Amphenol® Miniature Cylindrical
Proprietary/MIL-C-26482, Series 1



PT
MIL-C-26482, Series 1



PT-SE
MIL-C-26482, Series 1



SP

DESIGN CHARACTERISTICS

- **Medium size, widely used cylindrical**
- **Operating voltage to 1,000 VAC (RMS) at sea level**
- **Environment resistant**
- **Quick positive three point bayonet lock coupling system**
- **Visual confirmation of complete coupling**
- **Five key/keyway polarization**
- **PT solder is UL Recognized under file #E115497, Vol. 1, Section 5**

CUSTOMER OPTIONS

- **Seven mounting styles provide optimum design flexibility**
- **Ten shell sizes 6 through 24**
- **Solder or crimp front or rear release contacts**
- **Size 20 through 12 contacts accept wire sizes 20 through 12 AWG**
- **Various finishes provide protection in a wide variety of corrosive and mechanical environments**
  - Availability of zinc cobalt* non-cadmium plating
- **Coaxial and thermocouple contact options**
- **Hermetic seal (glass fused) receptacles**
- **Double stub threaded coupling series available**
- **Alternate positioning**

Amphenol® Miniature Cylindrical connectors offer twice the number of contacts in just half the size of a Standard connector. These miniature connectors, are available in several series, each with varying design characteristics and customer options to meet cost considerations and provide maximum design flexibility. Two of the Miniature Family series, MS/PT and MS/PT-SE, are MS approved and qualified to MIL-C-26482, Series 1.

The Miniature family consists of three basic series: PT, SP and PC. In all series, pin and socket contacts are machined from low loss copper alloy and gold plated to eliminate contact corrosion and provide an indefinite shelf life. All series incorporate closed entry socket contacts. The PT, SP and PC series are provided with factory installed solder contacts. Printed circuit board contacts are available in the PT Series box mount and jam nut style receptacles.

The PT, SP and PC series are also available with removable crimp contacts incorporating either of two types of retention systems. The suffix “SE” or “CE” refers to the type of retention system employed. MS approved “SE” types utilize a spring tower retention system, while the proprietary “CE” types utilize a nylon wafer retention system to maintain contact position.

Hermetically sealed receptacles are available in the PT and PC series.

Note:
Please refer to page 54 for a brief description of the Amphenol®/Matrix® MIL-C-26482, Series 2 bayonet coupling connectors with crimp, rear insertable and rear releasable contacts, and ask for catalog 12-071 for detailed information on this series.

* For more information on zinc cobalt plating for connectors ask for Amphenol Product Data Sheet #172.

Amphenol® Miniature Cylindrical
connector selection guide

The accompanying chart is provided to assist the user in selecting the appropriate type of miniature connector to meet the application requirements. Further information can be found in specific sections of this catalog.

CHARACTERISTICS		Solder				Crimp						
		PT	MS/PT	SP	PC	MS/ PT-SE	PT-SE	SP-SE	PC-SE	PT-CE	SP-CE	PC-CE
Intermateable†		o	o	o	X	o	o	o	X	o	o	X
Contacts	Solder	•	•	•	•							
	Crimp RI/FR					•	•	•	•	•	•	•
	Crimp RI/RR											
Contact Retention System	Non-Removable	•	•	•	•							
	Removable					•	•	•	•	•	•	•
Coupling	Bayonet	•	•	•		•	•	•		•	•	
	Threaded				•				•			•
Standard Finishes††	Olive Drab Cadmium (003)	•	•			•	•			•		
	Electroless Nickel (023)											
	Anodic Coated (005)			•				•			•	
	Bright Cadmium (001)				•				•			•
Temperature Range	Resilient Dielectric (125°C)	•	•	•	•	•	•	•	•	•	•	•
	Hard Dielectric (175°C & 200°C)											
Wide Mounting Flange				•				•			•	
Hermetic Seal		•	•	•	•							
SHELL STYLE AVAILABILITY												
Wall Mounting Receptacle “00”		•	•	•	•	•	**•	•	•	•	•	
Cable Connecting Receptacle “01” ***		•	•		•	•	•		•	•		•
Box Mounting Receptacle “02”		*•	•	•	*•	•	**•	•	•	•	•	
Straight Plug “06”		•	•	•	•	•	•	•	•	•	•	•
Jam Nut Receptacle “07”		*•	*•	•	*•	•	•	•	•	•	•	•
Thru-bulkhead Receptacle “TB”		•		•								
Solder Mount Receptacle “I”		*•	*•		*•							
90° Plug “08”		•		•	•		•	•	•	•	•	

RI/FR = Rear Insertion/Front Releasable
RI/RR = Rear Insertion/Rear Releasable
† o intermates with o
X intermates with X
†† Optional finishes available. See “how to order” sections.
* Available in hermetic version
** Dual mounting holes
*** This connector style is sometimes referred to as a cable connecting “plug.” It does, however, mate with either a straight or 90 degree plug.

