

Contact Specifications

TB Series • MIL-DTL-38999 Series IV Style Accessories

Wire & Crimp Contact Dimensions

Contact Size	Wire Range		Potential Drop (Millivolts)	Crimp Well Diameter	Min Crimp Well Depth	Wire Jacket Diameter Sealing Range		Contact Retention Min Axial Load Pounds (Newtons)
	AWG	Dia				Min	Max	
#22D	22, 24, 26, 28	.012-.025 (.32-.64)	<73	.035 (.89)	.141 (3.58)	.030 (.76)	.054 (1.37)	10 (44.5)
#20	20, 22, 24	.020-.032 (.51-.81)	<55	.047 (1.19)	.209 (5.31)	.040 (1.02)	.083 (2.11)	15 (66.7)
#16	16, 18, 20	.032-.050 (.81-1.29)	<49	.067 (1.70)	.209 (5.31)	.065 (1.65)	.109 (2.77)	25 (111.2)
#12	12, 14	.064-.080 (1.62-2.05)	<42	.100 (2.54)	.209 (5.31)	.097 (2.46)	.142 (3.61)	30 (133.4)

Dimensions are in inches (mm) unless otherwise noted.

Wire & Solder Contact Dimensions (Hermetic)

Contact Size	Wire Range		Potential Drop (Millivolts)	Solder Well Diameter	Min Solder Well Depth
	AWG	Dia			
#22D	22, 24, 26, 28	.012-.025 (.32-.64)	<85	.036 (.91)	.094 (2.39)
#20	20, 22, 24	.020-.032 (.51-.81)	<60	.044 (1.12)	.125 (3.18)
#16	16, 18, 20, 22	.025-.050 (.64-1.29)	<85	.078 (1.98)	.141 (3.58)
#12	12, 14	.064-.080 (1.62-2.05)	<82	.116 (2.95)	.141 (3.58)

Dimensions are in inches (mm) unless otherwise noted.

Current Rating By Contact Size & Wire Size

Wire Size (AWG)	Contact Size			
	#22D	#20	#16	#12
28	1.5A	-	-	-
26	2A	-	-	-
24	3A	3A	-	-
22	5A	5A	-	-
20	-	7.5A	7.5A	-
18	-	-	10A	-
16	-	-	13A	-
14	-	-	-	17A
12	-	-	-	23A

Test ratings only. A connector cannot withstand maximum current through all contacts continuously. Please note that the establishment of electrical safety factors is left entirely in the designer's hands, since he or she is in the best position to know what peak voltage, switching surges, transients, etc. can be expected in a particular circuit.

Contact Derating Specifications

Service Rating	Max Operating Voltage (Sea Level)		Test Voltage			
	AC (RMS)	DC	Sea Level AC (RMS)	50,000 ft AC (RMS)	70,000 ft AC (RMS)	110,000 ft AC (RMS)
M	400	500	1,300	550	350	200
N	230	270	1,000	400	260	200
I	600	850	1,800	600	400	200
II	900	1,250	2,300	800	500	200

Test ratings only. A connector cannot withstand maximum current through all contacts continuously. Please note that the establishment of electrical safety factors is left entirely in the designer's hands, since he or she is in the best position to know what peak voltage, switching surges, transients, etc. can be expected in a particular circuit.

Shielding Effectiveness

Freq Range (Mhz)	Attenuation Minimum (dB)
100	90
200	88
300	88
400	87
800	85
1,000	85
1,500	76
2,000	70
3,000	69
4,000	68
6,000	66
10,000	65

Effective over a range of 100 MHz to 10 GHz with a minimum 50 dB effectiveness at 10 GHz, in accordance with test method EIA-364-10.



Contacts, Sealing Plugs, & Tooling

Contact Size	Contact Style	Part Number	Wire Size (AWG)	Wire Range (Dia)	Jacket Strip Length	Crimping Tool	Positioner	Insertion Tool	Extraction Tool
#22D	Standard Pin	TBPP22	22, 24, 26, 28	.012–.025 (.32–.64)	.157 (4.00)	TK201	TP209 (pins only)	TN801	TX802
	High-Cycle Pin	TBHP22					TP207 (socket only)		
	Standard Socket	TBSS22							
	High-Cycle Socket	TBHS22							
	Sealing Plug	TBSP22				No Tooling Required			
#20	Standard Pin	TBPP20	20, 22, 24	.020–.032 (.51–.81)	.197 (5.00)	TK101A	TP104 (Turret)	TN805	TX806
	High-Cycle Pin	TBHP20							
	Standard Socket	TBSS20							
	High-Cycle Socket	TBHS20							
	Sealing Plug	TBSP20				No Tooling Required			
#16	Standard Pin	TBPP16	16, 18, 20	.032–.050 (.81–1.29)	.236 (6.00)	TK101A	TP104 (Turret)	TN807	TX808
	High-Cycle Pin	TBHP16							
	Standard Socket	TBSS16							
	High-Cycle Socket	TBHS16							
	Sealing Plug	TBSP16				No Tooling Required			
#12	Standard Pin	TBPP12	12, 14	.064–.080 (1.62–2.05)	.236 (6.00)	TK101A	TP104 (Turret)	TN809	TX810
	High-Cycle Pin	TBHP12							
	Standard Socket	TBSS12							
	High-Cycle Socket	TBHS12							
	Sealing Plug	TBSP12				No Tooling Required			

Dimensions are in inches (mm) unless otherwise noted.

