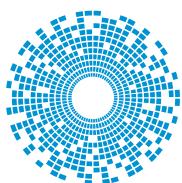




JOHNSON®

# Non Magnetic Connectors

Product Catalog



**cinch**  
CONNECTIVITY SOLUTIONS  
a bel group

[belfuse.com/cinch](http://belfuse.com/cinch)

# NON-MAGNETIC RF CONNECTORS

## Introduction



### Johnson's Non-Magnetic Connector Additions Offer Solutions to MR Imaging Technology

Johnson, a product line of Cinch Connectivity Solutions, has expanded the connector product groups in its popular line of Non-Magnetic RF coaxial connectors and cable assemblies.

MCX and MMCX micro-miniature connectors have been added to satisfy the needs of the RF coil manufacturers that are building smaller coils for MRI equipment. Customized flex coils and array coils can image smaller parts of the body such as wrists, feet, hands and other appendages.

The Non-Magnetic MCX and MMCX is the perfect micro-miniature connector for small multichannel coil packages as they provide a positive snap-on coupling design with high mating cycles for rugged, high density connectivity.

The Type N Non-Magnetic connector provides a perfect RF solution for high Tesla fields considered for future designs. These deep tissue MR images will require the rugged interface of the N connector as well as the tri-alloy plating to eliminate inter-modulation issues.

All the connectors in Johnson's Non-Magnetic line are made from high purity copper alloys assuring no ferrous materials are in the connectors manufactured. Cinch Connectivity Solutions continues to work with our customers to develop new solutions as the MR industry transitions to high-end field applications and improved resolution at greater physical depths within the body.

Products are offered through authorized distributors and international sales channels including a direct sales force and a network of manufacturers' representatives. For more information, please call (800) 247-8256.

### About Johnson

Cinch Connectivity Solutions, located in Waseca, MN, manufactures Johnson® RF Connectors such as Ultra-miniature (UMC), Micro-miniature (MCX, MCX 75, MMCX and SMP), Sub-miniature (SMA, SMB, SMB Mini-75 Ohm, SMK) and Medium (Type N) in the most popular styles including PC Board Mount, End Launch, Bulkhead Mount and Cable Mounts (Flexible, Semi-rigid and Conformable).

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# NON-MAGNETIC RF CONNECTORS

## MMCX Non-Magnetic RF Connectors



### ELECTRICAL SPECIFICATIONS

<b>Impedance:</b>	50 Ohms		
<b>Frequency Range</b>	0-6 GHz		
<b>VSWR: (f = GHz)</b>		<b>Straight Cable Connectors</b>	<b>Right Angle Cable Connectors</b>
	.047 dia flexible	1.20	1.14 + .07f
	RG-178, RG-316, RG-316 DS	1.20	1.25
<b>Working Voltage</b>	170 VRMS at sea level		
<b>Dielectric Withstanding Voltage</b>	500 VRMS at sea level		
<b>Insulation Resistance</b>	1000 megohms minimum		
<b>Contact Resistance</b> (milliohms maximum)		<b>Initial</b>	<b>After Environmental</b>
	Center Contact (straight cabled connectors, uncabled receptacles)	5.0	8.0
	Center Contact (right angle cabled connectors)	5.0	15.0
	Outer Contact	1.0	1.5
	Braid to Body	1.5	N/A
<b>Corona Level:</b>	190 volts min at 70,000 feet		
<b>Insertion Loss</b> (dB maximum, tested at 1 GHz)			
	Straight Cable Connectors		0.1
	Right Angle Cable Connectors		0.2
	Uncabled Receptacles		N/A
<b>RF Leakage</b> (dB minimum tested at 2.5 GHz)			
	Flexible Cable Connectors		-60 dB
<b>RF High Potential Withstanding Voltage</b>	tested at 4 and 7 MHz		
	VRMS minimum		400

### MECHANICAL SPECIFICATIONS

<b>Engagement Design</b>	Series MMCX		
<b>Engagement Force</b>	8 lbs. max axial engagement, 1.4 lbs. min axial disengagement		
<b>Contact Retention</b>	2.0 pounds min. axial force, 1 inch-ounce min. torque (uncabled receptacles)		
<b>Cable Retention</b>		<b>Axial Force* (lbs)</b>	<b>Torque (in-oz)</b>
	Connectors for .047 flexible	3.5	N/A
	Connectors for RG-178	7.0	N/A
	Connectors for RG-316	20.0	N/A
	Connectors for RG-316 DS	25.5	N/A
	Connectors for .086 Semi-Rigid	30.0	16
	*Or cable breaking strength whichever is less.		
<b>Durability:</b>	500 cycles minimum		

### ENVIRONMENTAL SPECIFICATIONS (Meets or Exceeds the Applicable Paragraph of MIL-RF-39012)

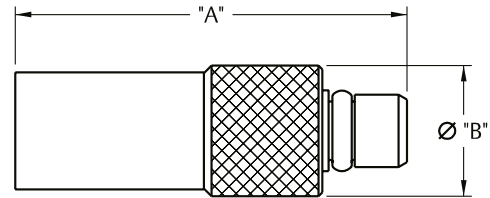
<b>Temperature Range</b>	-65°C to +165°C
<b>Thermal Shock</b>	MIL-STD-202, Method 107, Condition C (Except -55°C to 115°C)
<b>Corrosion</b>	MIL-STD-202, Method 101, Condition B
<b>Shock</b>	MIL-STD-202, Method 213, Condition B
<b>Vibration</b>	MIL-STD-202, Method 204, Condition D
<b>Moisture Resistance</b>	MIL-STD-202, Method 106

