



TW

Hybrid D'Sub series



CONTENTS

Specifications

UL file: E64911 - CSA file: LR57744

Connectors according to: MIL C24308 - NFC93425 - HE507

Materials and platings		Electrical Data	
Shells	Steel - Tin plating	Current rating	
Insulators	High temperature black thermoplastic	Signal contacts	7.5 A. with 10 A. peaks
Signal contacts	Female: machined bronze	Power contacts	
Material	Male: machined brass	PCB terminations	10 to 40 A.
Plating finish	16µ "Au over 79µ" Ni min.	Solder cup terminations	10 to 40 A.
Or	30µ "Au over 79µ" Ni min.	Crimp terminations	10 to 40 A.
Shielded contacts	Female: machined bronze	Shielded contacts	0.5 A.
Material	Male: machined brass	Voltage rating	
Plating		Signal and power contacts	300 V. R. M. S. at 50 Hz
Inner conductor	16µ "Au or 30µ Au over 79µ" Ni	Shielded contacts	150 V. R. M. S. at 50 Hz
Outer ring	10µ "Au over 79µ" Ni	Shielded contacts	
Terminations	Tinned	Frequency range	0 - 1 GHz
Except solder cup and crimp terminations	gold flash	Attenuation	0.2 dB
Power contacts	Female: machined bronze	V.S.W.R.	1.4 (+ 0.04/GHz)
Material	Male: machined brass	Characteristic impedance	50 Ohms
Plating		Dielectric withstanding voltage	≥ 1000 V.R.M.S. at 50Hz
Contacts	16µ "Au or 30µ" Au over 79µ" Ni	Insulation resistance	≥ 5000 M Ohms at 500 VDC
Terminations	Tinned	Contact resistance	≤ 5m Ohms
Except solder cup and crimp terminations	gold flash	Shell resistance (electrical grounding)	≤ 1m Ohm
Brackets	Steel - Tin plating		
Front jackscrews	Brass - Tin plating		
Rear clinch nuts	Brass - Tin plating		
Boardlocks	Bronze - Tin plating		
Stand - off	Brass - Tin plating		

Climatic Data	Mechanical data
Operating temperature	Shells
- 55°C + 155°C	With or without dimples
(with peaks up to 180°C)	Contact retention force in dielectric material
Damp heat	> 40N
56 days (40°C - 95% HR)	Maximum mating and unmating force
Salt spray	With dimples
48 hours	E size = 70 N
	A size = 80 N
	B size = 100 N
	C size = 150 N
	D size = 180 N
	E size = 30 N
	Without dimples
	A size = 50 N
	B size = 80 N
	C size = 120 N
	D size = 160 N
	Compatible with process
	IR - Air convectioned
	260° for 20 s.
	Resistance to solder iron heat
	260° C for 30 s.
	Mating cycles
	≥ 200 (classe II) or 500 (classe I)
	Blind mating system
	Available upon request
	Polarization
	Available with locking accessories
	Consult factory



DESCRIPTION

The new Amphenol D'Sub TW Hybrid Series permits a mix of contacts including signal, power, shielded, high voltage and fiber optics in the same housing with 18 different contacts arrangements.

This new economic series was developed from combination military series, and has improved features:

- new contacts
- new high temperature black thermoplastic insert
- PCB configurations come preloaded with fixed contacts and brackets.

These connectors are supplied with screw - machined contacts which are fixed in the insulator.

A complete range of housings is also available for cable application.

A full range of arrangements compatible with reflow process

APPLICATIONS

- Industrial
- Military
- Telecom
- Any application requiring optimization of space



Amphenol

TW / E1

Shells and contacts plating

CLASS II

0.4µm (16µ") Au contacts gold plating
200 mating cycles

Types	Shells and plating
77 TW	Tin plated shell Male and female
717 TW	Tin plated shell with dimples Male only
	NOTE: Tin plated shells standard



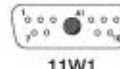




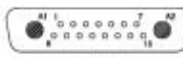





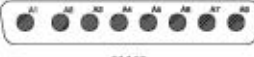




CLASS I

0.76µm (30µ") Au contacts gold plating
500 mating cycles

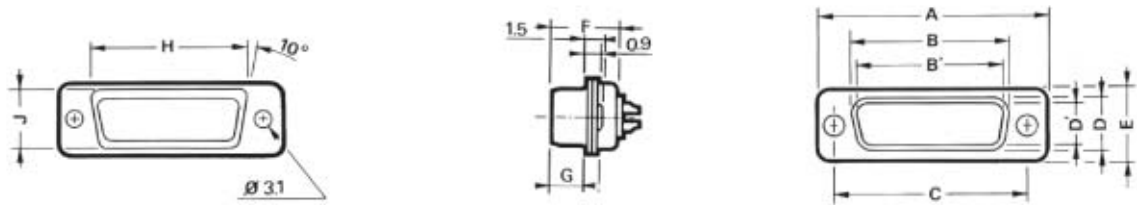
Types	Shells and plating
177 TW	Tin plated shell Male and female
777 TW	Tin plated shell with dimples Male only
	NOTE: Tin plated shells standard

