

# N

## PUSH-ON

<b>1. N Specifications/Interface Dimensions</b>	<b>46</b>
<b>2. Connectors of Type N PUSH-ON</b>	<b>49</b>
<b>3. Adapters to N PUSH-ON</b>	<b>53</b>

<b>CONTENT</b>
<b>INTRODUCTION to PUSH-ON CONNECTORS &amp; ADAPTERS</b> Page 9
<b>7/16 PUSH-ON</b> Page 15
<b>BMA</b> Page 27
<b>N PUSH-ON</b>
<b>SBX</b> Page 61
<b>SBY</b> Page 85
<b>SMA PUSH-ON</b> Page 107
<b>SMA Reverse Sex PUSH-ON</b> Page 119
<b>SMP</b> Page 131
<b>TNC PUSH-ON</b> Page 193
<b>CABLE ASSEMBLIES</b>
with <b>INTERCHANGEABLE CONNECTORS</b> Page 213
<b>Kits with I./CONNECTORS</b> Page 221
w/ <b>PUSH-ONs</b> Page 225
<b>RAW CABLE SPECIFICATIONS</b> Page 245
<b>RF MULTI PIN</b> Page 265
<b>TOOLS</b> Page 271
<b>ASSEMBLY INSTRUCTIONS</b> Page 289
<b>SPECIAL PRODUCTS &amp; SERVICES</b> Page 353
<b>APPENDIX</b>

e:/quickc98/n-push.ppt6

**PUSH-ON N-TYPE CONNECTORS** eliminate time consuming tightening, torquing and loosening of N-male connectors during testing or in applications where limited space requirements make tightening and torquing of a coupling nut difficult, if not impossible.

The N push-on slides directly onto any standard N-female, allowing prompt connection and loosening. Three types of push-on N connectors are available: full-locking, locking with non-locking rear nut, and non-locking.

**Full Locking** push-on N-Type connectors are recommended when longer testing is required and the connectors must be firmly locked so that they cannot be disconnected, even by mistake. **Locking with non-locking rear nut** N-Type connectors are recommended where safe locking is necessary, but long term testing is not required. **Non-locking** push-on connectors are recommended for short period testing, testing that usually takes only seconds.

Push-On N-Type connectors are available for termination with cables RG-142B/U, RG-400/U and RG-214/U. State-of-the-art high performance cables using push-on connectors are available as well, however, these high performance cable assemblies can only be purchased completely terminated; they can be found in the section "Cable Assemblies" on pages 231-233 of this catalog.

**PUSH-ON N-TYPE CONNECTOR SAVERS AND ADAPTERS**, were developed for attachment to cable assemblies which are terminated with regular connectors. The adapter has a standard connector on one side, and a push-on connector on the other end. The standard connector end of the adapter engages with the standard connector of the opposite sex at the cable assembly. These connector savers and adapters modify cable assemblies in seconds, changing them from a standard product to a state-of-the-art push-on assembly.

