JOHNSON™

kwiQMAte™ Connectors

Product Catalog

cinch
CONNECTIVITY SOLUTIONS
a bel group

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About Bel

Bel is a publicly traded company that has been operated by the same family for over 65 years. Our history of organic growth and acquisitions have broadened our product portfolio. This has established Bel as a world leader with a diverse offering of power, protection and interconnect products. We design and manufacture these products which are primarily used in the networking, telecommunications, computing, military, aerospace, transportation and broadcasting industries. Bel's portfolio of products also finds application in the automotive, medical and consumer electronics markets.

About Cinch Connectivity Solutions

For over 100 years, Cinch Connectivity Solutions has manufactured high quality and reliable high performance connectors and cable assemblies. Cinch is recognized as a world class connectivity supplier of RF, fiber optic, hybrid, microwave components, circular, d-subminiatures, modular rectangular, electronic enclosures and cable assemblies. Cinch provides innovative solutions to the military, commercial aerospace, networking, telecommunication, test and measurement, oil and gas and other harsh environment industries. We aim to exceed our customers' expectations and continually offer innovative solutions to the rapidly changing needs of the markets and customers we serve.

Along with our parent company, Bel Fuse Inc., our mission is to provide products and services using established quality standards and to meet our customer expectations. To fulfill this objective, we strive to produce components and assemblies that embody optimum levels of reliability and performance in their design, manufacture, and delivery. Cinch Connectivity Solutions has consistently proven to be a valuable supplier to the foremost companies in its chosen industries by developing cost effective solutions for the challenges of new product development.

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kwiQMAte™ Connectors

Cinch Connectivity Solutions kwiQMAte™ branded Johnson® product line of QMA connectors features a push-on style interface. Traditionally SMA plugs need to be configured with extra space allowance for torque wrench coupling procedures. The kwiQMAte™ connectors are designed for higher density packaging situations. The pushpull connector interface allows for more connectors per application. Our unique coupling spring provides excellent electrical and mechanical performance. kwiQMAte™ meets or exceeds the performance requirements of MIL-PRF-39012. All designs are based on 50ohm system impedance and operate at frequencies up to 12.4 GHz.

Connector bodies are offered with Tri-Alloy as a standard finish, and gold plating where soldering is required. All contacts are gold plated for excellent durability and high frequency performance. The Johnson line of kwiQMAte™ connectors is fully compatible with other industry available QMA connectors.

Johnson® kwiQMAte™ Connectors meet or exceed the performance requirements of MIL-PRF-39012. All designs are based on 50 ohm system impedance and operate at frequencies up to 12.4 GHz.

