

Contact Specifications

DL Series • MIL-DTL-38999 Series I Style Connectors

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)
#22M	24, 26, 28	.012-.020 (.32-.51)	<45	.028 (.71)	.141 (3.58)	.030 (.76)	.054 (1.37)	10 (44.5)
#22	22, 24, 26	.016-.025 (.41-.64)	<73	.037 (.93)	.141 (3.58)	.034 (.86)	.086 (2.18)	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)
#22M	24, 26, 28	.012-.020 (.32-.51)	<60	.029 (.74)	.094 (2.39)
#22	22, 24, 26	.016-.025 (.41-.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	#22M	#22	#20	#16	#12
28	1.5A	1.5A	-	-	-	-
26	2A	2A	2A	-	-	-
24	3A	3A	3A	3A	-	-
22	5A	-	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.

Mated Connector Dimensions

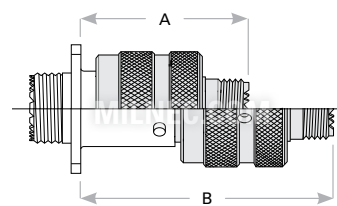
Shell Size	A Max	B Max	C Max	D Max
9	1.311 (33.3)	1.866 (47.40)	1.598 (40.60)	2.154 (54.70)
11	1.311 (33.3)	1.866 (47.40)	1.598 (40.60)	2.154 (54.70)
13	1.311 (33.3)	1.866 (47.40)	1.598 (40.60)	2.154 (54.70)
15	1.311 (33.3)	1.866 (47.40)	1.598 (40.60)	2.154 (54.70)
17	1.311 (33.3)	1.866 (47.40)	1.598 (40.60)	2.154 (54.70)
19	1.311 (33.3)	1.866 (47.40)	1.598 (40.60)	2.154 (54.70)
21	1.280 (32.5)	1.839 (46.70)	1.598 (40.60)	2.154 (54.70)
23	1.280 (32.5)	1.839 (46.70)	1.598 (40.60)	2.154 (54.70)
25	1.280 (32.5)	1.839 (46.70)	1.598 (40.60)	2.154 (54.70)

Dimensions are in inches (mm).

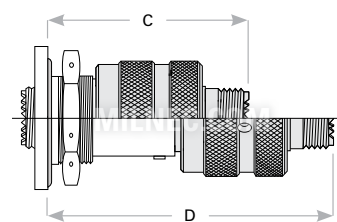
Contact Derating Specifications

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	300	450	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.



DL00 Recept. & DL06 Plug



DL07 Recept. & DL06 Plug

Shielding Effectiveness

Freq Range (Mhz)	Attenuation Minimum (dB)
100	90
200	88
300	88
400	87
800	85
1,000	85
1,500	69
2,000	65
3,000	61
4,000	58
6,000	55
10,000	50

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.

