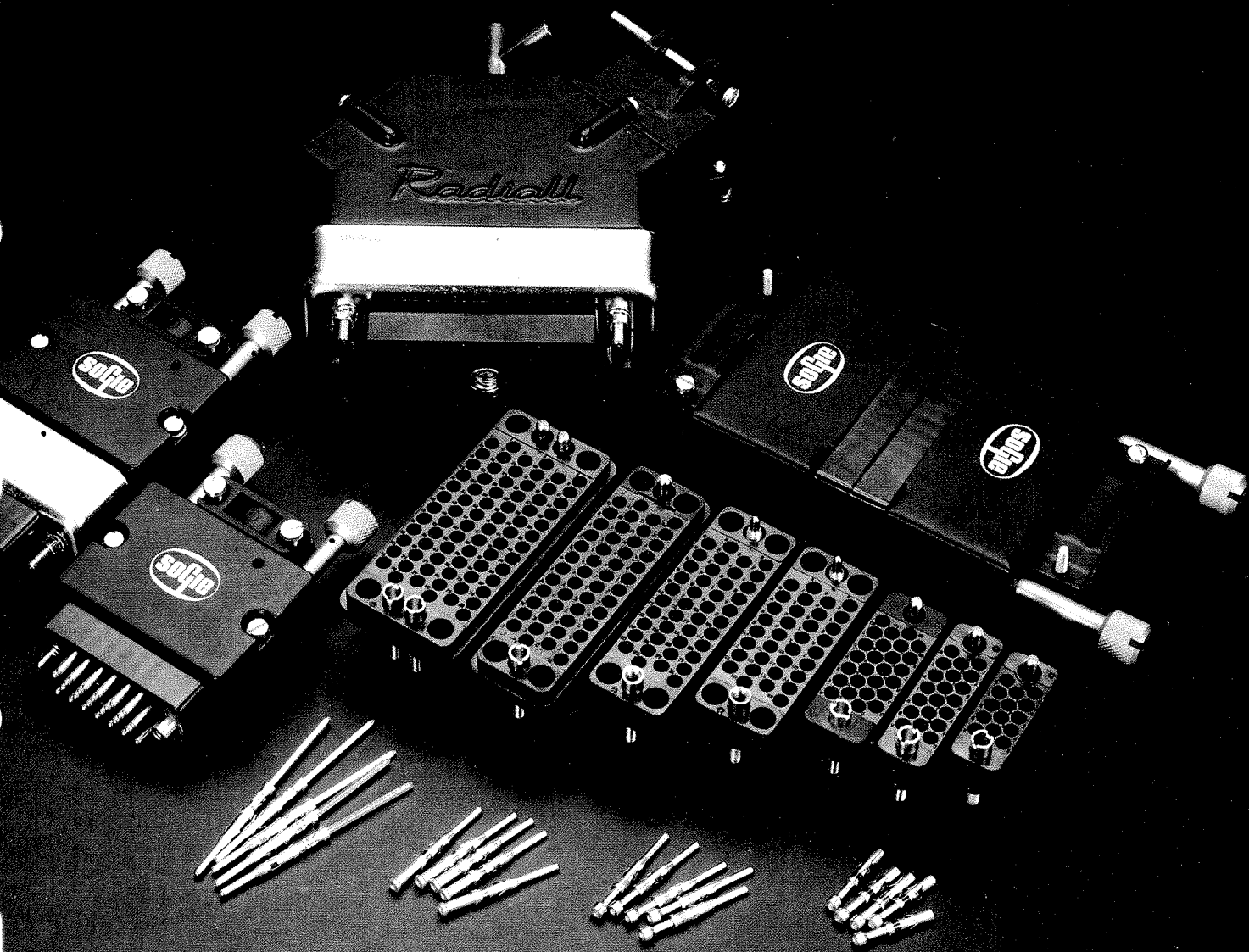


MMC

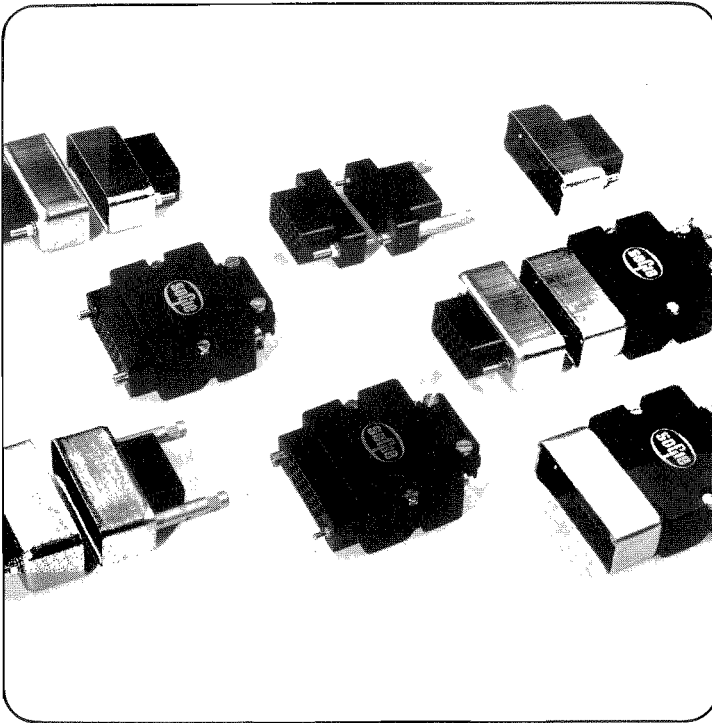
rectangular multicontact connectors



SUMMARY

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MMC Series



NF - C - 93 426
HE 621 - 622 models
MIL - C - 28 748
GAM T 1 List

INTRODUCTION

The Radiall MMC series have been designed in response to the majority of connection problems of cabling installation, internal and external on electrical and electronic equipment.

They are made up of a rectangular insulating block which accepts equally male or female contacts fitted with different types of wires and coaxial cables. A large number of accessories : hoods with cable clamp, contact protection shrouds, locking. . . make it possible for this connector to be made up uniquely to correspond to the users exact requirements.

Of simple construction but highly reliable, MMC offer enormous adaptability of use with the help of the range of accessories. This has allowed the Radiall MMC series to be widely approved for use in all civil and military fields such as computers, telecommunications, medical, aeronautical, naval, nuclear, etc. . .

All of the contacts are removable in order to facilitate replacement, repairs or modification to circuits.

A range of robust manual and automatic tooling with easy-to-follow instructions answers straight-forward connector/cable assembly. It conforms to French specification NF-C-93 426 HE 621 - 622.

DESCRIPTION

BLOCKS

A pair of MMC connectors comprises :

- a block « P » (plug)
- a block « R » (receptacle)

of identical dimensions but distinguished by :

- the engraved letters « P » or « R » on the mating faces,
- the contact identification and position of the cavities is a mirror image of the mating half.

Each block « P » and « R » must be fitted with male and female guides or jackscrews.

- on the block P female guide beside hole 1 or A
- on the block R male guide beside hole 1 or A (in order to prevent mismatching and misalignment).

Pins and/or sockets for equipment wire, twisted pairs and coaxial cable can be housed in either plug or receptacle giving a multitude of connection possibilities

Contact arrangements : 14 - 20 - 26 - 34 - 42 - 50 - 75 - 104 - 158 and 208 ways.

CONTACTS

The wire contacts size 16 (pin dia 1.58 mm) are for crimping to AWG 16 to 28.

Contacts for wire wrapping are available with tails 0.6 x 0.6 or 1.2 x 1.2 square.

The coaxial contacts are for crimping to 2 mm and 2.6 mm coaxial cables and AWG 24 to 30 twisted pairs.

For all other contact terminations : CONSULT US.

No tool is necessary for the insertion, the extraction is from the rear using an extraction tool introduced by the mating face of the connector.

ACCESSORIES

Each contact arrangement is available with a range of accessories such as :

- rack guides
- fixed and rotating jackscrews
- 2-part metal hoods to facilitate access to the wiring
- hoods for sheathed cable harnesses
- shrouds (male and female) to protect the contacts with or without polarising slots
- cable clamps.

MMC SERIES

GENERAL CHARACTERISTICS

DESCRIPTION	MATERIAL	PLATING
Insulator	Glass filled phenolic	
Equipment wire contacts	Body Spring Retention clip	Gold over nickel Gold over nickel Nickel
Coaxial contacts	Body & centre Contacts Ferrule Insulator	Copper alloy Copper alloy PTFE
Rack guide	Brass	Gold over nickel Nickel
Jackscrews	Stainless steel	
Shroud	Steel	Yellow chromate cadmium plated
Hood	Zinc or aluminium alloy	Painted
Cable clamp	Stainless steel	

ELECTRICAL DATA

EQUIPMENT WIRE CONTACTS

Wire section	AWG	16	18	20	22	24	26	28
	mm ²	1,34	0,93	0,60	0,38	0,22	0,14	0,093
Current rating (Amp.)	13	10	7,5	5	3	2	1	
Maximum Ø on insulation					3,10			
Contact resistance					≤ 5 mΩ			

COAXIAL CONTACTS

- Nominal impedance : 50 Ω
- Operating frequency : 0 to 1 000 MHz
- Dielectric withstanding voltage : 600 V r.m.s. at 50 Hz (at sea level)
- Insulation resistance : ≥ 5 000 MΩ
- Contact resistance : ≤ 12 mΩ

Frequency	0 - 200 MHz	200 - 500 MHz	500 - 1000 MHz
Voltage standing wave ratio (VSWR)	1.10	1.15	1.40
Insertion loss by pair (dB)	< 0.015	< 0.025	< 0.025

CONNECTORS

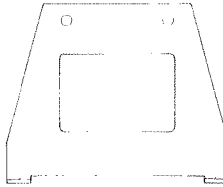
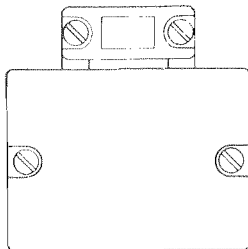
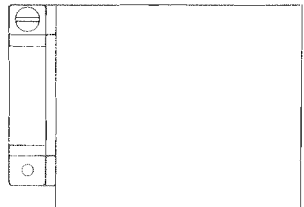
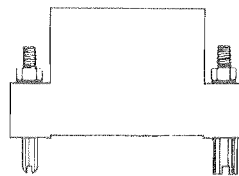
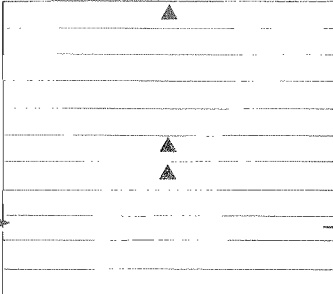
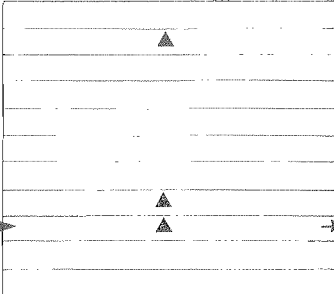
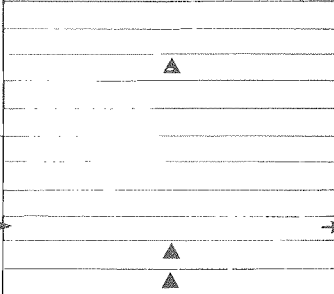
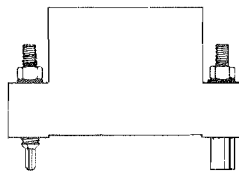
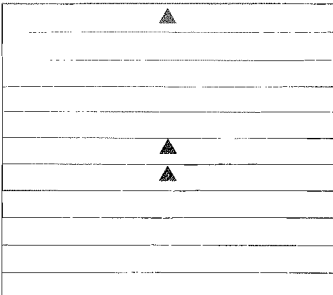
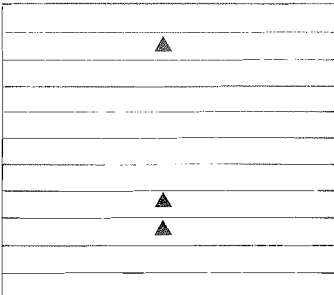
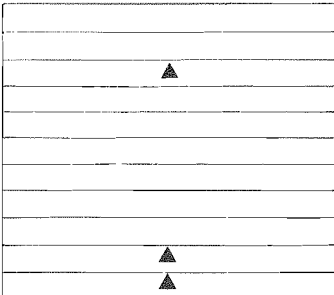
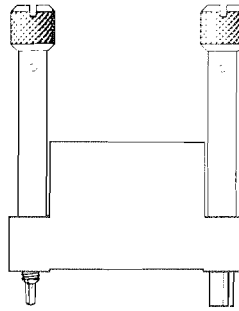
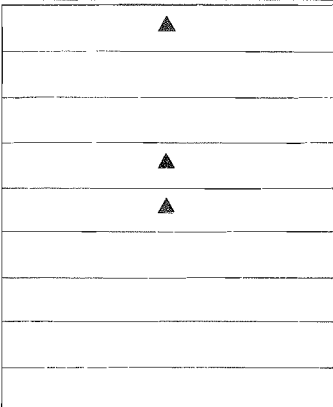
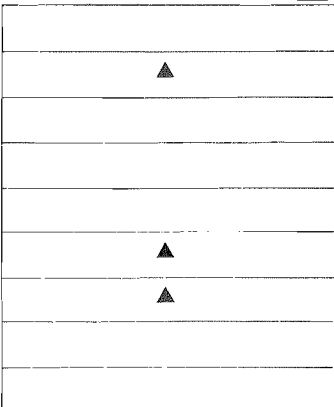
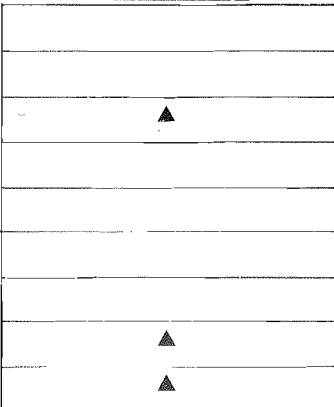
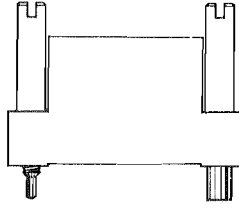
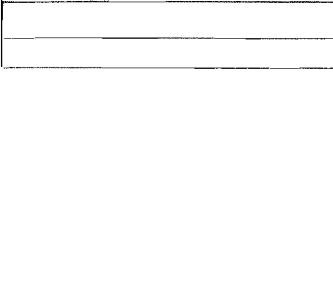
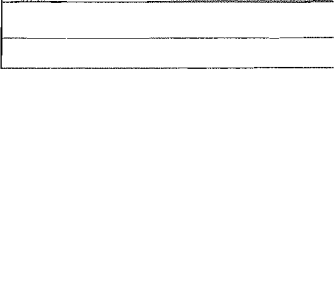
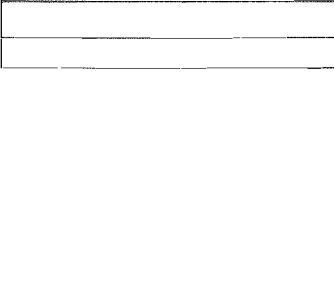
- Insulation resistance : > 5 000 MΩ
- Dielectric withstanding voltage : 1 500 V r.m.s. at 50 Hz (at sea level)

MECHANICAL and ENVIRONMENTAL DATA

- Retention of the contact in moulding : > 50 N
- Coupling torque per contact pair : ≥ 3,4 N
- Durability : 500 matings
- Vibration : 20 g from 80 to 2 000 Hz
- Shock : 50 g
- Temperature range : - 55° C + 125° C
- Damp heat : 21 days
- Salt spray : 48 H



MMC HE 621 SERIES

SELECTOR CHART

<p>Accessories</p> <p>Connectors P or R</p> <p>Mounts with</p>	<p>Top entry strain relief clamp</p> 	<p>Hood top entry</p> 	<p>Hood side entry</p> 
<p>Rack guides</p> 			
<p>Fixed jackscrews</p> 			
<p>Long rotating jackscrews</p> 			
<p>Short rotating jackscrews</p> 			

MMC HE 621 SERIES

SELECTOR CHART

Female shroud 	Male shroud 	ARRANGEMENTS						
		14	20	26	34	42	50	75
		●	●	●	●	●	●	●
		●	●	●	●	●	●	●
▲		●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
	▲	●	●	●	●	●	●	●
		●	●	●	●	●	●	●
		●	●	●	●	●	●	●
▲		●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
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▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●
▲	▲	●	●	●	●	●	●	●

Example: Connector P with rack guides, mounts with (▲) hood top entry and male shroud. This assembly is available (●) in the following arrangements 14 - 20 - 26 - 34 - 50 - 75.

