



# INTERCONNECT SYSTEMS FOR TACTICAL COMMUNICATIONS



**A HUBZone Certified Company**

**WPI** General Connector, an industry leader in tactical communications, designs and manufactures audio, filtered audio and power connectors for the military market through the Salem production facility.

WPI General Connector's competencies lie in the design and the production of **customized** products quickly and efficiently, with its own tooling, molding and in-house manufacturing facilities.

A division of WPI Interconnect Products, WPI General Connector has a variety of standard products on the shelf, ready to ship, at competitive prices.

WPI General Connector meets several qualifications and offers testing and inspection services, including the following:

### **Quality Systems**

ISO 9002-2000 REGISTERED QUALITY SYSTEM

MIL-I-45208A QUALITY SYSTEM

MIL-I-45662A CALIBRATION SYSTEM

### **Qualified Products**

#### **MILITARY QPL (QUALIFIED PRODUCTS LIST)**

MIL-C-21097/21 CARD EDGE CONNECTORS

MIL-DTL-24308/2 and 24308/4 D-SUBMINIATURE CONNECTORS

MIL-C-55116 AUDIO CONNECTORS

MIL-C-55181 POWER CONNECTORS

### **UL-Underwriter Laboratories**

**FILE E115487** VOL. 1, Sections 1-4 card edge, 120 volt attachment plugs, d-sub and blue ribbon connectors (225, 160, 117, 777, 177, and 26 series connectors).

**FILE E116778** VOL. 1, Sections 1-4 120 volt attachment plugs (160 series connectors).

**FILE E56473** VOL. 1, Section 1 relay sockets (146 series connectors).

**FILE E170219** Right angle d-subminiature connectors.

### **Testing and Inspection Capabilities**

- ▶ x-ray fluorescence plating tester
- ▶ optical comparator
- ▶ ac hypot
- ▶ continuity
- ▶ insulation resistance
- ▶ coordinate measuring machine (cmm)
- ▶ video digital measuring microscope (vdm)
- ▶ altitude
- ▶ salt spray
- ▶ hydrostatic pressure
- ▶ moisture resistance/humidity
- ▶ thermal cycling/thermal shock
- ▶ vibration
- ▶ mechanical shock
- ▶ solderability
- ▶ impedance, capacitance and inductance
- ▶ force and strain
- ▶ bounce
- ▶ insertion loss and voltage standing wave ratio (vswr)
- ▶ micro-sectioning and micro-hardness
- ▶ beta-backscatter plating tester
- ▶ water immersion
- ▶ pressure testing
- ▶ thread (plug and ring) gages
- ▶ standard measuring equipment (micrometers, dial calipers, indicators)
- ▶ horizon cable testers

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# MIL-DTL-24308

## General Information

WPI's D-subminiature rectangular connectors are space and weight saving, reliable and accommodate several circuits. These D-subminiatures are qualified to the requirements of MIL-DTL-24308. They are designed for rack and panel, cable-to-panel, and cable-to-cable connection. They have rear insertion type crimp contacts and include 9, 15, 25, 37 and 50 contact arrangements, with two shell platings available.

## Materials & Finish

Shells

Steel .0003 cadmium plate with yellow chromate coating or .0003 zinc plate with yellow chromate coating.

Socket Contacts

M39029/63-368.

Pin Contacts

M39029/64-369.

Insulation

Glass-filled DAP SDG-F or GDI-30F per ASTM D 5948 or GPT-30F or GET-30F per MIL-M-24519.

## Environmental

Operating Temperature

Range-55° C to +85° C.

Physical Shock Resistance

No damage or interruption of electrical conductivity longer than 1 microsecond, per MIL-STD 1344, method 2004, condition E.

## Electrical

Current Rating

7.5 amperes maximum.

Voltage Rating

1,000 VAC at sea level; 325 VAC at 70,000 ft.

## Mechanical

Contact Retention Strength

Will not push out with 9 lbs. of force in the direction of the mating forces.

Engagement Separation Force

0.7 ounces minimum with minimum diameter pin. 18.0 ounces maximum with maximum diameter pin, per MIL-DTL-24308, paragraph 3.5.10.

Vibration

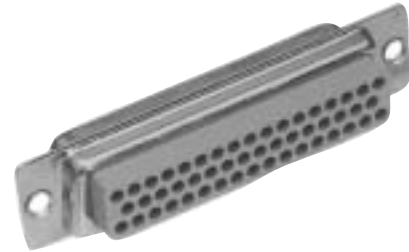
No interruption of electrical continuity longer than one microsecond per MIL-STD 1344, method 205, condition 4.

Contact Durability

No mechanical or electrical defects harmful to the operation of the connector after 500 engagement and disengagement cycles, per MIL-DTL-24308, Paragraph 3.5.16.

## Ordering Information\*

<b>PART NUMBER</b>	<b>Size</b>	<b>Gender</b>	<b>Shell Plating</b>	<b>Contacts Included</b>
M24308/2-1	9	Female	Zinc	Yes
M24308/2-2	15	Female	Zinc	Yes
M24308/2-3	25	Female	Zinc	Yes
M24308/2-4	37	Female	Zinc	Yes
M24308/2-5	50	Female	Zinc	Yes
M24308/2-281	9	Female	Zinc	No
M24308/2-282	15	Female	Zinc	No
M24308/2-283	25	Female	Zinc	No
M24308/2-284	37	Female	Zinc	No
M24308/2-285	50	Female	Zinc	No
M24308/4-1	9	Male	Zinc	Yes
M24308/4-2	15	Male	Zinc	Yes
M24308/4-3	25	Male	Zinc	Yes
M24308/4-4	37	Male	Zinc	Yes
M24308/4-5	50	Male	Zinc	Yes
M24308/4-259	9	Male	Zinc	No
M24308/4-260	15	Male	Zinc	No
M24308/4-261	25	Male	Zinc	No
M24308/4-262	37	Male	Zinc	No
M24308/4-263	50	Male	Zinc	No
M24308/2-1F	9	Female	Cadmium	Yes
M24308/2-2F	15	Female	Cadmium	Yes
M24308/2-3F	25	Female	Cadmium	Yes
M24308/2-4F	37	Female	Cadmium	Yes
M24308/2-5F	50	Female	Cadmium	Yes
M24308/2-281F	9	Female	Cadmium	No
M24308/2-282F	15	Female	Cadmium	No
M24308/2-283F	25	Female	Cadmium	No
M24308/2-284F	37	Female	Cadmium	No
M24308/2-285F	50	Female	Cadmium	No
M24308/4-1F	9	Male	Cadmium	Yes
M24308/4-2F	15	Male	Cadmium	Yes
M24308/4-3F	25	Male	Cadmium	Yes
M24308/4-4F	37	Male	Cadmium	Yes
M24308/4-5F	50	Male	Cadmium	Yes
M24308/4-259F	9	Male	Cadmium	No
M24308/4-260F	15	Male	Cadmium	No
M24308/4-261F	25	Male	Cadmium	No
M24308/4-262F	37	Male	Cadmium	No
M24308/4-263F	50	Male	Cadmium	No



\*Custom available. Consult factory.

## General Information

### 5 & 6 Contact

These connectors are universally used in communications equipment where the highest reliability is needed under the most severe environmental conditions. The standard 5-contact connectors meet all requirements of MIL-C-55116, latest revision. 6-contact connectors as well as the light-weight versions are designed to meet all performance requirements of MIL-C-55116. Mating is accomplished quickly with a twist-lock motion. Non-rigid contacts are spring loaded and provide positive electrical connection with minimum voltage drop.

### 10 Contact

The 10-contact connectors conform to MIL-C-10544, latest revision. Construction and mating action are similar to the 5-contact line. Years of successful field experience have proven the remarkable reliability of this line of connectors for all types of military and commercial communications equipment.

## 5 & 6 Contact Materials & Finish

Shells	Stainless steel, passivated, sand-blasted.
Panel Nuts	Stainless steel, passivated, sand-blasted.
Contacts	Copper alloy, .000030 gold per MIL-G-45204, Type I, Class 0 over .001 nickel.
Insulators	Diallyl phthalate per MIL-M-14F, Type MDG.

## Specifications

Electrical	Dielectric Strength—500 V RMS. Insulation Resistance—1000 Megohms, Min. Contact Resistance (mated)—0.050 Ohms, Max.
Mechanical	Air Pressure—2.5 psi. Immersion—48 hrs. at 6 ft. Durability—3000 cycles, mate and unmate.

## 10 Contact Materials & Finish

Receptacle Shells	Stainless steel, passivated, sand-blasted.
Plug Shells	Stainless steel, black passivated.
Plug Rear Housing	Aluminum, black oxide.
Panel Nuts	Stainless steel, passivated, sand-blasted.
Contacts	Copper alloy, .000030 gold.
Insulators	Diallyl phthalate per MIL-M-14F, Type MDG.

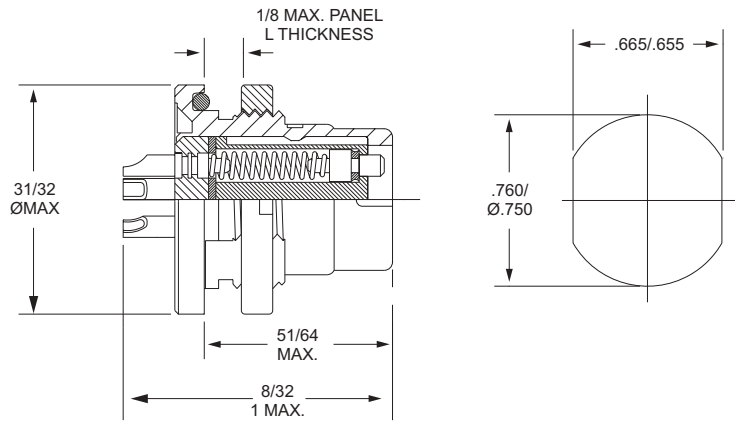
## Specifications

Electrical	Dielectric Strength—500 V RMS. Insulation Resistance—1000 Megohms, Min. Contact Resistance (mated)—0.015 Ohms, Max.
Mechanical	Air Pressure—2.5 psi. Immersion—48 hrs. at 6 ft. Durability—3000 cycles, mate and unmate.

