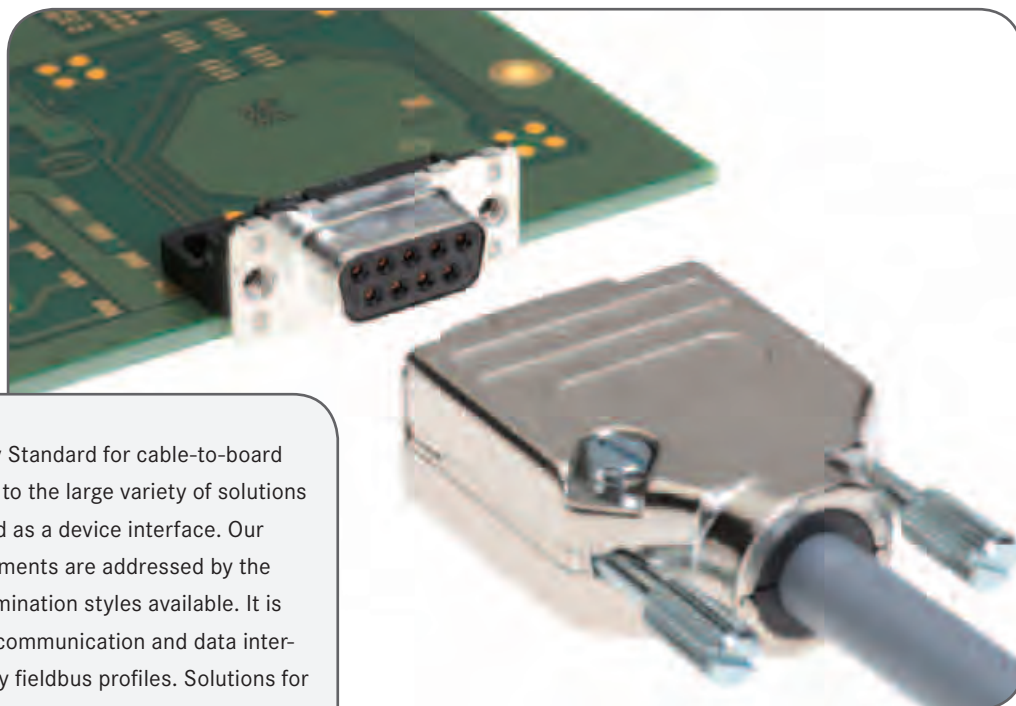




D-Sub connectors are an Industry Standard for cable-to-board connectivity applications. Thanks to the large variety of solutions it offers, it can be universally used as a device interface. Our customers manufacturing requirements are addressed by the comprehensive range of PCB termination styles available. It is particularly suited to configuring communication and data interfaces and is the standard for many fieldbus profiles. Solutions for the cable connector that can be easily assembled in the field are available for automation applications.

Application profile:

CONNECTION TYPE		ENVIRONMENT		APPLICATION						
Board to Board	Cable/Wire to Board	IP 20	IP 65 / IP 67	Data	Signal	Power	high performance			
	☐	☐	☐	☐	☐	☐	Data transfer rate	Shielding	Number of contacts, contact density	Voltage, working current
	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cable termination			PCB termination			Application standard				
Han-Quick Lock®	IDC	Crimp	THT	SMC	SMT					
☐	☐	☐	☐	☐	☐					
Screw	Cage clamp	Axial screw	Press-in			Housing integration				
☐	☐	☐	☐							
						Separate housing Integrated housing				

CONTENTS	PAGE
D-Sub connector system – introduction	05.02
D-Sub Standard connectors (D-Sub – S)	05.04
D-Sub High Density connectors (D-Sub – HD)	05.36
D-Sub Mixed connectors (D-Sub – M)	05.48
D-Sub Filter connectors (D-Sub – F)	05.90
D-Sub Waterproof IP 67 connectors (D-Sub – W)	05.126
D-Sub Housing range (D-Sub – H) and accessories	05.150
D-Sub Standard press-in connectors	05.173
D-Sub Standard SMC connectors	05.178
D-Sub Standard SMT connectors	05.186
Cables for insulation displacement termination and cable assemblies	05.192

In the automation industry, the Subminiature D connectors are the standard interfaces for data, signal and service/programmer interfaces. The extensive HARTING product range allows the set up of all Subminiature D interfaces common in the industry, such as for field buses (PROFIBUS, CanOpen and DeviceNet), while the connectors are also available in optional plastic and metal housings with IP 20 and IP 65 / IP 67 protection.

In addition to the comprehensive range of Standard connectors with 9 to 50 straight, right-angled or US foot print style contacts, HARTING offers other product ranges which extend the application field of Subminiatur D connectors considerably.

Depending on the product family, various termination techniques can be supplied such as press-in, solder, SMC or SMT to match the customer's termination process.

In addition, a wide range of hoods and accessories complete the cable connector range to fulfil all kinds of requirements such as EMC, IP 65 / IP 67 etc.

For the cabling HARTING provides cable assemblies for standard applications like fieldbus, cable or customized solutions.



D-SUB – MIXED CONNECTORS

with nearly 20 different contact arrangements offering versatile options for mixing power, coaxial, high voltage, signal and even pneumatic contacts in one connector.



D-SUB – WATERPROOF

IP 65 / IP 67 connectors with 9 to 50 contacts for panel mount to PCB or cable.



D-SUB – FILTER CONNECTORS

with 9 to 37 contacts and integrated, different filter designs, like C, L or Pi types.



D-SUB – HIGH DENSITY CONNECTORS

with 15 to 78 straight and right-angled contacts, exceeding the contact capacity of the standard Subminiature D connectors by 70 %.



Number of contacts 9, 15, 25, 37, 50
UL recognized

Working current
see current carrying capacity chart
Turned contacts 7.5 A max.
Stamped contacts 6.5 A max.

Test voltage $U_{r.m.s.}$ 1 kV

Clearance and creepage ≥ 1.0 mm

Contact resistance ≤ 10 m Ω
Insulation resistance $\geq 10^{10}$ Ω

Temperature range -55 °C ... +125 °C
The higher temperature limit includes the local ambient and heating effect of the contacts under load

Terminations
a) Solder pins $\varnothing$ 0.6 mm for P.C.B. holes $\varnothing$ 0.8/1 mm
b) Solder pins, angled 90° $\varnothing$ 0.6 mm for P.C.B. holes $\varnothing$ 1 mm

Materials
Mouldings and hoods Thermoplastic resin, glass-fibre filled (PBTP), UL 94-V0

Contacts Copper alloy

Contact surface
Contact zone selectively gold-plated according to performance level¹⁾

Metal shell Plated steel

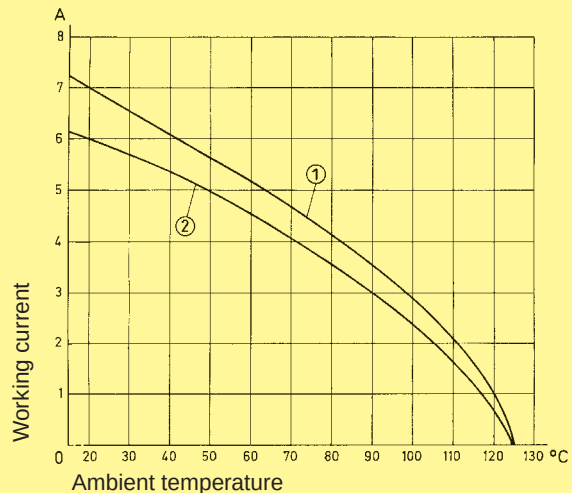
Insertion and withdrawal force
Connector on P.C.B.
Solder, straight with clips
– insertion max. per connector: 60 N
– withdrawal min. per connector: 10 N

Mating force
9 way ≤ 30 N
15 way ≤ 50 N
25 way ≤ 83 N
37 way ≤ 123 N
50 way ≤ 167 N

Current carrying capacity

The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

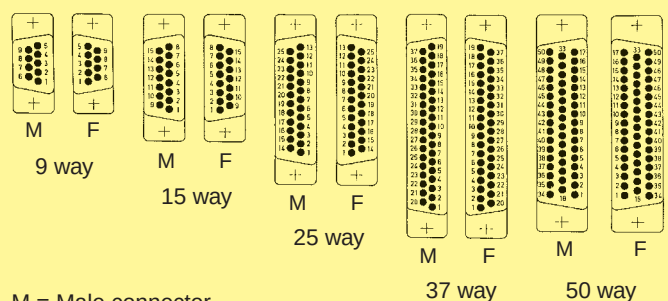
Control and test procedures according to DIN IEC 60 512.



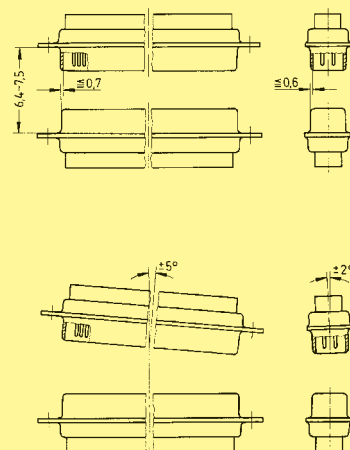
Example: 25 way connector

- ① Turned contacts
- ② Stamped contacts

Contact arrangement View from termination side



Mating conditions as per DIN 41 652



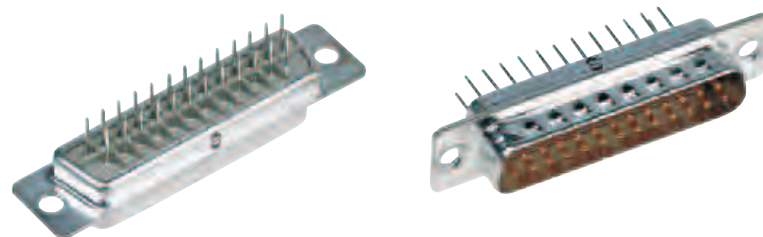
¹⁾ Performance level 3, 50 mating cycles, no gas test

Performance level 2 as per CECC 75 301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60 512

Performance level 1 as per CECC 75 301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60 512

Number of contacts

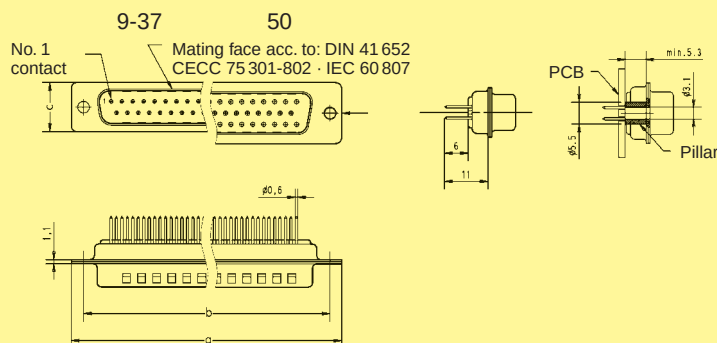
9–50



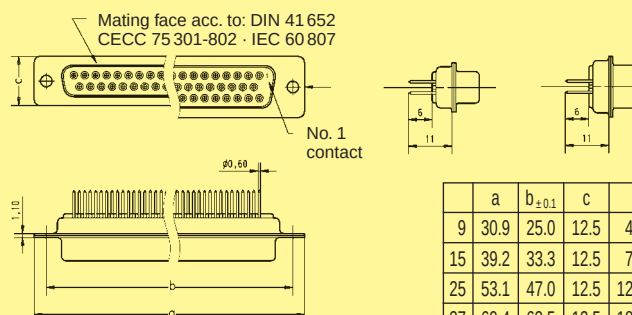
Turned solder pins, straight

Identification	No. of contacts	Part No.
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3 Performance level 2
Male connector metal shell with dimples	9 15 25 37 50	09 67 009 5654 09 67 015 5654 09 67 025 5654 09 67 037 5654 09 67 050 5654 ¹⁾
Female connector metal shell	9 15 25 37 50	09 67 009 4754 09 67 015 4754 09 67 025 4754 09 67 037 4754 09 67 050 4754 ¹⁾

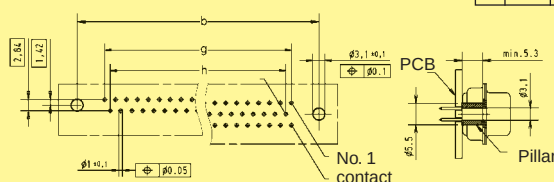
Male connector



Female connector



Board drillings



	a	b _{±0.1}	c	g	h
9	30.9	25.0	12.5	4 x [2.74] = 10.96	3 x [2.74] = 8.22
15	39.2	33.3	12.5	7 x [2.74] = 19.18	6 x [2.74] = 16.44
25	53.1	47.0	12.5	12 x [2.76] = 33.12	11 x [2.76] = 30.36
37	69.4	63.5	12.5	18 x [2.76] = 49.68	17 x [2.76] = 46.92
50	67.0	61.1	15.4	16 x [2.76] = 44.16	15 x [2.76] = 41.40

