



## Applications

Military airborne computer

## Standards

According to MIL-C 28754  
and NAVORD WS 6157



## Description

- NAFI board-mounted connectors are used as interface between daughter-boards and back planes or between two adjacent daughter-boards.
- The connector support is of light alloy. It is drilled to a 2.54 x 2.54 mm (.100 x .100) matrix accommodating contacts housed in modular insulators with one, two or four contacts. On assembly, the blocks form inter-connections of different length and width.
- The daughter board is generally associated with a male header. The male header is an aluminum alloy extrusion holding blade contacts for solder angle and straight spill termination.
- The system is highly flexible. Aluminum alloy is robust, light, simple and may be machined accurately.
- The association of blade and tuning fork contacts is a simple design, highly efficient under severe vibration.
- Contact numbers : from 10 to 300.

## Characteristics

### Mechanical

- Contact insertion and extraction forces per contact pair :
  - mating  $\leq 0.45$  N average
  - unmating  $> 0.25$  N
- Block retention in support  $\geq 35$  N
- Contact retention in insulator  $\geq 35$  N
- Contact endurance : mating/unmating cycles  $\geq 500$

### Electrical

- Signal contacts :
  - maximum current rating per contact 3 A
  - DWV 1000 V
  - insulation resistance  $\geq 5000$  M $\Omega$
  - contact resistance  $\leq 6,7$  m $\Omega$
- Coaxial contacts for cable impedance 50  $\Omega$ , 75  $\Omega$ , 95  $\Omega$
- Power contacts current rating 10 A, 15 A, 20 A
- Fibre optic contact attenuation at 850 nm = 1,5 dB typical

### Physical

#### As per MIL-C 28754

- Tests as per MIL-C 1344
  - damp heat method 1002
  - thermal shock method 1003
  - salt spray method 1001
  - physical shock method 2004
  - vibration method 2005
- Working temperature :
  - polyimide insulator series MIL-C 28754 - 55°C + 105°C

### Materials and finishes

components	materials	finishes
Modular insulators	• polyimide 6 x 6 self extinguishing natural colour	
Male contacts	brass	• active area : gold over nickel
Female contacts	copper alloy	• termination area : tinlead over nickel
Extruded supports and back planes	aluminum alloy	• alodine 1200 clear chromate • optional blackanodized
Polarizing keys <ul style="list-style-type: none"> <li>• non removable male</li> <li>• removable male</li> <li>• non removable female</li> <li>• removable female</li> </ul>	stainless steel nickel copper aluminum alloy nickel copper	



## Ordering information

<b>basic series</b>	8602 - 100 - 22 - 13 - 5 - 10				26 -	000
<b>number of contacts</b>						
<b>connector type</b>			<b>2 rows</b>	<b>3 rows</b>	<b>4 rows</b>	
male			22	24	26	
female	with stand off		11	13	15	
	without stand off		31	33	35	
<b>contact termination</b>	13 - angle spill Pwb (.063) 14 - straight spill Pwb (.063) to (.126) 15 - 2 wire wraps 25 - 3 wire wraps } female only contacts 27 - flex cable spill XX - others please consult us					
<b>contact plating</b>	5 - standard 8 - MIL-C 28754					
<b>polarization</b>	- fixed key guides Coding see table below		<b>End A</b> - key shape <b>End B</b> - key shape			
		<b>Coding example</b> 10 - End A : male D shape key orientation 26 - End B : male V shape key orientation 4040 - removable key guides Example : 8602 - 100 - 22 - 13 - 5 - 4040 - 000				
<b>suffix</b>	000 - standard 031 - DIN 41612 interchangeable connector - others please consult us 008 - with fixing version					