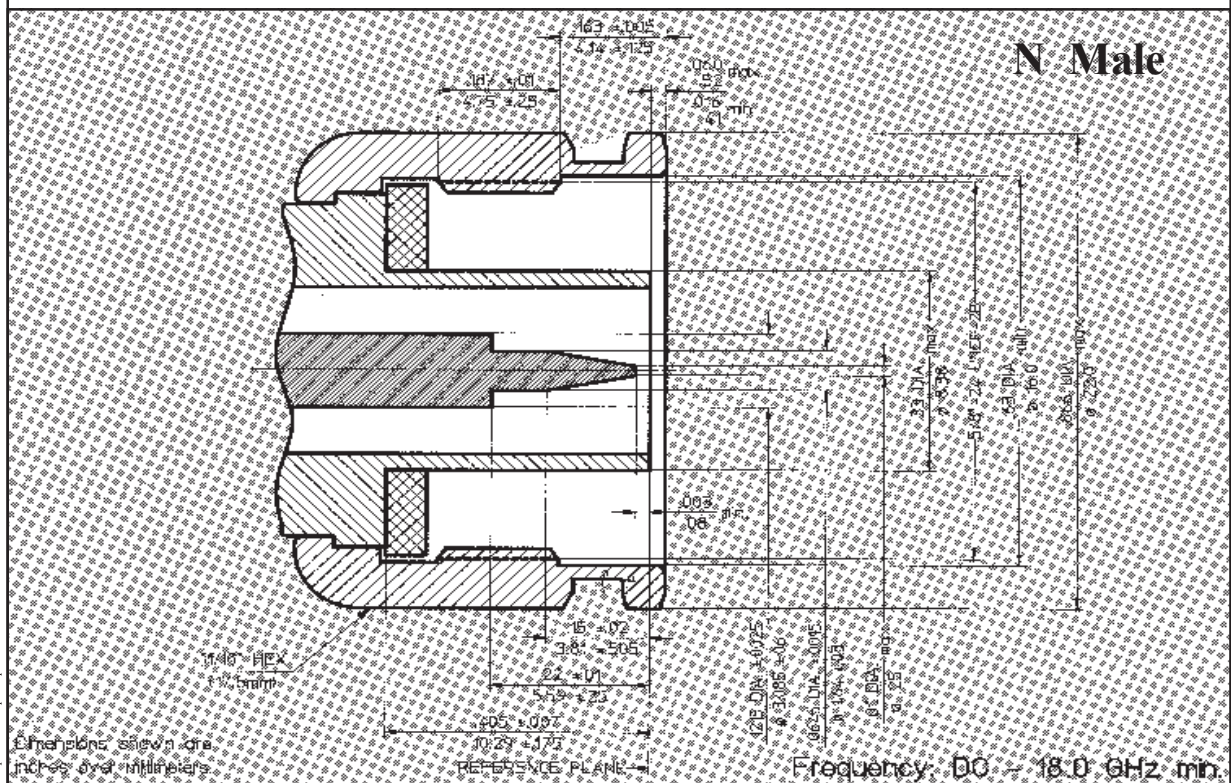
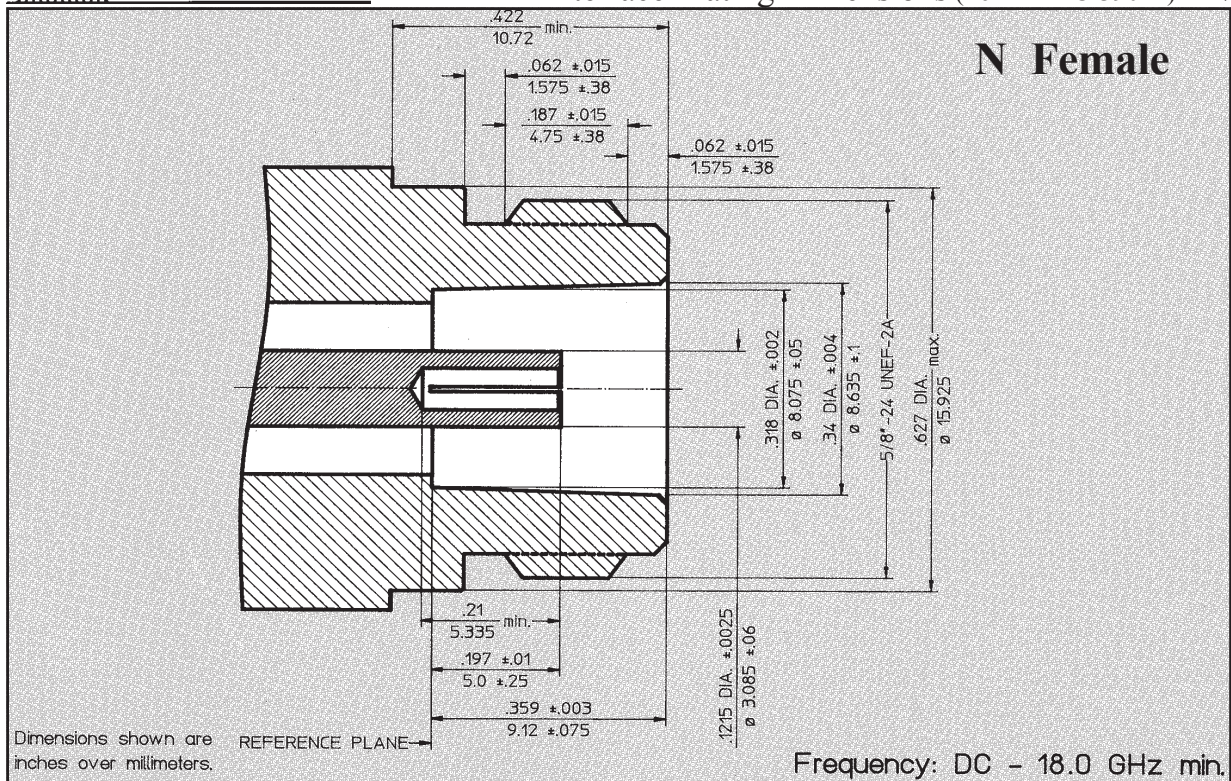
Push-on adapters are available for a variety of connectors and both male and female sexes within the connector series. N-type push-on connectors savers are supplied in **full locking**, **locking with non-locking rear nut** and **non-locking** configuration.

### FEATURES:

**REPEATABLE PERFORMANCE**  
**SAFE LOCKING MECHANISM\***  
**REDUCED TEST TIME**

\* on Full Locking and Locking Units

**LOW INSERTION LOSS**  
**HIGH RETURN LOSS**  
**DC-18.0 GHz**  
**LONG LIFE**



e:\quickc98\hp-push.ppt6

# N PUSH-ON Specifications to MIL-C-39012



The specifications below are general specifications for all N PUSH-ON connectors. Specifications in the following table are recommended for any procurement documents or drawings. In the event of any conflict, these specifications shall govern. The PUSH-ON Connectors were developed to eliminate the time consuming lightening, torquing and loosening of connectors during test. The connector slides directly onto any Female of the same connector style, allowing quick connecting and disconnecting. Its mechanism locks safely onto the standard thread of the Female connector.