# NON-MAGNETIC RF CONNECTORS



## MMCX Non-Magnetic RF Connectors For Flexible Cable and PC Mount

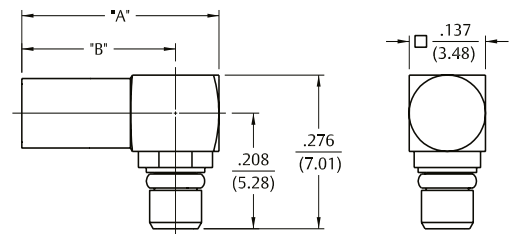
### Straight Crimp Type Plug - Solder or Crimp Contact - Captivated Contact



Cable Type	Gold Plated	"A"	"B"	Termination
RG-316/U, 188, 161, 174	135-9403-001	.509 (12.93)	.173 (4.39)	Crimp Sleeve
RG-178/U, 196	135-9402-001	.462 (11.73)	.137 (3.48)	Crimp Insert
.047 Dia. Flex	135-9436-001	.462 (11.73)	.137 (3.48)	Crimp Insert

See assembly instructions page 22

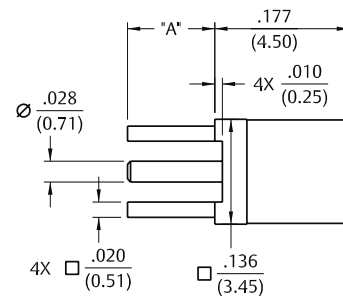
### Right Angle Crimp Type Plug - Captivated Contact



Cable Type	Gold Plated	"A"	"B"	Termination
RG-316/U, 188, 187, 179, 161, 174	135-9403-101	.412 (10.46)	.334 (8.48)	Crimp Sleeve
RG-178/U, 196	135-9402-111	.412 (10.46)	.334 (8.48)	Crimp Sleeve
.047 Dia. Flex	135-9436-101	.354 (8.99)	.276 (6.98)	Crimp Insert

See assembly instructions page 23

### Straight Jack Receptacle



Gold Plated	"A"
135-9701-201	.115 (2.92)
135-9701-211	.068 (1.73)

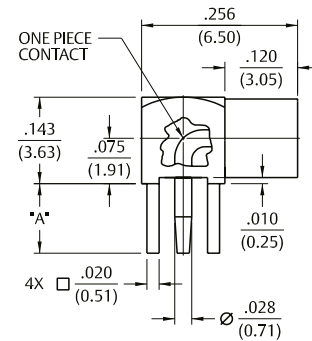
Mounting hole layout figure 1 on page 5

# NON-MAGNETIC RF CONNECTORS



## MMCX Non-Magnetic RF Connectors For PC Mount

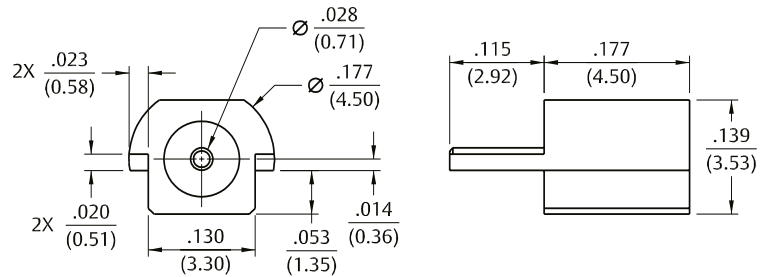
### Right Angle Jack Receptacle



Gold Plated	"A"
135-9701-301	.155 (3.94)
135-9701-311	.068 (1.73)

Mounting hole layout figure 1 on page 5 below

### End Launch Jack Receptacle - Surface Contact



Gold Plated	Packaging
135-9711-801	Stock
135-9711-802	Tape and Reel 1000 pcs/reel