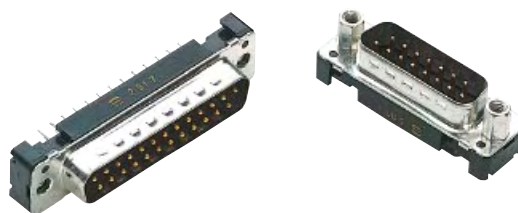
Dimensions in mm

¹⁾ Not normally kept in stock

Mating conditions see page 05.04

Number of contacts

9–50

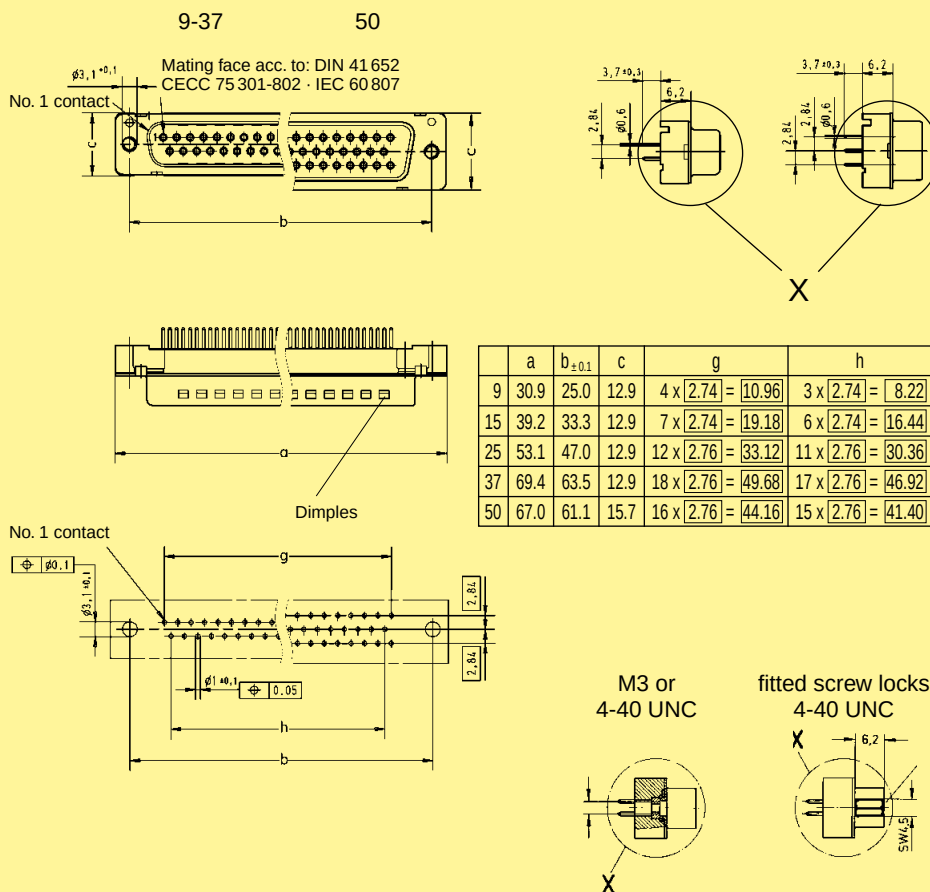


Turned solder pins, straight without grounding-pins

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples available on request	9 15 25 37 50	09 66 121 770 09 66 221 770 09 66 321 770 09 66 421 770 09 66 521 770	09 66 121 670 09 66 221 670 09 66 321 670 09 66 421 670 09 66 521 670
Please insert digit for flange thread or fitted female screw locks	M3 ▶ 1 4-40 UNC ▶ 2 fitted screw locks 4-40 UNC ▶ 3		

Male connector

Board drillings

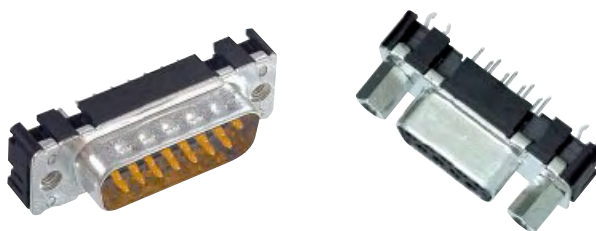


Dimensions in mm

Mating conditions see page 05.04

Number of contacts

9–50



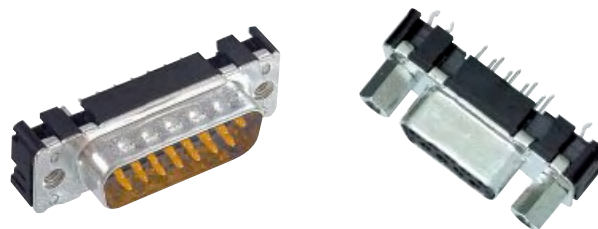
Stamped solder pins, straight with/without grounding board locks

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples			
Without grounding board locks	9	09 65 121 770 .	09 65 121 670 .
	15	09 65 221 770 .	09 65 221 670 .
	25	09 65 321 770 .	09 65 321 670 .
	37	09 65 421 770 .	09 65 421 670 .
With grounding board locks	9	09 65 161 771 .	09 65 161 671 .
	15	09 65 261 771 .	09 65 261 671 .
	25	09 65 361 771 .	09 65 361 671 .
	37	09 65 461 771 .	09 65 461 671 .
Female connector metal shell			
Without grounding board locks	9	09 66 111 750 .	09 66 111 650 .
	15	09 66 211 750 .	09 66 211 650 .
	25	09 66 311 750 .	09 66 311 650 .
	37	09 66 411 750 .	09 66 411 650 .
	50	09 66 511 750 .	09 66 511 650 .
With grounding board locks	9	09 66 151 751 .	09 66 151 651 .
	15	09 66 251 751 .	09 66 251 651 .
	25	09 66 351 751 .	09 66 351 651 .
	37	09 66 451 751 .	09 66 451 651 .
Please insert digit for flange thread or fitted female screw locks			
M3 ▶ 1			
4-40 UNC ▶ 2			
fitted screw locks 4-40 UNC ▶ 3 ¹⁾			

¹⁾ Fitted screw locks 4-40 UNC not normally kept in stock for performance level 3
 Connector dimensions see page 05.09. Mating conditions see page 05.04.

Number of contacts

9–50



Stamped solder pins, straight with/without grounding board locks

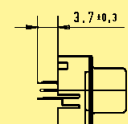
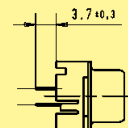
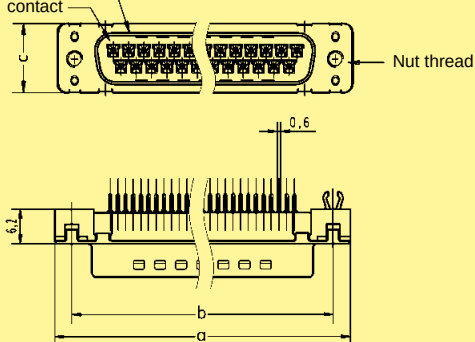
Identification

Drawing

Dimensions in mm

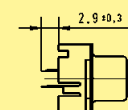
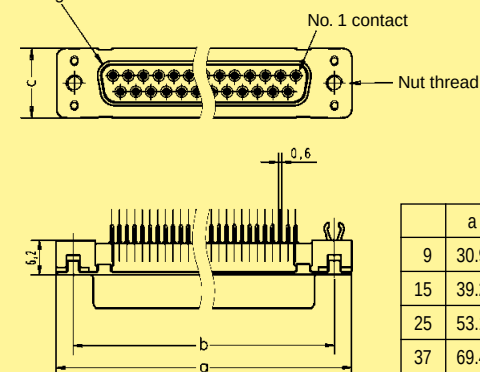
Male connector 9 – 37 contacts

Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807



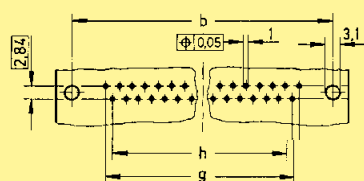
Female connector 9 – 37 contacts

Mating face acc. to: DIN 41 652 · CECC 75 301-802 · IEC 60 807

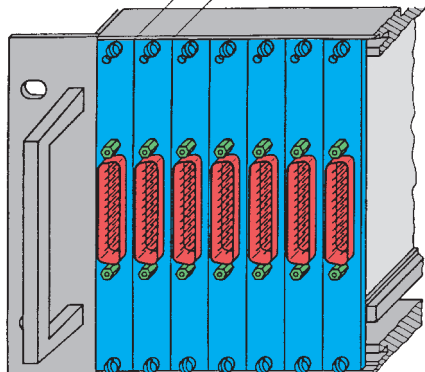


	a	b _{±0.1}	c	g	h
9	30.9	25.0	12.5	4 x [2.74] = [10.96]	3 x [2.74] = [8.22]
15	39.2	33.3	12.5	7 x [2.74] = [19.18]	6 x [2.74] = [16.44]
25	53.1	47.0	12.5	12 x [2.76] = [33.12]	11 x [2.76] = [30.36]
37	69.4	63.5	12.5	18 x [2.76] = [49.68]	17 x [2.76] = [46.92]

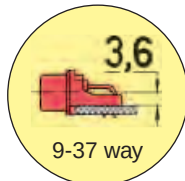
Board drillings 9 – 37 contacts



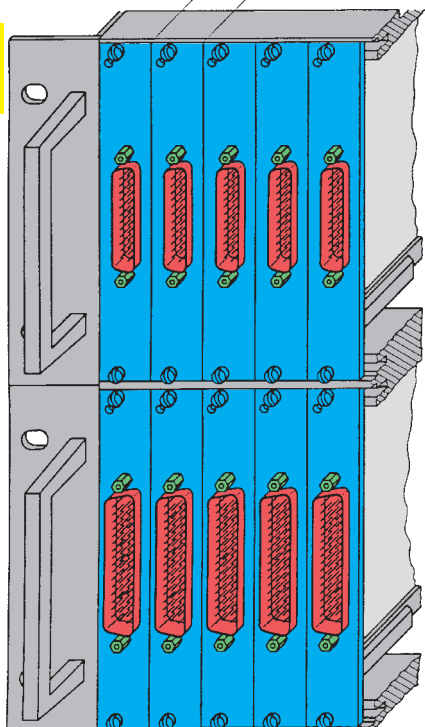
Front panel width 3 TE
3 x 5.08 mm



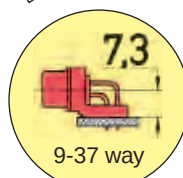
Low-Profile Versions
pages 05.18 – 05.21



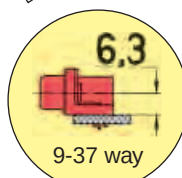
Front panel width 4 TE
4 x 5.08 mm



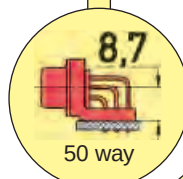
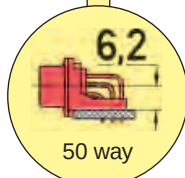
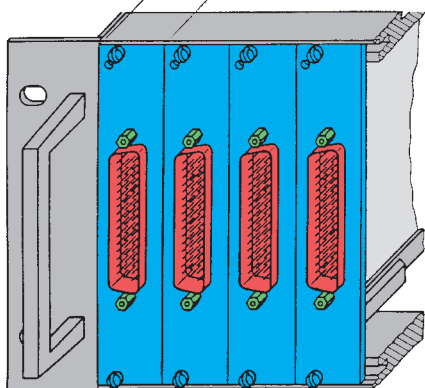
Standard Versions
pages 05.12 – 05.17



U.S. Footprint Versions
pages 05.22 – 05.23



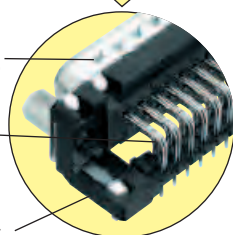
Front panel width 5 TE
5 x 5.08 mm



Metal shell
mating face

Fixed contacts

Integrated mounting bracket



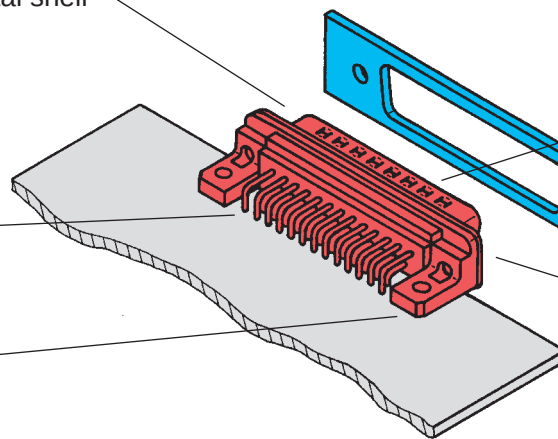
Advantages

All-round protective metal shell

- Polarisation
- Contact protection
- Plated shell
- Male connector with dimples

Plated terminations for increased solderability

Grounding contact riveted to metal shell



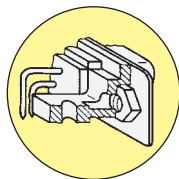
Contact surface finish to different performance levels

Panel

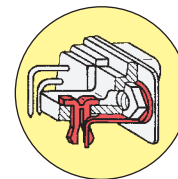
Different metal threads possible in flange area

- M3
- 4-40 UNC
- fitted female screw locks 4-40 UNC
- max. torque ≤ 0.8 Nm

Integrated plastic mounting bracket



Mounting bracket



Mounting bracket with snap-in-clips and grounding pin

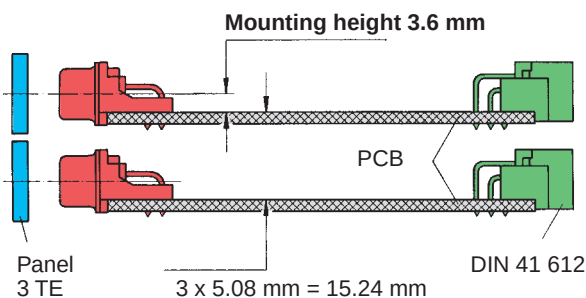
Mounting height

Low-Profile Versions

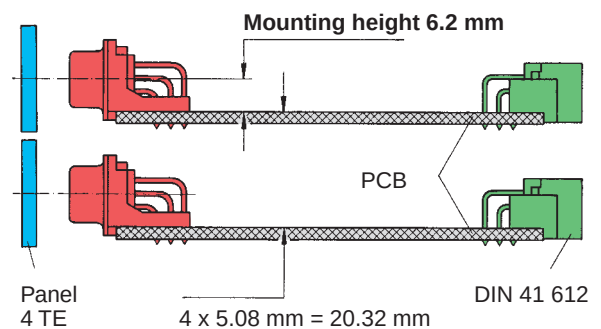
The reduced mounting height of these connectors allow them to be used on the same PCB as DIN 41 612

types with no loss of packaging density when card frames to DIN 41 494 are used.

9-37 way connectors with 3.6 mm mounting height can be fitted to front panels of 3 TE (15.24 mm) width.



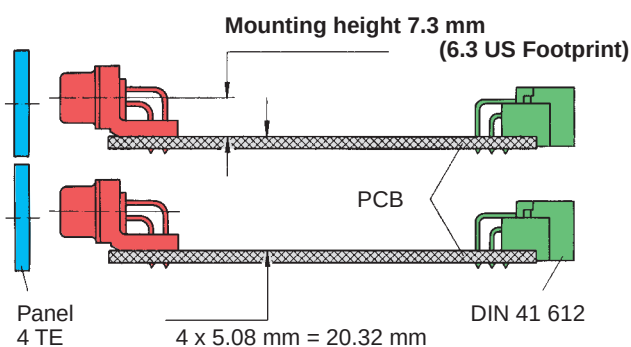
50 way connectors with 6.2 mm mounting height can be fitted to front panels of 4 TE (20.32 mm) width.



