

# MRC CONNECTORS

PDS-233-10



## OVERVIEW

Amphenol Aerospace now offers a connector series that can be used for all of your multi-media needs. This series is capable of running Gigabit Ethernet, USB 2.0/USB 3.0, HDMI and 10 Gigabit Ethernet when specified and designated to a specific configuration. MRC is a micro-miniature connector ideal for Commercial, Industrial and Military Communication Systems.

The MRC flange mounting plugs are supplied with rigid contacts that are flat to the front surface of the connector. This feature allows it to be used in applications such as ruggedized displays, radios, and routers that have potential to come in contact with dirt and sand during use. The MRC can be easily cleaned by simply wiping off debris whereas standard pin and socket style connectors tend to be more difficult to remove debris once it has been compacted in the contacts.

The MRC cable assemblies feature connectors with spring loaded contacts and two coupling styles (Push/Pull and Push w/ ¼ turn lock). Both of these coupling styles mate with the standard flange mounting plug. Cable assemblies are available in various lengths and can either be supplied as double ended with MRC connectors on both ends or with standard COTS RJ45, USB, HDMI connections on one end. Additional cable materials and connector configuration are available; please consult our product team with your requirements.

## MRC SERIES SPECIFICATIONS

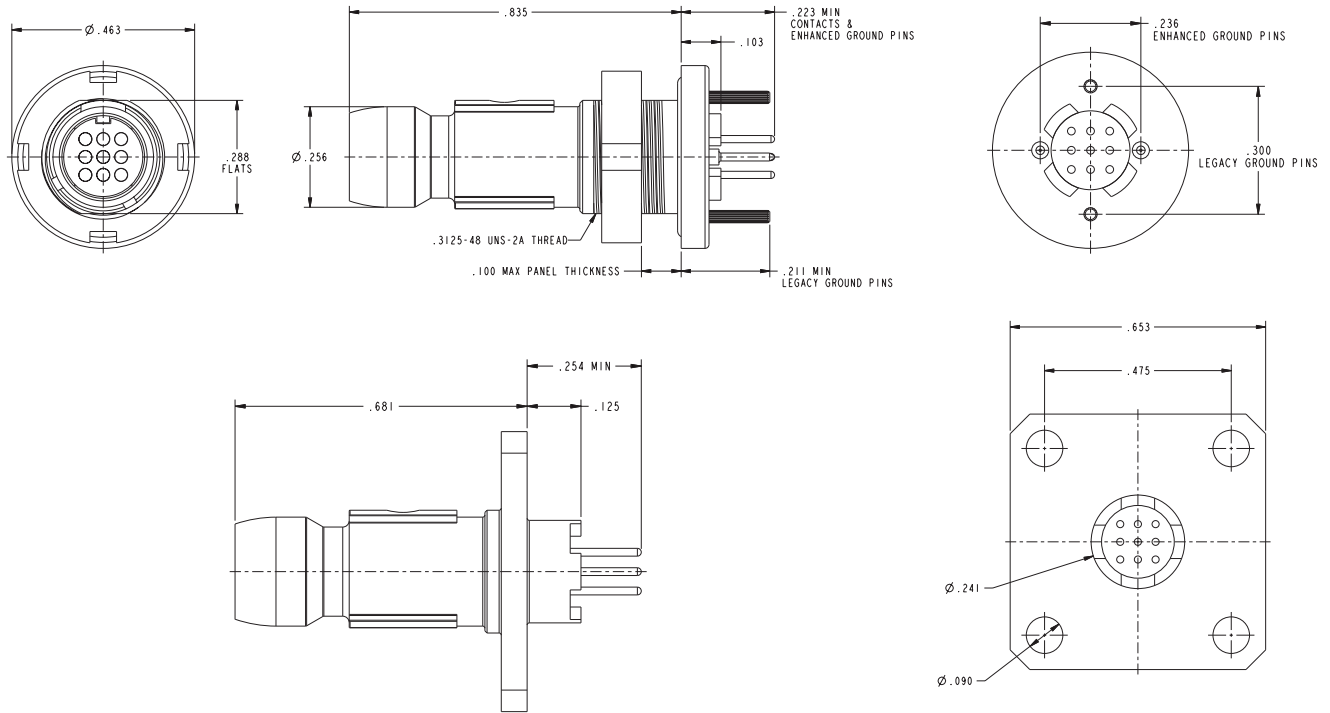
CURRENT RATING	2.5 AMPS Max Per Contact
PROTOCOLS SUPPORTED	Gigabit Ethernet, USB 2.0/3.0, 10 Gigabit Ethernet, & HDMI
DURABILITY	2000 Mating Cycles
UNMATING FORCE	4 lb. Min
TEMPERATURE RANGE	See Individual Connector Pages