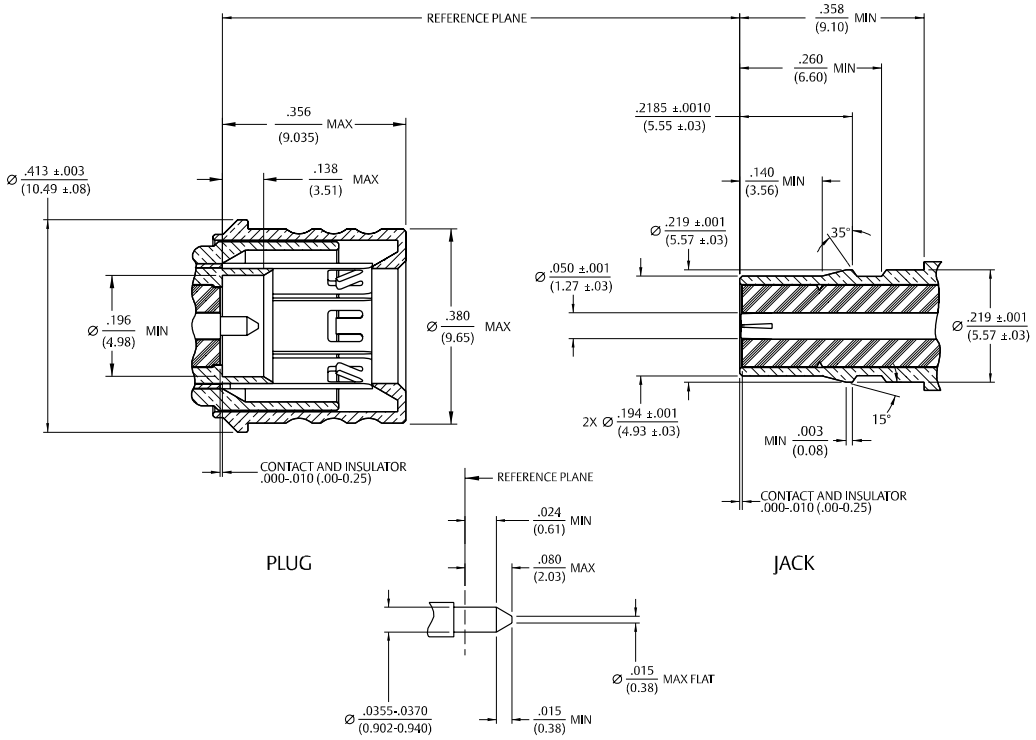
Features

- All contacts are plated with 50 micro-inches of gold for excellent durability and high frequency performance.
- Connector bodies are offered with Tri-Alloy as a standard finish and gold plating where soldering is required.
- Cabled contacts are captivated upon assembly.
- Flexible cable straight contacts can be crimped or soldered.
- The right angle PC mount features a rugged one-piece body with a one-piece swept contact.
- Unique coupling device provides excellent connectivity.

Applications

- Antennas
- Base Stations
- Broadcast
- Cable Assemblies
- Cellular
- Instrumentation
- Microwave Radio
- Radar
- Radios
- RF and Microwave Components
- Test Applications

Mating Engagement for kwiQMAte™ Connectors



Specifications

Electrical Specifications

Impedance	50 Ohms	
Frequency Range:	12.4GHz	
VSWR: (f=GHz)	**Straight Cable Connectors**	**Right Angle Cable Connectors**
RG-316, RG-316 DS	1.15+0.02f	1.15+0.03f
Uncabled Receptacles	N/A	N/A
Insertion Loss (dB max)		
Straight Flexible Cable Connectors	0.06√f (GHz), tested at 6GHz	
Right Angle Flexible Cable Connectors	0.15√f (GHz), tested at 6GHz	
Uncabled Receptacles	N/A	
Working Voltage (Vrms max)	**Sea Level**	**70,000 Feet**
RG-316, RG-316 DS	250	65
Uncabled Receptacles	335	85
Dielectric Withstanding Voltage		
Connectors for RG-316, RG-316 DS	750 Vrms minimum, at sea level	
Uncabled Receptacles	1000 Vrms minimum, at sea level	
Corona Level		
Connectors for RG-316, RG-316 DS	190 Volts min, at 70,000 feet	
Uncabled Receptacles	250 Volts min, at 70,000 feet	
RF High Potential Withstanding Voltage		
Connectors for RG-316, RG-316 DS	500 Vrms minimum, tested at 4 and 7 MHz	
Uncabled Receptacles	670 Vrms minimum, tested at 4 and 7 MHz	
Insulation Resistance	5000 Megohms min	
Contact Resistance (milliohms max)	**Initial**	**After Environmental**
Center Contact (straight cabled connectors and uncabled receptacles)	3.0	4.0
Center Contact (right angle cabled connectors)	4.0	6.0
Outer Contact (all connectors)	2.0	N/A
Braid to Body (Tri-Alloy plated bodies)	3.0	N/A
Braid to Body (Gold plated bodies)	0.5	N/A
RF Leakage		
Cable Connectors	-80 dB max, tested at 3GHz	
Uncabled Receptacles	N/A	

Mechanical Specifications

Durability (mating cycles minimum)	500	
Engagement / Disengagement Force	8lbs max (5lbs typical)	
Coupling Retention Force	10lbs min	
Contact Retention	6lbs min axial force (captivated contacts) 4oz-in min torque (uncabled receptacles)	
Cable Retention (min*)	**Axial Force (lbs)**	**Torque (oz-in)**
Connectors for RG-316, RG-316 DS	20	N/A