## MIL key guides coding

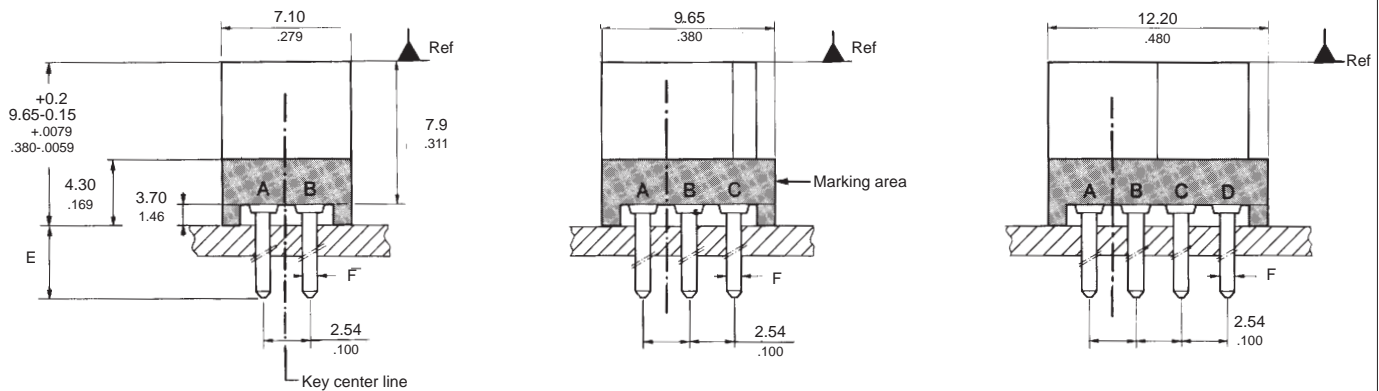
shape	male-orientation									female-orientation								
D																		
V																		
O																		

18 - 28 - 38 are corresponding to key guides delivered separately



## Female connector wire wrap or straight spill terminations

without fixing version (standard) 000 suffix

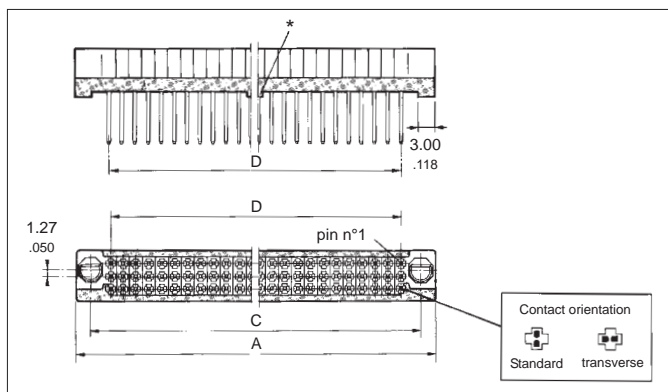


▲ Mating datum plane

\* Please, consult us

**Note :** A, B, C, D, row marking at the request

straight spills			wire wraps		
PWB thickness	E	FØ	nb wraps	E	FØ
1.6 (.062)	*	*	1	*	*
2.4 (.095)	4.45 (.175)	0.43 (.017)	2	12.85 (.505)	0.87 (.034)
3.2 (.126)	4.45 (.175)	0.43 (.017)	3	16.05 (.632)	0.87 (.034)
-	-	-	4	*	*



formula	ex : 100 contacts / 2 rows
$D = (\frac{n}{r} - 1) \times 2,54$	$(\frac{100}{2} - 1) \times 2,54 = 124,46$
$D = (\frac{n}{r} - 1) \times (.100)$	$(\frac{100}{2} - 1) \times (.100) = (4.900)$
$A = D + 13,54$	$124,46 + 13,54 = 138,00$
$A = D + (.533)$	$(4.900) + (.533) = (5.433)$
$C = D + 7,62$	$124,46 + 7,62 = 132,06$
$C = D + (.300)$	$(4.900) + (.300) = (5.200)$