MMC HE 621 SERIES

INTERMATEABILITY CHART

Plug P or R Base P or R	Rack guides	Short rotating jackscrews	Rack guides + Male shroud	Rotating jackscrews + male shroud	Rack guides + hood
Rack guides	●				●
Fixed jackscrews		●			
Rack guides + female shroud			●		
Fixed jackscrews + female shroud				●	
Rack guides + hood Rack guides + clamp	●				●
Rack guides + Hood + female shroud Rack guides + clamp + female shroud			●		
Fixed jackscrews + hood Fixed jackscrews + clamp		●			
Fixed jackscrews + hood + female shroud Fixed jackscrews + clamp + female shroud				●	

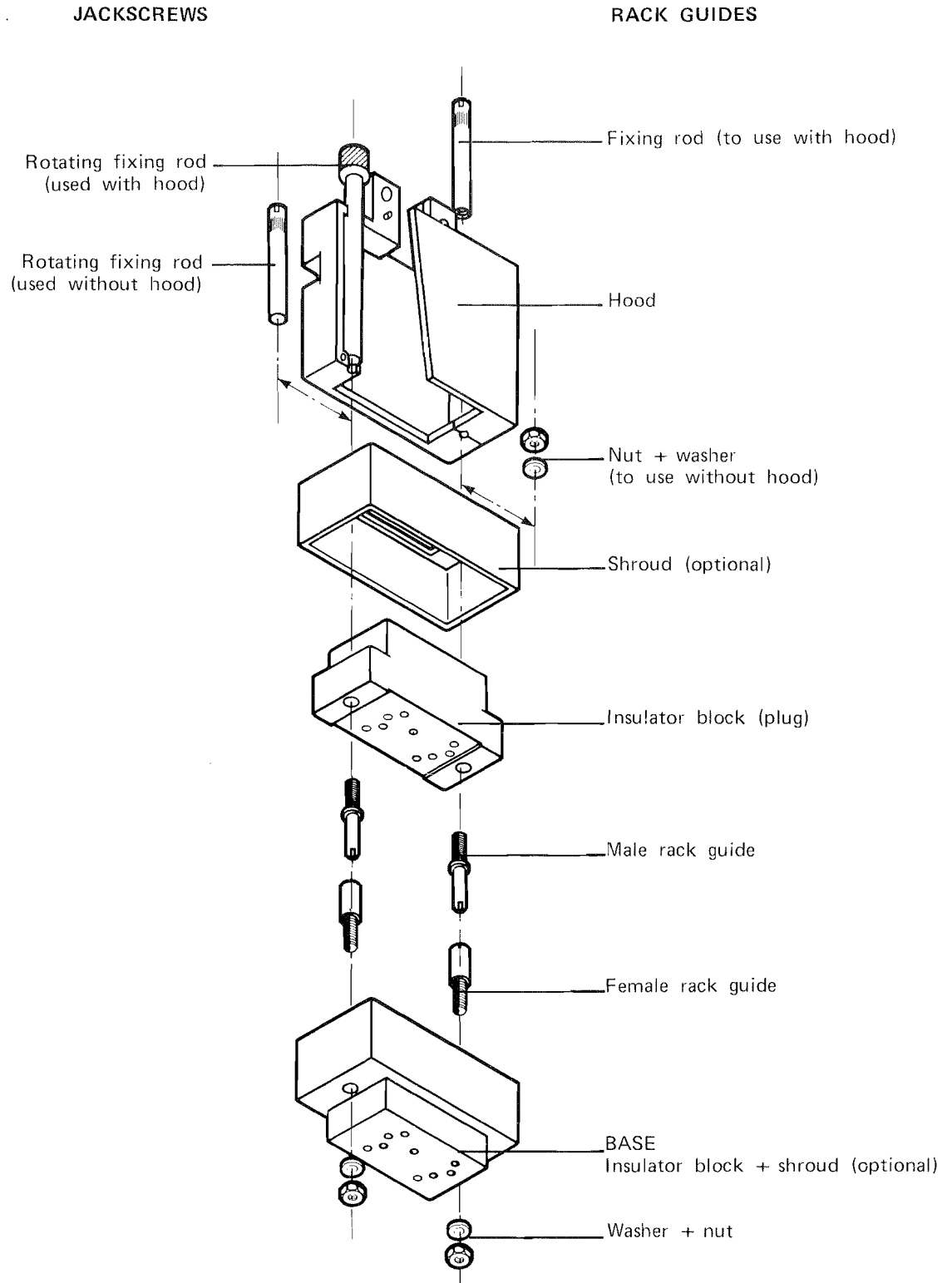
MMC HE 621 SERIES

INTERMATEABILITY CHART

Rack guides + clamp	Rack guides + hood + male shroud	Rack guides + clamp + male shroud	Rotating jackscrews + hood	Rotating jackscrews + clamp	Rotating jackscrews + Hood + male shroud	Rotating jackscrews + clamp + male shroud
●						
			●	●		
	●	●				
					●	●
●						
	●	●				
			●	●		
					●	●

MMC HE 621 SERIES

ASSEMBLY INSTRUCTIONS



MMC HE 621 SERIES

HOW TO ORDER

CONNECTORS WITH GUIDES

(without other accessories)

Series _____ 690 600

Basic code _____
(see table below)

CONNECTORS WITH ACCESSORIES

Series _____ 690 600

Basic code _____
(see table below)

Mandatory _____ O A O

Accessories _____

- O : no accessories
- A : hood top entry
- B : hood side entry (only 75 way)
- C : top entry strain relief clamp (not available in 34 and 42 way)

Shrouds _____

- O : no shroud
 - A : ★ male shroud **WITHOUT** polarising
 - ★★ male shroud **WITH** polarising in
- | | | | | |
|------|---|---|---|---|
| code | 1 | 3 | 5 | 7 |
| | B | C | D | E |

Male shroud mounts on block P
Female shroud mounts on block R

- F : ★ female shroud **WITHOUT** polarising
 - ★★ female shroud **WITH** polarising in
- | | | | | |
|------|---|---|---|---|
| code | 1 | 3 | 5 | 7 |
| | G | H | J | K |

- ★ not available in 42 way
- ★★ not available in 14 way

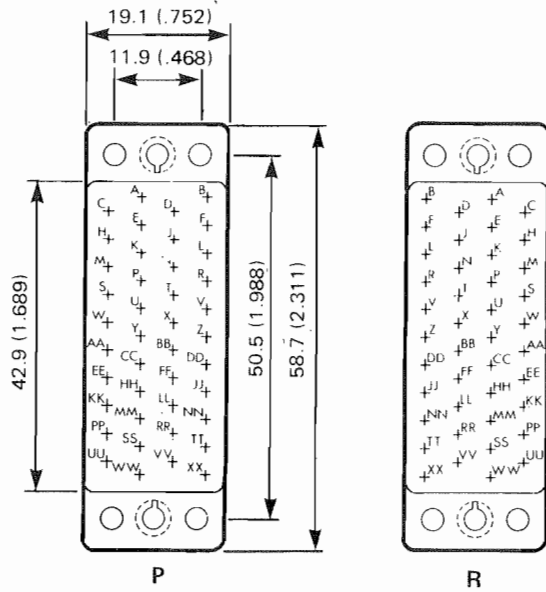
NOTA : When connector has a shroud with polarising, polarization starts from the cavity A or 1 side of the connector (refer to page 35)

Number of contacts	Rack guides		Fixed jackscrews		Rotating jackscrews	
	Block P	Block R	Block P	Block R	Block P	Block R
14	400	500	701	700	600	602
20	410	510	711	710	610	612
26	420	520	721	720	620	622
34	430	530	731	730	630	632
42	440	540	741	740	640	642
50	450	550	751	750	650	652
75	460	560	761	760	660	662

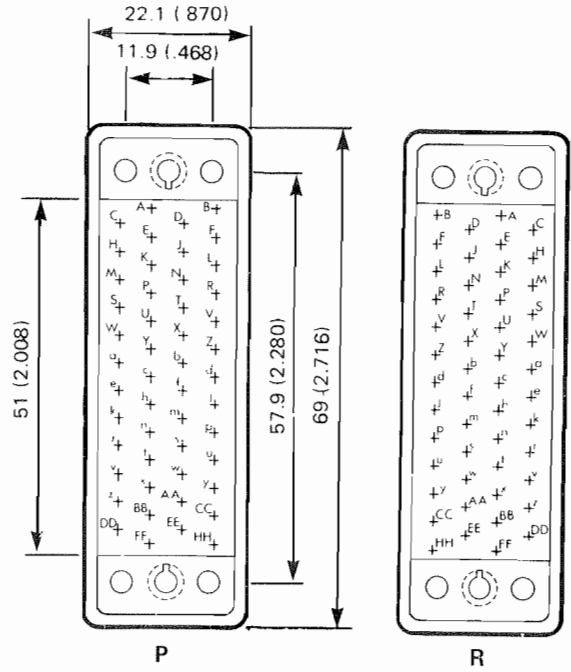
MMC HE 621 SERIES

CONTACT ARRANGEMENTS

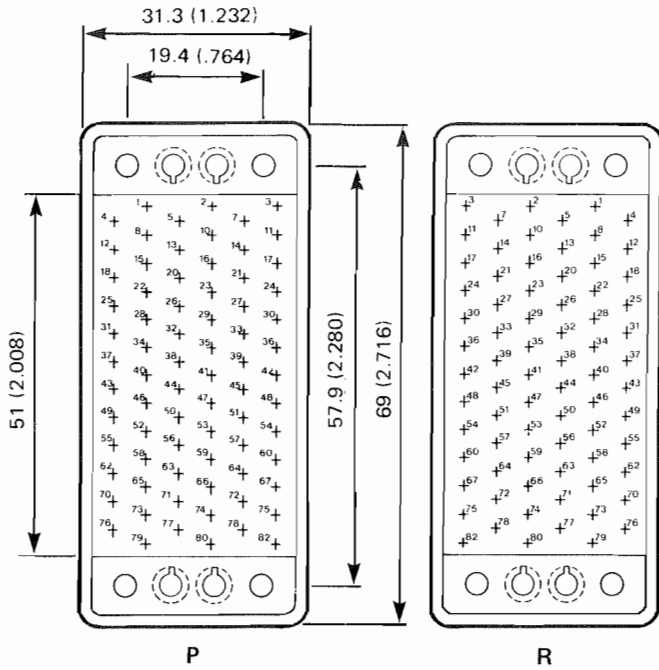
VIEW WIRING SIDE



42 CONTACTS

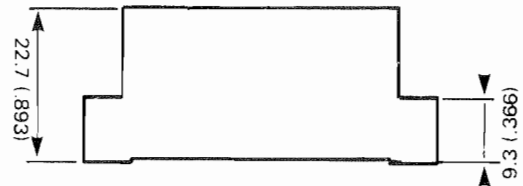


50 CONTACTS

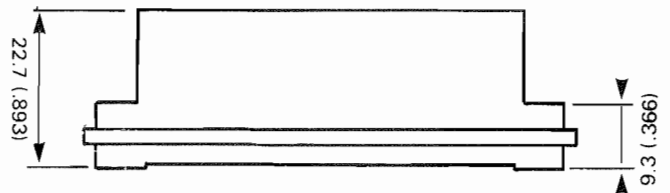


75 CONTACTS

14, 20, 26, 34, 42 CONTACTS



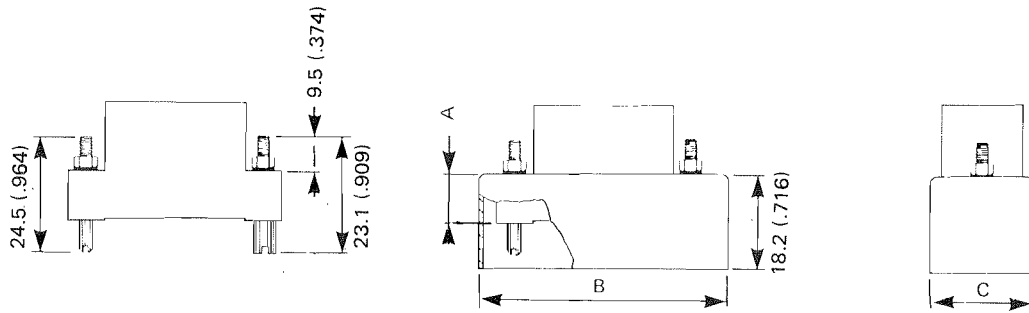
50, 75 CONTACTS



MMC HE 621 SERIES

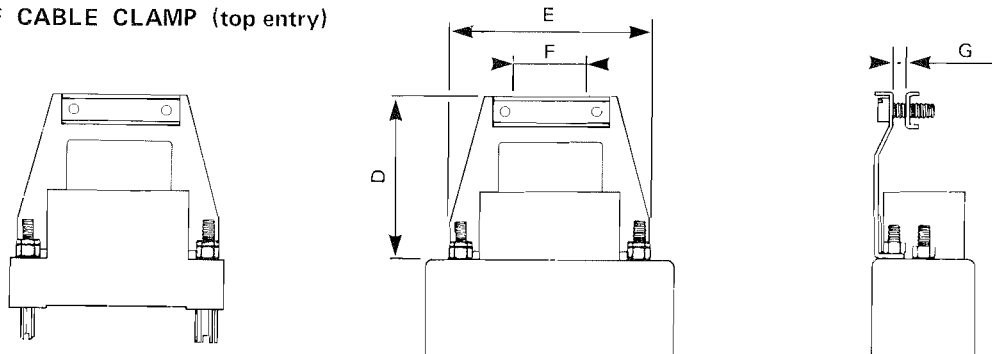
RACK GUIDES

CONNECTOR BLOCK



Number of contacts	A	B		C	
		male	female	male	female
14	10.1 (.397)	34.8 (1.370)	37.2 (1.464)	14.2 (.559)	16.6 (.653)
20	10.1 (.397)	42.2 (1.661)	45.1 (1.775)	14.2 (.559)	16.6 (.653)
26	10.1 (.397)	44.2 (1.740)	46.1 (1.826)	17.3 (.681)	19.4 (.764)
34	10.3 (.405)	54 (2.126)	56.4 (2.220)	22.2 (.874)	24.6 (.968)
42		<i>Shroud not available</i>			
50	10.3 (.405)	72 (2.834)	74.6 (2.937)	25.3 (.996)	27.8 (1.094)
75	10.3 (.405)	72.4 (2.850)	74.7 (2.940)	34.4 (1.354)	37 (1.456)