Amphenol® PT, SP, MS/PT

Proprietary/MIL-C-26482, Series 1 solder type



wall mounting receptacle



cable connecting receptacle*



box mounting receptacle



straight plug



jam nut receptacle



thru bulkhead receptacle

Amphenol® solder contact miniature cylindrical connectors meet the most critical application needs. Design versatility combined with high reliability performance makes these series of Miniature Cylindrical Connectors ideal for environmental sealing or pressurized applications.

The MS/PT Series is qualified to MIL-C-26482, Series 1 and has all the outstanding design characteristics and quality of the PT Series. The SP Series is a modification of the PT, providing special shells with a wide mounting flange for back panel mounting.

A corrosion resistant electrically conductive finish of cadmium plate with an olive drab chromate after-treatment is used on the PT and MS/PT. The SP is given a durable non-conductive hard anodic "Alumilite"® coating which provides abrasion protection and resistance to corrosion.

Shell components for these series are aluminum. The dependable 5 key/keyway polarization with bayonet lock coupling assures positive mating with no chance of cross plugging. Spring tension provided by a wave washer in the coupling nut ensures maintenance of interfacial seal between mating halves.

Both the insert and main joint gasket are molded from resilient neoprene. This provides excellent moisture sealing at the gasket and superior electrical isolation of the contact in the insert.

Both pins and sockets are machined from a copper alloy and are gold plated. This gold plating eliminates contact corrosion and offers an indefinite shelf life. Socket contacts for these series are a closed entry design. Printed circuit board contacts are also available.

The PT, SP and MS/PT Series are intermateable and intermountable with all existing Miniature Cylindrical Series connectors except for the threaded coupling PC Series.

PT Solder is UL recognized under file #E115497, Volume 1, Section 5.

Refer to pages 56-61 for insert arrangement availability.

PT, SP, MS/PT

MIL-SPEC CONTACT DATA/CONNECTOR RATINGS

Contact Specifications				
Contact Size	Test Current	Maximum Millivolt Drop†	Solder Well Diameter	Solder Well Depth
20	7.5	55	.046 +.004 –.000	.125 +.031 –.000
16	13.0	50	.078 +.005 –.003	.188 +.031 –.000

Service Rating					
Service Rating	Recommended Operating AC Voltage at Sea Level	Test Voltage AC (RMS), 60 cps			
		Sea Level	50,000 ft.	70,000 ft.	110,000 ft.
I	600	1,500	500	375	200
II	1,000	2,300	750	500	200

† Silver plated wire per MIL-C-26482

* This connector style is sometimes referred to as a cable connecting "plug." It does, however, mate with a straight or 90 degree plug.

PT, SP Service Classes

PT and SP connectors are available in the service classes listed below. Each class, with the exception of hermetic, offers one or more means of terminating or supporting a cable or wire bundle. Class “W” is not available in the SP Series.

“A”	General duty; back shell is threaded for conduit attachment of MS3057 cable clamp
“A” (SR)	General duty, with strain relief clamp for cable or wire bundle support
“C”	Pressurized receptacle; less than 1 cu. in. per hour leakage at 30 psi over a temperature range of –65°F to +257°F
“E”	Environmental resistant connectors - supplied with a multi-holed grommet and clamping nut for moisture-proofing individual open wires
“E” (SR)	Environmental resistant strain relief clamp and grommet for moisture proofing individual wires; provides added wire bundle support
“J”	Same as “W” class except with strain relief
“P”	Translucent nylon boot for retaining customer-applied potting compounds; held in place by a threaded ring
“P” (SR)	Strain relief clamp suitable for retaining customer applied potting compounds, with provision for wire support
“W”	Compressing clamp and neoprene gland for moisture proofing multi-conductor jacketed cables. Telescoping sleeves (MS 3420A) can be used to adapt to cables smaller than minimum close-down.
“H”*	Hermetically sealed with compression glass inserts

MS/PT Service Classes

The MS/PT Miniature connector is available in the following certified service classes:

“E”	Environmental resistant connectors - supplied with a multi-holed grommet and clamping nut for moisture-proofing individual open wires
“F”	Grommet seal with strain relief clamp
“P”	Translucent nylon boot for retaining customer-applied potting compounds; held in place by a threaded ring

* Refer to pages 14-17 for Hermetic versions.



