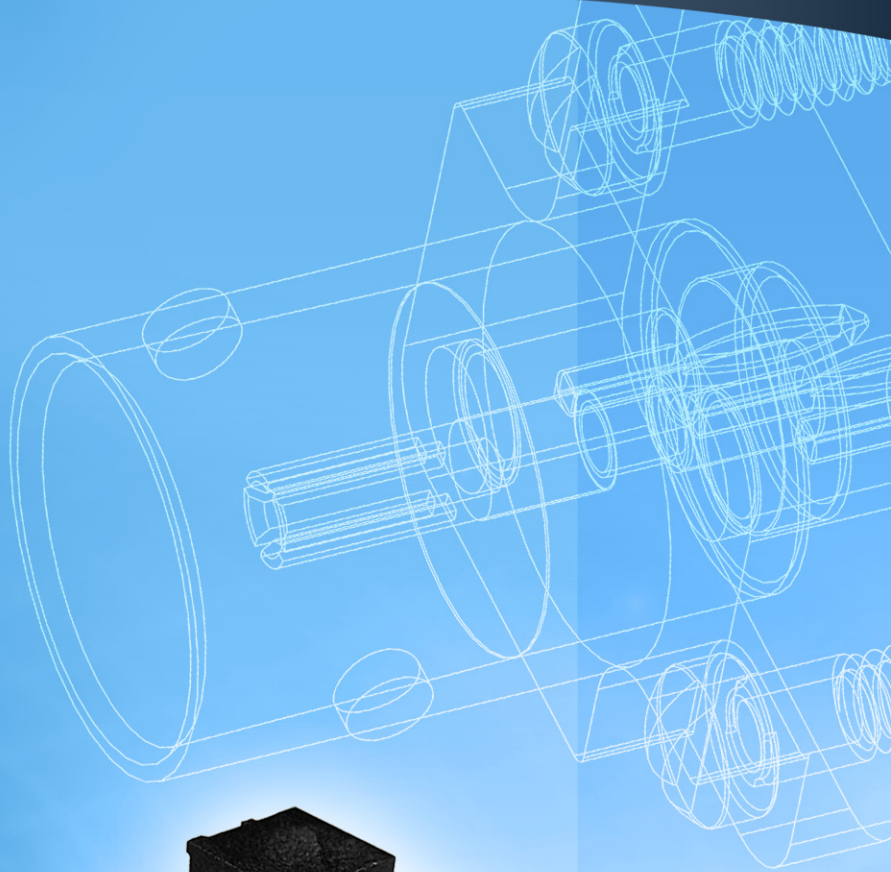


C

Z

B



BNC Connectors

BNC Connectors

Description

Developed in the late 1940's as a miniature version of the Type C connector, BNC stands for Bayonet Neill Concelman and is named after Amphenol engineer Carl Concelman. The BNC product line is a miniature quick connect/disconnect RF connector. It features two bayonet lugs on the female connector; mating is achieved with only a quarter turn of the coupling nut. BNC's are ideally suited for cable termination for miniature to subminiature coaxial cable (RG-58, 59, to RG-179, RG-316, etc.)

Amphenol 50 Ω BNC connectors are miniature, lightweight units useable up to 11 GHz and typically yield low reflection through 4 GHz. Designed to accommodate a large variety of RG and industry standard cables, BNC connectors are available in crimp/crimp, clamp/solder, SURETWIST[®], and field serviceable termination styles. A full line of printed circuit board receptacles, bulkhead receptacles, resistor terminations, and other accessories complement the product offering.

A variety of our 50 Ω BNC connectors are recognized under the Component program of Underwriter's Laboratories, Inc. These connectors are ideal for use with medical equipment and test instrumentation where safety cannot be compromised.

Amphenol also offers a full line of 75 Ω BNC connectors to meet the needs for higher performance impedance-matched cable interconnections. These connectors can be used in a variety of applications where true 75 Ω performance is needed to insure low signal distortion. Designed for the most popular 75 Ω cables used in broadcast and telecommunications applications as well as for plenum and other cables, these connectors feature crimp-crimp cable affixment for quick and reliable installation.