STRAIN RELIEF CABLE CLAMP (top entry)

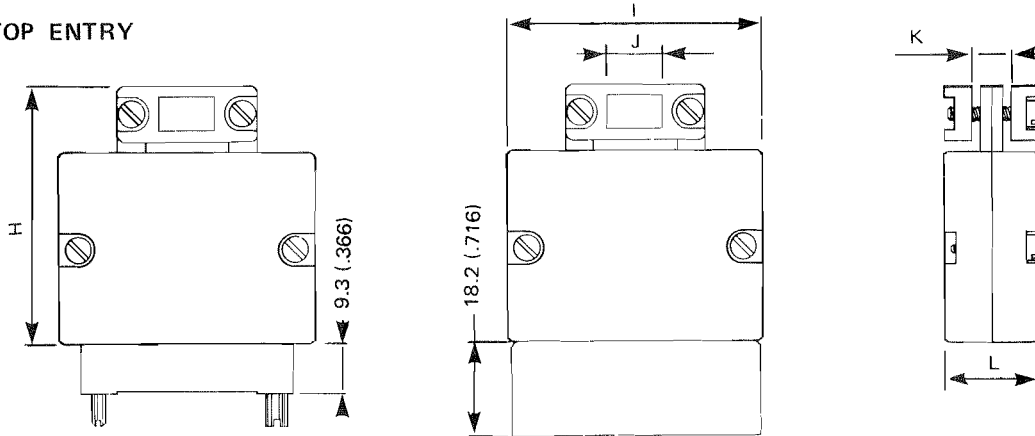


Number of contacts	D	E	Cable entry dimensions	
			F	G max.
14	44 (1.732)	31.5 (1.240)	5 (.197)	8 (.315)
20	44 (1.732)	39.5 (1.555)	12 (.472)	8 (.315)
26	44 (1.732)	41.1 (1.618)	12 (.472)	10 (.394)
34		<i>Cable clamp not available</i>		
42		<i>Cable clamp not available</i>		
50	53 (2.086)	65.6 (2.582)	26 (1.023)	14 (.551)
75	53 (2.086)	65.6 (2.582)	26 (1.023)	18 (.708)

MMC HE 621 SERIES

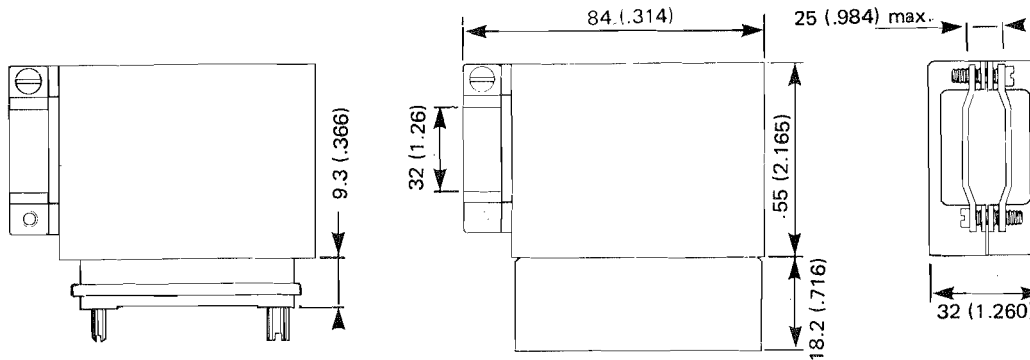
RACK GUIDES

HOOD-TOP ENTRY



Number of contacts	H	I	Cable entry dimensions		L
			J	K max.	
14	46 (1.811)	39 (1.535)	7.6 (.299)	13 (.512)	17 (.670)
20	46 (1.811)	47 (1.850)	15 (.590)	13 (.512)	17 (.670)
26	46 (1.811)	48.5 (1.909)	17 (.670)	17 (.670)	21 (.827)
34	52.5 (2.067)	53.5 (2.106)	22 (.866)	20 (.787)	24 (.945)
42	47 (1.850)	61 (2.401)	32 (1.260)	12 (.472)	21.5 (.846)
50	66.5 (2.618)	68.5 (2.697)	26 (1.023)	21 (.827)	25 (.984)
75	47 (1.850)	68 (2.677)	40 (1.575)	21 (.827)	30.5 (1.200)

HOOD SIDE ENTRY

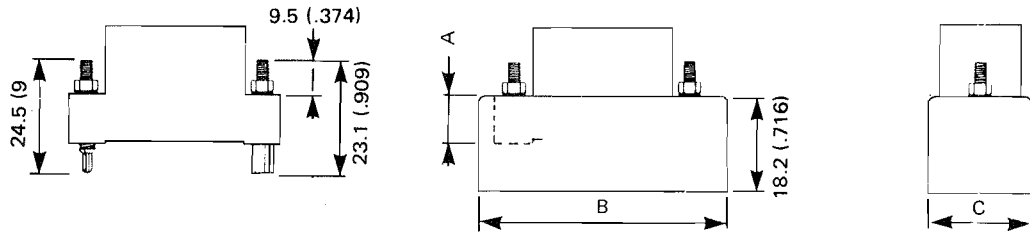


ONLY AVAILABLE FOR 75 WAY

MMC HE 621 SERIES

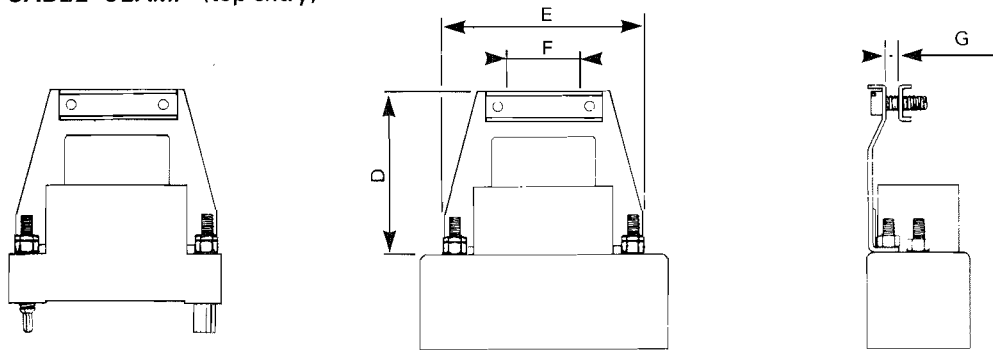
FIXED JACKSCREWS

CONNECTOR BLOCK



Number of contacts	A	B		C	
		male	female	male	female
14	10.1 (.398)	34.8 (1.370)	37.2 (1.464)	14.2 (.559)	16.6 (.653)
20	10.1 (.398)	42.2 (1.661)	45.1 (1.775)	14.2 (.559)	16.6 (.653)
26	10.1 (.398)	44.2 (1.740)	46.4 (1.827)	17.3 (.681)	19.4 (.764)
34	10.3 (.405)	54 (2.126)	56.4 (2.220)	22.2 (.874)	24.6 (.968)
42		<i>Shroud not available</i>			
50	10.3 (.405)	72 (2.834)	74.6 (2.937)	25.3 (.996)	27.8 (1.094)
75	10.3 (.405)	72.4 (2.850)	74.7 (2.940)	34.4 (1.354)	37 (1.456)

STRAIN RELIEF CABLE CLAMP (top entry)

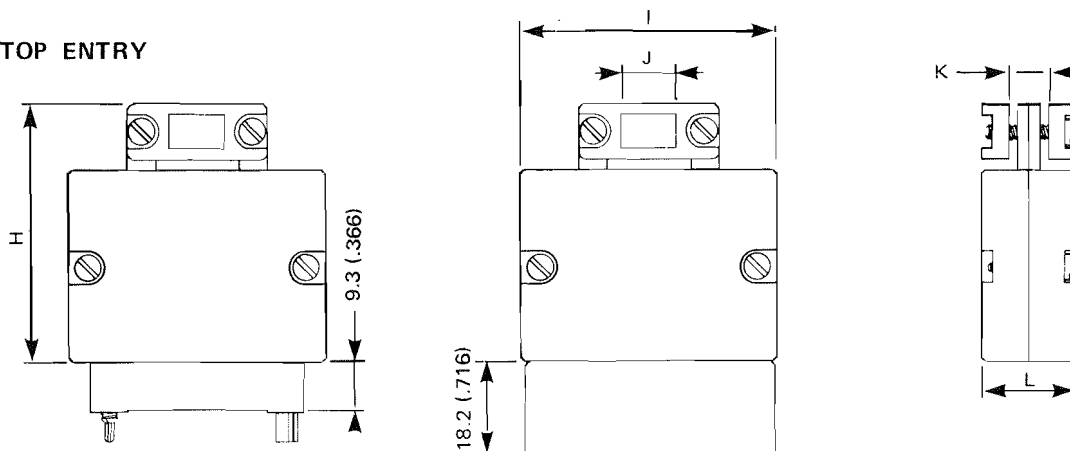


Number of contacts	D	E	Cable entry dimensions	
			F	G max.
14	44 (1.732)	31.5 (1.240)	5 (.197)	8 (.315)
20	44 (1.732)	39.5 (1.555)	12 (.472)	8 (.315)
26	44 (1.732)	41.1 (1.618)	12 (.472)	10 (.394)
34		<i>Cable clamp not available</i>		
42		<i>Cable clamp not available</i>		
50	53 (2.086)	65.6 (2.582)	26 (1.023)	14 (.551)
75	53 (2.086)	65.6 (2.582)	26 (1.023)	18 (.708)

MMC HE 621 SERIES

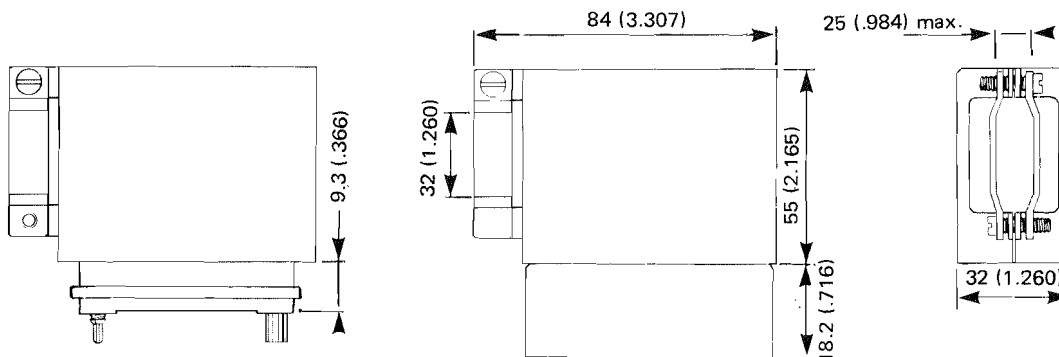
FIXED JACKSCREWS

HOOD TOP ENTRY



Number of contacts	H	I	Cable entry dimensions		L
			J	K max.	
14	46 (1.811)	39 (1.535)	7.6 (.299)	13 (.512)	17 (.670)
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26	46 (1.811)	48.5 (1.910)	17 (.670)	17 (.670)	21 (.827)
34	52.5 (2.067)	53.5 (2.106)	22 (.866)	20 (.787)	24 (.945)
42	47 (1.850)	61 (2.401)	32 (1.260)	12 (.472)	21.5 (.846)
50	66.5 (2.618)	68.5 (2.697)	26 (1.023)	21 (.827)	25 (.984)
75	47 (1.850)	68 (2.677)	40 (1.575)	21 (.827)	30.5 (1.200)

HOOD SIDE ENTRY

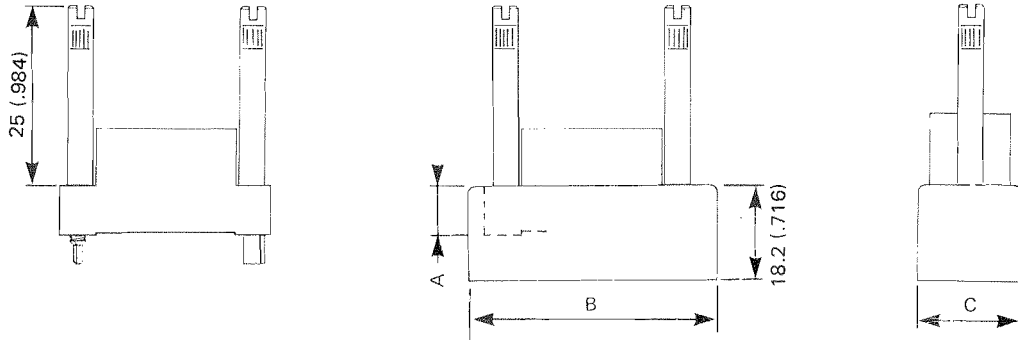


ONLY AVAILABLE FOR 75 WAY

MMC HE 621 SERIES

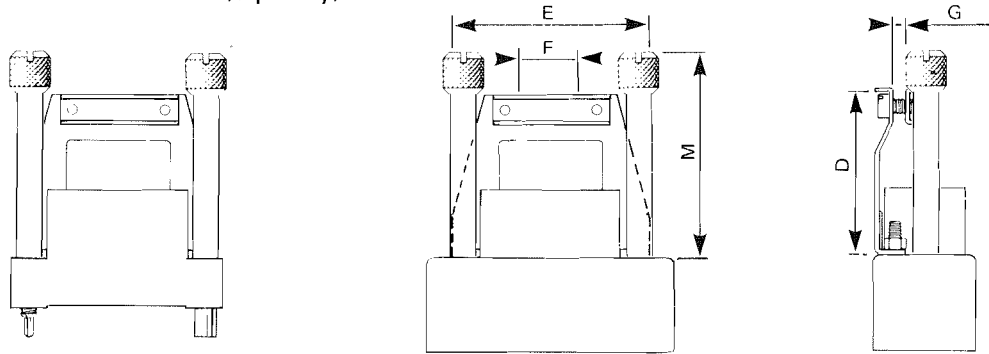
ROTATING JACKSCREWS

CONNECTOR BLOCK



Number of contacts	A	B		C	
		male	female	male	female
14	10.1 (.398)	34.8 (1.370)	37.2 (1.464)	14.2 (.560)	16.6 (.653)
20	10.1 (.398)	42.2 (1.661)	45.1 (1.775)	14.2 (.560)	16.6 (.653)
26	10.1 (.398)	44.2 (1.740)	46.4 (1.827)	17.3 (.681)	19.4 (.764)
34	10.3 (.405)	54 (2.126)	56.4 (2.220)	22.2 (.874)	24.6 (.968)
42		<i>Shroud not available</i>			
50	10.3 (.405)	72 (2.834)	74.6 (2.940)	25.3 (1.012)	27.8 (1.094)
75	10.3 (.405)	72.4 (2.850)	74.7 (2.940)	34.4 (1.354)	37 (1.456)

STRAIN RELIEF CABLE CLAMP (top entry)

