-( )	Manufacturer's Designation: 164-229-6-( )
Cable Accommodation: 1, 2, 3, 4, 5	Cable Accommodation: 1, 2, 3, 4, 5
Test or Qualification Reference: 55116-2285-08	Test or Qualification Reference: 55116-2285-08
<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>	<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>
Government Designation: M55116/3-( )	Government Designation: M55116/4-( )
Manufacturer's Designation: 164-229-S-( )	Manufacturer's Designation: 164-229-6S-( )
Cable Accommodation: 1, 2, 3, 4, 5	Cable Accommodation: 1, 2, 3, 4, 5
Test or Qualification Reference: 55116-2285-08	Test or Qualification Reference: 55116-2285-08
<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>	<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>
Government Designation: M55116/5-( )	Government Designation: M55116/6-( )
Manufacturer's Designation: 164-182-( )	Manufacturer's Designation: 164-182-6-( )
Cable Accommodation: 1, 2, 3, 4, 5	Cable Accommodation: 1, 2, 3, 4, 5
Test or Qualification Reference: 55116-2285-08	Test or Qualification Reference: 55116-2285-08
<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>	<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>
Government Designation: M55116/7-( )	Government Designation: M55116/8-( )
Manufacturer's Designation: 164-182-S( )	Manufacturer's Designation: 164-182-6S-( )
Cable Accommodation: 1, 2, 3, 4, 5	Cable Accommodation: 1, 2, 3, 4, 5
Test or Qualification Reference: 55116-2285-08	Test or Qualification Reference: 55116-2285-08

<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>	<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>
Government Designation: M55116/9-( )	Government Designation: M55116/10-( )
Manufacturer's Designation: 164-183-( )	Manufacturer's Designation: 164-183-6-( )
Cable Accommodation: 0	Cable Accommodation: 0
Test or Qualification Reference: 55116-2285-08	Test or Qualification Reference: 55116-2285-08
<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>	<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>
Government Designation: M55116/11-( )	Government Designation: M55116/12-( )
Manufacturer's Designation: 164-228-( )	Manufacturer's Designation: 164-228-6-( )
Cable Accommodation: 1, 2, 3, 4, 5	Cable Accommodation: 1, 2, 3, 4, 5
Test or Qualification Reference: 55116-2285-08	Test or Qualification Reference: 55116-2285-08
<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>	<b>Supplier: Amphenol Interconnect India Pvt. Ltd.</b>
Government Designation: M55116/13-( )	Government Designation: M55116/14-( )
Manufacturer's Designation: 164-228-S-( )	Manufacturer's Designation: 164-228-6S-( )
Cable Accommodation: 1, 2, 3, 4, 5	Cable Accommodation: 1, 2, 3, 4, 5
Test or Qualification Reference: 55116-2285-08	Test or Qualification Reference: 55116-2285-08

A detailed listing of the connector type under the Military Specification Sheet will be listed on the Qualified Products List (QPL) 55116. This qualification is subject to the conditions stated in DoD 4120.24-M and SD-6.

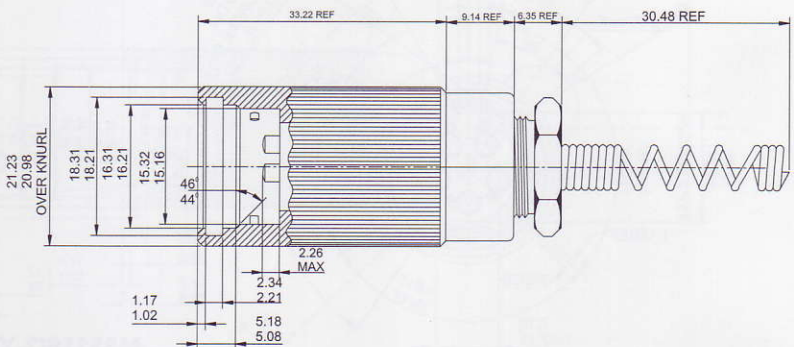
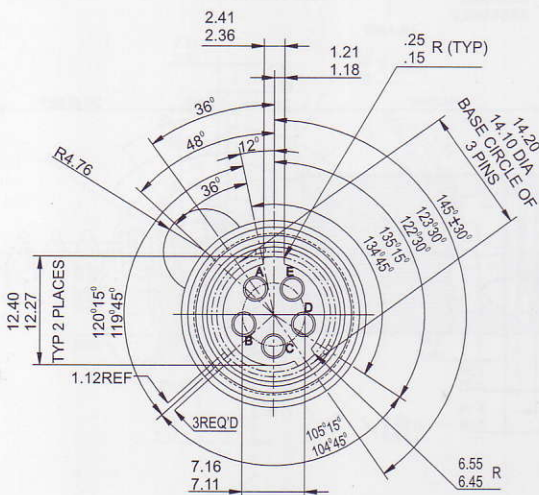
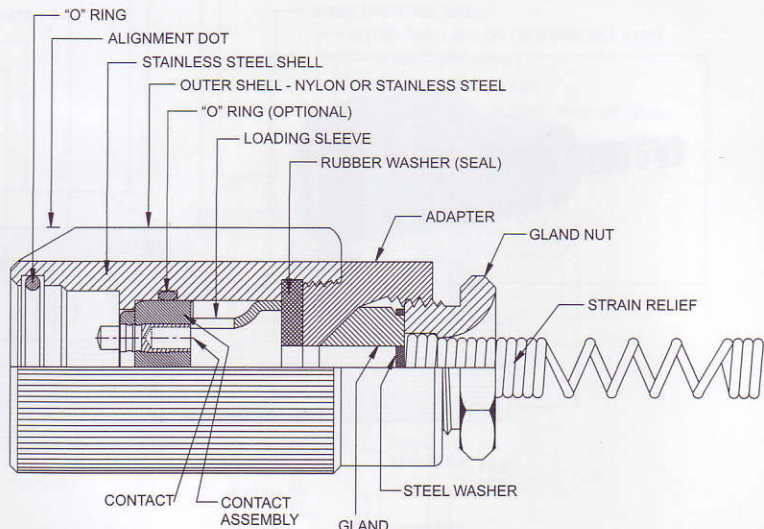
Because we are held responsible for the accuracy and currency of this QPL, please let us know if your company discontinues production of these products.

If you have any questions concerning this letter, please contact Mr. Funk at 614-692-6608 or email [Jeremy.Funk@dla.mil](mailto:Jeremy.Funk@dla.mil).

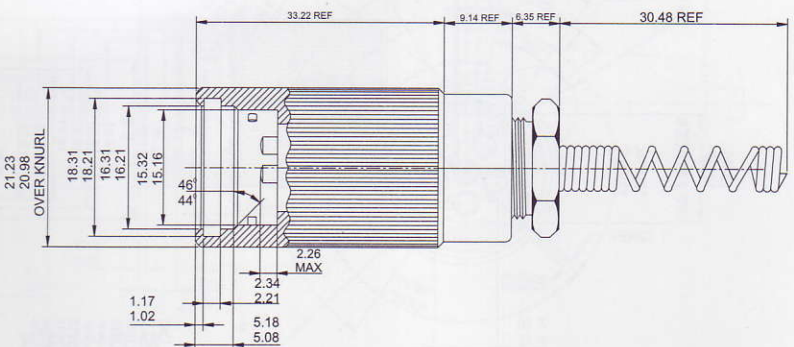
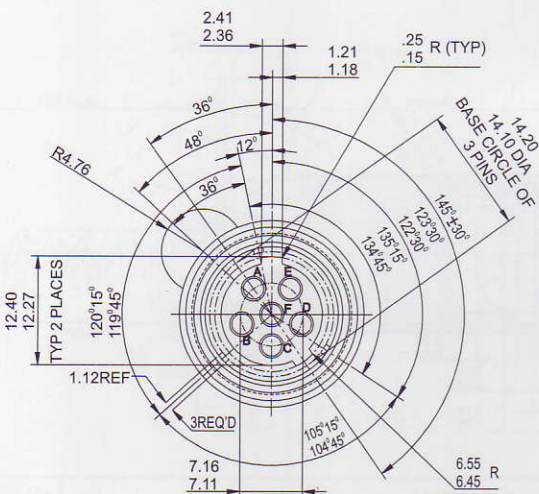
Sincerely,