Housing arrangements

Male front view

Arrangement Shell size	 5W1 E	 7W2 A	 11W1 A
Arrangement Shell size	 3W3 A	 5W5 B	 9W4 B
Arrangement Shell size	 13W3 B	 17W2 B	 21W1 B
Arrangement Shell size	 27W2 C	 13W6 C	 17W5 C
Arrangement Shell size	 21WA4 C	 8W8 C	 25W3 C
Arrangement Shell size	 24W7 D	 36W4 D	 43W2 D

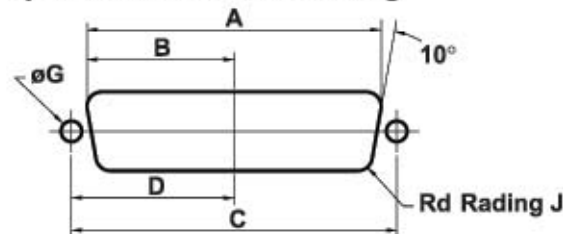
Shell size dimensions



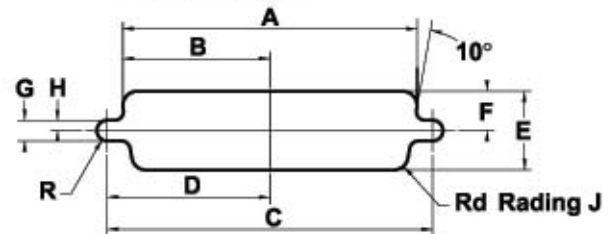
Shell size	Contact P: Pin S: Socket	A ±0.25 (±.010)	B 0/-0.20 (0/- .008)	B' +0.20/0 (+.008/0)	C ±0.10 (±.004)	D 0/-0.25 (0/- .010)	D' +0.25/0 (+.010/0)	E ±0.20 (±.008)	F +0.05/-0.20 (+.002/- .008)	F' +0.10/-0.20 (+.004/- .008)	G +0.10/-0.20 (+.004/- .008)	G' ±0.10 (±.004)	H +0.10/-0.40 (+.004/- .016)	J 0/-0.50 (0/- .020)
E	P	30.7 (1.209")		16.8 (.661")	25.0 (.984")		8.2 (.323")	12.4 (.488")		10.9 (.429")		5.9 (.232")	19.4 (.764")	11.0 (.433")
	S		16.4 (.646")			8.0 (.315")			11.1 (.437")		6.2 (.244")			
A	P	39.0 (1.535")		25.1 (.988")	33.3 (1.311")		8.2 (.323")	12.4 (.488")		10.9 (.429")		5.9 (.232")	27.7 (1.091")	11.0 (.433")
	S		24.8 (.976")			8.0 (.315")			11.1 (.437")		6.2 (.244")			
B	P	52.9 (2.083")		38.8 (1.528")	47.0 (1.850")		8.2 (.323")	12.4 (.488")		11.0 (.433")		5.8 (.228")	41.4 (1.630")	11.0 (.433")
	S		38.5 (1.513")			8.0 (.315")			11.1 (.437")		6.2 (.244")			
C	P	69.2 (2.724")		55.3 (2.177")	63.5 (2.500")		8.2 (.323")	12.4 (.488")		11.0 (.433")		5.8 (.228")	57.9 (2.280")	11.0 (.433")
	S		54.9 (2.161")			8.0 (.315")			11.1 (.437")		6.2 (.244")			
D	P	66.8 (2.630")		52.7 (2.075")	61.1 (2.406")		11.0 (.433")	15.2 (.598")		11.0 (.433")		5.8 (.228")	55.5 (2.185")	13.8 (.543")
	S		52.5 (2.067")			10.9 (.429")			11.1 (.437")		6.2 (.244")			