Standard Versions

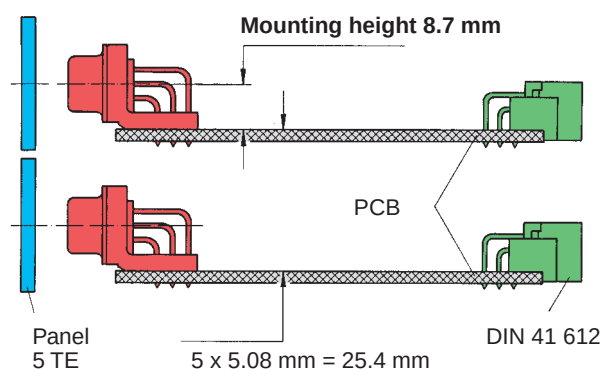
Original Versions

9-37 way connectors with 7.3 mm mounting height can be fitted to front panels of 4 TE (20.32 mm) width.



US Footprint

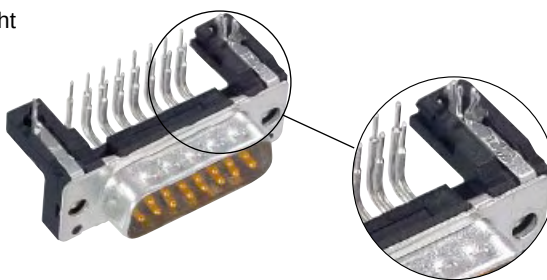
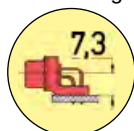
50 way connectors with 8.7 mm mounting height can be fitted to front panels of 5 TE (25.4 mm) width.



Number of contacts

Mounting height

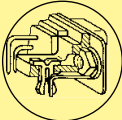
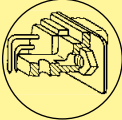
9–37
50



Standard Versions



Turned solder pins, angled with/without snap-in-clips and grounding board locks

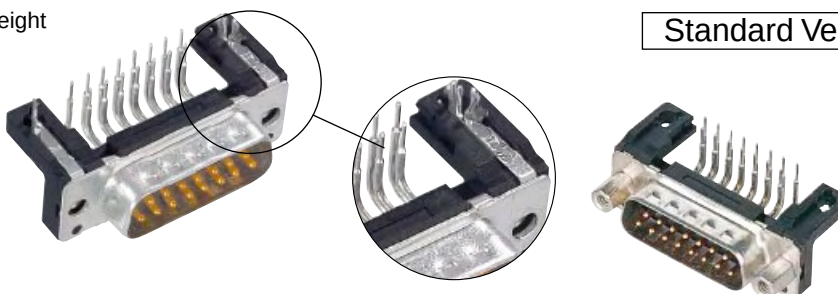
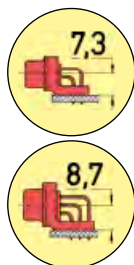
Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples		2.84 mm pitch	2.84 mm pitch
With snap-in clips and grounding board locks  available on request	9	09 66 163 781 .	09 66 163 681 .
	15	09 66 263 781 .	09 66 263 681 .
	25	09 66 363 781 .	09 66 363 681 .
	37	09 66 463 781 .	09 66 463 681 .
	50	09 66 563 781 .	09 66 563 681 .
		2.54 mm pitch	2.54 mm pitch
	9	09 66 162 781 .	09 66 162 681 .
	15	09 66 262 781 .	09 66 262 681 .
	25	09 66 362 781 .	09 66 362 681 .
	37	09 66 462 781 .	09 66 462 681 .
	50	09 66 562 781 .	09 66 562 681 .
Without snap-in clips and grounding board locks  available on request		2.84 mm pitch	2.84 mm pitch
	9	09 66 123 780 .	09 66 123 680 .
	15	09 66 223 780 .	09 66 223 680 .
	25	09 66 323 780 .	09 66 323 680 .
	37	09 66 423 780 .	09 66 423 680 .
	50	09 66 523 780 .	09 66 523 680 .
		2.54 mm pitch	2.54 mm pitch
	9	09 66 122 780 .	09 66 122 680 .
	15	09 66 222 780 .	09 66 222 680 .
	25	09 66 322 780 .	09 66 322 680 .
	37	09 66 422 780 .	09 66 422 680 .
	50	09 66 522 780 .	09 66 522 680 .
Please insert digit for flange thread or fitted female screw locks			
M3 ▶	1		
4-40 UNC ▶	2		
fitted screw locks 4-40 UNC ▶	3		

Number of contacts

Mounting height

Standard Versions

9-37
50



Turned solder pins, angled with/without snap-in-clips and grounding board locks

Identification

Drawing

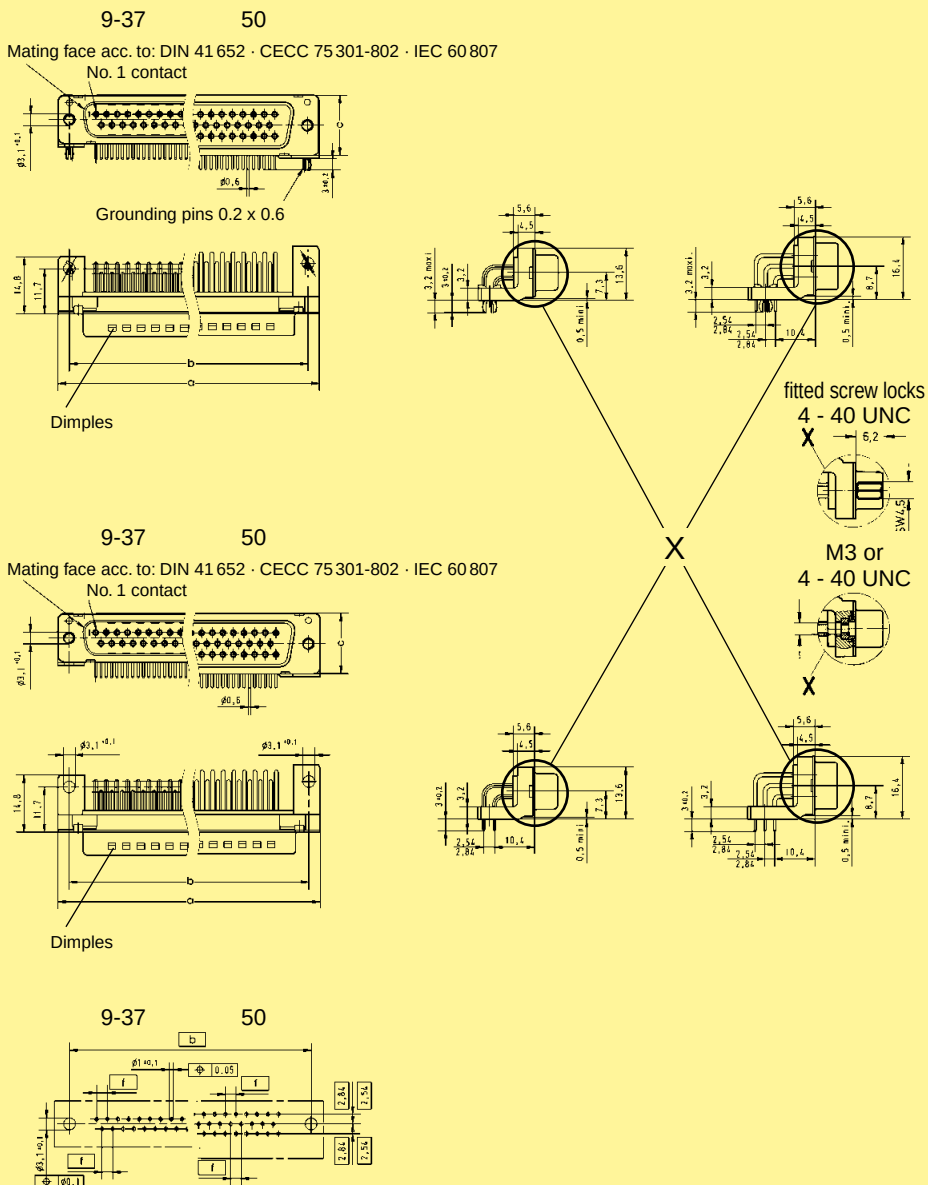
Dimensions in mm

Male connector

With snap-in clips
and grounding board locks

Without snap-in clips
and grounding board locks

Board drillings

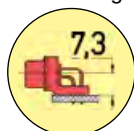


	a	b±0.1	c	f
9	30.90	25.00	12.90	2.74
15	39.20	33.30	12.90	2.74
25	53.10	47.00	12.90	2.76
37	69.40	63.50	12.90	2.76
50	67.00	61.10	15.70	2.76

Number of contacts

Mounting height

9–37
50



Standard Versions

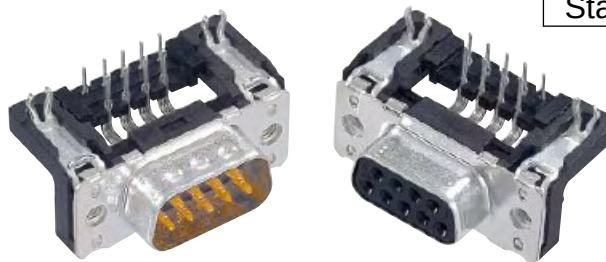
Stamped solder pins, angled with grounding board locks

Identification		No. of contacts	Part No.			
Performance levels Explanations see page 05.04 Other performance levels on request			Performance level 3		Performance level 2	
Male connector metal shell with dimples			2.84 mm pitch		2.84 mm pitch	
	9	09 65 163 781 . 1)	09 65 163 681 . 1)			
	15	09 65 263 781 . 1)	09 65 263 681 . 1)			
	25	09 65 363 781 . 1)	09 65 363 681 . 1)			
	37	09 65 463 781 . 1)	09 65 463 681 . 1)			
		2.54 mm pitch		2.54 mm pitch		
	9	09 65 162 781 .	09 65 162 681 .			
	15	09 65 262 781 .	09 65 262 681 .			
	25	09 65 362 781 .	09 65 362 681 .			
	37	09 65 462 781 .	09 65 462 681 .			
	Female connector metal shell		2.84 mm pitch		2.84 mm pitch	
		9	09 66 153 761 . 1)	09 66 153 661 . 1)		
		15	09 66 253 761 . 1)	09 66 253 661 . 1)		
		25	09 66 353 761 . 1)	09 66 353 661 . 1)		
		37	09 66 453 761 . 1)	09 66 453 661 . 1)		
			2.54 mm pitch		2.54 mm pitch	
		9	09 66 152 761 .	09 66 152 661 .		
		15	09 66 252 761 .	09 66 252 661 .		
		25	09 66 352 761 .	09 66 352 661 .		
		37	09 66 452 761 .	09 66 452 661 .		
50		09 66 552 761 . 1)	09 66 552 661 . 1)			
Please insert digit for flange thread or fitted female screw locks						
Ø 3.1 mm hole ▶ 0 ¹⁾						
M3 ▶ 1						
4-40 UNC ▶ 2						
fitted screw locks 4-40 UNC ▶ 3						

Number of contacts

Mounting height

Standard Versions

9-37
50


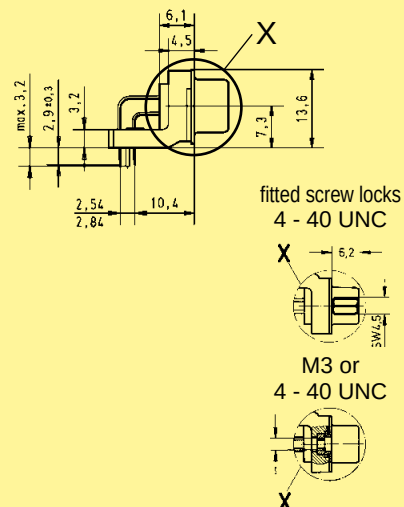
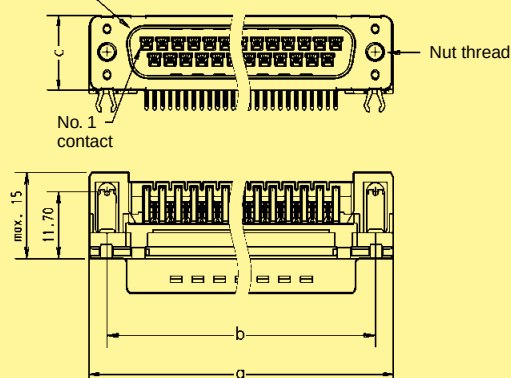
Stamped solder pins, angled with grounding board locks

Identification

Drawing

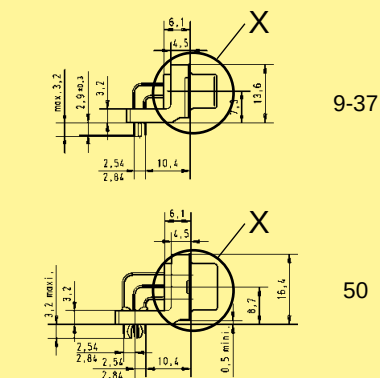
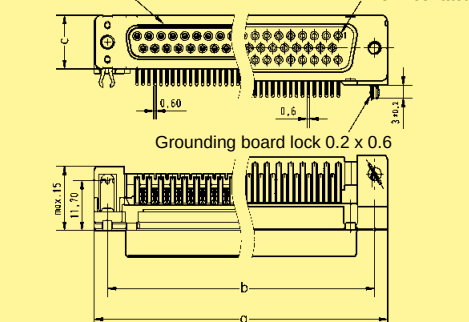
Dimensions in mm

Male connector

Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807


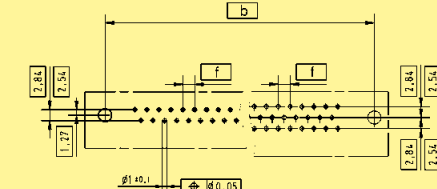
Female connector

9-37 50

Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807


Board drillings

9-37 50



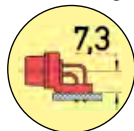
	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.40	2.76