JOSEPH GEMPERLINE  
Chief  
Sourcing and Qualifications Division



M55116/1-X

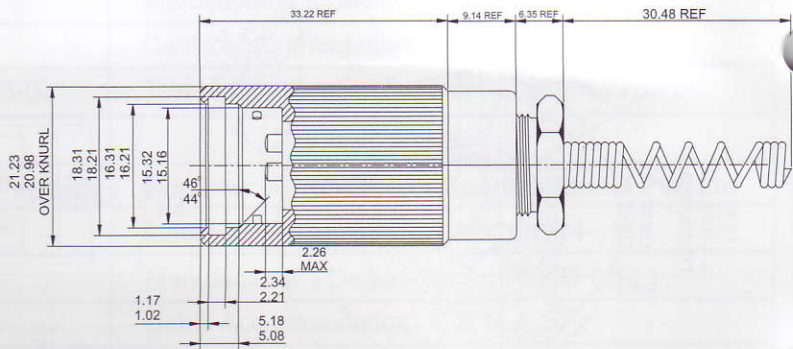
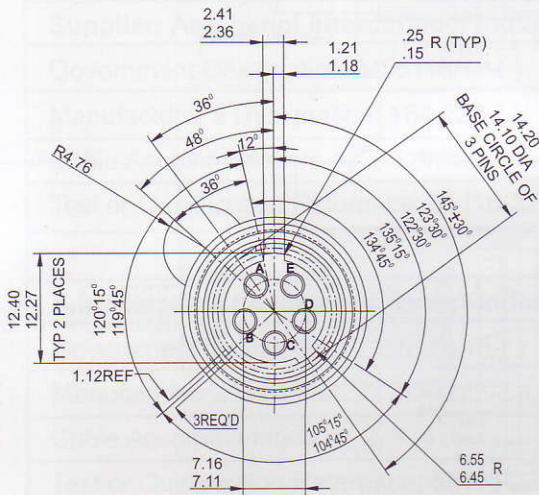
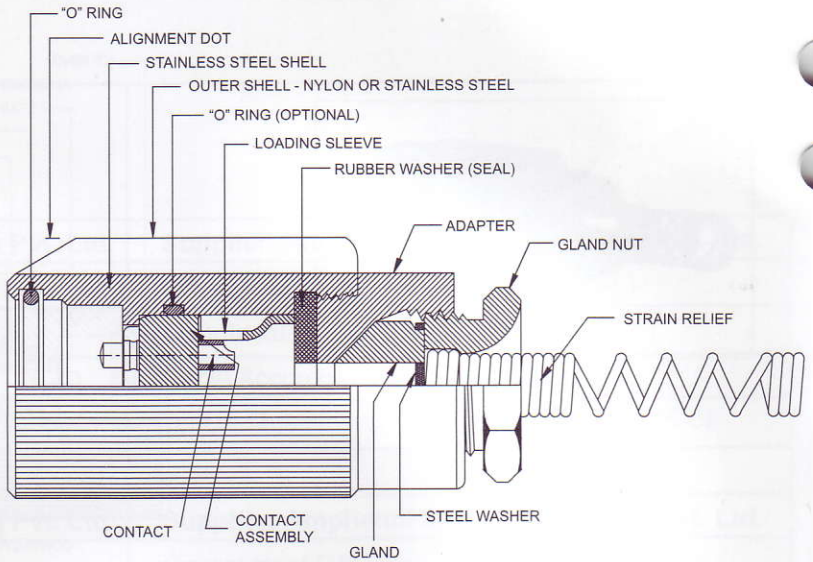


M55116/2-X

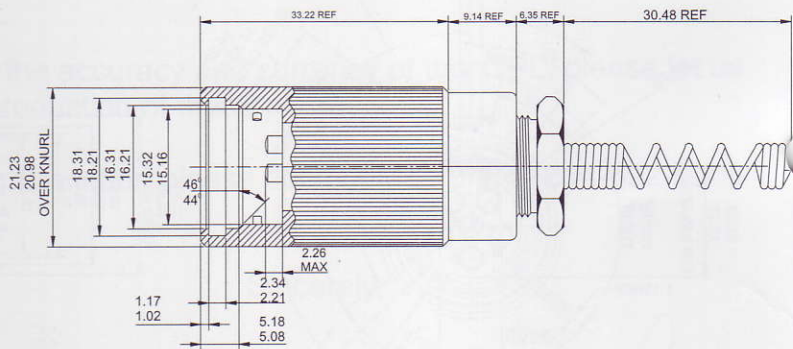
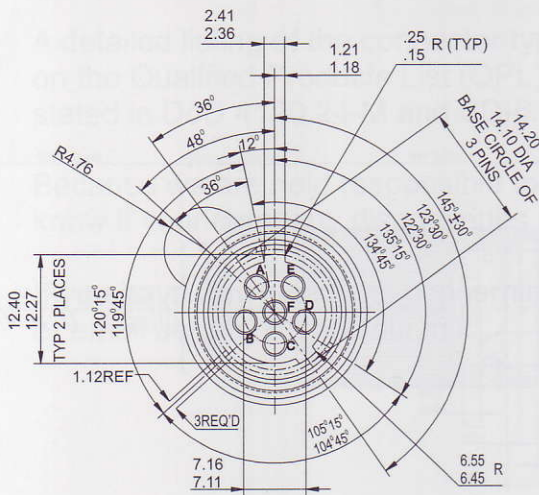
Sr No.	Description	MIL Designation	Amphenol Designation
1	5 Pin Audio plug connector with crimp sleeve terminal & wire strain relief	M55116/1-X	164-229-X
2	6 Pin Audio plug connector with crimp sleeve terminal & wire strain relief	M55116/2-X	164-229-6-X

Dash no-X	Cable diameter
-0	N/A
-1	4.19 ± 0.25
-2	5.79 ± 0.25
-3	6.35 ± 0.25
-4	7.36 ± 0.25
-5	8.12 ± 0.25

X Stands for the Cable size accommodation, is identified by a dash number as shown in above table. This number indicates the outside diameter of the cable that the connector will accommodate.