## 5-Contact Standard per MIL-C-55116

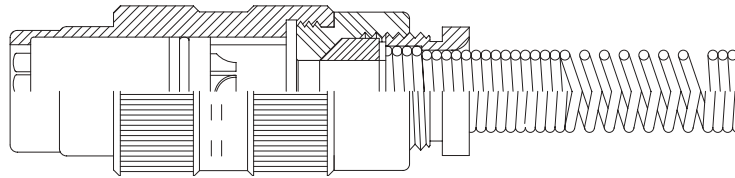
### U-183/U RECEPTACLE

Spring loaded contacts, solder terminals, mates with U-229/U, GC 217 & GC 217A. Other pin styles available.



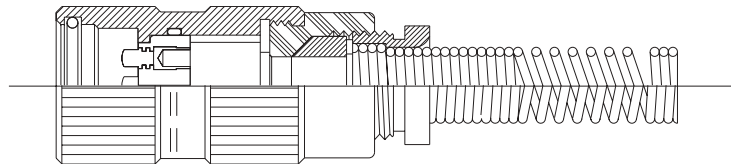
### U-228/U PLUG

Spring loaded contacts, barrel pin terminals,\* mates with U-229/U, GC 217 & GC 217A.



### U-229/U PLUG

Rigid contacts, barrel pin terminals,\* mates with U-183/U, U-228/U & GC183S.

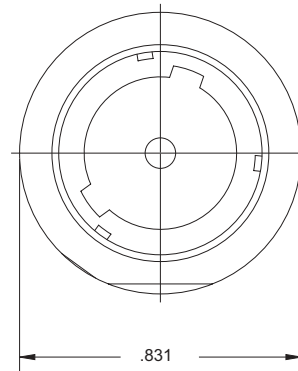
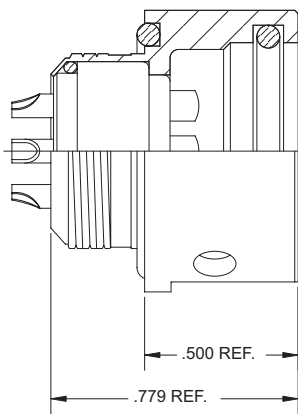


\*Solder pin terminals also available.



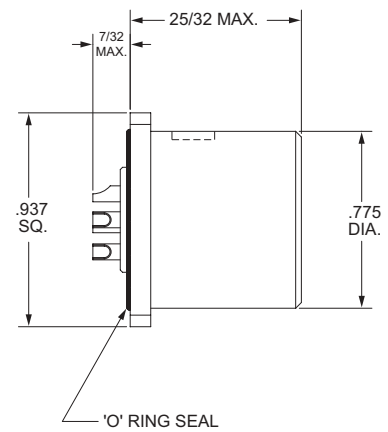
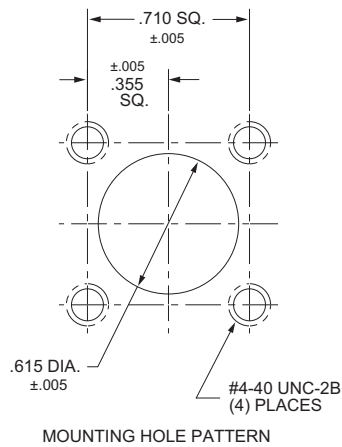
**GC429**  
**RECEPTACLE**

Rigid contacts, solder terminals, mates with U-183/U, U-228/U & GC183S.



**GC629**  
**RECEPTACLE**

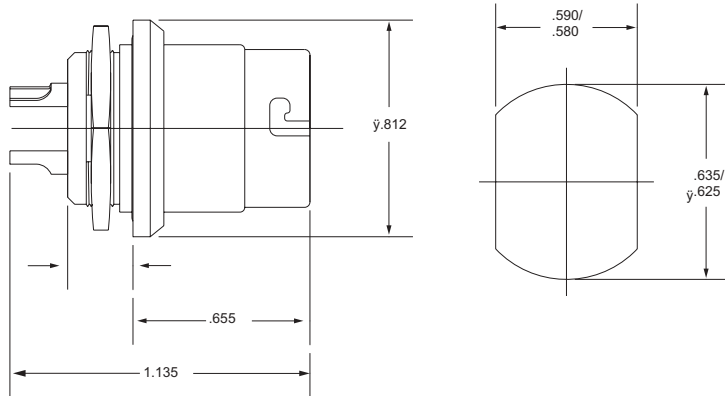
Rigid contacts, solder terminals, mates with U-183/U, U-228/U & GC183S.



## 5-Contact Lightweight (Conforms to MIL-C-55116)

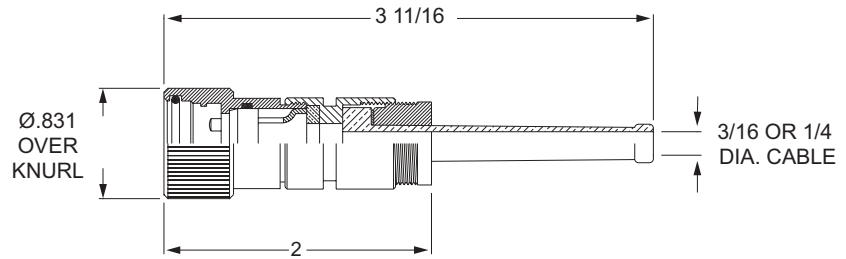
### GC183S RECEPTACLE

Spring loaded contacts, solder terminals, mates with U-229/U, GC217 & GC217A. Other pin styles available.



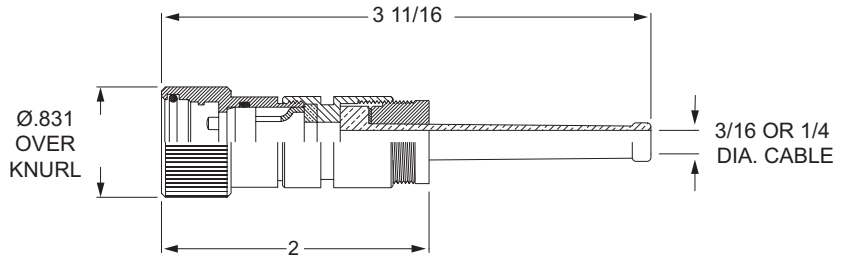
### GC217 PLUG

Rigid contacts, solder terminals, mates with U-183/U, U-228/U & GC183S.



### GC217A\* PLUG

Rigid contacts, solder terminals, mates with U-183/U, U-228/U & GC183S.



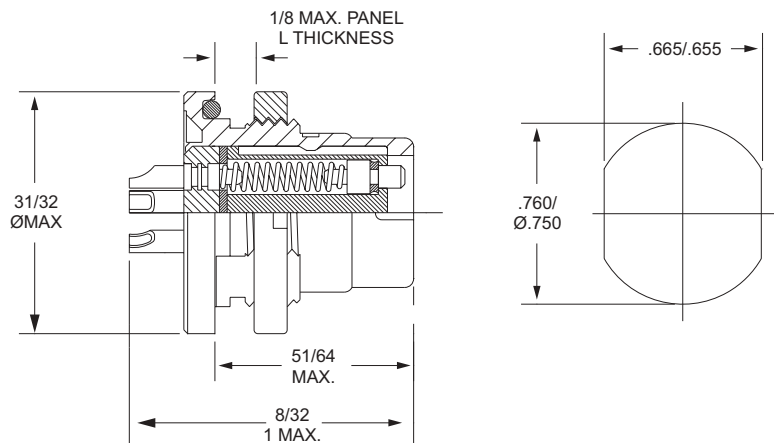
\*Shell material is aluminum.

Weight In Ounces			
<b>5-Contact Standard</b>	U-229/U 2.02	GC217 1.20	U-183/U 1.03
<b>5-Contact Lightweight</b>	NA	GC217A 0.81	GC183S 0.72

## 6-Contact Standard (Conforms to MIL-C-55116)

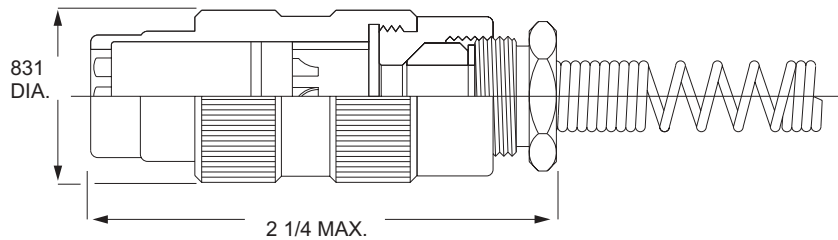
### GC283 RECEPTACLE

Spring loaded contacts,  
solder terminals, mates  
with GC329, GC617  
& GC617A.  
Other pin styles  
available.



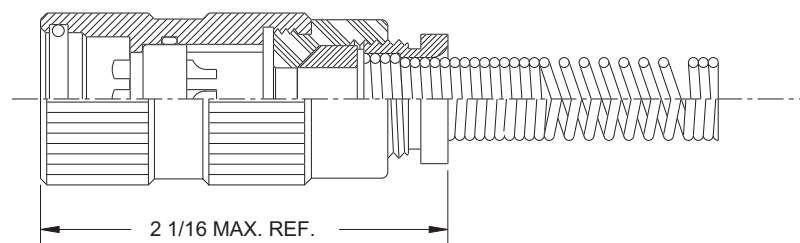
### GC328 PLUG

Spring loaded contacts,  
solder pin terminals,  
mates with GC329,  
GC617 & GC617A.



### GC329 PLUG

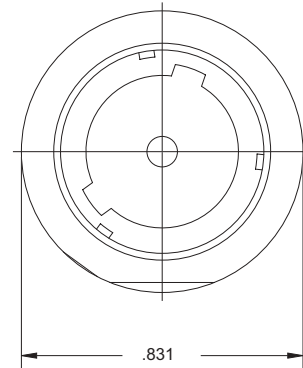
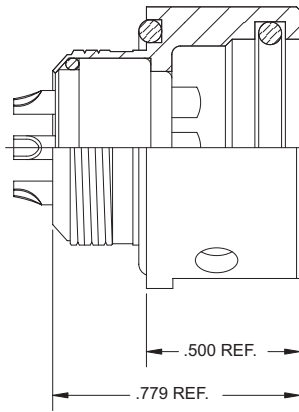
Rigid contacts, barrel pin  
terminals,\* mates with  
GC283, GC328  
& GC683S.



\*Solder pin terminals  
also available.