Number of contacts

Mounting height

Standard Versions

9–37
50



Stamped solder pins, angled without grounding board locks

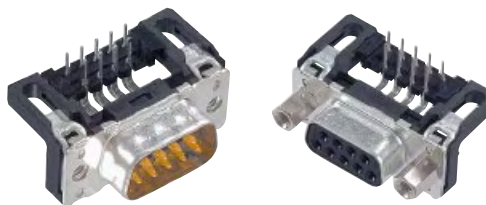
Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples		2.84 mm pitch	2.84 mm pitch
	9	09 65 123 780 . 1)	09 65 123 680 . 1)
	15	09 65 223 780 . 1)	09 65 223 680 . 1)
	25	09 65 323 780 . 1)	09 65 323 680 . 1)
	37	09 65 423 780 . 1)	09 65 423 680 . 1)
		2.54 mm pitch	2.54 mm pitch
	9	09 65 122 780 .	09 65 122 680 .
	15	09 65 222 780 .	09 65 222 680 .
	25	09 65 322 780 .	09 65 322 680 .
	37	09 65 422 780 .	09 65 422 680 .
Female connector metal shell		2.84 mm pitch	2.84 mm pitch
	9	09 66 113 760 . 1)	09 66 113 660 . 1)
	15	09 66 213 760 . 1)	09 66 213 660 . 1)
	25	09 66 313 760 . 1)	09 66 313 660 . 1)
	37	09 66 413 760 . 1)	09 66 413 660 . 1)
		2.54 mm pitch	2.54 mm pitch
	9	09 66 112 760 .	09 66 112 660 .
	15	09 66 212 760 .	09 66 212 660 .
	25	09 66 312 760 .	09 66 312 660 .
	37	09 66 412 760 .	09 66 412 660 .
	50	09 66 512 760 . 1)	09 66 512 660 . 1)
Please insert digit for flange thread or fitted female screw locks Ø 3.1 mm hole ▶ 0 ¹⁾ M3 ▶ 1 4-40 UNC ▶ 2 fitted screw locks 4-40 UNC ▶ 3			

Number of contacts

Mounting height

Standard Versions

9-37
50



Stamped solder pins, angled without grounding board locks

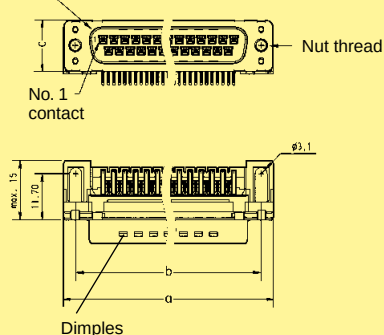
Identification

Drawing

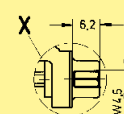
Dimensions in mm

Male connector

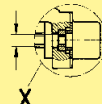
Mating face acc. to: DIN 41 652 · CECC 75 301-802 · IEC 60 807



fitted screw locks
4 - 40 UNC

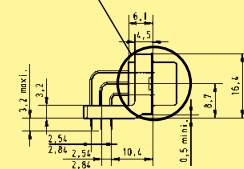
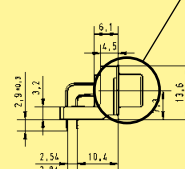
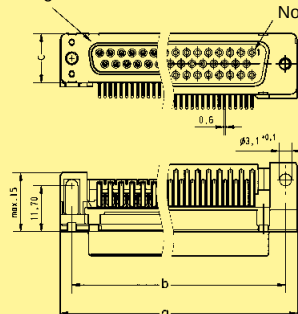


M3 or
4 - 40 UNC

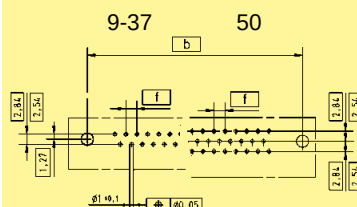


Female connector

9-37 50
Mating face acc. to: DIN 41 652 · CECC 75 301-802 · IEC 60 807
No. 1 contact



Board drillings



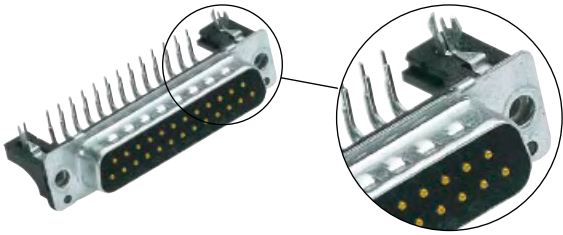
	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.40	2.76

Number of contacts

Mounting height

Low-Profile Versions

9–37
50



Turned solder pins, angled with snap-in-clips and grounding board locks

Identification

No. of contacts

Part No.

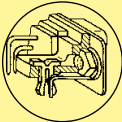
Performance levels
Explanations see page 05.04
Other performance levels on request



Performance level
3

Performance level
2

Male connector
metal shell with dimples



available
on request

9
15
25
37
50

2.54 mm pitch

09 66 162 781 .
09 66 262 781 .
09 66 362 781 .
09 66 462 781 .
09 66 562 781 .

2.54 mm pitch

09 66 162 681 .
09 66 262 681 .
09 66 362 681 .
09 66 462 681 .
09 66 562 681 .

Please insert digit for flange thread
or fitted female screw locks

M3 ▶ 5

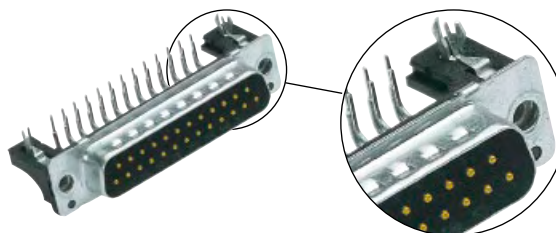
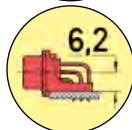
4-40 UNC ▶ 6

fitted screw locks 4-40 UNC ▶ 7

Number of contacts

Mounting height

Low-Profile Versions

9-37
50


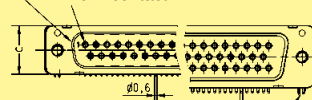
Turned solder pins, angled with snap-in-clips and grounding board locks

Identification

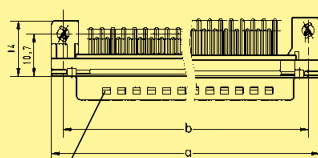
Drawing

Dimensions in mm

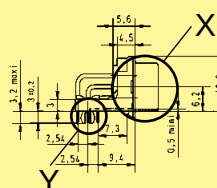
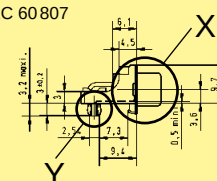
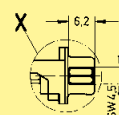
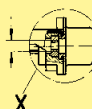
Male connector

9-37 50
Mating face acc. to: DIN 41 652 · CECC 75 301-802 · IEC 60 807
No. 1 contact


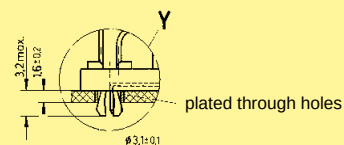
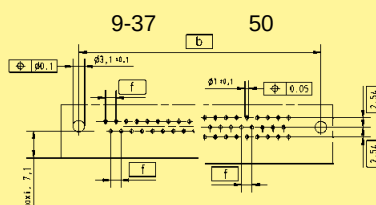
Grounding board lock 0.2 x 0.6



Dimples


fitted screw locks
4 - 40 UNC

M3 or
4 - 40 UNC


Board drillings

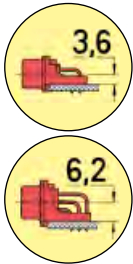


	a	b ± 0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.70	2.76

Number of contacts

Mounting height

9–37
50



Low-Profile Versions

Stamped solder pins, angled with grounding board locks

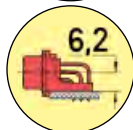
Identification	No. of contacts	Part No.			
Performance levels Explanations see page 05.04 Other contact surfaces on request		Performance level 3		Performance level 2	
Male connector metal shell with dimples	9	09 65 162 781 .		09 65 162 681 .	
	15	09 65 262 781 .		09 65 262 681 .	
	25	09 65 362 781 .		09 65 362 681 .	
	37	09 65 462 781 .		09 65 462 681 .	
Female connector metal shell	9	09 66 152 761 .		09 66 152 661 .	
	15	09 66 252 761 .		09 66 252 661 .	
	25	09 66 352 761 .		09 66 352 661 .	
	37	09 66 452 761 .		09 66 452 661 .	
	50	09 66 552 761 . ¹⁾		09 66 552 661 . ¹⁾	
Please insert digit for flange thread or fitted female screw locks					
	M3 ▶ 5				
	4-40 UNC ▶ 6				
fitted screw locks 4-40 UNC ▶ 7					

¹⁾ Not normally kept in stock

Number of contacts

Mounting height

Low-Profile Versions

9–37
50


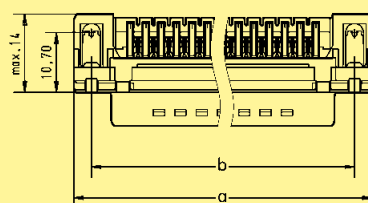
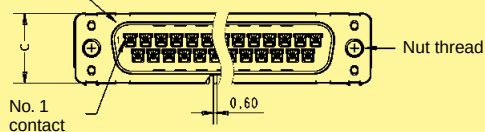
Stamped solder pins, angled with grounding board locks

Identification

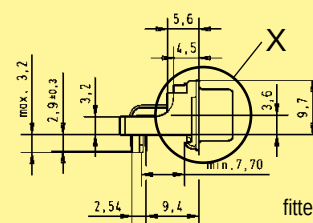
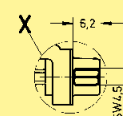
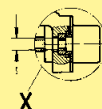
Drawing

Dimensions in mm

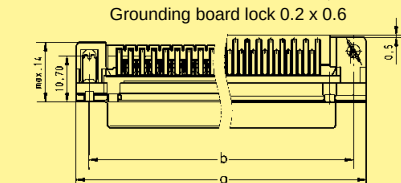
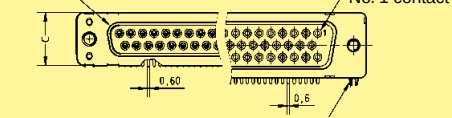
Male connector

Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807


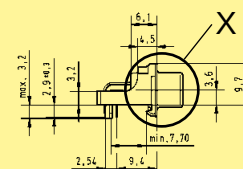
9-37 50


fitted screw locks
4 - 40 UNC

M3 or
4 - 40 UNC


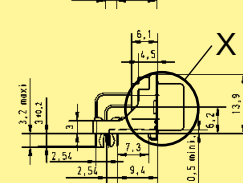
Female connector

Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807


9-37 50

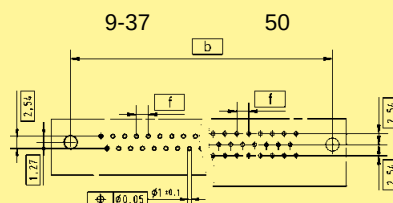


9-37



50

Board drillings



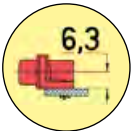
	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.40	2.76

U.S. Footprint

Number of contacts

9–37

Mounting height



Stamped solder pins, angled with snap-in-clips and grounding board locks

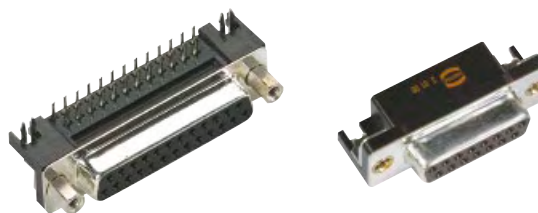
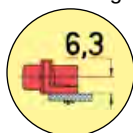
Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	S4 ¹⁾
Male connector metal shell with dimples			
		2.84 mm pitch	2.84 mm pitch
	9	09 68 163 781 .	09 68 163 581 .
	15	09 68 263 781 .	09 68 263 581 .
	25	09 68 363 781 .	09 68 363 581 .
	37	09 68 463 781 .	09 68 463 581 .
Female connector metal shell			
		2.84 mm pitch	2.84 mm pitch
	9	09 68 153 761 .	09 68 153 561 .
	15	09 68 253 761 .	09 68 253 561 .
	25	09 68 353 761 .	09 68 353 561 .
	37	09 68 453 761 .	09 68 453 561 .
Please insert digit for flange thread or fitted female screw locks			
M3 ▶ 1 ²⁾			
4-40 UNC ▶ 2			
fitted screw locks 4-40 UNC ▶ 3			

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)
²⁾ Not normally kept in stock

Number of contacts

Mounting height

9–37



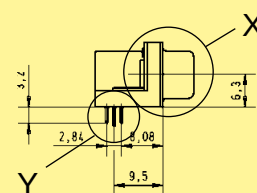
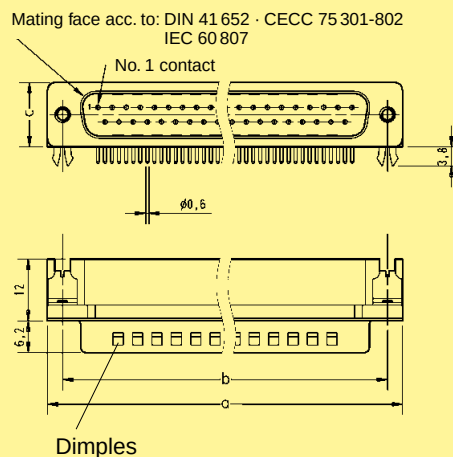
Stamped solder pins, angled with snap-in-clips and grounding board locks

Identification

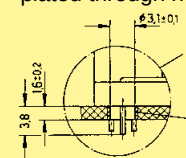
Drawing

Dimensions in mm

Male connector

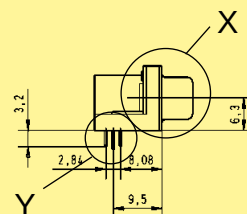
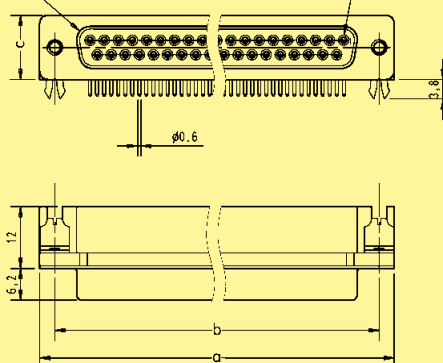


plated through holes

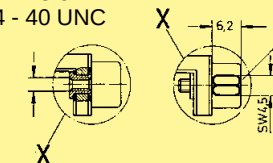


Female connector

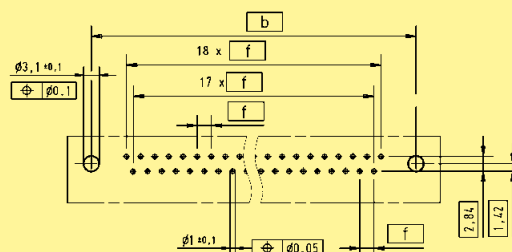
Mating face acc. to: DIN 41 652 · CECC 75 301-802 IEC 60 807 No. 1 contact



