



RUGGEDIZED RJ45 AND USB

SUPERSEAL™

MIL-DTL-38999 TYPE • SERIES 80 MIGHTY MOUSE • MIL-DTL-5015 TYPE

APRIL 2013

RUGGEDIZED
RJ45 AND USB
CONNECTORS

SUPERSEAL™



Glenair introduces the world's most comprehensive line of ruggedized RJ45 Ethernet and USB connectors in D38999 type, 5015 type and Series 80 Mighty Mouse packaging



Features

- Superior sealing—IP68 when mated—for complete system protection against water, sand and dust
- Shielded/grounded coupler designs in both receptacle and plug connectors
- Crimp, solder-cup, PC tail, and Quadrax contact/wire termination options
- RJ45 plug and/or jack interface options available in Cat 5e or Cat 6a in D38999 type and 5015 type packaging
- USB 2.0 and 3.0 in Series 80 Mighty Mouse and D38999 type currently in development
- Intermateable, one-to-one equivalent solutions for other industry-standard commercial data interface field-duty connectors



Glenair®

Glenair, Inc.
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Glendale, CA
91201-2497
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www.glenair.com

Ruggedized RJ45 and USB SuperSeal™ Connectors Table of Contents



SuperSeal™
Connectors



SuperSeal™ MIL-DTL-38999 Type RJ45 Connectors

A



SuperSeal™ MIL-DTL-5015 Type Reverse-Bayonet RJ45 Connectors

B



SuperSeal™ MIL-DTL-38999 Type USB Connectors

C



SuperSeal™ Series 80 Mighty Mouse USB Connectors

D

MIL-DTL-38999 TYPE
FIELD-READY
RJ45 ETHERNET

MIL-DTL-38999 TYPE

SUPERSEAL™



Rugged environmental MIL-DTL-38999 type connectors with IP68 sealing, robust insert-to-shell grounding, and a complete range of wire, cable, and circuit board terminations



Features

- Superior sealing—IP68 when mated—for complete system protection against water, sand and dust
- Highly durable RJ45 design, including enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance
- Shielded/grounded coupler designs in both receptacle and plug connectors
- Crimp, solder-cup, PC tail, and Quadrx contact/wire termination options
- RJ45 plug and/or jack interface options available in Cat 5e or Cat 6a
- Industry standard scoop proof, self-locking, triple-start threaded coupling design of MIL-DTL-38999 Series III type connectors
- Intermateable with other MIL-DTL-38999 type RJ45 field-duty connectors



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SuperSeal™ MIL-DTL-38999 Series III Type Connectors RJ45 Ethernet



D38999 Type
RJ45 Connectors

Product Selection Guide



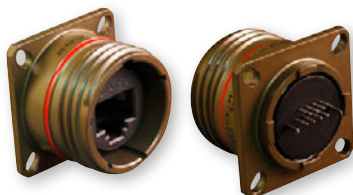
233-300

**SuperSeal™ MIL-DTL-38999 Series III Type Connector/
Adapter with RJ45 Jack/Jack or Plug/Jack Couplers**



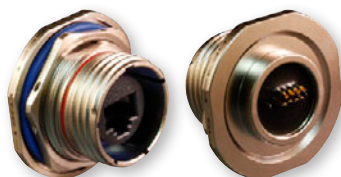
233-301

**SuperSeal™ MIL-DTL-38999 Series III Type Connectors
with RJ45 Jack or Plug to Rear Crimp Contact
Termination**



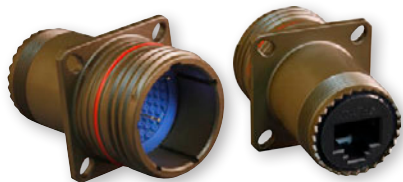
233-302

**SuperSeal™ MIL-DTL-38999 Series III Type Connectors
with RJ45 Jack to PC Tail Termination**



233-303

**SuperSeal™ MIL-DTL-38999 Series III Type Connectors
with RJ45 Jack to Rear Solder Cup Termination**



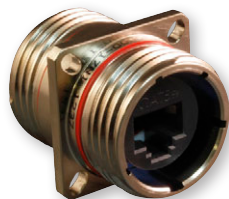
233-304

**SuperSeal™ MIL-DTL-38999 Series III Type Connectors
with Pin or Socket Contacts to RJ45 Jack or Plug
Interface**



233-305

**SuperSeal™ MIL-DTL-38999 Series III Type Connectors
with Pin or Socket Quadrax to RJ45 Jack or Plug**



233-330

**SuperSeal™ MIL-DTL-38999 Series III Type
Feedthrough Receptacle with RJ45 Jack to Jack Coupler**

A



SuperSeal™ MIL-DTL-38999 Series III Type Connectors Materials and Performance Specifications

A



Material and Finishes:

Shell/coupling – High strength aluminum alloy
 Plating – Cadmium olive drab over electroless nickel; Nickel PTFE; Electroless nickel
 Contacts – PC tails, solder cup, and crimp contacts: Copper alloy, gold plated
 RJ45 coupler housing – PPS
 Seals – Silicon-based elastomer
Composite, stainless steel and other materials and finishes available. Please consult factory.

Shell Type and Sizes:

Shell Type – D38999 Series III Type
 Sizes – Shell sizes 17 and 19

Electrical Specifications:

Voltage Rating – 1000 Volts, Cat 5e and Cat 6a
 Data Rate – 10BASE-T, 100BASE-TX, 1000BASE-T/1000BASE-TX and 10GBASE-T (Cat 6a only)
 Current Rating – 1.5 Amps, Cat5e and Cat 6a
 D.W.V. – 1000 VAC
 Wiring – Straight through, Cat 5e and Cat 6a
 Shield Continuity – Continuous through coupler and grounded to shell (Grounding through coupler only available for Cat5e, consult factory)

Environmental / Mechanical Performance

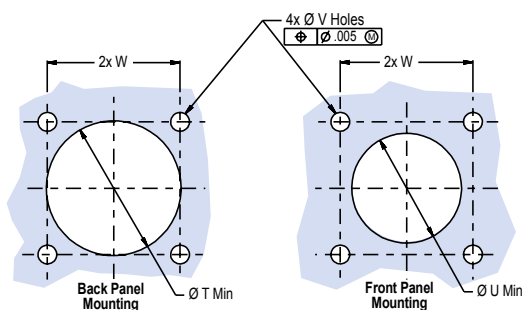
Sealing – IP68 mated condition
 Outgassing – UL94 V0 low smoke, zero halogen
 Operating Temperature Range – -40°C to +125°C
 Backshell Interface – MIL-DTL-38999 connector designator H
 Mating Cycles – 500

Options:

Metal gland backshell, round mounting holes, self-locking clinch nuts, plug-and-play cordsets, self-closing spring-loaded cover or anti-decoupling covers (receptacle only), integral shrink boot adapter and low-temp shrink boot (plug only).

Panel Cut-Out Dimensions

Shell Size	T Dia Min	U Dia Min	V Holes	W	X Dia	Y Flat
17	1.219 (30.96)	1.016 (25.81)	.133 (3.38)	1.062 (26.97)	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.208 (30.68)
19	1.297 (32.94)	1.141 (28.98)	.123 (3.12)	1.156 (29.36)	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.333 (33.86)



Square Flange Mount
 Recommended Mounting Holes
 Panel Thickness .288 (7.32) Max

Jam Nut Mount
 Recommended Panel Cut-Out
 Panel Thickness .126 - .062 (3.2 - 1.6)

Electrical Specifications for
 RJ45 Cat 5e and Cat 6a
 MIL-DTL-38999 Series III type

Rating	Cat 5e	Cat 6a
Voltage Rating	1000 Volts	1000 Volts
Data Rate	10BASE-T, 100BASE-TX, 1000BASE-T/1000BASE-TX AND 10GBASE-T* (10GBASE-T Cat 6a Only)	
Current Rating	1.5 Amps	1.5 Amps
Wiring	Straight Through	Straight Through
Shield continuity	Continuous Through Coupler and Grounded to the Shell*	Continuous Through Coupler and Grounded to the Shell
Cabling length	100 Meters	100 Meters

*Grounding through coupler only available for Cat5e. Consult factory

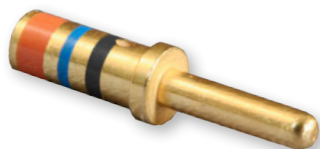
M39029/58-360 and M39029/56-348
850-002-22-360 and 850-001-22-348
Standard Duty Electrical Pin and Socket Contacts



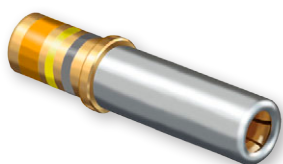
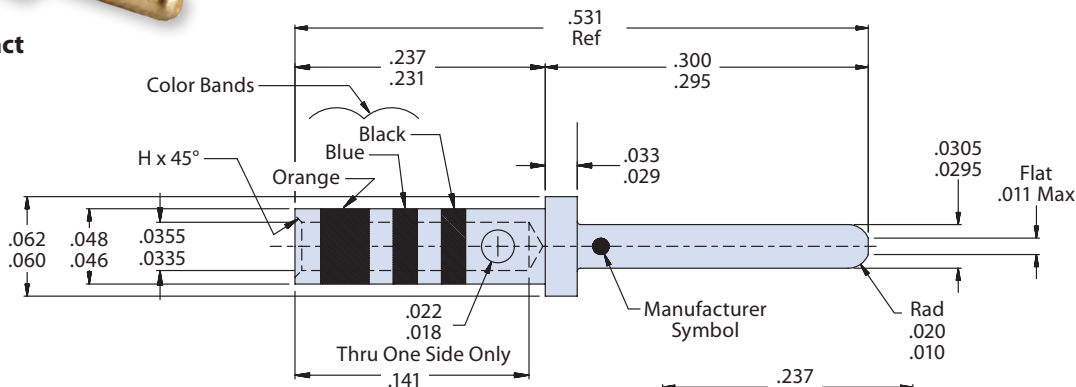
D38999 Type
RJ45 Connectors

SIZE #22 PIN AND SOCKET CONTACTS FOR USE WITH SUPERSEAL™ 233-304 AND 233-301 CONNECTORS

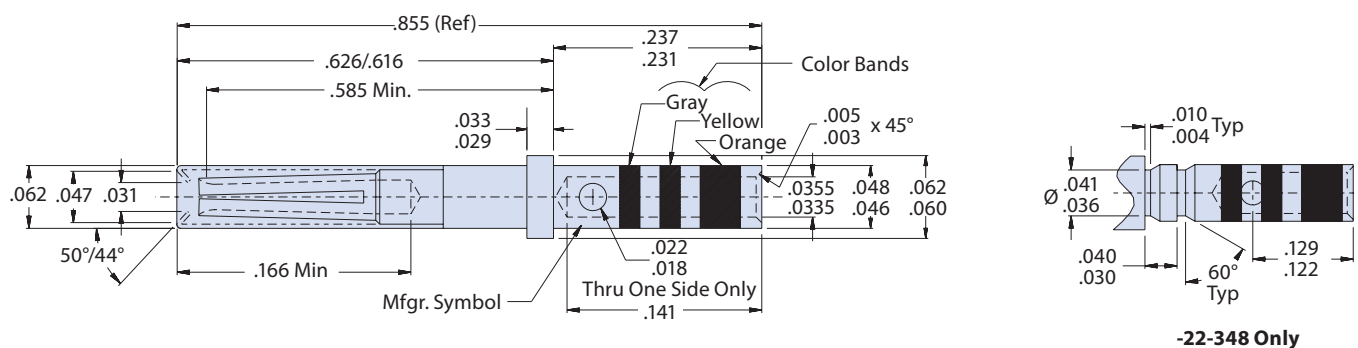
A



Pin Contact

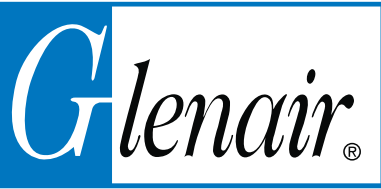


Socket Contact



Termination Tools

Size 22	Part Number	Military Number	AWG Handling	Crimp Tool	Positioner	Insertion Tool	Extraction Tool
Pin	850-002-22-360	M39029/58-360	22, 24, 26, 28	M22520/2-01 M22520/7-01	M22520/2-09 M22520/7-07	M81969/14-01 M81969/8-01	M81969/14-01 M81969/8-02
Socket	850-001-22-348	M39029/56-348	22, 24, 26, 28	M22520/2-01 M22520/7-01	M22520/2-07 M22520/7-05	M81969/14-01 M81969/8-01	M81969/14-01 M81969/8-02



SuperSeal™ MIL-DTL-38999 Series III Type Connectors

Contacts and Tools

Size #22 Crimp Contact Instructions

HOW TO TERMINATE, INSTALL AND REMOVE SIZE #22 CONTACTS

1 Set Up Crimp Tool. Install proper positioner into crimp tool. The label on the positioner shows the proper tool setting for each wire size. Turn the adjustment wheel to the correct setting.

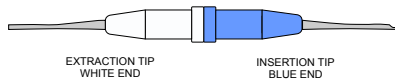
2 Strip Wire. Remove wire insulation, taking care to avoid nicking or cutting wire strands. Strip wire to length shown.

3 Insert wire into contact. The wire should be visible in the inspection hole.

4 Insert contact into crimp tool as shown. Make sure that the contact is fully inserted into the tool. Squeeze handle completely. The ratchet mechanism will not allow a partial crimp. Release handle and remove contact.

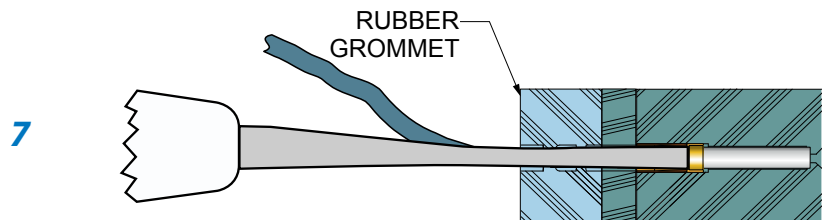
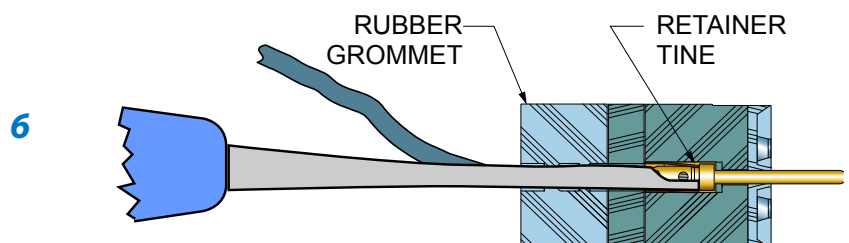
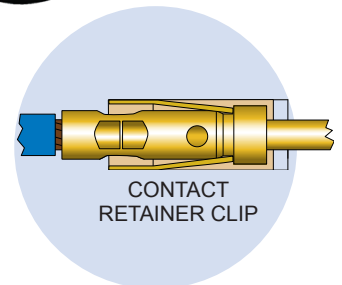
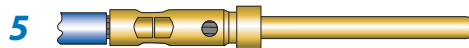
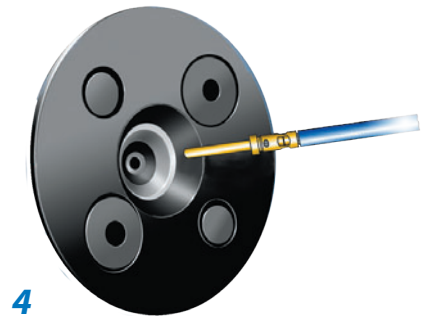
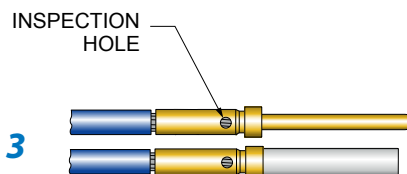
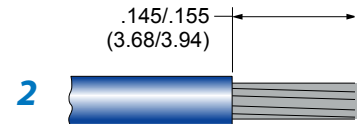
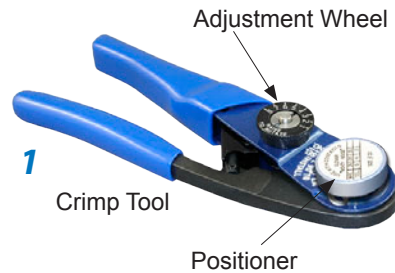
5 Inspect crimped contact. Wire should be fully inserted and the crimp should be uniform in appearance.

Insertion/Extraction Tool M81969/14-01



6 Install contact into connector. Push the contact through the rear grommet until the contact locks into place. This can usually be done by hand without the need for a tool. If the wire gage is #26 or smaller, a tool is helpful. There are two techniques for installing contacts with a tool. One method is to push the contact in by hand, then use the tool to finish the insertion. The other method is to position the insertion tip against the contact shoulder, then insert the contact. Use insertion/extraction tool 809-088 to install contacts. Slide the wire into the groove on the blue end of the tool. Slide the tool tip up the contact until it touches the contact shoulder. **USE CARE TO AVOID DAMAGING THE CONNECTOR.**

7 Contact Extraction. Use tool M81969/14-01. The white end is used for contact extraction. First, push the wire into the groove of the metal tip. Slide the tip of the tool into the connector. Push the tool into the connector cavity until the tip bottoms in the connector. Avoid wiggling or rocking the tip. This may damage the cavity. A straight push is best. Pinch the wire between your finger and the white plastic grip and slide the tool and contact out of the connector. **Wire insulation diameter greater than 0.045 inches (1.14mm) is too large to work properly with the extraction tool. connector damage is possible.**



233-300 SuperSeal™ MIL-DTL-38999 Series III Type Connectors with RJ45 Jack/Jack or Plug/Jack Couplers



D38999 Type
RJ45 Connectors

Finish
NF = Cadmium Olive Drab
M = Electroless Nickel
MT = Nickel PTFE

Connector Style
 (See Below)

Shell Size
 17 or 19

Alternate Key Position
 Per MIL-DTL-38999
A, B, C, D, E
N = Normal

233-300

NF

00

G

17

6A

N

1

T

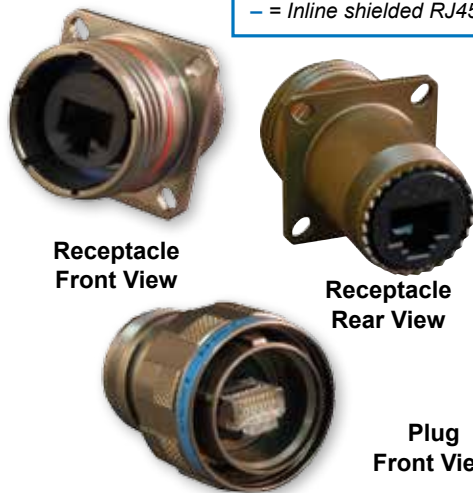
Shrink Boot
 Part No. 770-028
 (Omit for None)

Basic Number

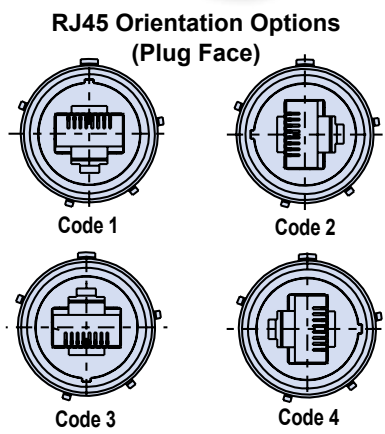
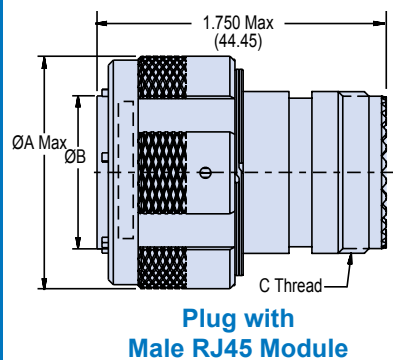
Insert-to-Shell Grounding
G = Inline shielded RJ45 insert and grounded to the shell.
 (available for receptacle only)
 - = Inline shielded RJ45 insert