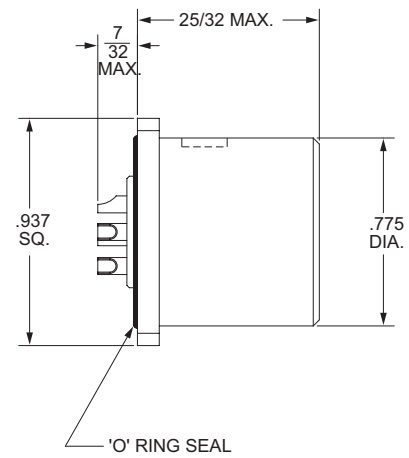
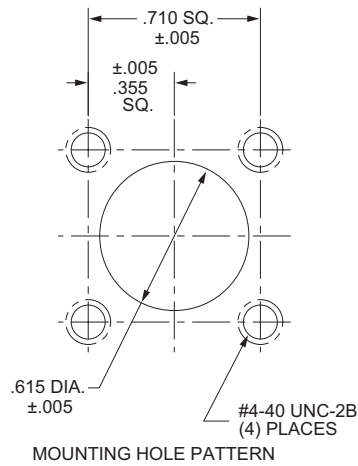
## GC529 RECEPTACLE

Rigid contacts, solder terminals, mates with GC283, GC328 & GC683S.  
Also available in 5-pin version.



## GC729 RECEPTACLE

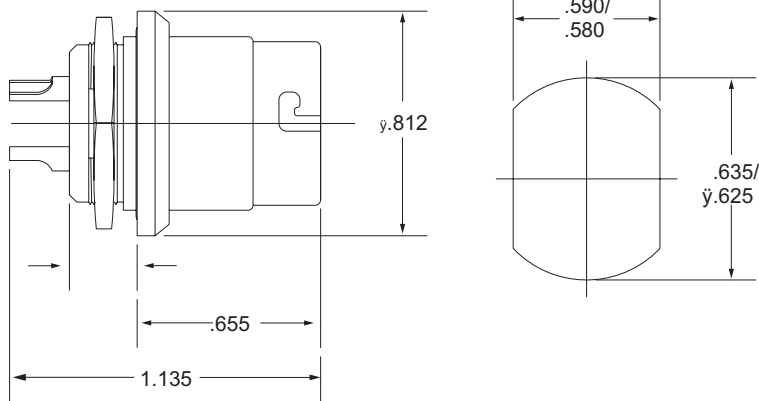
Rigid contacts, solder terminals, mates with GC283, GC328 & GC683S.



## 6-Contact Lightweight (Conforms to MIL-C-55116)

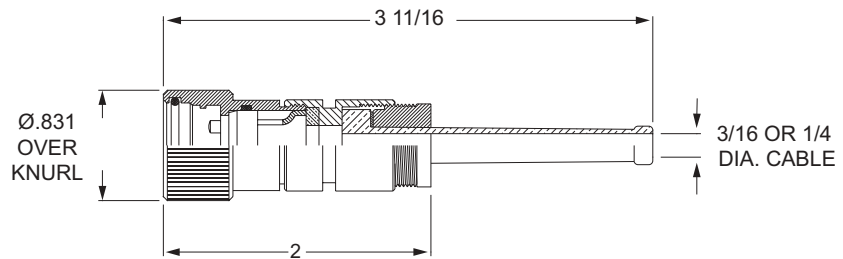
### GC683S RECEPTACLE

Spring loaded contacts, solder terminals, mates with GC329, GC617 & GC617A.



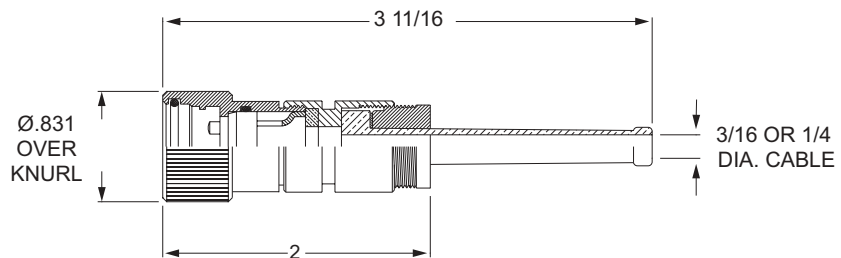
### GC617 PLUG

Rigid contacts, solder terminals,\* mates with GC283, GC328 & GC683S.



### GC617A\*\* PLUG

Rigid contacts, solder terminals,\* mates with GC283, GC328 & GC683S.



\*Also available with barrel terminals.

\*\*Shell material is aluminum.

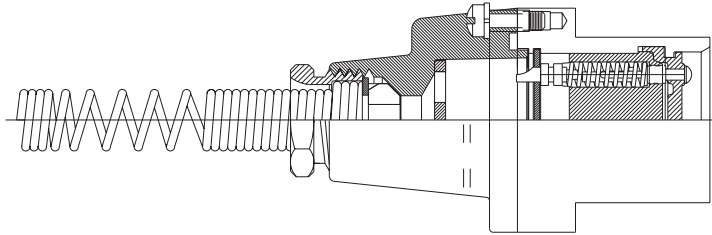
Weight In Ounces			
<b>6-Contact Standard</b>	GC329 2.01	GC617 1.19	GC283 1.04
<b>6-Contact Lightweight</b>	NA	GC617A 0.80	GC683S 0.73

## 10-Contact Per MIL-C-10544

### U-78/U

#### PLUG

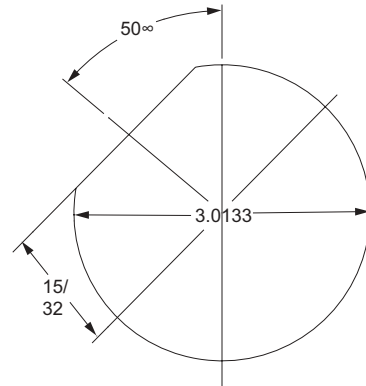
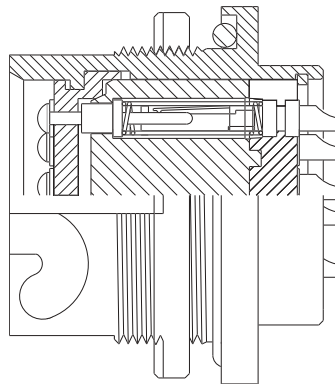
Non-rigid, spring loaded contacts, solder terminals, mates with U-77/U, U-126/U, U-127/U & U-161/U.



### U-79/U or GC790

#### RECEPTACLE

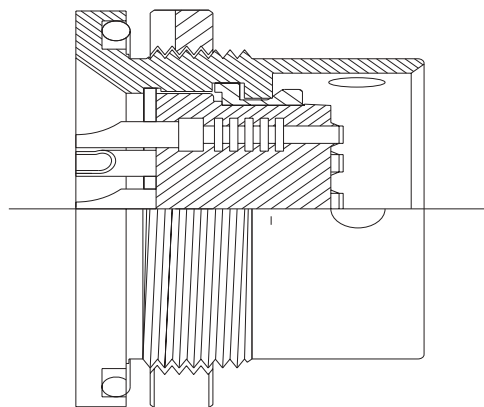
Non-rigid, spring loaded contacts, solder terminals, mates with U-77/U, U-127/U & U-161/U.



### U-126/U

#### RECEPTACLE

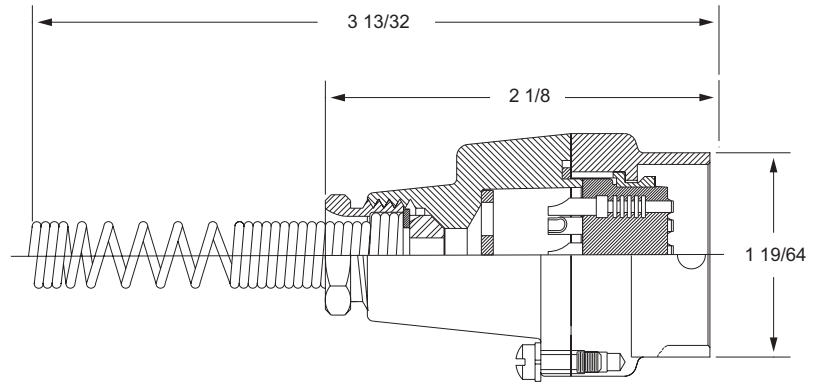
Rigid contacts, solder terminals, mates with U-78/U.



**U-77/U**

**PLUG**

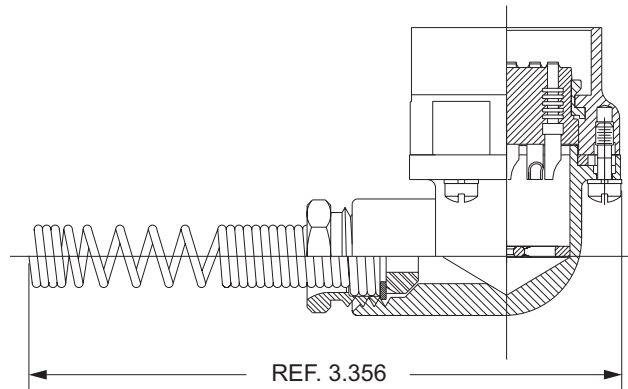
Rigid contacts, solder terminals, mates with U-78/U & U-79/U.



**U-127/U**

**PLUG**

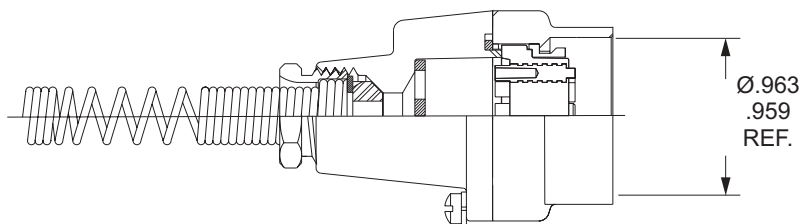
Rigid contacts, solder terminals, mates with U-78/U & U-79/U.



**U-161/U**

**PLUG**

Rigid contacts, taper pin terminals, mates with U-78/U & U-79/U.