Recommended land pattern figure 2 on page 5

### Mounting Hole Layout

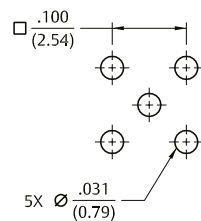


Fig 1

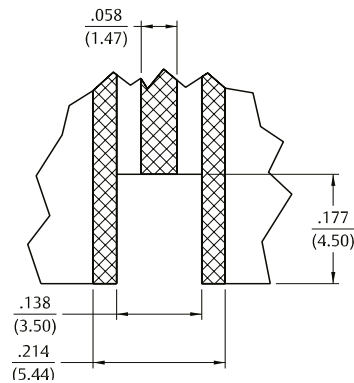


Fig 2

# NON-MAGNETIC RF CONNECTORS

## MCX Non-Magnetic RF Connectors



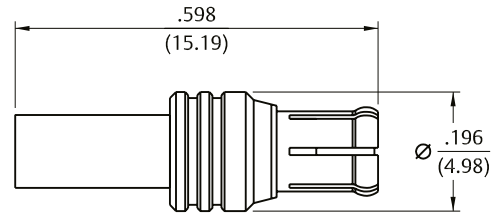
ELECTRICAL SPECIFICATIONS			
<b>Impedance:</b>		50 Ohms	
<b>Frequency Range</b>		0-6 GHz	
<b>VSWR: (f = GHz)</b>		Straight Cable Connectors	Right Angle Cable Connectors
	RG-178 cable	1.17 + .09f	1.07 + .06f
	RG-316 cable	13 + .04f	1.07 + .04f
	Uncabled Receptacles	N/A	N/A
<b>Working Voltage</b> (VRMS maximum)	Connectors for Cable Type	Sea Level	70K Feet
	RG-178	250	65
	RG-316	335	85
<b>Dielectric Withstanding Voltage</b> (VRMS minimum at sea level)			
	Connectors for RG-178, Uncabled Receptacles		750
	Connectors for RG-316, Uncabled Receptacles		1000
<b>Insulation Resistance</b>	10,000 megohms minimum		
<b>Contact Resistance</b> (milliohms maximum)		Initial	After Environmental
	Center Contact (straight cabled connectors, uncabled receptacles)	5.0	8.0
	Center Contact (right angle cabled connectors)	5.0	15.0
	Outer Contact	1.0	1.5
	Braid to Body	1.0	N/A
<b>Corona Level</b> (Volts minimum at 70,000 feet)			
	Connectors for RG-178 Uncabled Receptacles		190
	Connectors for RG-316, Uncabled Receptacles		250
<b>Insertion Loss</b> (dB maximum, tested at 1 GHz)			
	Straight Cable Connectors		0.1
	Right Angle Cable Connectors		0.2
	Uncabled Receptacles		N/A
<b>RF Leakage</b> (dB minimum tested at 2.5 GHz)			
	Cable connectors		-55
	Uncabled receptacles		N/A
<b>RF High Potential Withstanding Voltage</b>	(VRMS minimum, tested at 4 and 7 MHz)		
	Connectors for RG 178		500
	Connectors for RG 316		700
	Uncabled Receptacles		600
MECHANICAL SPECIFICATIONS			
<b>Engagement Design</b>	Compatible with CECC 22220, Series MCX		
<b>Engagement / Disengagement Force</b>	5.6 pounds maximum axial force / 8 pounds maximum axial force, 1 pound min		
<b>Contact Retention</b>	2.3 pounds min. axial force (captivated contacts); 1 inch-ounce min. torque (uncabled receptacles)		
<b>Cable Retention</b>		Axial Force* (lbs)	Torque (in-oz)
	Connectors for RG178	10	N/A
	Connectors for RG316	20	N/A
	Connectors for RG316 DS	25	N/A
	*Or cable breaking strength whichever is less.		
<b>Durability:</b>	500 cycles minimum		
ENVIRONMENTAL SPECIFICATIONS (Meets or Exceeds the Applicable Paragraph of MIL-RF-39012)			
<b>Temperature Range</b>	-65°C to +165°C		
<b>Thermal Shock</b>	MIL-STD-202, Method 107, Condition C (Except -55°C to 115°C)		
<b>Corrosion</b>	MIL-STD-202, Method 101, Condition B		
<b>Shock</b>	MIL-STD-202, Method 213, Condition B		
<b>Vibration</b>	MIL-STD-202, Method 204, Condition D		
<b>Moisture Resistance</b>	MIL-STD-202, Method 106		

# NON-MAGNETIC RF CONNECTORS

## MCX Non-Magnetic RF Connectors



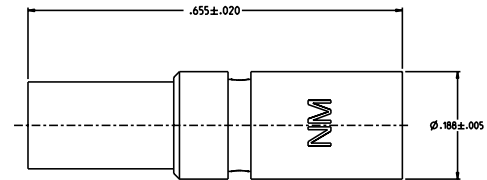
### Straight Crimp Type Plug - Solder or Crimp Contact - Captivated Contact



Cable Type	Gold Plated
RG-178	133-9402-001
RG-316/U, 188, 174	133-9403-001
RG-316 DS, 188 DS	133-9404-001

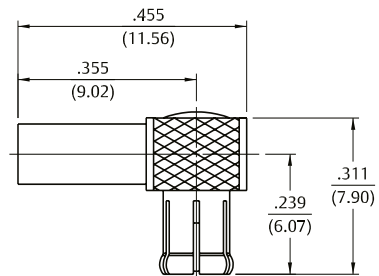
See assembly instructions page 24

### Straight Crimp Type Jack Receptacle



Cable Type	Gold Plated
RG-316	133-9303-001

### Right Angle Crimp Type Plug - Captivated



Cable Type	Gold Plated	Silver Plated
RG-316/U, 188, 174	133-9403-101	133-9403-104
RG-316 DS, 188 DS	133-9404-101	
RG-178/U, 196	133-9402-101	

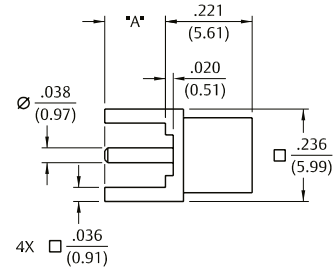
See assembly instructions page 24

# NON-MAGNETIC RF CONNECTORS



## MCX Non-Magnetic RF Connectors For Flexible Cables

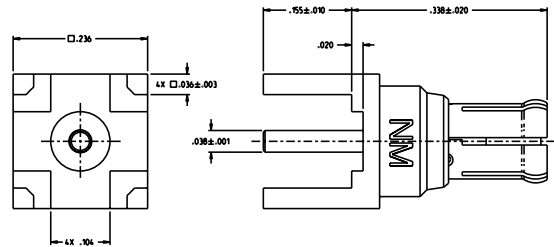
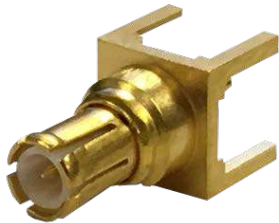
### Straight Jack Receptacle



Gold Plated	Silver Plated	"A"
133-9701-201	133-9701-204	.155 (3.94)
133-9701-211		.110 (2.79)