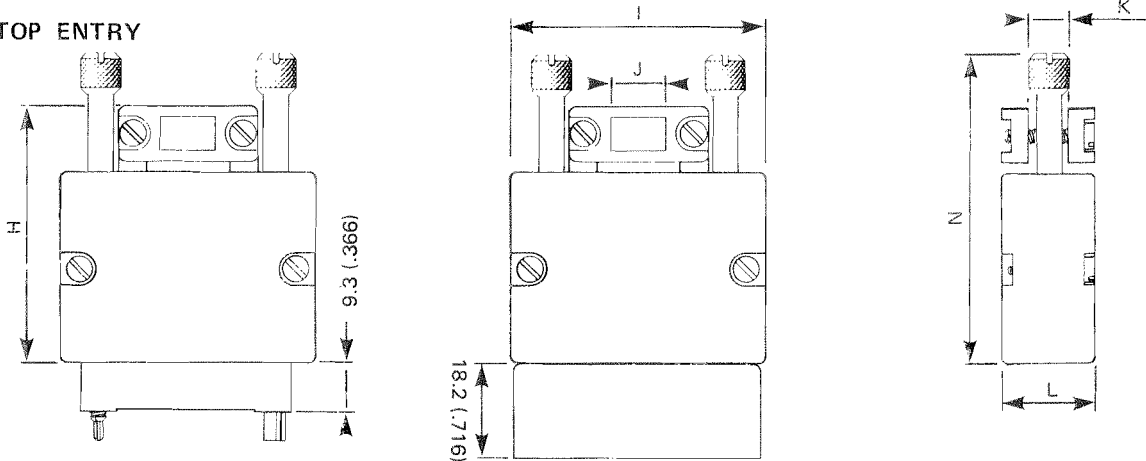


Number of contacts	D	E	M	Cable entry dimensions	
				F	G max.
14	44 (1.732)	31.5 (1.240)	60 (2.362)	5 (.197)	8 (.315)
20	44 (1.732)	39.5 (1.555)	60 (2.362)	12 (.472)	8 (.315)
26	44 (1.732)	41.4 (1.630)	60 (2.362)	12 (.472)	10 (.394)
34		<i>Cable clamp not available</i>			
42		<i>Cable clamp not available</i>			
50	53 (2.086)	65.6 (2.582)	64 (2.519)	26 (1.023)	14 (.551)
75	53 (2.086)	65.6 (2.582)	64 (2.519)	26 (1.023)	18 (.708)

MMC HE 621 SERIES

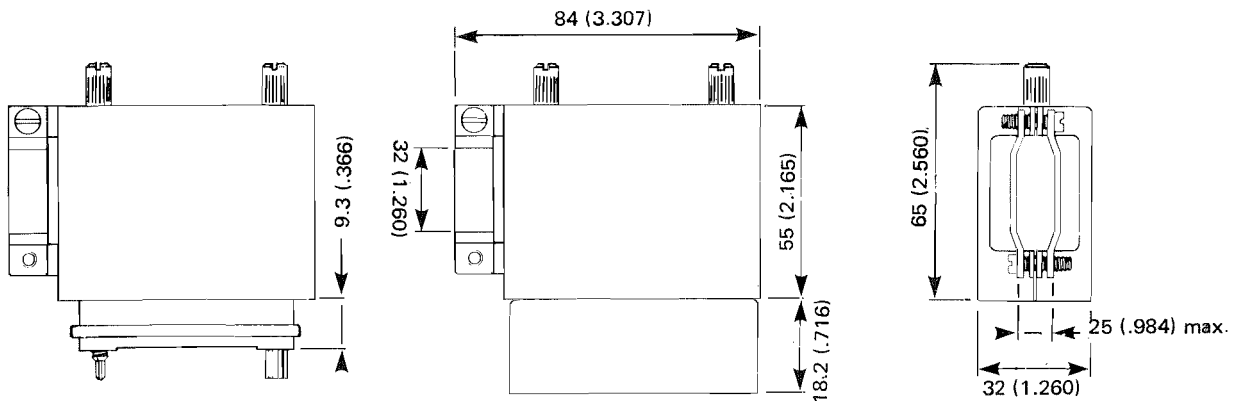
ROTATING JACKSCREWS

HOOD TOP ENTRY



Number of contacts	H	I	Cable entry dimensions		L	N
			J	K max.		
14	46 (1.811)	39 (1.535)	7.6 (.299)	13 (.512)	17 (.669)	60 (2.362)
20	46 (1.811)	47 (1.850)	15 (.591)	13 (.512)	17 (.669)	60 (2.362)
26	46 (1.811)	48.5 (1.909)	17 (.669)	17 (.669)	21 (.827)	60 (2.362)
34	52.5 (2.067)	53.5 (2.106)	22 (.866)	20 (.787)	24 (.945)	64 (2.519)
42	47 (1.850)	61 (2.401)	32 (1.260)	12 (.472)	21.5 (.846)	64 (2.519)
50	66.5 (2.618)	68.5 (2.697)	26 (1.023)	21 (.827)	25 (.984)	78 (3.071)
75	47 (1.850)	68 (2.677)	40 (1.575)	21 (.827)	30.5 (1.200)	78 (3.071)

HOOD SIDE ENTRY

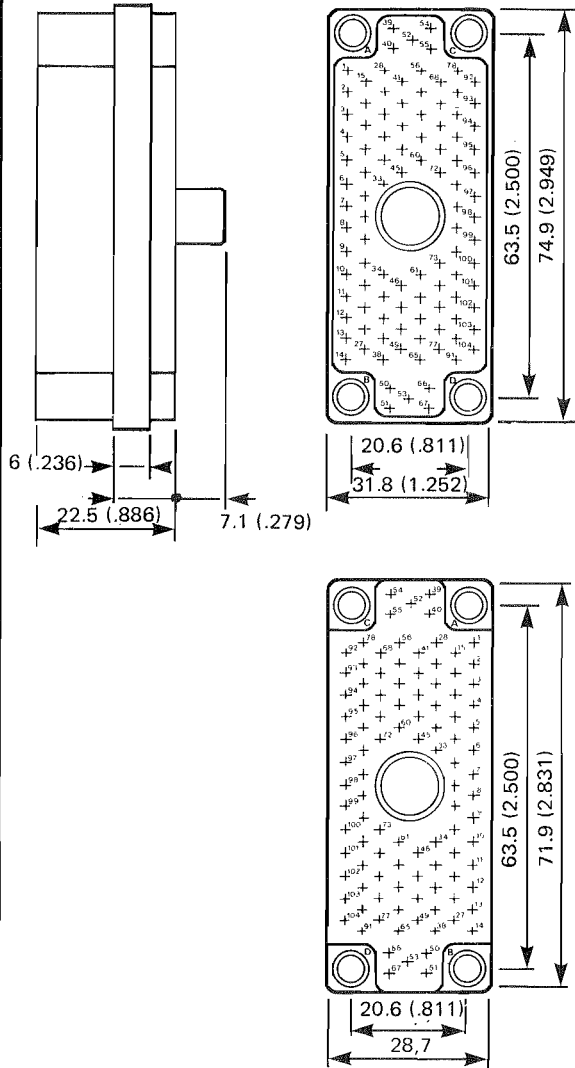


ONLY AVAILABLE FOR 75 WAY

MMC HE 622 SERIES

BLOCKS 104 CONTACTS

VIEW WIRING SIDE



R TYPE

Central guide	Rack guides				Référence
	A	B	C	D	
mates with all the blocks P	no guides				690 571
	fem.	male	male	fem.	690 570
	fem.	—	—	fem.	690 572
	fem.	fem.	fem.	fem.	690 573

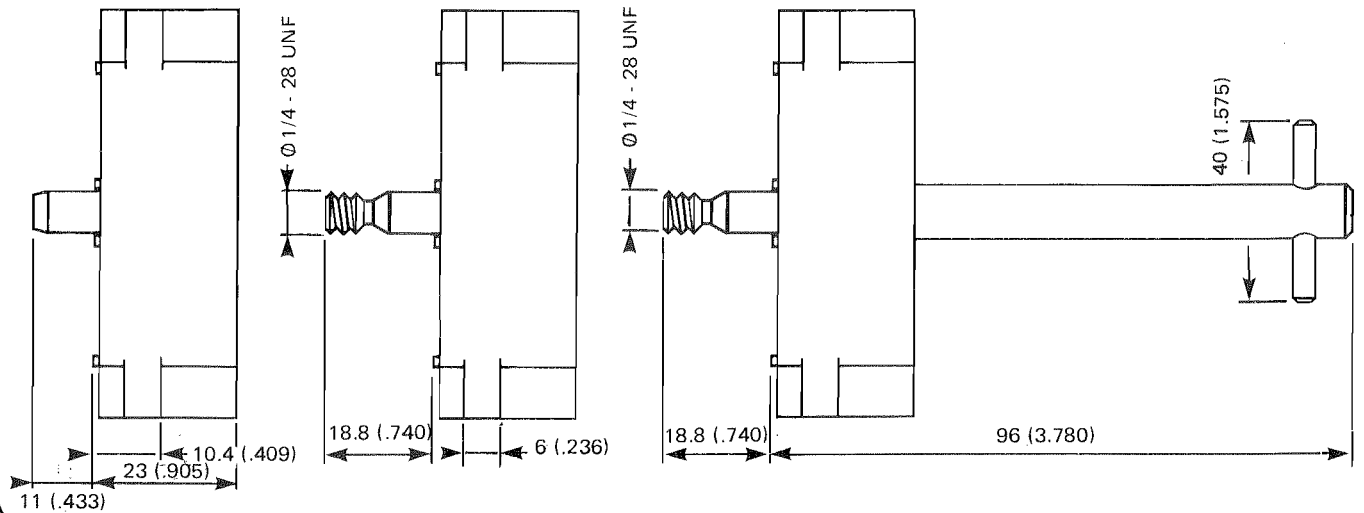
P TYPE

Central guide	Rack guides				Référence
	A	B	C	D	
Central rack guide	no guides				690 481
	male	fem.	fem.	male	690 480
	male	—	—	male	690 482
	male	male	male	male	690 483
Sunken hex. nut 4 A/F	no guides				690 471
	male	fem.	fem.	male	690 470
	male	—	—	male	690 472
	male	male	male	male	690 473
Central jackscrew	no guides				690 476
	male	fem.	fem.	male	690 475
	male	—	—	male	690 477
	male	male	male	male	690 478

Rack guide

Sunken hex. nut

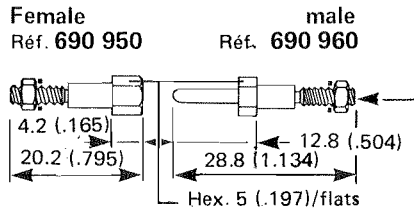
Central jackscrew



MMC HE 622 SERIES

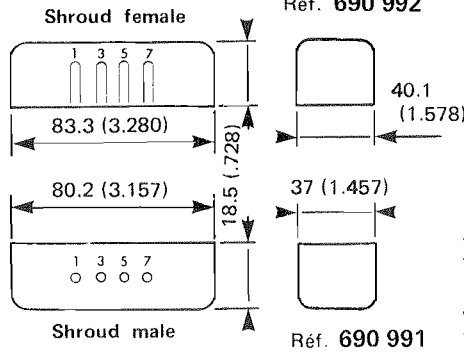
BLOCKS 104 CONTACTS

GUIDES (stainless steel) to mount in positions A, B, C, D



SHROUDS

(cadmium plated steel)



Polarisation code	Position
110	1
120	3
130	5
140	7

No polarising : use 6 digit no
With polarising : add polarising code to end of 6 digit reference.

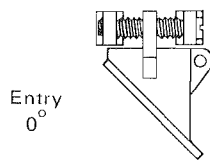
Ex. : 690 991 110

Polarising is positioned next to cavity 1 of insulator block.

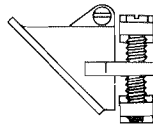
HOOD

(cast aluminium painted black)

Piece parts
(1 or 2 rotatable entry)



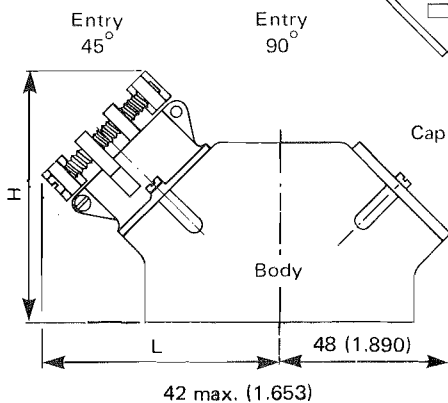
Entry 0°



Entry 90°

	Référence
Body (2 part)	690 977
entry 0 - 90°	690 980
entry 45°	690 979
Cap	690 978

Assembly

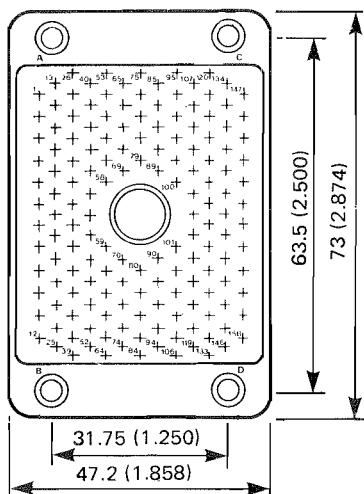
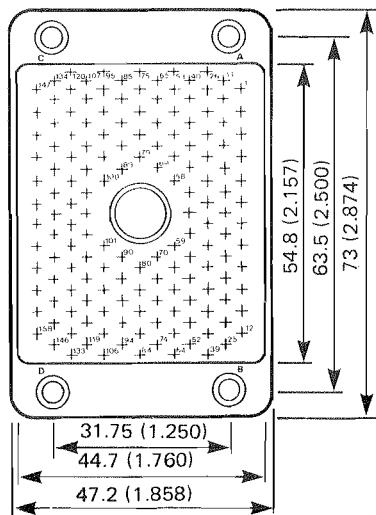
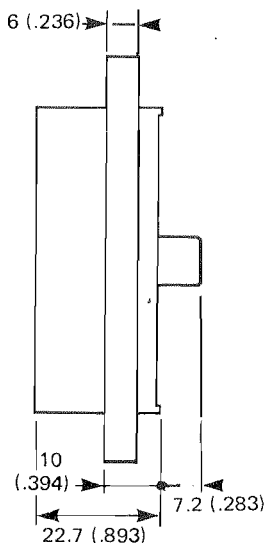


Entry	Cable clamp max. cm ²	L	H	Référence
1 entry 45°	7,8	70	71	690 971
2 entry 45°	15,6			690 972
1 entry 0°	5,3	55	66	690 973
2 entry 0°	10,6			690 974
1 entry 90°	5,3	65	57	690 973
2 entry 90°	10,6			690 974

MMC SERIES

BLOCKS 158 CONTACTS

VIEW WIRING SIDE



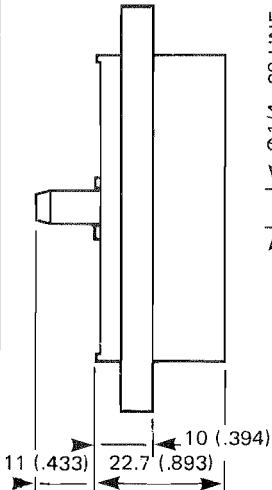
R TYPE

Central guide	Without guides	Guides supplied unmounted	
		4 female	2 m./2 fem.
mates with all blocks P	690 686	690 670	690 680

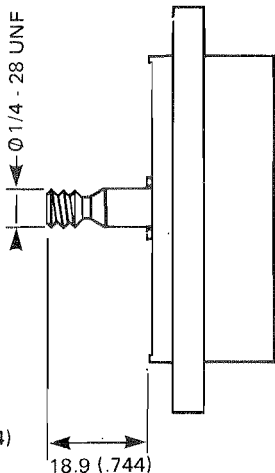
P TYPE

Central guide	Without guides	Guides supplied unmounted	
		4 male	2 m./2 fem.
Central rack guide	690 681	690 678	690 683
Sunken Hex. 4 A/F	690 671	690 679	690 684
Central jackscrew	690 676	690 677	690 682