# U-Type Multipurpose

## General Information

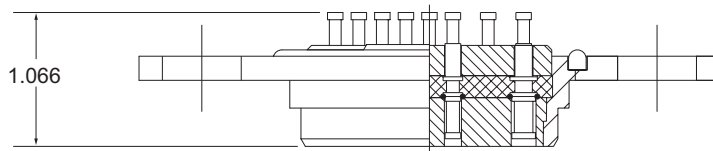
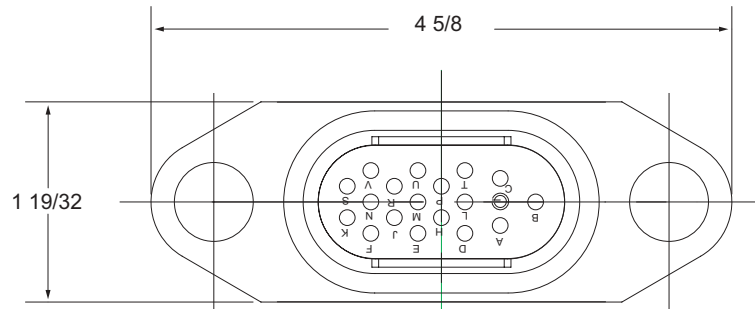
The following U-type connectors are used in a great variety of military communications equipment and cable assemblies. Some specific applications are listed.

Designation	Typical Equip. Application	Military Spec. or Dwg. No.	Description		
U-344/VRC	MT-1029 MT-1898	SC-D-621105	Power receptacle. 3 #12, 15 #16 socket contacts.		
U-345/VRC	VRC-12 OA-3633	SM-D-414116	Power receptacle. 18 pin contacts.17 contacts integrally filtered (1500 pf). Mates with U-344/VRC.		
U-288/U U-291/U U-290/U *GC290R U-289/U U-393/U	AS1729 VRC-12 CX4742 CX4722 CX4722	MIL-C-55243(EL)	Medium power plugs and receptacles. 12 #20 contacts. GC290R and U-393/U are right angle versions of U-290/U and U-289/U, respectively.		
U-316/U U-317/U U-318/U	OA-3633 PRC-25 PRC-77			MIL-C-55243(EL) MIL-C-26482	Medium power plugs and receptacles. 14 #20 contacts.

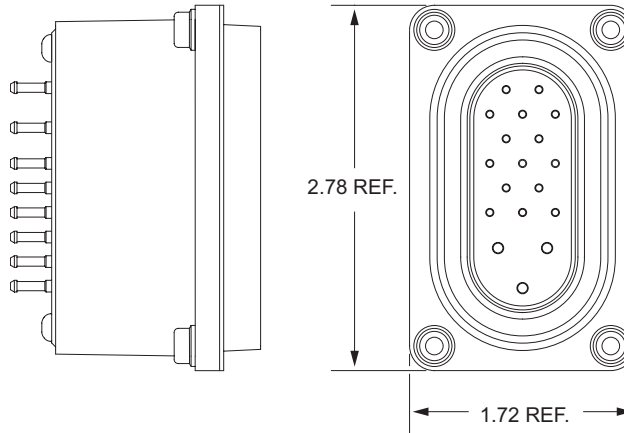
\*U-type nomenclature not yet assigned.



**U-344/VRC**  
**RECEPTACLE**  
 18 socket contacts,  
 mates with U-345/VRC.



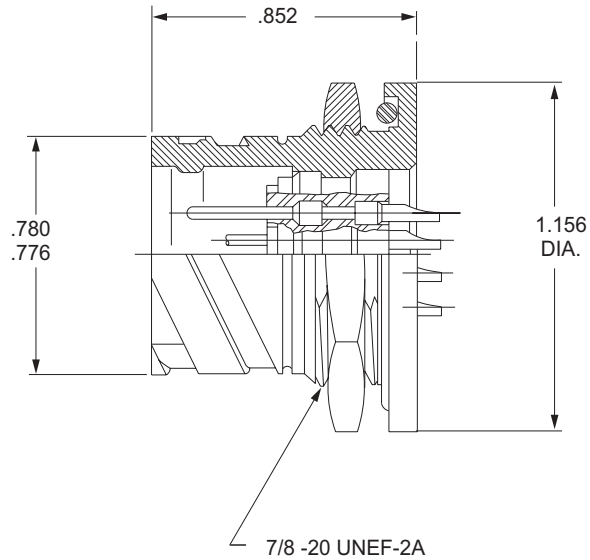
**U-345/VRC**  
**RECEPTACLE**  
 18 pin contacts,  
 17 integrally filtered  
 (1500 pf), mates with  
 U-344/VRC.



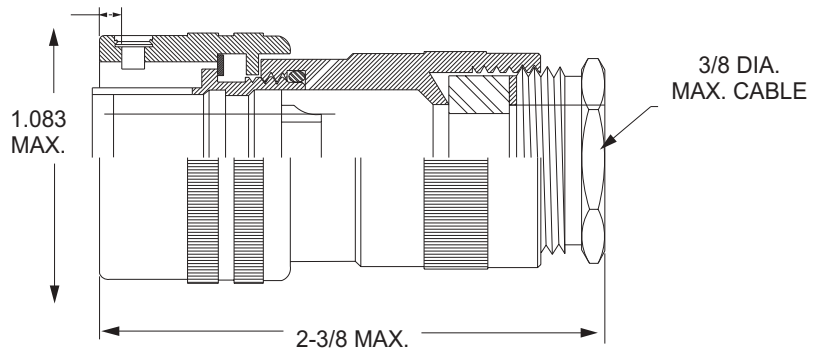
# U-Type Multipurpose

The following are 12-contact medium power, quick disconnect connectors meeting all requirements of MIL-C-55243(EL), and they intermate.

**U-288/U**  
RECEPTACLE  
Pin contacts.

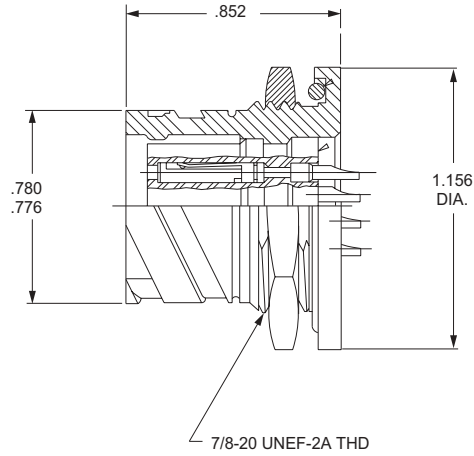


**U-290/U**  
PLUG  
Socket contacts.

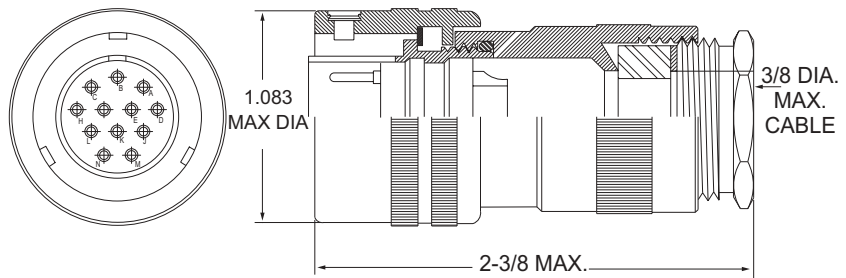


The following are 12-contact medium power, quick disconnect connectors meeting all requirements of MIL-C-55243(EL), and they intermate.

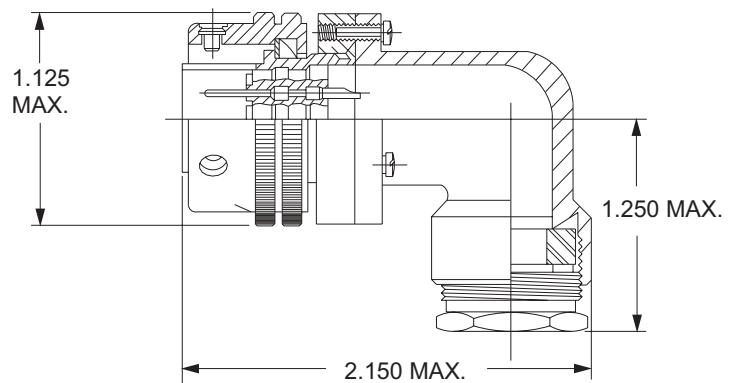
**U-291/U**  
RECEPTACLE  
Socket contacts.



**U-289/U**  
PLUG  
Pin contacts.



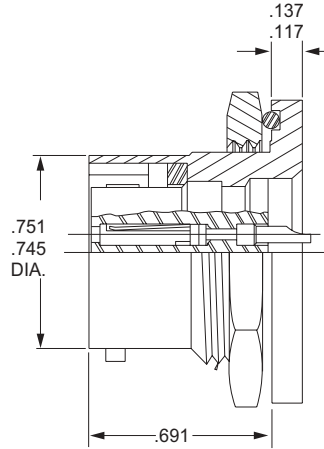
**U-393/U**  
RT. ANGLE PLUG  
Pin contacts.



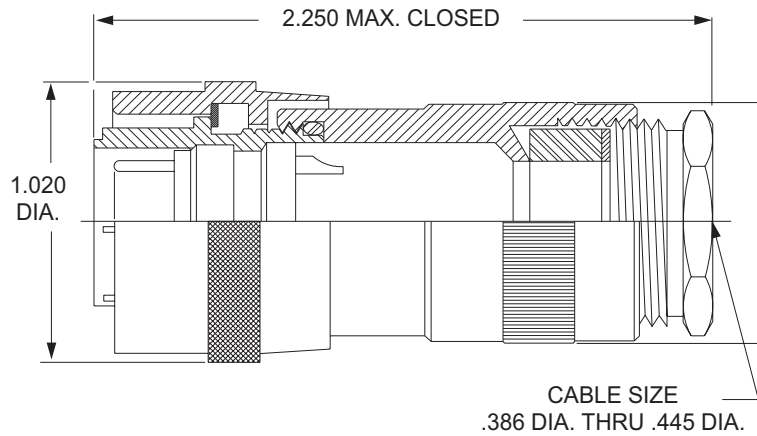
# U-Type Multipurpose

The following are 14-contact medium power, quick disconnect connectors conforming to applicable requirements of MIL-C-55243(EL) and MIL-C-26482.

**U-318/U**  
RECEPTACLE  
Socket contacts.



**U-316/U**  
PLUG  
Pin contacts.



# Miscellaneous

## General Information

This section contains connectors, shorting plugs and dust caps, which have been used over the years in various military communications equipment. Specific applications are listed. Your inquiries are requested for modifications or variations as needed.