Panel cutouts

Optimal cutout for rear mounting

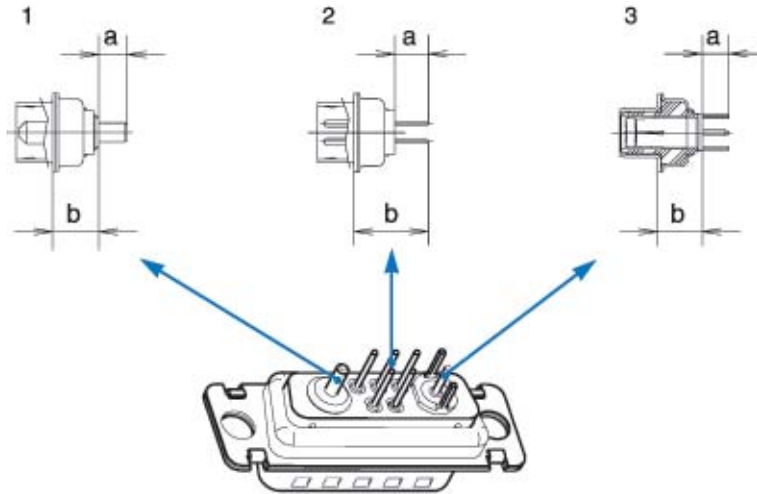


Standard cutout



Shell size	Mounting method	A ±0.20 (±.008)	B ±0.20 (±.008)	C ±0.20 (±.008)	D ±0.20 (±.008)	E ±0.20 (±.008)	F ±0.20 (±.008)	G ±0.20 (±.008)	H ±0.20 (±.008)	J ±0.20 (±.008)
E	Front	22.2 (.874")	11.1 (.437")	25.0 (.984")	12.5 (.492")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	20.5 (.807")	10.2 (.402")			11.4 (.449")	5.7 (.224")			3.4 (.134")
A	Front	30.5 (1.201")	15.3 (.602")	33.3 (1.311")	16.7 (.657")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	28.8 (1.134")	14.4 (.567")			11.4 (.449")	5.7 (.224")			3.4 (.134")
B	Front	44.3 (1.744")	22.1 (.870")	47.0 (1.850")	23.5 (.925")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	42.5 (1.673")	21.3 (.839")			11.4 (.449")	5.7 (.224")			3.4 (.134")
C	Front	60.7 (2.390")	30.4 (1.197")	63.5 (2.500")	31.7 (1.248")	13.0 (.512")	6.5 (.256")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	59.1 (2.327")	29.5 (1.161")			11.4 (.449")	5.7 (.224")			3.4 (.134")
D	Front	58.3 (2.295")	29.2 (1.150")	61.1 (2.406")	30.6 (1.205")	15.8 (.622")	7.9 (.311")	3.0 (.118")	1.5 (.059")	2.1 (.083")
	Rear	56.3 (2.217")	28.2 (1.110")			14.1 (.555")	7.1 (.280")			3.4 (.134")

Straight connector footprint



Signal tail 0.6 mm Dia. (.0236")
 1.6 mm (.063")PCB
 For other PCB thickness: consult factory.

Description		Dimensions	
		a	b
Power (.126" tail dia.)	1	4.50 mm (.177")	7.2 mm (.283")
Power (.0787" tail dia.)	1	4.50 mm (.177")	7.2 mm (.283")
Shielded	3	4.00 mm (.157")	7.2 mm (.283")
Signal	2	5.00 mm (.196")	11.50 mm (.453")

Straight contact combinations

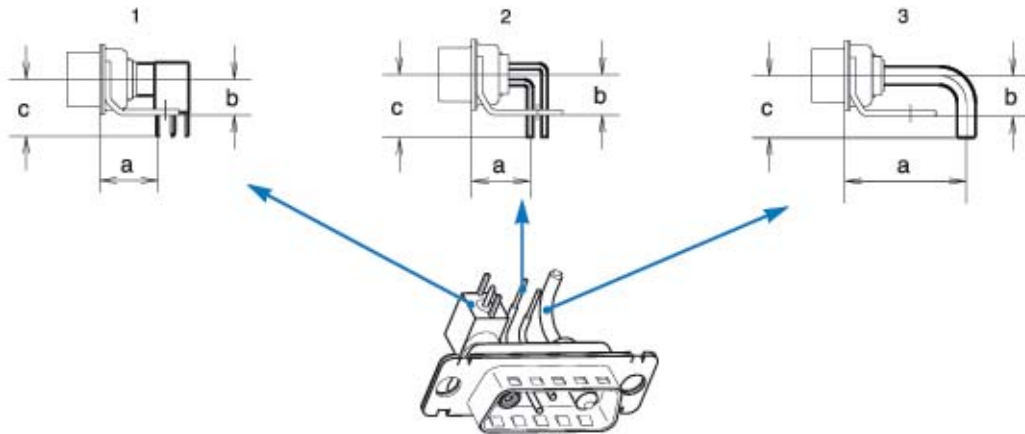
Arrangement with signal contacts

Arrangement without signal contacts

3W3 - 5W5 - 8W8

See above dimensions	Size 8 and 20 Contacts	See above dimensions	Size 8 Contacts
P 3SY	Power 3.2 mm DIA. (.126") (20 to 40 A) and signal	P 3Y	Power only 3.2 mm DIA. (.126") (20 to 40 A)
P 2SY	Power 2 mm DIA. (.0787") (10 to 20 A) and signal	P 2Y	Power only 2 mm DIA. (.0787") (10 to 20 A)
CSY	Shielded and signal	CY	Shielded only
SY	Signal only		
No reference	Signal (Size 20) with solder cup terminations Housing preloaded with contacts		

Right angle connector footprint



Signal tail 0.6 mm Dia. (.0236")
 1.6 mm (.063") PCB
 For other PCB thickness: consult factory.