n : number of contacts  
r : number of rows

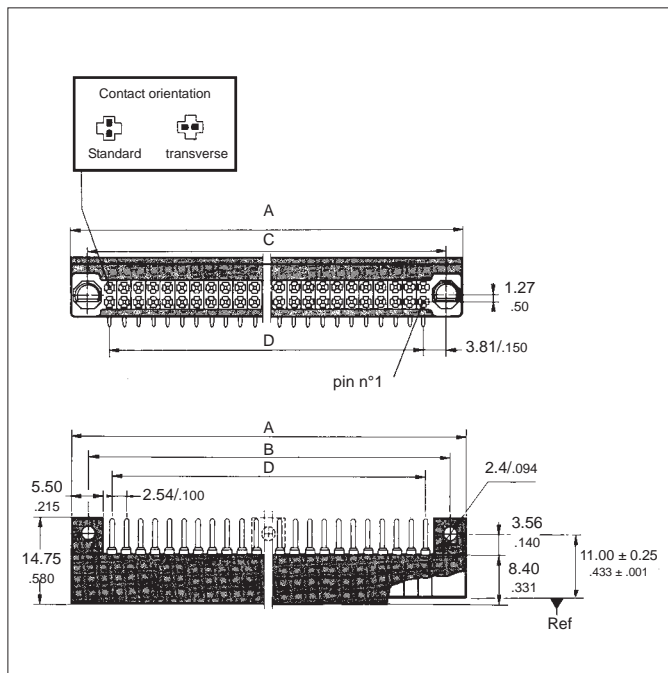
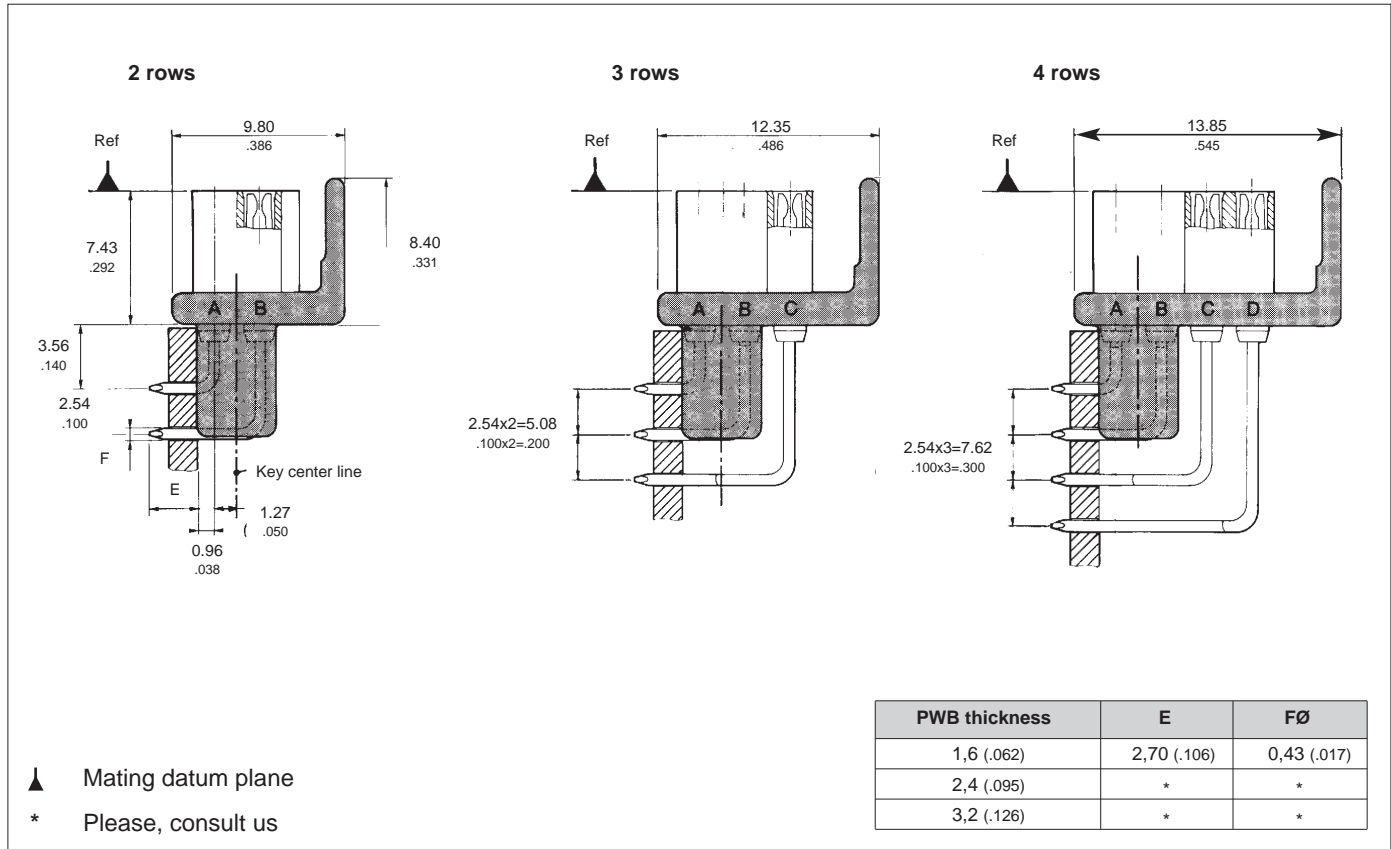
\* Center mounting stand off is used only in contact arrangement over 50 per row.