M55116/3-X

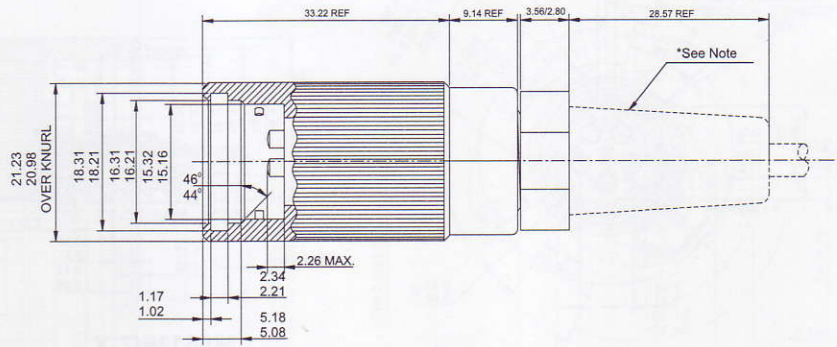
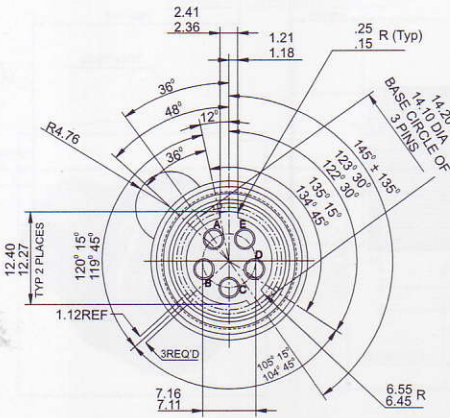
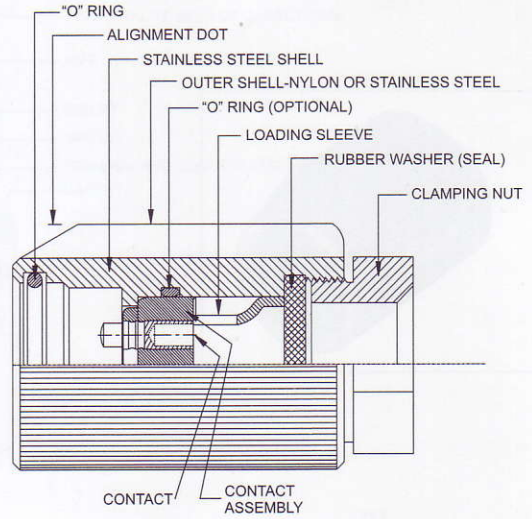


M55116/4-X

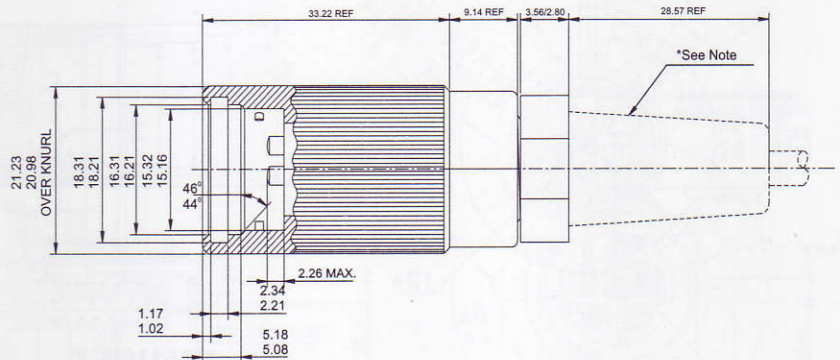
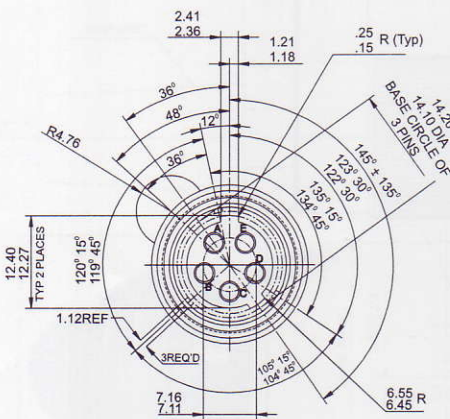
Sr No.	Description	MIL Designation	Amphenol Designation
1	5 Pin Audio plug connector with Solder Cup Terminal & wire strain relief	M55116/3-X	164-229-S-X
2	6 Pin Audio plug connector with Solder Cup Terminal & wire strain relief	M55116/4-X	164-229-6S-X

Dash no-X	Cable diameter
-0	N/A
-1	4.19 ± 0.25
-2	5.79 ± 0.25
-3	6.35 ± 0.25
-4	7.36 ± 0.25
-5	8.12 ± 0.25

X Stands for the Cable size accommodation, is identified by a dash number as shown in above table. This number indicates the outside diameter of the cable that the connector will accommodate.



M55116/5-X



M55116/6-X

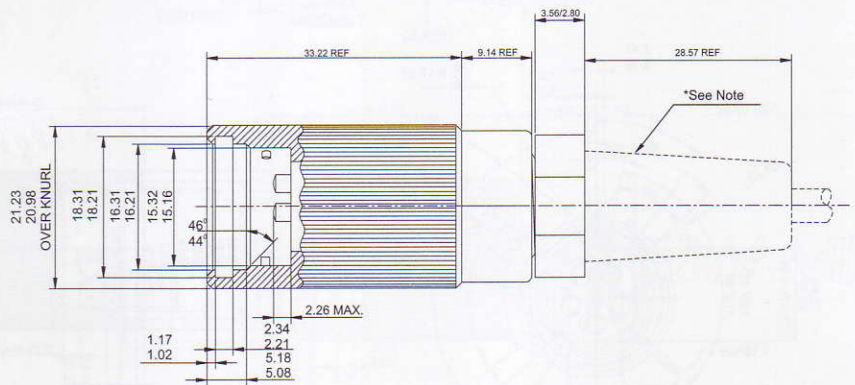
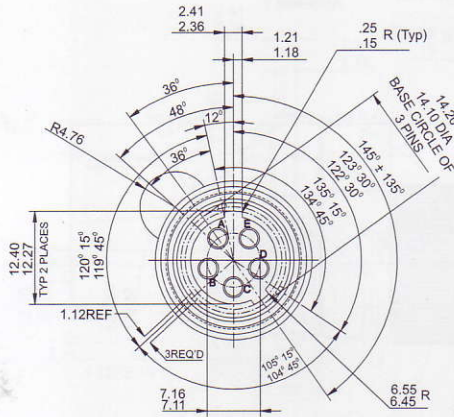
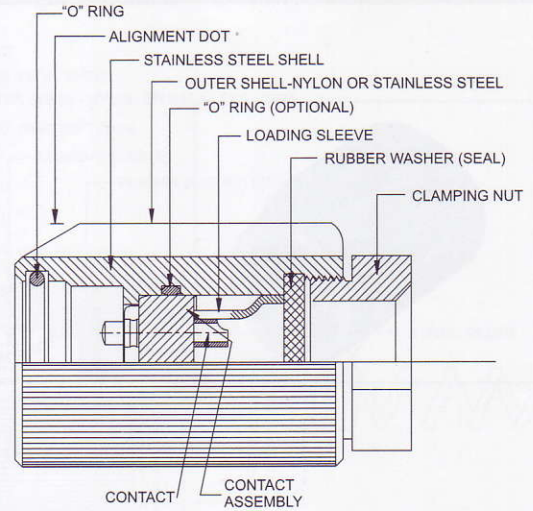
Sr No.	Description	MIL Designation	Amphenol Designation
1	5 Pin Audio plug connector with crimp sleeve terminal & molded strain relief (Not supplied)	M55116/5-X	164-182-X
2	6 Pin Audio plug connector with crimp sleeve terminal & molded strain relief (Not supplied)	M55116/6-X	164-182-6-X

Dash no-X	Cable diameter
-0	N/A
-1	4.19 ± 0.25
-2	5.79 ± 0.25
-3	6.35 ± 0.25
-4	7.36 ± 0.25
-5	8.12 ± 0.25

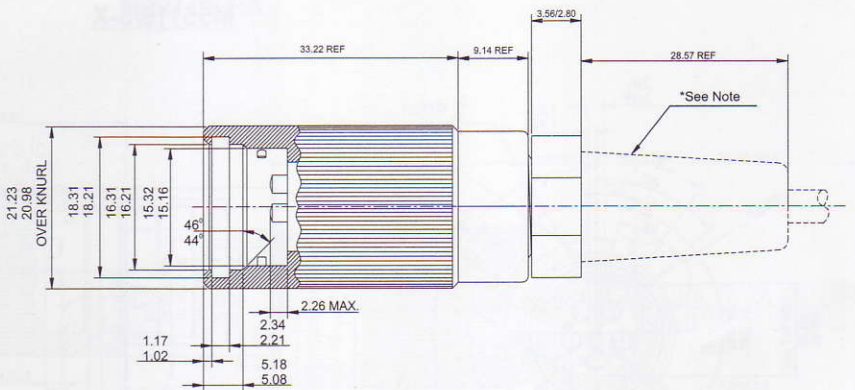
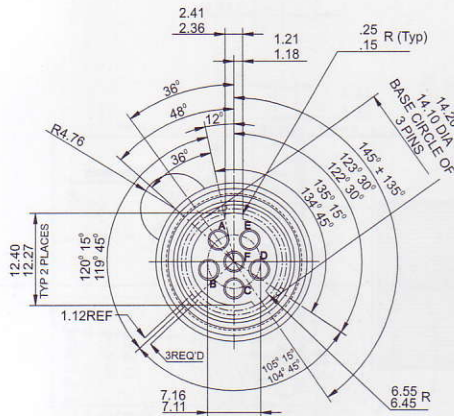
X Stands for the Cable size accommodation, is identified by a dash number as shown in above table. This number indicates the outside diameter of the cable that the connector will accommodate.