Part numbers that are listed with the appropriate M39012 number are military grade connectors produced in accordance with and actively qualified to the military specification MIL-C-39012. Connectors not listed with the M39012 number constitute the industrial grade product offering. These connectors provide comparable performance and generally feature nickel-plated brass bodies, Teflon insulators, and either gold or silver-plated center contacts. Amphenol's commercial grade connector offering carries the part number designation "RFX" for easy recognition. These low-cost connectors typically utilize die cast and molded components.

Reverse Polarity BNC's are also available. Reverse polarity is a keying system accomplished with a reverse interface, and ensures that reverse polarity interface connectors do not mate with standard interface connectors. Amphenol accomplishes this by inserting female contacts into plugs and male contacts into jacks. Other manufacturers may use reverse threading to accomplish reverse polarity keying.

Features/Benefits

- Bayonet coupling mechanism provides quick mating and unmating
- 50 Ω and 75 Ω impedance designs allow customers to match system requirements
- 50 Ω and 75 Ω connectors are intermateable
- Four grades of connectors are available for military, industrial, commercial and performance applications

Applications

- Antennas
- Base Stations
- Broadcast
- Cable Assemblies
- Computers/LANs
- Radios
- Satellite Communications
- Surge Protection
 - Telecom
- Instrumentation
- Oscilloscopes
- Medical Equipment

50 Ω BNC Specifications

Electrical

Impedance	50 Ω nominal
Frequency range	DC - 4 GHz (usable to 11 GHz)
VSWR	1.3 max. @ DC - 4 GHz (straight) 1.35 max. @ DC - 4 GHz (right-angle)
RF-leakage	55 dB minimum @ 3 GHz
Voltage rating (at sea level)	≥ 500 V peak (depending on cable)
Contact resistance	center contact: ≤ 1.5 mΩ outer contact: ≤ 0.2 mΩ braid to body: ≤ 0.1 mΩ
Insulation resistance	5,000 MΩ minimum
Insertion loss maximum	0.2 dB max. @ 3 GHz
Dielectric withstanding voltage	1,500 Vrms (at sea level)

Mechanical

Mating	2-stud bayonet lock coupling (MIL-STD-348)
Attachment method (inner / outer)	Crimp, clamp
Coupling torque, min./max.	0.6 / 2.5 in-lbs (7 / 28 N-cm)
Coupling nut retention force	101 lbs (450N) min.
Center contact retention force	≥ 6.1 lbs (27N)
Braid/Jacket cable affixment	Hex crimp or screw-threaded clamps
Center conductor cable affixment	Crimp or solder
Engagement force	≤ 5 lbs (22N)
Disengagement force	≥ 1.5 lbs (7N)
Durability (matings)	500 cycles minimum

Environmental

Temperature range	-65°C to +165°C
- copolymer of styrene:	-55°C to +85°C
Hermetic seals	Helium leak test, 2 x 10 ⁻⁸ cc/sec.
Thermal shock	MIL-STD-202, method 102, cond. D
Moisture resistance	MIL-STD-202, method 106
Corrosion	MIL-STD-202, method 101, cond. B
Vibration	MIL-STD-202, method 204, cond. D
Mechanical shock	MIL-STD-202, method 202
Altitude	MIL-STD-202, method 105, cond. C

Note: These characteristics are typical but may not apply to all connectors.

50 Ω BNC Specifications (continued)

Material

Body and outer contacts
Male contact
Female contact
Crimp ferrule
Other metal parts
Insulator
Gasket

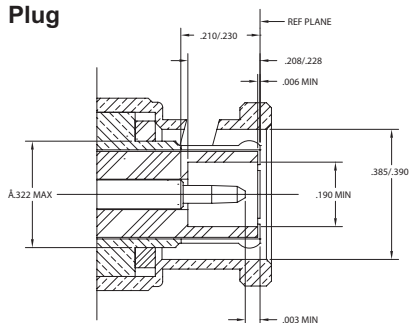
Brass, nickel plated
Brass, gold plated
Beryllium copper or phosphor bronze, gold or silver plated
Copper or brass, nickel plated
Brass, nickel plated (except M39012 silver plated)
PTFE, copolymer of styrene, glass TFE (hermetically sealed)
Silicone rubber