## MATERIALS & FINISHES

SHELLS	Aluminum Alloy
CONTACTS	Copper Alloy, Gold Plated
INSULATORS	Polyphenylene Sulfide (PPS), Teflon
CANTED COIL SPRING	Stainless Steel, Gold Plated

# 9 PIN MOUNT PLUG

## HOW TO ORDER



1. Series	2. Shell Style	3. Service Class	4. Alternate Keying Positions	5. Grounding Pins
<b>MRC9</b>	<b>7</b>	<b>C</b>	<b>N</b>	<b>G</b>

\*Omit grounding pins for square flange.

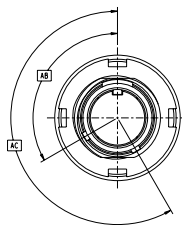
1. SERIES	
<b>MRC9</b>	9 Pin MRC Connector

2. SHELL STYLE	
<b>7</b>	PC Jam Nut Panel Mount Plug
<b>2</b>	PC Square Flange*

\*Only mates with a Push -Pull style Receptacle

3. SERVICE CLASS	
	Finish
<b>C</b>	OD Cadmium
<b>E</b>	Electroless Nickel
<b>D</b>	Durmalon
<b>Z</b>	Black Zinc Nickel
<b>G</b>	Green Zinc Nickel
<b>B</b>	Black Electroless Nickel

4. ALTERNATE KEYING POSITION		
Key Position	AB°	AC°
<b>N</b>	120	210
<b>A</b>	150	210
<b>B</b>	95	210
<b>C</b>	120	275
<b>D</b>	150	275

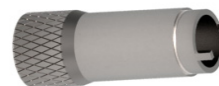


5. GROUNDING PINS	
<b>Omit</b>	Legacy Ground Pins - inactive for new design
<b>G</b>	Enhanced Ground Pin
<b>N</b>	Non-grounded

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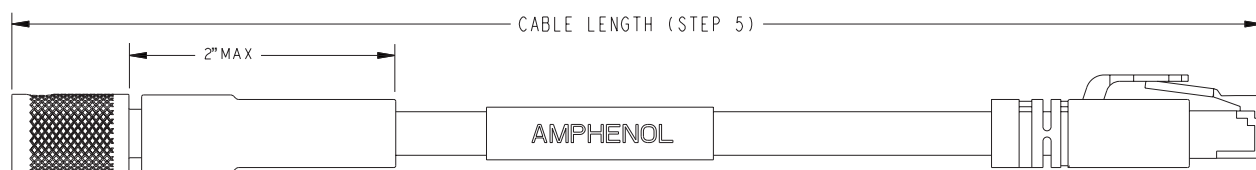
TEMPERATURE
-55° C to 175° C

SPANNER NUT TOOL
11-013020-005



# ETHERNET CABLE ASSEMBLIES

## HOW TO ORDER



1.	2.	3.	4.	5.	6.
Series	Cable End A	Service Class	Alternate Keying Position (Side A)	Cable Length in Inches	Cable End B
<b>MRC9</b>	<b>1</b>	<b>C</b>	<b>N</b>	<b>24</b>	<b>EM</b>