Part Number	Description	Typical Equip. Application	Military Drawing No.
GC075	3-contact battery connector with center post.	PRC-25 PRC-77	SM-C-447075
GC102	Antenna connector. Phosphor bronze insert, with spring loaded contact, molded in modified polychlorotrifluoroethylene plastic.	PRC-25 PRC-27	SM-C-447102
GC382	Shorting type plug, 10-contact, 3 contact pairs wired together. Mates with MIL-C-26482 #12 shell size receptacle, GC07A12-10S.	VRC-12	SM-D-414382
U-317/U	Shorting type plug, 14-contact, 3 contact pairs wired together. Mates with U-318/U.	PRC-25 PRC-77	SM-C-447929
GC855	Dust cap for GC07A12-10S	VRC-12 OA-3633	SM-B-454855
GC887	Dust cap for U-318/U.	PRC-25 PRC-77 VRC-12 OA-3633	SM-B-454887
GC800	Dust cap for 5- and 6-contact audio receptacles.	Various	NA
GC864	Dust cap for 5- and 6-pin contact audio plugs.	Various	NA
GC865	Dust cap for 5- and 6-pin contact audio plugs	Various	NA
GC866	Dust cap for U-79/U or GC790.	Various	NA

# Miscellaneous

## Shorting Plugs

GC382



U-317/U



## Dust Caps

GC855



GC864



GC887



GC865



GC 800



GC866



## General Information

### UW

The UW connectors meet all requirements of MIL-C-12520 for the latest revision. These connectors are rugged, proven reliable, and are designed for power and control interconnections. Featured is a center-locking, double-lead screw for maximum reliability, with a fold-down, wing-blade handle. They are waterproof and can withstand the extreme range of environmental conditions encountered by ground support equipment.

### MW QPL

The MW connectors meet all requirements of MIL-C-55181 for the latest revision. These connectors are similar in construction to the UW series, but provide greater contact density in the 18-pin configuration. These are used exclusively in the U.S. Army's VRC-12 communication system, as well as other applications.

## Materials & Finish

### Shells

### Plugs

Aluminum alloy body, steel alloy nosepiece .0003 cadmium plate with olive drab chromate.

### Receptacles

Brass, .0003 cadmium plate with olive drab chromate.

### Nosepieces

Alloy steel, .0003 cadmium plate with olive drab chromate.

### Drawscrews

Stainless steel.

### Contacts

### Socket

High conductivity copper alloy with beryllium copper spring element, .000030 gold over 50-100 nickel.

### Pin

Yellow brass, .000030 gold over 50-100 nickel.

### Insulators

Glass-filled diallyl phthalate, type GDI-30 F or SDG-F.

## UW Specifications

### ELECTRICAL

Dielectric Strength

4, 9 & 14 contacts

2800 V RMS.

19 contacts

2000 V RMS.

Insulation Resistance

1000 Megohms min. at 500 V DC.

Voltage Drop

4 contact

20 MV at 35 A.

9, 18 contact

21 MV at 20 A.

### MECHANICAL

Air Pressure

2.5 psi.

Water Immersion

6 ft., 48 hours.

Durability

500 cycles with a coupling torque of 25 in. -lbs.

Contact Retention

15 lbs.

Insert Strength

400 lbs.

## MW Specifications

### ELECTRICAL

Dielectric Strength

4 contact

2000 V RMS.

9, 18 contact

1500 V RMS.

Insulation Resistance

1000 Megohms min. at 500 V DC.

Voltage Drop

4 contact

20 MV at 35A.

9, 18 contact

25 MV at 7.5A.

### MECHANICAL

Air Pressure

2.5 psi.

Water Immersion

6 ft., 48 hours.

Durability

500 cycles with a coupling torque of 12 in. -lbs.

Contact Retention

10 lbs.

Insert Strength

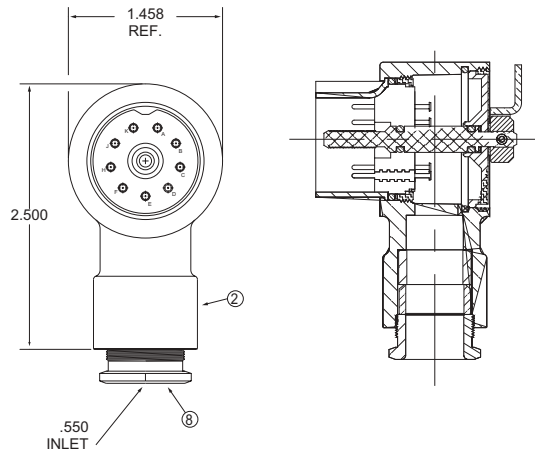
400 lbs.

## QPL

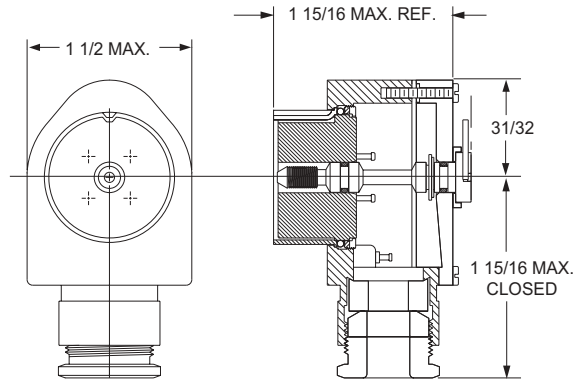


# UW Series

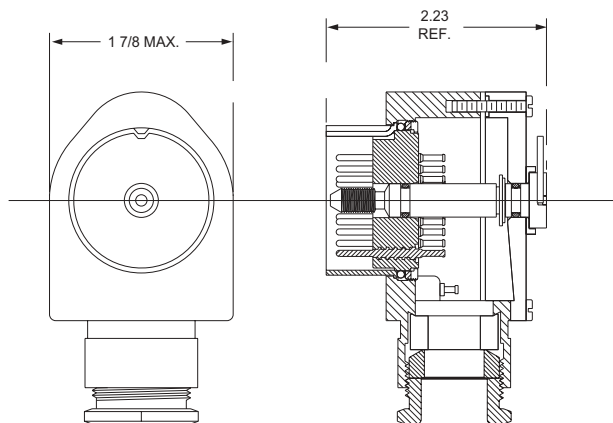
## UW1220 Plug



## UW1320 Plug

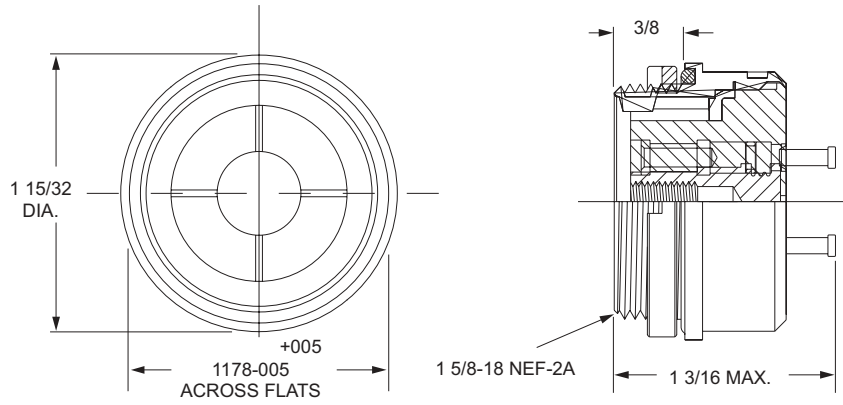


## UW1326 Plug

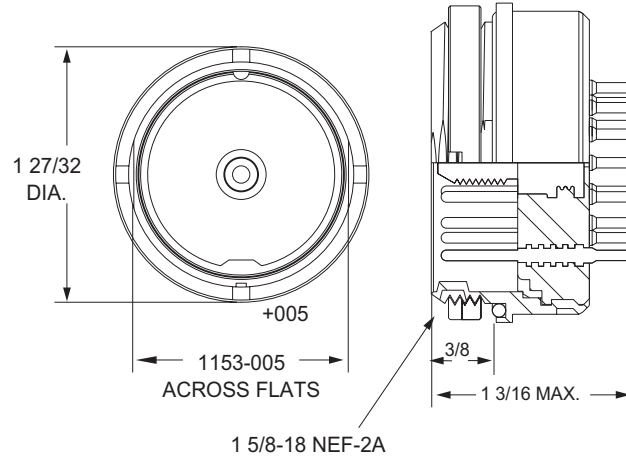


## UW Receptacles

### UW2020 Receptacle



### UW2026 Receptacle



## UW Part Numbers

Part Numbers per MIL-C-12520			
Contact Size	Number of Contacts	Plugs	Mating Receptacles
12 (.094 diameter)	4	UW1220MAXX	UW2020FA00
		UW1320MAXX	
	9	UW1220FAXX	UW2020MA00
		UW1320FAXX	
		UW1220MBXX	UW2020FB00
		UW1320MBXX	
16 (.0625 diameter)	14	UW1220FBXX	UW2020MB00
		UW1320FBXX	
	19	UW1326MCXX	UW2026FC00
		UW1326FCXX	UW2026MC00
20	30	UW1326MDXX	UW2026FD00
		UW1326FDXX	UW2026MD00
		UW1326FEXX	UW2026FE00
		UW1326MEXX	UW2026ME00

"M" denotes pin contacts.

"F" denotes socket contacts.