Military

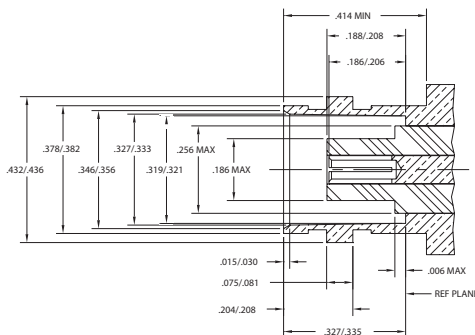
MIL-C-39012

where applicable

Plug



Jack



75 Ω BNC Specifications

Electrical

Impedance
Frequency range

75 Ω nominal
Type 1: DC – 4 GHz (performance grade useable to 6 GHz)
Type 2: DC – 1 GHz

VSWR

Type 1: 1.5 + 0.1 f (GHz) DC – 4 GHz
Type 1 (Performance grade): 1.16 max. @ DC – 3 GHz
Type 2: 1.0 + 0.25 f (GHz) DC – 1 GHz

RF-leakage
Voltage rating (at sea level)
Contact resistance

55 dB minimum @ 3 GHz
≥ 500 Vrms (depending on cable)
center contact: ≤ 1.5 mΩ
outer contact: ≤ 0.2 mΩ
braid to body: ≤ 0.1 mΩ

Insulation resistance
Insertion loss maximum
Dielectric withstanding voltage

5,000 MΩ minimum
0.2 dB max. @ 3 GHz
1,500 Vrms (at sea level)

Mechanical

Mating	2-stud bayonet lock coupling (MIL-STD-348)
Attachment method (inner / outer)	Crimp, clamp
Coupling torque, min./max.	0.6 / 2.5 in-lbs (7 / 28 N-cm)
Coupling nut retention force	101 lbs (450N) min.
Center contact retention force	≥ 6.1 lbs (27N)
Braid/Jacket cable affixment	Hex crimp
Center conductor cable affixment	Crimp or solder
Engagement force	≤ 5 lbs (22N)
Disengagement force	≥ 1.5 lbs (7N)
Durability (matings)	500 cycles minimum

Environmental

Temperature range	-65°C to +165°C
Thermal shock	MIL-STD-202, method 102, cond. D
Moisture resistance	MIL-STD-202, method 106
Corrosion	MIL-STD-202, method 101, cond. B
Vibration	MIL-STD-202, method 204, cond. D
Mechanical shock	MIL-STD-202, method 202
Altitude	MIL-STD-202, method 105, cond. C

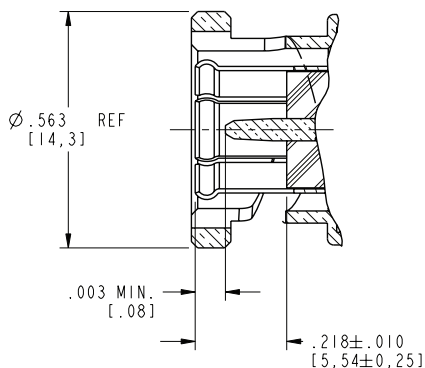
Material

Body and outer contacts	Brass or phosphor bronze, nickel plated
Male contact	Brass, gold plated
Female contact	Beryllium copper or phosphor bronze, silver or gold plated
Crimp ferrule	Copper or brass, nickel plated
Other metal parts	Brass, nickel plated
Insulator	PTFE
Gasket	Silicone rubber

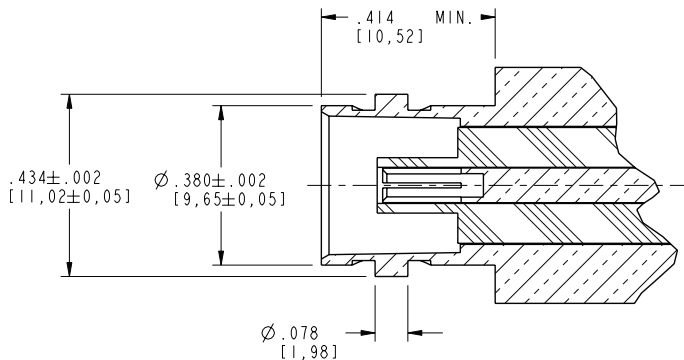
Military

MIL-C-39012	where applicable
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Plug



Jack



Note: These characteristics are typical but may not apply to all connectors.