TEMPERATURE
-20° C to 75° C

1. SERIES	
<b>MRC9</b>	9 Pin MRC Connector

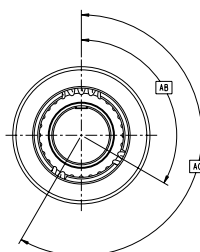
5. CABLE LENGTH
Determine the overall length of your cable from end to end in inches. For Ex. 24 = 24 Inches. Note: 12 inch Minimum

2. SHELL STYLE	
Connector Designator	Cable End A
<b>1</b>	Push-pull Receptacle (Spring Contacts)
<b>3</b>	Twist-lock Receptacle (Spring Contacts)

6. SHELL STYLE	
Connector Designator	Cable End B
<b>EM</b>	Ethernet RJ45 Male Cat 6
<b>E1</b>	Push-pull Receptacle (Spring Contacts)
<b>E3</b>	Twist-lock Receptacle (Spring Contacts)
<b>EMZ</b>	Ethernet RJ45 Male Cat 6, LSZH
<b>EIZ</b>	Push-pull Receptacle (Spring Contacts), LSZH
<b>E3Z</b>	Twist-lock Receptacle (Spring Contacts), LSZH

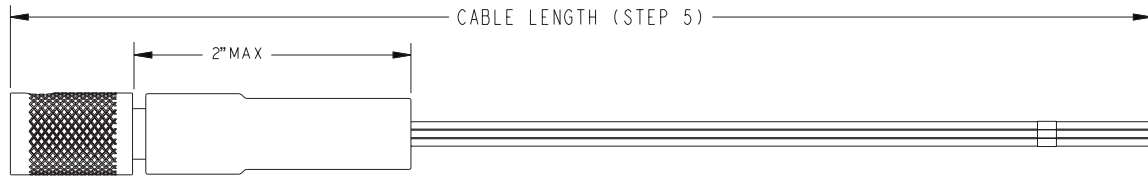
3. SERVICE CLASS	
	Finish
<b>C</b>	OD Cadmium
<b>E</b>	Electroless Nickel
<b>D</b>	Durmalon
<b>Z</b>	Black Zinc Nickel
<b>G</b>	Green Zinc Nickel
<b>B</b>	Black Electroless Nickel

4. ALTERNATE KEYING POSITION		
Key Position	AB°	AC°
<b>N</b>	120	210
<b>A</b>	150	210
<b>B</b>	95	210
<b>C</b>	120	275
<b>D</b>	150	275



# 9 PIN PIG TAIL CABLE ASSEMBLIES

## HOW TO ORDER



1.	2.	3.	4.	5.	6.
Series	Cable End A	Service Class	Alternate Keying Position (Side A)	Cable Length in Inches	Cable End B
<b>MRC9</b>	<b>1</b>	<b>C</b>	<b>N</b>	<b>24</b>	<b>P</b>

TEMPERATURE
-55° C to 105° C

1. SERIES	
<b>MRC9</b>	9 Pin MRC Connector

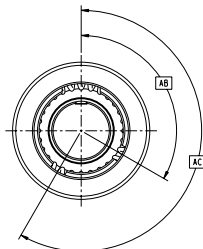
5. CABLE LENGTH	
Determine the overall length of your cable from end to end in inches. For Ex. 24 = 24 Inches. Note: 12 inch Minimum	

2. SHELL STYLE	
Connector Designator	Cable End A
<b>1</b>	Push-pull Receptacle (Spring Contacts)
<b>3</b>	Twist-lock Receptacle (Spring Contacts)

6. SHELL STYLE	
Connector Designator	Cable End B
<b>P</b>	Pig Tail Wire
<b>P1</b>	Push-Pull Receptacle
<b>P3</b>	Twist-Lock Receptacle