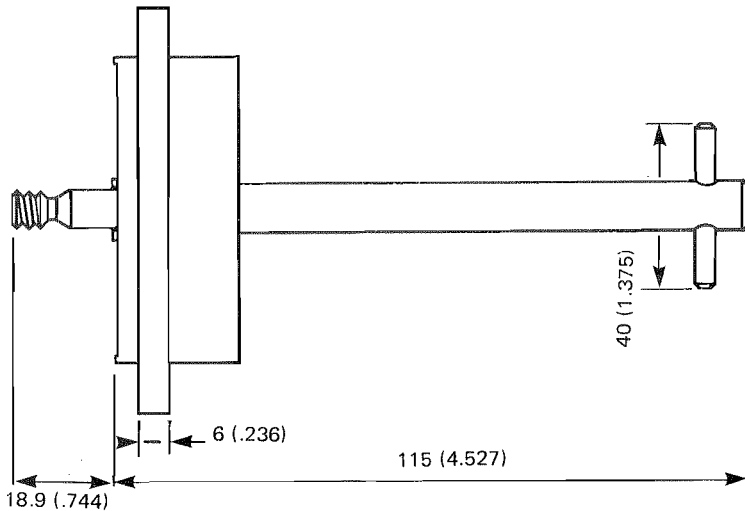
Rack guide



sunken hex. nut



Central jackscrew



MMC SERIES

BLOCKS 158 CONTACTS

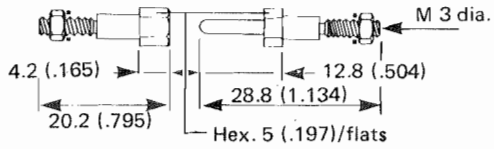
GUIDES (stainless steel) to mount in positions A, B, C, D

female

Réf. 690 950

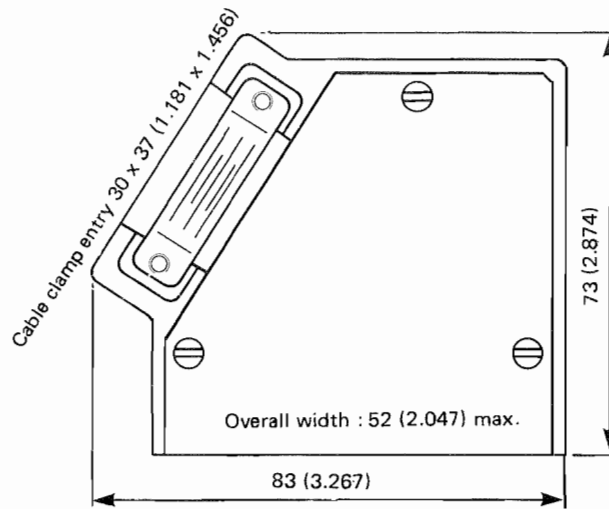
male

Réf. 690 960



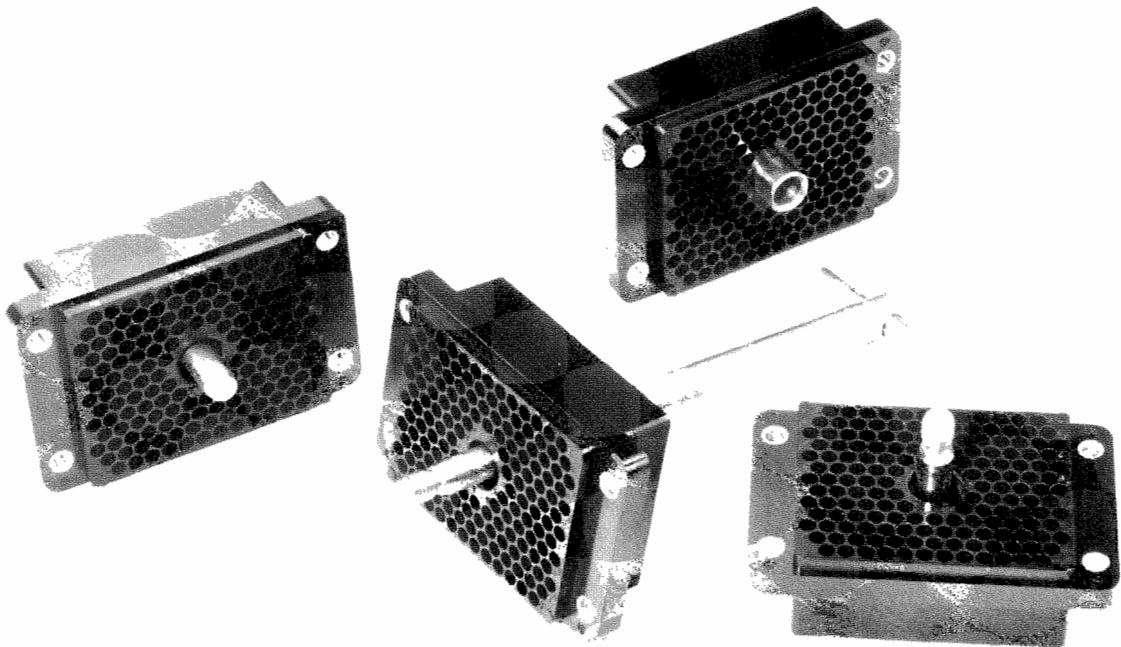
HOOD

(cast aluminium painted black)



Référence :

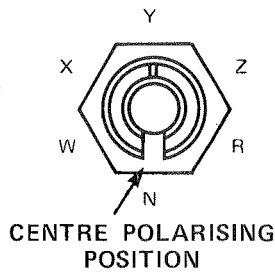
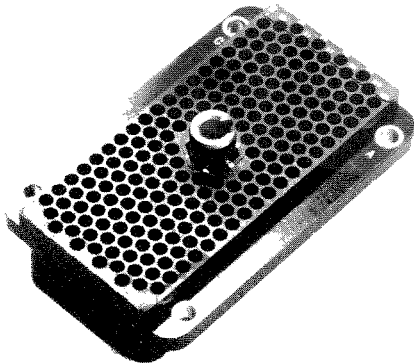
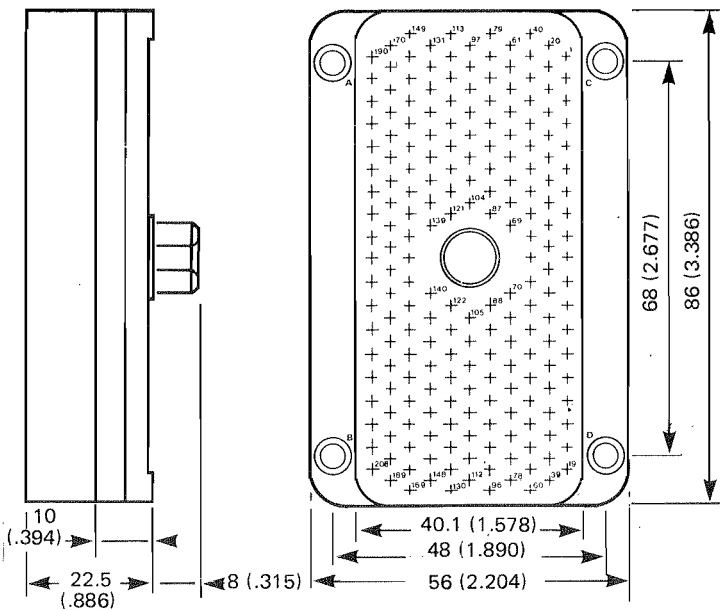
690 985



MMC SERIES

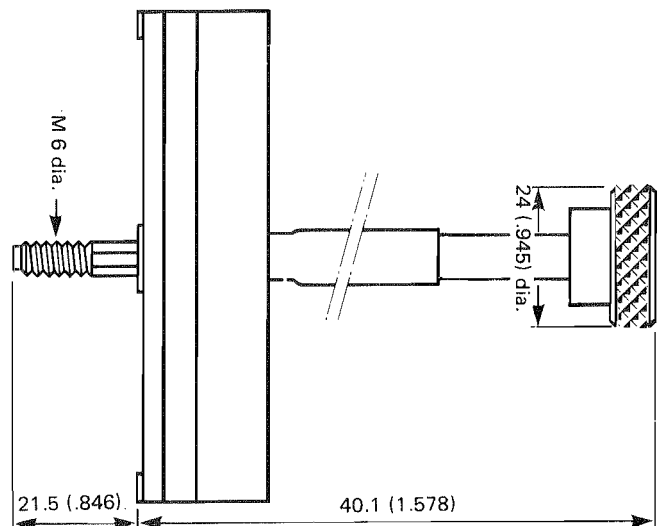
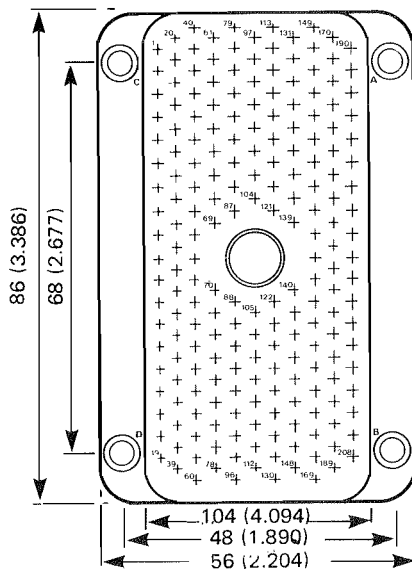
BLOCKS 208 CONTACTS

VIEW WIRING SIDE



Polarising positions	Guides supplied : unmounted	
	4 female	2 male /2 fem.
N	690 768 001	690 778 004
R	690 768 002	690 778 007
Z	690 768 003	690 778 002
Y	690 768 004	690 778 003
X	690 768 005	690 778 001
W	690 768 006	690 778 005

Polarising positions	Guides supplied : unmounted	
	4 male	2 male /2 fem.
N	690 769 001	690 767 001
R	690 769 002	690 767 002
Z	690 769 003	690 767 003
Y	690 769 004	690 767 004
X	690 769 005	690 767 005
W	690 769 006	690 767 006



MMC SERIES

BLOCKS 208 CONTACTS

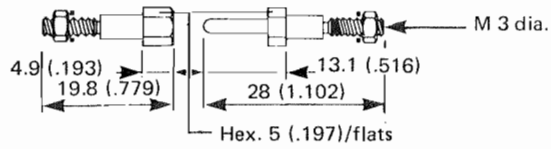
GUIDES (stainless steel) to mount in positions A, B, C, D

female

Réf. 690 958

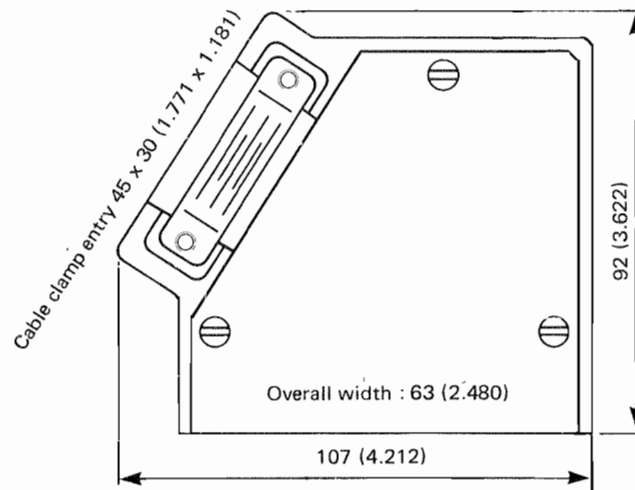
male

Réf. 690 968

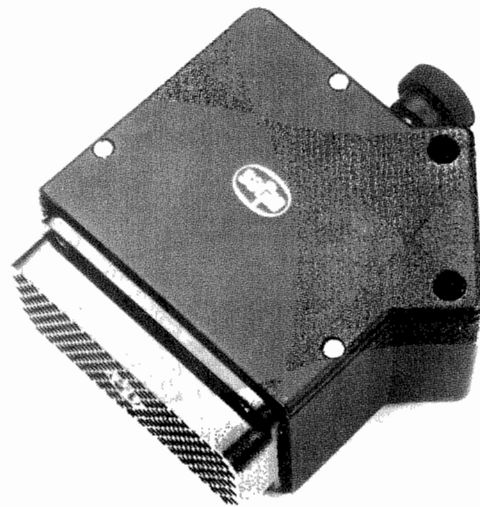


HOOD

(cast aluminium painted black)



Référence :
690 982



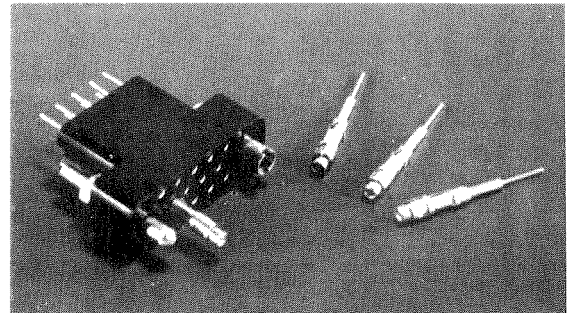
MMC SERIES

FRONT RELEASE AND FRONT REMOVABLE CONTACTS

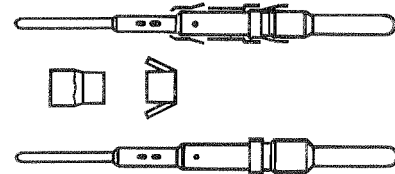
In order to facilitate the junction of MMC series connectors with a flexible or steady printed circuits, RADIALL created a range of solder tail and wire wrap front release contacts.

This eases to replace a damaged contact without unwiring the set.

These 16 size contacts fit with all standard MMC connectors cavities from 14 to 208 which allow to mix them on a same connector with micro-coaxial contacts and crimping contacts.



- Contact with retention clip and antirotation sleeve. It must be used for the original equipement of connectors.
- Contact without retention clip and antirotation sleeve for replacement of a damaged contact.

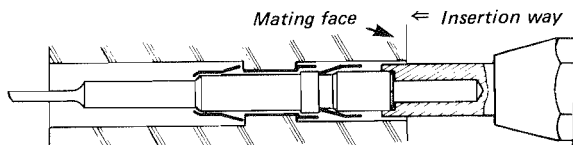


TYPE	LENGTH OF TAIL	CONTACT		REPLACEMENT CONTACT	
		PIN	SOCKET	PIN	SOCKET
Mini-wrapping ∅ 0,6 flats 2 wraps		690 220 	690 320 	690 220 001 	690 320 001
Mini-wrapping ∅ 0,6 flats 3 wraps		690 221 	690 321 	690 221 001 	690 321 001
Picot pour C.I. 0.65 mm dia.		690 222 	690 322 	690 222 001 	690 322 001

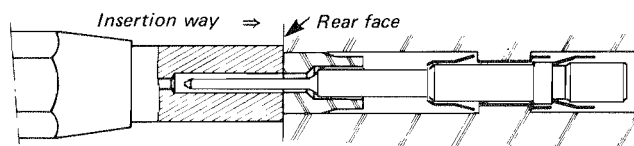
INSTALLATION AND EXTRACTION OF FRONT RELEASE FRONT REMOVABLE MMC CONTACTS

CONTACT INSTALLATION

1) Insert the contact fitted with the retention clip through the mating face and push it home by means insertion tool 282 501.