50Ω Cable Connectors

Straight Crimp Plugs



Cable Group	Part Number	Plating		Termination		Grade
		Body	Contact	Body	Contact	
B	031-315	Nickel	Gold	Crimp	Crimp	Industrial
B	031-315-RFX	Nickel	Gold	Crimp	Crimp	Commercial
B1	031-242	Nickel	Gold	Crimp	Crimp	Industrial
B1	031-242-RFX	Nickel	Gold	Crimp	Crimp	Commercial
B2	031-315-1005	Nickel	Gold	Crimp	Crimp	Industrial
C	031-320	Nickel	Gold	Crimp	Crimp	Industrial
C	031-320-RFX	Nickel	Gold	Crimp	Crimp	Commercial
C	031-4320 (QPL)	Silver	Gold	Crimp	Crimp	Industrial
C	031-5800	Nickel	Gold	Crimp	Solder	Commercial
C1	031-326	Nickel	Gold	Crimp	Crimp	Industrial
C1	031-326-RFX	Nickel	Gold	Crimp	Crimp	Commercial
C1	031-4427 (QPL)	Silver	Gold	Crimp	Crimp	Industrial
D	031-320-1006	Nickel	Gold	Crimp	Crimp	Industrial
E	031-321	Nickel	Gold	Crimp	Solder	Industrial
E	031-321-RFX	Nickel	Gold	Crimp	Crimp	Commercial
E	031-4321 (QPL)	Silver	Gold	Crimp	Crimp	Industrial
E	031-5900	Nickel	Gold	Crimp	Solder	Commercial
E	000-68175-1005	Nickel	Gold	Crimp	Crimp	Industrial
E	000-68175-11RFX	Nickel	Gold	Crimp	Crimp	Commercial
E1	000-68175-5RFX	Nickel	Gold	Crimp	Crimp	Commercial
E2	031-321-1000	Nickel	Gold	Crimp	Crimp	Industrial
F	000-68175-1003	Nickel	Gold	Crimp	Crimp	Industrial
G2	031-5999-RFX	Nickel	Gold	Crimp	Crimp	Commercial
G2	031-6006	Nickel	Gold	Crimp	Crimp	Commercial
G3	031-5998-RFX	Nickel	Gold	Crimp	Crimp	Commercial
H2	031-4411	Nickel	Gold	Crimp	Crimp	Industrial
K3	031-325	Nickel	Gold	Crimp	Crimp	Industrial

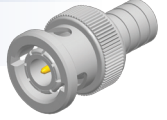
Angle Crimp Plugs



Cable Group	Part Number	Plating		Termination		Grade
		Body	Contact	Body	Contact	
B	031-316	Nickel	Gold	Crimp	Crimp	Industrial
C	031-335	Nickel	Gold	Crimp	Crimp	Industrial
C	031-335-RFX	Nickel	Gold	Crimp	Crimp	Commercial
E	031-336	Nickel	Gold	Crimp	Crimp	Industrial
E	031-336-RFX	Silver	Gold	Crimp	Crimp	Commercial
G2	031-6005-RFX	Nickel	Gold	Crimp	Solder	Commercial
G3	031-6004-RFX	Nickel	Gold	Solder	Crimp	Commercial

Press Fit Plugs

Cable Group	Part Number	Plating		Termination		Grade
		Body	Contact	Body	Contact	
C	031-5557-RFX	Nickel	Gold	Crimp	Press Fit	Commercial
D	031-5559-RFX	Nickel	Gold	Crimp	Press Fit	Die Cast
E	031-5556-RFX	Nickel	Gold	Crimp	Press Fit	Commercial
G1	031-5558-RFX	Nickel	Gold	Crimp	Press Fit	Commercial