### with fixing version - 008 specification

Dimensions : see male connector straight spill termination



## Female connector angled spill terminations for card extender

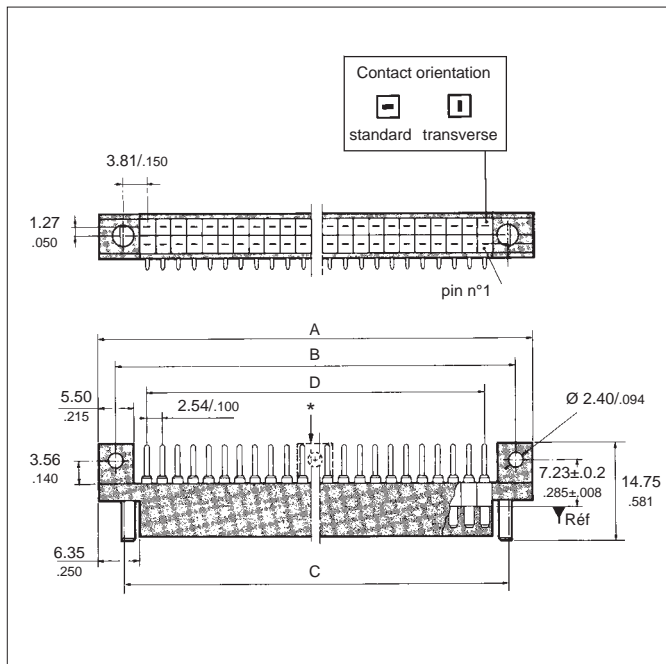
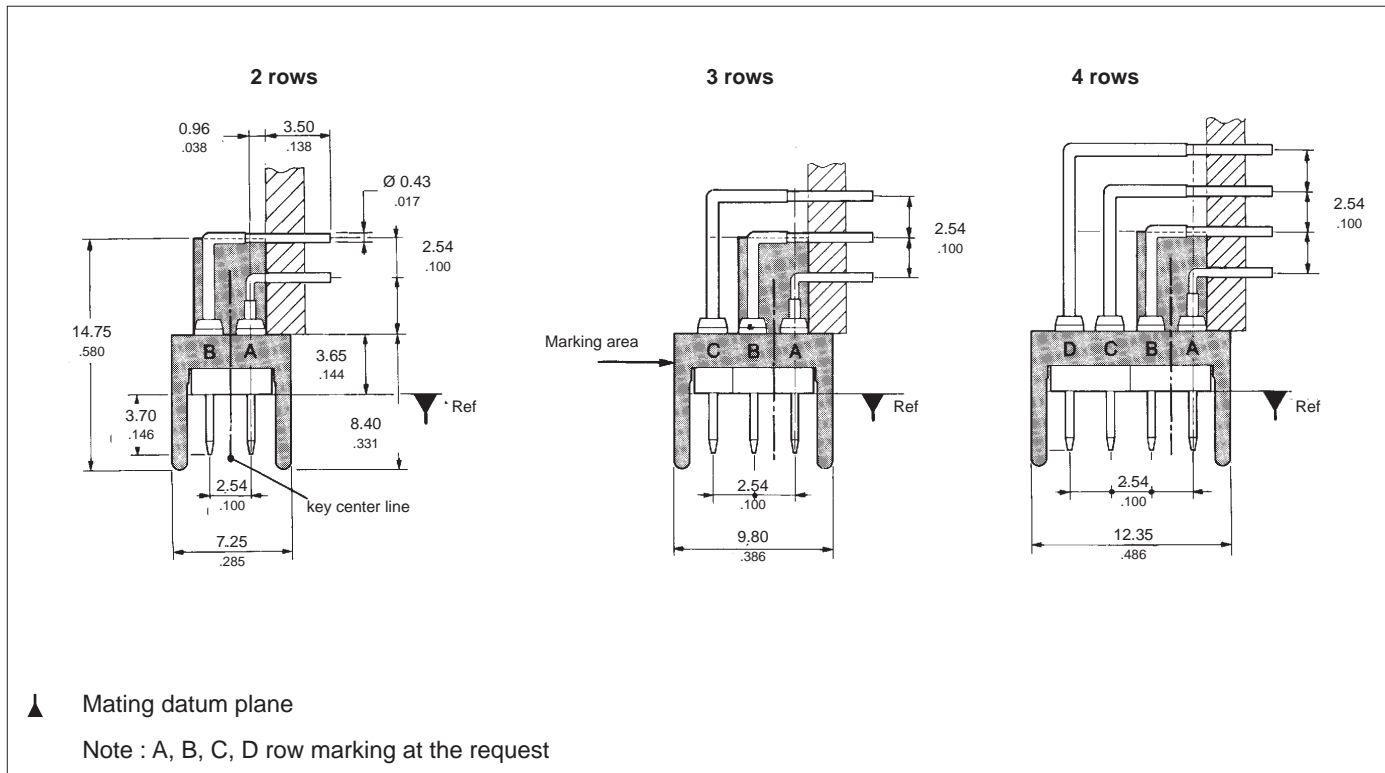