5H = Cat5e, High Temp
6A = Cat6a, High Temp
5L = Cat5e, Low Temp

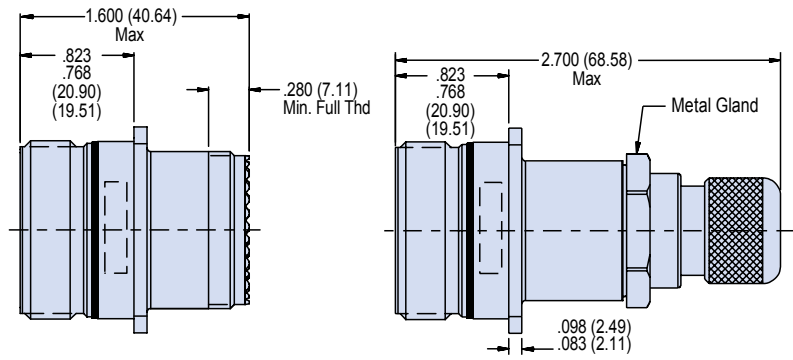
RJ45 Orientation Option
 1, 2, 3, or 4



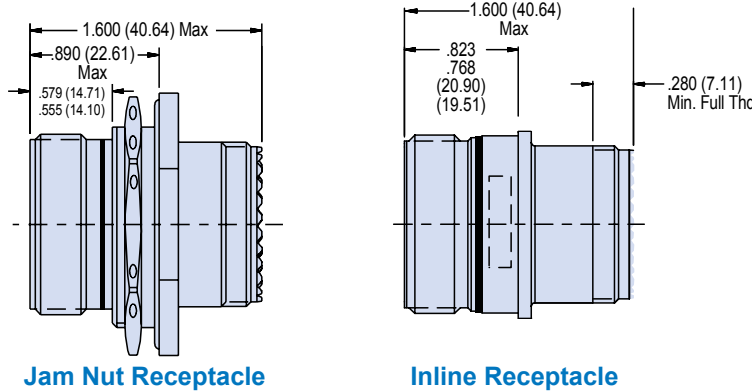
- Connector Styles**
- 00* = Square Flange Receptacle with Slotted Holes
 - 01* = Square Flange Receptacle with Metal Cable Gland
 - 07* = Jam Nut Receptacle
 - 05* = In-Line Receptacle
 - 08* = In-Line Receptacle with Metal Cable Gland
 - G6* = Plug
 - G7* = Plug with Metal Cable Gland



All External Dimensions, Features, etc. compliant with D38999/20, /24 & /26. Consult Factory for Additional Information



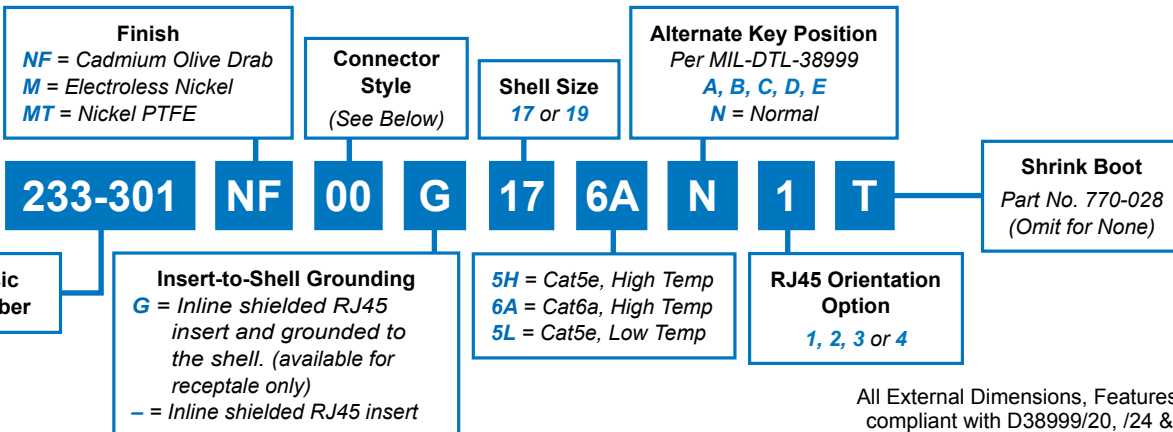
Square Flange Receptacle with and without cable sealing gland



Plug Dimensions			
Shell Size	A Dia Max	B Dia	C Thread
17	1.406 (35.71)	.928/ .922 23.57/23.42	M25 X 1.0-6g 0.100R
19	1.156 (29.36)	1.033/1.027 26.24/26.09	M25 X 1.0-6g 0.100R



233-301 SuperSeal™ MIL-DTL-38999 Series III Type Connectors with RJ45 Jack or Plug to Rear Crimp Contact Termination



All External Dimensions, Features, etc.
compliant with D38999/20, /24 & /26.
Consult Factory for Additional Information



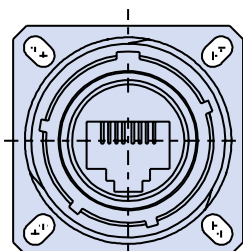
Receptacle
Front View

Receptacle
Rear View

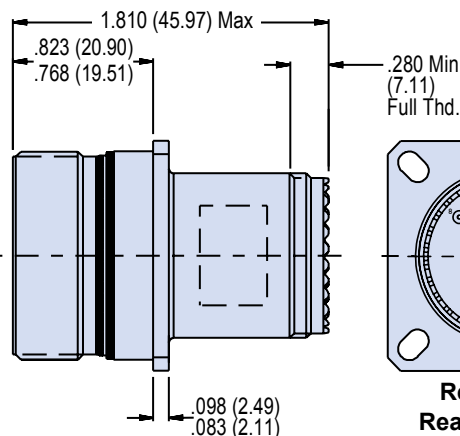


Connector Styles

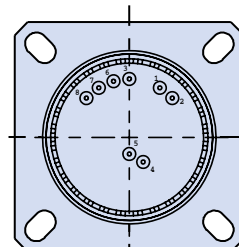
00 = Square Flange Receptacle with Slotted Holes
07 = Jam Nut Receptacle
05 = In-Line Receptacle
G6 = Plug



Receptacle
Front View



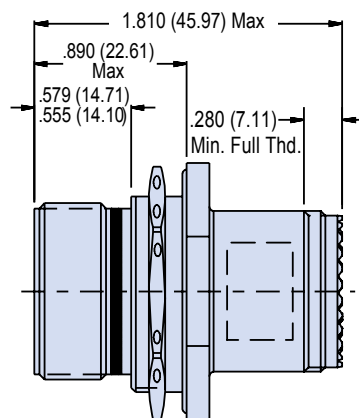
Square Flange Mount Receptacle



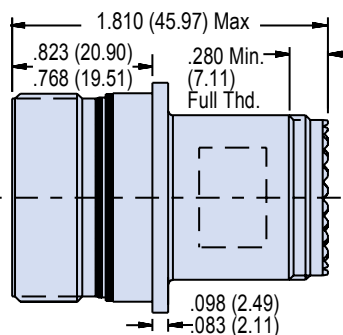
Receptacle
Rear View Size
#22 Crimp

Plug Dimensions

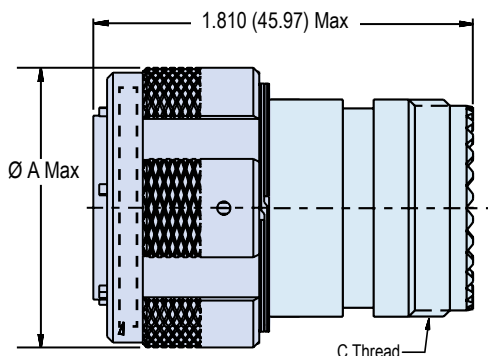
Shell Size	A Dia Max	B Dia	C Thread
17	1.406 (35.71)	.928/.922 23.57/23.42	M25 X 1.0-6g 0.100R
19	1.156 (29.36)	1.033/1.027 26.24/26.09	M25 X 1.0-6g 0.100R



Jam Nut Receptacle



Inline Receptacle

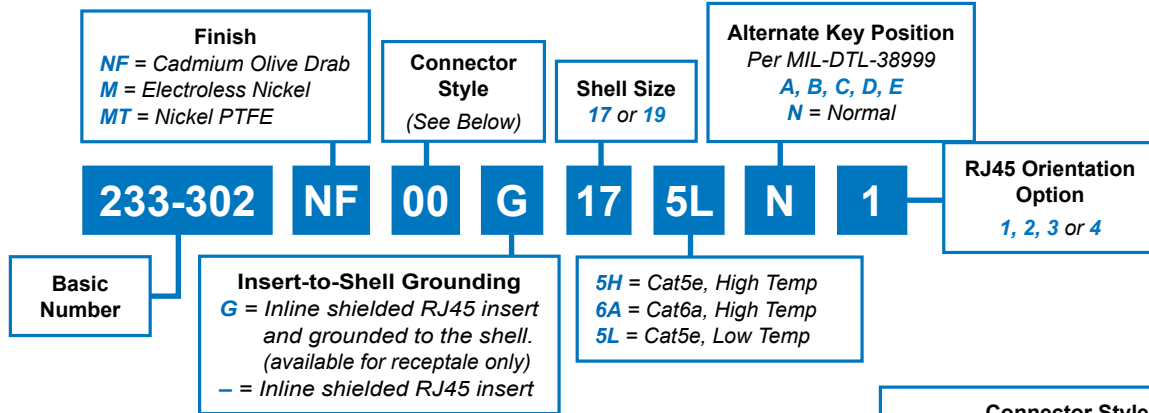


Plug Connector

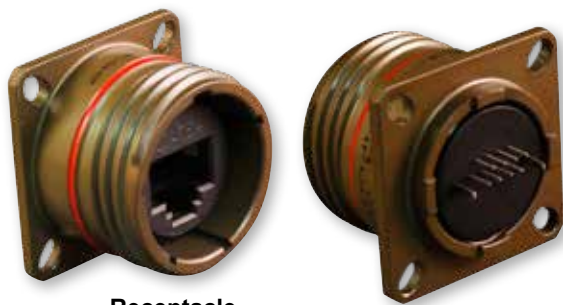
233-302
SuperSeal™ MIL-DTL-38999 Series III Type Connectors
 with RJ45 Jack to PC Tail Termination



D38999 Type
RJ45 Connectors

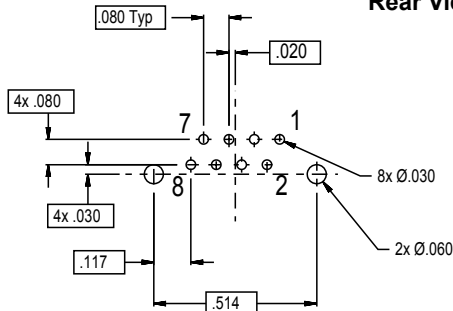


A

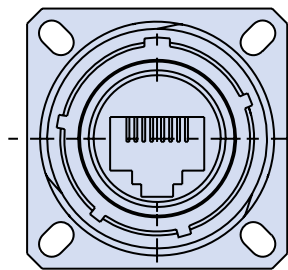


Receptacle Front View

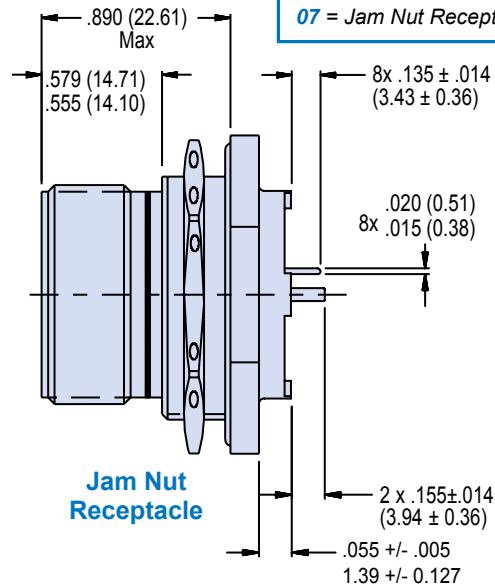
Receptacle Rear View



Recommended PCB Layout (Solder Side Of Board)

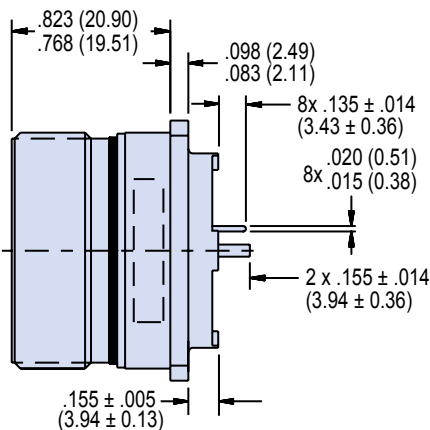


Receptacle Front View

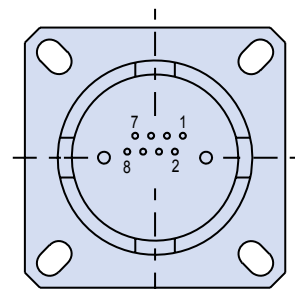


Jam Nut Receptacle

Connector Styles
00 = Square Flange Receptacle with Slotted Holes
07 = Jam Nut Receptacle



Square Flange Receptacle



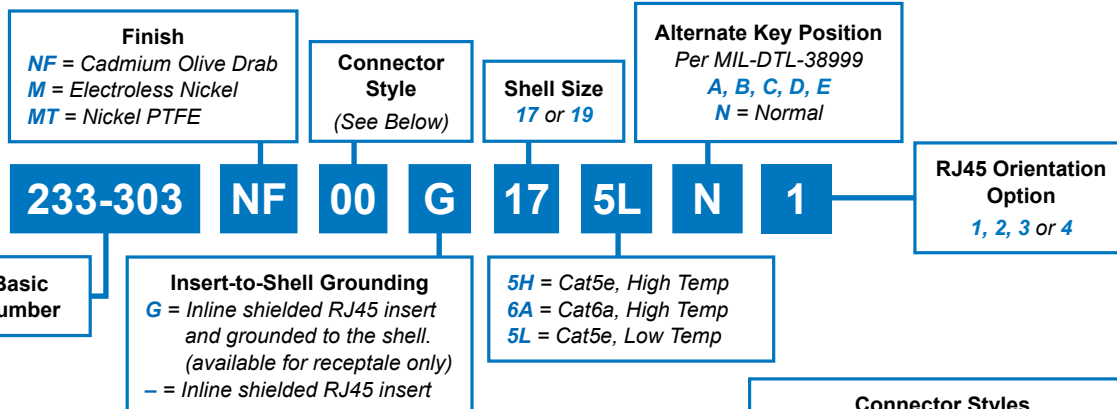
Receptacle Rear View

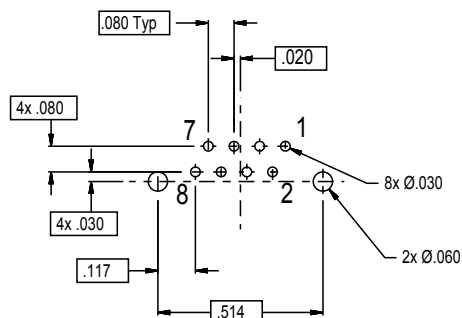
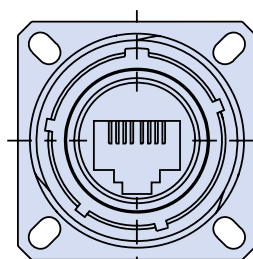
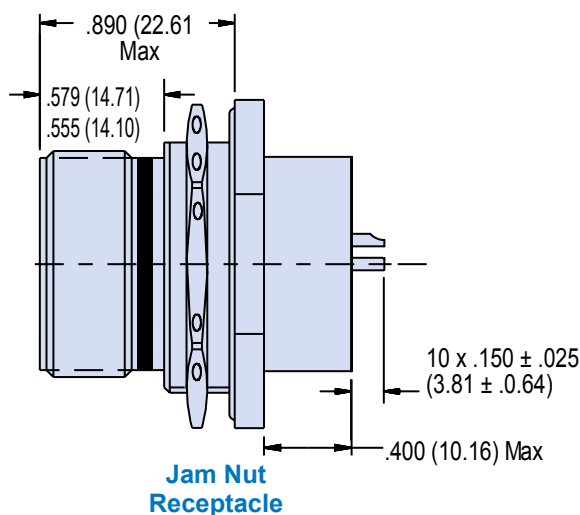
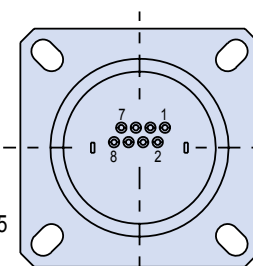
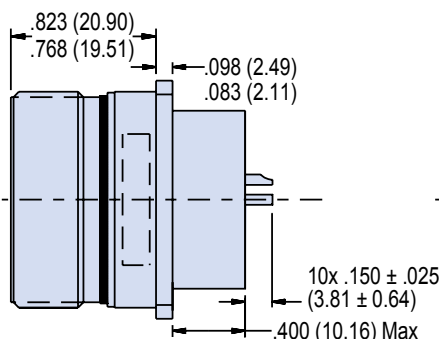


233-303

SuperSeal™ MIL-DTL-38999 Series III Type Connectors with RJ45 Jack to Solder Cup Wire Termination

A


Receptacle
Front View

Receptacle
Rear View

Recommended PCB Layout
(Solder Side Of Board)

Receptacle
Front View

Receptacle
Rear View

233-304 SuperSeal™ MIL-DTL-38999 Series III Type Connectors with Pin or Socket Contacts to RJ45 Jack or Plug



D38999 Type
RJ45 Connectors

Finish
NF = Cadmium Olive Drab
M = Electroless Nickel
MT = Nickel PTFE

Connector Style
 (See Below)

Insert Arrangement
17 - 35
 Per MIL-STD-1560

Alternate Key Position
 Per MIL-DTL-38999
A, B, C, D, E
N = Normal

Shrink Boot
 Part No. 770-028
 (Omit for None)

233-304

NF

00

17

G - 35

P

5L

N

1

T

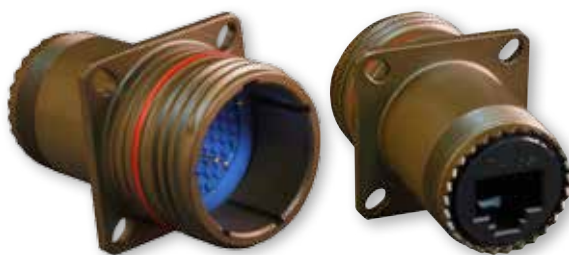
Basic Number

Shell Size
17 or 19

P = Pin
S = Socket

RJ45 Orientation Option
1, 2, 3 or 4

Connector Styles
00 = Square Flange Receptacle with Slotted Holes
07 = Jam Nut Receptacle
05 = In-Line Receptacle
G6 = Plug

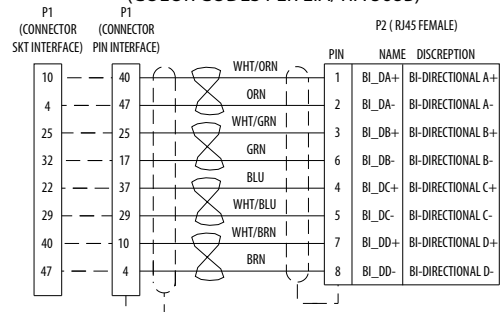


Receptacle Front View

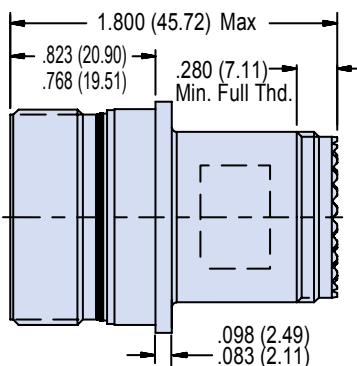
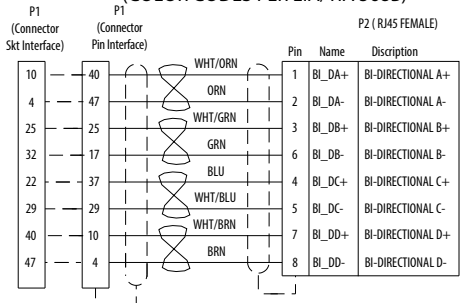
Receptacle Rear View

Insert-to-Shell Grounding
G = Inline shielded RJ45 insert and grounded to the shell. (available for receptacle only)
- = Inline shielded RJ45 insert