*Or cable breaking strength, whichever is less

Material Specifications

Bodies:	Brass per QQ-B-626, Tri-Alloy (Cu/Sn/Zn) plated .0001" min
Contacts:	Male - Brass per ASTM B16, Gold plated* per MIL-G-45204 .00005" min Female – Beryllium Copper per ASTM B196, Gold plated* per MIL-G-45204 .00005" min
Insulators:	PTFE Fluorocarbon per ASTM D1710 and ASTM D1457
Gaskets:	Silicon Rubber per ZZ-R-765
Expansion Caps:	Brass per QQ-B-613, Tri-Alloy (Cu/Sn/Zn) plated .0001" min
Crimp Sleeves:	Copper per ASTM A75, Tri-Alloy (Cu/Sn/Zn) plated .0001"min
Coupling Retention Spring (Plugs):	Beryllium Copper per ASTM B196, Tri-Alloy (Cu/Sn/Zn) plated .0001"min
Mounting Hardware:	Brass per QQ-B-626, or QQ-B 613, Tri-Alloy (Cu/Sn/Zn) plated .0001"min

* Gold plated parts include a .00005" min nickel barrier layer

Environmental Specifications

Meets or Exceeds the Applicable Paragraph of MIL-PRF-39012	
Temperature Range:	-65°C to +165°C
Thermal Shock	MIL-STD-202, Method 107, Condition B (except +85°C high temperature)
Corrosion:	MIL-STD-202, Method 101, Condition B
Shock:	MIL-STD-202, Method 213, Condition I
Vibration:	MIL-STD-202, Method 204, Condition D
Moisture Resistance:	MIL-STD-202, Method 106

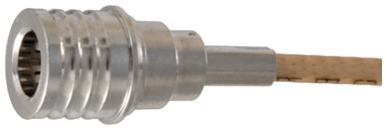
Competitor Cross Reference

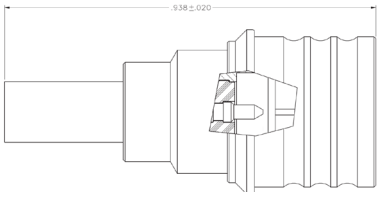
CINCH PART NUMBER	Amphenol	Huber Suhner	Molex	Radiall	Rosenberger	Telegartner	TYCO/AMP
146-0403-007	930-129P-51S	11_QMA-50-2-2/133_NE	73254-0090	R123 071 000	28 S 107- 302 N5	J01420A0005	1408333-1
146-0403-107	930-118P-51A	16_QMA-50-2-2/133_NE	73254-0110	R123 172 000	28 S 207- 302 N5	J01420A0035	1408336-1
146-0404-007	930-115P-51S	11_QMA-50-2-1/133_NE	N/A	R123 072 000	28 S 107- 303 N5	J01420A0055	1408333-3
146-0404-107	N/A	16_QMA-50-2-1/133_NE	N/A	R123 174 000	28 S 207- 303 N5	J01420A0095	1408336-3
146-0701-201	930-116J-51P	82_QMA-50-0-3/111_NH	73254-0260	R123 426 003	28 K 101- 400 L5	J01421A0033	1408332-1
146-0701-301	930-128J-51P	85_QMA-50-0-3/111_NH	73254-0240	R123 680 003	28 K 201- 400 N5	J01421A0043	1408337-1

Ordering Information

Straight Crimp Type Plug - (3-piece) - Captivated Contact

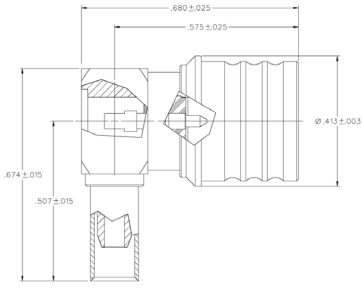
Part Number	Cable Type	VSWR (f=GHz)	Finish
146-0403-007	RG-316	1.15 +.02f	Tri-Alloy
146-0404-007	RG-316 DS	1.15 +.02f	Tri-Alloy





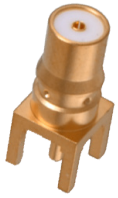
Right Angle Crimp Type Plug (1-piece body)- Captivated Contact