REQUIREMENT	REQUIREMENT PARAGRAPH	GENERAL SPECIFICATIONS
<b>GENERAL</b>		
Standard Materials	3.3	STEEL corrosion resistant 1.4305 per DIN 17440 (QQ-S-764, class 303 or ASTM-A-582-80). ALUMINUM AlMg4.5Mn per DIN 1725, AlMgSi0.5 per DIN 1725, AlMgSi1 per DIN 1725 (6061-T6 per QQ-A-225/8). BRASS CuZn39Pb3 per DIN 17660 (QQ-B-626, halfhard). COPPER BERYLLIUM 33-25 CuBe2Pb H per DIN 17666 (QQ-C-530). TFE Fluorocarbon per DIN 52900 (MIL-P-19468 and L-P403). SILICONE RUBBER per DIN 3771 (MIL-R-5847 and ZZ-R-765, Class II B,) Grade 50 - 75. BORRIUM NITRITE Dielectric for high power applications per inhouse specification.
Finish for	COPPER BERYLLIUM 3.3.1	Center Contacts shall be gold plated to a minimum thickness of .00005 inch (1.27 µm) in accordance with MIL-G-45204, Type II, Grade C. Outer conductors shall be gold plated to a thickness of .00003 inch (0.8 µm) per MIL-G-45204, Type II, Grade C, or silver plated to a thickness of .0001 inch (2.5 µm) per QQ-S-365.
	STAINLESS STEEL	Shall be passivated per QQ-P-35 or gold plated to a thickness of .00003 inch (0.8 µm) per MIL-G-45204, Type II, Grade C.
	ALUMINUM	Conductive Parts shall have an iridited finish per MIL-C-5541.
	BRASS	Other parts, such as Coupling Nuts and Back-Bodies shall be anodized per MIL-A-8625.
	VARIOUS	Gold plated to a thickness of .00003 inch (0.8 µm) min. per MIL-45204, Type II, Grade C, or nicle plated to a thickness of .0002 inch (5µm) per QQ-N-290, grade E, or silver plated to a thickness of .0001 inch (2.5 µm) per QQ-S-365.
Design	3.4	Imoloy .0001 inch (2.5 µm) min. plating, consisting of 55% Copper / 20% Zinc / 25% Tin (on special request). The design shall be such that the outline dimensions in this catalog are met. In addition, the assembled connector shall meet the interface dimensions.
<b>ELECTRICAL</b>		
Frequency Range		DC - 18.0 GHz min.
Insulation Resistance	3.11	The insulation resistance shall not be less than 5.000 megohms.
Voltage Standing Wave Ratio (VSWR)	3.14	1.15 : 1
Contact Resistance	3.16	The center contact resistance drop shall not exceed 1.0 milliohms max.
Dielectric Withstanding Voltage	3.17	The magnitude of the test voltage shall be 2500 volts rms at 60 Hz.
RF High Potential Withstanding Voltage	3.23	The RF high potential withstanding voltage is 1,500 volts rms at 5 MHz.
RF Leakage	3.26	-90 dB max. to 3.0 GHz, -75 dB max. to 18.0 GHz
Insertion Loss	3.27	0.2 dB max. at 18.0 GHz
Impedance		50 Ohms Nominal
Corona Level Voltage		500 Volts at 70,000 ft.
<b>MECHANICAL</b>		
Connector Durability	3.15	The connector is to be tested and its mating connector shall be subjected to 500 insertion min. Withdrawal cycles / minute are not applicable. The connector shall show no evidence of mechanical failure and the connector shall meet the mating characteristic requirements.
Temperature		-65°C to +100°C
Force to Engage and Disengage	3.5.1	The Force to Engage and Disengage is not applicable.
Longitudinal Force max.		Longitudinal force shall not exceed 6 inch-pounds (0.678 Nm).
<b>ENVIRONMENTAL</b>		
Corrosion (Salt Spray)	3.13	Specification MIL-STD-202, Method 101, Test Condition B. The salt solution shall be 5%.
Vibration	3.18	Specification MIL-STD-202, Method 204, Test Condition D.
Shock	3.19	Specification MIL-STD-202, Method 213, Test Condition I.
Thermal Shock	3.20	Specification MIL-STD-202, Method 107, Test Condition B, except high temperature shall be + 200°C.
Moisture Resistance	3.21	Specification MIL-STD-202, Method 106. Step 7b (vibration) shall be omitted. Insulation resistance shall be 200 megohms min. within 5 minutes of removal from humidity.