“A” general duty



“E” (SR), MS / “F” strain relief



“E” MS / “E” open wire seal

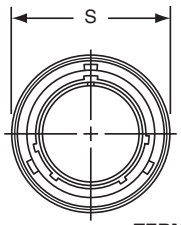


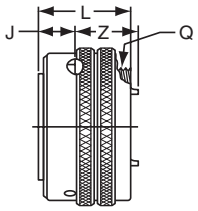
“P”, MS / “P” potting boot



“W” cable seal

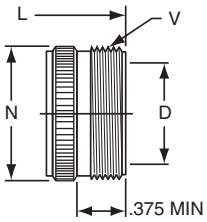
PT06 (MS3116)
SP06
straight plug





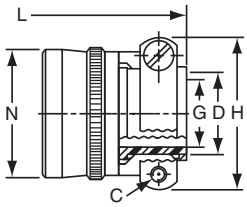
TERMINATION ASSEMBLIES

"A" General Duty



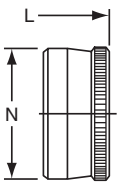
PT06A-XX-XXX
SP06A-XX-XXX
PTG06A-XX-XXX

"A" (SR), "E" (SR), "P" (SR), MS / "F" Strain Relief



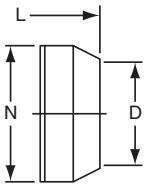
PT06A-XX-XXX (SR)
SP06A-XX-XXX (SR)
PTG06A-XX-XXX (SR)
PT06E-XX-XXX (SR)
SP06E-XX-XXX (SR)
PTG06E-XX-XXX (SR)
PT06P-XX-XXX (SR)
SP06P-XX-XXX (SR)
PTG06P-XX-XXX (SR)
MS3116F-XX-XXX

"E" Open Wire Seal



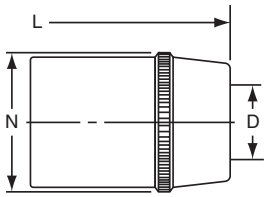
PT06E-XX-XXX
SP06E-XX-XXX
PTG06E-XX-XXX
MS3116E-XX-XXX

"P" Potting Boot



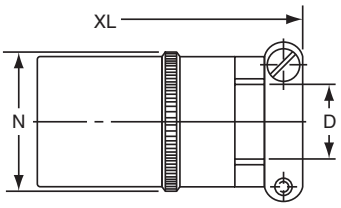
PT06P-XX-XXX
SP06P-XX-XXX
PTG06P-XX-XXX
MS3116P-XX-XXX

"W" Cable Seal



PT06W-XX-XXX
SP06W-XX-XXX
PTG06W-XX-XXX

"J" Cable Seal



PT06J-XX-XXX
MS3116J-XX-XXX

To complete part number see how to order on page 18.

Shell Size	Plug Front View S Max.	Plug Side View J	L Max.	Q Thread Class 2A	Z Max.	Class "A" D Min.	L Max.	N Max.	V Thread Class A
6	.625	.353	.906	.3125-32 NEF	.594	.175	1.609	.462	.3750-32 NEF
8	.750	.353	.906	.4375-28 UNEF	.594	.297	1.609	.590	.5000-28 UNEF
10	.859	.353	.906	.5625-24 NEF	.594	.421	1.609	.717	.6250-24 NEF
12	1.013	.353	.906	.6875-24 NEF	.594	.546	1.609	.834	.7500-20 UNEF
14	1.156	.353	.906	.8125-20 UNEF	.594	.663	1.609	.970	.8750-20 UNEF
16	1.281	.353	.906	.9375-20 UNEF	.594	.787	1.609	1.088	1.0000-20 UNEF
18	1.319	.353	.906	1.0625-18 NEF	.594	.879	1.609	1.216	1.1875-18 NEF
20	1.531	.415	1.062	1.1875-18 NEF	.672	1.014	1.656	1.332	1.1875-18 NEF
22	1.656	.415	1.062	1.3125-18 NEF	.672	1.135	1.656	1.460	1.4375-18 NEF
24*	1.776	.415	1.125	1.4375-18 NEF	.672	1.259	1.750	1.587	1.4375-18 NEF