Description	Europe			Mix			MIL			
	a	b	c	a	b	c	a	b	c	
Shielded	1	-	-	10.30mm (.406")	6.30mm (.248")	10.00mm (.394")	10.30mm (.406")	6.30mm (.248")	10.00mm (.394")	
Signal	2	10.30mm (.406")	7.20mm (.283")	11.20mm (.441")	10.30mm (.406")	6.30mm (.248")	9.50mm (.374")	8.10mm (.319")	6.30mm (.248")	9.50mm (.374")
Power (.0787" tail dia.)	3	11.57mm (.456")	7.20mm (.283")	10.50mm (.413")	11.57mm (.456")	6.30mm (.248")	9.50mm (.374")	9.52mm (.375")	6.30mm (.248")	9.50mm (.374")
Power (.126" tail dia.)	3	21.46mm (.845")	7.20mm (.283")	10.50mm (.413")	21.46mm (.845")	6.30mm (.248")	9.50mm (.374")	21.46mm (.845")	6.30mm (.248")	9.50mm (.374")

Note: above dimensions correspond to sizes E to C. Consult factory for D sizes.

Connector comes equipped with contacts and brackets.

Right angle contacts combinations

Arrangements with signal contacts

European footprint	Mixed footprint	MIL (U.S.) footprint	Size 8 and 20 contacts
EP3SV	HP3SV	MP3SV	Power 3.2 mm DIA. (.126") (20 to 40 A) and signal
EP2SV	HP2SV	MP2SV	Power 2 mm DIA. (.0787") (10 to 20 A) and signal
-	HCSV	MCSV	Shielded and signal
ESV	HSV	MSV	Signal only

Arrangement without signal contacts

3W3 - 5W5 - 8W8

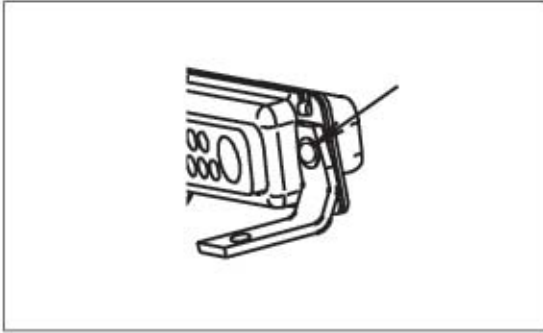
European footprint	Mixed footprint	MIL (U.S.) footprint	Size 8 contacts only
EP3V	HP3V	MP3V	Power only 3.2 mm DIA. (.126") (20 to 40 A)
EP2V	HP2V	MP2V	Power only 3.2 mm DIA. (.126") (10 to 20 A)
-	HCV	MCV	Shielded only