M3 or 4 - 40 UNC fitted screw locks 4 - 40 UNC



Board drillings



	a	b±0.1	c	f
9	30.90	25.00	12.55	2.77
15	39.20	33.30	12.55	2.77
25	53.10	47.00	12.55	2.77
37	69.40	63.50	12.55	2.77

Identification

Drawing

Dimensions in mm

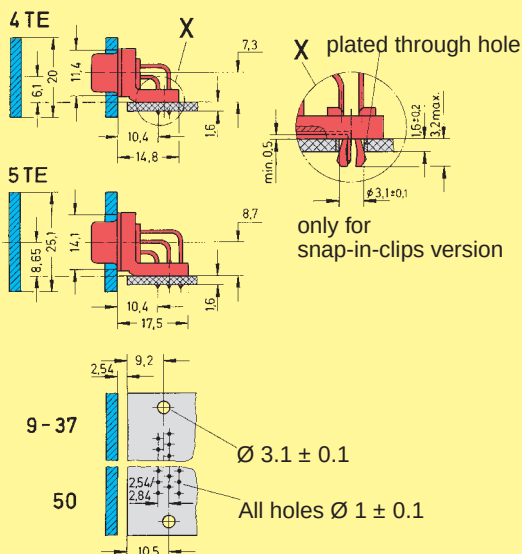
Standard Versions

Mounting height 7.3 mm

9-37 way
for front panel
4 units of width (TE)

Mounting height 8.7 mm

50 way
for front panel
5 units of width (TE)



for connectors see pages 05.12 – 05.17

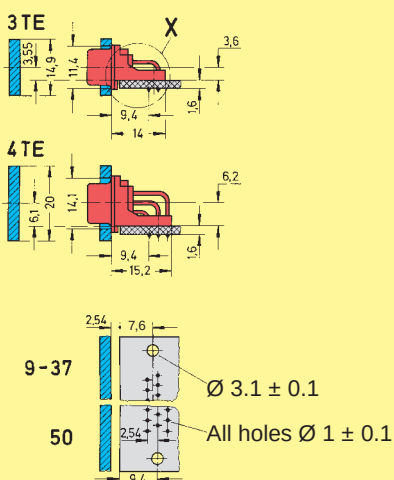
Low-Profile Versions

Mounting height 3.6 mm

9-37 way
for front panel
3 units of width (TE)

Mounting height 6.2 mm

50 way
for front panel
4 units of width (TE)



When used in a wave soldering process the mating face of the connector must be protected with adhesive tape.

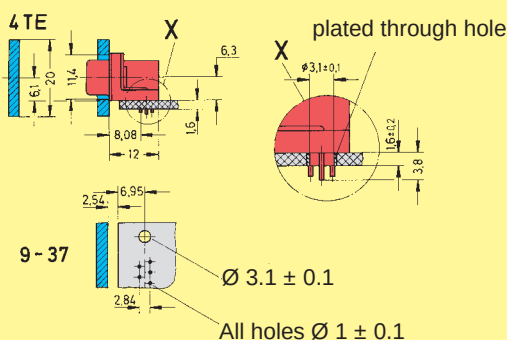


for connectors see pages 05.18 – 05.21

U.S. Footprint Versions

Mounting height 6.3 mm

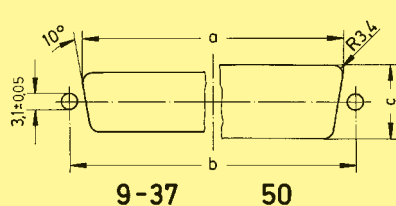
9-37 way
for front panel
4 units of width (TE)



for connectors see pages 05.22 – 05.23

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802



Front mount

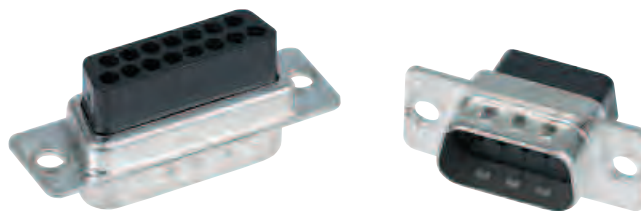
	a±0.2	b±0.13	c±0.2
9	22.2	25.0	12.3
15	30.5	33.3	12.3
25	44.3	47.0	12.3
37	60.7	63.5	12.3
50	58.3	61.1	15.1

Rear mount

	a±0.2	b±0.13	c±0.2
9	20.5	25.0	11.4
15	28.8	33.3	11.4
25	42.5	47.0	11.4
37	59.1	63.5	11.4
50	56.3	61.1	14.1

Number of contacts

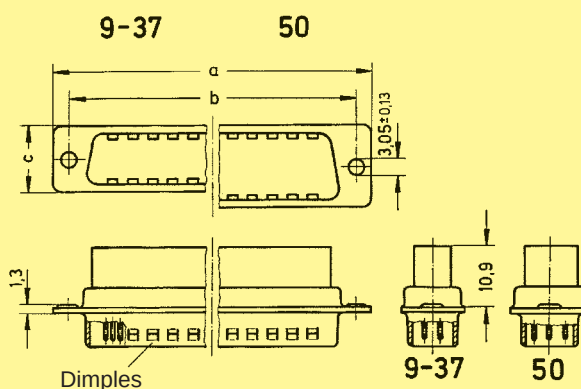
9–50



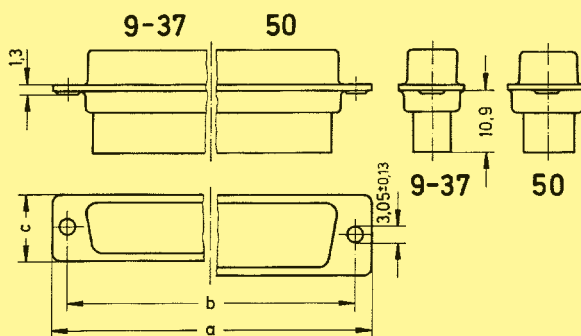
Crimp terminal

Identification	No. of contacts	Part No.
Male connector Order contacts separately metal shell with dimples	9	09 67 009 5601
	15	09 67 015 5601
	25	09 67 025 5601
	37	09 67 037 5601
	50	09 67 050 5601
Female connector Order contacts separately metal shell	9	09 67 009 4701
	15	09 67 015 4701
	25	09 67 025 4701
	37	09 67 037 4701
	50	09 67 050 4701

Male connector



Female connector



	a	b _{±0.1}	c
9	30.9	25.0	12.5
15	39.2	33.3	12.5
25	53.1	47.0	12.5
37	69.4	63.5	12.5
50	67.0	61.1	15.4

Panel cut out
for front/rear mountValues are taken from the
CECC 75 301-802

see page 05.24

Dimensions in mm

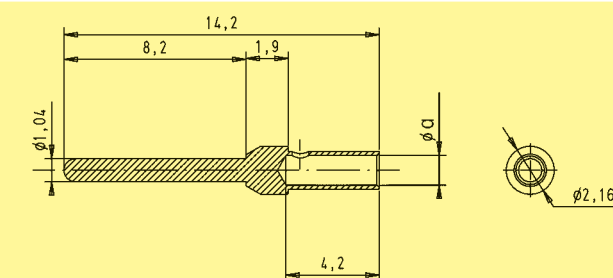


Turned crimp contacts

Identification	Wire gauge (mm ²)	Part No.	
		turned male contacts	turned female contacts
		Performance level 1*	Performance level 1*
Individual contacts ¹⁾	AWG 22-18 0.33-0.82	09 67 000 3576	09 67 000 3476
	AWG 24-20 0.25-0.52	09 67 000 8576	09 67 000 8476
	AWG 26-22 0.13-0.33	09 67 000 5576	09 67 000 5476
	AWG 28-24 0.09-0.25	09 67 000 7576	09 67 000 7476

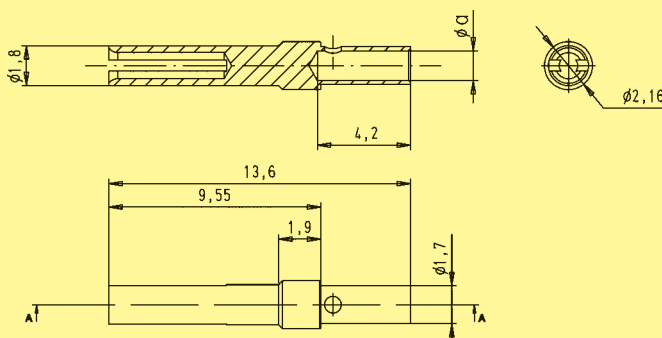
¹⁾ Minimum order 100 pieces
or multiples of 100

Male contacts

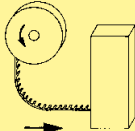
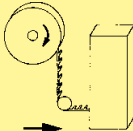
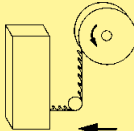


	a
AWG 22-18	1.34
AWG 24-20	1.13
AWG 26-22	0.88
AWG 28-24	0.64

Female contacts



Stamped crimp contacts

Identification		Wire gauge (mm ²)	Part No.		
Performance levels Explanations see page 05.04 Other performance levels on request			stamped male contacts		
			Performance level 3	Performance level 2	Performance level 1
Individual contacts			09 67 000 7177 ¹⁾	09 67 000 7178 ¹⁾	09 67 000 7176 ¹⁾
500 pieces/reel Unrolling left			09 67 000 7167	09 67 000 7168	09 67 000 7166
10 000 pieces/reel Unrolling left Unrolling left reversed Unrolling right reversed					
Individual contacts		AWG 28-24 0.09-0.25 stranded	09 67 000 7177 ¹⁾	09 67 000 7178 ¹⁾	09 67 000 7176 ¹⁾
500 pieces/reel Unrolling left			09 67 000 7167	09 67 000 7168	09 67 000 7166
10 000 pieces/reel Unrolling left Unrolling left reversed Unrolling right reversed			09 67 000 7157 09 67 000 7147 09 67 000 7137	09 67 000 7158 09 67 000 7148 09 67 000 7138	09 67 000 7156 09 67 000 7146 09 67 000 7136
Individual contacts		AWG 24-20 0.25-0.56 stranded	09 67 000 8177 ¹⁾	09 67 000 8178 ¹⁾	09 67 000 8176 ¹⁾
500 pieces/reel Unrolling left			09 67 000 8167	09 67 000 8168	09 67 000 8166
10 000 pieces/reel Unrolling left Unrolling left reversed Unrolling right reversed			09 67 000 8157 09 67 000 8147 09 67 000 8137	09 67 000 8158 09 67 000 8148 09 67 000 8138	09 67 000 8156 09 67 000 8146 09 67 000 8136
Unrolling direction		    500 pieces/reel Unrolling left 10 000 pieces/reel Unrolling left 10 000 pieces/reel Unrolling left reversed 10 000 pieces/reel Unrolling right reversed for HARTING tools			

¹⁾ Minimum order 500 pieces or multiples of 500
Insertion and removal tool see chapter 20
Contact dimensions see page 05.29

Stamped crimp contacts

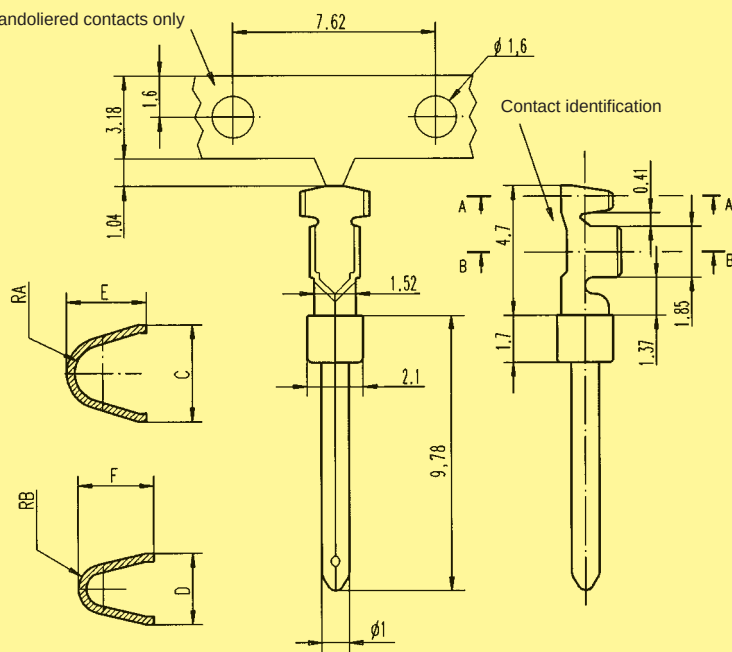
Identification

Drawing

Dimensions in mm

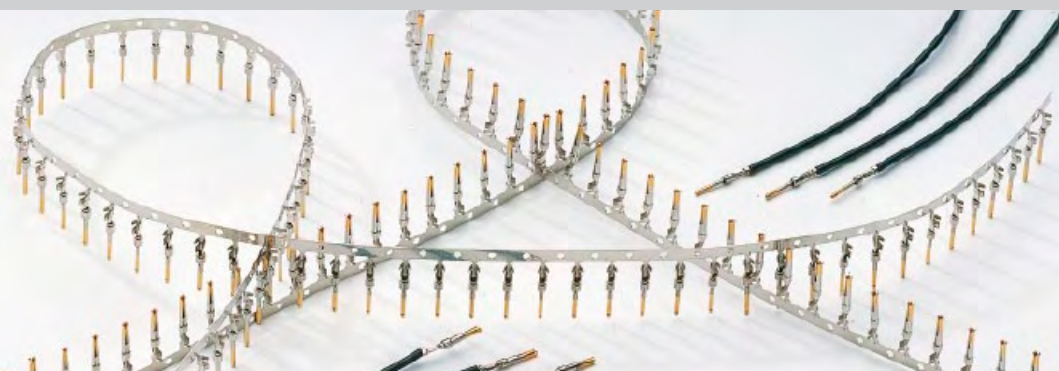
Male contacts

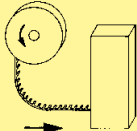
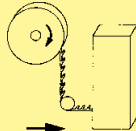
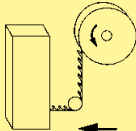
For bandoliered contacts only