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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	DLPP22	22, 24, 26, 28	.012-.025 (.32-.64)	.157 (4.00)	TK201	TP209	TN801	TX802
	Standard Socket	DLSS22					TP207		
	Sealing Plug	DLSP22					No Tooling Required		
#22M	Standard Pin	DLPP22M	24, 26, 28	.012-.020 (.32-.51)	.157 (4.00)	TK201	TP209	TN801	TX802
	Standard Socket	DLSS22M					TP207		
	Sealing Plug	DLSP22M					No Tooling Required		
#22	Standard Pin	DLPP22A	22, 24, 26	.016-.025 (.41-.64)	.157 (4.00)	TK201	TP209	TN803	TX804
	Standard Socket	DLSS22A					TP207		
	Sealing Plug	DLSP22A					No Tooling Required		
#20	Standard Pin	DLPP20	20, 22, 24	.020-.032 (.51-.81)	.197 (5.00)	TK101A	TP104 (Turret)	TN805	TX806
	Standard Socket	DLSS20							
	Sealing Plug	DLSP20					No Tooling Required		
#16	Standard Pin	DLPP16	16, 18, 20	.032-.050 (.81-1.29)	.236 (6.00)	TK101A	TP104 (Turret)	TN807	TX808
	Standard Socket	DLSS16							
	Sealing Plug	DLSP16					No Tooling Required		
#12	Standard Pin	DLPP12	12, 14	.064-.080 (1.62-2.05)	.236 (6.00)	TK101A	TP104 (Turret)	TN809	TX810
	Standard Socket	DLSS12							
	Sealing Plug	DLSP12					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	DLPA22	22, 24, 26, 28	.012-.025 (.32-.64)	.157 (4.00)	TK201	TP209	TN801	TX802				
	Socket	DLSA22					TP207						
#22D Chromel	Pin	DLPR22					TP209						
	Socket	DLSR22					TP207						
#22D Constantan	Pin	DLPK22					TP209						
	Socket	DLSK22					TP207						
#22D Iron	Pin	DLPE22					TP209						
	Socket	DLSE22					TP207						
#20 Alumel	Pin	DLPA20					20, 22, 24	.020-.032 (.51-.81)	.197 (5.00)	TK101A	TN805	TX806	
	Socket	DLSA20											
#20 Chromel	Pin	DLPR20											
	Socket	DLSR20											
#20 Constantan	Pin	DLPK20											
	Socket	DLSK20											
#20 Iron	Pin	DLPE20											
	Socket	DLSE20											
#16 Alumel	Pin	DLPA16	16, 18, 20	.032-.050 (.81-1.29)	.236 (6.00)	TK101A					TN807	TX808	
	Socket	DLSA16											
#16 Chromel	Pin	DLPR16											
	Socket	DLSR16											
#16 Constantan	Pin	DLPK16											
	Socket	DLSK16											
#16 Iron	Pin	DLPE16											
	Socket	DLSE16											

Dimensions are in inches (mm) unless otherwise noted.

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Coax & Twinax Contacts

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Coax Contacts

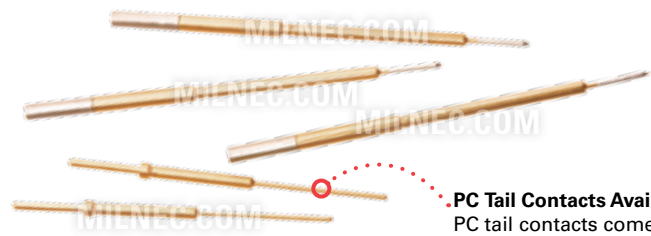
Cable	Contact Size	Part Number		Crimping Tools		Positioners		Installation Tools	
		Pin	Socket	Inner	Outer	Inner	Outer	Insertion	Extraction
RG-178B/U RG-196A/U M17/093-RG178 M17/169-00001	#16	DLPX16-002	DLSX16-003		TK401	TP235	TP402	TN807	TX808
RG-161/U RG-174A/U RG-179B/U RG-187A/U RG-188A/U RG-316/U Haveg 8100207 Times (HS-179) AA3248 Teledyne 11299 Thermax 75-738-BCCWXE Tensolite 3088/L707YX-1		DLPX16-004	DLSX16-005						
M17/119-RG174 M17/094-RG179 M17/113-RG316	#12	DLPX12-006	DLSX12-007	TK201	TK3101	TP234	TP3102	TN809	TX810
RG-180B/U RG-195A/U Raychem 9528A1318 Raychem 9527D1514-2L Microdot 293-3922 M17/095-RG180		DLPX12-008	DLSX12-009						
M17/113-RG316 M17/094-RG179		DLPX12-010	DLSX12-011	TK992		TP1360	TP503		
RG-180B/U RG-195A/U Raychem 9527D1514-2L M17/095-RG180	#8	DLPX08-012	DLSX08-013	TK201	TK501	TP231	TP505	—	TX814