\*For complete part number, replace "XX" with cable clamp code as follows:

Cable Diameter (inches)	Cable Clamp Code	Applicable Connectors by No. of Contacts
.292 to .343	11	4, 9
.323 to .406	13	4, 9
.386 to .468	15	4, 9
.448 to .531	17	4, 9
.511 to .593	19	4, 9, 14, 19, 30
.573 to .656	21	4, 9, 14, 19, 30
.636 to .718	23	14, 19, 30
.698 to .781	25	14, 19, 30
.761 to .843	27	14, 19, 30

## MW Series QPL

### 4 Contact



MW10M(M)AXX\*



MW20F(M)A00

### 4 Contact



MW10F(M)AXX\*



MW20M(M)A00

### 9 Contact



MW10M(M)BXX\*



MW20F(M)B00

### 18 Contact



MW10M(M)DXX\*



MW20F(M)D00

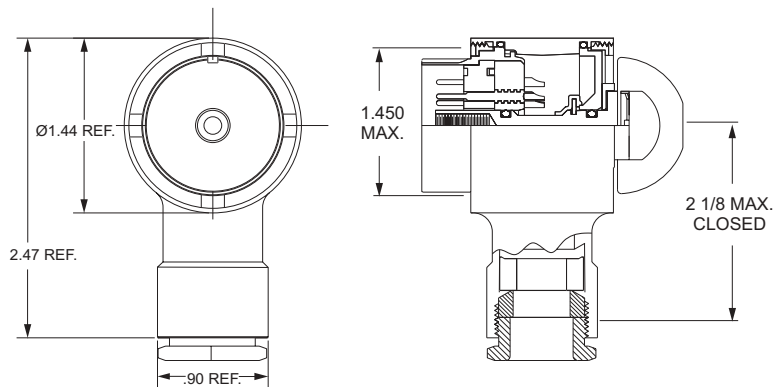
\*For complete part number, replace "XX" with cable clamp code shown on previous page.

Substitute cable clamp code for "XX" as required.

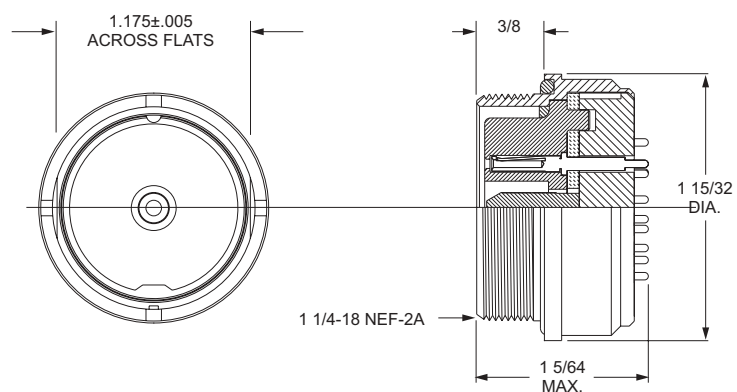
Cable Diameter (inches)	Cable Clamp Code
.292 to .343	11
.323 to .406	13
.386 to .468	15
.448 to .531	17
.511 to .593	19

Government Designation	Manufacturer's Designation	Test or Qualification Reference
M55181/1-01	MW10F(M)A11	55181-1246-85
M55181/1-02	MW10F(M)A13	55181-1246-85
M55181/1-03	MW10F(M)A17	55181-1246-85
M55181/1-04	MW10F(M)A19	55181-1246-85
M55181/1-05	MW10F(M)A15	55181-1246-85
M55181/2-01	MW20M(M)A00	55181-1246-85
M55181/3-01	MW10M(M)A11	55181-1247-85
M55181/3-02	MW10M(M)A13	55181-1247-85
M55181/3-03	MW10M(M)A17	55181-1247-85
M55181/3-04	MW10M(M)A19	55181-1247-85
M55181/3-05	MW10M(M)A15	55181-1247-85
M55181/4-01	MW20F(M)A00	55181-1247-85
M55181/5-01	MW10M(M)B11	55181-1248-85
M55181/5-02	MW10M(M)B13	55181-1248-85
M55181/5-03	MW10M(M)B17	55181-1248-85
M55181/5-04	MW10M(M)B19	55181-1248-85
M55181/6-01	MW20F(M)B00	55181-1248-85
M55181/7-01	MW10M(M)D11	55181-1249-85
M55181/7-02	MW10M(M)D13	55181-1249-85
M55181/7-03	MW10M(M)D17	55181-1249-85
M55181/7-04	MW10M(M)D19	55181-1249-85
M55181/7-05	MW10M(M)D15	55181-1249-85
M55181/8-01	MW20F(M)D00	55181-1249-85

### MW 10 Plug



### MW 20 Receptacle



23 Front Street, Salem, NJ 08079

# Filtered Connectors

## General Information

WPI General Connector is a leading manufacturer of audio, power and U-type multipurpose connectors for tactical communications systems.

In order to meet the growing demand for cost-effective systems for controlling electro-magnetic (EMI) and radio frequency (RFI) interference, WPI General Connector offers an extensive line of filtered connectors, as well as its special connector design capabilities.

The complete line of WPI filtered connectors now includes: 5- and 6-contact audio connectors, sub-rectangular (MIL-DTL-24308 type) connectors, MIL-C-26482 type connectors and U-type multipurpose connectors. All are available in fully or selectively loaded configurations.

Used in commercial, industrial and military systems, WPI filtered connectors are available in both pi-network, and "C-Type" configurations. WPI designs incorporate both tubular capacitors (where each filter surrounds the pin to be filtered), or planar technology.

## EMI Filtered Connectors



## Audio Filtered Connectors

5 contact receptacles (GC183F).

6 contact receptacles (GC283F).

Per MIL-C-55116.

Capacitance values: 8,000; 29,000; 32,000 (others available, consult factory).

Low pass/pi-network ferrite-ceramic capacitors.

Solder-cup terminals (printed circuit terminals available on request).

## MIL-DTL-24308 Type Series Subminiature Rectangular Filtered Connectors

Available in five shell sizes:

E—9 contacts.

A—15 contacts.

B—25 contacts.

C—37 contacts.

D—50 contacts.

- Selective loading: filters, ground contacts and feed-thru contacts.
- Four standard filter types: low frequency, mid range frequency, standard frequency and high frequency (others available, consult factory).
- Low pass pi-network ferrite-ceramic capacitors.
- Solder cup terminals (printed circuit terminals available on request).

## EMI Filtered Connectors



### MIL-C-26482 Type Series Filtered Connectors

- Available in 9 shell sizes: 8, 10, 12, 14, 16, 18, 20, 22, 24.
- Full or selective loading: filters, ground contacts and feed-thru contacts.
- Variety of filter types available—consult factory.
- Low pass pi-network ferrite-ceramic capacitors—tubular capacitors or planar technology.
- Solder-cup terminals—printed circuit terminals available on request.
- Pi-network, and “C-Type” configurations.

### Special Filtered Connectors

Let us review your custom application. With over 30 years of experience, WPI can provide a wide range of services from design engineering to manufacturing.

Some examples of our custom capabilities include the following:

**MIL-C-26482 Type Adapters** (For retrofitting over an existing connector, eliminating system shutdown and rework).

**Transient Protection Connectors** (Example: MIL-C-55116 audio connector with transient voltage suppressors, capacitors and filters packaged as integral part of connector).

**U-Type Signal Corps Filtered Connectors.**

# Filtered Connectors

## Audio Filtered Connectors, MIL-C-55116 Type

### General Information

Integrally filtered connectors for controlling electromagnetic interference (EMI) are available in various connectors such as the 5- and 6- contact audio receptacles, U-183/U and GC283, per MIL-C-55116. The filters used are low-pass, pi-network, ferrite-ceramic capacitors. Each filter surrounds the pin to be filtered and is connected to a ground-plane built into the connector.

### Specifications 5 & 6 Contact Materials & Finish

Shells	Stainless steel, passivated, sand blasted.
Panel Nuts	Stainless steel, passivated, sand blasted.
Contacts	Copper alloy, .000050 gold per MIL-G-45204, Type II, Class 1 over .00010 nickel.
Insulators	Diallyl phthalate per MIL-M-14F, Type MDG.
Electrical	Dielectric Strength—500 VDC. Insulation Resistance—10,000 Megohms, Min. Contact Resistance (Mated)—0.050 Ohms, Max.
Mechanical	Air Pressure—2.5 psi. Durability—1500 cycles, mate and unmate.

Attributes	Requirements		
5 Pin Part #	GC183F-X-050	GC183F-X-025	GC183F-1-220
6 Pin Part #	GC283F-X-050	GC283F-X-025	GC283F-1-220
Capacitance 25°C 0.1 VRMS 1 KHZ ± 1	5.000 Pf G.M.V.	2500 P.F. ±500	22,000 Pf G.M.V.
Working Volts		100 Volts DC	
Dielectric Withstanding Volts	500 Volts DC	300 Volts DC	500 Volts DC
Insulation Res (Min) (25°C 200 VDC Charging) Current < 50 MA)		10,000 Megohms Min.	
Insertion loss (typical) per MIL-STD-220 (25°C No load)	50 DB Min. 100 MHZ to 10 GHZ		55 DB Min. 100 MHZ to 10 GHZ
Operating Temperature Range		-55°C to + 85°C	



**Part Number Code:**

Example: GC183F -     **C** -    /

**Filter Code\***

- 1 - "A" Pin Grounded
- 3 - All Pins Filtered
- 4 - "C" & "E" Pins Grounded
- 5 - "E" Pin Grounded

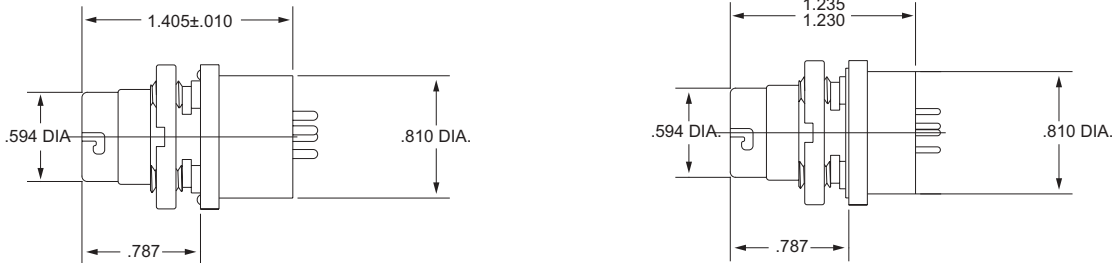
**Termination Code\***

- Blank-Solder Cup
- Conductor O-Ring
- Blank, Standard O-Ring

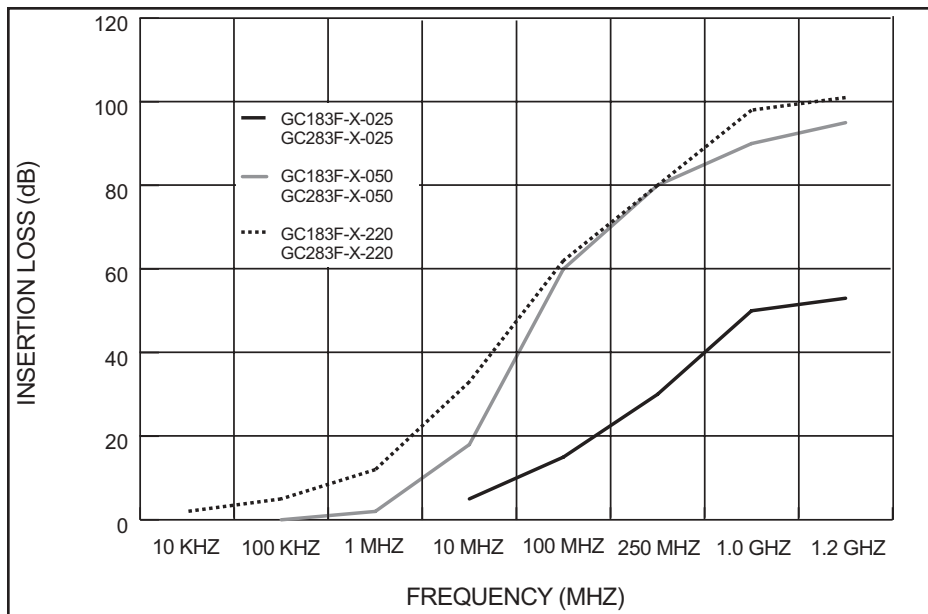
Filter Value Code \_\_\_\_\_

\*Consult factory for other configurations, PC tail dimensions and lengths.