AWG	C	D	E	F	RA	RB	Contact identification
20-24	2.46	1.78	1.98	1.90	0.71	0.43	—
24-28	1.65	1.47	1.52	1.52	0.50	0.33	==

Stamped crimp contacts



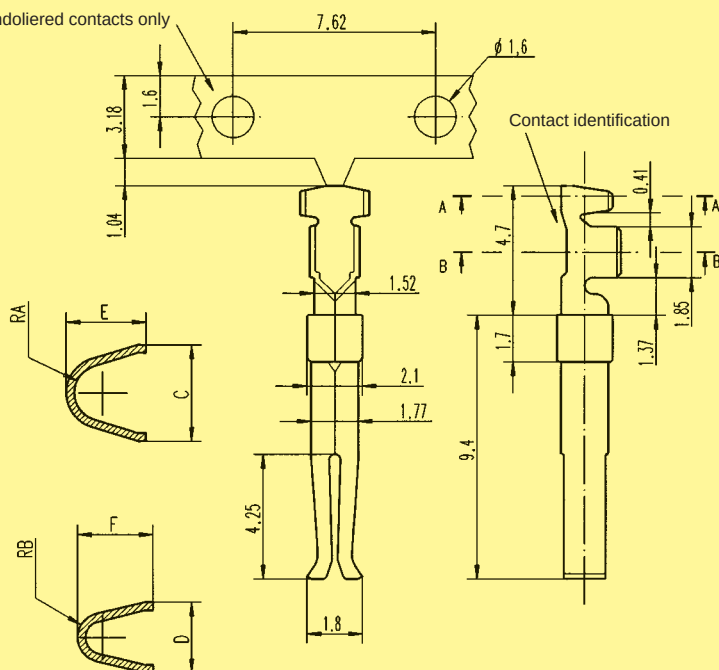
Identification		Wire gauge (mm ²)	Part No.		
Performance levels Explanations see page 05.04 Other performance levels on request			stamped female contacts		
			Performance level 3	Performance level 2	Performance level 1
Individual contacts		AWG 28-24 0.09-0.25 stranded	09 67 000 7277 ¹⁾	09 67 000 7278 ¹⁾	09 67 000 7276 ¹⁾
500 pieces/reel Unrolling left			09 67 000 7267	09 67 000 7268	09 67 000 7266
10 000 pieces/reel Unrolling left Unrolling left reversed Unrolling right reversed			09 67 000 7257 09 67 000 7247 09 67 000 7237	09 67 000 7258 09 67 000 7248 09 67 000 7238	09 67 000 7256 09 67 000 7246 09 67 000 7236
Individual contacts			09 67 000 8277 ¹⁾	09 67 000 8278 ¹⁾	09 67 000 8276 ¹⁾
500 pieces/reel Unrolling left		AWG 24-20 0.25-0.56 stranded	09 67 000 8267	09 67 000 8268	09 67 000 8266
10 000 pieces/reel Unrolling left Unrolling left reversed Unrolling right reversed			09 67 000 8257 09 67 000 8247 09 67 000 8237	09 67 000 8258 09 67 000 8248 09 67 000 8238	09 67 000 8256 09 67 000 8246 09 67 000 8236
Unrolling direction			 500 pieces/reel Unrolling left  10 000 pieces/reel Unrolling left  10 000 pieces/reel Unrolling left reversed  10 000 pieces/reel Unrolling right reversed for HARTING tools		

¹⁾ Minimum order 500 pieces or multiples of 500
Insertion and removal tool see chapter 20
Contact dimensions see page 05.31



Dimensions in mm

For bandoliered contacts only



AWG	C	D	E	F	RA	RB	Contact identification
20-24	2.46	1.78	1.98	1.90	0.71	0.43	—
24-28	1.65	1.47	1.52	1.52	0.50	0.33	===

Number of contacts

9–37



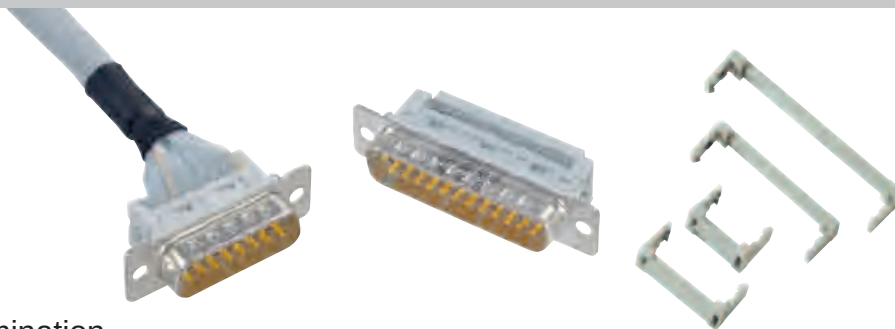
Insulation displacement termination

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
Male connector pitch 1.27 mm metal shell with dimples	9 15 25 37	09 66 128 770 . 09 66 228 770 . 09 66 328 770 . 09 66 428 770 .	09 66 128 670 . 09 66 228 670 . 09 66 328 670 . 09 66 428 670 .
Female connector pitch 1.27 mm metal shell	9 15 25 37	09 66 118 750 . 09 66 218 750 . 09 66 318 750 . 09 66 418 750 .	09 66 118 650 . 09 66 218 650 . 09 66 318 650 . 09 66 418 650 .
Please insert digit for flange thread ø 3.1 mm hole ▶ 0 M3 ▶ 1 ¹⁾ 4-40 UNC ▶ 2			
Strain relief clamp plastic for male and female connector	9 15 25 37	09 66 108 0001 09 66 208 0001 09 66 308 0001 09 66 408 0001	09 66 108 0001 09 66 208 0001 09 66 308 0001 09 66 408 0001

Number of contacts

9–37

Insulation displacement termination

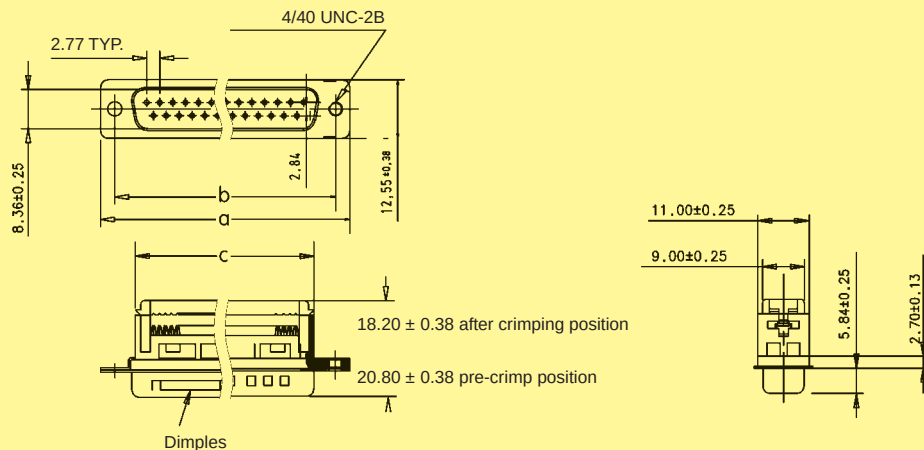


Identification

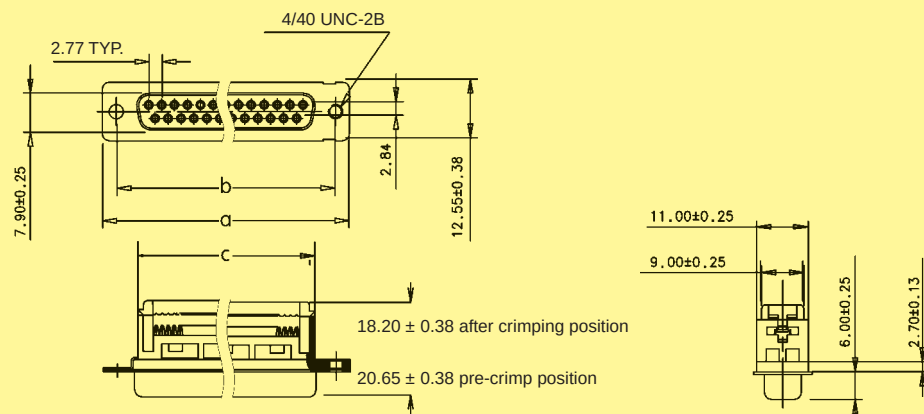
Drawing

Dimensions in mm

Male connector



Female connector

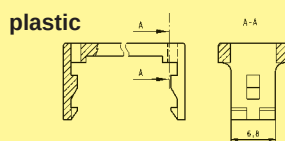


Male and female connectors

	a	b ± 0.1	c
9	30.80	24.99	16.10
15	39.10	33.32	24.00
25	53.09	47.04	38.14
37	69.40	63.50	54.60

Specified conductors
stranded wires – AWG 28/7
– AWG 26/7

Strain relief clamps

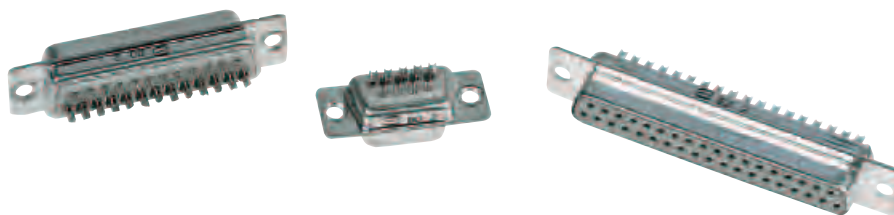

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802

see page 05.24

Number of contacts

9–50

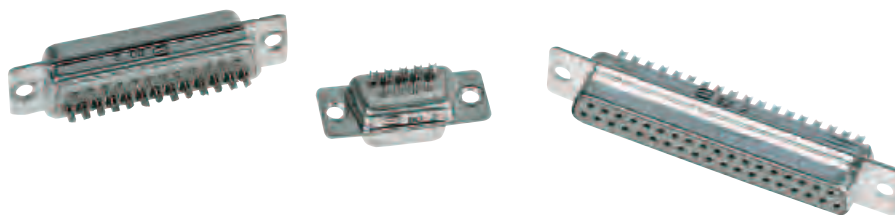


Solder buckets

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples		turned contacts	turned contacts
	9	09 67 009 5604	09 67 009 5615
	15	09 67 015 5604	09 67 015 5615
	25	09 67 025 5604	09 67 025 5615
	37	09 67 037 5604	09 67 037 5615
	50	09 67 050 5604 ¹⁾	09 67 050 5615
		stamped contacts	stamped contacts
	9	09 67 209 5604	09 67 209 5615
	15	09 67 215 5604	09 67 215 5615
	25	09 67 225 5604	09 67 225 5615
Female connector metal shell	37	09 67 237 5604	09 67 237 5615
	50	09 67 250 5604 ¹⁾	09 67 250 5615 ¹⁾
		turned contacts	turned contacts
	9	09 67 009 4704	09 67 009 4715
	15	09 67 015 4704	09 67 015 4715
	25	09 67 025 4704	09 67 025 4715
	37	09 67 037 4704	09 67 037 4715
	50	09 67 050 4704 ¹⁾	09 67 050 4715
		stamped contacts	stamped contacts
	9	09 67 209 4704	09 67 209 4715
	15	09 67 215 4704	09 67 215 4715
	25	09 67 225 4704	09 67 225 4715
	37	09 67 237 4704	09 67 237 4715
	50	09 67 250 4704 ¹⁾	09 67 250 4715 ¹⁾

Number of contacts

9–50



Solder buckets

Identification

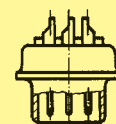
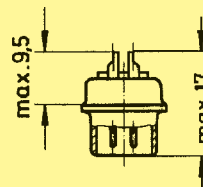
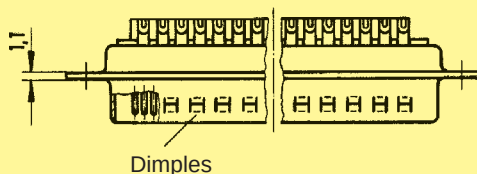
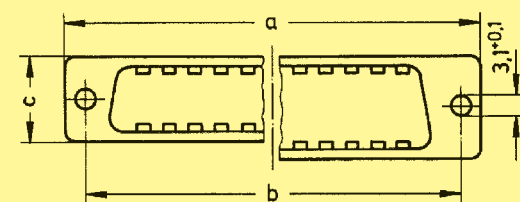
Drawing

Dimensions in mm

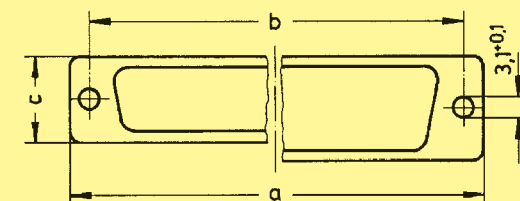
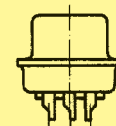
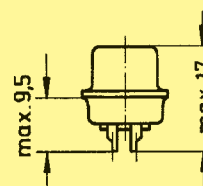
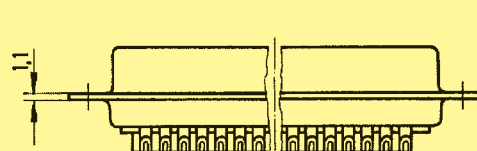
Male connector

9-37

50



Female connector



9-37

50

	a	b _{±0.1}	c
9	30.9	25.0	12.5
15	39.2	33.3	12.5
25	53.1	47.0	12.5
37	69.4	63.5	12.5
50	67.0	61.1	15.4

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802

see page 05.24

D-Sub

Number of contacts	15, 26, 44, 62, 78 UL recognized
Working current Stamped contacts	2 A max.
Test voltage $U_{r.m.s.}$	1 kV
Clearance and creepage	≥ 1.0 mm
Contact resistance Insulation resistance	≤ 20 m Ω $\geq 5 \times 10^9$ Ω
Temperature range The higher temperature limit includes the local ambient and heating effect of the contacts under load	-55 °C ... +105 °C
Terminations	a) Solder pins $\varnothing$ 0.65 mm for P.C.B. holes $\varnothing$ 1.02 mm b) Solder pins, angled 90° $\varnothing$ 0.7 mm for P.C.B. holes $\varnothing$ 1.02 mm c) Crimp contacts AWG 26 - 24 0.14 - 0.22 mm ² max. insulation $\varnothing$ 1.38 mm d) Solder cups AWG 22
Materials	
Mouldings and hoods	Thermoplastic resin, glass-fibre filled (PBTP), UL 94-V0
Contacts	Copper alloy
Contact surface Contact zone	selectively gold-plated according to performance level ¹⁾
Metal shell	Plated steel
Mating force	15 way ≤ 46 N 26 way ≤ 77 N 44 way ≤ 127 N 62 way ≤ 177 N 78 way ≤ 222 N



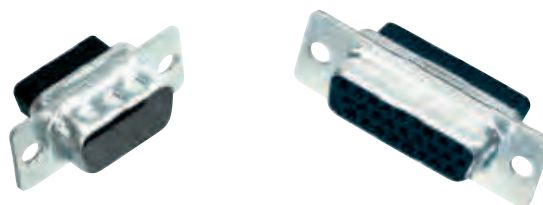
Number of contacts in the D-Sub standard/D-Sub high density range related to the shell size.