# N PUSH-ON

<b>1. N Specifications/Interface Dimensions</b>		<b>46</b>
<b>2.</b>	<b>Connectors of Type N PUSH-ON</b>	
	<b>Full Locking</b>	<b>50</b>
	<b>Locking with Non Locking Rear Nut</b>	<b>51</b>
	<b>Non Locking</b>	<b>52</b>
<b>3. Adapters to N PUSH-ON</b>		<b>53</b>

CONTENT	
<b>INTRODUCTION to PUSH-ON CONNECTORS &amp; ADAPTERS</b>	Page 9
<b>7/16 PUSH-ON</b>	Page 15
<b>BMA</b>	Page 27
N PUSH-ON	
<b>SBX</b>	Page 61
<b>SBY</b>	Page 85
<b>SMA PUSH-ON</b>	Page 107
<b>SMA Reverse Sex PUSH-ON</b>	Page 119
<b>SMP</b>	Page 131
<b>TNC PUSH-ON</b>	Page 193
CABLE ASSEMBLIES	
with <b>INTERCHANGEABLE CONNECTORS</b>	Page 213
<b>Kits with I./CONNECTORS</b>	Page 221
w/ <b>PUSH-ONs</b>	Page 225
<b>RAW CABLE SPECIFICATIONS</b>	Page 245
<b>RF MULTIPIN</b>	Page 265
<b>TOOLS</b>	Page 271
<b>ASSEMBLY INSTRUCTIONS</b>	Page 289
<b>SPECIAL PRODUCTS &amp; SERVICES</b>	Page 353
APPENDIX	

e:/quickc98/n-push.ppt6

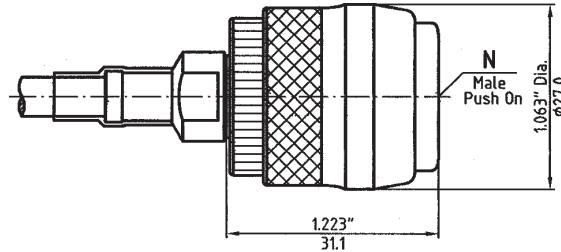
# N PUSH-ON Connectors

## Full Locking

DC - 18.0 GHz

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NS05-02	RG-142B/U	42	NS
3015-NS06-02	RG-400/U	40	
3017-NS04-02	RG-214/U	21	

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.

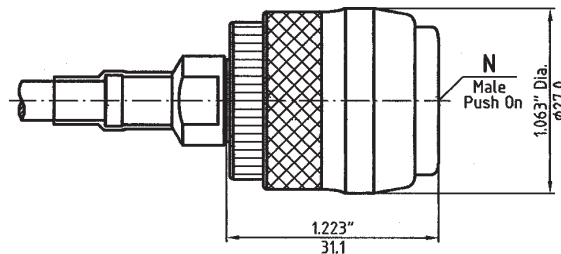


## Full Locking

DC - 18.0 GHz

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NSB1-13	RG-142B/U	42	NSB
3015-NSB2-13	RG-400/U	40	
3017-NSB1-13	RG-214/U	21	

Connector outer conductor is brass/beryllium copper silver plated for lower intermodulation products. Center conductor is gold plated. Remaining parts are stainless steel for ruggedness.



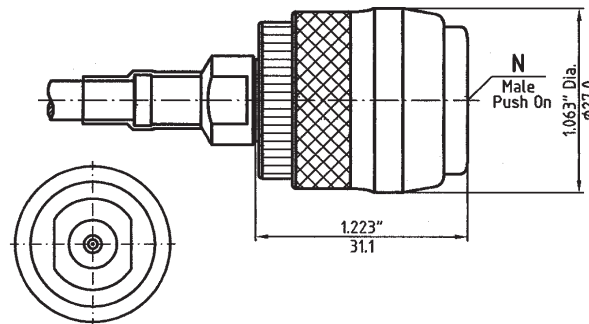
## Full Locking

DC - 18.0 GHz

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NDS1-02	RG-142B/U	42	NDS
3015-NDS2-02	RG-400/U	40	
3017-NDS1-02	RG-214/U	21	

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.

## Double "D"



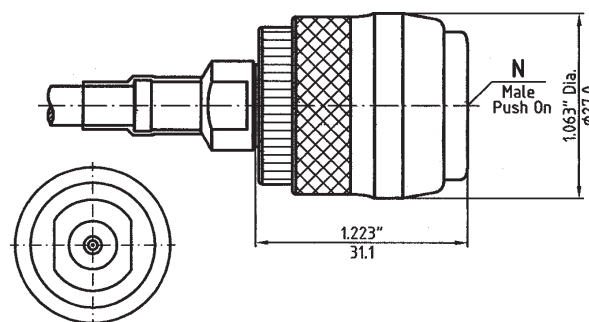
## Full Locking

DC - 18.0 GHz

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NDB1-13	RG-142B/U	42	NDB
3015-NDB2-13	RG-400/U	40	
3017-NDB1-13	RG-214/U	21	

Connector outer conductor is brass/beryllium copper silver plated for lower intermodulation products. Center conductor is gold plated. Remaining parts are stainless steel for ruggedness.