Wiring Diagram for Ethernet 1000base-T (Gigabit Ethernet)
(COLOR CODES PER EIA/TIA 568B)

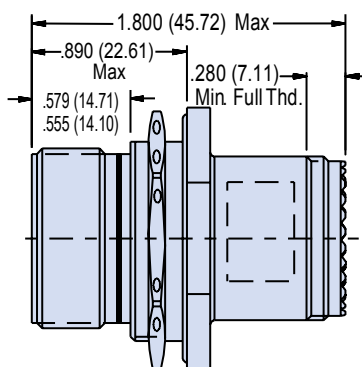


Wiring Diagram for Ethernet 1000base-T (Gigabit ethernet)
(COLOR CODES PER EIA/TIA 568B)

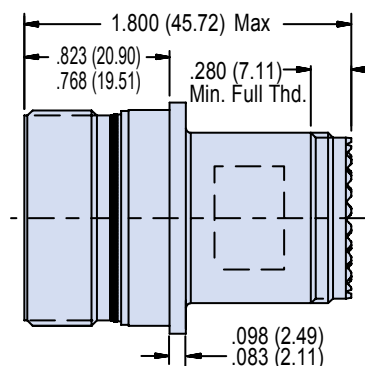


Square Flange Receptacle

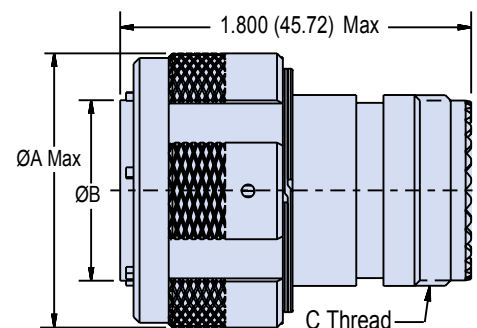
Plug Dimensions			
Shell Size	A Dia Max	B Dia	C Thread
17	1.406 (35.71)	.928/.922 (23.57/23.42)	M25 X 1.0-6g 0.100R
19	1.156 (29.36)	1.033/1.027 (26.24/26.09)	M25 X 1.0-6g 0.100R



Jam Nut



Inline



Plug



233-305

SuperSeal™ MIL-DTL-38999 Series III Type Connectors with Pin or Socket Quadrax to RJ45 Jack or Plug

Finish
NF = Cadmium Olive Drab
M = Electroless Nickel
MT = Nickel PTFE

Connector Style
(See Below)

Shell Size
17 or **19**

P = Pin
S = Socket

Alternate Key Position
Per MIL-DTL-38999
A, B, C, D, E
N = Normal

233-305

NF

00

G

17

5L

P

N

1

T

Shrink Boot
Part No. 770-028
(Omit for None)

Basic Number

Insert-to-Shell Grounding
G = Inline shielded RJ45 insert and grounded to the shell.
(available for receptacle only)
— = Inline shielded RJ45 insert

5H = Cat5e, High Temp
6A = Cat6a, High Temp
5L = Cat5e, Low Temp

RJ45 Orientation Option
1, 2, 3 or **4**

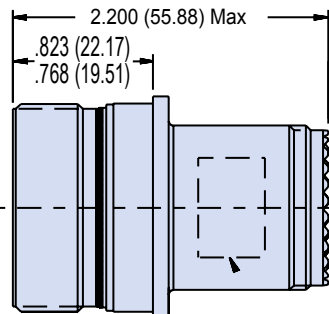
Connector Styles

00 = Square Flange Receptacle with Slotted Holes
07 = Jam Nut Receptacle
05 = Inline Receptacle
G6 = Plug Connector

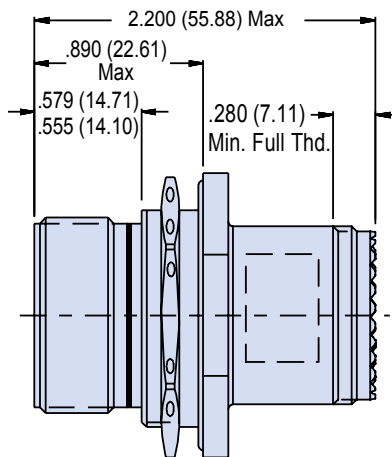


Receptacle Rear View

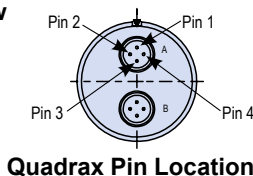
Receptacle Front View



Square Flange

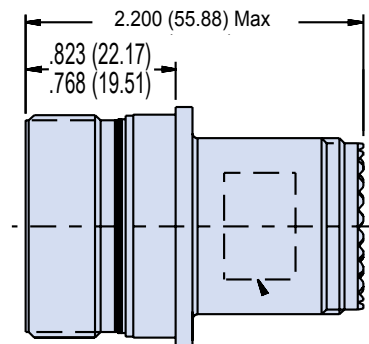


Jam Nut



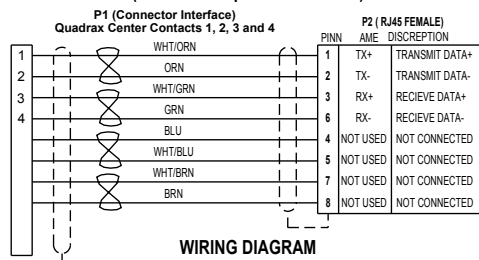
Quadrax Pin Locations

Plug Dimensions			
Shell Size	A Dia Max	B Dia	C Thread
17	1.406 (35.71)	.928/.922 (23.57/23.42)	M25 X 1.0-6g 0.100R
19	1.156 (29.36)	1.033/1.027 (26.24/26.09)	M25 X 1.0-6g 0.100R

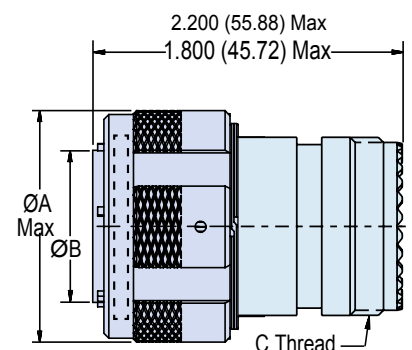
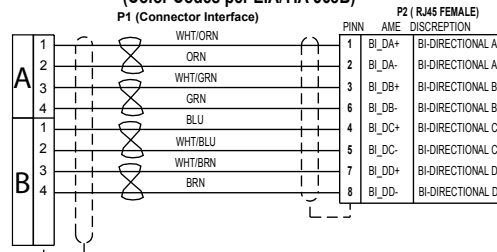


Inline

WIRING DIAGRAM For Ethernet 10Base-T & 100 Base-TX (Color Codes per EIA/TIA 568B)



WIRING DIAGRAM For Ethernet 1000Base-T (Gigabit Ethernet) (Color Codes per EIA/TIA 568B)



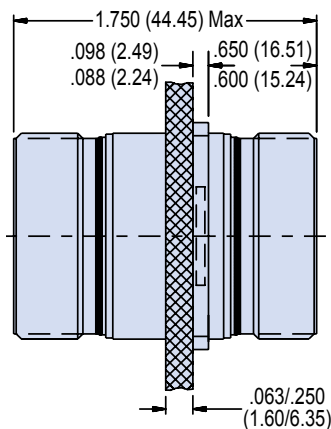
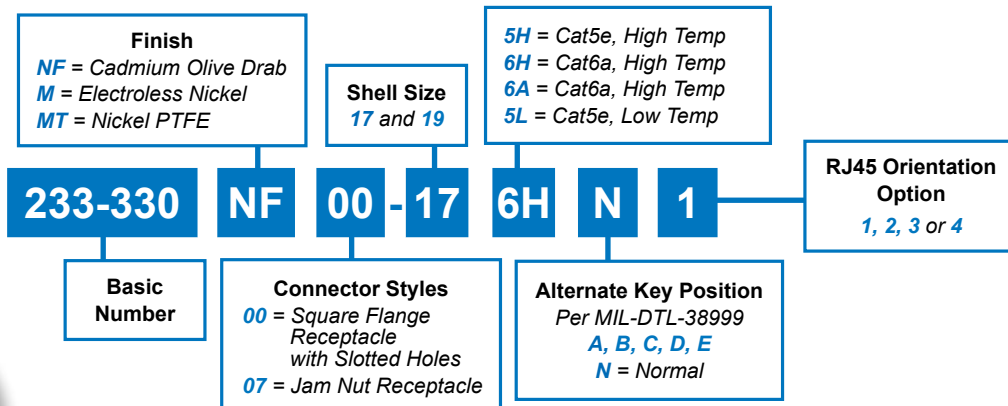
Plug

233-330
SuperSeal™ MIL-DTL-38999 Series III Type
Bulkhead Feedthru
with Back-to-Back RJ45 Jacks

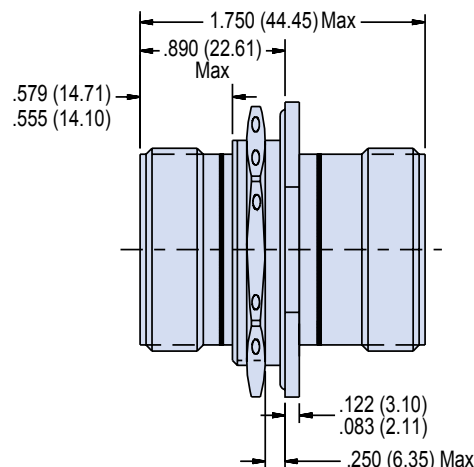


D38999 Type
RJ45 Connectors

A

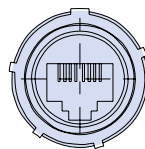


Square Flange Mount
Receptacle
Feed Through Connector

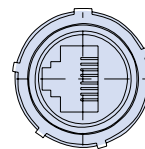


Jam Nut Mount
Receptacle
Feed Through Connector

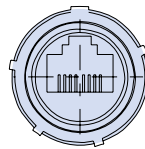
RJ45 Orientation Options
Partial Front Views Shown



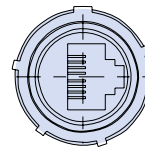
Code 1



Code 2



Code 3



Code 4

All External Dimensions, Features, etc. compliant with D38999/20, /24 & /26.
 Consult Factory for Additional Information

RUGGEDIZED
SERIES ITS
REVERSE-BAYONET
RJ45

MIL-DTL-5015 TYPE REVERSE-BAYONET

SUPERSEAL™

Harsh-environment RJ45 data transmission connectors. High-reliability performance for military vehicle and rail applications



Features

- Ruggedized MIL-DTL-5015 type connectors for heavy-duty industrial and transportation applications
- Reverse-bayonet coupling for fast, reliable mating in hard-to-reach locations
- Superior sealing—IP68 when mated—for complete harsh-environment protection
- Crimp contact termination or pigtail cables
- Available backshells for strain-relief and environmental protection
- Integrated RJ45 plugs and jacks for Cat 5e high-speed data transmission



Glenair®

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1211 Air Way
Glendale, CA
91201-2497
818-247-6000
sales@glenair.com
www.glenair.com

**SuperSeal™ MIL-DTL-5015 Type
Reverse-Bayonet Connectors
RJ45 Ethernet**



MIL-DTL-5015 Type
RJ45 Connectors

Product Selection Guide



**SuperSeal™ 5015 Reverse Bayonet Plug
with Cat 5e RJ45 Plug and
Rear Crimp Contact Termination**



**SuperSeal™ 5015 Reverse Bayonet Plug
with Cat 5e RJ45 Plug and
Pre-Terminated Pigtail**



**SuperSeal™ 5015 Reverse Bayonet Receptacle
with Cat 5e RJ45 Jack and Pre-Terminated Pigtail**



**SuperSeal™ 5015 Reverse Bayonet Receptacle
with Cat 5e RJ45 Jack and PCB Termination**



**SuperSeal™ 5015 Reverse Bayonet Receptacles
with Cat 5e RJ45 Jack/Jack Couplers**



**SuperSeal™ Reverse Bayonet RJ45 Connectors
MIL-DTL-5015 Type • Size 18 • Cat5e
Available Pigtail Configurations and Backshell Options**

B



SuperSeal™ Reverse Bayonet RJ45 Connectors

MIL-DTL-5015 Type • Size 18 • Cat5e

Introduction



Material and Finishes:

Shell/coupling – High strength aluminum alloy
Plating – Electroless Nickel, Cad Olive Drab, Black Zinc Cobalt or Standard black electrodeposited paint

Bronze, stainless steel and other materials and finishes available. Please consult factory.

Shell Type and Sizes:

Shell Type – MIL-DTL-5015 Reverse-Bayonet Type
Sizes – Shell size 18

Connector Styles:

Receptacle – MIL-DTL-5015 type in shell size 18 with integrated RJ45 jack/jack or jack/PCB coupler available in Cat 5e
Plug – MIL-DTL-5015 type plug in shell size 18 with integrated RJ45 plug/jack coupler available in Cat 5e

Receptacles and connectors available in square flange front or rear wall mount with slotted or round holes, jam nut front or rear wall mount, in-line, and feedthrough configurations.

Technical Characteristics:

Category – Cat 5e
Connection – 10BASE-T, 100BASE-TX, 1000BASE-T
Max Current Rating – 1.5 Amps at 20° C
Dielectric Withstanding Voltage – 1000 volts
Working Temperature – -40° to +85° C
Environmental Rating – IP67 unmated

Termination Options:

Innovative crimp contact termination, printed circuit board termination, pre-terminated pigtailed and jack/jack and jack/plug RJ45 configurations

Test Description	SuperSeal™ MIL-DTL-5015 RJ45 Performance Requirements / Specifications	Procedure Per MIL-DTL-5015 and or other standard
Fluid Resistance	Per EIA-364-10 unmated connector shall not experience any damage detrimental to performance after immersion in fluid.	4.5.30 IAW EIA-364-10
Contact Resistance	Connecting hardware shall conform to A.2; a thru c of TIA/EIA-568-B.2 per IEC 60512-2, Test Method 2A, millivolt level method (shall not exceed 0.025 ohms and 0.050 ohms during subsequent tests)	TIA/EIA-568-B.2, Section A.2 IAW IEC 60512-2, Test method 2A
Insulation Resistance	Per IEC 60512-2, Test 3a, Method C, test voltage 500 VDC (Insulation Resistance minimum of 100 Ohm)	IAW IEC 60512-2, Test Method 2A
Mating Durability	500 to 1000 cycles (finish dependent) with no mechanical damage. Contact Resistance requirement as described above shall be met at 0.050 ohms after 100, 200 and 250 cycles (and 500 per finish). This shall be performed before Thermal Shock and Humidity/Temperature cycling test and the additional 250 cycles shall be testing after completion in the same manner.	4.5.8 IAW TIA/EIA-568-B.2
Contact Retention	Individual contacts capable of withstanding at least 10 pounds axial load applied uniformly 1 lb/sec	IAW EIA-364-29
Thermal Shock	Per IEC 60068-2-14 Test Number Nb. • Temperature range -40 - +85°C ± 2°C • Exposure Time: 30 min. • Number of Cycles: 100 • Test Group B contacts shall be inspected and contact resistance measured after 50 cycles and at completion of est. These specimens shall be used for humidity/thermal cycling testing.	TIA/EIA-568-B.2, A.7 IAW IEC 60068-2-14, Test Number Nb
Humidity/Temperature Cycling	EIA-364-31 with exceptions b, d & e; EIA 364-32 Test Condition A, except steps 2 & 4 shall be 2 minutes max duration; Humidity/Temperature: TIA/EIA-568-B.2, A.8 per IEC 60068-2-38; Temperature for step 1 shall be -45 +0/-5°C. • Temperature for step 3 shall be 85 +5/-0°C Exposure Time: 30 min. • Number of Cycles: 100 No blistering, peeling or separation of the plating or other damage detrimental to operation of connector	4.5.11.1 or 4.5.11.2 4.5.13 IAW EIA-364-31, Method IV with temperature exceptions; IAW EIA-364-32, Test cond. A; IAW IEC 60068-2-14, Test Method Z/AD
Salt Spray	5% solution, 34°-36°C. 48-1000 hours, depending on finish. Unmated connectors show no lifting of plated coating or exposure of basis material under 3X magnification which adversely affects performance.	4.5.13 IAW EIA-364-26
Water Immersion	1 Meter for 1 hour, Unmated	MIL-STD-883C method 512

SuperSeal™ 5015 Reverse Bayonet Plug with Cat 5e RJ45 Plug and Rear Crimp Contact Termination



MIL-DTL-5015 Type
RJ45 Connectors



Front View



Rear View

06 = Straight Cylindrical Plug
with Accessory Threads

Basic
Number

ITS

Shell Size
18

18

Integrated High
Speed Connector
RJ45

SSRJ45

3

Termination Options
3 = Male RJ45 Plug with Crimp
Contact Wire Termination

Connector Accessory

PG = Cable Gland Adaptor
PHM = Environmental Sealing
Backshell
N5 = Environmental Adapter
and Cable Clamp
N1 = Non Environmental Cable
Clamp
N0 = No Accessory Supplied
with Connector

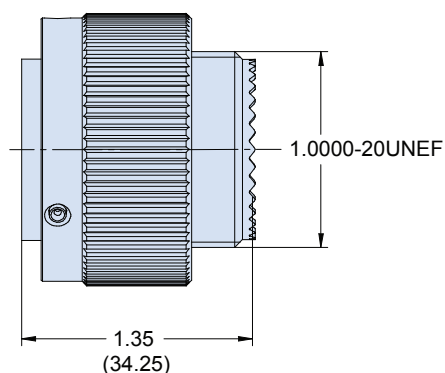
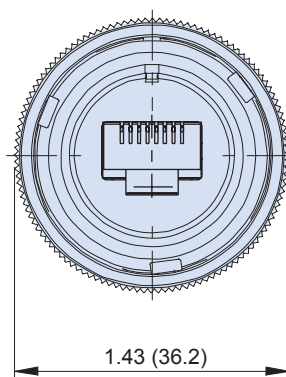
N0

G3

Plating

G3 = Cadmium Olive Drab
F11 = Electroless Nickel
F6 = Black Electrodeposited
Paint (Std.)
F7 = Black Zinc Cobalt
Plating