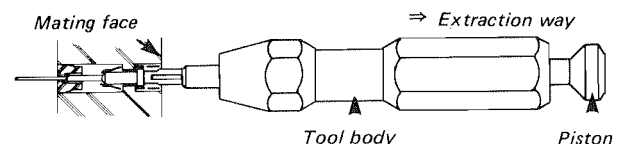


2) Introduce the sleeve by the rear face with tool 282 502 and push it until it flushes with the insulator.



CONTACT REPLACEMENT

Extraction : insert the extraction tool 282 917 by the mating face into the cavity of the contact to be replaced. Push it until it butts against the contact shoulder. Maintain the pressure on piston and pull on body tool to extract the contact. To free the contact release pressure on piston.



Installation of a new contact without retention clip : insert the contact through the mating face, push it with tool 282 501 until contact snaps in place.

MMC SERIES

EQUIPMENT WIRE CONTACTS

CRIMP EQUIPMENT WIRE CONTACTS					CRIMPING TOOL		Extraction tool	
CABLES		Stripping length	Ø max. on sleeve	Position on crimp tool	PIN	SOCKET	Colour Coding	POSITIONER
AWG size	Section in mm ²							MIL Ref.
16	1,34	7 (.275)	3,10 (.122)	6 5 4	 690 200 26.6 (1.047)	 690 300 18.8 (.740)	Green	282 975
18	0,93							
20	0,60							
16	1,34	7 (.275)	3,10 (.122)	6 5 4	 690 201 27.7 (1.090)	 690 301 20.4 (.803)	Green + red	282 976
18	0,93							
20	0,60							
20	0,60	5 (.197)	2,20 (.086)	4	 690 215	 690 315	Black	282 291
22	0,38							
24	0,22							
24	0,22	5 (.197)	1,60 (.063)	4 2 2	 690 235	 690 335	Violet	M 22 520/1.01
26	0,14							
28	0,093							
					Contacts for earthing 690 201			
TYPE		LENGTH OF TAIL			WIRE WRAPPING EQUIPMENT CONTACTS		TOOLS	
Mini wrapping 0.6 (..024)/flats (diagonal) 0.78 (.031) to 0.86 (.034)		 L = 15.5 (.610)			PIN 690 241 690 240 		SOCKET 690 341 690 340 	
Wrapping standard to 1.2 (.047)/flats (diagonal) 1.38 (0.54) to 1.86 (.073)		 L = 19.5 (.767)					Insertion 282 921 Extraction 282 920	

MMC SERIES

TWISTED PAIR CONTACTS

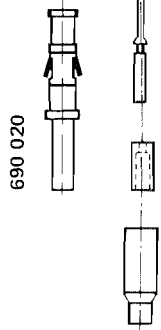
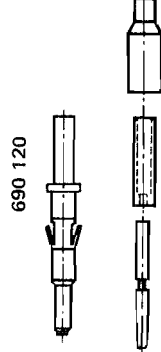
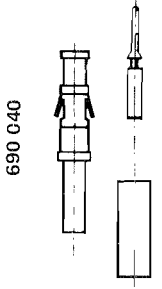
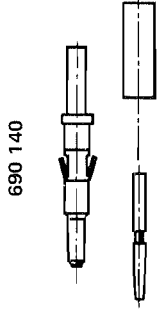
CABLES		Wiring instructions ★		TOOLS				TWISTED PAIR CONTACTS	
								SOCKET	PIN
AWG sizes	Section in mm ²	Ø max. on insulator	Centre contact	Outer contact	Extractor tool	Positioner	Crimp tool	Body female contact Centre male contact	Body male contact Centre female contact
24	0,22	0,96 (.038)	2	2	282 920	RADIALL 282 973	MIL - M 22 520/4.02	690 070	690 170
26	0,14	0,84 (.033)	2	2	282 920	RADIALL 282 973	MIL - M 22 520/4.02	690 060	690 160
28	0,093	0,73 (.029)	1	1	282 920	RADIALL 282 292	MIL - M 22 520/4.01	(cable dia 2.10 (.083))	(cable dia 2.10 (.083))
30	0,055	0,66 (.026)	1	1	282 920	RADIALL 282 981	MIL - M 22 520/2.04	(cable dia 2.10 (.083))	(cable dia 2.10 (.083))
26	0,12	0,85 (.033)	3	2	282 281	RADIALL 282 281	MIL - M 22 520/2.01	690 061	690 161
28	0,08	0,67 (.026)	2	2	282 281	RADIALL 282 281	MIL - M 22 520/2.01	(cable dia 1.70 (.067))	(cable dia 1.70 (.067))
30	0,05	0,58 (.023)	1	2	282 281	RADIALL 282 281	MIL - M 22 520/2.01	(cable dia 1.70 (.067))	(cable dia 1.70 (.067))
26	0,14	0,84 (.033)	1	3	282 281	RADIALL 282 281	MIL - M 22 520/2.01	690 062	690 162
28	0,093	0,73 (.029)	1	2	282 281	RADIALL 282 281	MIL - M 22 520/2.01	(cable dia 1 (.039))	(cable dia 1 (.039))
26	0,12	0,85 (.033)	3	2	282 281	RADIALL 282 281	MIL - M 22 520/2.01	(cable dia 1 (.039))	(cable dia 1 (.039))
28	0,08	0,67 (.026)	1	1	282 281	RADIALL 282 281	MIL - M 22 520/2.01	(cable dia 1 (.039))	(cable dia 1 (.039))
30	0,055	0,66 (.026)	1	1	282 281	RADIALL 282 281	MIL - M 22 520/2.01	(cable dia 1 (.039))	(cable dia 1 (.039))
30	0,05	0,58 (.023)	1	1	282 281	RADIALL 282 281	MIL - M 22 520/2.01	(cable dia 1 (.039))	(cable dia 1 (.039))

● settings indicated are those advised, nevertheless they must be modified following the diameter of cable and the tool tolerances.

★ Refer to pages 30 and 31.

MMC SERIES

COAXIAL CONTACTS

COAXIAL CONTACTS		SOCKET		PIN		
		Body female contact Centre male contact	Body male contact Centre female contact			
		 690 020		 690 120		
		 690 040		 690 140		
TOOLS		Extraction tool		282 920		
		Outer contact	Positioner	RADIALL 282 973	MIL - M 22 520/4.02	
			Crimp tool	RADIALL 282 292	MIL - M 22 520/4.01	
		Centre contact	Positioner	RADIALL 282 981	MIL - M 22 520/2.04	
			Position on crimp tool	1	2	1
Crimp tool	RADIALL 282 281		MIL - M 22 520/2.01			
Wiring instructions ★		C		D		
CABLES		Outer dia.	2 (.079)		2.54 (.100) ± 0.13 (.005)	
		Impedance Ω	50		50	
		Cable reference	RG. 178/U RG. 196/U KX. 21		KX. 3A RG. 316/U KX. 22	

★ Refer to page 32

MMC SERIES

TWISTED PAIR CONTACT CABLING INSTRUCTIONS

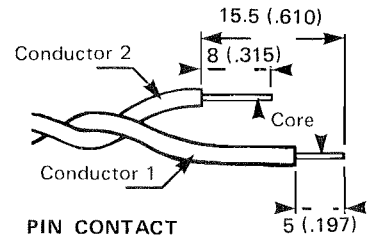
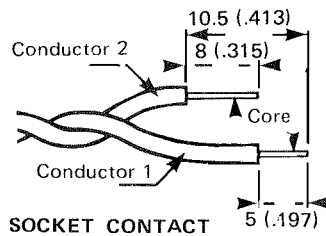
CABLING INSTRUCTIONS A

CONTACT REF. 690 060
690 260
690 061
690 161
690 062
690 162

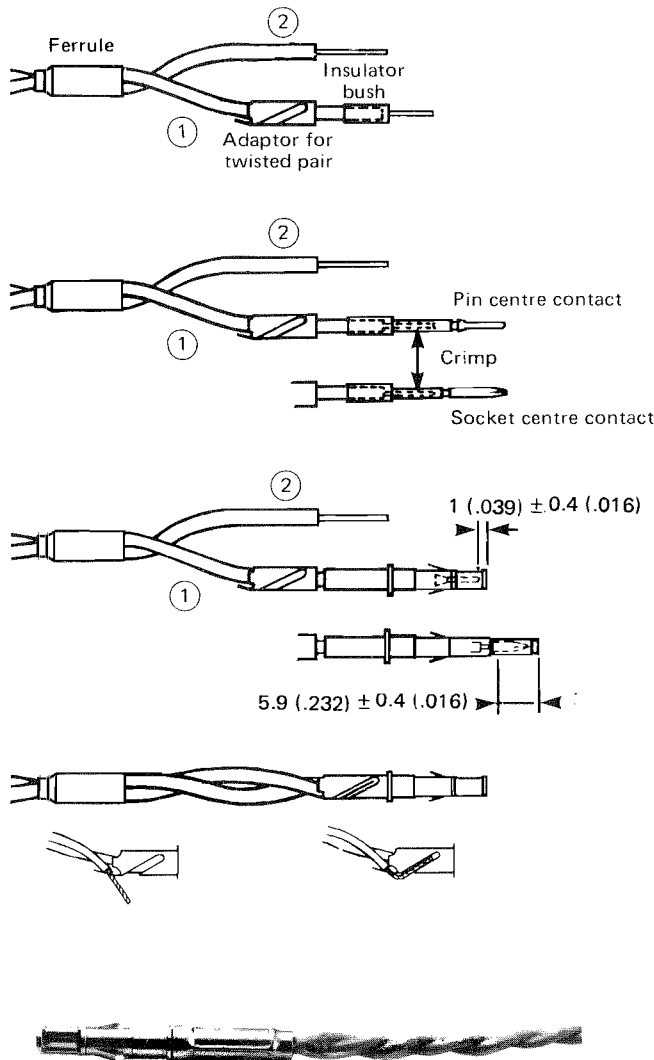
WIRE SIZES AWG 26
AWG 28
AWG 30



1) WIRE STRIPPING



2) WIRING INSTRUCTIONS



- Slide the ferrule over the twisted pair cable.
- Following the type of contact, strip the 2 conductors to shown dimensions here above.
- Slide adaptor over conductor ①
- Slide insulator bush over conductor ①
- Put the core of the cable ① in to the centre contact (pin or socket) until it butts against the insulator bush.
- Engage the assembly (cable + centre contact) into the positioner of the crimping tool, and crimp centre contact according to setting instructions page 28.
- Engage the centre contact into the body, with reasonable force push home. Check the dimensional position, following type of centre contact (pin/socket).
- Slide the adaptor on to the body up to the shoulder.
- Place the core of conductor ② under the adaptor tab, and slide core into the helical slot.
- Slide the ferrule over the adaptor up to the shoulder of the body.
- Engage the assembly into the positioner of the crimping tool, then crimp according to setting instructions, page 28.

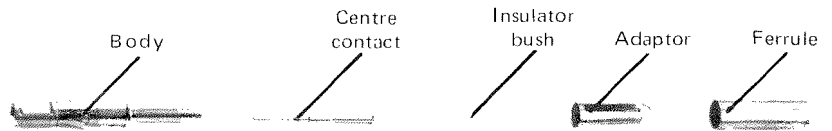
MMC SERIES

TWISTED PAIR CONTACT CABLING INSTRUCTIONS

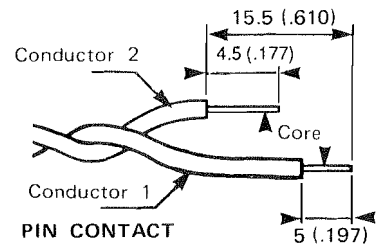
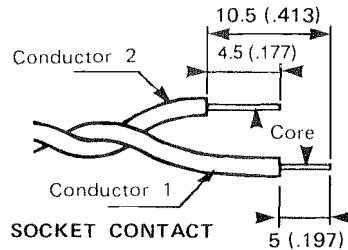
CABLING INSTRUCTIONS B

CONTACT REF. 690 070
690 170

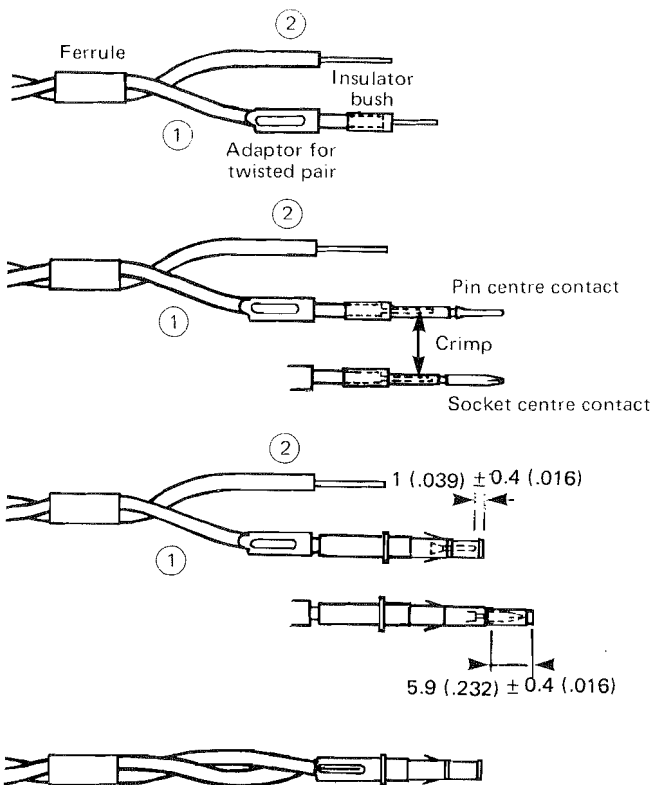
WIRE SIZES AWG 24



1) WIRE STRIPPING



2) WIRING INSTRUCTIONS



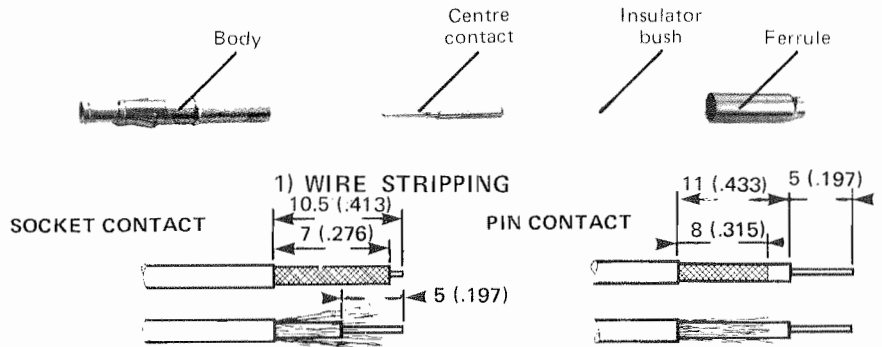
- Slide the ferrule over the twisted pair cable.
- Following the type of contact, strip the 2 conductors to shown dimensions here above.
- Slide adaptor over conductor ①
- Slide insulator bush over conductor ①
- Put the core of the cable ① in to the centre contact (pin or socket) until it butts against the insulator bush.
- Engage the assembly (cable + centre contact) into the positioner of the crimping tool, and crimp centre contact according to setting instructions page 28.
- Engage the centre contact into the body, with reasonable force push home. Check the dimensional position, following type of centre contact (pin/socket).
- Slide the adaptor onto the body up to the shoulder.
- Place the core of the conductor ② into the straight slot, on the outer face of the adaptor.
- Slide the ferrule over the adaptor up to the shoulder of the body.
- Engage the assembly into the positioner of the crimping tool, then crimp according to setting instructions, page 28.