## Double "D"



DC - 18.0 GHz

**Locking with Non-locking Rear Nut**

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NL01-02	RG-142B/U	42	NL
3015-NL02-02	RG-400/U	40	
3017-NL01-02	RG-214/U	21	

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.

DC - 18.0 GHz

**Locking with Non-locking Rear Nut**

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NLB1-13	RG-142B/U	42	NLB
3015-NLB2-13	RG-400/U	40	
3017-NLB1-13	RG-214/U	21	

Connector outer conductor is brass/beryllium copper silver plated for lower intermodulation products. Center conductor is gold plated. Remaining parts are stainless steel for ruggedness.

Double "D"

DC - 18.0 GHz

**Locking with Non-locking Rear Nut**

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NDL1-02	RG-142B/U	42	NDL
3015-NDL2-02	RG-400/U	40	
3017-NDL1-02	RG-214/U	21	

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.

Double "D"

DC - 18.0 GHz

**Locking with Non-locking Rear Nut**

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NDC1-13	RG-142B/U	42	NDC
3015-NDC2-13	RG-400/U	40	
3017-NDC1-13	RG-214/U	21	

Connector outer conductor is brass/beryllium copper silver plated for lower intermodulation products. Center conductor is gold plated. Remaining parts are stainless steel for ruggedness.

e:/quickc98/n-push.ppt6

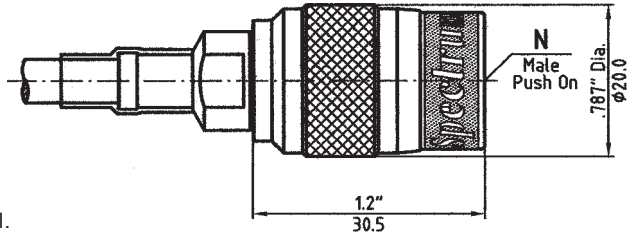
# N PUSH-ON Connectors

## NON Locking

DC - 18.0 GHz

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NN01-02	RG-142B/U	42	NN
3015-NN02-02	RG-400/U	40	
3017-NN01-02	RG-214/U	21	

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.

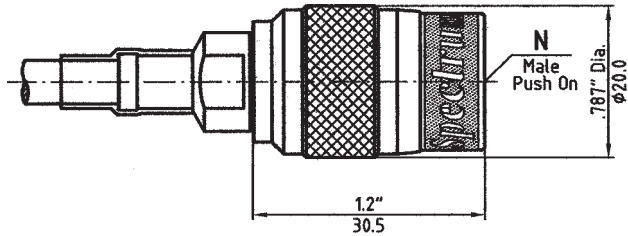


## NON Locking

DC - 18.0 GHz

Connector Part No.	Flexible Cable Type	Cable Code	Connector Code
3015-NNB1-13	RG-142B/U	42	NNB
3015-NNB2-13	RG-400/U	40	
3017-NNB1-13	RG-214/U	21	

Connector outer conductor is brass/beryllium copper silver plated for lower intermodulation products. Center conductor is gold plated. Remaining parts are stainless steel for ruggedness.



Dimensions shown are inches over millimeters. Standard units have stainless steel finish (last two digits of the P/N are -02). Interfaces are per MIL-C-39012. For details please refer to the beginning of this section.



# N PUSH-ON

1. N Specifications/Interface Dimensions		46	
2. Connectors of Type N PUSH-ON		49	
3.	N PUSH-ON Adapters & Connector Savers		
	Full Locking	to N, SMA & TNC	54
	Locking with Non Locking Rear Nut		56
	Non Locking		58
	Float Mount Non Locking	to N	59

CONTENT	
INTRODUCTION to PUSH-ON CONNECTORS & ADAPTERS	Page 9
7/16 PUSH-ON	Page 15
BMA	Page 27
N PUSH-ON	
SBX	Page 61
SBY	Page 85
SMA PUSH-ON	Page 107
SMA Reverse Sex	Page 119
SMP	Page 131
TNC PUSH-ON	Page 193
CABLE ASSEMBLIES	
with INTERCHANGEABLE CONNECTORS	Page 213
Kits with I./CONNECTORS	Page 221
w/ PUSH-ONs	Page 225
RAW CABLE SPECIFICATIONS	Page 245
RF MULTIPIN	Page 265
TOOLS	Page 271
ASSEMBLY INSTRUCTIONS	Page 289
SPECIAL PRODUCTS & SERVICES	Page 353
APPENDIX	

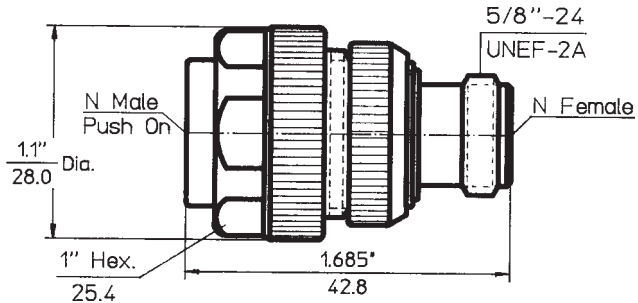
e:/quicke98/n-push.ppt6

# N Push-On Adapters

## Full Locking

Adapter Part No.	<b>8001-NS61-02</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