Twinax Contacts

Cable	Contact Size	Part Number		Crimping Tools		Positioners		Installation Tools	
		Pin	Socket	Inner	Outer	Inner	Outer	Insertion	Extraction
M17/176-00002	#8	DLPW08-002	DLSW08-003	TK201	TK501	TP231	TP505	—	TX2648

Custom PC Tail Lengths & Dimensions

We realize that every engineering application is different, that's why we're able to provide custom PC tail contacts for MIL-DTL-38999 Series I connectors. Options include custom tail lengths, shoulder extensions, or 90° angled configurations. For applications requiring high-speed data transmission, we can also provide coax, twinax, and quadrx contacts with PC tails for termination directly to your PC board to provide the highest signal integrity. Please contact an authorized distributor for ordering assistance.



PC Tail Contacts Available
PC tail contacts come in a variety of tail lengths to meet your design requirements.

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Size #16 Fiber Optic Contacts

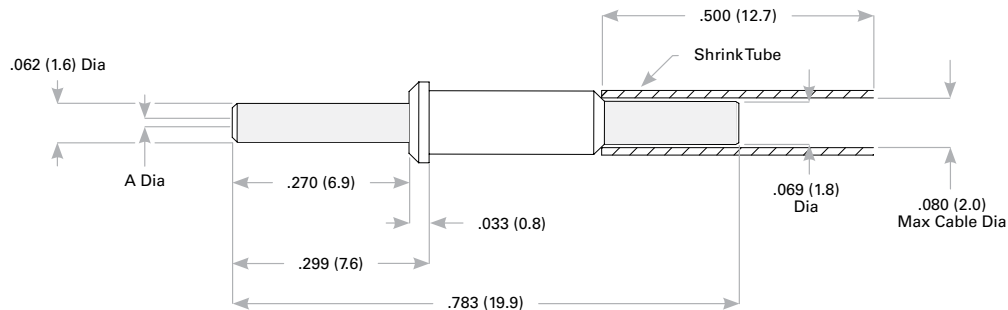
Pin Part Number	Socket Part Number	Fiber Size Core/Cladding	Mode	A Dia (Microns)	Tooling
DLPF-125S*	DLSF-125S*	9/125	Single	125.5	
DLPF-126S*	DLSF-126S*	9/125	Single	126	
DLPF-126M	DLSF-126M*	50/125 & 62.5/125	Multi	126	
DLPF-127M	DLSF-127M	50/125 & 62.5/125	Multi	127	
DLPF-142M	DLSF-142M	100/140	Multi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

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

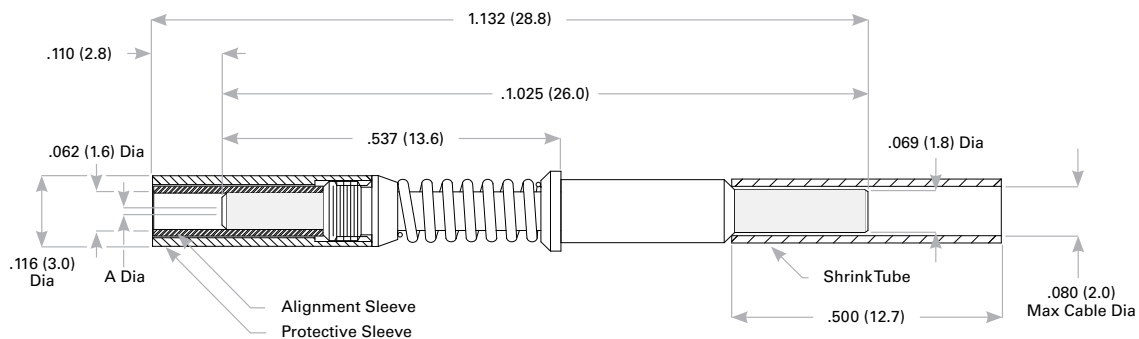


High-Performance Fiber Optic Contacts

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 DL Series insert that accommodates standard #16 contacts.



Size 16 Fiber Optic Pin Termini



Size 16 Fiber Optic Socket Termini