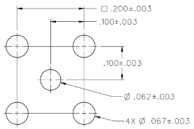
Part Number	Cable Type	VSWR (f=GHz)	Finish
146-0403-107	RG-316	1.15 +.03f	Gold Plated
146-0404-107	RG-316 DS	1.15 +.03f	Gold Plated

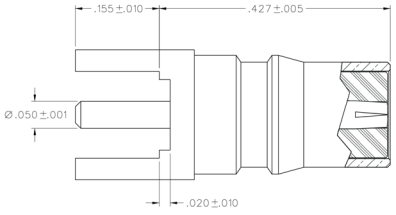


Straight Jack Receptacle

Part Number	Finish
146-0701-201	Gold Plated

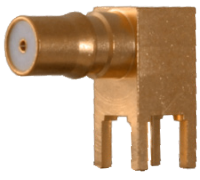


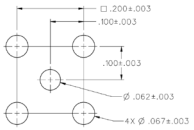


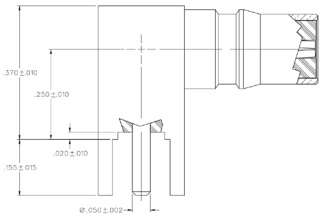


Right Angle Jack Receptacle

Part Number	Finish
146-0701-301	Gold Plated



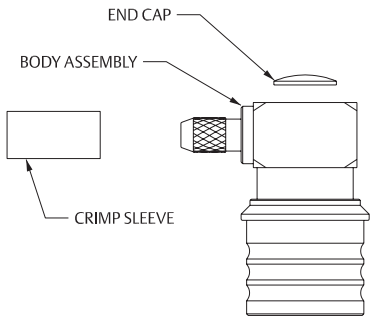




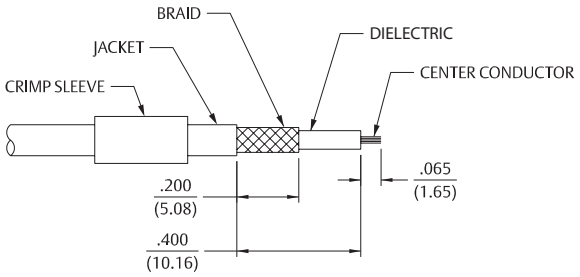
Assembly Instructions

kwiQMAte™ Crimp Type Right Angle Plugs for Flexible Cable

1. Identify connector parts. (3 piece parts)

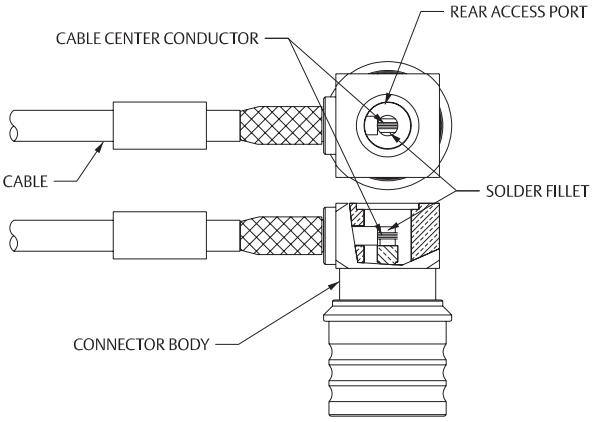


2. Strip cable to dimensions shown. Do not nick braid or center conductor. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.

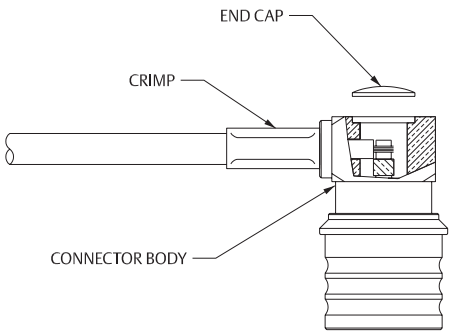


3. Flare braid and slide cable into body making certain that the cable dielectric bottoms on center contact. Solder center conductor to contact through the rear access port. Use a minimum amount of solder for a full fillet joint. .020 (0.51) diameter solder is recommended.