formula	ex : 100 contacts / 2 rows
$D = \left(\frac{n}{r} - 1\right) \times 2,54$	$\left(\frac{100}{2} - 1\right) \times 2,54 = 124,46$
$D = \left(\frac{n}{r} - 1\right) \times (.100)$	$\left(\frac{100}{2} - 1\right) \times (.100) = (4.900)$
$A = D + 15,24$	$124,46 + 15,24 = 139,70$
$A = D + (.600)$	$(4.900) + (.600) = (5.500)$
$C = D + 7,62$	$124,46 + 7,62 = 132,09$
$C = D + (.300)$	$(4.900) + (.300) = (5.200)$
$B = D + 10,16$	$124,46 + 10,16 = 134,62$
$B = D + (.400)$	$(4.900) + (.400) = (5.300)$

n : number of contacts  
 r : number of rows



## Male connector angle spill terminations



formula	ex : 100 contacts / 2 rows
$D = \left(\frac{n}{r} - 1\right) \times 2,54$	$\left(\frac{100}{2} - 1\right) \times 2,54 = 124,46$
$D = \left(\frac{n}{r} - 1\right) \times (.100)$	$\left(\frac{100}{2} - 1\right) \times (.100) = (4.900)$
$A = D + 15,24$	$124,46 + 15,24 = 139,70$
$A = D + (.600)$	$(4.900) + (.600) = (5.500)$
$C = D + 7,62$	$124,46 + 7,62 = 132,09$
$C = D + (.300)$	$(4.900) + (.300) = (5.200)$
$B = D + 10,16$	$124,46 + 10,16 = 134,62$
$B = D + (.400)$	$(4.900) + (.400) = (5.300)$

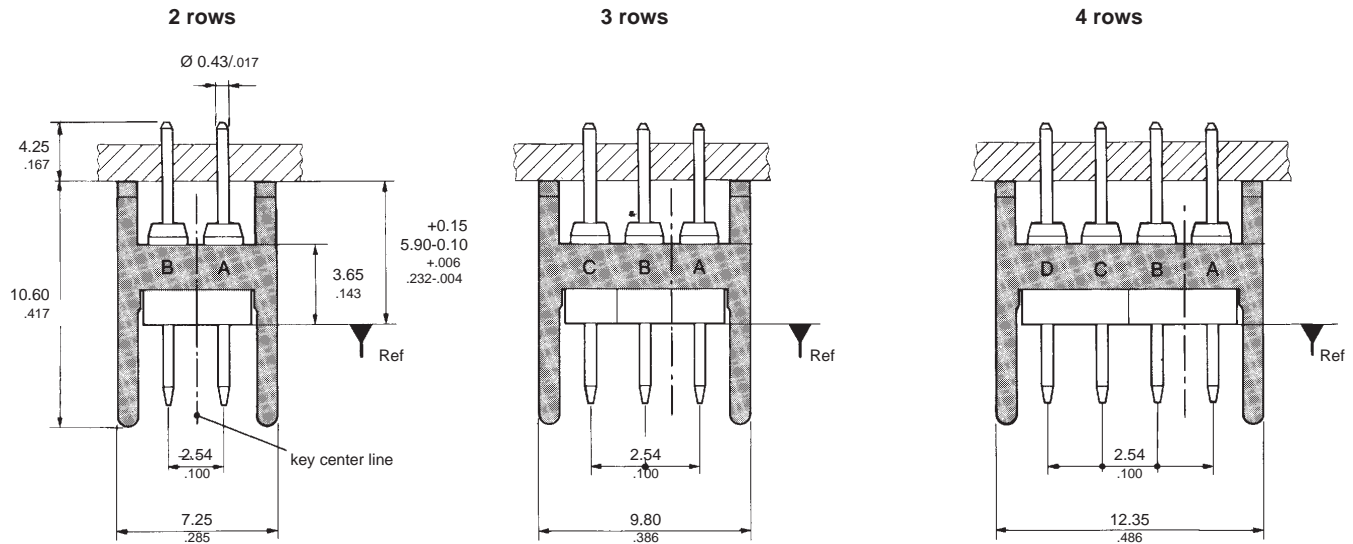
n : number of contacts  
r : number of rows

\* Center fixing recommended from 50 contacts per row.