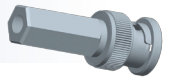
Straight Clamp Plugs

Cable Group	Part Number	Plating		Termination		Grade
		Body	Contact	Body	Contact	
A	000-15875	Nickel	Silver	Clamp	Solder	Industrial
B	000-69475	Nickel	Silver	Clamp	Solder	Industrial
C	031-202	Nickel	Silver	Clamp	Solder	Industrial
C	031-2-RFX	Nickel	Gold	Clamp	Solder	Commercial
C	031-3301 (QPL)	Silver	Gold	Clamp	Solder	Industrial
E	031-212	Nickel	Silver	Clamp	Solder	Industrial
E	031-212-1005	Nickel	Silver	Clamp	Solder	Industrial
E	031-212-RFX	Nickel	Gold	Clamp	Solder	Commercial
E	031-3302 (QPL)	Silver	Gold	Clamp	Solder	Industrial
G4	000-6775	Nickel	Silver	Clamp	Solder	Industrial



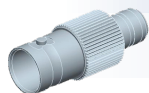
Sure Twist® Plugs

Cable Group	Part Number	Plating		Termination		Grade
		Body	Contact	Body	Contact	
C	031-5137	Nickel	Tin	Twist On		Industrial
C	031-5137-RFX	Nickel	Gold	Twist On		Commercial
E	031-5136	Nickel	Matte Tin	Twist On		Industrial
E	031-5136-RFX	Nickel	Gold	Twist On		Commercial



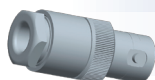
50Ω Cable Connectors (continued)

Straight Crimp Jacks



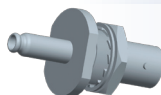
Cable Group	Part Number	Plating		Termination		Grade
		Body	Contact	Body	Contact	
B	031-317	Nickel	Gold	Crimp	Crimp	Industrial
C	031-4327 (QPL)	Silver	Gold	Crimp	Crimp	Industrial
C	000-36800-RFX	Nickel	Gold	Crimp	Crimp	Commercial
C	000-36800	Nickel	Gold	Crimp	Crimp	Industrial

Straight Clamp Jacks



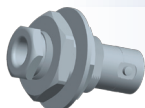
Cable Group	Part Number	Plating		Termination		Grade
		Body	Contact	Body	Contact	
C1	031-5	Nickel	Gold	Clamp	Solder	Industrial
E	031-15	Nickel	Silver	Clamp	Solder	Industrial

Straight Bulkhead Crimp Jacks



Cable Group	Part Number	Plating		Termination		Grade
		Body	Contact	Body	Contact	
B	031-318	Nickel	Gold	Crimp	Crimp	Industrial
B	031-318-RFX	Nickel	Gold	Crimp	Crimp	Commercial
C	031-342	Nickel	Gold	Crimp	Crimp	Industrial
C	031-342-RFX	Nickel	Gold	Crimp	Crimp	Commercial
E	031-343-RFX	Nickel	Gold	Crimp	Solder	Commercial

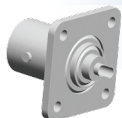
Straight Bulkhead Clamp Jacks



Cable Group	Part Number	Plating		Termination		Grade
		Body	Contact	Body	Contact	
C	031-206	Nickel	Silver	Clamp	Solder	Industrial
E	031-207	Nickel	Silver	Clamp	Solder	Industrial
B	000-86350	Nickel	Silver	Clamp	Solder	Industrial

50Ω Receptacles

Straight Panel Jacks



Part Number	Plating		Terminal Type	Description	Grade
	Body	Contact			
031-105	Nickel	Silver	Solder Cup	4-hole Square Flange .120" Dia.	Industrial
031-203	Nickel	Silver	Solder Cup	4-hole Square Flange No. 3-56	Industrial
031-203-RFX	Nickel	Gold	Solder Cup	4-hole Square Flange .125" Dia.	Commercial
000-4500	Nickel	Silver	Turret	4-hole Square Flange .136" Dia.	Industrial