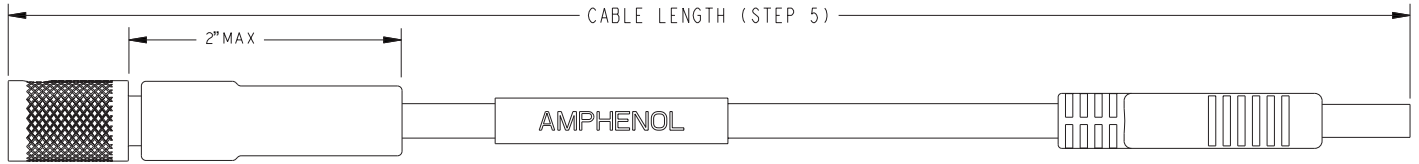
3. SERVICE CLASS	
	Finish
<b>C</b>	OD Cadmium
<b>E</b>	Electroless Nickel
<b>D</b>	Durmalon
<b>Z</b>	Black Zinc Nickel
<b>G</b>	Green Zinc Nickel
<b>B</b>	Black Electroless Nickel

4. ALTERNATE KEYING POSITION		
Key Position	AB°	AC°
<b>N</b>	120	210
<b>A</b>	150	210
<b>B</b>	95	210
<b>C</b>	120	275
<b>D</b>	150	275



# USB 2.0/3.0 CABLE ASSRMBLIES

## HOW TO ORDER



1. Series	2. Cable End A	3. Service Class	4. Alternate Keying Position (Side A)	5. Cable Length in Inches	6. Cable End B
<b>MRC9</b>	<b>1</b>	<b>C</b>	<b>N</b>	<b>24</b>	<b>U1</b>

### 1. SERIES

<b>MRC9</b>	9 Pin MRC Connector
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### 2. SHELL STYLE

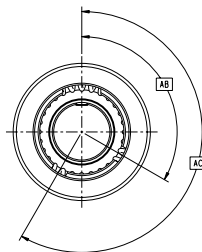
Connector Designator	Cable End A
<b>1</b>	Push-pull Receptacle (Spring Contacts)
<b>3</b>	Twist-lock Receptacle (Spring Contacts)

### 3. SERVICE CLASS

	Finish
<b>C</b>	OD Cadmium
<b>E</b>	Electroless Nickel
<b>D</b>	Durmalon
<b>Z</b>	Black Zinc Nickel
<b>G</b>	Green Zinc Nickel
<b>B</b>	Black Electroless Nickel

### 4. ALTERNATE KEYING POSITION (SIDE A)

Key Position	AB°	AC°
<b>N</b>	120	210
<b>A</b>	150	210
<b>B</b>	95	210
<b>C</b>	120	275
<b>D</b>	150	275