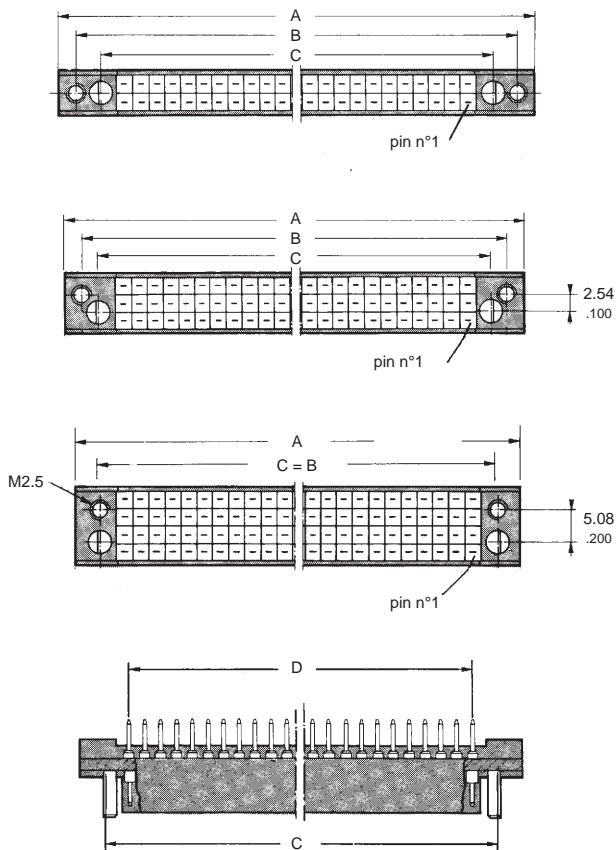
## Male connector straight spill terminations

without fixing version (standard) - 000 suffix

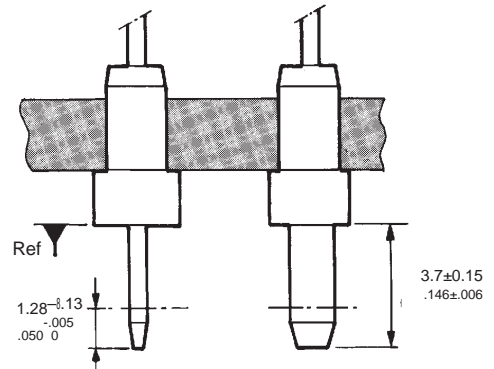


▲ Mating datum plane

with fixing version - 008 specification



male modules details



formula

$$D = (r - 1) \times 2,54$$

$$D = (r - 1) \times (.100)$$

n : number of contacts  
r : number of rows

dimension	2 rows	3 rows	4 rows
A	D + 20.32	D + 17.78	D + 15.24
A	D + (.800)	D + (.700)	D + (.600)
B	D + 15.24	D + 12.70	D + 7.62
B	D + (.600)	D + (.500)	D + (.300)
C	D + 7.62	D + 7.62	D + 7.62
C	D + (.300)	D + (.300)	D + (.300)

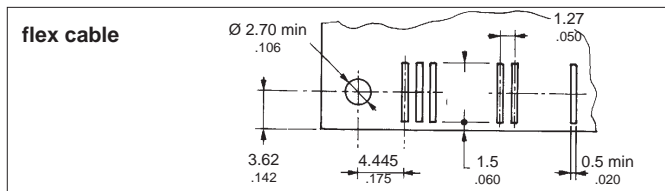
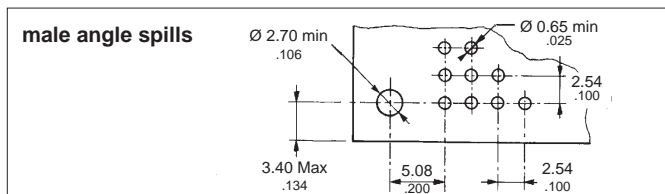
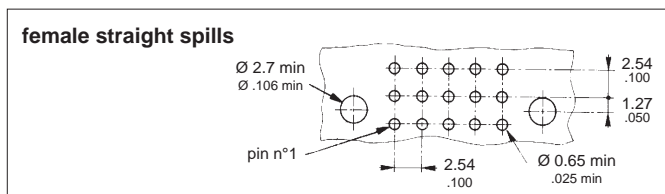


## Key guides - non removable as per MIL-C 28754/24 and 39

shape	male	female
D		
V		
O		

Standard polarizing keys are integrated into part-number. They are supplied installed in the orientation selected by user. The polarizing keys may also be supplied separately (code 18, 28 or 38). Please, consult us for installation tool.