Mounting options

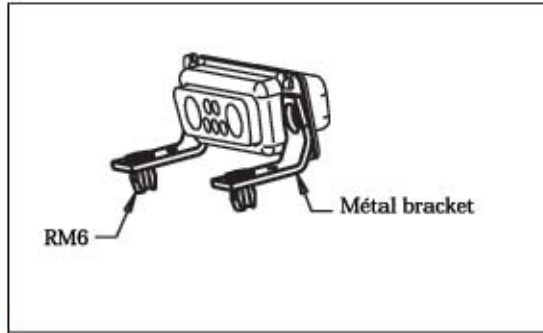
Right angle version

Connectors come equipped with metal brackets

BLANK: 3,10 (.122") dia mounting hole

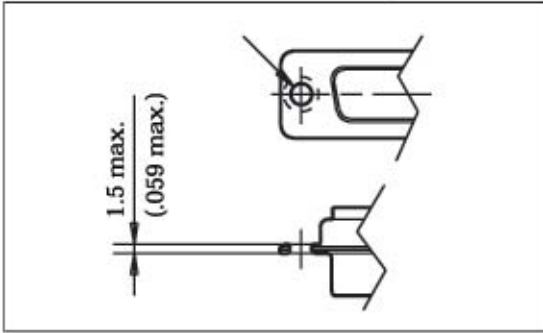


RM6: metal brackets + boardlock

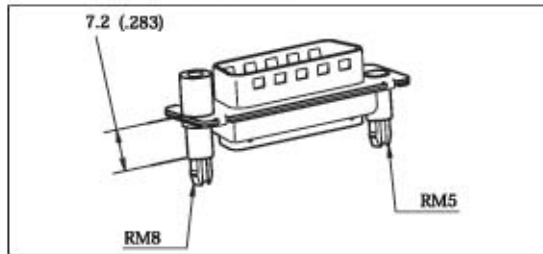


Straight version

BLANK: 3,10 (.122") dia mounting hole

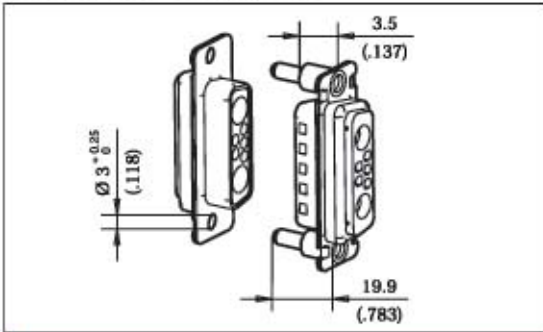


RM54: RM5 4.40 threaded
RM53: RM5 M3 threaded

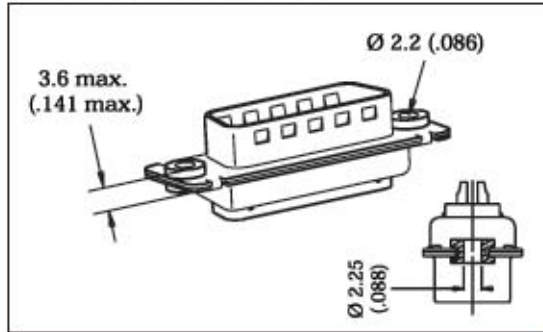


RM84: RM8 4.40 threaded
RM83: RM8 M3 threaded

A514: blind mating system

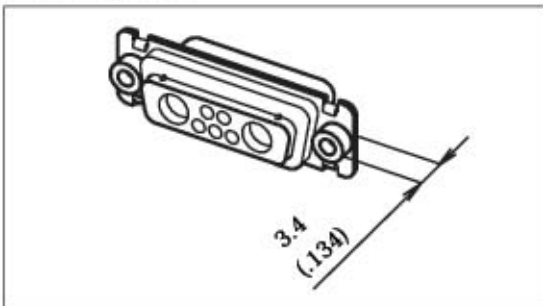


FM: float mounting system

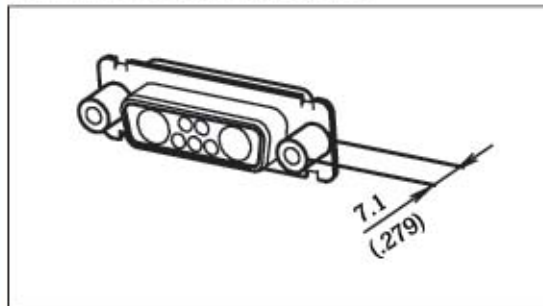


Straight and right angle version

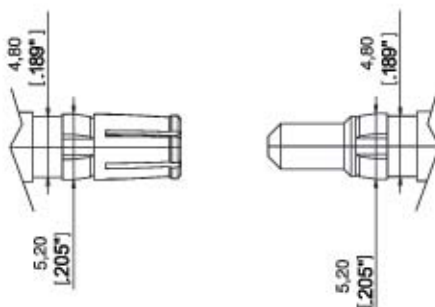
4R: 4.40 rear nut
3R: M3 rear nut



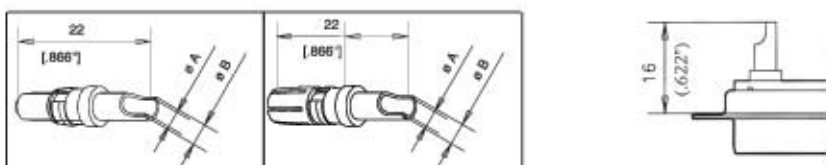
4F: 4.40 front female screwlock
3F: M3 front female screwlock



High power contacts



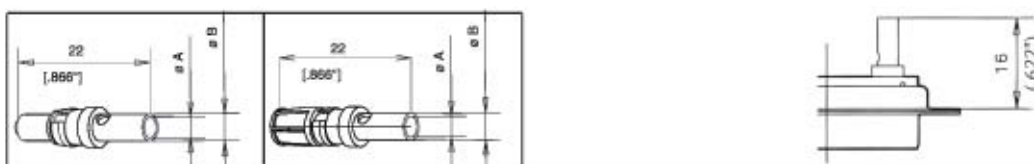
Solder cup version



Plug	P/N	Socket	Current	Dimensions	
				A mm (inch)	B mm (inch)
L17DM 53745-8		L17DM 53744-7	10 to 20 Amp.	1.80 (.071")	2.55 (.100")
L17DM 53745-7		L17DM 53744-6	20 to 30 Amp.	2.80 (.110")	3.70 (.145")
L17DM 53745-1		L17DM 53744-1	30 to 40 Amp.	4.80 (.189")	5.60 (.220")

Trim dimensions: 7.5 mm (.295")

Crimp version



Plug	P/N	Socket	Current	Dimensions	
				A mm (inch)	B mm (inch)
L17DM 53745-208		L17DM 53744-207	10 to 20 Amp.	1.80 (.071")	2.55 (.100")
L17DM 53745-207		L17DM 53744-206	20 to 30 Amp.	2.80 (.110")	3.70 (.145")
L17DM 53745-201		L17DM 53744-201	30 to 40 Amp.	4.80 (.189")	5.60 (.220")

Trim dimensions: 7.5 mm (.295")