### 5. CABLE LENGTH

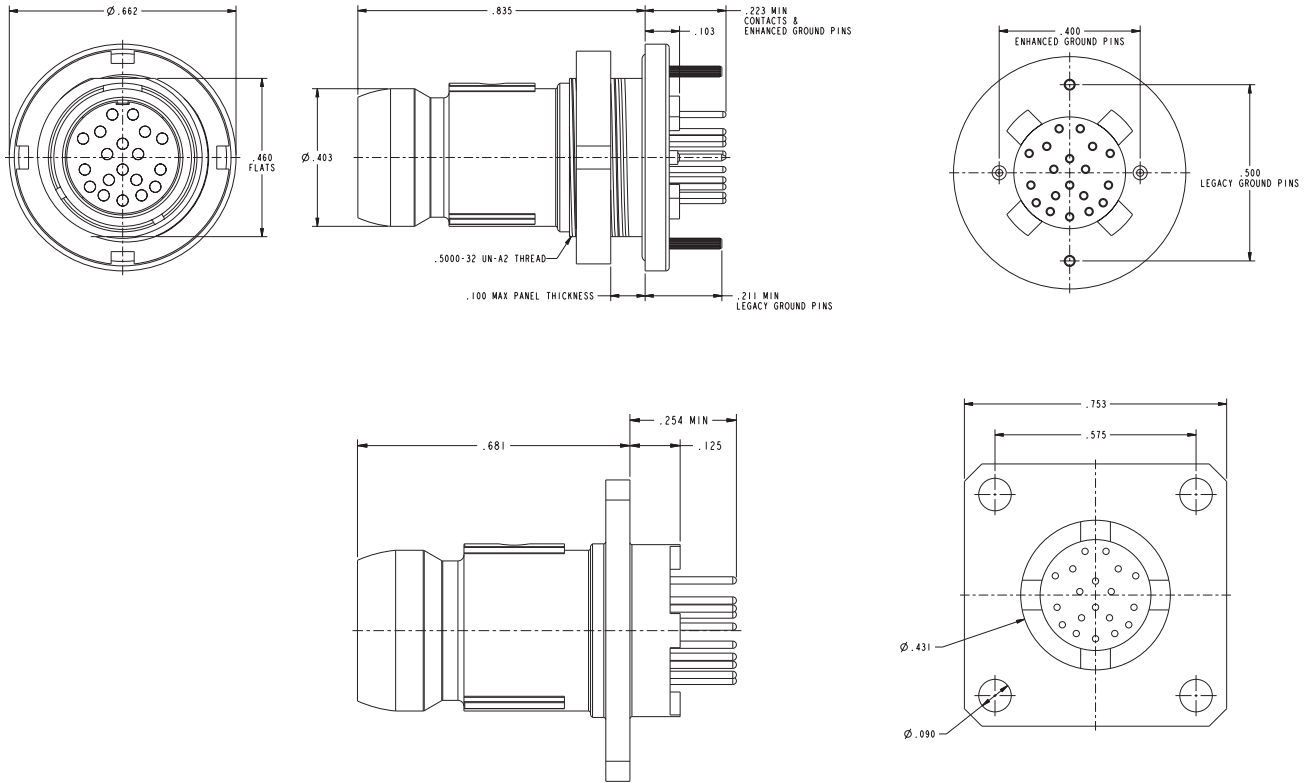
Determine the overall length of your cable from end to end in inches. For Ex. 24 = 24 Inches.  
Note: 12 inch Minimum,  
180 inch Maximum

### 6. SHELL STYLE

Connector Designator	Cable End B	
<b>U1</b>	USB 2.0 Type A Male	
<b>U2</b>	USB 2.0 Type A Micro B Male	
<b>U3</b>	USB 3.0 Type A Male	
	U4 Superseded by U4A or U4B	
<b>U4A</b>	Push Pull USB 3.0 Type A Female	
<b>U4B</b>	Twist Lock USB 3.0 Type A Female	
<b>U5</b>	USB 3.0 Type A Micro B Male	
<b>U6A</b>	Push-pull Receptacle	USB 2.0 Cable
<b>U6B</b>		USB 3.0 Cable
<b>U7A</b>	Twist-lock Receptacle	USB 2.0 Cable
<b>U7B</b>		USB 3.0 Cable

# 19 PIN HDMI CHASSIS MOUNT PLUG

## HOW TO ORDER



1.	2.	3.	4.	5.
Series	Shell Style	Service Class	Alternate Keying Position	Grounding Pins
<b>MRC19</b>	<b>7</b>	<b>C</b>	<b>N</b>	<b>G</b>

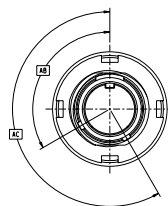
\*Omit grounding pins for square flange.

1. SERIES	
<b>MRC19</b>	19 Pin MRC Connector

2. SHELL STYLE	
<b>7</b>	PC Jam Nut Panel Mount Plug

3. SERVICE CLASS	
	Finish
<b>C</b>	OD Cadmium
<b>E</b>	Electroless Nickel
<b>D</b>	Durmalon
<b>Z</b>	Black Zinc Nickel
<b>G</b>	Green Zinc Nickel
<b>B</b>	Black Electroless Nickel

4. ALTERNATE KEYING POSITION		
Key Position	AB°	AC°
<b>N</b>	120	210
<b>A</b>	150	210
<b>B</b>	95	210
<b>C</b>	120	275
<b>D</b>	150	275