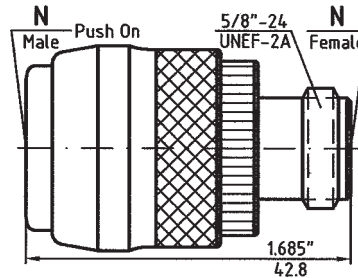
Connector outer conductor is passivated stainless steel. Center conductor is gold plated.



## Full Locking

Adapter Part No.	<b>8002-NS61-02</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

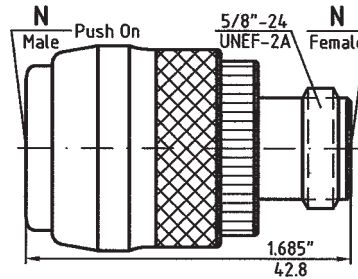
Connector outer conductor is passivated stainless steel. Center conductor is gold plated.



## Full Locking

Adapter Part No.	<b>8002-NS61-13</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

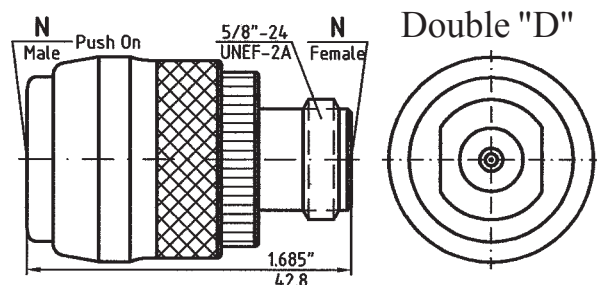
Connector outer conductor is brass/beryllium copper silver plated for lower intermodulation products. Center conductor is gold plated. Remaining parts are stainless steel for ruggedness.



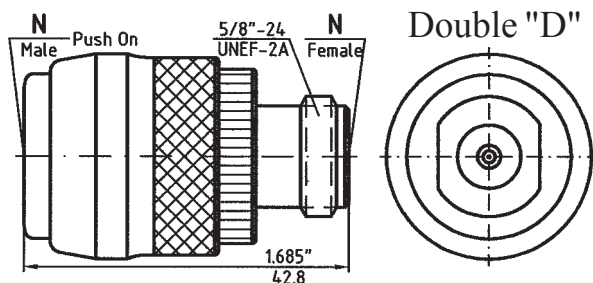
## Full Locking

Adapter Part No.	<b>8003-NS61-02</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.



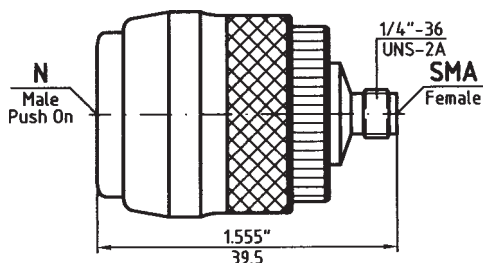
Dimensions shown are inches over millimeters. Standard units have stainless steel finish (last two digits of the P/N are -02). Interfaces are per MIL-C 39012, MIL-C-87104/2, MIL-C-3643, MIL-STD-348, IEC-169-7, IEC-457-2, DIN 47 223, DIN 47 226, DIN 47 298, where applicable. For details please refer to the beginning of this section.



**Full Locking**

Adapter Part No.	<b>8003-NS61-13</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

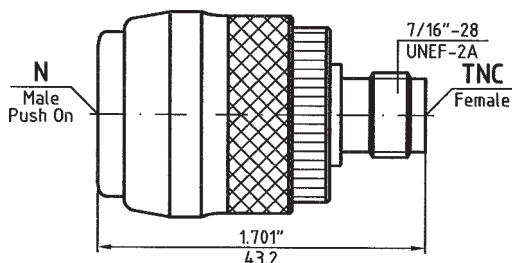
Connector outer conductor is brass/beryllium copper silver plated for lower intermodulation products. Center conductor is gold plated. Remaining parts are stainless steel for ruggedness.



**Full Locking**

Adapter Part No.	<b>8001-NS21-02</b>
Connector Config.	<b>N Push-On to SMA-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.



**Full Locking**

Adapter Part No.	<b>8001-NS41-02</b>
Connector Config.	<b>N Push-On to TNC-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.

Dimensions shown are inches over millimeters. Standard units have stainless steel finish (last two digits of the P/N are -02). Interfaces are per MIL-C 39012, MIL-C-87104/2, MIL-C-3643, MIL-STD-348, IEC-169-7, IEC-457-2, DIN 47 223, DIN 47 226, DIN 47 298, where applicable. For details please refer to the beginning of this section.