Crimping tool for all sizes
17D479SP

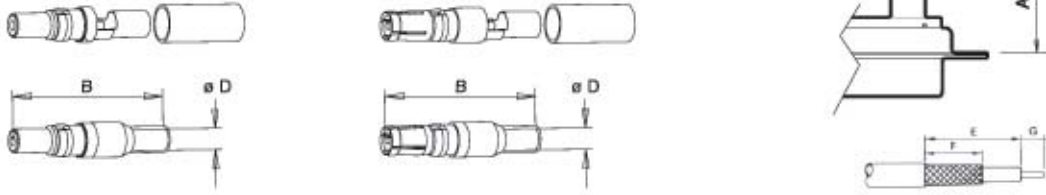


Extraction tool for sizes 8 cts



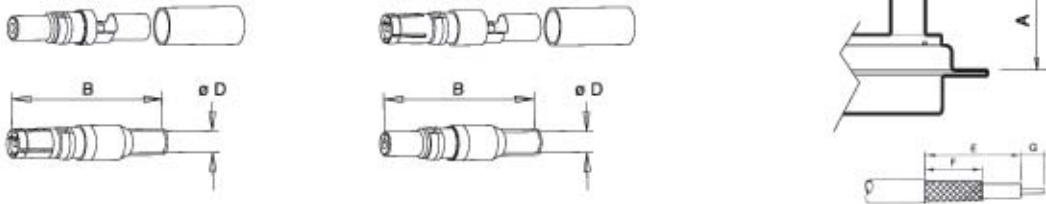
Straight shielded contacts

Crimp ferrule/Inner solder



Type	P/N	Dimensions (inch)			Cable - RG	Trim dimensions (inch)		
		A Max	B	D		E	F	G
plug	L17DM 53740	18.8 (.740")	23.6 (.929")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
plug	L17DM 53740-1	18.8 (.740")	23.6 (.929")	1.7 (.066")	179 B/U 316 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
plug	L17DM 53740-3	21.5 (.846")	23.6 (.929")	2.8 (.110")	180 B/U	9.5 (.374")	7.9 (.311")	2 (.078")
plug	L17DM 53740-5	21.5 (.846")	23.6 (.929")	3.2 (.126")	58 C/U	9.5 (.374")	7.9 (.311")	2 (.078")
socket	L17DM 53742	18.8 (.740")	23.6 (.929")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
socket	L17DM 53742-1	18.8 (.740")	23.6 (.929")	1.7 (.066")	179 B/U 316 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
socket	L17DM 53742-3	21.5 (.846")	23.6 (.929")	2.8 (.110")	180 B/U	9.5 (.374")	7.9 (.311")	2 (.078")
socket	L17DM 53742-5	21.5 (.846")	23.6 (.929")	3.2 (.126")	58 C/U	9.5 (.374")	7.9 (.311")	2 (.078")

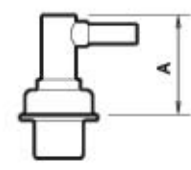
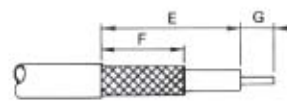
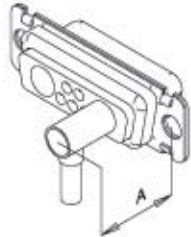
Ferrule and inner solder



Type	P/N	Dimensions (inch)			Cable - RG	Trim dimensions (inch)		
		A Max	B	D		E	F	G
short plug	L17DM 53740-5000	17.0 (.669")	21.8 (.858")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
plug	L17DM 53740-5001	18.8 (.740")	23.6 (.929")	1.7 (.066")	179 B/U 316 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
plug	L17DM 53740-5002	21.5 (.846")	26.3 (1.035")	2.8 (.110")	180 B/U	9.5 (.374")	7.9 (.311")	2 (.078")
plug	L17DM 53740-5005	21.5 (.846")	26.3 (1.035")	3.2 (.126")	58 C/U	9.5 (.374")	7.9 (.311")	2 (.078")
plug	L17DM 53740-5008	18.8 (.740")	23.6 (.929")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
short socket	L17DM 53742-5000	17.0 (.669")	21.8 (.858")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
socket	L17DM 53742-5001	18.8 (.740")	23.6 (.929")	1.7 (.066")	179 B/U 316 B/U	7.9 (.311")	6.3 (.248")	2 (.078")
socket	L17DM 53742-5002	21.5 (.846")	26.3 (1.035")	2.8 (.110")	180 B/U	9.5 (.374")	7.9 (.311")	2 (.078")
socket	L17DM 53742-5004	21.5 (.846")	26.3 (1.035")	3.2 (.126")	58 C/U	9.5 (.374")	7.9 (.311")	2 (.078")
socket	L17DM 53742-5006	18.8 (.740")	23.6 (.929")	1.0 (.039")	178 B/U	7.9 (.311")	6.3 (.248")	2 (.078")

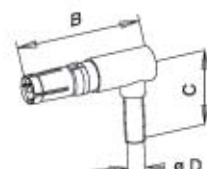
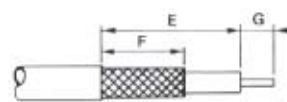
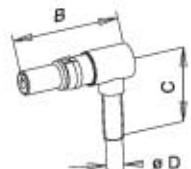
Right angled shielded contact