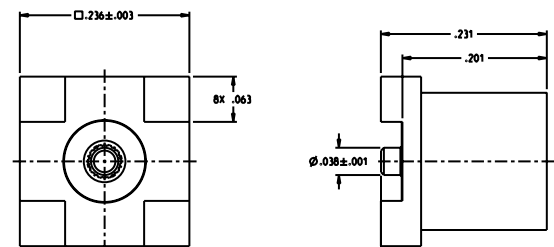
Mounting hole layout figure 4 on page 10

### Straight Plug Receptacle, PCB Mount



Gold Plated
133-9801-201

### Straight Surface Mount, Jack Assembly



Gold Plated
133-9711-201

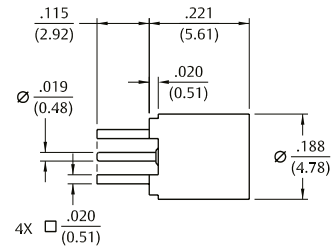


# NON-MAGNETIC RF CONNECTORS



## MCX Non-Magnetic RF Connectors For Flexible Cables

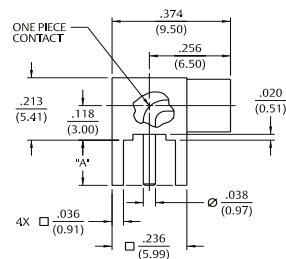
### Straight Jack Receptacle - .100" Layout



<b>Gold Plated</b>
133-9701-231

Mounting hole layout figure 3 on page 10

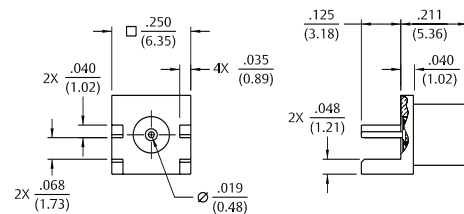
### Right Angle Jack Receptacle



<b>Gold Plated</b>	<b>Silver Plated</b>	<b>"A"</b>
133-9701-301	133-9701-304	.155 (3.94)
133-9701-311		.110 (2.79)

Mounting hole layout figure 4 on page 10

### End Launch Jack Receptacle - Round Contact



<b>Gold Plated</b>	<b>Board Thickness</b>
133-9701-801	.062 (1.57)

## MCX Non-Magnetic RF Connectors For PC Mount

### Mounting Holes Layout

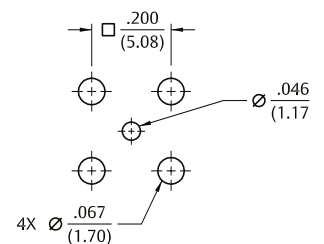
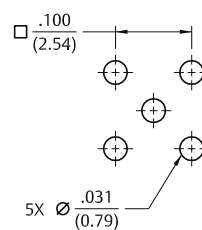


Fig 3

Fig 4

# NON-MAGNETIC RF CONNECTORS



## SMA Non-Magnetic RF Connectors

ELECTRICAL SPECIFICATIONS			
<b>Impedance:</b>			50 Ohms
<b>Frequency Range</b>	Flexible cable connectors Uncabled Receptacles		0-12.4 GHz 0-18.0 GHz
<b>VSWR: (f = GHz)</b>		Straight Cable Connectors	Right Angle Cable Connectors
	RG-316	1.15 + .02f	1.15 + .03f
	RG-58	1.15 + .01f	1.15 + .02f
	Uncabled Receptacles	N/A	N/A
<b>Working Voltage</b> (VRMS maximum)	Connectors for Cable Type	Sea Level	70K Feet
	RG-316	250	65
	RG-58, Uncabled Receptacles	335	85
<b>Dielectric Withstanding Voltage</b> (VRMS minimum at sea level)			
	Connectors for RG-316		750
	Connectors for RG-58, Uncabled Receptacles		1000
<b>Insulation Resistance</b>	5000 megohms minimum		
<b>Contact Resistance</b> (milliohms maximum)		Initial	After Environmental
	Center Contact (straight cabled connectors, uncabled receptacles)	3.0	4.0
	Center Contact (right angle cabled connectors)	4.0	6.0
	Outer Contact	2.0	N/A
	Braid to Body	0.5	N/A
<b>Corona Level</b> (Volts minimum at 70,000 feet)			
	Connectors for RG-316		190
	Connectors for RG-58, Uncabled Receptacles		250
<b>Insertion Loss</b> (dB maximum, tested at 1 GHz)			
	Straight Cable Connectors		0.06 √f(GHz), tested at 6 GHz
	Right Angle Cable Connectors		0.15 √f(GHz), tested at 6 GHz
	Uncabled Receptacles		N/A
<b>RF Leakage</b> (dB minimum tested at 2.5 GHz)			
	Cable connectors		-60 dB
	Uncabled Receptacles		N/A
<b>RF High Potential Withstanding Voltage</b>	(VRMS minimum, tested at 4 and 7 MHz)		
	Connectors for RG-316		500
	Connectors for RG-58, Uncabled receptacles		670

MECHANICAL SPECIFICATIONS			
<b>Engagement Design</b>	MIL-STD-348, Series SMA		
<b>Engagement / Disengagement Force</b>	2 inch-pounds maximum		
<b>Contact Retention</b>	6 lb minimum axial force (captivated contacts); 4 inch-ounce minimum torque (uncabled receptacles)		
<b>Mating Torque</b>	7 to 10 inch-pounds		
<b>Coupling Proof Torque</b>	15 inch-pounds minimum		
<b>Coupling Nut Retention</b>	60 pounds minimum		
<b>Cable Retention</b>		Axial Force* (lbs)	Torque (in-oz)
	Connectors for RG-316	20	N/A
	Connectors for RG-58	40	N/A
	*Or cable breaking strength whichever is less.		
<b>Durability:</b>	500 cycles minimum		