Thermocouple Contacts

Contact Size	Contact Style	Part Number	Wire Size (AWG)	Wire Range (Dia)	Jacket Strip Length	Crimping Tool	Positioner	Insertion Tool	Extraction Tool
#22D Alumel	Pin	TBPA22	22, 24, 26, 28	.012–.025 (.32–.64)	.157 (4.00)	TK201	TP209	TN801	TX802
	Socket	TBSA22					TP207		
#22D Chromel	Pin	TBPR22					TP209		
	Socket	TBSR22					TP207		
#22D Constantan	Pin	TBPK22					TP209		
	Socket	TBSK22					TP207		
#22D Iron	Pin	TBPE22					TP209		
	Socket	TBSE22					TP207		
#20 Alumel	Pin	TBPA20	20, 22, 24	.020–.032 (.51–.81)	.197 (5.00)	TK101A	TP104 (Turret)	TN805	TX806
	Socket	TBSA20							
#20 Chromel	Pin	TBPR20							
	Socket	TBSR20							
#20 Constantan	Pin	TBPK20							
	Socket	TBSK20							
#20 Iron	Pin	TBPE20							
	Socket	TBSE20							
#16 Alumel	Pin	TBPA16	16, 18, 20	.032–.050 (.81–1.29)	.236 (6.00)	TK101A	TN807	TX808	
	Socket	TBSA16							
#16 Chromel	Pin	TBPR16							
	Socket	TBSR16							
#16 Constantan	Pin	TBPK16							
	Socket	TBSK16							
#16 Iron	Pin	TBPE16							
	Socket	TBSE16							

Dimensions are in inches (mm) unless otherwise noted. For other thermocouple materials, including copper, contact your authorized distributor.

Rev. 1231.1

Coax & Twinax Contacts

TB Series • MIL-DTL-38999 Series IV Style Accessories

Coax Contacts

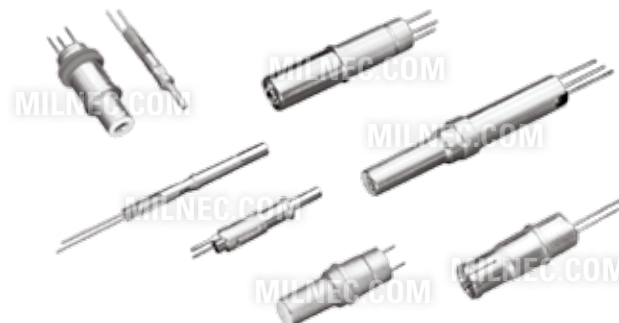
Cable	Contact Size	Part Number		Crimping Tools		Positioners		Installation Tools	
		Pin	Socket	Inner	Outer	Inner	Outer	Insertion	Extraction
RG-178B/U RG-196A/U M17/093-RG178 M17/169-00001	#16	TBPX16-002	TBSX16-003		TK401	TP235	TP402	TN807	TX808
RG-161/U RG-174A/U RG-179B/U RG-187A/U RG-188A/U RG-316/U Haveg 8100207 Times (HS-179) AA3248 Teledyne 11299 Thermax 75-738-BCCWXE Tensolite 3088/L707YX-1 M17/119-RG174 M17/094-RG179 M17/113-RG316	#12	TBPX16-004	TBSX16-005						
		TBPX12-006	TBSX12-007	TK201					
					TK3101	TP234	TP3102	TN809	TX810
RG-180B/U RG-195A/U Raychem 9528A1318 Raychem 9527D1514-2L Microdot 293-3922 M17/095-RG180		TBPX12-008	TBSX12-009						
M17/113-RG316 M17/094-RG179		TBPX12-010	TBSX12-011	TK992		TP1360	TP503		
RG-180B/U RG-195A/U Raychem 9527D1514-2L M17/095-RG180	#8	TBPX08-012	TBSX08-013	TK201	TK501	TP231	TP505	—	TX814
RG-400		TBPX08-102	TBSX08-101			TP210	TP545		

Twinax Contacts

Cable	Contact Size	Part Number		Crimping Tools		Positioners		Installation Tools	
		Pin	Socket	Inner	Outer	Inner	Outer	Insertion	Extraction
M17/176-00002	#8	TBPW08-002	TBSW08-003	TK201	TK501	TP231	TP505	—	TX2648

PC Tail Coax & Twinax Contacts

For added engineering flexibility in today's advanced electronic designs, Milnec can provide coax or twinax contacts with PC tails. Custom tail lengths and tail diameters enable engineers to bring high-speed transmission directly to PC board applications with improved signal integrity. Please consult an authorized distributor for lead time information and minimum quantity requirements for special order high-speed PC tail contacts.



