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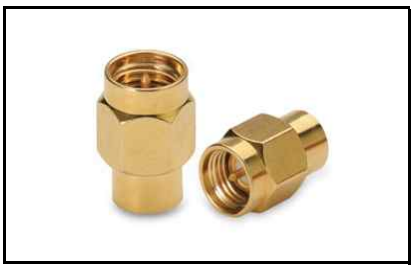
Non-Magnetic RF Connectors
for MRI,Medical Systems

ISOTEC Non-Magnetic Connectors

Product Description



Designed specifically to protect image and magnetic field distorton for Magnetic Resonance Imaging (MRI) equipment.

Isotec's line of RF Non-Magnetic connectors provide MRI equipment with the "electromagnetic immunity' necessary to ensure that vital patient images are not affected by external magnetic field distortion.

Connectors are manufactured under strict quality controls and this strict adherence to quality control ensures all precautions are taken to avoid any contact with ferromagnetic materials during manufacturing process.

Features

- **Snap-on,push-on or threaded couplings**
- **Available in custom non-magnetic solutions including contacts, connectors and Cable assemblies**

Applications

- **Medical Equipment**
- **Commercial**
- **Military Communications**
- **Aerospace Satellites**

Connector Types

- **MMCX**
- **MCX**
- **SMB**
- **SMA**
- **Additional types available on request**

Materials

Plug and Receptacle Bodies- Non-Magnetic Brass
Outer Contacts-Beryllium Copper Per ASTM B 196 For MCX Type
Insulators-Teflon(PTFE)Per ASTM D 1710
Male Contacts-Non-Magnetic Brass For SMA Connector.
Female Connects-Beryllium Copper Per ASTM B 196.
Retaining Rings-Beryllium Copper Per ASTM B 196 For MMCX,SMB,SMA Types.
Ferrules and Caps-Non-Magnetic Brass.
Gaskets-Silicone Rubber.

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Non-Magnetic test method

We clip a samll piece each off of the connectors and put it in a glass tray with a magnet with 3600 gausses of power.
We move the magnet closer and closer until we determine if the connector piece is magnetic or not. If an engineer is not satisfied with that test alone, they will tape the connectors onto one of our MRI Coils and take it to the System scanner. If the connector is magnetic, there will be a dark void in the image from the scanner. All connectors are 100% tested either or both way.

Electrical Ratings

● MMCX Non-Magnetic Connectors

Impedance: 50 Ohms

Frequancy Range:

Connectors ..... 0-6 GHz

VSWR: (f = GHz)

	Straight Cable connectors	Right Angle Cable connectors
.047 dia flexible	1.20	1.14 + 0.7f
RG-178,RG-316,RG-316 DS	1.20	1.25

Working Voltage:

Connectors ..... 170 VRMS at sea level

Dielectric Withstanding Voltage:

Connectors ..... 500 VRMS at sea level

Insulation Resitance: 1000 megohms min

Contact Resistance: (millohms maximum)

	Initial	After Environmental
Center contact(straight cabled connectors and uncabled receptacles)	5.0	8.0
Center contact(right angle cable connectors)	5.0	15.0
Outer contact(all connectors)	1.0	1.5

Corona Level:

Connectors ..... 190 volts min at 70,000 feet

Insertion Loss: (dB max tested at 1 GHz)

Straight cabled connectors 0.1
Right angle cabled connectors 0.2
Uncabled receptacles ..... N/A

RF Leakage: (dB minimum, tested at 2.5 GHz)

Flexible cable connectors ..... -60 dB
400 VRMS MIN (tested at 4 and 7 MHz)

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● MCX Non-Magnetic Connectors

Impedance: 50Ohms

Frequancy Range: ..... 0~6 GHz

	Cable connectors	Cable connectors
RG-178 cable	1.17 + 0.9f	1.07+ 0.6f
RG-316 cable	1.13 + 0.4f	1.07+ 0.4f
Uncabled receptacles		N/A

Working Voltage: (VRMS maximum)

Connectors for Cable Type	Sea Level	70K Feet
RG-178	250	65
RG-316	335	85

Dielectric Withstanding Voltage: (VRMS minimun at sea level)