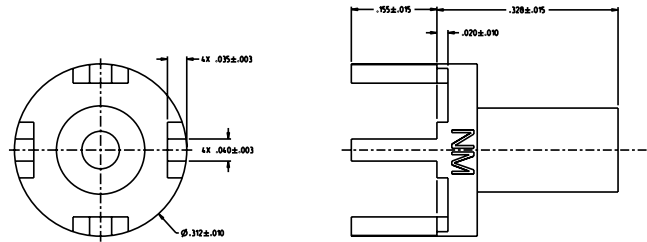
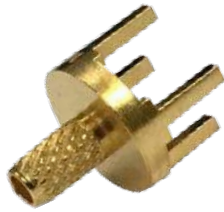
ENVIRONMENTAL SPECIFICATIONS (Meets or Exceeds the Applicable Paragraph of MIL-RF-39012)	
<b>Temperature Range</b>	-65°C to +165°C
<b>Thermal Shock</b>	MIL-STD-202, Method 107, Condition B
<b>Corrosion</b>	MIL-STD-202, Method 101, Condition B
<b>Shock</b>	MIL-STD-202, Method 213, Condition I
<b>Vibration</b>	MIL-STD-202, Method 204, Condition D
<b>Moisture Resistance</b>	MIL-STD-202, Method 106

# NON-MAGNETIC RF CONNECTORS



## SMA Non-Magnetic RF Connectors For Flexible and Semi-Rigid Cable

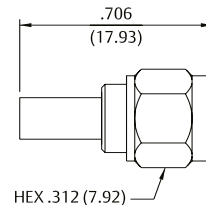
### Straight Solder Type Plug, Semi Rigid Cable



#### Gold Plated

142-9003-201

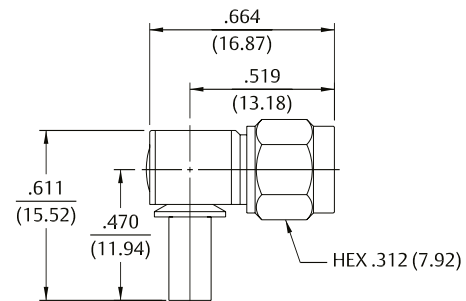
### Straight Crimp Type Plug (3-piece) - Captivated Contact



Cable Type	VSWR & Freq. Range	Gold Plated
RG-316/U, 188, 174	1.15 + .02f (GHz) 0-12.4 GHz	142-9403-011
RG-316 DS, 188 DS	1.15 + .02f (GHz) 0-12.4 GHz	142-9404-011
RG-58/U, 141	1.15 + .01f (GHz) 0-12.4 GHz	142-9407-001

See assembly instructions page 25

### Right Angle Crimp Type Plug - Captivated Contact



Cable Type	VSWR & Freq. Range	Gold Plated	Silver Plated
RG-316/U, 188, 174	1.15 + .03f (GHz) 0-12.4 GHz	142-9403-101	142-9403-104
RG-316 DS, 188 DS	1.15 + .03f (GHz) 0-12.4 GHz	142-9404-101	
RG-58/U, 141	1.15 + .02f (GHz) 0-12.4 GHz	142-9407-101	142-9407-104

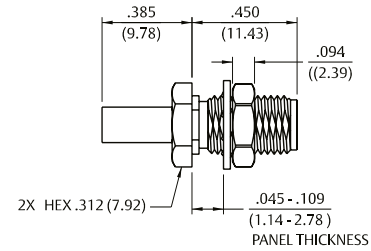
See assembly instructions page 25

# NON-MAGNETIC RF CONNECTORS



## SMA Non-Magnetic RF Connectors For PC Mount

### Straight Crimp Type Blukhead Jack (3-piece) - Captivated Contact

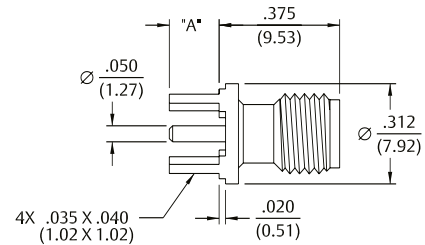


Cable Type	VSWR & Freq. Range	Gold Plated
RG-316/U, 188, 174	1.15 + .02f (GHz) 0-12.4 GHz	142-9303-411

See assembly instructions page 25

Mounting hole layout figure 5 on page 14

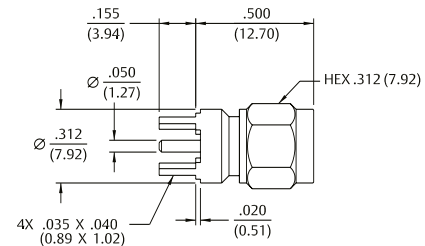
### Straight Jack Receptacle



Frequency Range	Gold Plated	"A"
0-18 GHz	142-9701-201	.155 (3.94)
0-18 GHz	142-9701-211	.110 (2.79)

Mounting hole layout figure 6 on page 14

### Straight Plug Receptacle



Frequency Range	Gold Plated
0-18 GHz	142-9801-201

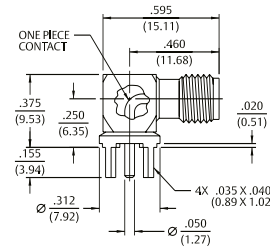
Mounting hole layout figure 6 on page 14