Shell size	D-Sub standard	D-Sub high density
1	9	15
2	15	26
3	25	44
4	37	62
5	50	78

¹⁾ Performance level 3, 50 mating cycles, no gas test
S4, plating ≥ 0.76 μ m Au (30 pinch)

Number of contacts

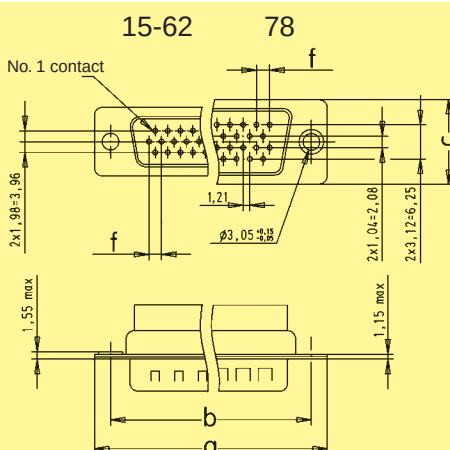
15–78



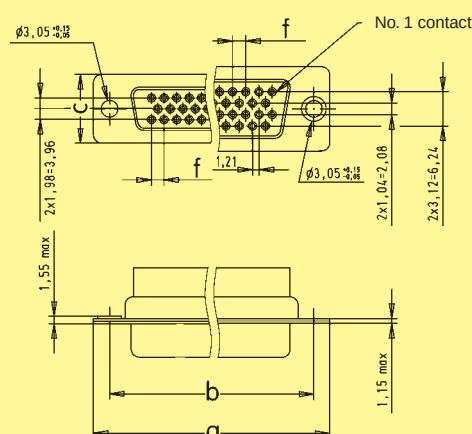
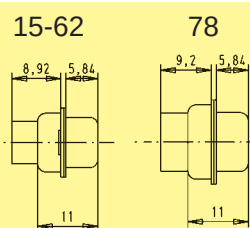
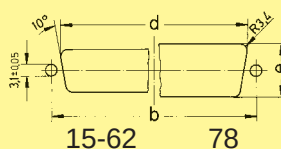
High density crimp terminal

Identification	No. of contacts	Part No.
Male connector Order contacts separately metal shell with dimples	15	09 56 100 5601
	26	09 56 200 5601
	44	09 56 300 5601
	62	09 56 400 5601
	78	09 56 500 5601
Female connector Order contacts separately metal shell	15	09 56 100 4701
	26	09 56 200 4701
	44	09 56 300 4701
	62	09 56 400 4701
	78	09 56 500 4701

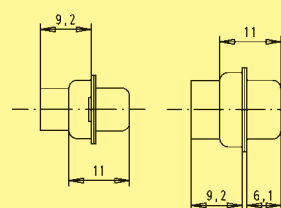
Male connector



Female connector

Panel cut out
for front/rear mountValues are taken from the
CECC 75 301-802

	a	b ± 0.13	c	f
15	30.9	25.0	12.5	2.29
26	39.2	33.3	12.5	2.29
44	53.1	47.0	12.5	2.29
62	69.4	63.5	12.5	2.41
78	67.0	61.1	15.4	2.41



Front mount

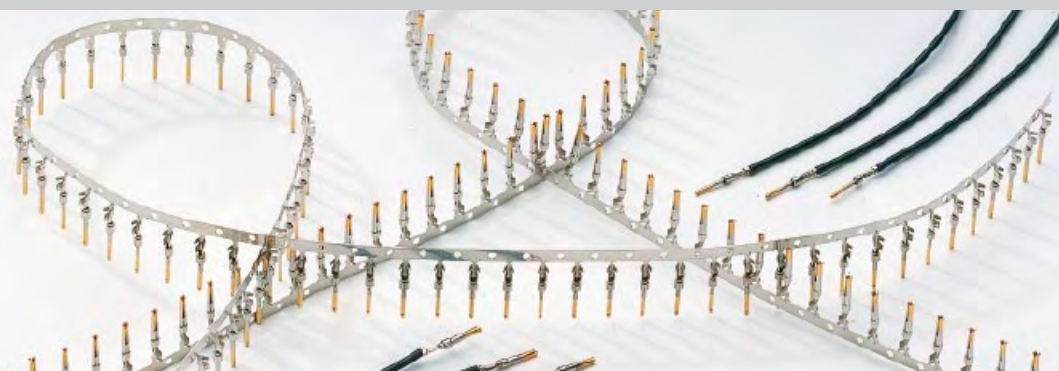
	b ± 0.13	d ± 0.2	e ± 0.2
15	25.0	22.2	12.3
26	33.3	30.5	12.3
44	47.0	44.3	12.3
62	63.5	60.7	12.3
78	61.1	58.3	15.1

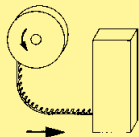
Rear mount

	b ± 0.13	d ± 0.2	e ± 0.2
15	25.0	20.5	11.4
26	33.3	28.8	11.4
44	47.0	42.5	11.4
62	63.5	59.1	11.4
78	61.1	56.3	14.1

Dimensions in mm

Crimp contacts for high density connectors



Identification		Wire gauge (mm²)	Part No.			
Performance levels Explanations see page 05.04 Other performance levels on request			stamped male contacts		stamped female contacts	
			Performance level 3	S4 ¹⁾	Performance level 3	S4 ¹⁾
500 pieces/box		AWG 26-24 0.14-0.22 stranded	09 56 000 8177	09 56 000 8175	09 56 000 8277	09 56 000 8275
			09 56 000 8167	09 56 000 8165	09 56 000 8267	09 56 000 8265
			09 56 000 8157	09 56 000 8155	09 56 000 8257	09 56 000 8255
Unrolling direction			 500 pieces/reel Unrolling left  10 000 pieces/reel Unrolling left for HARTING tools			

¹⁾ S4: $\geq 0.76 \mu\text{m Au}$ (30 μinch)
Contact dimensions see page 05.39

Crimp contacts for high density connectors

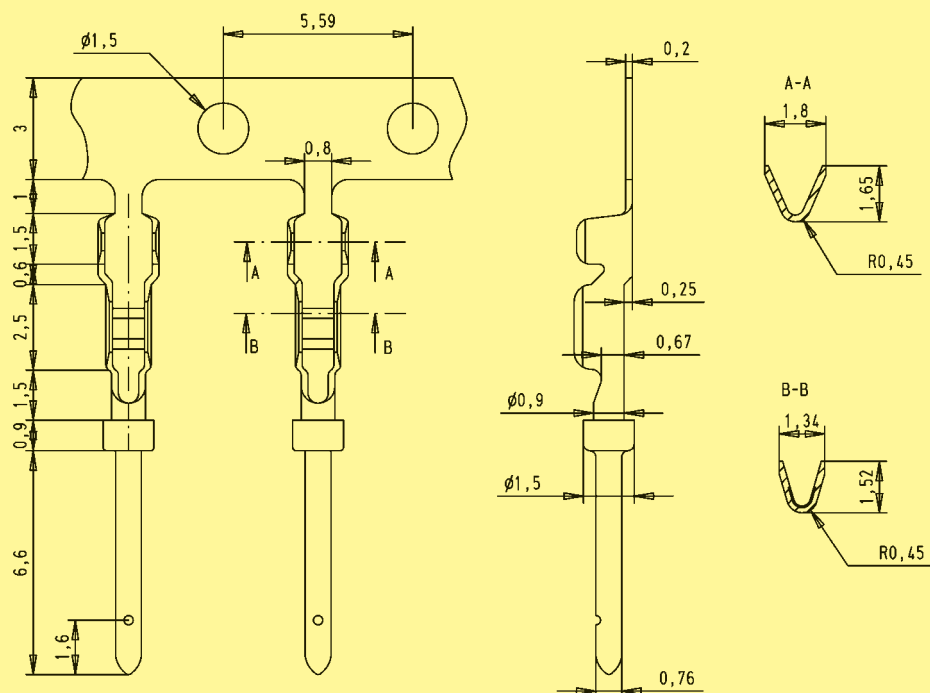
Identification

Drawing

Dimensions in mm

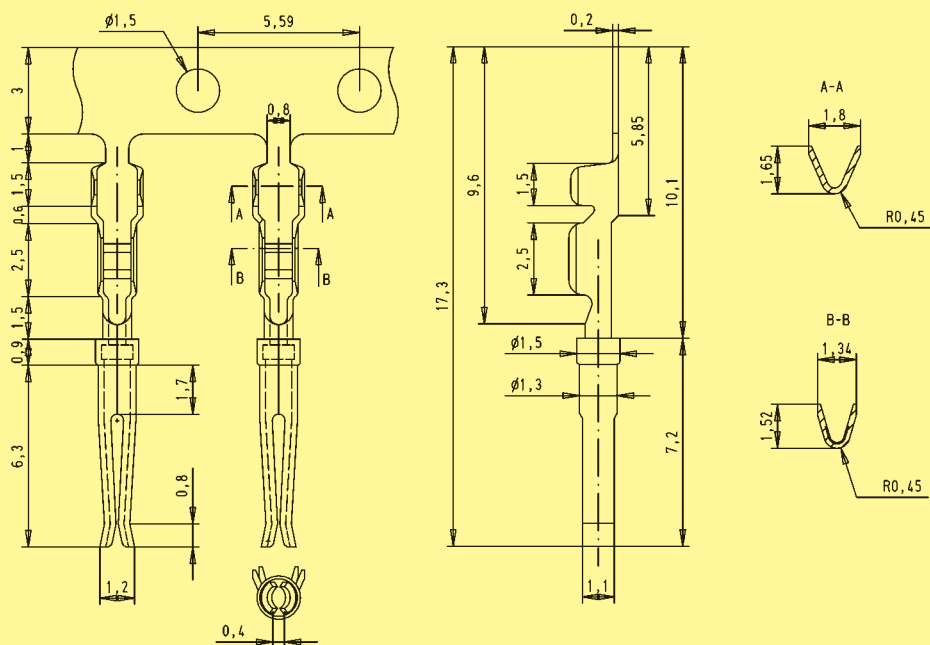
Male contacts

wire gauge AWG 26-24



Female contacts

wire gauge AWG 26-24



Number of contacts

15–78



High density with stamped solder cups, straight

D-Sub

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	S4 ¹⁾
Male connector metal shell with dimples			
	15	09 56 100 5604	09 56 100 5615 050
	26	09 56 200 5604	09 56 200 5615 050
	44	09 56 300 5604	09 56 300 5615 050
	62	09 56 400 5604	09 56 400 5615 050
	78	09 56 500 5604	09 56 500 5615 050
Female connector metal shell			
	15	09 56 100 4704	09 56 100 4715 050
	26	09 56 200 4704	09 56 200 4715 050
	44	09 56 300 4704	09 56 300 4715 050
	62	09 56 400 4704	09 56 400 4715 050
	78	09 56 500 4704	09 56 500 4715 050

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

D-Sub

Number of contacts

15-78



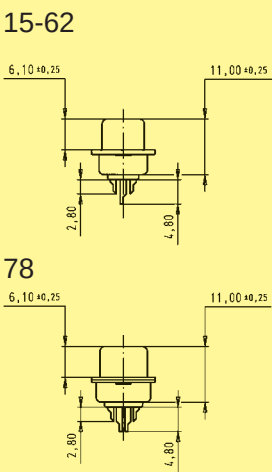
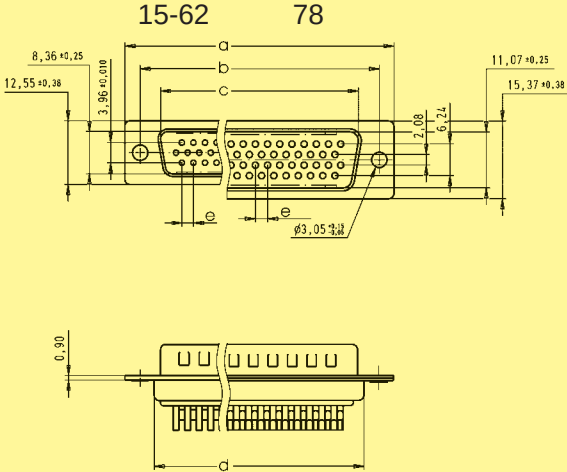
High density with stamped solder cups, straight

Identification

Drawing

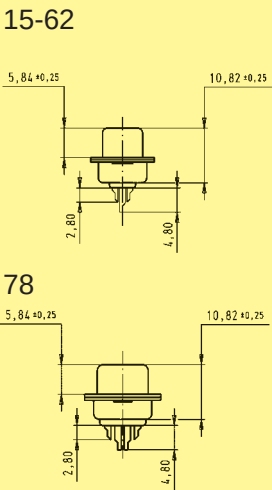
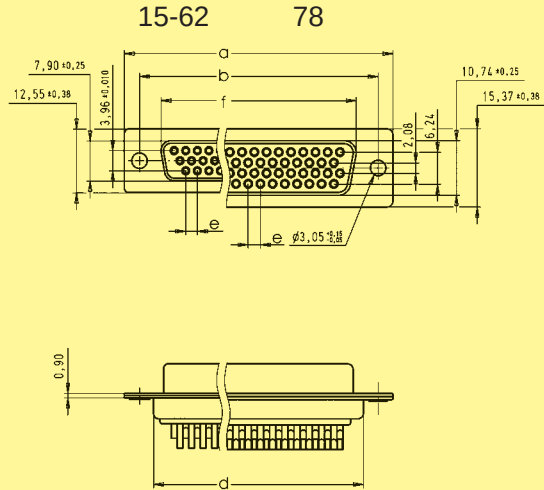
Dimensions in mm