\*Nylon molded strain relief on request





M55116/7-X



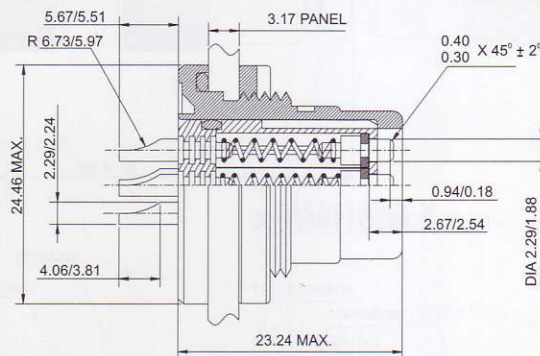
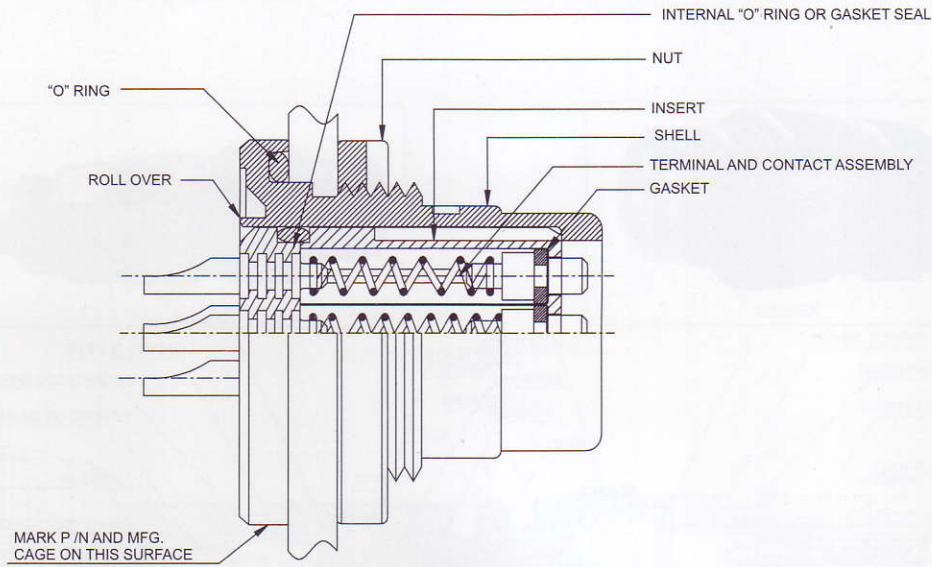
M55116/8-X

Sr No.	Description	MIL Designation	Amphenol Designation
1	5 Pin Audio plug connector with Solder Cup Terminal & molded strain relief (Not Supplied)	M55116/7-X	164-182-S-X
2	6 Pin Audio plug connector with Solder Cup Terminal & molded strain relief (Not Supplied)	M55116/8-X	164-182-6S-X

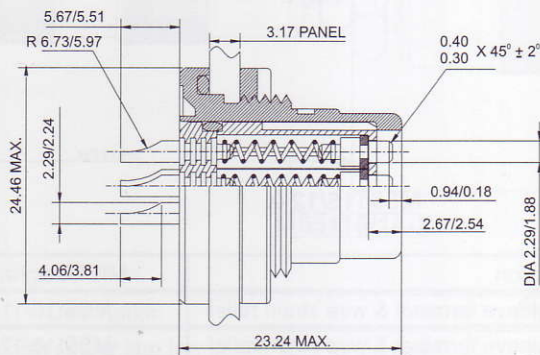
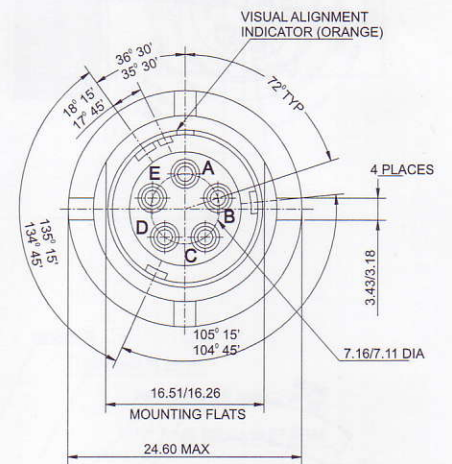
Dash no-X	Cable diameter
-0	N/A
-1	4.19 ± 0.25
-2	5.79 ± 0.25
-3	6.35 ± 0.25
-4	7.36 ± 0.25
-5	8.12 ± 0.25

X Stands for the Cable size accommodation, is identified by a dash number as shown in above table. This number indicates the outside diameter of the cable that the connector will accommodate.

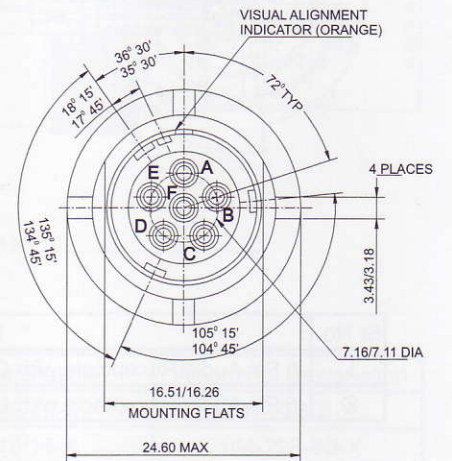
\*Nylon molded strain relief on request



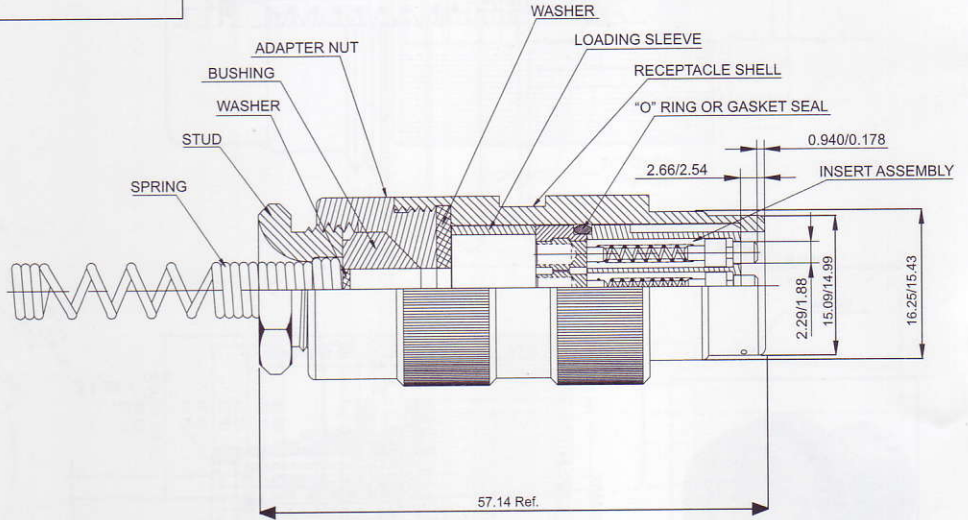
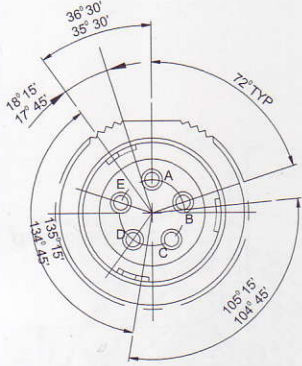
**M55116/9**