# NON-MAGNETIC RF CONNECTORS



## SMA Non-Magnetic RF Connectors For PC Mount

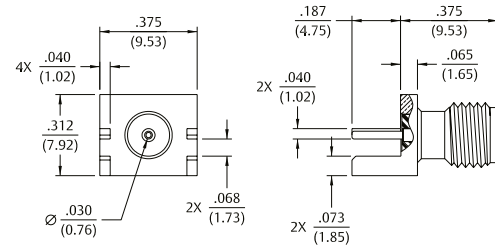
### Right Angle Receptacle



Frequency Range	Gold Plated
0-18 GHz	142-9701-301

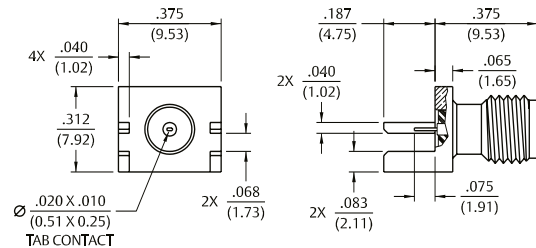
Mounting hole layout figure 6 on page 14

### End Launch Receptacle - Round Contact



Frequency Range	Gold Plated	Board Thickness
0-10 GHz	142-9701-801	.062 (1.57)

### End Launch Receptacle - Tab Contact



Frequency Range	Gold Plated	Board Thickness
0-10 GHz	142-9701-811	.062 (1.57)

### Mounting hole layout

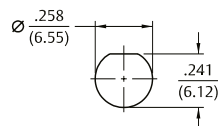


Fig 5

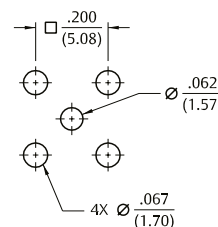


Fig 6

# NON-MAGNETIC RF CONNECTORS



## SMB Non-Magnetic RF Connectors

ELECTRICAL SPECIFICATIONS			
<b>Impedance:</b>		50 Ohms	
<b>Frequency Range</b>	Connectors	0 - 4 GHz	
<b>VSWR: (f = GHz)</b>		Straight Cable Connectors	Right Angle Cable Connectors
	RG-316 Uncabled Receptacles	1.25 + .04f N/A	1.35 + .04f N/A
<b>Working Voltage</b> (VRMS maximum)	Connectors for Cable Type	Sea Level	70K Feet
	RG-316, Uncabled Receptacles	335	85
<b>Dielectric Withstanding Voltage</b> (VRMS minimum at sea level)	Connectors for RG-316, Uncabled Receptacles	1000	
<b>Insulation Resistance</b>		1000 megohms minimum	
<b>Contact Resistance</b> (milliohms maximum)		Initial	After Environmental
	Center Contact (straight cabled connectors, uncabled receptacles)	6.0	8.0
	Center Contact (right angle cabled connectors)	12.0	16.0
	Outer Contact	1.0	1.5
	Braid to Body	.10	N/A
<b>Corona Level</b> (Volts minimum at 70,000 feet)	Connectors for RG-316 Uncabled Receptacles		250 N/A
<b>Insertion Loss</b> (dB maximum, tested at 1.5 GHz)	Straight Cable Connectors Right Angle Cable Connectors Uncabled Receptacles		0.3 dB 0.6 dB N/A
<b>RF Leakage</b> (dB minimum tested at 2.5 GHz)	Cable Connectors Uncabled Receptacles		-55 dB N/A
<b>RF High Potential Withstanding Voltage</b>	(VRMS minimum, tested at 4 and 7 MHz)		
	Connectors for RG-316 Uncabled Receptacles		700 600

MECHANICAL SPECIFICATIONS			
<b>Engagement Design</b>	MIL-STD-348, Series SMB		
<b>Engagement / Disengagement Force</b>	2 pounds min to 14 pounds maximum axial force / 4 lb minimum axial force (captivated contacts)		
<b>Contact Retention</b>	4 lb minimum axial force (captivated contacts); 1 inch-ounce minimum torque (uncabled receptacles)		
<b>Cable Retention</b>	Connectors for RG316 *Or cable breaking strength whichever is less.	Axial Force* (lbs) 20	Torque (in-oz) N/A
<b>Durability:</b>	500 cycles minimum		

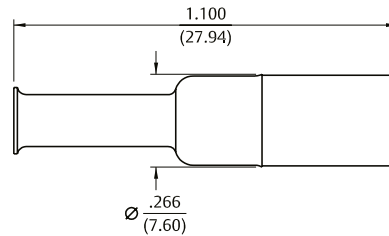
ENVIRONMENTAL SPECIFICATIONS (Meets or Exceeds the Applicable Paragraph of MIL-RF-39012)	
<b>Temperature Range</b>	-65°C to +165°C
<b>Thermal Shock</b>	MIL-STD-202, Method 107, Condition B
<b>Corrosion</b>	MIL-STD-202, Method 101, Condition B
<b>Shock</b>	MIL-STD-202, Method 213, Condition I

# NON-MAGNETIC RF CONNECTORS



## SMB Non-Magnetic RF Connectors For Flexible Cable

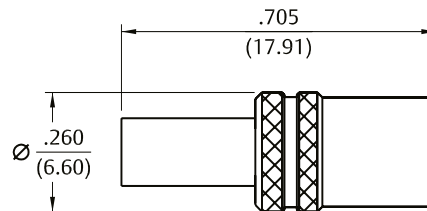
### Straight Crimp Type Plug - Solder or Crimp Captivated Contact



Cable Type	Gold Plated
RG-316/U, 188, 174, 179, 187	131-9403-001
RG-316 DS, 188 DS, 179 DS, 187 DS	131-9404-001