Rev. 1807

Size #16 Fiber Optic Contacts

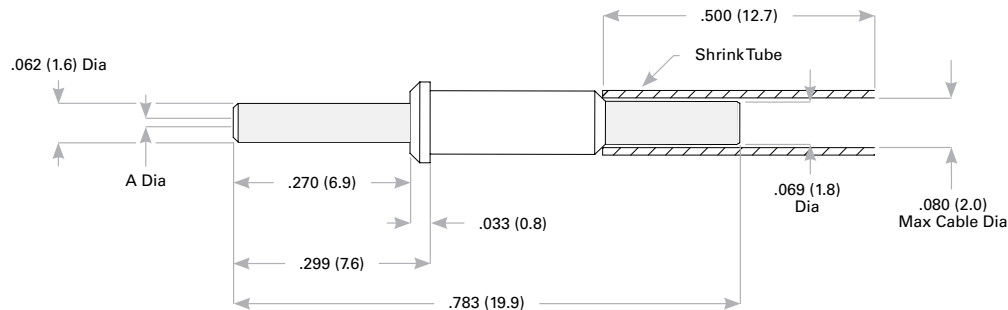
Pin Part Number	Socket Part Number	Fiber Size Core/Cladding	Mode	A Dia (Microns)	Tooling
TBPF-125S*	TBSF-125S*	9/125	Single	125.5	
TBPF-126S*	TBSF-126S*	9/125	Single	126	
TBPF-126M	TBSF-126M*	50/125 & 62.5/125	Multi	126	
TBPF-127M	TBSF-127M	50/125 & 62.5/125	Multi	127	
TBPF-142M	TBSF-142M	100/140	Multi	142	
TBPF-144M	TBSF-144M	100/140	Multi	144	
TBPF-145M*	TBSF-145M*	100/140	Multi	145	Insertion Tool TN807
TBPF-156M*	TBSF-156M*	62.5/125/155 (Polyimide)	Multi	156	
TBPF-157M*	TBSF-157M*	62.5/125/155 (Polyimide)	Multi	157	
TBPF-173M	TBSF-173M	100/140/172 (Polyimide)	Multi	173	Removal Tool TX808
TBPF-175M*	TBSF-175M*	100/140/172 (Polyimide)	Multi	175	
TBPF-231M*	TBSF-231M*	200/230	Multi	231	
TBPF-236M*	TBSF-236M*	200/233	Multi	236	
TBPF-286M*	TBSF-286M*	200/280	Multi	286	
TBPF-448M*	TBSF-448M*	400/440	Multi	448	
TBPF-533M*	TBSF-533M*	486/500	Multi	533	

* Special order item. Please consult an authorized distributor for lead time and minimum quantity requirements.

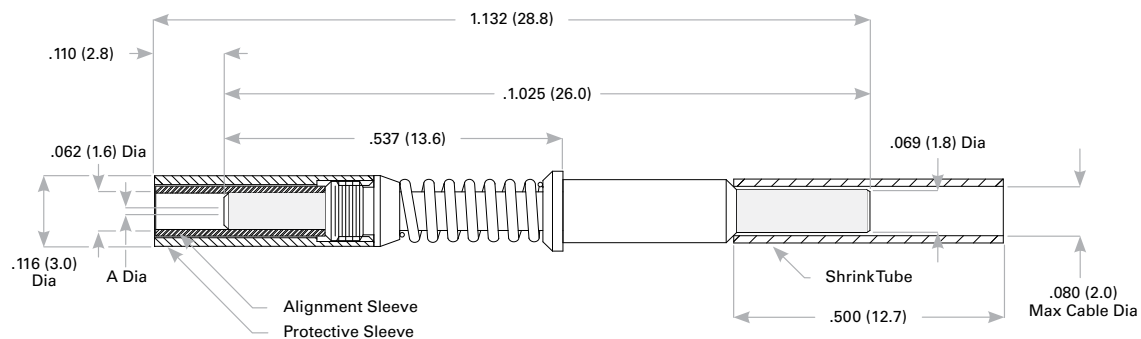


High-Performance Fiber Optic Contacts

Fiber optic termini are used in avionics, robotics, weapons systems, sensors, and other high-performance applications in which low data loss and reliable, repeatable performance is a necessity. These fiber optic termini can be used in any TX Series insert that accommodates standard #16 contacts.



Size 16 Fiber Optic Pin Termini



Size 16 Fiber Optic Socket Termini