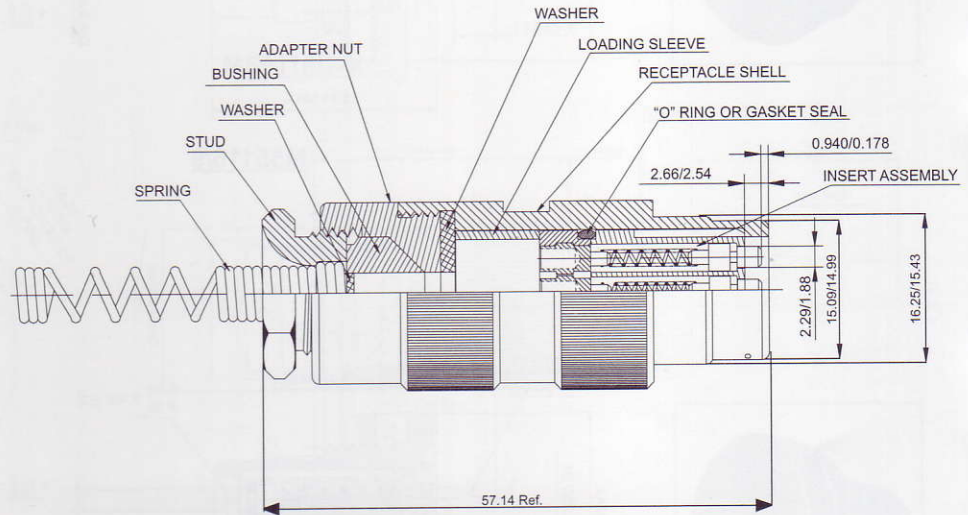
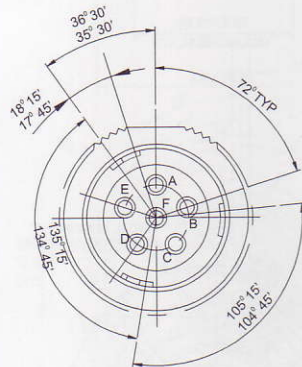
**M55116/10**



Sr No.	Description	MIL Designation	Amphenol Designation
1	5 Pin Audio Receptacle with solder cup terminal, Panel Mount	M55116/9	164-183
2	6 Pin Audio Receptacle with solder cup terminal, Panel Mount	M55116/10	164-183-6



**M55116/11-X**

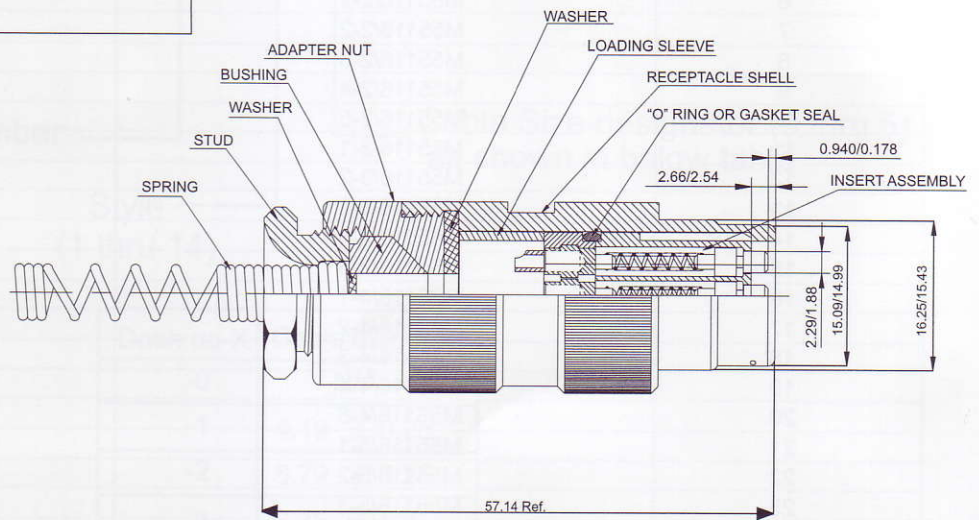
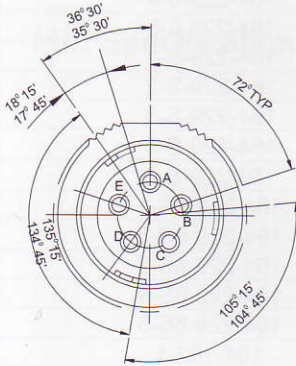


**M55116/12-X**

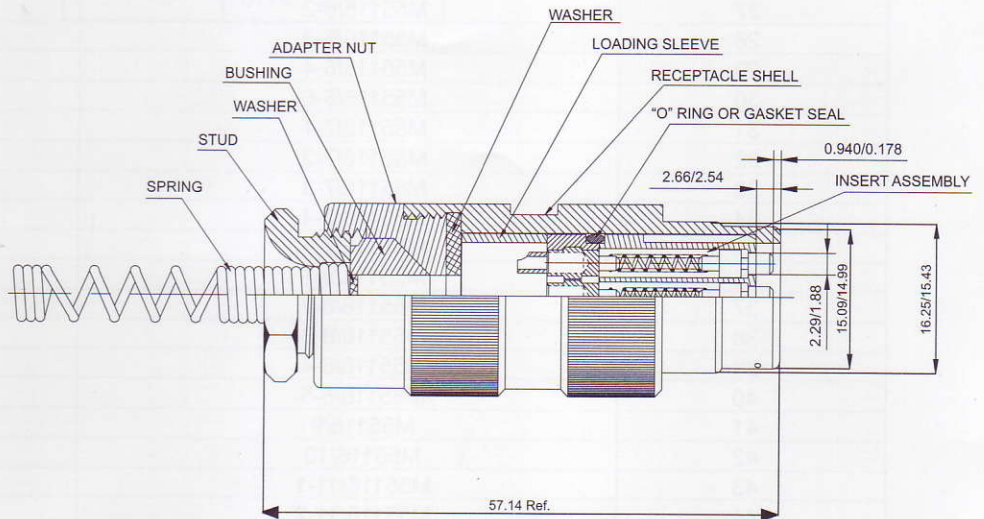
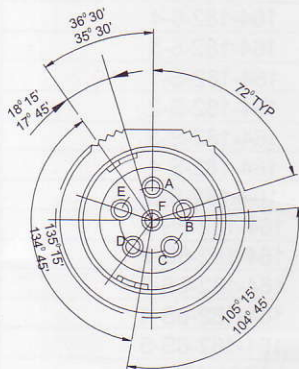
Sr No.	Description	MIL Designation	Amphenol Designation
1	5 Pin Audio Receptacle with Crimp sleeve terminal & wire strain relief	M55116/11-X	164-228-X
2	6 Pin Audio Receptacle with Crimp sleeve terminal & wire strain relief	M55116/12-X	164-228-6-X

Dash no-X	Cable diameter
-0	N/A
-1	4.19 ± 0.25
-2	5.79 ± 0.25
-3	6.35 ± 0.25
-4	7.36 ± 0.25
-5	8.12 ± 0.25

X Stands for the Cable size accommodation, is identified by a dash number as shown in above table. This number indicates the outside diameter of the cable that the connector will accommodate.