06 = Straight Cylindrical Plug
Connector with Accessory Threads

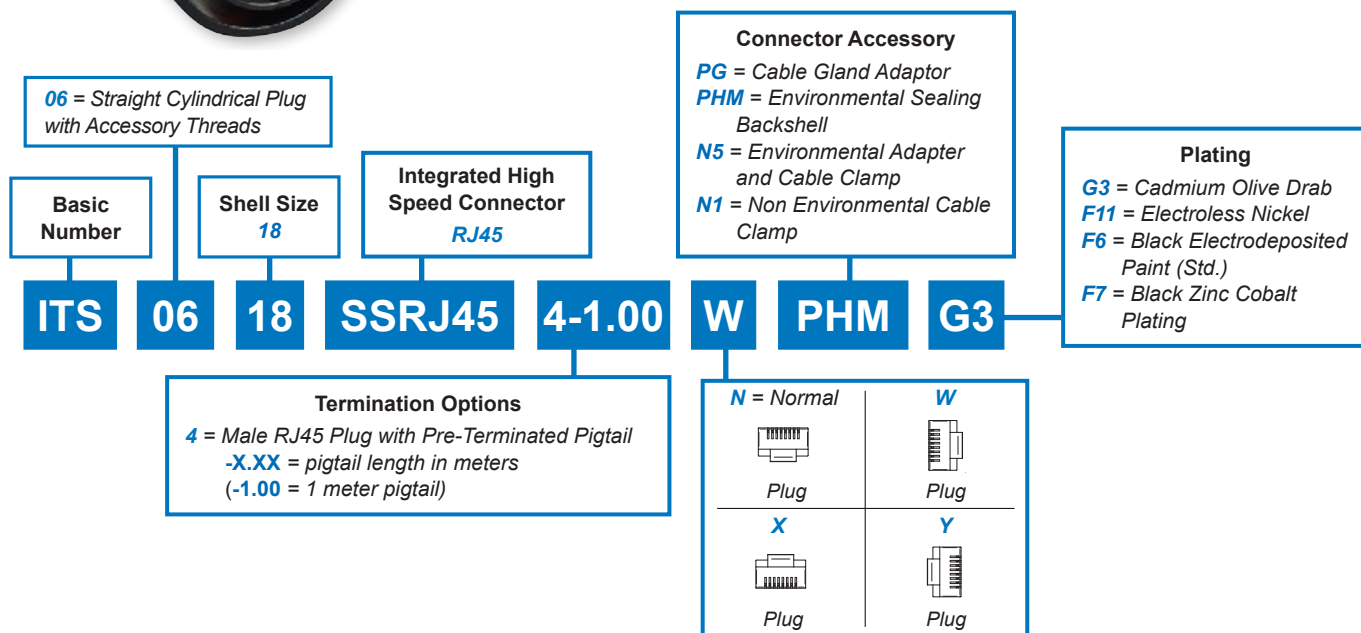




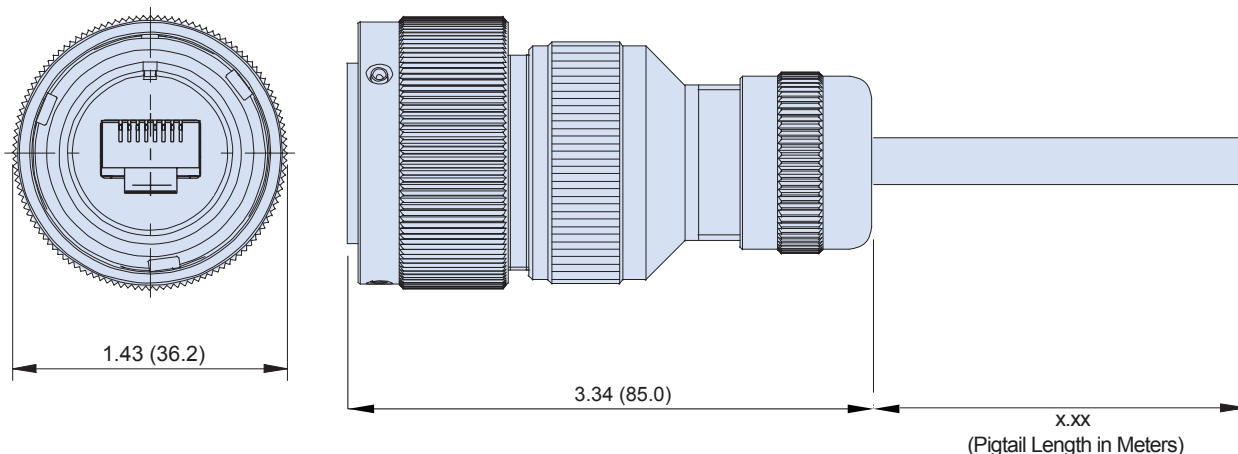
SuperSeal™ 5015 Reverse Bayonet Plug with Cat 5e RJ45 Plug and Pre-Terminated Pigtail



B



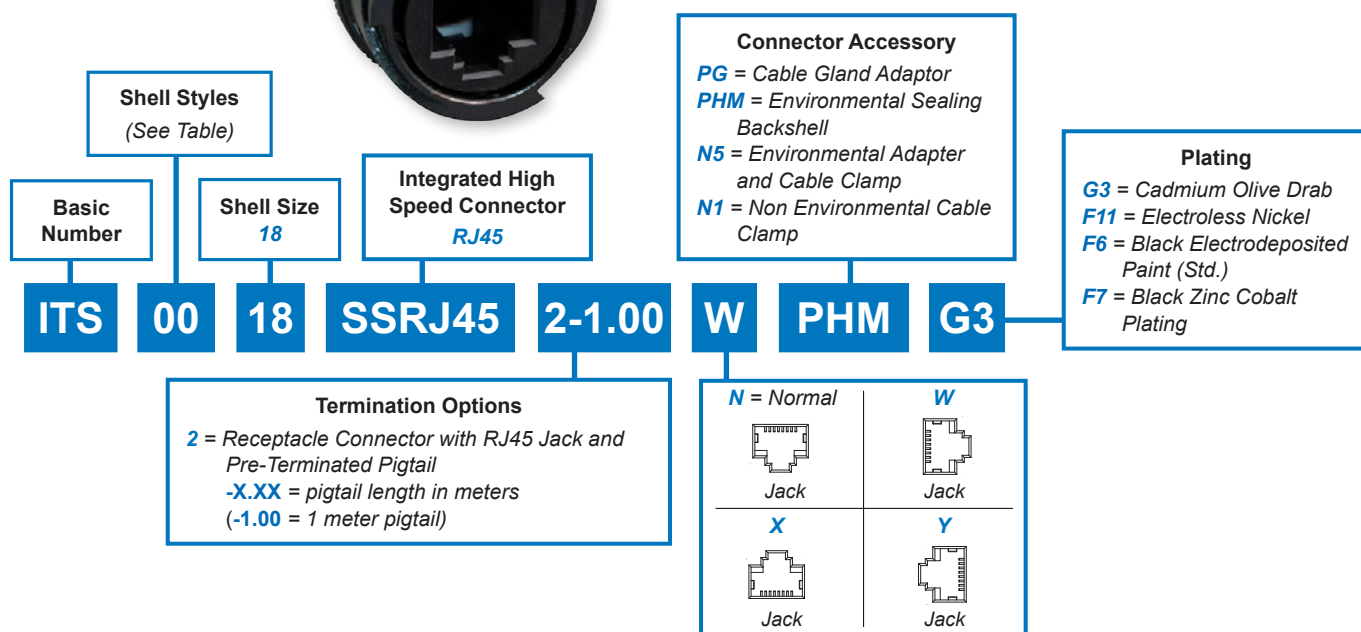
06 = Straight Cylindrical Plug Connector with Pre-Terminated Pigtail



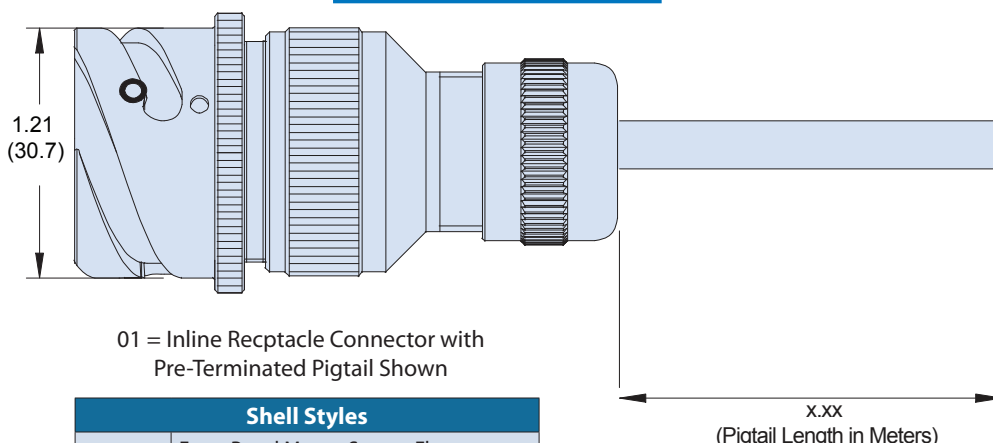
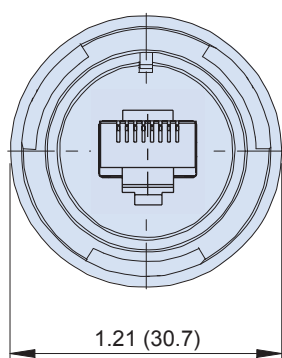
SuperSeal™ 5015 Reverse Bayonet Receptacle with Cat 5e RJ45 Jack and Pre-Terminated Pigtail



MIL-DTL-5015 Type
RJ45 Connectors



B



01 = Inline Receptacle Connector with Pre-Terminated Pigtail Shown

Shell Styles	
00	Front Panel Mount Square Flange Receptacle with Accessory Threads
01	In Line Cylindrical Receptacle with Accessory Threads
030	Rear Panel Mount Square Flange Receptacle with Accessory Threads
070	Rear Panel Mount Jam Nut Receptacle with Accessory Threads



SuperSeal™ 5015 Reverse Bayonet Receptacle with Cat 5e RJ45 Jack and PCB Termination



Front View



Rear View

03 = Rear Panel Mount Square
Flange Receptacle without
Accessory Threads

**Basic
Number**

Shell Size
18

**Integrated High
Speed Connector**
RJ45

Plating

G3 = Cadmium Olive Drab
F11 = Electroless Nickel
F6 = Black Electrodeposited
Paint (Std.)
F7 = Black Zinc Cobalt
Plating

ITS

03

18

SSRJ45

5

W

G3

Termination Options

5 = Rear-Mount Square
Flange Receptacle
with PCB Termination

N = Normal



Jack

W



Jack

X

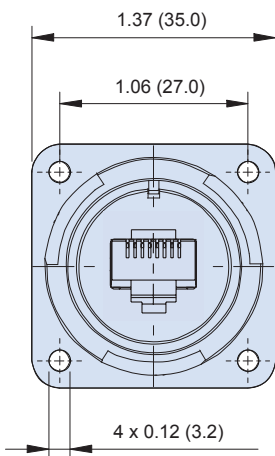


Jack

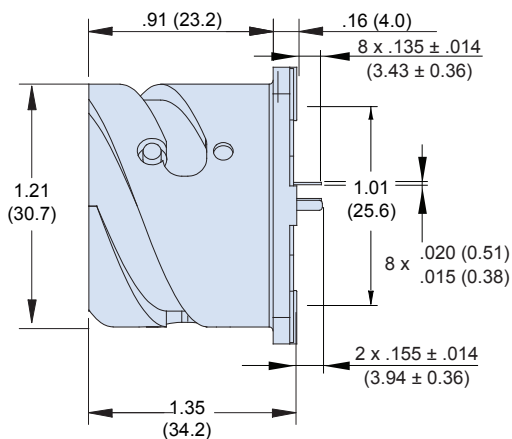
Y



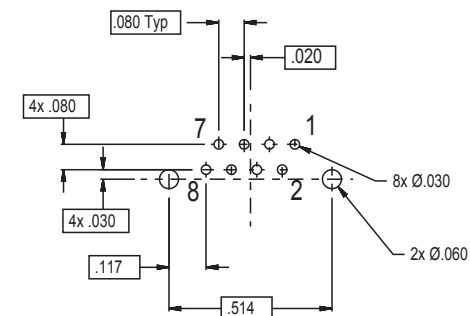
Jack



Front View



Recommended PCB Layout for 03 (-5) Configurations Only



SuperSeal™ 5015 Reverse Bayonet Receptacles with Cat 5e RJ45 Jack/Jack Couplers



MIL-DTL-5015 Type
RJ45 Connectors



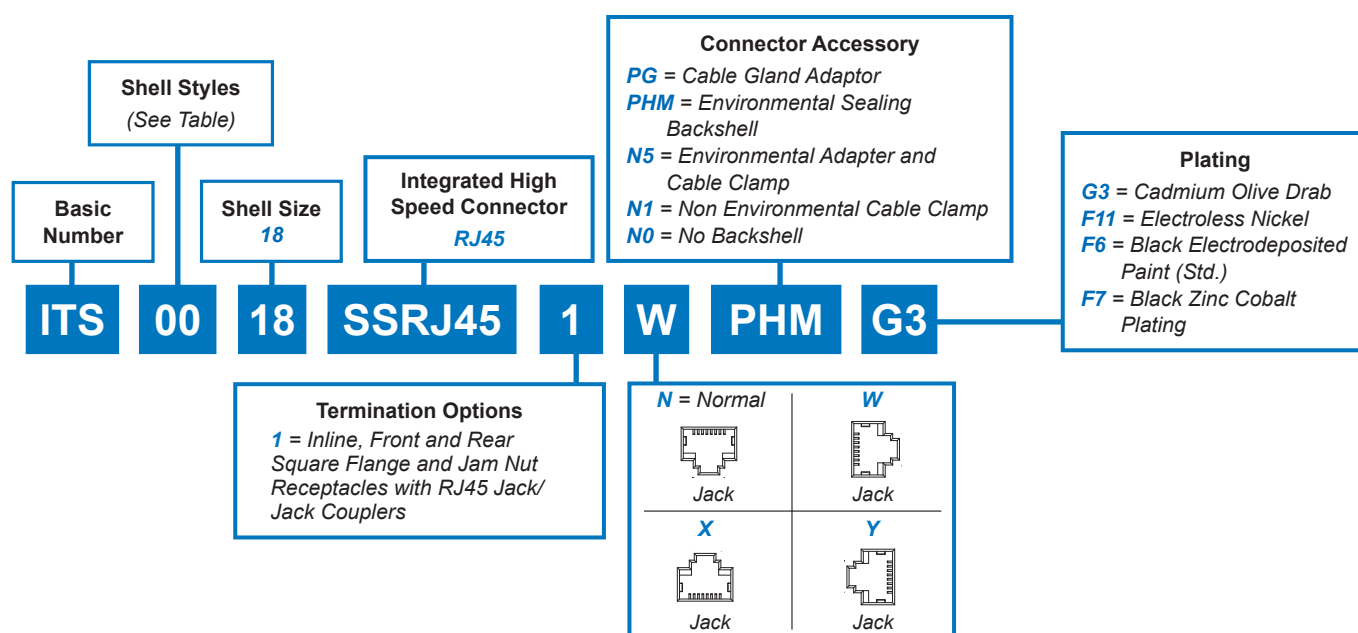
Front View



Rear View

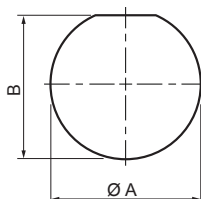
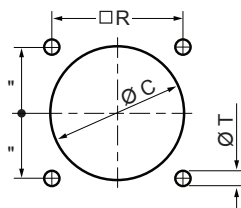
Shell Styles

00	Front Panel Mount Square Flange Receptacle with Accessory Threads
01	In Line Cylindrical Receptacle with Accessory Threads
030	Rear Panel Mount Square Flange Receptacle with Accessory Threads
070	Rear Panel Mount Jam Nut Receptacle with Accessory Threads



B

Panel Cut-Out Dimensions



Panel Cutout for 00 and 02 Front Panel Mounting Connectors

Shell Size	18
Ø C (mm)	26.5
R ± 0.1 (mm)	27
Ø T (mm)	3.4

Panel Cutout for 03 and 030 Rear Panel Mounting Connectors

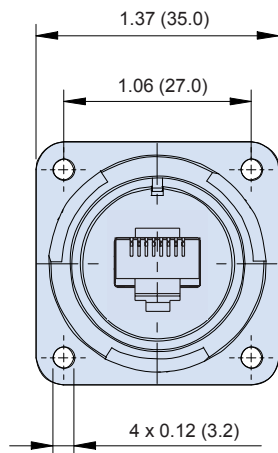
Shell Size	18
Ø C (mm)	31.7
R ± 0.1 (mm)	27
Ø T (mm)	4.5

Jam Nut Receptacle Connectors

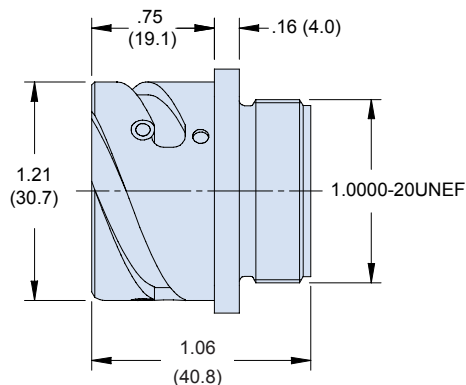
Shell Size	18
Ø A + 0.25 (mm)	35.1
B - 0.35 (mm)	33.75



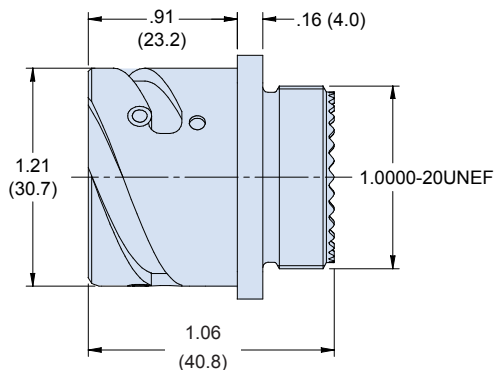
SuperSeal™ 5015 Reverse Bayonet Receptacles with Cat 5e RJ45 Jack/Jack Couplers



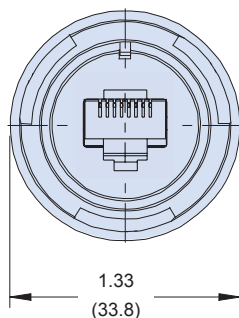
Front View



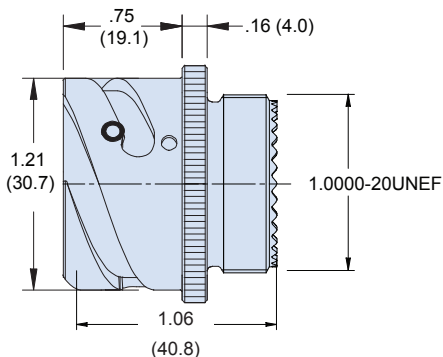
**00 = Front Panel Mount Square Flange
Receptacle with Accessory Threads**



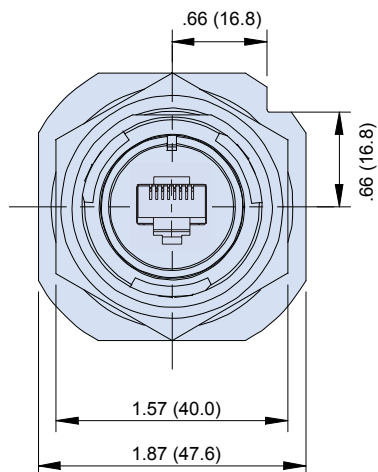
**030 = Rear Panel Mount Square Flange
Receptacle with Accessory Threads**



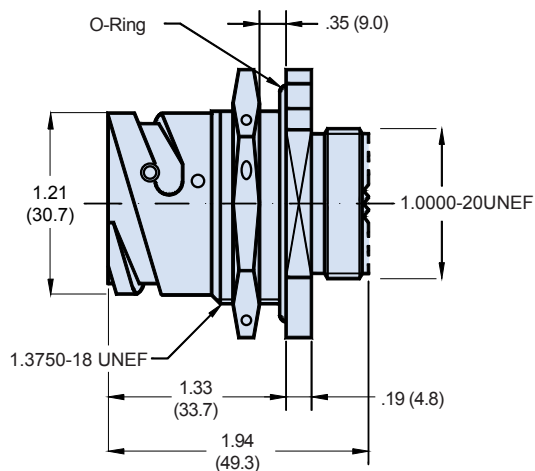
Front View



**01 = In Line Cylindrical Receptacle with
Accessory Threads**



Front View



**070 = Rear Panel Mount Jam Nut Receptacle
with Accessory Threads**

SuperSeal™ Reverse Bayonet RJ45 Connectors
MIL-DTL-5015 Type • Size 18 • Cat5e
Available Pigtail Configurations and Backshell Options



MIL-DTL-5015 Type
RJ45 Connectors

Cable Clamp
N1

N1

The Glenair N1 cable clamp provides a simple and effective strain relief option for all high speed data transmission connectors. Low profile saddle clamps purchase the cable just aft of the accessory threads for an unobtrusive and compact strain-relief solution. May be used in conjunction with a wide range of standard backshell accessories.



Backshell
N5

N5

The Glenair N5 backshell offers users the benefits of an environmental sealing backshell combined with a style "C" cable clamp.



Backshell
PHM

PHM

The Glenair PHM backshell utilizes a non-environmental compression bushing that provides ample strain relief for general duty applications.



Backshell
PG

PG

The Glenair PG cable gland backshell provides basic environmental protection and strain relief for use with straight plugs.