**Per MIL-C-55116**



**Insertion Loss (Typical) per MIL-STD-220 (25°C, No Load)**



# Filtered Connectors

## MIL-DTL-24308 Type Series Filtered Connectors

### General Information

#### Subminiature Rectangular

Available in shell sizes and insert arrangements:

- E - 9 contacts
- A - 15 contacts
- B - 25 contacts
- C - 37 contacts
- D - 50 contacts

### Materials & Finishes

#### Contacts

Copper alloy.

#### Shell, Front

Steel (standard).  
Brass (NM versions).

#### Shell, Rear

Die cast aluminum.

#### Insulators

Diallyl phthalate.

#### Ground Plane

Photo-etched copper alloy.

#### Finish

#### Contacts

Gold plate.

#### Shell, Front

Tin plate.

#### Shell, Rear

Tin plate.

#### Insulators

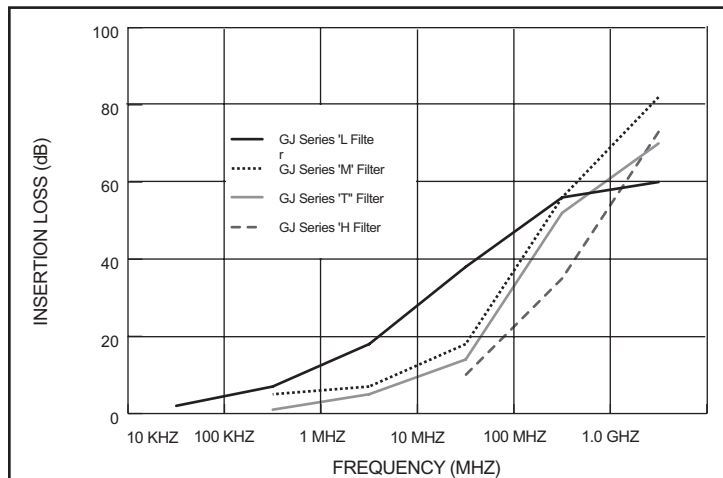
None.

- Cost effective way of solving EMI problems.
- Used in both military and commercial applications to help equipment meet FCC (Docket 20780, Class A & B) and military MIL-STD 461 requirements.
- Compatibility with RS-232 and RS-449; will mount in existing chassis hole patterns.
- Four standard filter types, plus a number of optional types and values available on request.
- Selective loading of connectors to include different filter values, ground contacts and feed-thru contacts.
- Special requirements including modifications to shells and filters available on request.

Specifications: Electrical Characteristics

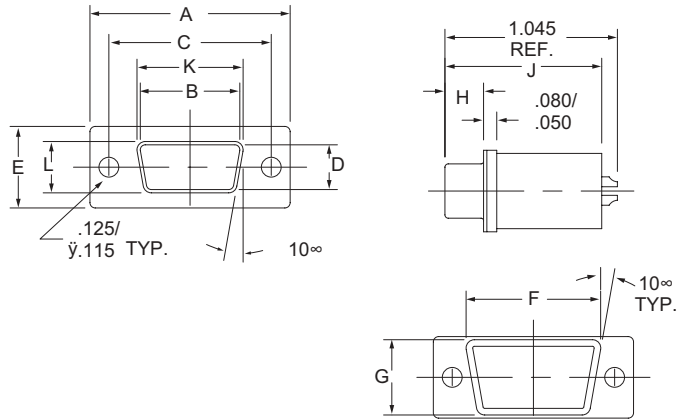
Available Filter	Low Freq.	Mid. Freq.	Std. Freq.	High Freq.	
Filter Type	L	M	T	H	
Voltage Rating (Working)	100 VDC	200 VDC			
Current Rating (AMP DC)	5.0				
Insulation Resistance, 2 Min. Electrification Time Max. at 25°C & 100 VDC	1000 Megohms Minimum	10,000 Megohms Minimum			
DWV, Sea Level, W/500 Micro-Amps Max, Charge/Discharge	300 VDC	500 VDC			
Capacitance at 1 KHz, 0.1 Vrms Picofarads	50,000 Minimum	4,000 12,000	2,300 5,000	500 1,300	
	Freq. MHz	Attenuation (db)			
Typical insertion loss per MIL-STD-200 at 25° with no applied voltage or current	0.1 1 2 10 100 500 to 10,000	2-6 15 min. 20 min. 35 min. 50 min. 50 min.	2-6 5 min. 15 min. 50 min. 55 min.	2-6 9 min. 50 min. 55 min.	2-6 30 min. 50 min.

### Typical Insertion Loss/Frequency



# MIL-DTL-24308 Type Series Filtered Connectors

## Subminiature Rectangular



**Dimensions - Standard Line** (Custom sizes also available. Consult factory)

Part Number by Shell Size	A ± .015	B ± .005	C ± .005	D ± .005	E ± .015	F ± .010	G ± 0.10	H ± .010	J ± .010	K ± .005	L ± .005
GEJ-9P	1.213		.984		.494	.816	.456	.234	.950	.666	.329
GEJ-9S	1.213	.643	.984	.311	.494	.816	.456	.243	.958		
GAJ-15P	1.541		1.312		.494	1.144	.456	.234	.950	.994	.329
GAJ-15S	1.541	.971	1.312	.311	.494	1.144	.456	.243	.958		
GBJ-25P	2.087		1.852		.494	1.683	.456	.230	.954	1.534	.329
GBJ-25S	2.087	1.511	1.852	.311	.494	1.683	.456	.243	.958		
G CJ-37P	2.729		2.500		.494	2.332	.456	.230	.954	2.182	.329
G CJ-37S	2.729	2.159	2.500	.311	.494	2.332	.456	.243	.958		
GDJ-50P	2.635		2.406		.605	2.237	.573	.230	.954	2.079	.436
GDJ-50S	2.635	2.064	2.406	.423	.605	2.237	.573	.243	.958		

### Part Number Code

(example) G B J 25 T P NM

#### Series Prefix:

G - Subminiature Rectangular, solder termination

#### Shell Size:

E, A, B, C, D

#### Filter Indicator:

J - filtered connector

#### Contact Arrangement:

9, 15, 25, 37, 50

#### Filter Type:

L - low frequency

M - mid-range frequency

T - standard frequency

H - high frequency

(Others available. Consult factory).

#### Contact Type:

P - pin contacts

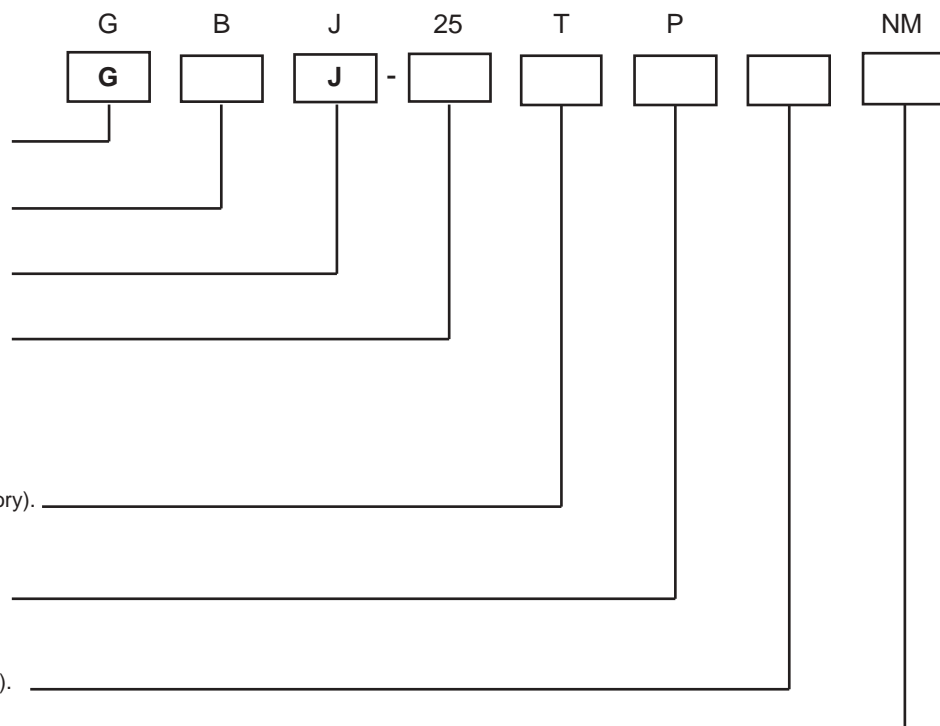
S - socket contacts

#### Terminations:

Solder cup (blank space).

PCB terminals (Consult factory).

#### Non-Magnetic Version: (NM)



# Filtered Connectors

## MIL-C-26482 Type Series Filtered Connectors

### General Information

- Available in 8 shell sizes and a variety of insert arrangements: 8, 10, 12, 14, 16, 18, 20, 22.
- Full or selective loading: filters, ground contacts and feed-thru contacts.
- Variety of filter types available. Consult factory.
- Low pass pi-network ferrite-ceramic capacitors—tubular capacitors or planar technology.
- Solder-cup terminals—printed circuit terminals, available on request.
- Pi-network, and “C-Type” configurations.