**M55116/13-X**



**M55116/14-X**

Sr No.	Description	MIL Designation	Amphenol Designation
1	5 Pin Audio Receptacle with solder cup terminal & wire strain relief	M55116/13-X	164-228-S-X
2	6 Pin Audio Receptacle with solder cup terminal & wire strain relief	M55116/14-X	164-228-6S-X

Dash no-X	Cable diameter
-0	N/A
-1	4.19 ± 0.25
-2	5.79 ± 0.25
-3	6.35 ± 0.25
-4	7.36 ± 0.25
-5	8.12 ± 0.25

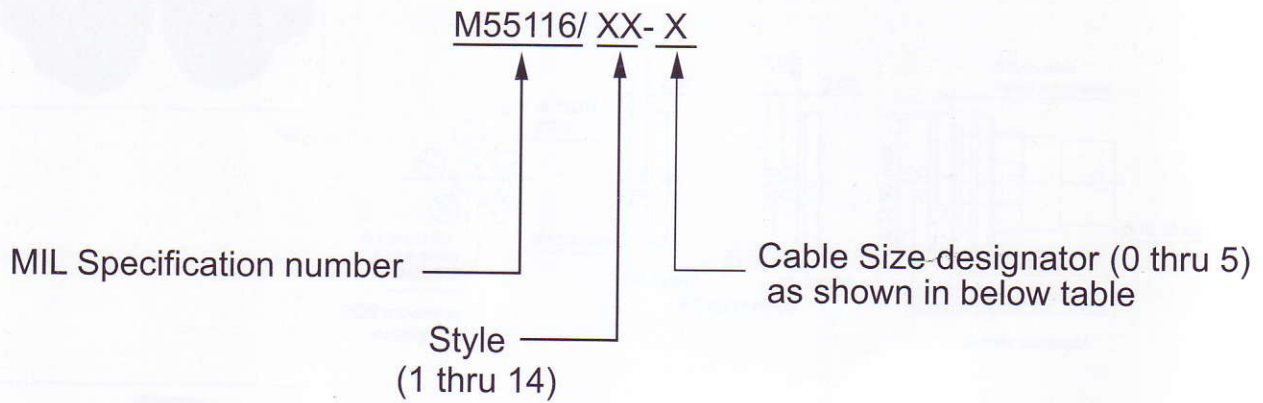
X Stands for the Cable size accommodation, is identified by a dash number as shown in above table. This number indicates the outside diameter of the cable that the connector will accommodate.

**164 SERIES**

**List of Qualified Part Numbers**

Sr. No.	MIL Specification Designation	Amphenol Designation
1	M55116/1-1	164-229-1
2	M55116/1-2	164-229-2
3	M55116/1-3	164-229-3
4	M55116/1-4	164-229-4
5	M55116/1-5	164-229-5
6	M55116/2-1	164-229-6-1
7	M55116/2-2	164-229-6-2
8	M55116/2-3	164-229-6-3
9	M55116/2-4	164-229-6-4
10	M55116/2-5	164-229-6-5
11	M55116/3-1	164-229-S-1
12	M55116/3-2	164-229-S-2
13	M55116/3-3	164-229-S-3
14	M55116/3-4	164-229-S-4
15	M55116/3-5	164-229-S-5
16	M55116/4-1	164-229-6S-1
17	M55116/4-2	164-229-6S-2
18	M55116/4-3	164-229-6S-3
19	M55116/4-4	164-229-6S-4
20	M55116/4-5	164-229-6S-5
21	M55116/5-1	164-182-1
22	M55116/5-2	164-182-2
23	M55116/5-3	164-182-3
24	M55116/5-4	164-182-4
25	M55116/5-5	164-182-5
26	M55116/6-1	164-182-6-1
27	M55116/6-2	164-182-6-2
28	M55116/6-3	164-182-6-3
29	M55116/6-4	164-182-6-4
30	M55116/6-5	164-182-6-5
31	M55116/7-1	164-182-S-1
32	M55116/7-2	164-182-S-2
33	M55116/7-3	164-182-S-3
34	M55116/7-4	164-182-S-4
35	M55116/7-5	164-182-S-5
36	M55116/8-1	164-182-6S-1
37	M55116/8-2	164-182-6S-2
38	M55116/8-3	164-182-6S-3
39	M55116/8-4	164-182-6S-4
40	M55116/8-5	164-182-6S-5
41	M55116/9	164-183
42	M55116/10	164-183-6
43	M55116/11-1	164-228-1
44	M55116/11-2	164-228-2
45	M55116/11-3	164-228-3
46	M55116/11-4	164-228-4
47	M55116/11-5	164-228-5
48	M55116/12-1	164-228-6-1
49	M55116/12-2	164-228-6-2
50	M55116/12-3	164-228-6-3
51	M55116/12-4	164-228-6-4
52	M55116/12-5	164-228-6-5
53	M55116/13-1	164-228-S-1
54	M55116/13-2	164-228-S-2
55	M55116/13-3	164-228-S-3
56	M55116/13-4	164-228-S-4
57	M55116/13-5	164-228-S-5
58	M55116/14-1	164-228-6S-1
59	M55116/14-2	164-228-6S-2
60	M55116/14-3	164-228-6S-3
61	M55116/14-4	164-228-6S-4
62	M55116/14-5	164-228-6S-5

Ordering Information

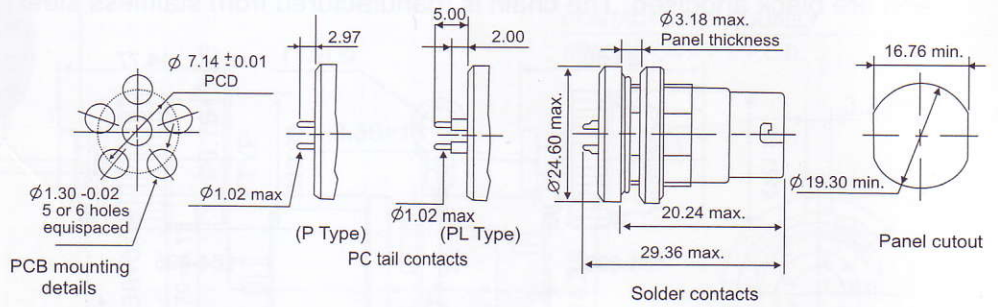
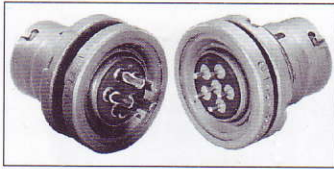


Dash no-X	Cable diameter
-0	N/A
-1	4.19 ± 0.25
-2	5.79 ± 0.25
-3	6.35 ± 0.25
-4	7.36 ± 0.25
-5	8.12 ± 0.25

Note : Standard plug connector supplied with nylon over molding. For Stainless Steel version please add prefix S01 at the end of part number ordering information.