## PWB pin layout



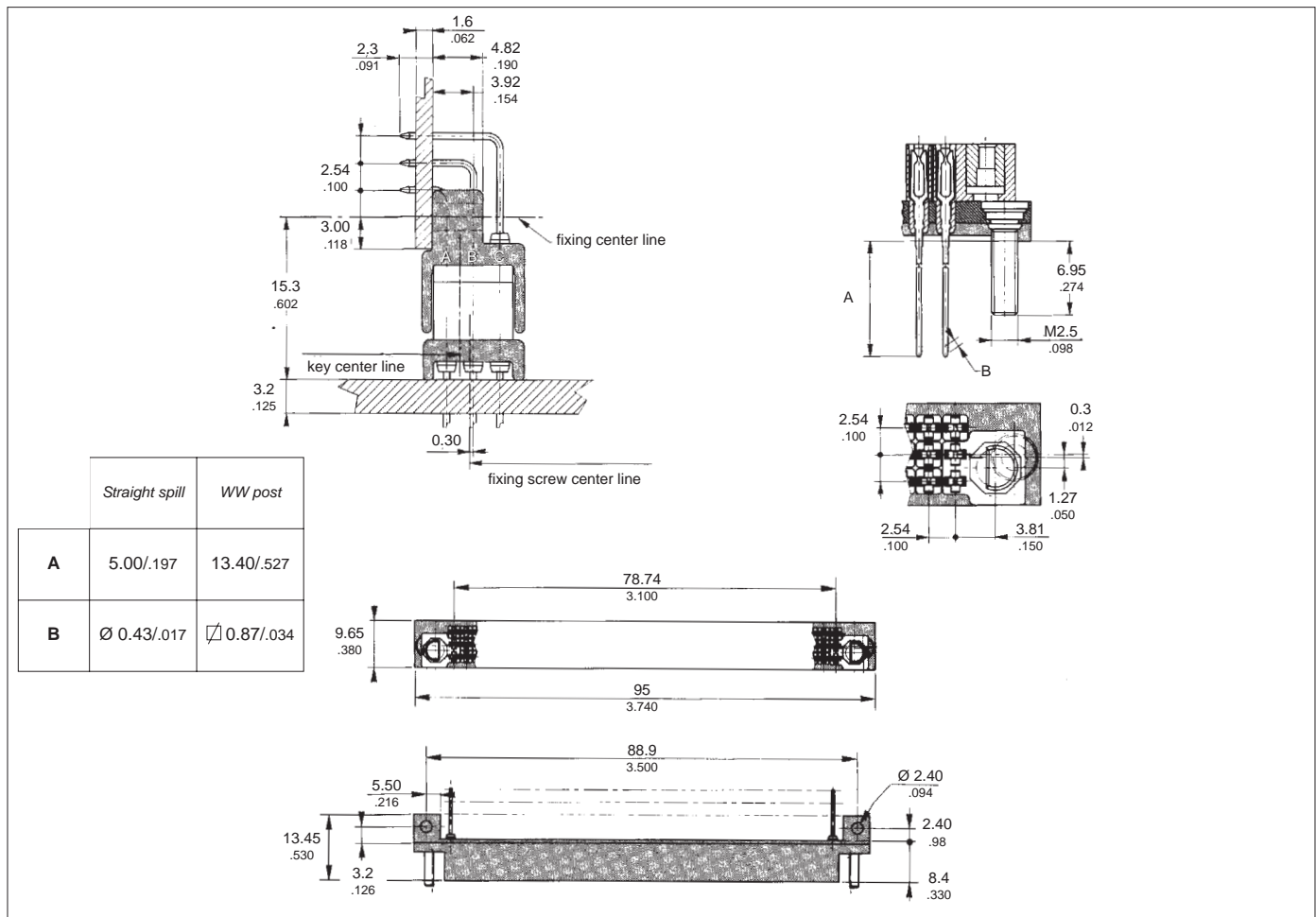
Specific versions available upon request