B

MIL-DTL-38999 TYPE
FIELD-READY
USB 2.0/3.0



MIL-DTL-38999 TYPE

SUPERSEAL™

Rugged environmental MIL-DTL-38999 type connectors with IP68 sealing, robust insert-to-shell grounding, and a complete range of wire, cable, and circuit board terminations



Features

- Superior sealing—IP68 when mated—for complete system protection against water, sand and dust
- Highly durable USB design, including enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance
- Shielded/grounded coupler designs in both receptacle and plug connectors
- Crimp, solder-cup, PC tail, and Quadax contact/wire termination options
- USB 2.0 and 3.0 plug and receptacle versions
- Industry standard scoop proof, self-locking, triple-start threaded coupling design of MIL-DTL-38999 Series III type connectors
- Intermateable with other MIL-DTL-38999 type RJ45 field-duty connectors



Glenair®

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Glendale, CA
91201-2497
818-247-6000
sales@glenair.com
www.glenair.com

**USB SuperSeal™
USB 2.0 Connectors
D38999, Series III Type**



D38999 Type
USB Connectors

Product Selection Guide



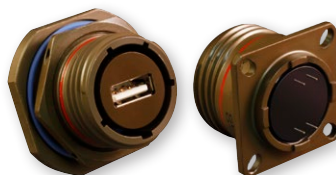
233-340

**USB SuperSeal™ MIL-DTL-38999 Series III Type USB 2.0 Type A
Plug-to-Receptacle or Receptacle-to-Receptacle Coupler**



233-341

**USB SuperSeal™ MIL-DTL-38999 Series III Type Connectors
USB 2.0 Type A Receptacle to Size 22D Crimp Contacts**



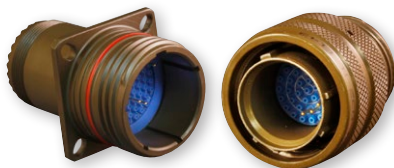
233-342

**USB SuperSeal™ MIL-DTL-38999 Series III Type Receptacles
USB 2.0 Type A Receptacle to PC Tail Termination**



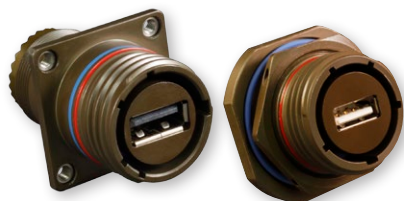
233-343

**USB SuperSeal™ MIL-DTL-38999 Series III Type Receptacles
USB 2.0 Type A Receptacle to Solder Cup Termination**



233-344

**USB SuperSeal™ MIL-DTL-38999 Series III Type Connectors
Size 22 Pin or Socket Contacts to USB 2.0 Type A Receptacle**



233-370

**USB SuperSeal™ MIL-DTL-38999 Series III Type Receptacles
Size 17 USB 2.0 Plug-to-Receptacle
or Receptacle-to-Receptacle**



USB SuperSeal™ USB 2.0 Connectors D38999, Series III Type Materials, Performance Specifications and PCB Layout



Material and Finishes:

Shell/coupling – High strength aluminum alloy

Plating – Cadmium olive drab over electroless nickel; Nickel PTFE; Electroless nickel

Contacts – PC tails, solder cup, and crimp contacts: Copper alloy, gold plated

Contacts – USB 2.0 Type A

Seals – Silicon-based elastomer

USB Insulator – LCP

Composite, stainless steel and other materials and finishes available. Please consult factory.

Shell Type and Sizes:

Shell Type – D38999 Series III Type

Sizes – Shell sizes 15 and 17

Electrical Specifications:

Data Rate – 480 Mbps USB 2.0 Type A

Signal Method – Pulling 2.0 USB Type A, Synchronous

Power Usage – 500 mAmps USB 2.0 Type A

Current Rating – 1.5 Amps, USB 2.0 Type A

D.W.V. – 500 VAC USB 2.0 Type A

Frequency – 1000 MegOhms USB 2.0 Type A

Wiring – Straight through

Cabling Length – 5.0 Meters USB 2.0 Type A

Shield Continuity – Continuous through coupler and grounded to shell, full shielding.

Environmental / Mechanical Performance:

Sealing – IP68 mated condition

Outgassing – UL94 V0 low smoke, zero halogen

Operating Temperature Range – -40°C to +125°C

Vibration – 20g's, 3 Axis, 10 - 500 Hz

Mechanical Shock – 300 g's

Backshell Interface – MIL-DTL-38999 connector designator H

Mating Cycles – 500

Options:

Round mounting holes, self-locking clinch nuts, plug-and-play cordsets, self-closing spring-loaded cover or anti-decoupling covers (receptacle only), integral shrink boot adapter and low-temp shrink boot (plug only).



**All External Dimensions, Features, etc.
Compliant with D38999/20, /24 & /26
Consult Factory for Additional Information**

USB SuperSeal™ USB 2.0 Connectors D38999, Series III Type USB Wiring, Customer Wiring Layout Guide and Recommended Mounting Holes



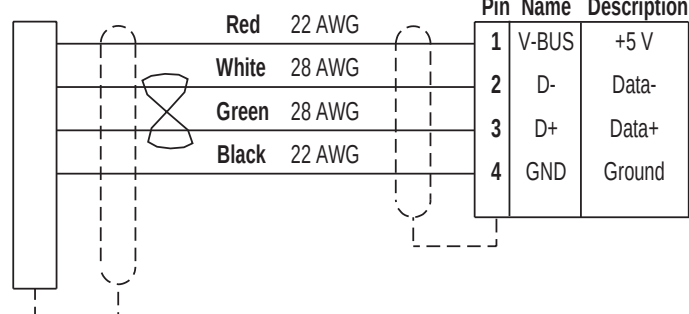
D38999 Type
USB Connectors

Customer Wiring Layout Guide To Be Completed By the Customer

P1 (Connector Interface)

Pin Locations To Be Determined

By The Customer, Only 4 Pins Needed)

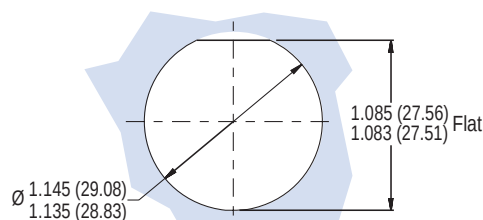
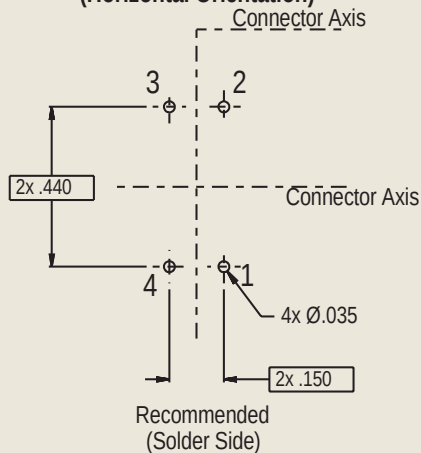


USB 2.0 Wiring

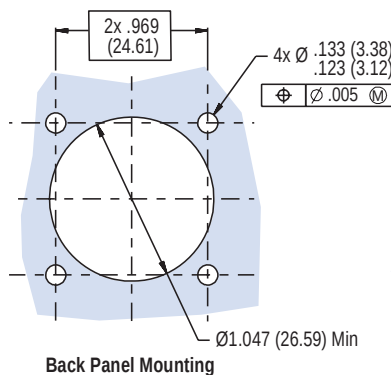
Pin	Name	Cable Color (USB)	Description	Recommended Wire Sizes (AWG)
1	(V BUS)	Red	+5 V	22
2	(D-)	White	Data -	28
3	(D+)	Green	Data +	28
4	(GND)	Black	Ground	22

RECOMMENDED PCB LAYOUT

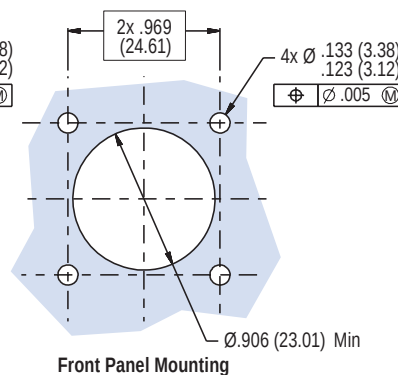
USB 2.0 / Type A (Horizontal Orientation)



Recommended Panel Cut Out



Back Panel Mounting



Front Panel Mounting

Recommended Mounting Holes For Wall Mount Receptacles

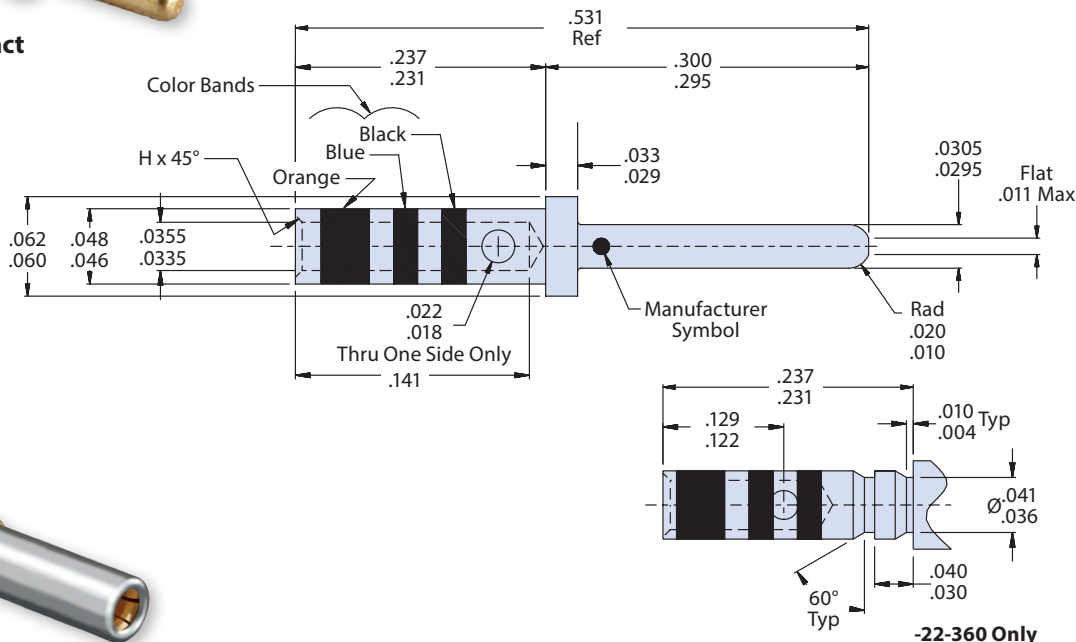


M39029/58-360 and M39029/56-348 850-002-22-360 and 850-001-22-348 Standard Duty Electrical Pin and Socket Contacts

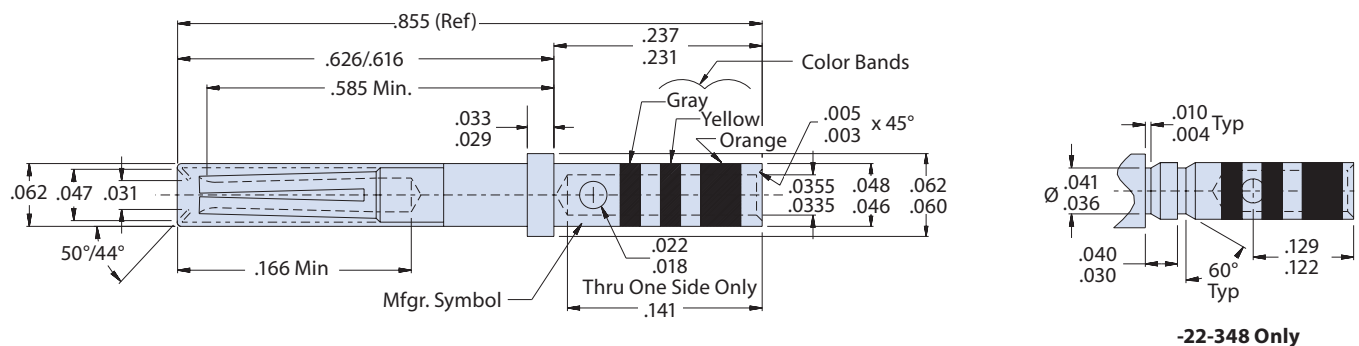
SIZE #22 PIN AND SOCKET CONTACTS FOR USE WITH USB SUPERSEAL™ 233-344 CONNECTORS



Pin Contact



Socket Contact



Termination Tools

Size 22	Part Number	Military Number	AWG Handling	Crimp Tool	Positioner	Insertion Tool	Extraction Tool
Pin	850-002-22-360	M39029/58-360	22, 24, 26, 28	M22520/2-01 M22520/7-01	M22520/2-09 M22520/7-07	M81969/14-01 M81969/8-01	M81969/14-01 M81969/8-02
Socket	850-001-22-348	M39029/56-348	22, 24, 26, 28	M22520/2-01 M22520/7-01	M22520/2-07 M22520/7-05	M81969/14-01 M81969/8-01	M81969/14-01 M81969/8-02

USB SuperSeal™ MIL-DTL-38999 Series III Type Connectors Contacts and Tools Size #22 Crimp Contact Instructions



D38999 Type
USB Connectors

HOW TO TERMINATE, INSTALL AND REMOVE SIZE #22 CONTACTS

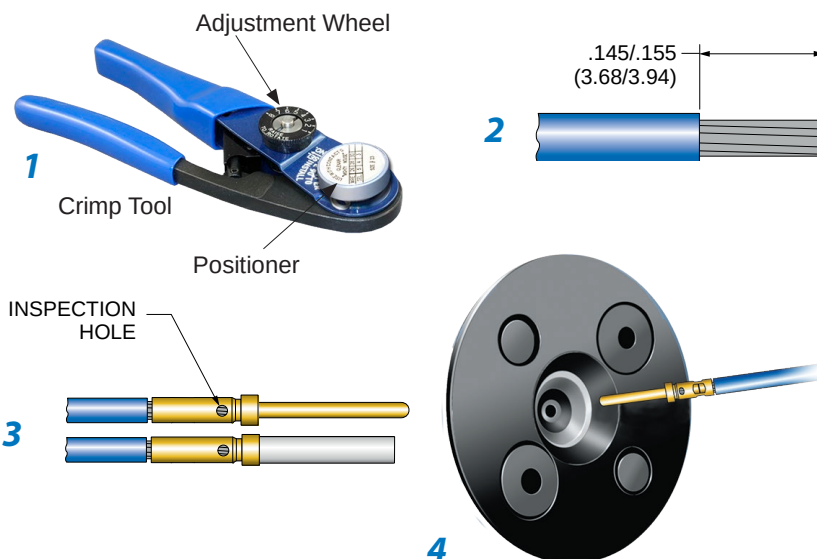
1 Set Up Crimp Tool. Install proper positioner into crimp tool. The label on the positioner shows the proper tool setting for each wire size. Turn the adjustment wheel to the correct setting.

2 Strip Wire. Remove wire insulation, taking care to avoid nicking or cutting wire strands. Strip wire to length shown.

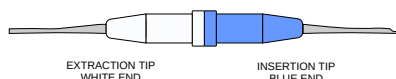
3 Insert wire into contact. The wire should be visible in the inspection hole.

4 Insert contact into crimp tool as shown. Make sure that the contact is fully inserted into the tool. Squeeze handle completely. The ratchet mechanism will not allow a partial crimp. Release handle and remove contact.

5 Inspect crimped contact. Wire should be fully inserted and the crimp should be uniform in appearance.

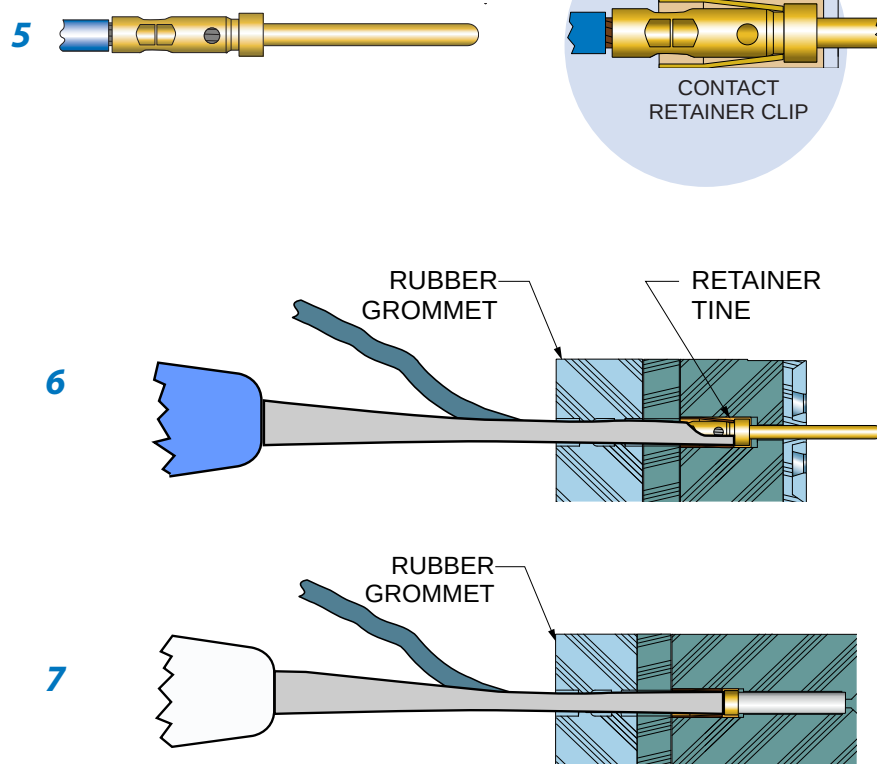


Insertion/Extraction Tool M81969/14-01



6 Install contact into connector. Push the contact through the rear grommet until the contact locks into place. This can usually be done by hand without the need for a tool. If the wire gage is #26 or smaller, a tool is helpful. There are two techniques for installing contacts with a tool. One method is to push the contact in by hand, then use the tool to finish the insertion. The other method is to position the insertion tip against the contact shoulder, then insert the contact. Use insertion/extraction tool 809-088 to install contacts. Slide the wire into the groove on the blue end of the tool. Slide the tool tip up the contact until it touches the contact shoulder. **USE CARE TO AVOID DAMAGING THE CONNECTOR.**

7 Contact Extraction. Use tool M81969/14-01. The white end is used for contact extraction. First, push the wire into the groove of the metal tip. Slide the tip of the tool into the connector. Push the tool into the connector cavity until the tip bottoms in the connector. Avoid wiggling or rocking the tip. This may damage the cavity. A straight push is best. Pinch the wire between your finger and the white plastic grip and slide the tool and contact out of the connector. **Wire insulation diameter greater than 0.045 inches (1.14mm) is too large to work properly with the extraction tool. connector damage is possible.**

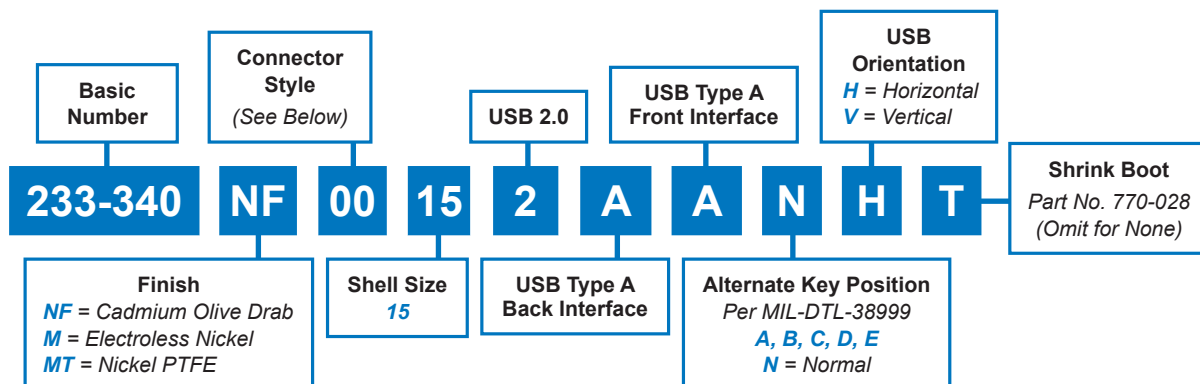




233-340

USB SuperSeal™ D38999 Series III Type Connectors

USB 2.0 Plug-to-Receptacle or Receptacle-to-Receptacle Coupler • Size 15



Square Flange Receptacle
Front View

Plug
Front View



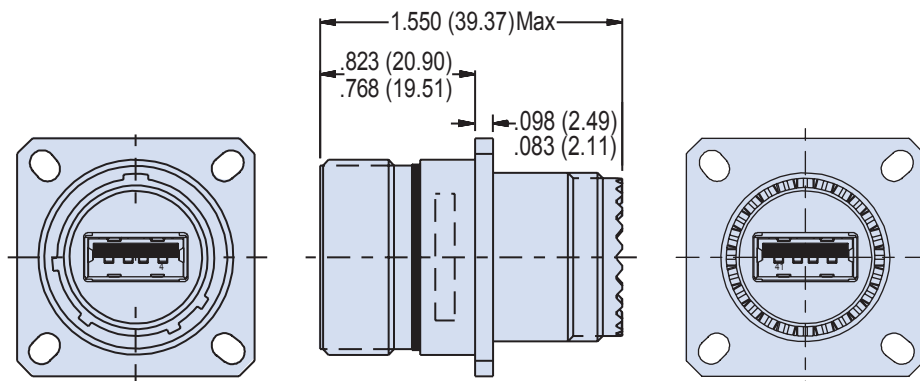
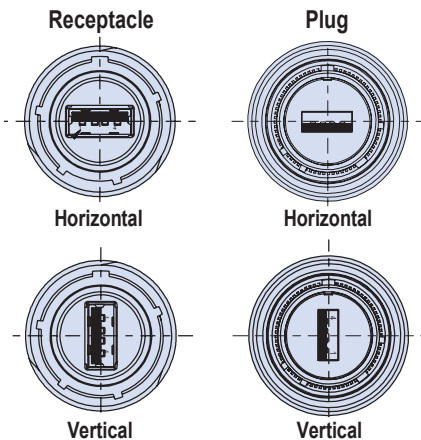
Jam Nut Receptacle
Front View

Connector Styles

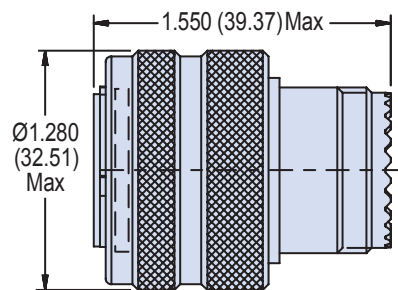
00 = Receptacle, Wall Mount
with Slotted Holes
07 = Receptacle, Jam Nut Mount
G6 = Plug

All external dimensions,
Features, etc. Compliant with
D38999/20, /24 & /26.
Consult factory for additional
information
Size 17 shells also available.
Consult factory, refer to P/N 233-360.