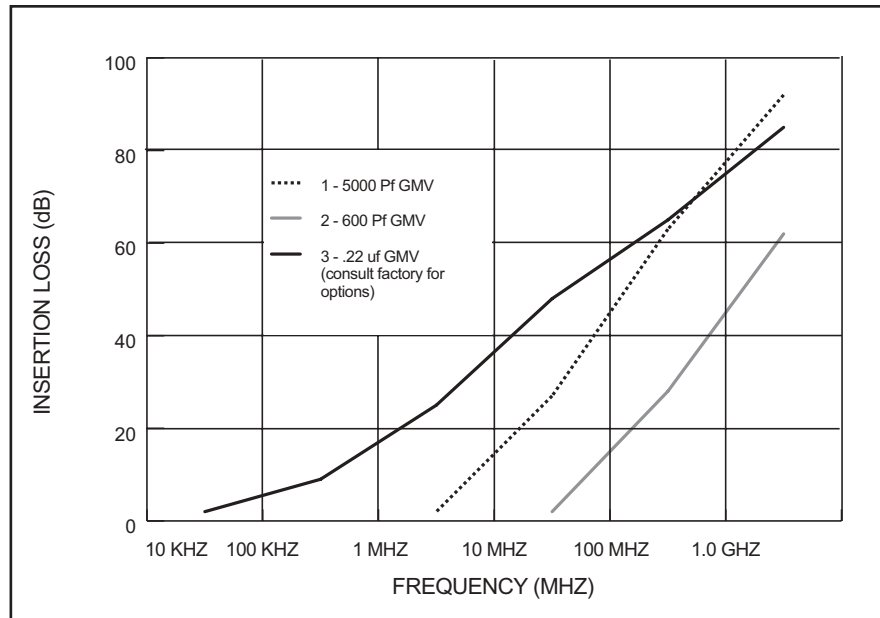
NOTE: Selective loading of connectors, including a broad range of filter values, ground contacts and feed-thru contacts, is a common request from WPI General Connector customers. We provide this custom service without the long lead times offered by other connector companies.

### Typical Filter Characteristics\*

Attributes	Requirements		
Capacitance 25°C, 0.1 VRMS 1 KHZ ± .1	5,000 Pf GMV	600 Pf GMV	.22 uf GMV
Working Volts	200 VDC	100 VDC	50 VDC
Dielectric Withstanding Volts	500 VDC	250 VDC	150 VDC
Insulation Res. (Min.) (25°C 200 VDC Charging) Current < 50 MA	5,000 Megohms		
Insertion loss (typical) per MIL-STD-220 (25°C, no load)			
1 MHZ	2 db	—	28 db
10 MHZ	15 db	2-6 db	45 db
100 MHZ	50 db	30 db	55 db
1 GHZ	60 db	50 db	70 db
R.F. Current (Max.)	0.25 Amperes		
Operating Temperature Range	-55°C to +125°C		
Thermal Shock	Method 102A Cond. D Per MIL-STD 202 (-55°C to +105°C)		

\*Other filters available upon request

### Typical Insertion Loss/Frequency



# MIL-C-26482 Type Series Filtered Connectors

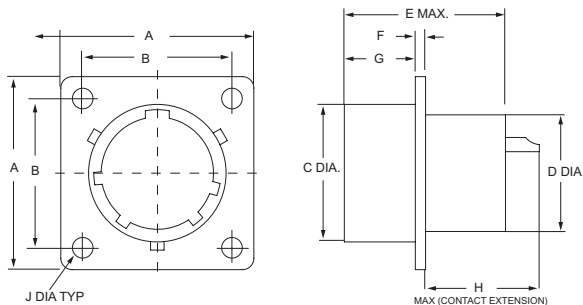
## Dimensions—Box Mounting

Shell Size	A Dim. ± .010	B (TP)	C Dia. + .001 - .005	D Dia. + .011 - .000	E Max.	F Dim. ± .015	G Dim. + .020 - .000	H Dim. Max.	J Dia.
8	.812	.594	.473	.438	1.103	0.62	.431	.810	.120
10	.938	.719	.590	.562	1.103	0.62	.431	.810	.120
12	1.031	.812	.750	.688	1.103	0.62	.431	.810	.120
14	1.125	.906	.875	.812	1.103	0.62	.431	.810	.120
16	1.219	.969	1.000	.938	1.103	0.62	.431	.810	.120
18	1.312	1.062	1.125	1.062	1.103	0.62	.431	.810	.120
20	1.438	1.156	1.250	1.188	1.166	.094	.556	.715	.120
22	1.562	1.250	1.375	1.312	1.166	0.94	.556	.715	.120
24	1.688	1.375	1.500	1.438	1.166	0.94	.589	.682	.147

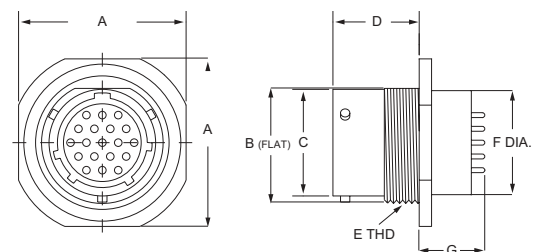
## Dimensions—Jam Nut Mounting

Conn. Size	A Dim. Max.	B Dim. ±.005	C Dia. + .001 - .005	D Dim. ±.010	E TH'D UNEF-2A	F Dia. Max.	G Dim. Max.
8	.954	.525	.473	.705	.5625-24	.500	.650
10	1.078	.650	.590	.705	.6875-24	.600	.650
12	1.266	.813	.750	.705	.875-20	.720	.650
14	1.391	.937	.875	.705	1.000-20	.850	.650
16	1.516	1.061	1.000	.705	1.125-18	1.000	.650
18	1.641	1.186	1.125	.705	1.250-18	1.100	.650
20	1.828	1.311	1.250	.894	1.375-18	1.225	.650
22	1.954	1.436	1.375	.894	1.500-18	1.350	.650
24	2.078	1.561	1.500	.927	1.625-18	1.500	.650

### Box Mounting



### Jam Nut Mounting



# Filtered Connectors

## Ordering Information

### Part Number Code

(example) GC 26 02 1 16-26 P

### Series Prefix:

GC

### Filtered Series:

26 Code

### Mounting Configuration:

02-box mount

07-jam nut

### Contact Arrangement:

9, 15, 25, 37, 50

### Filter Type:

1-5000 PF GMV

2-600 Pf GMV

3-.22Pf GMV

(consult factory for options).

### Shell Size and Insert Arrangement:

(example: 16-26, consult

factory).

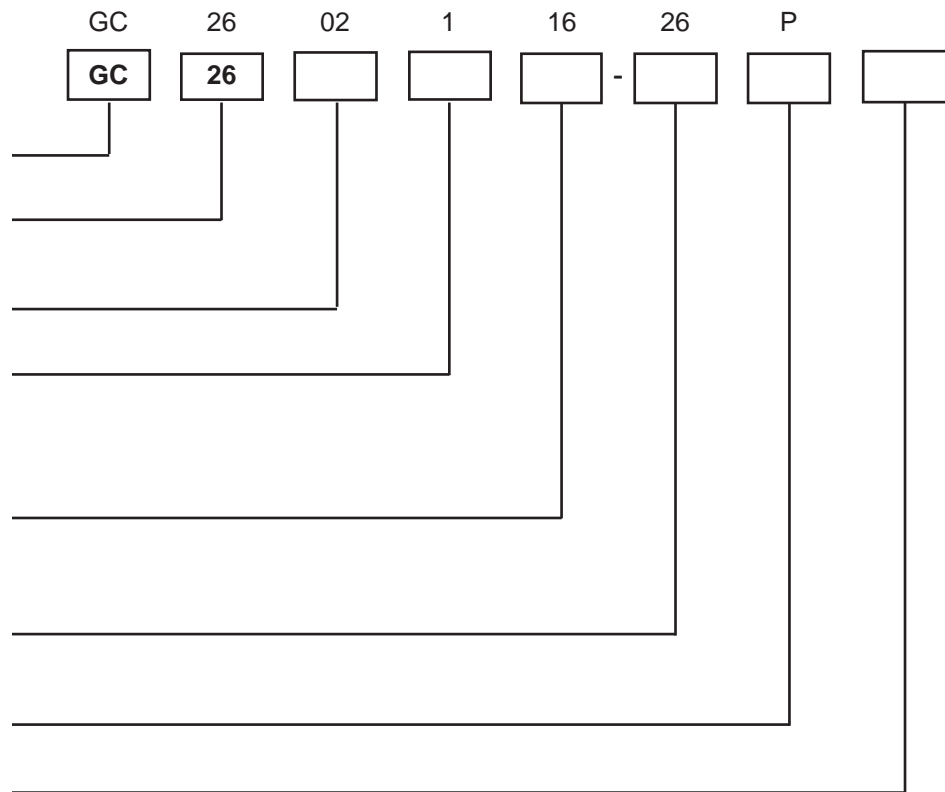
### Contact Type:

P-pin contacts

S-socket contacts

### Insert Position:

(blank)-normal



## Special Filtered Connector Series

### 26482 Filtered Adapters

WPI General Connector manufactures a line of filtered adapters which incorporate all of the features of the 26482 series filtered connectors. They are available in many shell sizes, insert arrangements and filtering options. They are extremely useful for retrofitting over an existing connector in a system, thus eliminating costly system shutdown and rework.

### U-Type Signal Corps Filtered Connectors

WPI General Connector has been supplying Signal Corps Connectors, both STD and filtered, for over 20 years. There is no need to do extensive vendor research the next time you require that "special" Signal Corps Connector.

### Transient Protection Connectors

WPI General Connector supplies Transient Protection Connectors, which incorporate standard 5- and 6-pin audio connectors, conforming to MIL-C-55116, and discreet transient voltage suppressors, capacitors and filters neatly packaged as an integral part of the connector. We welcome the opportunity to review your custom application.



**WPI General Connector**  
**A Division of WPI Interconnect Products**  
**23 Front Street**  
**Salem, NJ 08079**

**P: 856-935-7560; F: 856-935-0102; E: [info@wpi-interconnect.com](mailto:info@wpi-interconnect.com)**  
**Web: [www.wpi-interconnect.com](http://www.wpi-interconnect.com)**