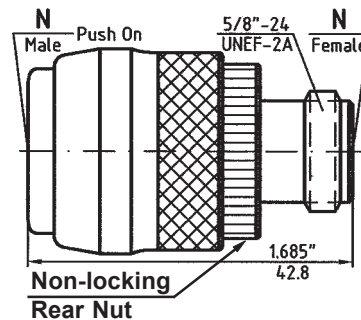
e:/quickc98/n-push.ppt6

# N Push-On Adapters

## Locking with Non-locking Rear Nut

Adapter Part No.	<b>8002-NL61-02</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

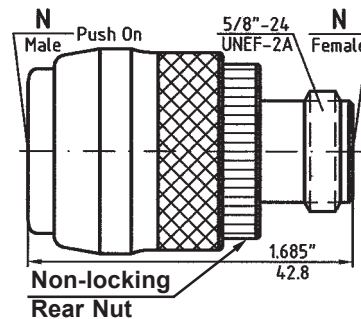
Connector outer conductor is passivated stainless steel. Center conductor is gold plated.



## Locking with Non-locking Rear Nut

Adapter Part No.	<b>8002-NL61-13</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

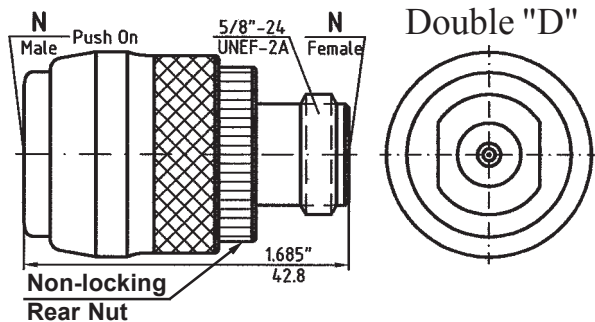
Connector outer conductor is brass/beryllium copper silver plated for lower intermodulation products. Center conductor is gold plated. Remaining parts are stainless steel for ruggedness.



## Locking with Non-locking Rear Nut

Adapter Part No.	<b>8003-NL61-02</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

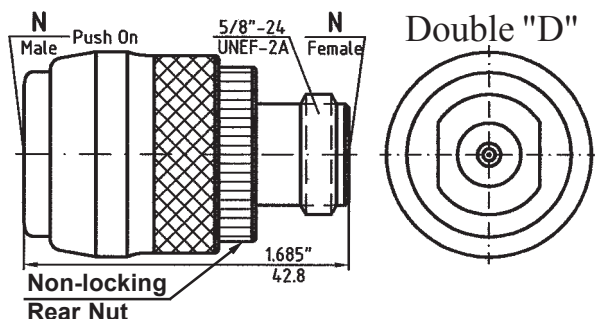
Connector outer conductor is passivated stainless steel. Center conductor is gold plated.



## Locking with Non-locking Rear Nut

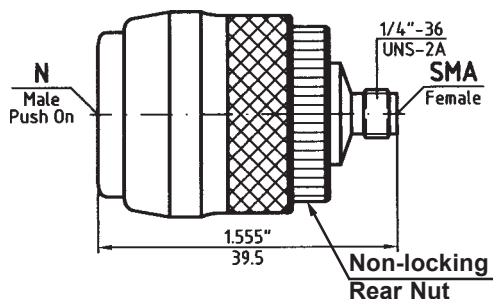
Adapter Part No.	<b>8003-NL61-13</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

Connector outer conductor is brass/beryllium copper silver plated for lower intermodulation products. Center conductor is gold plated. Remaining parts are stainless steel for ruggedness.



Dimensions shown are inches over millimeters. Standard units have stainless steel finish (last two digits of the P/N are -02). Interfaces are per MIL-C 39012, MIL-C-87104/2, MIL-C-3643, MIL-STD-348, IEC-169-7, IEC-457-2, DIN 47 223, DIN 47 226, DIN 47 298, where applicable. For details please refer to the beginning of this section.

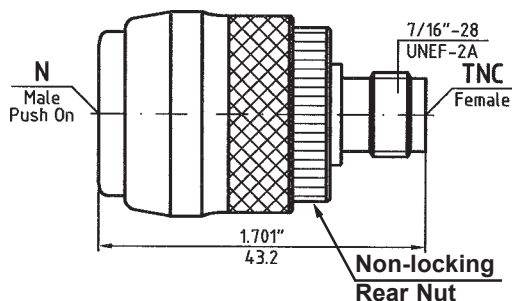
## Push-On Adapters, Type N



### Locking with Non-locking Rear Nut

Adapter Part No.	<b>8001-NL21-02</b>
Connector Config.	<b>N Push-On to SMA-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.