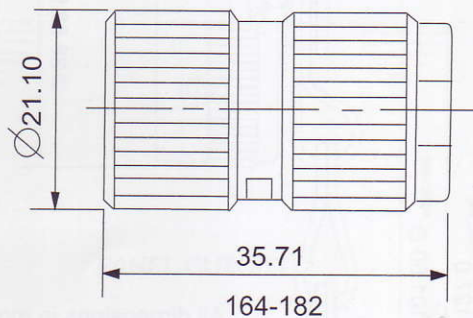
Receptacles



All dimensions in mm

Part Number	No. of Contacts	Contact Type	Mates With
164-183-P	5	PC tail spring loaded	164-229, 164-229-S 164-182, 164-182-S 164-182-L, 164-182-LS
164-183-6	6	solder spring loaded	164-229-6, 164-229-6S 164-182-6, 164-182-6S 164-182-6L

Plugs



All dimensions in mm

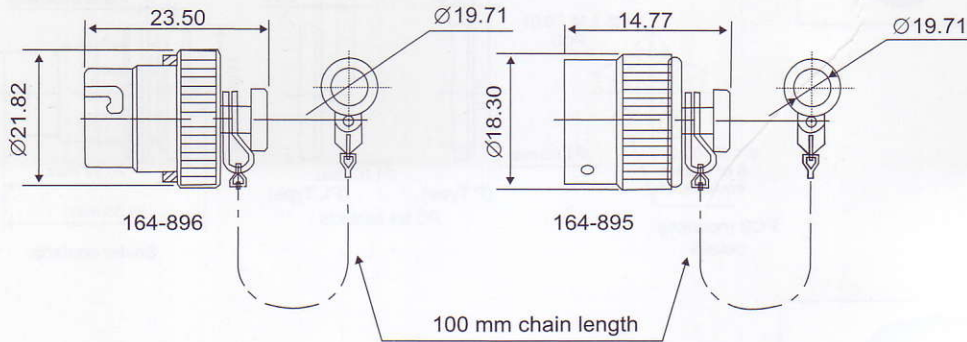
Part Number	No. of Contacts	Contact Type	Mates With
164-182	5	Barrel rigid (Crimp Sleeve Terminal)	164-183 164-183-P
164-182-S	5	Solder rigid (Solder Cup Terminal)	
164-182-6	6	Barrel rigid (Crimp Sleeve Terminal)	164-183-6 164-183-6P
164-182-6S	6	Solder rigid (Solder Cup Terminal)	



Accessories

Cap And Chain

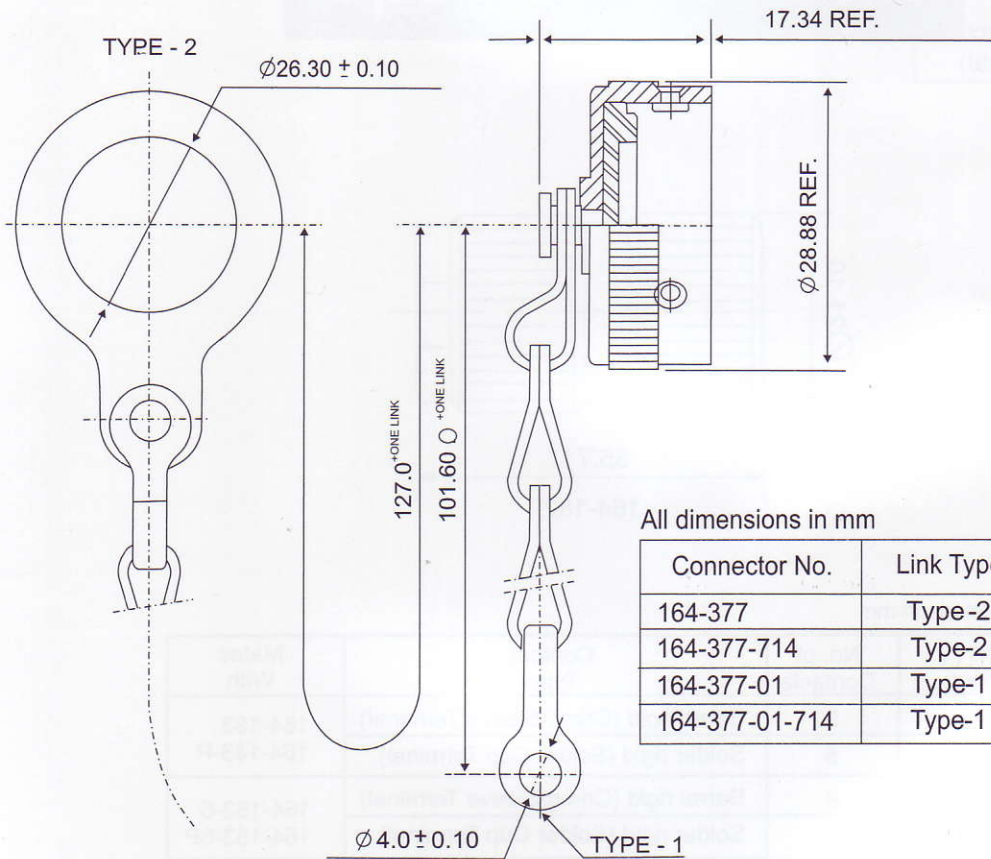
These caps and chain assemblies are used with 5 and 6 pin connectors as protective covers giving additional protection against moisture, dust and sand. The caps are manufactured from aluminium and are black anodised. The chain is manufactured from stainless steel and is passivated.



All dimensions in mm

Item	Part Number	For Connector
Recp. Dust Cap	164-896	164-183, 164-228
Plug Dust Cap	164-896	164-229, 164-182

Cap and chain for ten pin waterproof audio receptacles ( U-79/U)  
Part no. 164-377 xxxx (For Plating and End - link styles refer table 1 below)

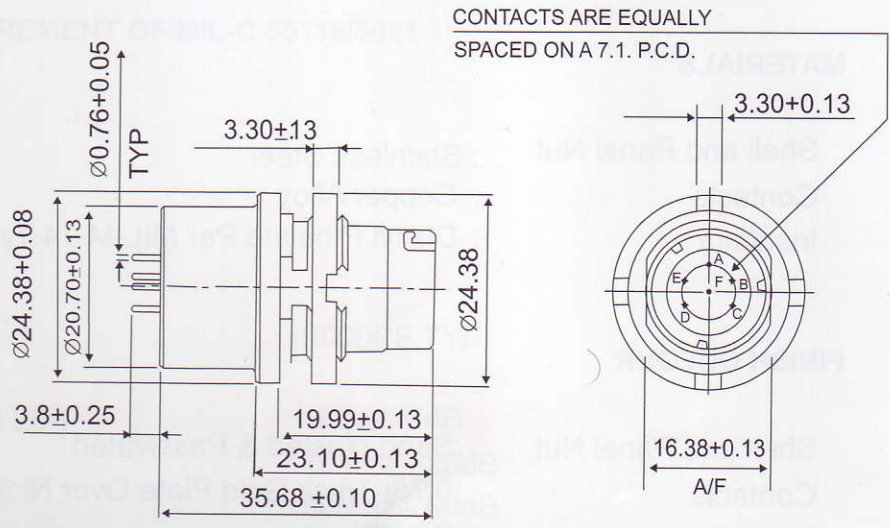


All dimensions in mm

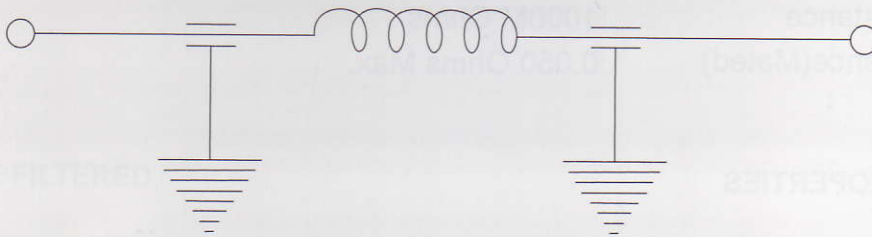
Table 1

Connector No.	Link Type	Cap Finish
164-377	Type-2	Black Anodised
164-377-714	Type-2	Cadmium Plate with Electroless Under Coat
164-377-01	Type-1	Black Anodised
164-377-01-714	Type-1	Cadmium Plate with Electroless Under Coat

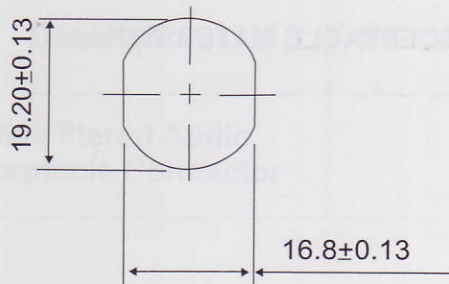
164F-1836B -527 Filtered Audio Receptacle Connector



SCHEMATIC DIAGRAM OF 'PI' FILTER



PANEL CUTOUT



## 164 SERIES

---

### 164F - 1836B -527 Filtered Audio Receptacle Connector

#### SPECIFICATIONS (Technical Data):

#### MATERIALS

Shell and Panel Nut : Stainless Steel  
Contacts : Copper Alloy  
Insulator : Diallyl Pthalate Per MIL-M-14 Type MDG/Polyethersulfone

#### FINISH COLOUR

Shell and Panel Nut : Sand blasted & Passivated  
Contacts : 0.75 $\mu$  Thick Gold Plate Over Nickel Undercoat 2.54 $\mu$   
Insulator : Blue/Black

#### ELECTRICAL PROPERTIES

Operating Voltage : 60V Max . Potential  
Current Rating : 0.5A Max.  
Dielectric Breakdown : 300V DC  
Insulation Resistance : 1000M Ohms  
Contact Resistance(Mated) : 0.050 Ohms Max.