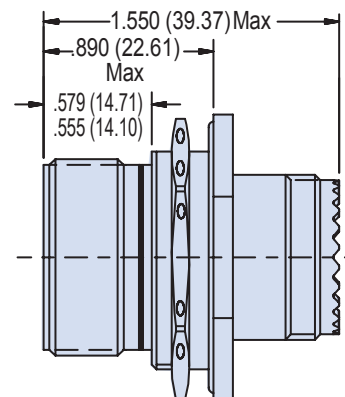
USB Orientation Options (Partial Views Shown)



Square Flange Receptacle



Plug

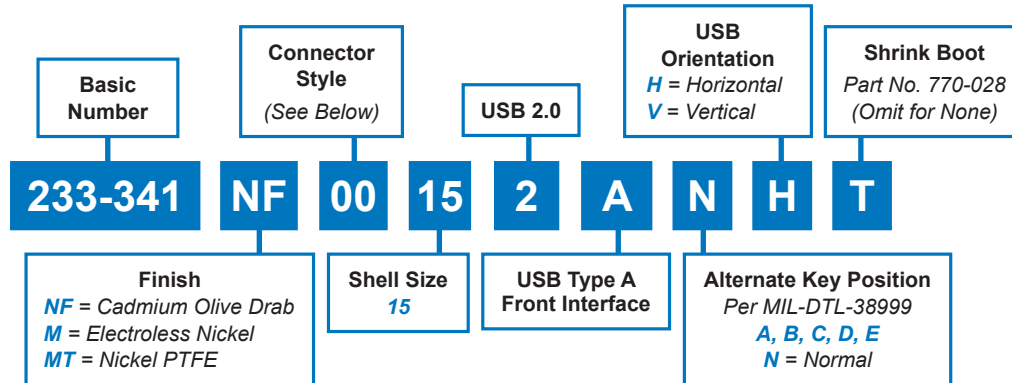


Jam Nut

233-341
USB SuperSeal™ D38999 Series III Type Connectors
USB 2.0 Type A Receptacle
to Size 22D Crimp Removable Contacts • Size 15



D38999 Type
USB Connectors



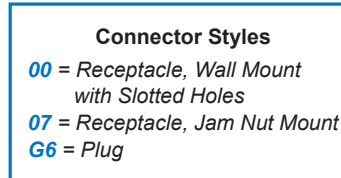
Jam Nut Receptacle
Front View



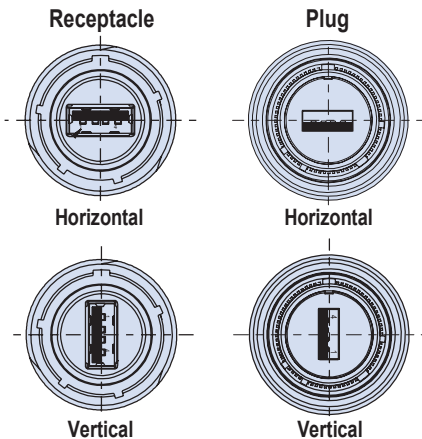
Square Flange Receptacle
Rear View



Plug
Front View

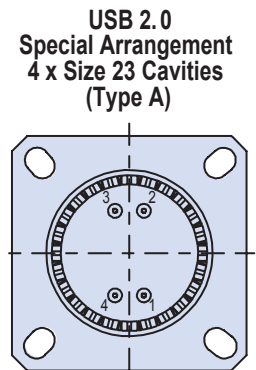
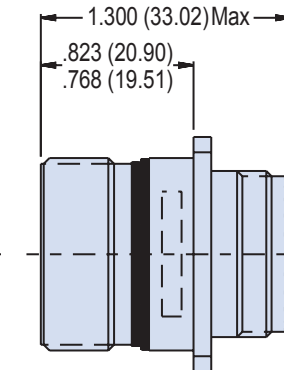
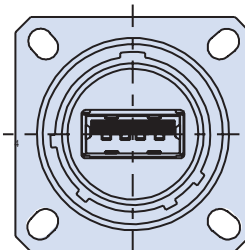


USB Orientation Options
(Partial Views Shown)

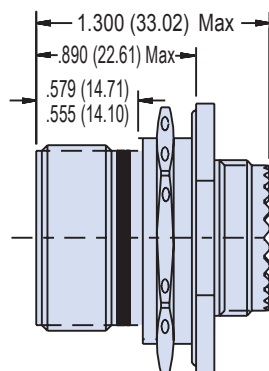


All External Dimensions,
Features, etc. compliant with
D38999/20, /24 & /26.

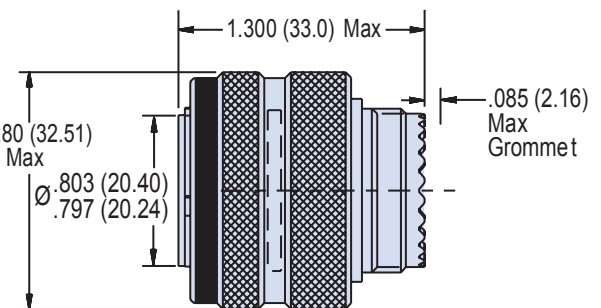
Consult Factory for Additional Information



Square Flange Receptacle



Jam Nut



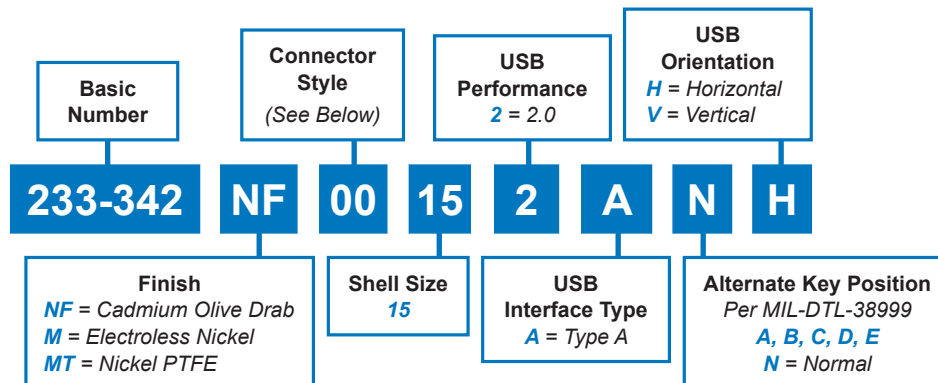
Plug



233-342

USB SuperSeal™ D38999 Series III Type Receptacles

USB 2.0 Type A Receptacle to PC Tail Termination • Size 15



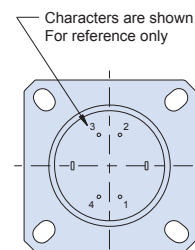
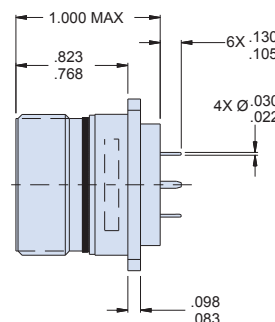
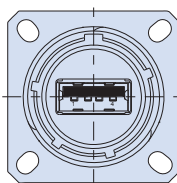
**Jam Nut Receptacle
Front View**



**Square Flange Receptacle
Rear View**

Connector Styles

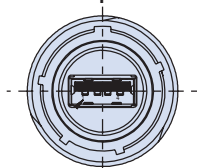
- 00 = Receptacle, Wall Mount with Slotted Holes
- 07 = Receptacle, Jam Nut Mount



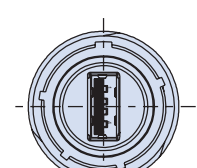
Square Flange Receptacle

USB Orientation Options (Partial Views Shown)

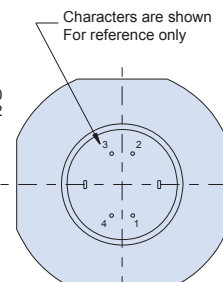
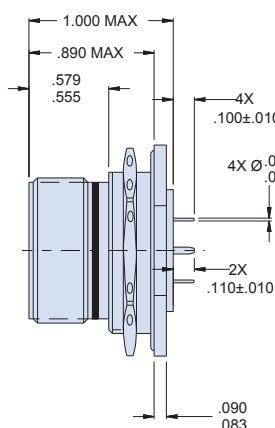
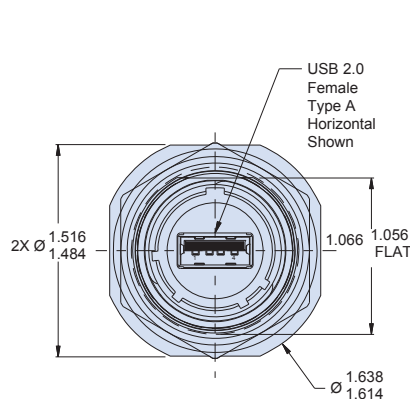
Receptacle



Horizontal



Vertical

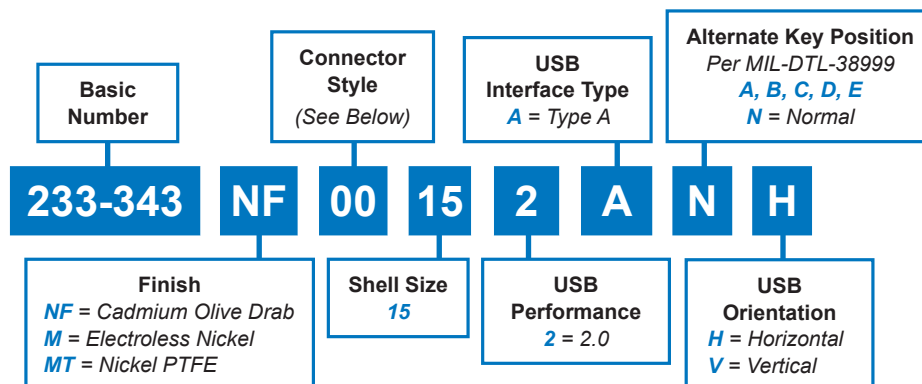


Jam Nut Receptacle

All External Dimensions,
Features, etc. compliant with
D38999/20, /24 & /26.

Consult Factory for Additional Information

233-343
USB SuperSeal™ D38999 Series III Type Receptacles
USB 2.0 Type A Receptacle
to Solder Cup Termination • Size 15

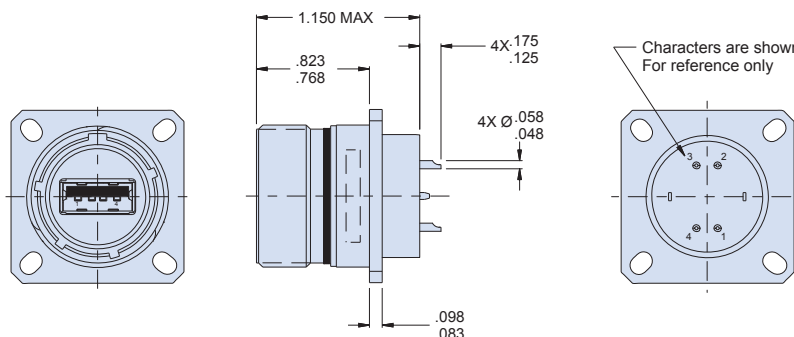


**Jam Nut Receptacle
Front View**



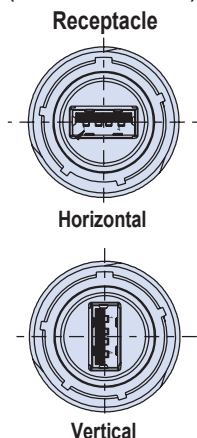
**Jam Nut Receptacle
Rear View**

Connector Styles
00 = Receptacle, Wall Mount
with Slotted Holes
07 = Receptacle, Jam Nut Mount



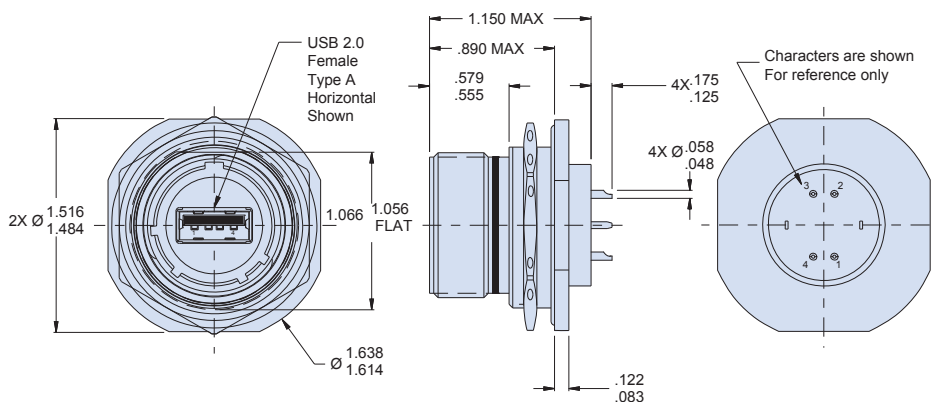
Square Flange Receptacle

**USB Orientation Options
(Partial Views Shown)**



All External Dimensions,
Features, etc. compliant with
D38999/20, /24 & /26.

Consult Factory for Additional Information



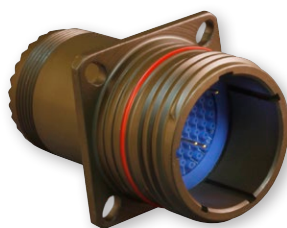
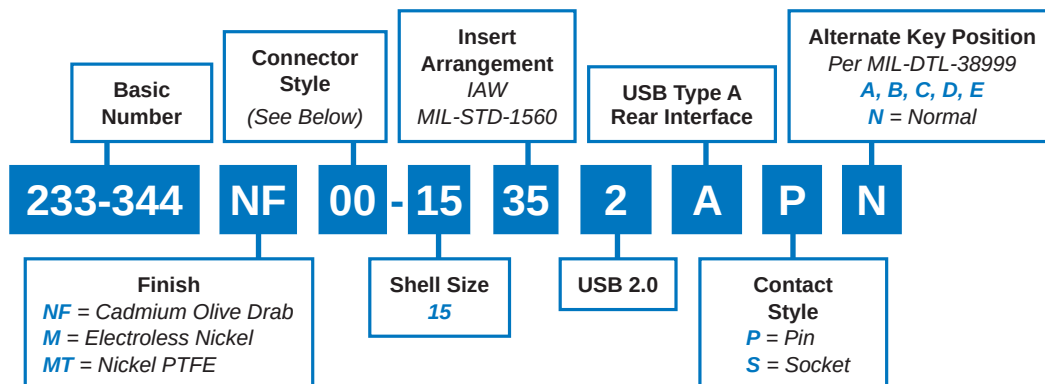
Jam Nut Receptacle



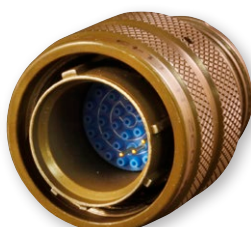
233-344

USB SuperSeal™ D38999 Series III Type Connectors

Size 22 Pin or Socket Contacts to USB 2.0 Type A Receptacle • Size 15



Receptacle
Front View



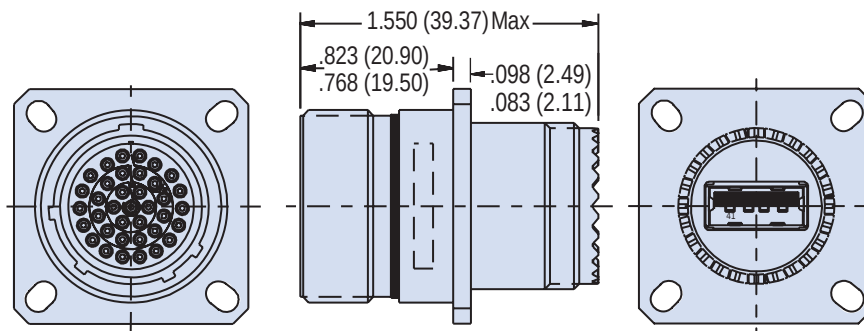
Plug
Front View

Connector Styles

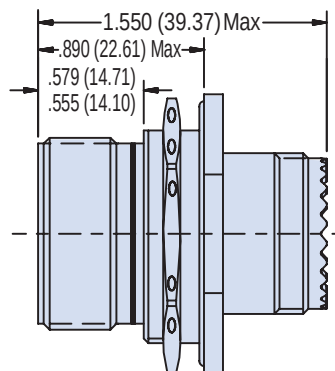
- 00** = Receptacle, Wall Mount with Slotted Holes
- 07** = Receptacle, Jam Nut Mount
- G6** = Plug

All External Dimensions,
Features, etc. compliant with
D38999/20, /24 & /26.
Consult Factory for Additional
Information.

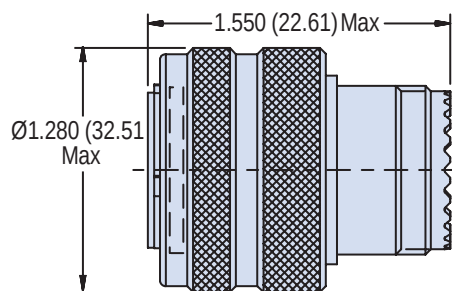
Size 17 shells also available.
Consult factory, refer to P/N 233-361.