MMC SERIES COAXIAL CONTACTS CABLING INSTRUCTIONS

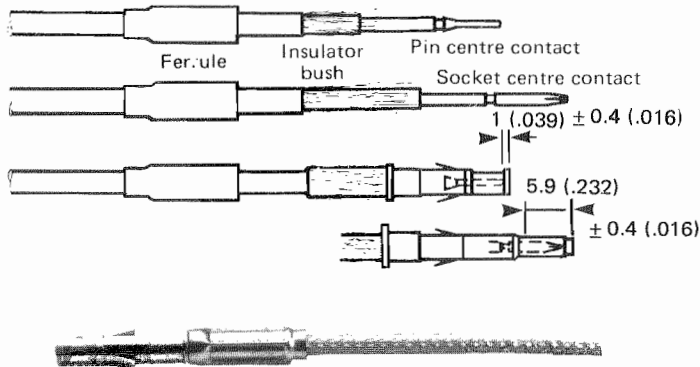
CABLING INSTRUCTIONS C

CONTACT REF. 690 020
690 120



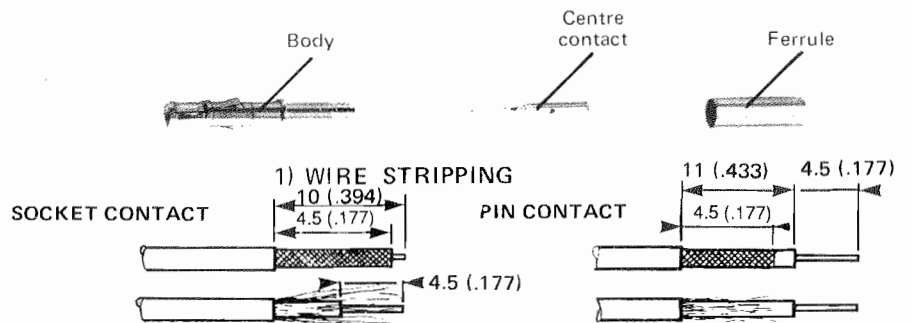
2) WIRING INSTRUCTIONS

- Slide the ferrule over the coaxial cable.
- Following the type of contact, strip the 2 conductors to dimensions shown above.
- Comb the braid and slide on the insulator bush until it butts against the dielectric of the cable.
- Place the core of the cable into the centre contact so as to butt against the dielectric.
- Engage the assembly into the positioner of the crimping tool and crimp according to instructions indicated on page 29.
- Engage the centre contact into the body and with reasonable force push home, check the dimensional position of the centre contact (pin or socket).
- Pull down the braid over the body and slide the ferrule on to the body up to the shoulder.
- Engage the assembly into the positioner of the crimping tool, then crimp according to instructions indicated on page 29.



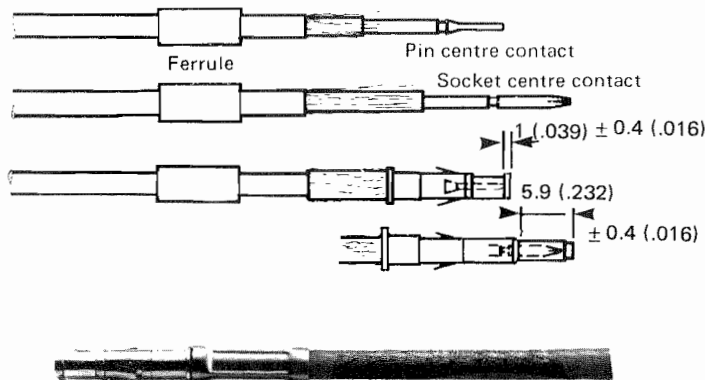
CABLING INSTRUCTIONS D

CONTACT REF. 690 040
690 140



2) WIRING INSTRUCTIONS

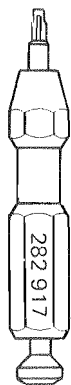
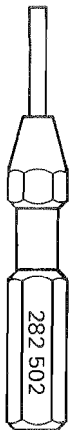
- Slide the ferrule over the coaxial cable.
- Following the type of contact, strip the 2 conductors to dimensions shown above.
- Place the core of the cable into centre contact so as to butt against dielectric.
- Engage the assembly into the positioner of the crimping tool, then crimp according to instructions indicated on page 29.
- Engage the centre contact into the body and with reasonable force push home, check the dimensional position of the centre contact (pin or socket).
- Pull down the braid over the body and slide ferrule over braid up to the body shoulder.
- Engage the assembly into the positioner of the crimping tool, then crimp according to instructions given on page 29.



MMC SERIES

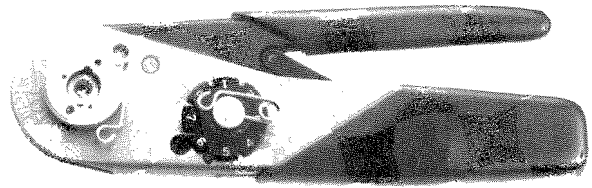
TOOLING

TOOLING

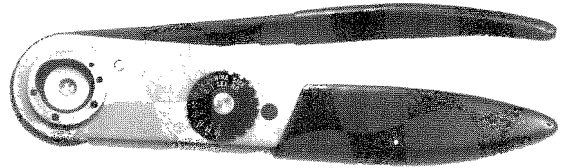


CRIMP TOOLS

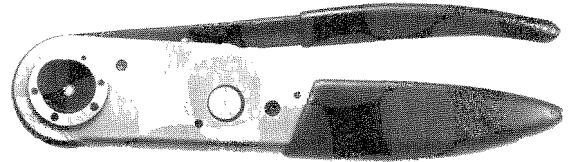
282 281
M 22520/2 - 01



282 291
M 22520/1 - 01

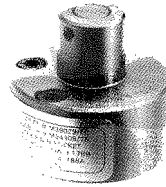


282 292
M 22520/4 - 01

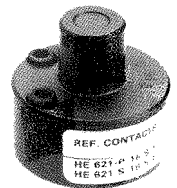


POSITIONERS

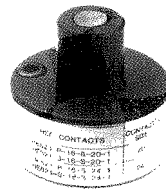
282 973
M 22520/4 - 02



282 975
Daniels TP 617



282 976
Daniels TP 616



282 981
M 22520/2 - 04



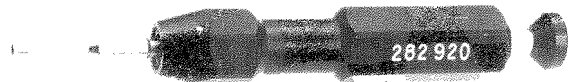
INSERTION TOOL wire wrap

282 921



EXTRACTION TOOL





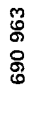




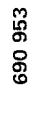











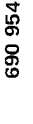



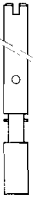



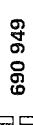




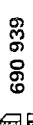

282 920



MMC SERIES

PIECE PARTS

JACKSCREW AND RACK GUIDE SELECTOR CHART

GUIDES		NUMBER OF CONTACTS					
		14	20	26	34	42	50
Rack guides	Without hood	male	 690 962				
	With hood	fem.	 690 952				
		male	 690 963	 690 962	 690 963	 690 962	 690 962
	fem.	 690 953	 690 952	 690 953	 690 952	 690 952	
Fixed guides	Without hood	male	 690 961				
		fem.	 690 951				
	With hood	male	 690 964	 690 961	 690 964	 690 961	 690 961
		fem.	 690 954	 690 951	 690 954	 690 951	 690 951
Rotating jackscrews	Without hood	male	 690 965				
		fem.	 690 955				
	With hood	male	 690 966	 690 949	 690 966	 690 949	 690 967
		fem.	 690 956	 690 939	 690 956	 690 939	 690 957

MMC SERIES

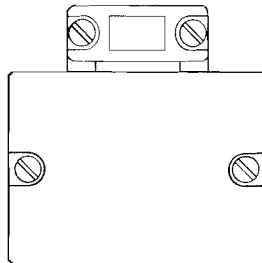
PIECE PARTS

INSULATOR BLOCKS ONLY:



Number of contacts	Block	
	Type P	Type R
14	690 401	690 501
20	690 411	690 511
26	690 421	690 521
34	690 431	690 531
42	690 441	690 541
50	690 451	690 551
75	690 461	690 561

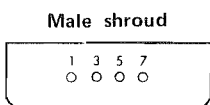
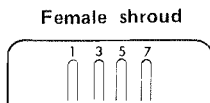
HOODS



Number of contacts	HOODS reference
14	690 905
20	690 908
26	690 911
34	690 914
42	690 917
50	690 920
75	Type P : 690 923 Type R : 690 924

Note: When ordering hoods separately, do not forget to order the appropriate guides or jackscrews (refer to page 34).

SHROUDS



Polarisation code	Position
110	1
120	3
130	5
140	7

Number of contacts	Male shroud	Female shroud
14	690 940	690 930
20	690 941...	690 931...
26	690 942...	690 932...
34	690 943...	690 933...
42	<i>Not available</i>	
50	690 945...	690 935...
75	690 946...	690 936...

without polarising :
use the six digit reference

with polarising :
indicate the 3 digit suffix following the polarising position required.

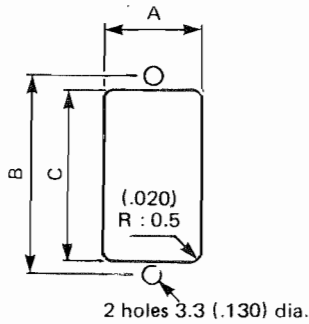
E.G. : 690 943 120 (position 3)

Male shroud is to be mounted on insulator block P.
Female shroud is to be mounted on insulator block R.
Polarising is to be positioned next to cavity 1 or A of the insulator block.

MMC SERIES

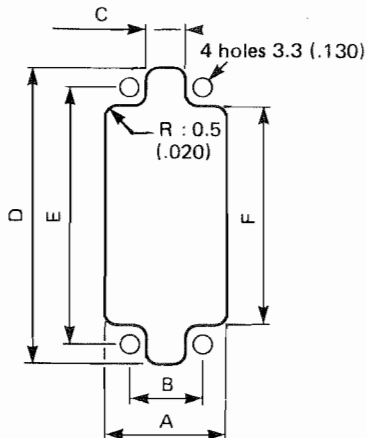
PANEL CUTOUTS

14 - 20 - 26 CONTACTS



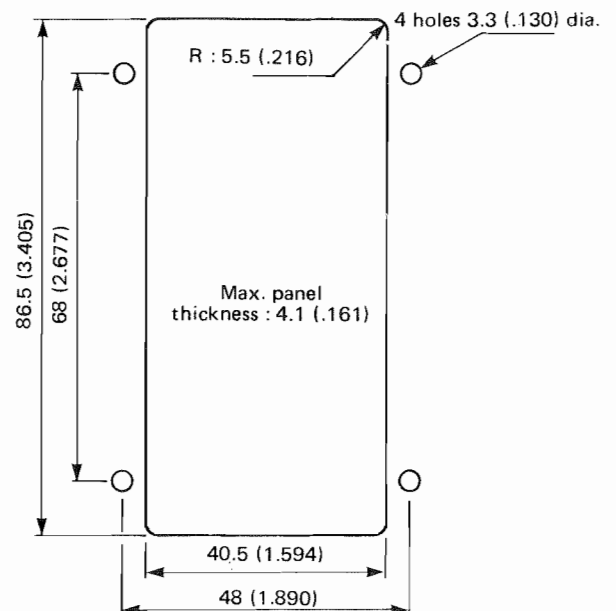
Number of contacts	A	B	C	Max. panel thickness
14	12.4 (.488)	23.8 (.937)	20.8 (.819)	6 (.236)
20	12.4 (.488)	31.7 (1.248)	28.7 (1.130)	6 (.236)
26	15.7 (.618)	33.3 (1.311)	29.2 (1.150)	6 (.236)

34 - 42 - 50 - 75 - 104 CONTACTS

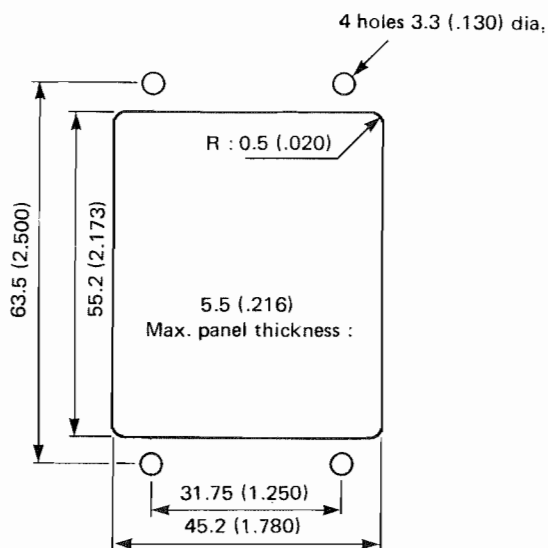


Number of contacts	A	B	C	D	E	F	Max. panel thickness
34	19.8 (.779)	11.9 (.468)	6.3 (.248)	49.3 (1.940)	42.8 (1.685)	36.6 (1.441)	6 (.236)
42	19.8 (.779)	11.9 (.468)	6.3 (.248)	56.9 (2.240)	50.5 (1.988)	43.7 (1.720)	6 (.236)
50	19.8 (.779)	11.9 (.468)	6.3 (.248)	64.3 (2.531)	57.9 (2.279)	51.6 (2.031)	6 (.236)
75	29 (1.141)	19.4 (.764)	14.2 (.559)	64.3 (2.531)	57.9 (2.279)	51.6 (2.031)	6 (.236)
104	29.3 (1.153)	20.6 (.811)	12.7 (.500)	72.5 (2.854)	63.5 (2.500)	55.6 (2.189)	5.5 (.216)

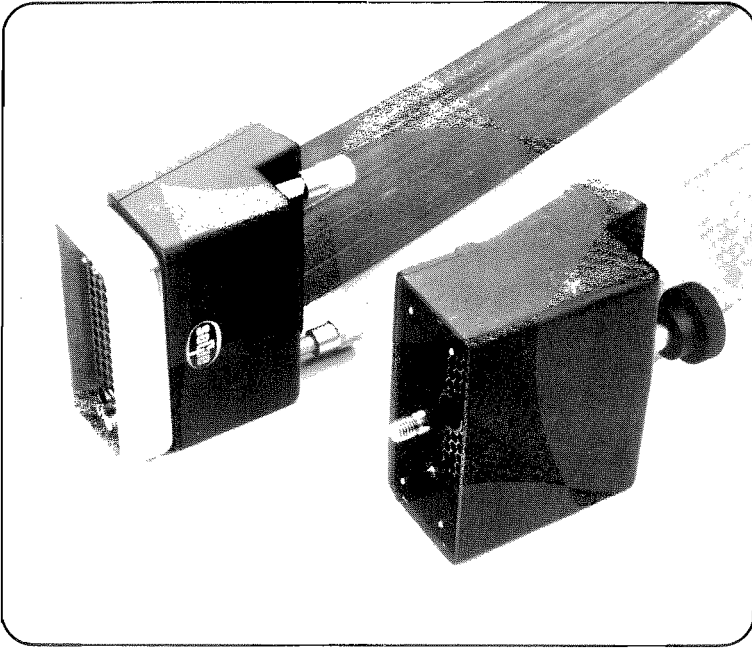
208 CONTACTS



158 CONTACTS



MMC SHEATHED CABLE HARNESS



DESCRIPTION

The MMC series extendable sheathed cable harness permits a flexible electrical link between two units or between a rack and panel. The connectors can be supplied separately or as a cable assembly to specified lengths. They are suitable for 2 applications :

- A removable link between units or rack and panel.
- An assembly with one end attached to the rack and the other end with a free plug.