5. GROUNDING PINS	
<b>Omit</b>	Legacy Ground Pins - inactive for new design
<b>G</b>	Enhanced Ground Pins
<b>N</b>	Non-grounded

FOR JAMNUT ONLY

TEMPERATURE
-55° C to 175° C

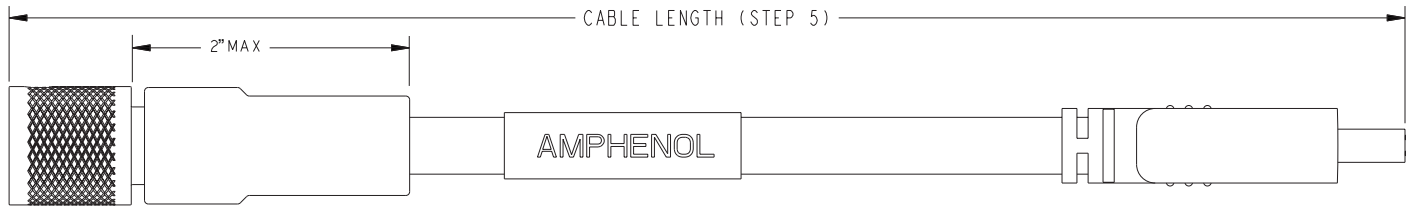
SPANNER NUT TOOL
11-013020-007

30-40 inch lb. recommended torque



# HDMI CABLE ASSEMBLIES

## HOW TO ORDER



1.	2.	3.	4.	5.	6.
Series	Cable End A	Service Class	Alternate Keying Position (End A)	Cable Length in Inches	Cable End B
<b>MRC19</b>	<b>1</b>	<b>C</b>	<b>N</b>	<b>24</b>	<b>H1</b>

TEMPERATURE
-20° C to 80° C

### 1. SERIES

**MRC19** 19 Pin MRC Connector

### 2. SHELL STYLE

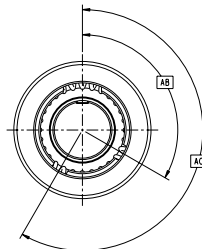
Connector Designator	Cable End A
<b>1</b>	Push-pull Receptacle (Spring Contacts)
<b>3</b>	Twist-lock Receptacle (Spring Contacts)

### 3. SERVICE CLASS

	Finish
<b>C</b>	OD Cadmium
<b>E</b>	Electroless Nickel
<b>D</b>	Durmalon
<b>Z</b>	Black Zinc Nickel
<b>G</b>	Green Zinc Nickel
<b>B</b>	Black Electroless Nickel

### 4. ALTERNATE KEYING POSITION (END A)

Key Position	AB°	AC°
<b>N</b>	120	210
<b>A</b>	150	210
<b>B</b>	95	210
<b>C</b>	120	275
<b>D</b>	150	275



### 5. CABLE LENGTH

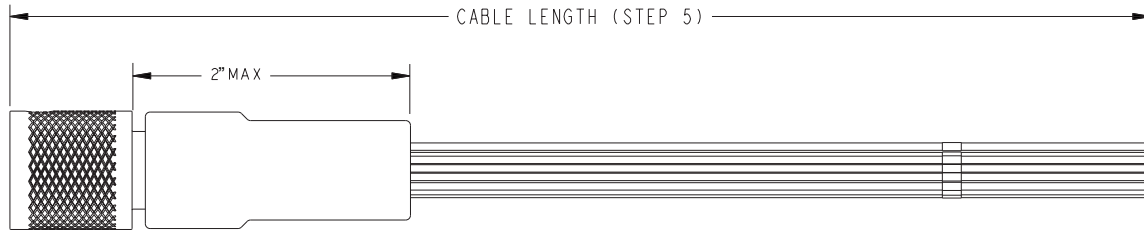
Determine the overall length of your cable from end to end in inches. For Ex. 24 = 24 Inches.  
Note: 12 inch Minimum, 180 inch Maximum.