Connectors for RG-178,uncabled receptacles	750
Connectors for RG-316,uncabled receptacles	1000

Insulation Resitance: 10,000 megohms minimum

Contact Resistance: (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

Corona Level: (Volts minimun at 70,000 feet)

Connectors for RG-178,uncabled receptacles	190
Connectors for RG-316,uncabled receptacles	250

Insertion Loss: (dB maximum, tested at 1 GHz)

Straight cable connectors	0.1 d B
Right angle cable connectors	0.2 d B

RF High Potential Withstading Voltage: (VRMS minimun,tested at 4 and 7 MHz)

Connectors for RG178	500
Connectors for RG316	700
Uncabled receptacles	600

● SMB Non-Magnetic Connectors

Impedance: 50 Ohms

Frequancy Range:

Connectors ..... 0-4 GHz

VSWR: (f = GHz)

	Straight Cable connectors	Right Angle Cable connectors
RG-316	1.25 + 0.4f	1.35 + 0.4f
Uncabled receptacles	N/A	

Working Voltage: (VRMS maximum)

Connectors for Cable Type	Seal Level	70K Feet
Rg-316,uncabled connectors	335	85

Dielectric Withstanding Voltage: (VRMS minimun at sea level)

Connectors for RG-316,uncabled receptacles	1000

Insulation Resitance: 1000 megohms min

Contact Resistance: (milliohms maximum)

	Initial	Environmental
Center contact(straight cabled connectors and 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……	1.0	N/A

Corona Level: (Volts minimun at 70,000 feet)

Connectors for RG-316……	250
Uncabled receptacles……	N/A

Insertion Loss: (dB maximum, tested at 1.5 GHz)

Straight cable connectors……	0.30 d B
Right angle cable connectors……	0.60 d B
Uncabled receptacles……	N/A

RF Leakage: (dB minimum, tested at 2.5 GHz)

Cable connectors……	-55 dB
Uncabled receptacles……	N/A

RF High Potential Withstading Voltage: (VRMS minimun,tested at 4 and 7 MHz)

Connectors for RG-316……	700
Uncabled receptacles……	600

● SMA Non-Magnetic Connectors

Impedance: 50 Ohms

Frequancy Range: Flexible cable connectors…… 0-12.4GHz

Uncabled receptacles…… 0-18.0GHz

VSWR: (f = GHz)

	Straight Cable connectors	Right Angle Cable connectors
RG-316……	1.15 + 0.2f	1.15 + 0.3f
RG-58……	1.15 + 0.1f	1.15 + 0.2f
Uncabled receptacles……		N/A

Working Voltage: (VRMS maximum)

Connectors for Cable Type	Seal Level	70K Feet
RG-316……	250	65
RG-58,uncabled receptacles……	335	85

Dielectric Withstanding Voltage: (VRMS minimun at sea level)

Connectors for RG-316……	750
Connectors for RG-58,uncabled receptacles……	1000

Insulation Resitance: 5000 megohms min

Contact Resistance: (miliohms maximum)

	Initial	After Environmental
Center contact(straight cabled connectors and uncabled receptacles)	3.0	4.0
Center contact(right angle cable connectors)……	4.0	6.0
Outer contact(All connectors)……	2.0	N/A
Braid to body……	0.5	N/A

Corona Level: (Volts minimun,tested at 70,000 feet)

Connectors for RG-316…… 190
Connectors for RG-58,uncabled receptacles…… 250

Insertion Loss: (dB maximum)

Straight flexible cable connectors……0.06√f(CHz),tested at 6GHz
Right angle flexible cable connectors……0.15√f(CHz),tested at 6GHz
Uncabled receptacles……N/A

RF Leakage: (dB minimum, tested at 2.5 GHz)

Flexible cable connectors……-60 d B
Uncabled receptacles…… N/A

RF High Potential Withstading Voltage: (VRMS minimun,tested at 4 and 7 MHz)

Connectors for RG-316…… 500
Connectors for RG-58,ncabled receptacles…… 670

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