Crimp ferrule/Inner solder



Type	P/N	Dimensions (inch)				Cable - RG	Trim dimensions (inch)		
		A Max	B	C	D		E	F	G
plug	L17DM 53741	13.5 (.531")	18.6 (.732")	12.5 (.492")	1.0 (.039")	178 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
plug	L17DM 53741-1	13.5 (.531")	18.6 (.732")	12.5 (.492")	1.7 (.066")	179 B/U 316 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
plug	L17DM 53741-3	13.5 (.531")	18.6 (.732")	15.3 (.602")	2.8 (.110")	180 B/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
plug	L17DM 53741-4	13.5 (.531")	18.6 (.732")	15.3 (.602")	3.2 (.126")	58 C/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
socket	L17DM 53743-2	13.5 (.531")	18.6 (.732")	12.5 (.492")	1.0 (.039")	178 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
socket	L17DM 53743-3	13.5 (.531")	18.6 (.732")	12.5 (.492")	1.7 (.066")	179 B/U 316 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
socket	L17DM 53743-5	13.5 (.531")	18.6 (.732")	15.3 (.602")	2.8 (.110")	180 B/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
socket	L17DM 53743-6	13.5 (.531")	18.6 (.732")	15.3 (.602")	3.2 (.126")	58 C/U	10.7 (.421")	7.9 (.311")	2.4 (.094")

Ferrule and inner solder



Type	P/N	Dimensions (inch)				Cable - RG	Trim dimensions (inch)		
		A Max	B	C	D		E	F	G
plug	L17DM 53741-5000	13.5 (.531")	18.6 (.732")	12.5 (.492")	1.0 (.039")	178 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
plug	L17DM 53741-5001	13.5 (.531")	18.6 (.732")	12.5 (.492")	1.7 (.066")	179 B/U 316 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
plug	L17DM 53741-5003	13.5 (.531")	18.6 (.732")	13.9 (.547")	2.8 (.110")	180 B/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
plug	L17DM 53741-5004	13.5 (.531")	18.6 (.732")	13.9 (.547")	3.2 (.126")	58 C/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
socket	L17DM 53743-5000	13.5 (.531")	18.6 (.732")	12.5 (.492")	1.0 (.039")	178 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
socket	L17DM 53743-5001	13.5 (.531")	18.6 (.732")	12.5 (.492")	1.7 (.066")	179 B/U 316 B/U	9.5 (.374")	5.9 (.232")	1.6 (.062")
socket	L17DM 53743-5003	13.5 (.531")	18.6 (.732")	13.9 (.547")	2.8 (.110")	180 B/U	10.7 (.421")	7.9 (.311")	2.4 (.094")
socket	L17DM 53743-5004	13.5 (.531")	18.6 (.732")	13.9 (.547")	3.2 (.126")	58 C/U	10.7 (.421")	7.9 (.311")	2.4 (.094")

Crimping tool

Hand crimp tool

227-0944 (without dies) (M 22 520/5-01)

RG cables	MIL reference	Amphenol P/N	dim. between 2 flat surface	
			cavity A	cavity B
RG 58 C/U	M 22 520/5-05	227 1221-05	5.41	-
RG 178 B/U	M 22 520/5-03	227 1221-03	-	2.67
RG 179 B/U	M 22 520/5-03	227 1221-03	3.25	-
RG 180 B/U	M 22 520/5-05	227 1221-05	-	4.52

Extraction tool

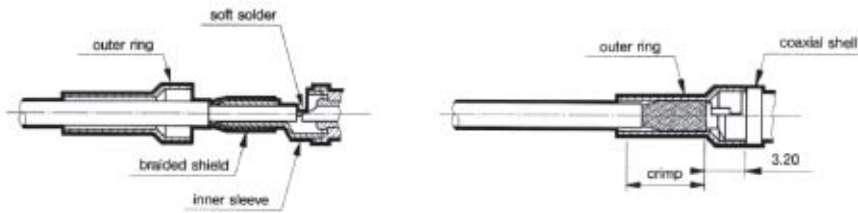
Crimping tool for all sizes
Amphenol ref: 227-0994 - MIL ref: M22520/5-01

Extraction tool for sizes 8 cts
17D429SP

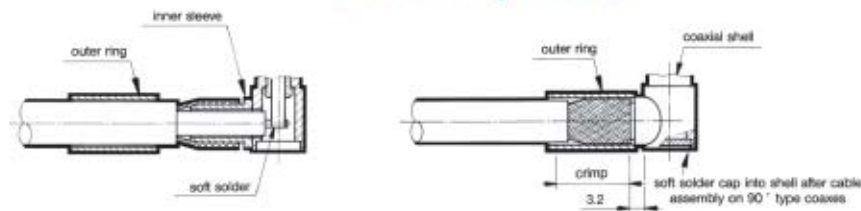


Cabling instructions for shielded contacts

Straight crimp shielded contacts: *inner solder contact* *outer crimp contact*



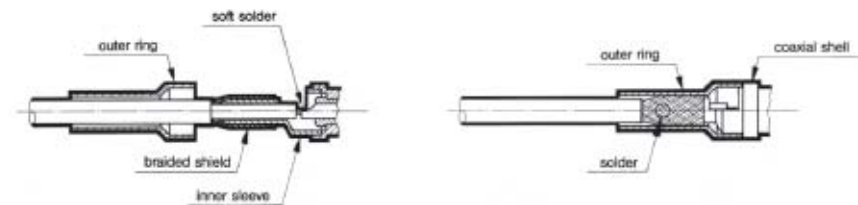
Right angle crimp shielded contacts: *inner solder contact* *outer crimp contact*