Shell Size	Class "A" (SR), "E" (SR), "P" (SR), MS / "F" C Thread	D Min.	G ±.010	H Max.	L Max.	N Max.	Class "E", MS / "E" L Max.	N Max.	Class "P", MS / "P" D Min.	L Max.	N Max.	Class "W", "J" D Closed	D Free	L Max.	N Max.	XL Max.
6	–	–	–	–	–	–	1.266	.440	.192	1.526	.484	–	–	–	–	–
8	6-32	.240	.125	.812	1.906	.550	1.266	.560	.317	1.526	.608	.168	.230	1.705	.547	2.271
10	6-32	.302	.188	.875	1.906	.675	1.266	.685	.434	1.526	.734	.205	.312	1.705	.675	2.271
12	6-32	.428	.312	1.000	1.906	.803	1.266	.813	.548	1.526	.858	.338	.442	1.848	.812	2.411
14	6-32	.552	.375	1.125	1.906	.920	1.266	.930	.673	1.526	.984	.416	.539	2.040	.940	2.599
16	6-32	.615	.500	1.188	2.047	1.047	1.266	1.057	.798	1.526	1.110	.550	.616	2.256	1.067	2.943
18	8-32	.740	.625	1.438	2.078	1.165	1.266	1.175	.899	1.526	1.234	.600	.672	2.486	1.194	3.172
20	8-32	.740	.625	1.438	2.250	1.290	1.438	1.301	1.024	1.546	1.360	.635	.747	2.844	1.322	3.610
22	8-32	.928	.750	1.625	2.250	1.418	1.438	1.430	1.149	1.546	1.484	.670	.846	3.000	1.449	3.766
24*	8-32	.990	.800	1.750	2.312	1.543	1.500	1.555	1.274	1.656	1.610	.740	.894	3.210	1.576	3.985

* Available in PT06 only
All dimensions for reference only.

PT, SP, MS/PT
how to order

PT, SP

To more easily illustrate ordering procedure, part number PT00A-20-41PW(SR) is shown as follows:

PT	00	A	-	20	-	41	P	W	(SR)
1	2	3		4		5	6	7	8

See code below:

1. Connector Type
   - "PT" designates standard olive drab, electrically conductive cadmium plated bayonet lock connector with solder contacts
   - "SP" designates electrically non-conductive, hard anodic coated bayonet lock connector with solder contacts and larger flange and mounting holes for back panel mounting
   - "PTG" designates plug with grounding fingers
2. Shell Style
   - "00" designates wall mounting receptacle
   - "01" designates cable connecting receptacle**
   - "02" designates box mounting receptacle
   - "06" designates straight plug
   - "07" designates jam nut receptacle
   - "08" designates 90 degree plug cable support
   - "B" designates thru bulkhead receptacle (pressurized)
   - "I" designates solder mount receptacle (Hermetic only)
3. Service Classes
   - "A" designates general duty back shell
   - "C" designates pressurized receptacle
   - "E" designates environmental resisting open wire seal with grommet and nut
   - "J" designates clamp assembly for moisture proofing multi-jacketed cables, with strain relief
   - "P" designates assembly with potting boot
   - "W" designates clamp assembly for moisture proofing multi-jacketed cables
   - "H" designates hermetic* without interfacial seal
   - "Y" designates hermetic* with interfacial seal
4. Shell Size
   "20" designates shell size. Shell sizes 6 through 24 available.
5. Insert Arrangement
   "20 - 41" designates insert arrangement. Refer to pages 56-61 for insert availability.
6. Contacts
   "P" designates pin contacts
   "S" designates socket contacts
   For ordering connectors with printed circuit board contacts, see pg. 12.
7. Insert Rotation
   "W", "X", "Y", "Z" designate that insert is rotated in its shell from "normal position. No letter required for normal (no rotation) position.
8. "SR" designates a strain relief clamp.
   Indicate optional finishes as follows:
   - (003) olive drab cadmium plate (standard on "PT")
   - (005) anodic coating - Alumilite® (standard on "SP")
   - (014) olive drab cadmium plate over nickel
   - (023) electroless nickel
   - (024) olive drab zinc cobalt plating
   - (025) non-conductive black zinc cobalt plating
   - (027) conductive black zinc cobalt plating
   - (424) electroless nickel finish with strain relief
   - (466) olive drab zinc cobalt plating with strain relief
   - (470) non-conductive black zinc cobalt plating with strain relief
   - (476) conductive black zinc cobalt plating with strain relief
   - (100) Suffix added for flat eyelet pin contacts in hermetic versions