Square Flange Receptacle

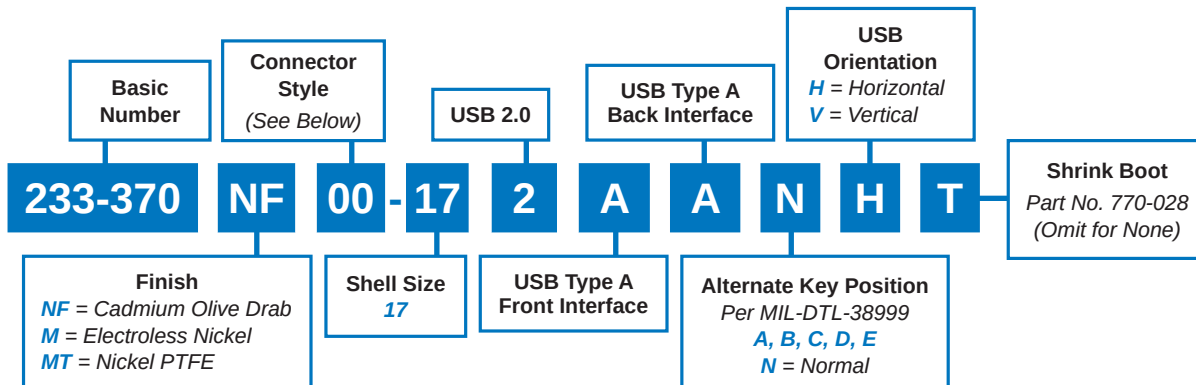


Jam Nut



Plug

233-370
USB SuperSeal™ D38999 Series III Type Receptacles
 USB 2.0 Plug-to-Receptacle or
 Receptacle-to-Receptacle Coupler • Size 17

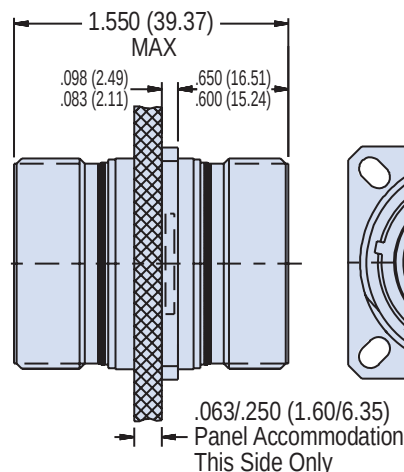
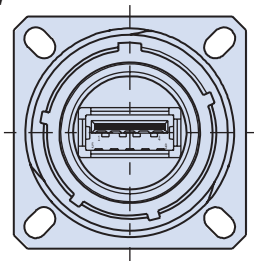


Square Flange Receptacle Jam Nut Receptacle
Front View



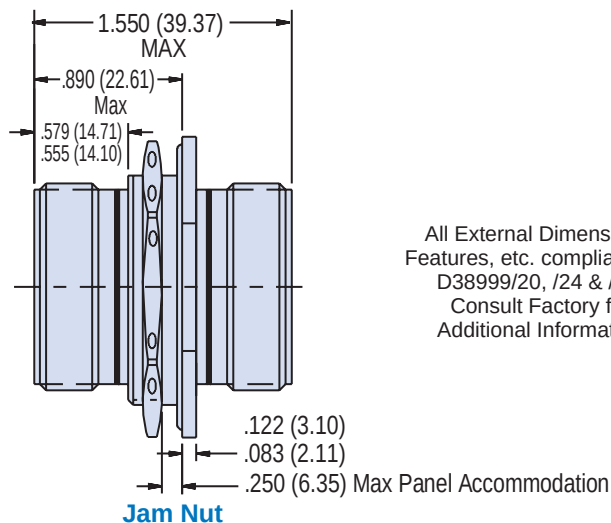
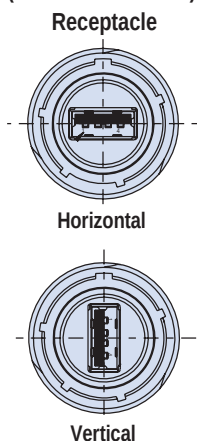
Front View

Connector Styles
 00 = Receptacle, Wall Mount with Slotted Holes
 07 = Receptacle, Jam Nut Mount



Square Flange Receptacle

USB Orientation Options
(Partial Views Shown)



All External Dimensions, Features, etc. compliant with D38999/20, /24 & /26. Consult Factory for Additional Information

SERIES 80 MIGHTY
MOUSE FIELD-
READY MICRO USB

SERIES 80 MIGHTY MOUSE MICRO USB **SUPERSEAL™**

*Series 801 Mighty Mouse connectors with
superior sealing, shielding and crimp contact
termination*



Features

- Superior sealing—IP68 when mated—for complete system protection against water, sand and dust
- Shielded/grounded coupler designs in both receptacle and plug connectors
- Crimp contact termination
- Integrated banding porch or connector accessory interface
- Micro USB “B” plugs and universal “AB” receptacles
- Double-start stub ACME threaded coupling standard. Consult factory for available QDC push-pull and triple-start threaded versions
- Less than half the size and weight compared to MIL-DTL-38999 type solutions



SuperSeal™ Mighty Mouse Series 801 Micro USB Connectors



Product Selection Guide



Preliminary Performance Specifications

Connector test and performance specifications per MIL-DTL-38999, Universal Serial Bus and other applicable standards.



Size #23 Contacts and Tools

Size #23 Pin Contacts for use with the Micro-B USB connectors in this catalog, plus appropriate tools and termination instructions.



801-082 and 801-083

SuperSeal™ Mighty Mouse Series 801 Plugs with Micro "B" USB Plug and Rear Crimp Contact Wire Termination



801-084 and 801-085

SuperSeal™ Mighty Mouse Series 801 Receptacles with Micro "AB" USB Receptacle with Rear Crimp Contact Wire Termination



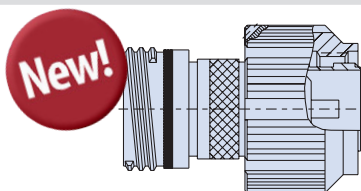
801-087 and 801-088

SuperSeal™ Mighty Mouse Series 801 Plugs with Front and Rear Micro "B" USB Plugs



801-089 and 801-090

SuperSeal™ Mighty Mouse Series 801 Receptacles with Front and Rear Micro "AB" USB Receptacles



801-091

SuperSeal™ Mighty Mouse Series 801 Sav-Con® Connector Saver with Micro "B" USB Plug and Micro "AB" USB Receptacle



SuperSeal™ Mighty Mouse Series 801 Micro USB Connectors Materials and Performance Specifications

Material and Finishes:

Shell/coupling – High strength aluminum alloy

Plating – Cadmium olive drab over electroless nickel; Nickel PTFE; Electroless nickel

Contacts – Copper alloy, gold plated

USB insulator – LCP

Seals – Silicon-based elastomer

Stainless steel and other materials and finishes available.

Please consult factory.

Shell Type and Sizes:

Mating – Double-start stub ACME threaded, QDC push-pull, and triple-start threaded

Size – Shell size 8

Micro USB Electrical Specifications:

Voltage Rating – 30 VAC (rms)

Current Rating – Signal pins 1.0A, Power pins 1.8A

D.W.V. – 600 VAC

Shield Continuity – Continuous through coupler or continuous coupler to shell

Environmental / Mechanical Performance

Sealing – IP68 mated condition

Operating Temperature Range – -40°C to +125°C

Vibration – 37 g's

Mechanical Shock – 300 g's

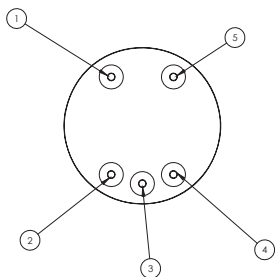
Mating Cycles – 10,000

Options:

Complete range of protective covers, both metal and rubber are available



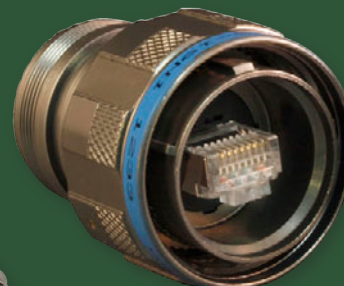
Crimp Contact Pin Layout



Pin Number	USB Designation	Typical Wiring Assignment
1	VBUS	RED
2	D-	WHITE
3	D+	GREEN
4	ID	RA_PLUG_ID
5	GND	BLACK
SHELL	SHIELD	DRAIN WIRE

UP TO 71% WEIGHT SAVINGS!
UP TO 52% SIZE SAVINGS!

Series 801
Mighty Mouse
Micro USB



MIL-DTL-38999 Type
RJ45

The series 801 connector offers up to 71% weight savings and 52% size reduction when compared to a D38999 Series III connector.

**SuperSeal™ Mighty Mouse Series 801
Micro USB Connectors
Performance Specifications - Preliminary Data**



Mighty Mouse
Micro USB

PERFORMANCE SPECIFICATIONS: PRELIMINARY DATA

Test Description	Performance Requirements/Specifications	Procedure Per MIL-DTL-38999 Or Other Standard
Dielectric withstanding voltage	Maximum leakage current = 2 milliamperes No evidence of electric breakdown or flashover	4.5.11.1 or 4.5.11.2 IAW EIA-364-20, Method A
Insulation resistance	At ambient temperature: >5000 megohms between any pair of contacts and between any contact and the shell. after altitude immersion = 1000 megohms min. after humidity = 100 megohms min. At elevated temperature: >1000 megohms	4.5.10.1 and 4.5.10.2 IAW EIA-364-21
Contact resistance	Terminal-to-terminal resistance of mated connector contacts shall not exceed 0.050 ohms.	4.5.14
Mating durability	500-1000 cycles depending on plating, with no mechanical damage. Dielectric, contact resistance and air pressure requirements as described above shall be met after 500-1000 mating cycles.	4.5.8
Contact retention	Individual contacts capable of withstanding at least 10 pounds axial load applied uniformly at one pound per second.	IAW EIA-364-29
Vibration and Shock	37 g's random vibration, 300 g's shock. No electrical discontinuity, no disengagement of mated connectors, backing off of the coupling mechanism, or evidence of cracking, breaking, or loosening.	4.5.23
Temperature cycling	-65°C to 175°C or 200°, depending on finish. No blistering, peeling or separation of plating or other damage detrimental to the operation of the connector.	4.5.4 EIA364-32, Test condition A
Salt spray	5% solution, 34°-36°C. 48-1000 hours, depending on finish. Unmated connectors show no lifting of plated coating or exposure of basis material under 3X magnification which adversely affects performance.	4.5.13 EIA-364-26
Humidity	Cycle wired, mated connectors between 25 °C at 80 % and 65 °C at 50 %. Ramp time = 0.5 hour, dwell = 1.0 hour. 24 cycles.	4.5.26 EIA364-31, Method IV
Water immersion	1 Meter for 1 Hour, mated.	MIL-STD-810 Method 512
EMI Shielding	Series 801: Good Series 804: Very Good Series 805: Excellent	4.5.28 EIA-364-66

Electrical Specs - Plug:

IEC Compatibility (EN61000-4)
61000-4-2 (ESD): Air Gap And HBM - 15kV, Contact - 8kV
Bi-Directional Configuration
Ultra Low Leakage Current

Electrical Specs - Receptacle:

IEC Compatibility (EN61000-4)
61000-4-2 (ESD): Air Gap And HBM - 15kV, Contact - 8kV
Bi-Directional Configuration
Ultra Low Leakage Current



Series 80 Mighty Mouse Contacts and Tools Size #23 Crimp Contacts

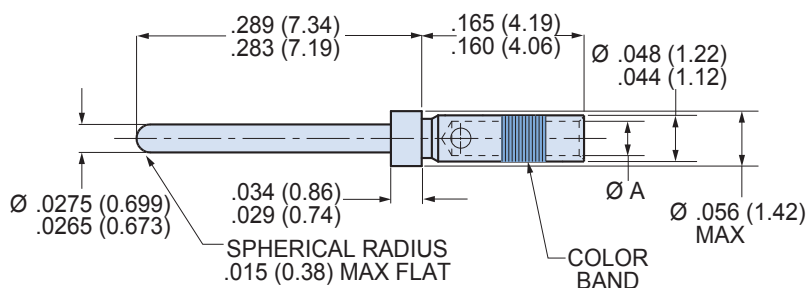
SIZE #23 CRIMP CONTACTS



#23 Pin Contact

Standard size #23 contacts accept #22 to #28 AWG wire. Choose "small bore" versions for #26 to #30 AWG wire. For thermocouple applications, specify alumel or chromel contacts. Contacts are bulk packaged. Terminate with standard M22520 crimper with special positioner.

Contact Type	Wire Size	Material	Part Number	Ø A		Color Band	Tool Code
				In.	mm.		
Pin	#22 – #28	BeCu	809-001	.0335-.0355	0.851-0.902	None	A, C
Pin	#26 – #30	BeCu	809-042	.0229-.0245	0.582-0.622	Blue	A, D



Crimp Tensile Strength

Values are in pounds and are minimums.

Wire Gauge	Silver or Tin Coated Copper Wire	Nickel Coated Copper Wire
#22	12	8
#24	8	6
#26	5	3
#28	3	2
#30	1.5	1.5

Material and Finish

Beryllium copper alloy per ASTM B196 or B197, 50 microinches gold plated per ASTM B488 Type II Code C Class 1.25 over nickel plate per QQ-N-290 Class 2, 50-100 microinches.

Thermocouple contacts: alumel or chromel alloy, unplated, per ANSI 96.1

Specifications

Current Rating: 5 Amps maximum

Voltage Drop (at 5 Amps and 25° C): 70 millivolts maximum

Temperature Range: -65° to + 200° C

MINIATURE ADJUSTABLE CRIMP TOOL AND POSITIONER



Standard M22520/2-01 crimper for use with standard size #23 Mighty Mouse contacts. Performs precision eight-indent crimps for gas-tight wire terminations and excellent tensile strength. Adjustment wheel has 8 settings. Ratchet mechanism prevents improper crimps. Length is 6.75 inches, weight is approx. 10 oz. Bayonet-type positioner 809-005 hold contacts at correct height for crimping. Check calibration with M22520/3 gages.

Tool	Part Number	Military Part Number	Daniels Part Number	Tool Code
Crimp Tool	809-015	M22520/2-01	AFM8	A
Positioner	809-005	(none)	K1461	C

Series 80 Mighty Mouse Contacts and Tools Size #23 Crimp Contact Instructions



HOW TO TERMINATE, INSTALL AND REMOVE SIZE #23 CONTACTS

1 Set Up Crimp Tool. Install proper positioner into crimp tool. The label on the positioner shows the proper tool setting for each wire size. Turn the adjustment wheel to the correct setting.

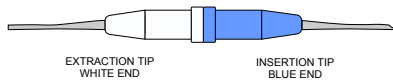
2 Strip Wire. Remove wire insulation, taking care to avoid nicking or cutting wire strands. Strip wire to length shown.

3 Insert wire into contact. The wire should be visible in the inspection hole.

4 Insert contact into crimp tool as shown. Make sure that the contact is fully inserted into the tool. Squeeze handle completely. The ratchet mechanism will not allow a partial crimp. Release handle and remove contact.

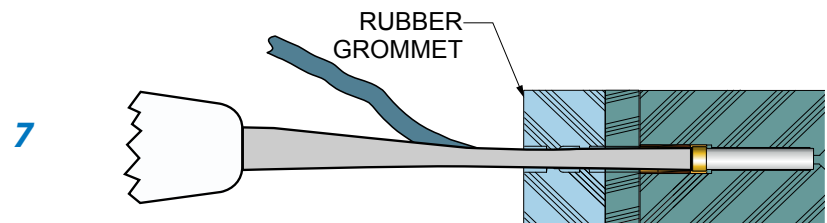
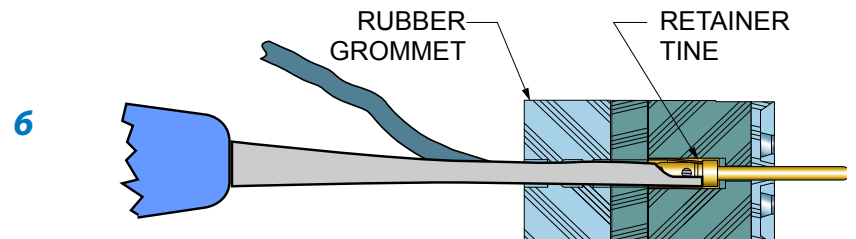
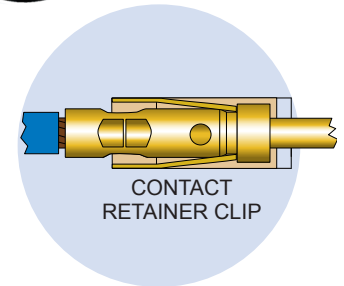
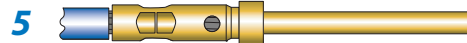
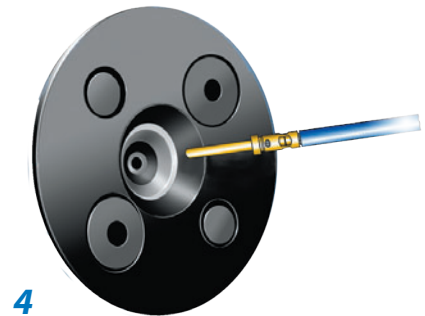
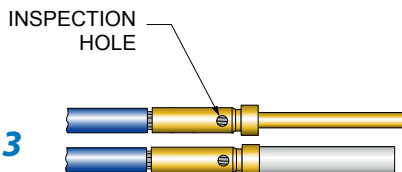
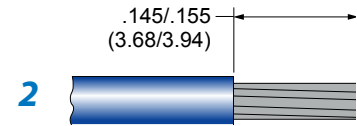
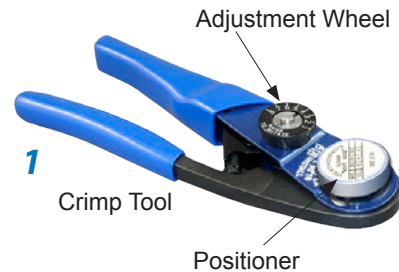
5 Inspect crimped contact. Wire should be fully inserted and the crimp should be uniform in appearance.

Insertion/Extraction Tool 809-088



6 Install contact into connector. Push the contact through the rear grommet until the contact locks into place. This can usually be done by hand without the need for a tool. If the wire gage is #26 or smaller, a tool is helpful. There are two techniques for installing contacts with a tool. One method is to push the contact in by hand, then use the tool to finish the insertion. The other method is to position the insertion tip against the contact shoulder, then insert the contact. Use insertion/extraction tool 809-088 to install contacts. Slide the wire into the groove on the blue end of the tool. Slide the tool tip up the contact until it touches the contact shoulder. **USE CARE TO AVOID DAMAGING THE CONNECTOR.**

7 Contact Extraction. Use tool 809-088. The white end is used for contact extraction. First, push the wire into the groove of the metal tip. Slide the tip of the tool into the connector. Push the tool into the connector cavity until the tip bottoms in the connector. Avoid wiggling or rocking the tip. This may damage the cavity. A straight push is best. Pinch the wire between your finger and the white plastic grip and slide the tool and contact out of the connector. **Wire insulation diameter greater than 0.045 inches (1.14mm) is too large to work properly with the extraction tool. connector damage is possible.**

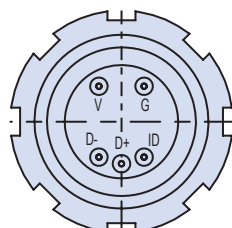




801-082 and 801-083 SuperSeal™ Mighty Mouse Series 801 Plugs with Micro "B" USB Plug and Rear Crimp Contact Wire Termination

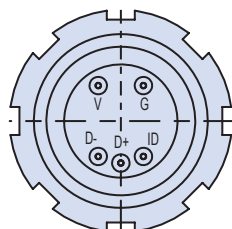


Plug, Micro B
USB Front and
Crimp Rear View



Rear Grommet
View

801-082 Micro USB Plug B
with Shield Termination Porch



Rear Grommet
View

801-083 Micro USB Plug B
with Accessory Threads

Basic Number
801-082 = Shield Termination Porch
801-083 = Accessory Threads

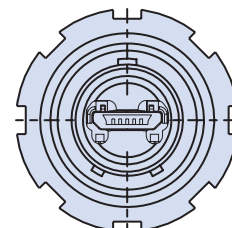
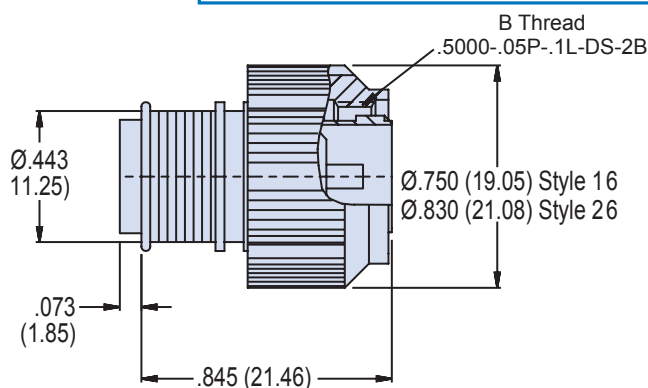
Finish
NF = Cadmium Olive Drab
M = Electroless Nickel
MT = Nickel PTFE
ZNU = Black Zinc Nickel

801-082 - 16 MUSB - M A

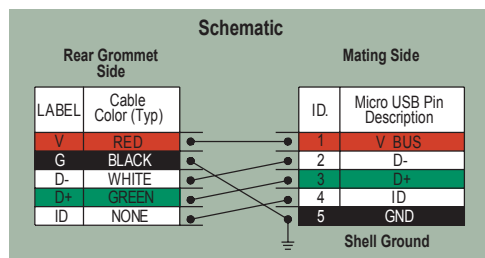
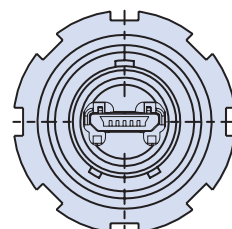
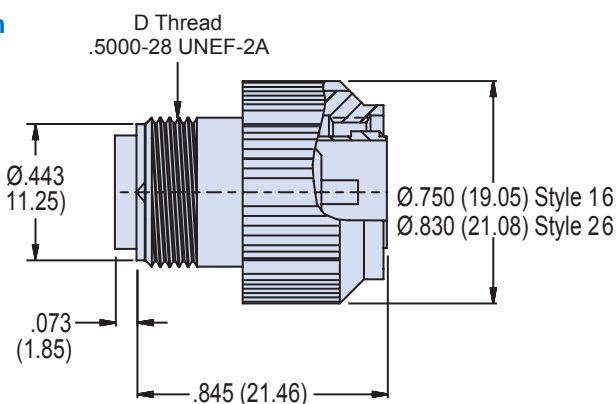
Shell Style

16 = Plug with Anti-Decoupling Spring
26 = Self-Locking Plug with Ratchet Mechanism

Alternate Key Position
A, B, C, D, E, F



These Plug Connectors
Mate with Glenair
Receptacles 801-084,
801-085, and 801-090



Plug and Receptacle Key Positions

	A°	B°
A	150°	210°
B	75°	210°
C	95°	230°
D	140°	275°
E	75°	275°
F	95°	210°

801-084 and 801-085 SuperSeal™ Mighty Mouse Series 801 Receptacles with Micro "AB" USB Receptacle with Rear Crimp Contact Wire Termination



**Square Flange
Mount, Micro AB
USB Receptacle**

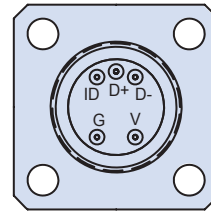
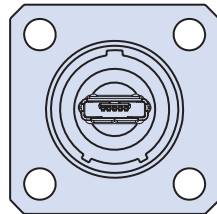
**Rear Panel
Jam Nut Mount, Micro
AB USB Receptacle**



Micro-AB USB accepts
both Micro-A and
Micro-B plugs.