### 6. SHELL STYLE

Connector Designator	Cable End B
<b>H1</b>	HDMI Male
<b>H2</b>	HDMI Male Mini
<b>H3</b>	Push-pull Receptacle (Spring Contacts)
<b>H4</b>	Twist-lock Receptacle (Spring Contacts)

# 19 PIN PIG TAIL CABLE ASSEMBLIES

## HOW TO ORDER



1. Series	2. Cable End A	3. Service Class	4. Alternate Keying Position (End A)	5. Cable Length in Inches	6. Cable End B
<b>MRC19</b>	<b>1</b>	<b>C</b>	<b>N</b>	<b>24</b>	<b>P</b>

TEMPERATURE
-55° C to 105° C

1. SERIES	
<b>MRC19</b>	19 Pin MRC Connector

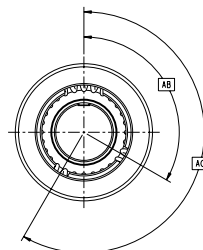
5. CABLE LENGTH
Determine the overall length of your cable from end to end in inches. For Ex. 24 = 24 Inches. Note: 12 inch Minimum

2. SHELL STYLE	
Connector Designator	Cable End A
<b>1</b>	Push-pull Receptacle (Spring Contacts)
<b>3</b>	Twist-lock Receptacle (Spring Contacts)

6. SHELL STYLE	
Connector Designator	Cable End B
<b>P</b>	Pig Tail Wire
<b>P1</b>	Push-Pull Receptacle
<b>P3</b>	Twist-Lock Receptacle

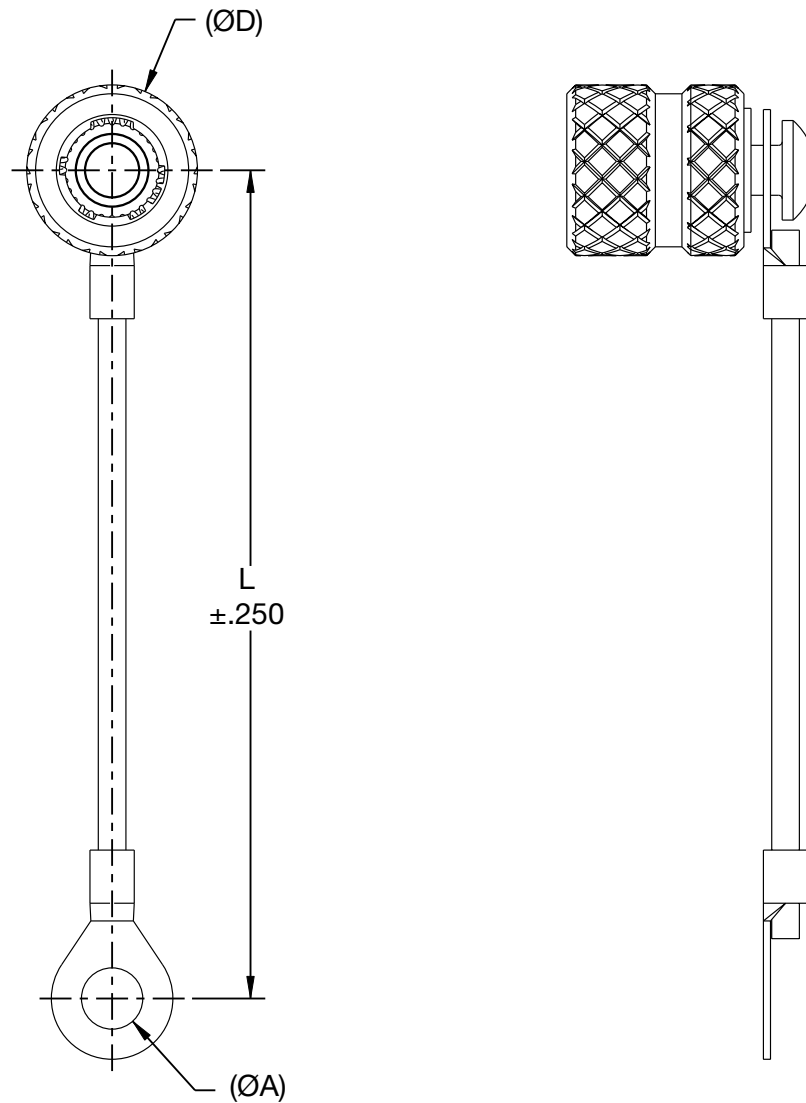
3. SERVICE CLASS	
	Finish
<b>C</b>	OD Cadmium
<b>E</b>	Electroless Nickel
<b>D</b>	Durmalon
<b>Z</b>	Black Zinc Nickel
<b>G</b>	Green Zinc Nickel
<b>B</b>	Black Electroless Nickel