#### MECHANICAL PROPERTIES

Air pressure : 2.5 P.S.I.  
Water Immersion : 48 Hrs. At 6 Feet  
Durability : 3000 Cycles Mate and Unmate

**OPERATING TEMPERATURE RANGE : -55<sup>0</sup> C TO 85<sup>0</sup> C**

#### AMPHENOL 164 F-1836B-527 RECEPTACLE MATES WITH:

Amphenol 164 -229 -6  
Amphenol 164-229-6S

# 164F - 186B - 527 Filtered Audio Receptacle Connector

CONNECTOR MEETS ALL REQUIREMENT OF MIL-C-55116/5081

## FILTER SPECIFICATIONS:

Capacitance ( 1KHz, 25° )	:8000PF TYP
Insertion Loss (TYP.) (MIL-STD-220, No Load 25°)	:1Mhz - 4dB :10Mhz - 25dB :50Mhz - 60dB
Working Voltage	:100DVC
Dielectric Voltage Breakdown	:300VDC
Insulation Resistance (100VDC, 25° C)	:10000 Mohms Min.
RF Current	:0.25 A Max.

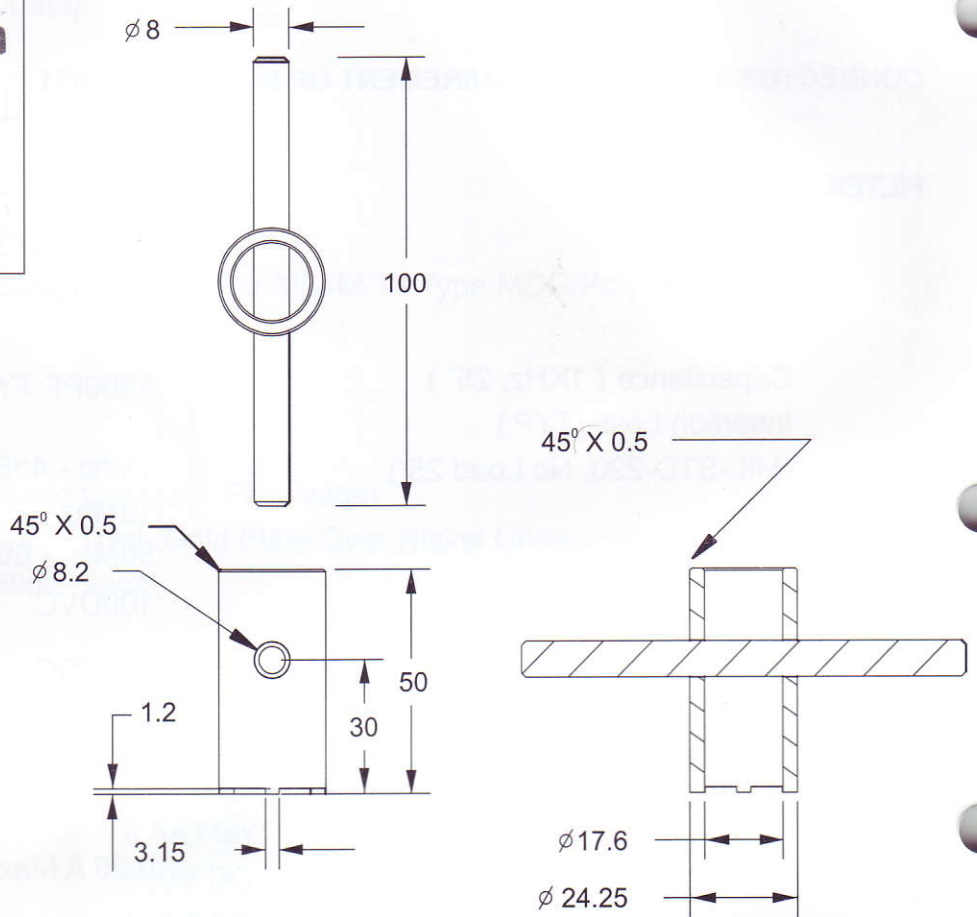
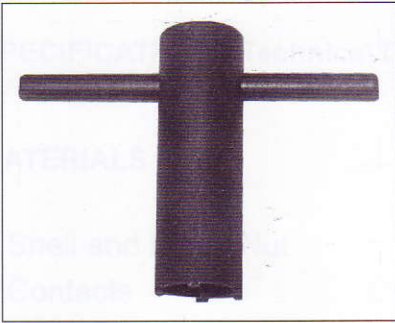
ALL PINS ARE FILTERED

## METHOD OF DESIGNATION

Connector Number	Description	No. Of Contacts	Contact Termination
164F-1836B-527	164 Filtered Audio Receptacle Connector	6	PC Tail

164 SERIES

Tightening Spanner (164-T001)  
(Panel nut tightening for 164-183 Connector)



Notice: All information, including illustrations given herein is believed to be accurate at the time of printing. In lieu of design advances, Amphenol reserves the right to change specifications without notice. This publication Series 164 Connectors dt. 30-06-09 supercedes all existing Amphenol literature on Series 164 Connectors.

# Amphenol

A Global Company



Pune Operations



Bangalore Operations

# Amphenol

Interconnect India Pvt. Ltd.

## Our offices in India:

### MARKETING HEAD QUARTERS

105, Bhosari Industrial Area,  
Pune - 411 026.  
Tel.: 91- 20 - 27120481  
30688303, 30688304  
Fax : 91 - 20 - 27120581  
Email : kmurali@amphenol-in.com  
sales@amphenol-in.com

### Export

105, Bhosari Industrial Area,  
Pune - 411 026, India.  
Tel.: 91- 20 - 30688305, 30688353  
Fax : 91- 20 - 27129158  
Email : svpatil@amphenol-in.com

### Southern Region

4931, 11th Floor, High Point IV  
45, Palace Road, Bangalore 560 001.  
Tel.: 91-80-22281392, 22281002  
Fax : 91-80-22253859  
Email : kmanoj@amphenol-in.com

### Western Region

105, Bhosari Industrial Area,  
Pune - 411 026.  
Tel.: 91- 20 - 27119735, 30688334  
Fax: 91- 20 - 27120581, 27119735  
Email : sunilp@amphenol-in.com

### Northern and Eastern Region

1414, 14th Floor, Chiranjiv Tower,  
43, Nehru Place, New Delhi - 110 019.  
Tel. : 91-11-26449177  
Telefax : 91-11-26449176  
Email : vbhavsar@amphenol-in.com

### Central Region

107, 1st Floor, 'Am Sri Classic',  
Sarojinidevi Road, Secunderabad-500 003.  
Tel. : 91- 40 - 39108276  
Telefax : 91- 40-55332906  
Email : pprasad@amphenol-in.com

[www.amphenol-in.com](http://www.amphenol-in.com)