4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool. Place expansion cap in access port and seat with .187 (4.75) diameter flat punch. Slide heat shrink tubing over crimp sleeve and shrink (as applicable).

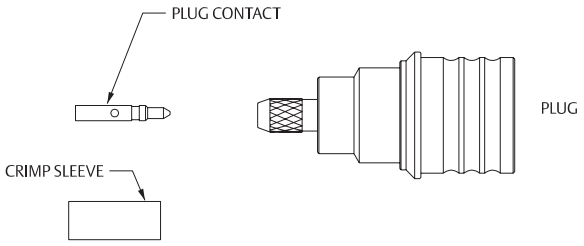


Part Number	Cable Type	Crimp Hex
146-0403-107	RG-316	0.128 (3.25)
146-0404-107	RG-316 DS	0.151 (3.83)



kwiQMAte™ Straight Plugs For Flexible Cable - Crimp or Solder Contacts

1. Identify connector parts. (3 piece parts)

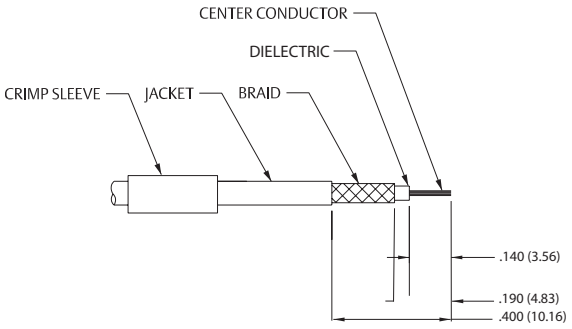


2. Strip cable to dimensions shown. Do not nick braid or center conductor. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. Slide heat shrink (as applicable) and crimp sleeve onto jacket of cable.

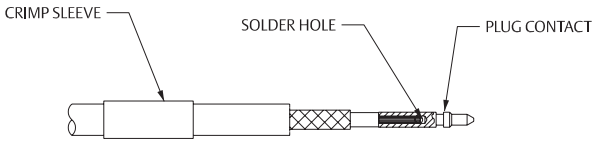
3. Assemble contact onto cable as shown.

Solder Attachment: Solder contact to center conductor through solder hole using .020 (0.51) diameter solder. Use a minimum amount of solder for a good joint.

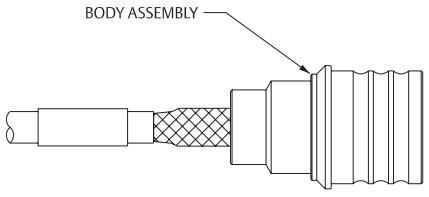
Crimp Attachment: Crimp contact to center conductor using Johnson® Hand Tool 144-0000-910, setting #2. Crimp location should be centered between end of contact and X-hole. Crimp attachment to solid center conductor cables is not recommended.

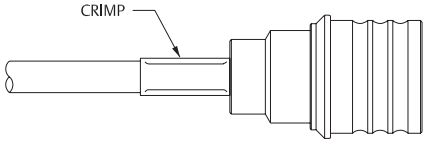


4. Flare braid and slide body assembly over contact and under braid. Then seat body assembly firmly onto contact. The cable may have to be held in a clamping fixture. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using recommended crimp tool. Slide heat shrink forward and shrink (as applicable).



Part Number	Cable Type	Crimp Hex
146-0403-007	RG-316	0.128 (3.25)
146-0404-007	RG-316 DS	0.151 (3.83)





About Cinch Connectivity Solutions

In operation since 1917, Cinch supplies high quality, high performance connectors and cables globally to the Aerospace, Military/Defense, Commercial Transportation, Oil & Gas, High End Computer, and other markets. We provide custom solutions with our creative, hands on engineering and end to end approach.

Our diverse product offerings include: connectors, enclosures and cable assemblies utilizing multiple contact technologies including copper and fiber optics. Our product engineering and development activities employ cutting edge technologies for design and modeling, and our various technologies and expertise enable us to deliver custom solutions and products for our strategic partnerships.

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