4. ALTERNATE KEYING POSITION (END A)		
Key Position	AB°	AC°
<b>N</b>	120	210
<b>A</b>	150	210
<b>B</b>	95	210
<b>C</b>	120	275
<b>D</b>	150	275



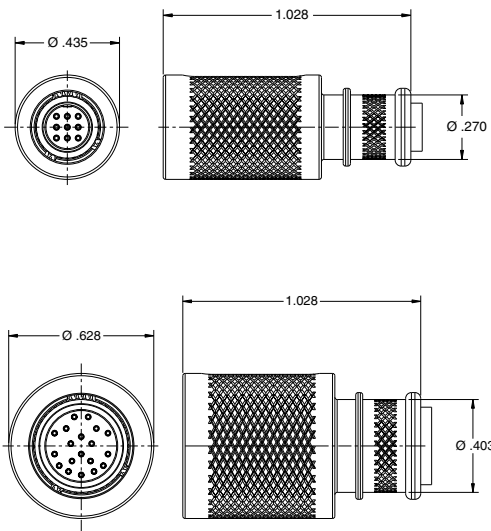


# PROTECTION CAP FOR PLUG

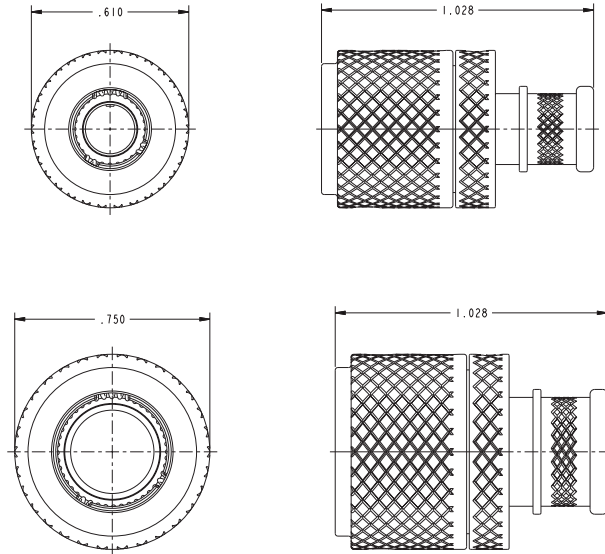


# CONNECTOR OPTIONS

## 1 - PUSH-PULL RECEPTACLE (SPRING LOADED CONTACTS)



## 3 - TWIST-LOCK RECEPTACLE (SPRING LOADED CONTACTS)



# MRC SOLUTIONS

The MRC panel mount connectors are also available with COTS connector assemblies. These assemblies allow the user to connect commercial cables inside their box or on the backside of a bulkhead. This type of assembly allows the user to ruggedize specific areas of the application while others can remain commercial. Please contact Amphenol with your requirements.



Notice: Specifications are subject to change without notice. Contact your nearest Amphenol Corporation Sales Office for the latest specifications. All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty, or responsibility of any kind, expressed or implied. Statements or suggestions concerning possible use of our products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should assume that all safety measures are indicated or that other measures may not be required. Specifications are typical and may not apply to all connectors.

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