See assembly instructions page 27

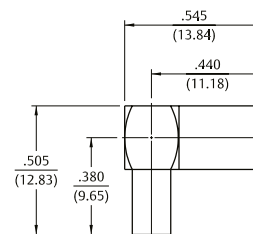
### Straight Crimp Type Plug (3-piece), Solder or Crimp Captivated Contact



Cable Type	Gold Plated
RG-316/U, 188, 174, 179, 187	131-9403-021
RG-316 DS, 188 DS, 179 DS, 187 DS	131-9404-021

See assembly instructions page 27

### Right Angle Crimp Type Plug - Captivated Contact



Cable Type	Gold Plated
RG-316/U, 188, 174, 179, 187	131-9403-101
RG-316 DS, 188 DS, 179 DS, 187 DS	131-9404-101

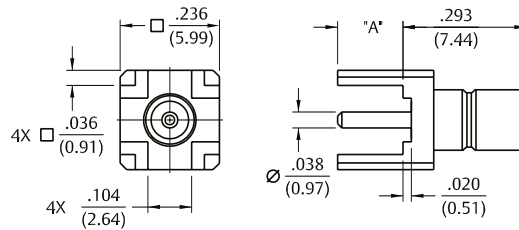
See assembly instructions page 27

# NON-MAGNETIC RF CONNECTORS



## SMB Non-Magnetic RF Connectors For Flexible Cable

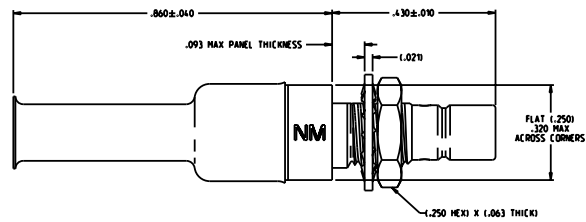
### Straight Jack Receptacle



Gold Plated	"A"
131-9701-201	.155 (3.94)
131-9701-211	.095 (2.41)

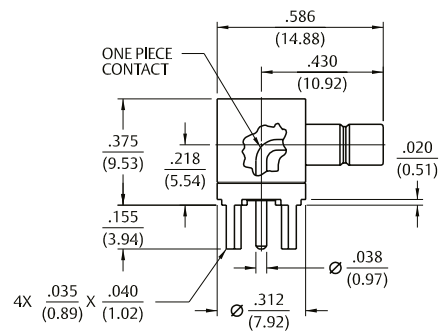
Mounting hole layout figure 7 on page 18

### Straight Bulkhead Jack, Crimp Type, Flexible Cable



Gold Plated
131-9303-401

### Right Angle Jack Receptacle



Gold Plated
131-9701-301

Mounting hole layout figure 7 on page 18



# NON-MAGNETIC RF CONNECTORS



## SMB Non-Magnetic RF Connectors For Flexible Cable

### Mounting hole layout

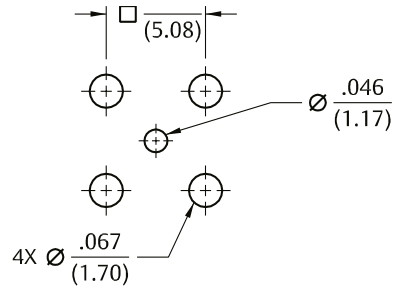


Fig 7

# NON-MAGNETIC RF CONNECTORS



## Type N Non-Magnetic RF Connectors

ELECTRICAL SPECIFICATIONS			
<b>Impedance:</b>			50 Ohms
<b>Frequency Range</b>	Flexible Cabled and Receptacles		0-11 GHz
<b>VSWR: (f = GHz)</b>			0-11 GHz
	Straight Flexible Cabled Uncabled Receptacles		1.3 max N/A
<b>Working Voltage</b> (VRMS maximum)	Connectors for Cable Type	Sea Level	70K Feet
	RG-55/U	335	85
	RG-214, LMR-400 Cabled	1000	250
	Uncabled Receptacles	1000	250
<b>Dielectric Withstanding Voltage</b> (VRMS minimum at sea level)			
	RG-55		1000
	RG-214, LMR-400 Cabled		2500
	Uncabled Receptacles		2500
<b>Insulation Resistance</b>	5000 megohms minimum		
<b>Contact Resistance</b> (milliohms maximum)		Initial	After Environmental
	Straight Cabled (non-captivated)	1.0	1.5
	Straight Cabled (captivated)	2.5	3.0
	Uncabled Receptacles	1.0	1.5
	Outer contact	0.2	N/A
	Braid to body	0.05	N/A
<b>Corona Level</b> (Volts minimum at 70,000 feet)			
	RG-55		250
	RG-214, LMR-400 Cabled		500
	Uncabled Receptacles		N/A
<b>Insertion Loss</b> (dB maximum, tested at 9 GHz)			
	Straight Cable Connectors		0.15 max
	Right Angle Cable Connectors		0.30 max
	Uncabled Receptacles		N/A
<b>RF Leakage</b> (dB minimum tested at 2.5 GHz)			
	Cable connectors		90
	Uncabled receptacles		N/A
<b>RF High Potential Withstanding Voltage</b>	(VRMS minimum, tested at 4 and 7 MHz)		
	RG-55		670
	RG-214, LMR-400 Cabled		1500
	Uncabled Receptacles		1500
<b>IMP3</b>			Typically < -90 dBm

(tested per IEC Guidelines using 20 W inputs swept over 1930-1990 MHz)