MS/PT
MIL-C-26482, Series 1

Part number MS3110E20-41PW is shown as follows:

MS	311	0	E	20	-	41	P	W
1	2	3	4	5		6	7	8

For Hermetic connectors part number MS3113H20Y41PW is shown as follows:

MS	311	3	H	20 Y 41	P	W
1	2	3	4	5, 6	7	8

See code below:

1. "MS" designates Military Standard
2. Specification Number
   "311" designates basic family number for MIL-C-26482, Series 1 solder type
3. Shell Style
   - "0" designates wall mounting receptacle
   - "1" designates cable connecting receptacle**
   - "2" designates box mounting receptacle
   - "3" designates solder mount receptacle (hermetic only)
   - "4" designates jam nut receptacle
   - "6" designates straight plug
4. Service Class
   - "E" designates environmental resisting connector
   - "F" designates environmental resisting connectors with strain relief
   - "J" designates clamp assembly for moisture proofing multi-jacketed cables, with strain relief
   - "P" designates potted type with potting boot
   - "H" designates hermetic
5. Shell Size
   "20" designates shell size. Shell sizes 8 through 24 available.
6. Insert Arrangement
   "20-41" designates arrangement. Refer to pages 56-61 for insert availability.

   Hermetic version
   "20Y41" designates insert arrangement; specify "Y" for flat eyelet pin contacts, or "C" for solder cup pin contacts
7. Contact Configuration
   "P" designates pin contacts
   "S" designates socket contacts
8. Insert Rotation
   "W", "X", "Y", "Z" designate that insert is rotated in its shell from "normal" position. No letter required for normal (no rotation) position.

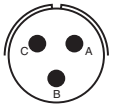
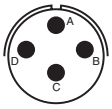
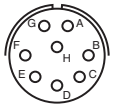
* Hermetic connectors are supplied with tin plated shells.

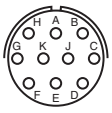
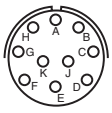
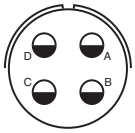
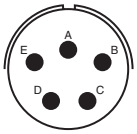
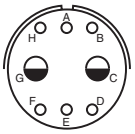
** This connector style is sometimes referred to as a cable connecting "plug". It does, however, mate with either a straight or 90 degree plug.

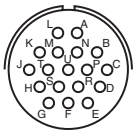
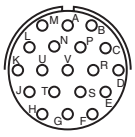
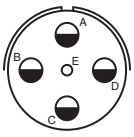
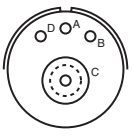
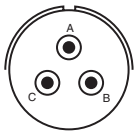
Amphenol® Miniature Cylindrical
insert arrangements

front face of pin inserts illustrated

							
Insert Arrangement	**6-1**	**8-2**	**8-3**	**8-4**	**8-33**	**8-98**	**10-2**
Service Rating	**I**	**I**	**I**	**I**	**I**	**I**	**I**
Number of Contacts	**1**	**2**	**3**	**4**	**3**	**3**	**2**
Contact Size	**20**	**20**	**20**	**20**	**20**	**20**	**16**

							
Insert Arrangement	**10-5**	**10-6**	**10-70**	**10-98**	**12-3**	**12-4**	**12-8**
Service Rating	**I**	**I**	**Coax**	**I**	**II**	**I**	**I**
Number of Contacts	**5**	**6**	**1**	**6**	**3**	**4**	**8**
Contact Size	**20**	**20**	**8 Coax**	**20**	**16**	**16**	**20**

							
Insert Arrangement	**12-10**	**12-14**	**12-98**	**14-2**	**14-4**	**14-5**	**14-8**
Service Rating	**I**	**I**	**I**	**II**	**I**	**II**	**I**
Number of Contacts	**10**	**14**	**10**	**2**	**4**	**5**	**6 2**
Contact Size	**20**	**20**	**20**	**12**	**12**	**16**	**20 12**

							
Insert Arrangement	**14-12**	**14-15**	**14-18**	**14-19**	**14-22**	**14-71**	**14-91HV**
Service Rating	**I**	**I**	**I**	**I**	**I**	**I**	**Flashover 5,000 VAC (RMS)**
Number of Contacts	**8 4**	**14 1**	**18**	**19**	**1 4**	**3 1**	**3**
Contact Size	**20 16**	**20 16**	**20**	**20**	**20 12**	**16 8 Coax**	**20**

For contact legend see page 61.