## Hand tools

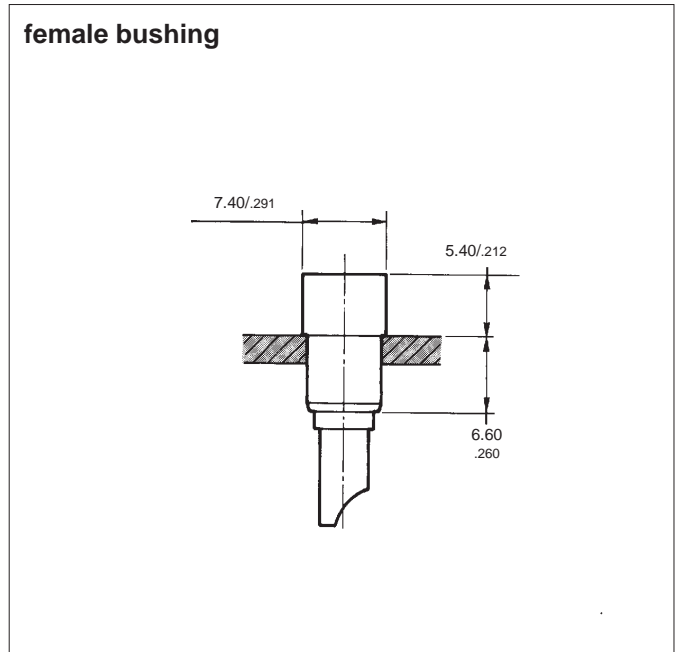
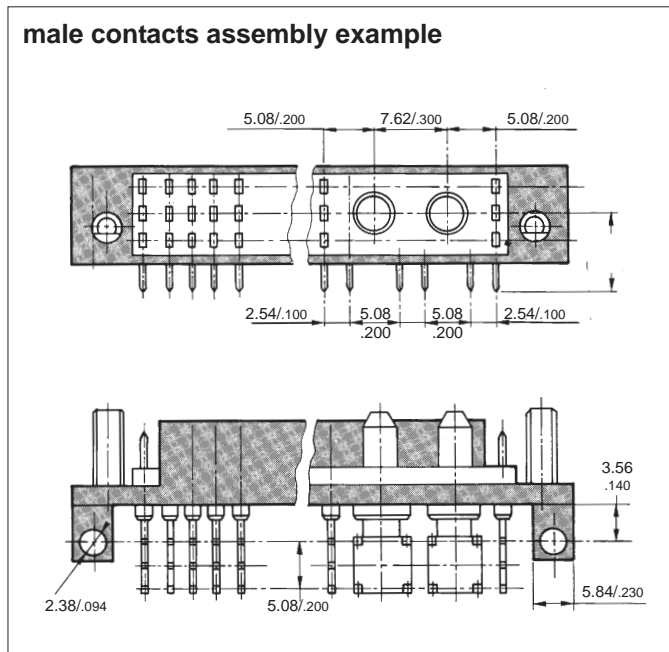
part number	Purpose	part number	Purpose
8602-01	contact insertion / removal W.W female contact, installed on extrusion	8602-04	Re-insertion Straight spill male contacts
8602-02	contact insertion / removal W.W female contact, installed on metal back-plane	8602-05	Installation of male polarizing keys D-shape code 18, supplied separately
8602-03	removal Male and female straight spill contacts	8602-06	Re-insertion Female contacts, all termination types.



## DIN 41612 interchangeable 8602 contacts



## Special contacts







## Coaxial or power contact connector part numbers

basic series	8602 - 100 - 22 - 13 - 5 - 10												26 - B	00
number of signal contacts	see general ordering information page 388													
connectors type														
contact termination														
contact plating														
polarization														
number of coax or power cavities														
nbr of cavities	1	2	3	4	5	6	7	8	9	10	11	12		
code	A	B	C	D	E	F	G	H	I	J	K	L		
suffix														

## Coaxial contacts to HE 507 and KMX specifications

**male solder termination**  
part number : 8602-1010

**part number : 8602-1012**

**female solder termination**  
part number : 8602-1011

removal tool : 8630-07A

## Optical fiber contacts (DIN 41626)

part number : 8012P43D168

part number : 8012S43D168

For tight jacketed cable Ø 2.7 (.106) mm fibre 100/140  
Please consult us for other cables and fibers

## Power contacts to HE 507 and KMX specifications

**male solder termination**  
part number : 8602-1009

**part number : 8602-1001**

**female solder termination**  
part number : 8602-1008

**current : 15 A AWG 14**

removal tool : 8630-07a

Others : please, consult us