### Locking with Non-locking Rear Nut

Adapter Part No.	<b>8001-NL41-02</b>
Connector Config.	<b>N Push-On to TNC-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

Connector outer conductor is passivated stainless steel. Center conductor is gold plated.

e:/quick98/n-push.ppt6

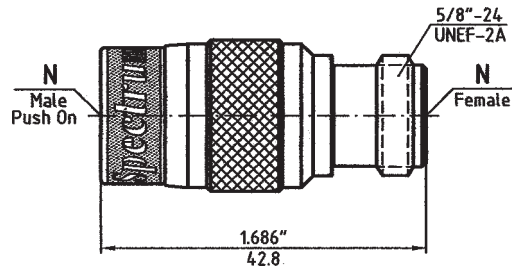
Dimensions shown are inches over millimeters. Standard units have stainless steel finish (last two digits of the P/N are -02). Interfaces are per MIL-C 39012, MIL-C-87104/2, MIL-C-3643, MIL-STD-348, IEC-169-7, IEC-457-2, DIN 47 223, DIN 47 226, DIN 47 298, where applicable. For details please refer to the beginning of this section.

# N Push-On Adapters

## NON Locking

Adapter Part No.	<b>8001-NN61-02</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

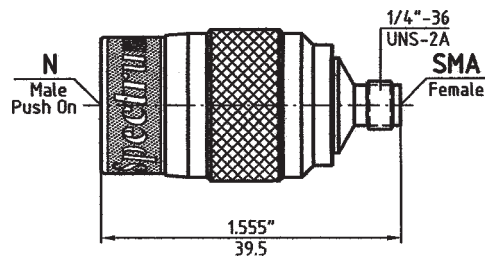
Connector outer conductor is passivated stainless steel.  
Center conductor is gold plated.



## NON Locking

Adapter Part No.	<b>8001-NN21-02</b>
Connector Config.	<b>N Push-On to SMA-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

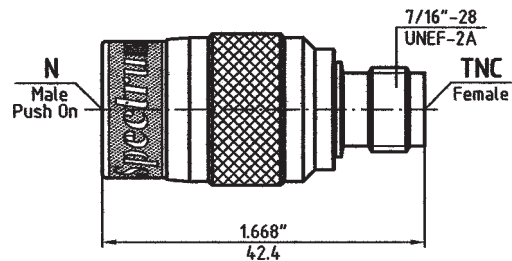
Connector outer conductor is passivated stainless steel.  
Center conductor is gold plated.



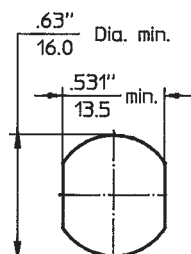
## NON Locking

Adapter Part No.	<b>8001-NN41-02</b>
Connector Config.	<b>N Push-On to TNC-f</b>
Frequency Range	<b>DC to 18.0 GHz</b>
VSWR	<b>1.06 + 0.005 x f (GHz)</b>

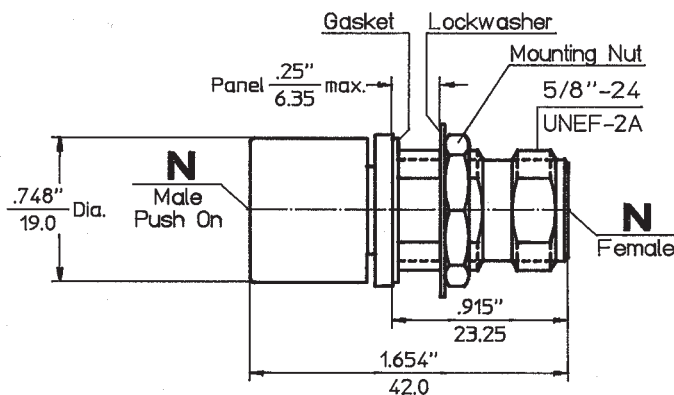
Connector outer conductor is passivated stainless steel.  
Center conductor is gold plated.



Dimensions shown are inches over millimeters. Standard units have stainless steel finish (last two digits of the P/N are -02). Interfaces are per MIL-C 39012, MIL-C-87104/2, MIL-C-3643, MIL-STD-348, IEC-169-7, IEC-457-2, DIN 47 223, DIN 47 226, DIN 47 298, where applicable. For details please refer to the beginning of this section.



Recommended Mounting Hole



### N Push-On Bulkhead Feedthrough Floating Connector Saver

Adapter Part No.	<b>8004-NS61-05</b>
Connector Config.	<b>N Push-On to N-f</b>
Frequency Range	<b>DC to 14.0 GHz</b>
VSWR	<b>1.15 : 1</b>

Connector outer conductor is brass nicle plated.  
Center conductor is gold plated.

## Float Mount Application Notes can be supplied on request.

Dimensions shown are inches over millimeters. Standard units have stainless steel finish (last two digits of the P/N are -02). Interfaces are per MIL-C 39012, MIL-C-87104/2, MIL-C-3643, MIL-STD-348, IEC-169-7, IEC-457-2, DIN 47 223, DIN 47 226, DIN 47 298, where applicable. For details please refer to the beginning of this section.

e:/quick98/n-push.ppt6