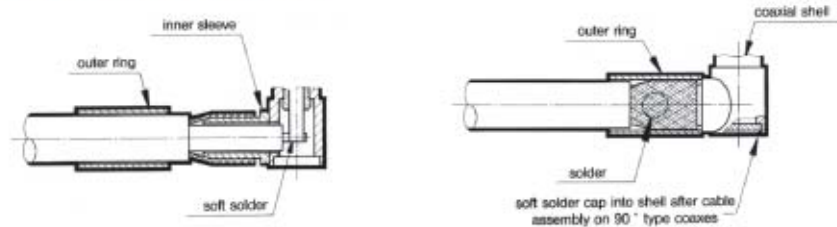
Assembly method

- Slide the outer ring over the cable jacket. Trim the cable according to the recommended dimensions.
- Insert the cable dielectric and the center conductor inside the inner sleeve.
- Solder the central conductor to the shielded center contacts.
- Slide the outer ring towards the inner sleeve and recover the braid.
- Using crimp hand tool equipped with the appropriate dies, crimp in the area defined.

Solder straight shielded contacts



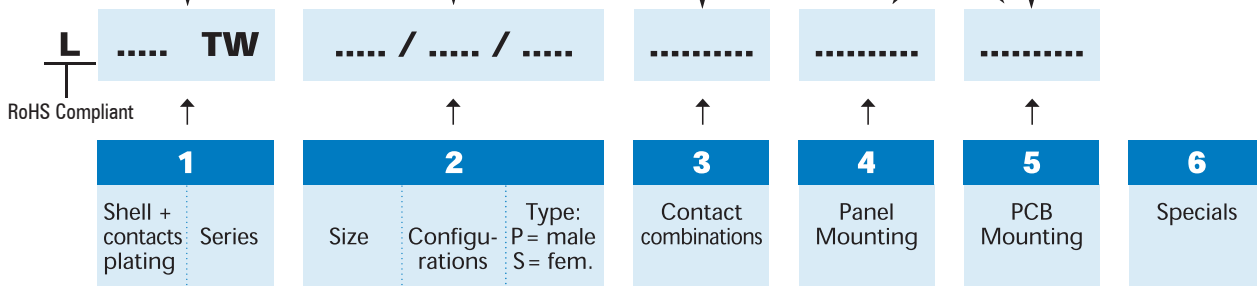
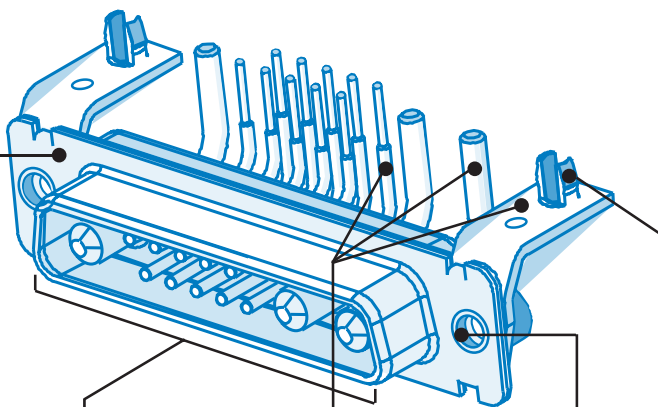
Solder right angle shielded contacts



Assembly method

- Slide the outer ring over the cable jacket. Trim the cable according to the recommended dimensions.
- Insert the cable dielectric and the center conductor inside the inner sleeve.
- Solder the central conductor to the shielded center contacts.
- Slide the outer ring towards the inner sleeve and recover the braid.
- Solder by introducing metal through the outer ring hole.

How to build your part number



Page 2	
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177	TW
777	TW

Page 2		
E	5W1	P/S
A	3W3	P/S
A	7W2	P/S
A	11W1	P/S
B	5W5	P/S
B	9W4	P/S
B	13W3	P/S
B	17W2	P/S
B	21W1	P/S
C	8W8	P/S
C	13W6	P/S
C	17W5	P/S
C	21WA4	P/S
C	25W3	P/S
C	27W2	P/S
D	24W7	P/S
D	36W4	P/S
D	43W2	P/S

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XP3SV
XP2SV
XP2V
XP3V
P2Y
P3Y
XCSV
XHCV
CY
XSV
SY
P3SY
P2SY
CSY

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4F
4R
3F
3R
A514

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RM6
RM53
RM54
RM83
RM84

Consult factory

Blank: solder cup signal contacts size 20 only

Consult factory for D size configurations