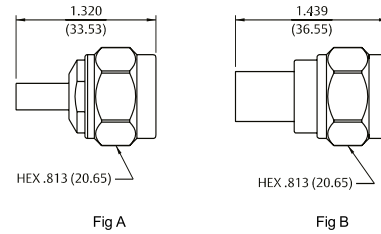
MECHANICAL SPECIFICATIONS			
	Cabled Connectors	Axial Force (lbs)	Torque (in-oz)
	Uncabled Receptacles	6	N/A
		6	4
<b>Cable Retention (minimum*)</b>		Axial Force (lbs)	Torque (in-oz)
	RG-55 Cabled	45	N/A
	RG-214, LMR-400 Cabled	90	N/A
	*Or cable breaking strength whichever is less.		
ENVIRONMENTAL SPECIFICATIONS			
<b>Engagement Design</b>	MIL-STD-348A, Series N	<b>Bulkhead Mounting Nut Torque</b>	15 inch-pounds recommended
<b>Engagement / Disengagement Force</b>	6 inch-pounds maximum	<b>Coupling Proof Torque</b>	15 inch-pounds minimum
<b>Durability</b>	500 Cycles minimum	<b>Coupling Nut Retention</b>	100 pounds minimum
<b>Mating Torque</b>	7 to 10 inch-pounds	<b>Contact Retention</b>	minimum - captivated contacts only

# NON-MAGNETIC RF CONNECTORS



## Type N Non-Magnetic RF Connectors For Flexible Cable

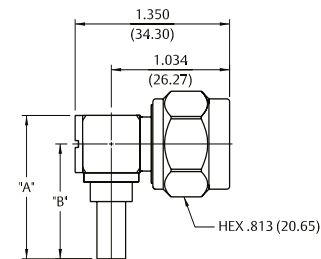
### Straight Crimp Type Plug – Solder or Crimp Contact



Cable Type	VSWR & Freq. Range	Tri-Alloy Plated Figure
RG-55/U, 142, 223, 400	1.30 Max, 0-11 GHz	138-9408-007 A
LMR-400, BELDEN 9913	1.30 Max, 0-11 GHz	138-9449-007 B

See assembly instructions page 28

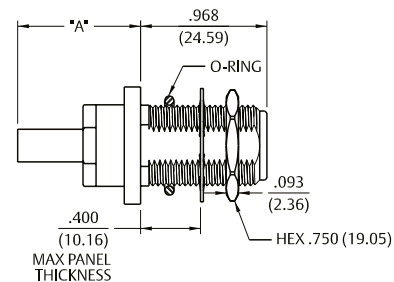
### Right Angle Crimp Type Plug – Captivated Contact



Cable Type	VSWR & Freq. Range	Tri-Alloy Plated	"A"	"B"	
RG-55/U, 142, 223, 400	1.35 Max, 0-9 GHz	1.50 Max, 9-11 GHz	138-9408-107	1.253 (31.83)	1.003 (25.48)
RG-9/U, 214	1.35 Max, 0-9 GHz	1.50 Max, 9-11 GHz	138-9418-107	1.365 (34.67)	1.115 (28.32)

See assembly instructions page 28

### Straight Crimp Type Bulkhead Jack – Solder or Crimp Contact



Cable Type	VSWR & Freq. Range	Tri-Alloy Plated	"A"
RG-55/U, 142, 223, 400	1.30 Max, 0-11 GHz	138-9308-407	.943 (23.95)
LMR-400, BELDEN 9913	1.30 Max, 0-11 GHz	138-9349-407	.997 (25.32)

See assembly instructions page 28

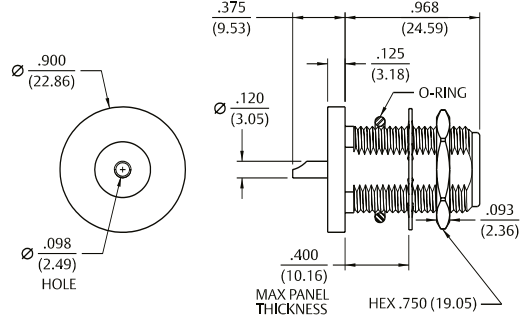
Mounting hole layout figure 8 on page 21

# NON-MAGNETIC RF CONNECTORS



## Type N Non-Magnetic RF Connectors For Bulkhead and Flange Mount

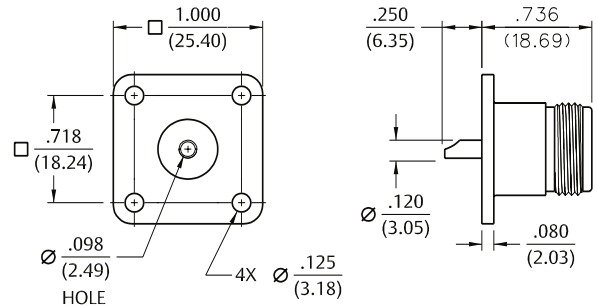
### Rear Mount Bulkhead Jack Receptacle



<b>Freq. Range</b>	<b>Tri-Alloy Plated</b>
0-11 GHz	138-9701-407

Mounting hole layout figure 8 on page 21 (below)

### 4-Hole Flange Mount Jack Receptacle – Flush Dielectric



<b>Freq. Range</b>	<b>Tri-Alloy Plated</b>
0-11 GHz	138-9701-607

Mounting hole layout figure 8 on page 21 (below)

### Mounting Hole Layout

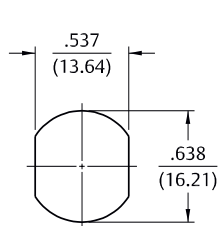


Fig 8

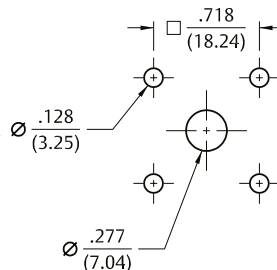


Fig 9



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