INTRODUCTION

The connectors and contacts utilised, are the MMC series which is detailed on the preceding pages. Like the MMC series, they may be equipped with jackscrews or rack guides, and polarising shrouds enabling different polarising combinations.

Contact arrangements : 34 - 75 and 104 ways.

HOOD

Cast in strong aluminium alloy, the hood protects the contact/cable terminations and gives strain relief to the cable sheath.

SHEATH

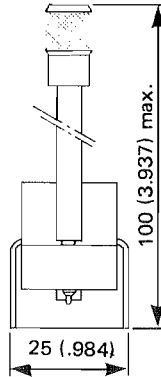
In self-extinguishing polychlorophrene, the sheath protects the cables.
Temperature range : -30°C to $+110^{\circ}\text{C}$

SHEATHED CABLE HARNESS

34 CONTACTS

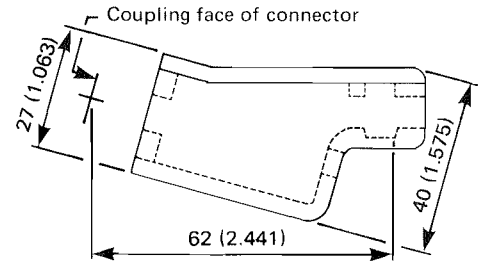
RECEPTACLE Ref. 690 730 (see page 11)
 Dimensions : see pages 12 & 16
 Panel cutout : see page 26

PIECE PARTS

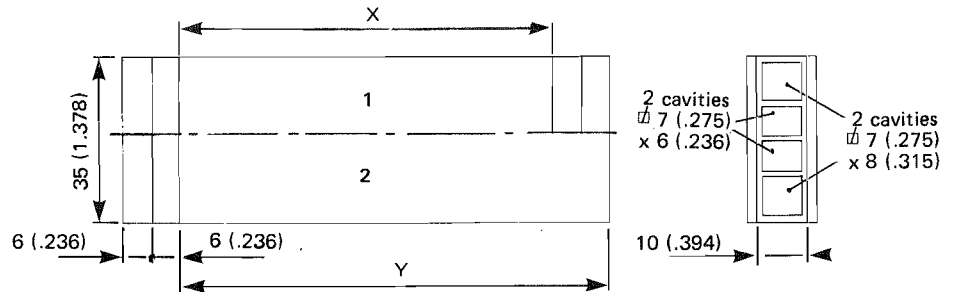


PLUG
 Réf. 690 633

HOOD
 Réf. 690 916



FLAT FLEXIBLE SHEATH

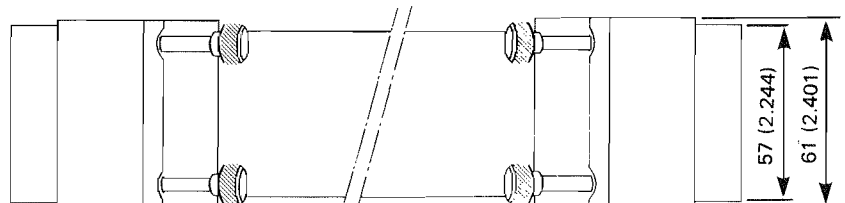
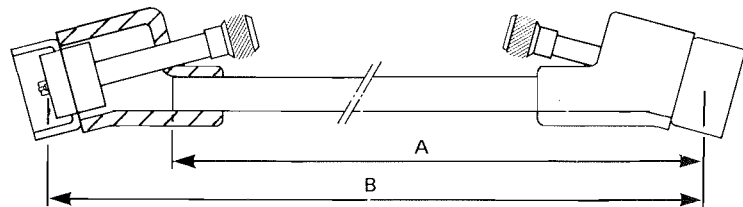


- 1 Sheath with 2 arresting strips on ends. Reference 690 785 ... ★
- 2 Sheath with 2 arresting strips on 1 end only, the 2 other strips are supplied unbonded. Reference 690 786 ... ★

★ Complete the reference No. by adding 3 digits corresponding to the lengths X or Y in centimeters EG. 36 cms = 036

ASSEMBLY

– can be supplied wired or unwired
 – when ordering, indicate the total lengths :
 A for single end assembled
 B for double end assembled
 and specify wiring details.
 After study of request, a reference part No. will be allocated to the requirement.



SHEATHED CABLE HARNESS

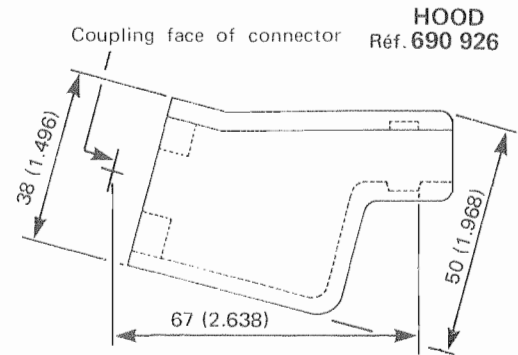
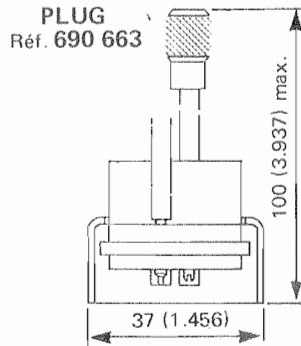
75 CONTACTS

RECEPTACLE Ref. 690 760 (see page 11)

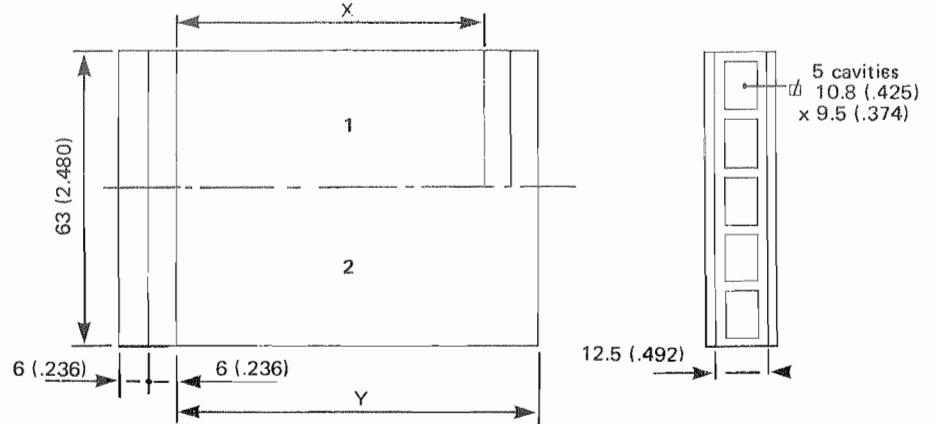
Dimensions : see pages 13 & 16

Panel cutout : see page 26

PIECE PARTS



FLAT FLEXIBLE SHEATH



1 Sheath with 2 arresting strips on both ends.

Reference 690 789 ... ★

2 Sheath with 2 arresting strips on 1 end only, the 2 other strips are supplied unbonded.

Reference 690 790 ... ★

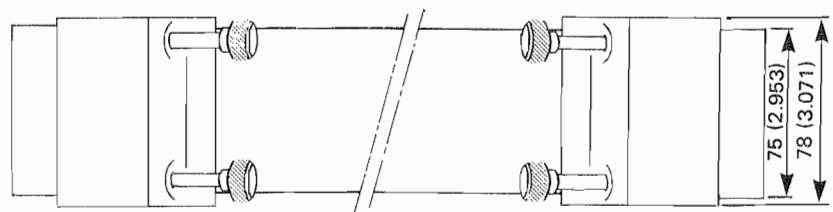
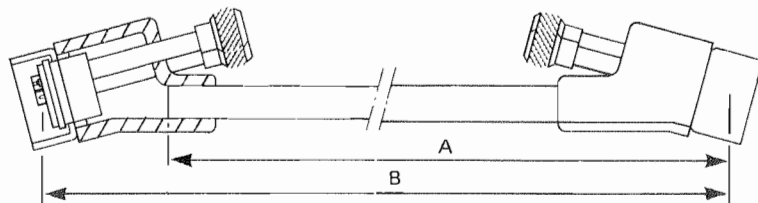
★ Complete the reference No. by adding 3 digits corresponding to the lengths X or Y in centimeters EG. 36 cm = 036

ASSEMBLY

– can be supplied wired or unwired

– when ordering indicate the total lengths :

A for single end assembled
B for double end assembled and specify wiring details.
After study of request, a reference part No. will be allocated to the requirement.

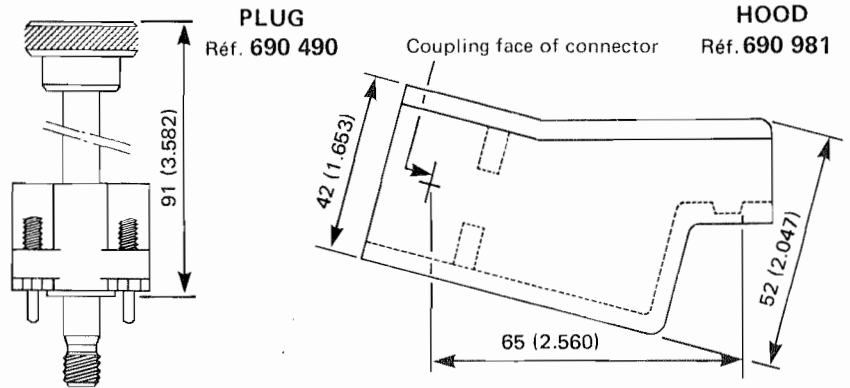


SHEATHED CABLE HARNESS

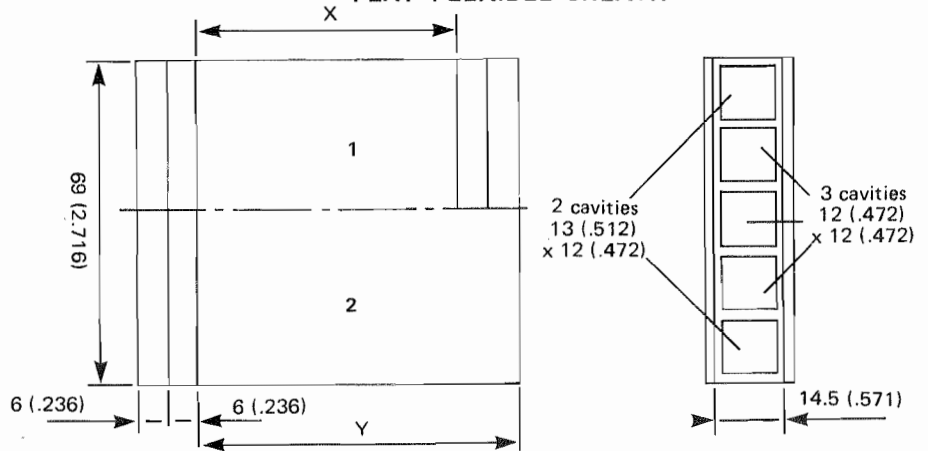
104 CONTACTS

RECEPTACLE Ref. 690 573 (see page 20)
 Dimensions : see page 20
 Panel cutout : see page 26

PIECE PARTS



FLAT FLEXIBLE SHEATH

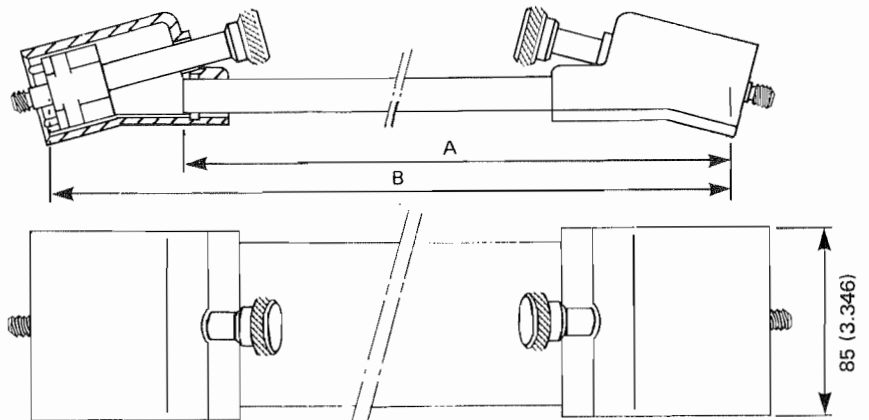


- 1 Sheath with 2 arresting strips on both ends. Reference 690 791 ... ★
 2 Sheath with 2 arresting strips on 1 end only, the 2 other strips are supplied unbonded. Reference 690 792 ... ★

★ Complete the reference No. by adding 3 digits corresponding to the lengths X or Y in centimeters E.G. 36 cm = 036

ASSEMBLY

— can be supplied wired or unwired
 — when ordering indicate the total lengths :
 A for single end assembled
 B for double end assembled and specify wiring details.
 After study of request, a reference part No. will be allocated to the requirement.

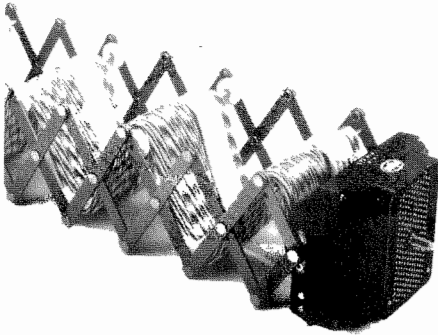


MMC SERIES

CABLE HARNESSSES

NAVAL SPECIFICATION AGB/T

Using the MMC connector and conforming to the French specification STCAN - AGB/T, these products permit access to rack mounted equipment whilst still in operation :



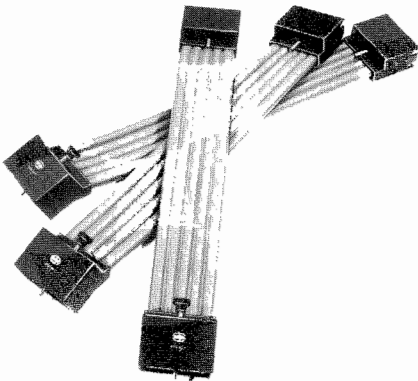
EXPANDABLE CABLE HARNESS

Conforming to the AGB/T540 specification and homologated by the STCAN department, these harnesses consist of two MMC series connectors with strain relief hoods, which are linked by a mechanical pantograph supporting ribbon wires, twisted pair and/or coaxial cables.

There are 5 types available :

- 104 individual ways
- 104 individual ways for multiplexer circuitry
- 158 individual ways (not in AGB/T)
- 158 individual ways for multiplexer circuitry
- 208 individual ways

Each type may be assembled using various cables : equipment, coaxial, twisted pair, twisted triple and ribbon cable.



SHEATHED CABLE HARNESS

Conforming to the AGB/T552 specifications, these harnesses consist of two MMC series connectors with strain relief hoods, which are linked by a flexible sheath through which pass the cables.

Arrangement available 104 and 208 ways.

Different types of wiring possible. Please consult.

Further details on request.

INTERNATIONAL SALES NETWORK

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