**Crimp Termination
Rear View**



**Rear Grommet
View**

**801-084-02
Square Flange Mount Receptacle
with Shield Termination Porch**

Basic Number

801-084 = Shield Termination Porch
801-085 = Accessory Threads

Finish

NF = Cadmium Olive Drab
M = Electroless Nickel
MT = Nickel PTFE
ZNU = Black Zinc Nickel

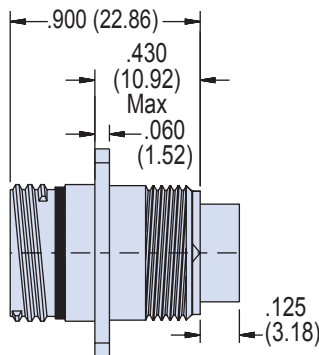
801-084 - 02 MUSB - M A

Shell Style

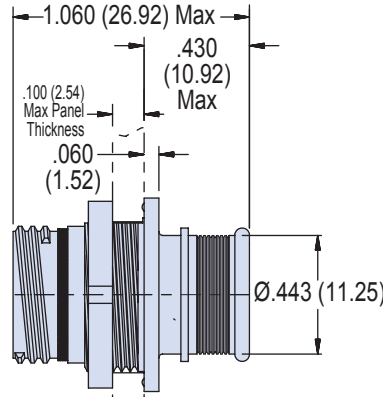
02 = Square Flange Mount Receptacle
07 = Jam Nut Mount Receptacle

**Alternate Key
Position
A, B, C, D, E, F**

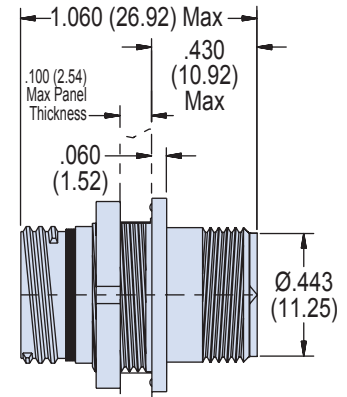
**These Micro AB
Receptacles Mate
with Glenair
Plugs 801-082,
801-083, 801-087
and 801-088**



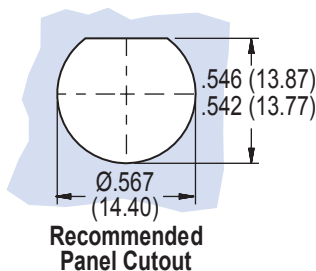
**801-085-02
Square Flange Mount Receptacle
with Accessory Threads**



**801-084-07
Jam Nut Mount Receptacle
with Shield Termination Porch**

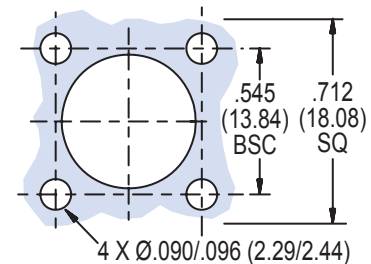


**801-085-07
Jam Nut Mount Receptacle
with Accessory Threads**



**Recommended
Panel Cutout**

Rear Grommet Side		Mating Side	
LABEL	Cable Color (Typ)	ID	Micro USB Pin Description
V	RED	1	V BUS
G	BLACK	2	D-
D-	WHITE	3	D+
D+	GREEN	4	ID
ID	NONE	5	GND
		Shell Ground	





801-087 and 801-088 SuperSeal™ Mighty Mouse Series 801 Plugs with Front and Rear Micro "B" USB Plugs



Plug, Micro B USB
Front and Rear View



These Plugs Mate with
Glenair Receptacles
801-084 and 801-085

Basic Number

801-087 = Shield Termination Porch
801-088 = Accessory Threads

Finish

NF = Cadmium Olive Drab
M = Electroless Nickel
MT = Nickel PTFE
ZNU = Black Zinc Nickel

801-087

- 16 MUSB -

M

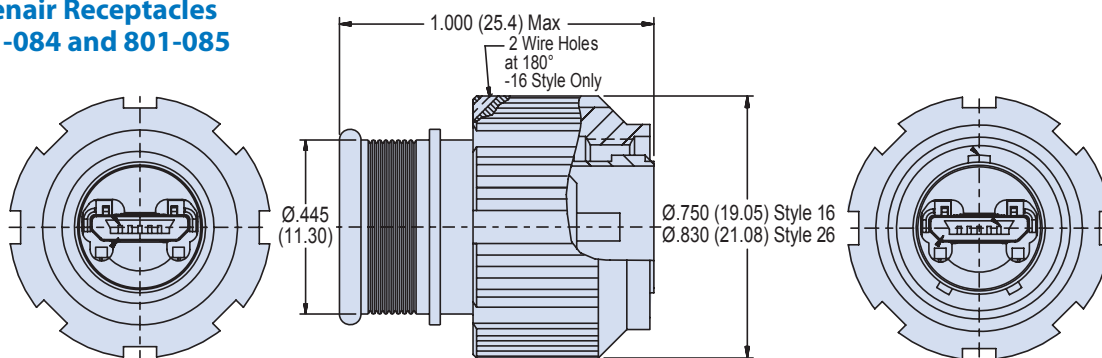
A

Shell Style

16 = Plug with Anti-Decoupling Spring
26 = Self-Locking Plug with Ratchet Mechanism

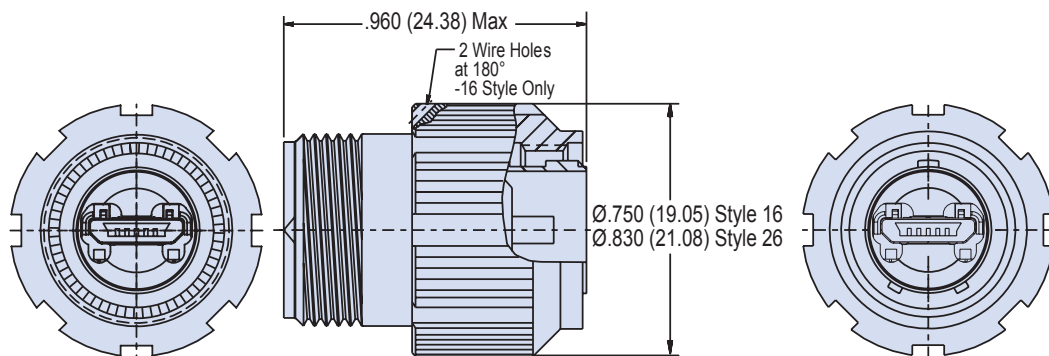
Alternate Key Position

A, B, C, D, E, F



801-087 Micro USB Plug B
with Termination Porch

Face view of Plug Adapter as
viewed from engaging end



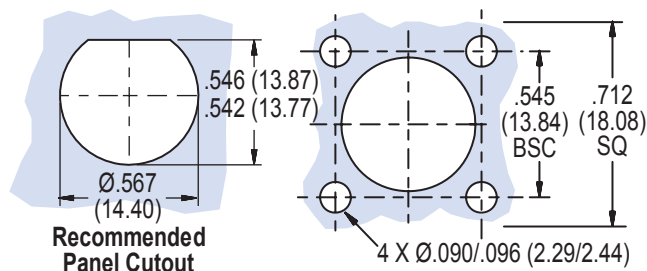
801-088 Micro USB Plug B
with Accessory Threads

Face view of Plug Adapter as
viewed from engaging end

Plug and Receptacle Key Positions

	A°	B°
A	150°	210°
B	75°	210°
C	95°	230°
D	140°	275°
E	75°	275°
F	95°	210°

Receptacle Panel Cutouts



801-089 and 801-090 SuperSeal™ Mighty Mouse Series 801 Receptacles with Front and Rear Micro "AB" USB Receptacles



Mighty Mouse
Micro USB



Inline
Receptacle

Jam Nut
Receptacle



Square Flange
Receptacle



Equipped with Micro AB
USB Receptacles,
Front and Rear

Basic Number

801-089 = Shield Termination Porch
801-090 = Accessory Threads

Finish

NF = Cadmium Olive Drab
M = Electroless Nickel
MT = Nickel PTFE
ZNU = Black Zinc Nickel

801-089 - 02 MUSB - M A

Shell Style

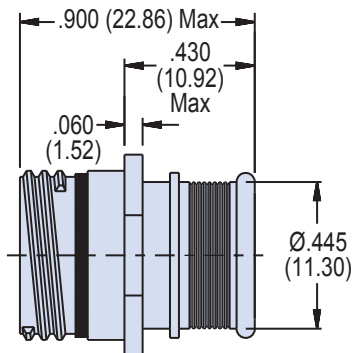
01 = In Line Receptacle
02 = Square Flange Front or
Rear Mount Receptacle
07 = Jam Nut Rear Mount Receptacle

Alternate Key Position

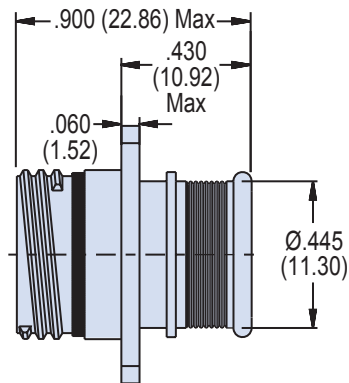
A, B, C, D, E, F

These Receptacle Connectors Mate with Glenair Plugs
801-082 and 801-083

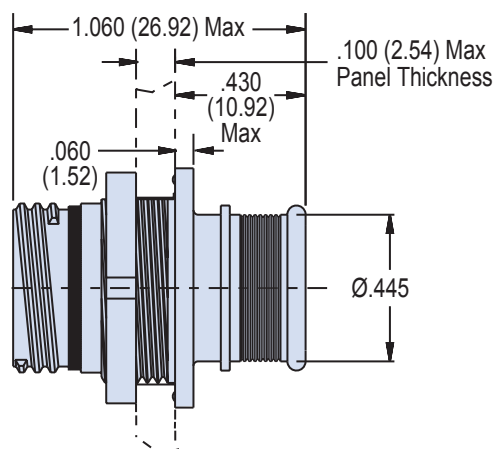
Integral Banding Porch Versions



801-089-01 Inline

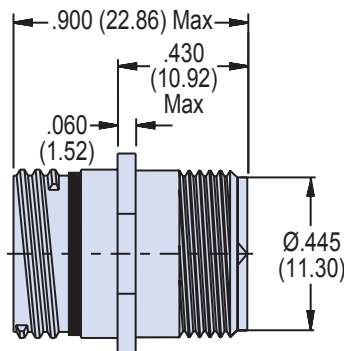


801-089-02 Square Flange
Front or Rear Mount

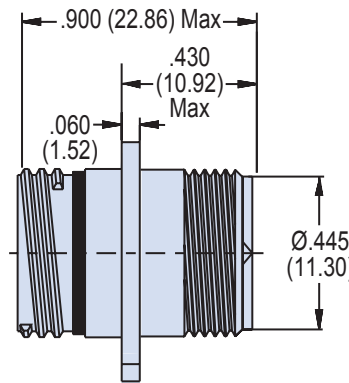


801-089-07 Jam Nut
Rear Mount

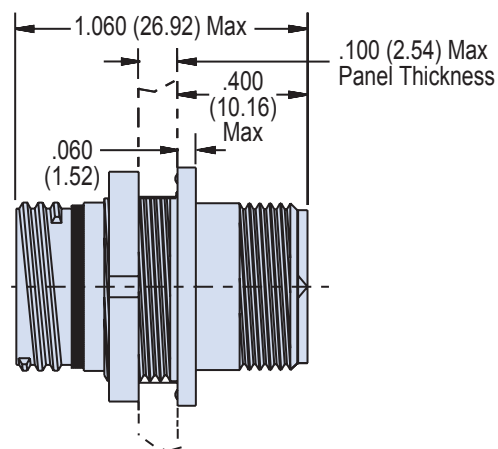
Accessory Thread Versions



801-089-01 Inline



801-089-02 Square Flange
Front or Rear Mount



801-089-07 Jam Nut
Rear Mount



801-091

SuperSeal™ Mighty Mouse Series 801

Sav-Con® Connector Saver with

Micro "B" USB Plug and Micro "AB" USB Receptacle

Basic Number

801-091 = Plug/Receptacle
Sav-Con® Connector Saver

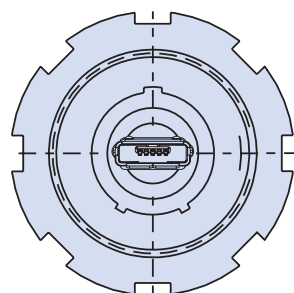
Finish

NF = Cadmium Olive Drab
M = Electroless Nickel
MT = Nickel PTFE
ZNU = Black Zinc Nickel

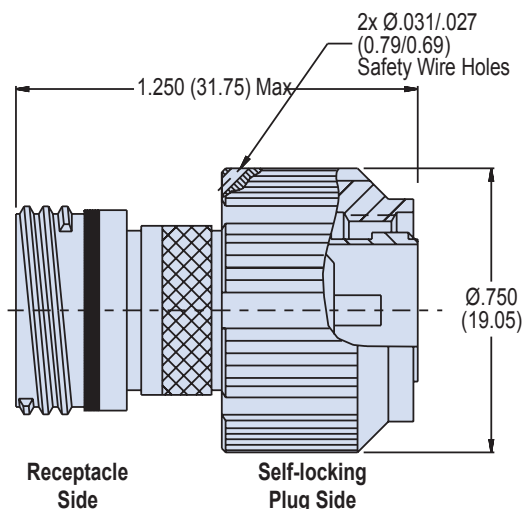
801-091 - MUSB - M A

Alternate Key Position

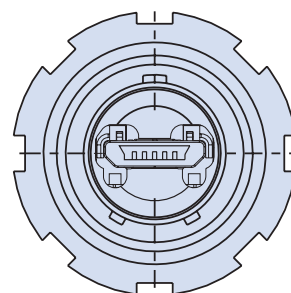
A, B, C, D, E, F



Face View Of Receptacle
As Viewed From Engaging End.



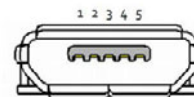
801-091
Mighty Mouse Sav-Con Connector Saver
Micro-B USB Receptacle/Plug
with Self-Locking Coupling Nut



Face View Of Plug
As Viewed From Engaging End.

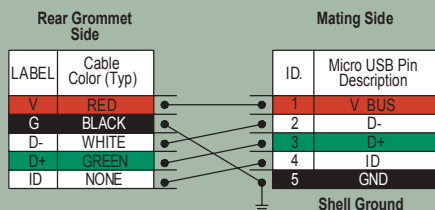


Receptacle Side Equipped
with Micro AB USB
Receptacle



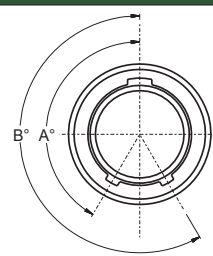
Plug Side Equipped
with Micro B USB
Receptacle

Schematic



Alternate Key Positions

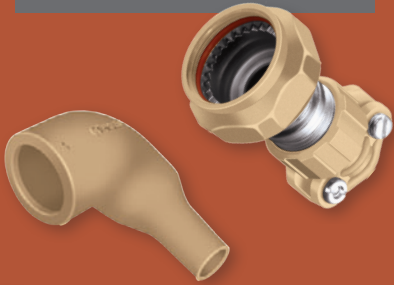
	A°	B°
A	150°	210°
B	75°	210°
C	95°	230°
D	140°	275°
E	75°	275°
F	95°	210°



FED-STD-33446
DESERT TAN

SEMPER TAN™

*The permanent FED-STD-33446
Desert Tan solution*



Maintenance-Free Desert Tan Cables, Conduits, Junction Boxes and More

Recently, a Glenair customer requested a FED-STD-33446 desert tan version of our popular high-temperature annular tubing (hylar or trade name Kynar). Glenair was able to produce the product shown above in just a few short weeks and it is now being used in a military vehicle application. The tubing is now part of our new Semper Tan series of interconnect components. Semper Tan is a permanent FED-STD-33446 Desert Tan solution that eliminates the costly labor of manually painting and maintaining standard cables, conduit assemblies, and junction boxes used in military applications. Please consult the factory for innovative Semper Tan solutions.

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Why Choose **GLENAIR?**



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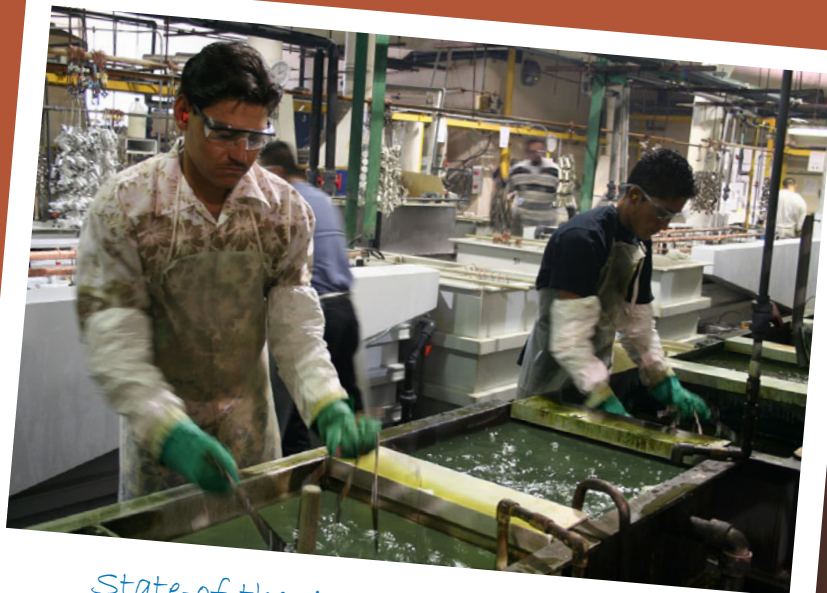
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