Male connector



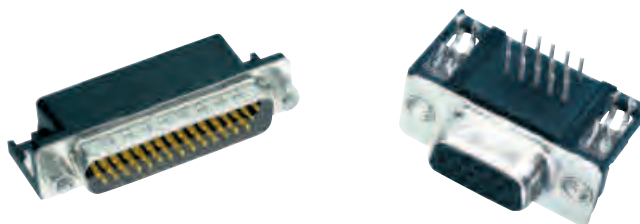
	a	b	c	d	e	f
15	30.89	24.99	16.92	19.28	2.29	16.33
26	39.10	33.32	25.25	27.51	2.29	24.66
44	53.09	47.04	38.96	41.30	2.29	38.38
62	69.40	63.50	55.25	57.71	2.42	54.84
78	66.93	61.11	52.81	55.32	2.42	52.43

Female connector



Number of contacts

15–78



High density with stamped solder pins, angled with grounding board locks

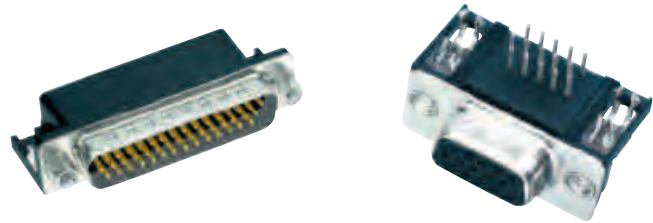
Identification	No. of contacts	Part No.			
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3		S4 ¹⁾	
Male connector metal shell with dimples					
	15	09 56 162 781 .		09 56 162 581 .	
	26	09 56 262 781 .		09 56 262 581 .	
	44	09 56 362 781 .		09 56 362 581 .	
	62	09 56 462 781 .		09 56 462 581 .	
Female connector metal shell					
	15	09 56 152 761 .		09 56 152 561 .	
	26	09 56 252 761 .		09 56 252 561 .	
	44	09 56 352 761 .		09 56 352 561 .	
	62	09 56 452 761 .		09 56 452 561 .	
	78	09 56 552 761 .		09 56 552 561 .	
Please insert digit for flange thread or fitted female screw locks					
4-40 UNC ► 2					
fitted screw locks 4-40 UNC ► 3					

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

D-Sub

Number of contacts

15-78



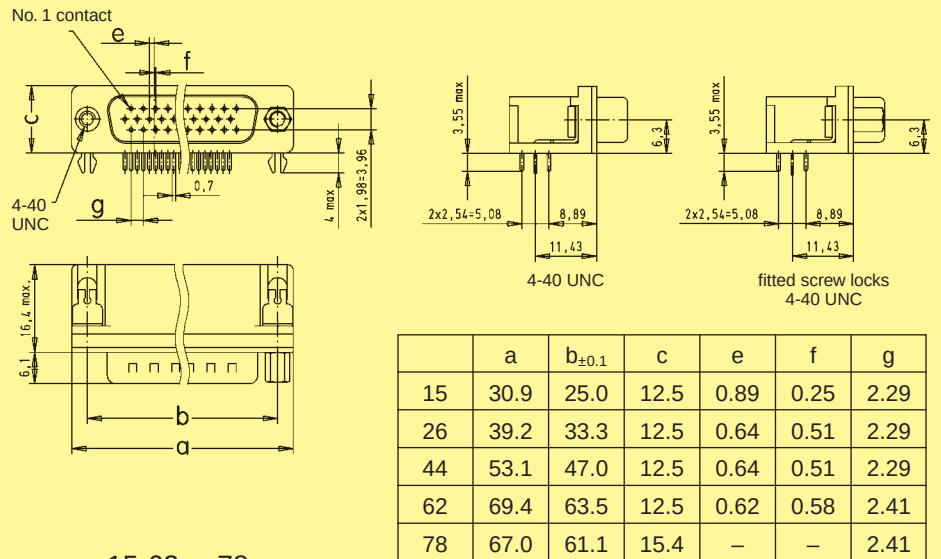
High density with stamped solder pins, angled with grounding board locks

Identification

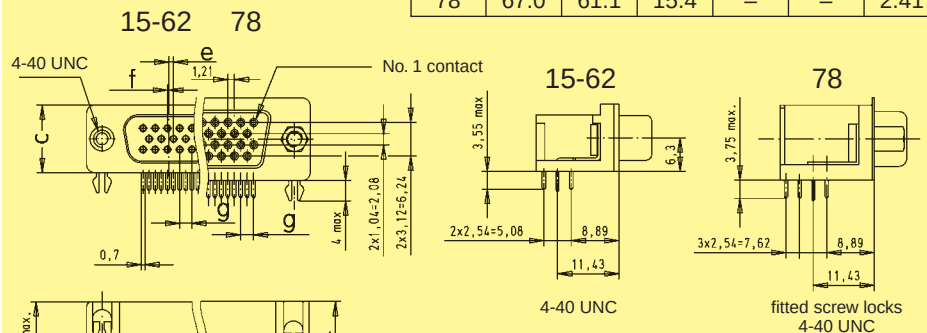
Drawing

Dimensions in mm

Male connector

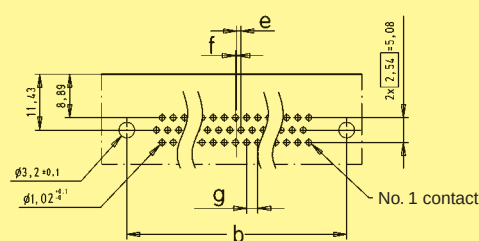


Female connector

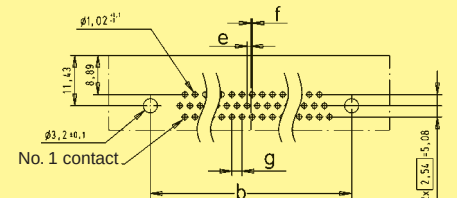


Board drillings

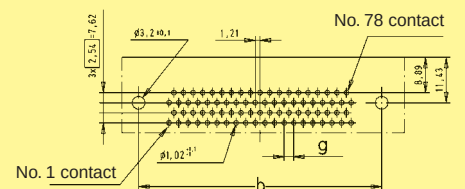
male



female 15-62



female 78



Number of contacts

15–78



High density with stamped solder pins, straight

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	S4 ¹⁾
Male connector metal shell with dimples	15 26 44 62 78	09 56 161 7700 09 56 261 7700 09 56 361 7700 09 56 461 7700 09 56 561 7700	09 56 161 5700 09 56 261 5700 09 56 361 5700 09 56 461 5700 09 56 561 5700
Female connector metal shell	15 26 44 62 78	09 56 151 7500 09 56 251 7500 09 56 351 7500 09 56 451 7500 09 56 551 7500	09 56 151 5500 09 56 251 5500 09 56 351 5500 09 56 451 5500 09 56 551 5500

D-Sub

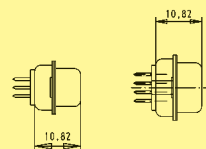
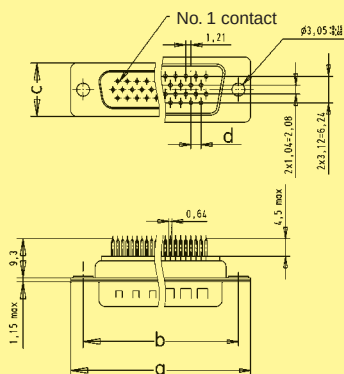
Male connector

15-62

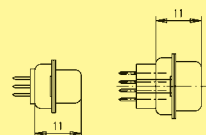
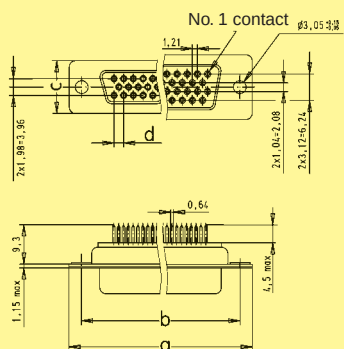
78

15-62

78

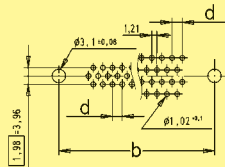


Female connector



	a	b _{±0.1}	c	d
15	30.9	25.0	12.5	2.29
26	39.2	33.3	12.5	2.29
44	53.1	47.0	12.5	2.29
62	69.4	63.5	12.5	2.41
78	67.0	61.1	15.4	2.41

Board drillings

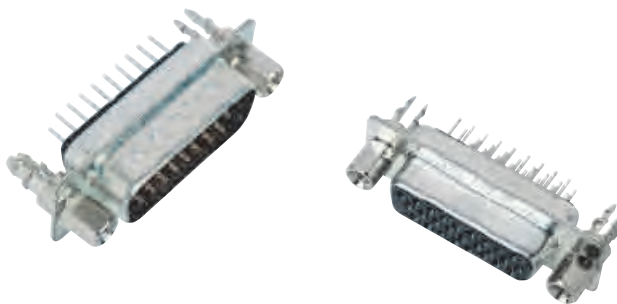


Dimensions in mm

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

Number of contacts

15–78

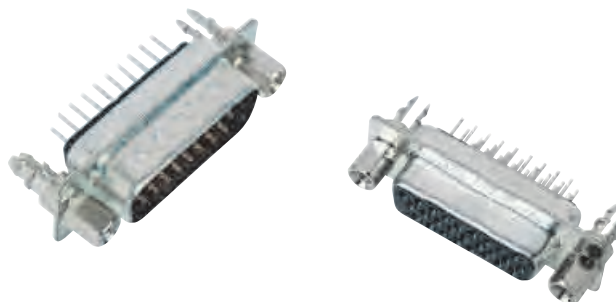


High density with stamped solder pins, straight with grounding board locks

Identification	No. of contacts	Part No.			
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3		S4 ¹⁾	
Male connector metal shell with dimples					
	15	09 56 161 771 .		09 56 161 571 .	
	26	09 56 261 771 .		09 56 261 571 .	
	44	09 56 361 771 .		09 56 361 571 .	
	62	09 56 461 771 .		09 56 461 571 .	
	78	09 56 561 771 .		09 56 561 571 .	
Female connector metal shell					
	15	09 56 151 751 .		09 56 151 551 .	
	26	09 56 251 751 .		09 56 251 551 .	
	44	09 56 351 751 .		09 56 351 551 .	
	62	09 56 451 751 .		09 56 451 551 .	
	78	09 56 551 751 .		09 56 551 551 .	
Please insert digit for flange thread or fitted female screw locks					
4-40 UNC ► 2					
fitted screw locks 4-40 UNC ► 3					

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

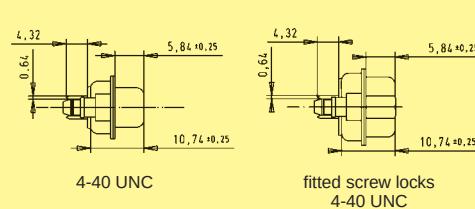
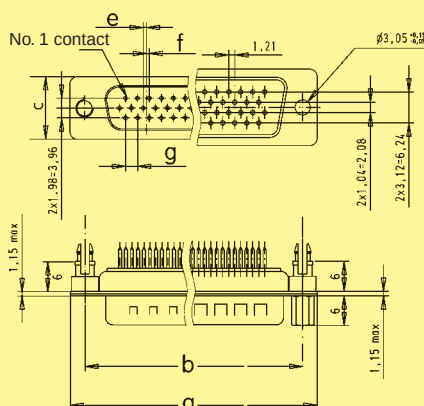
15-78



High density with stamped solder pins, straight with grounding board locks

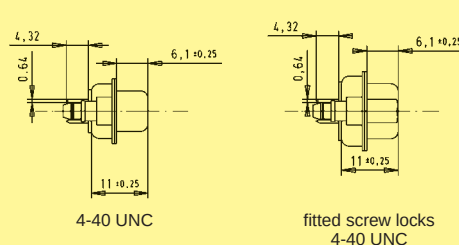
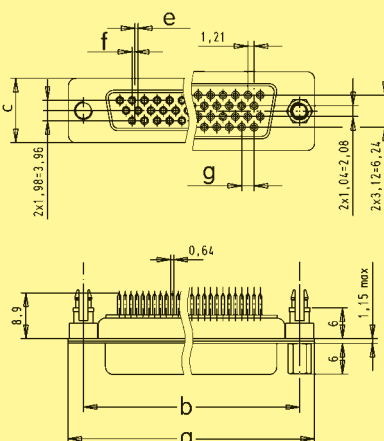
Dimensions in mm

15-62 78

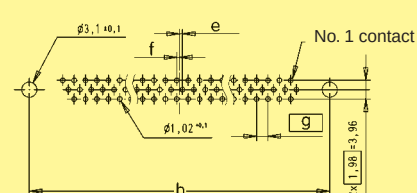
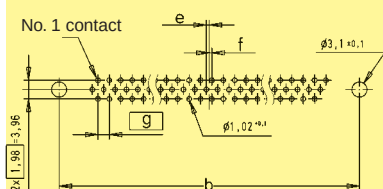


	a	b _{+0.1}	c	e	f	g
15	30.9	25.0	12.5	0.89	0.25	2.29
26	39.2	33.3	12.5	0.64	0.51	2.29
44	53.1	47.0	12.5	0.64	0.51	2.29
62	69.4	63.5	12.5	0.62	0.58	2.41
78	67.0	61.1	15.4	–	–	2.41

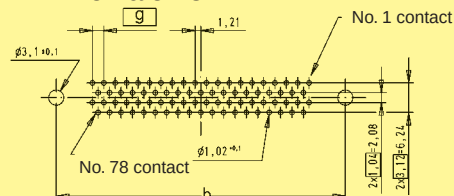
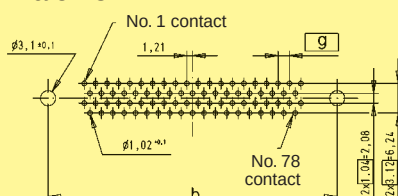
15-62 78



female 15-62



female 78





HARTINGs' mixed D-Sub range brings the advantage of an industry standard I/O interconnect product with the possibility to customise for any application.

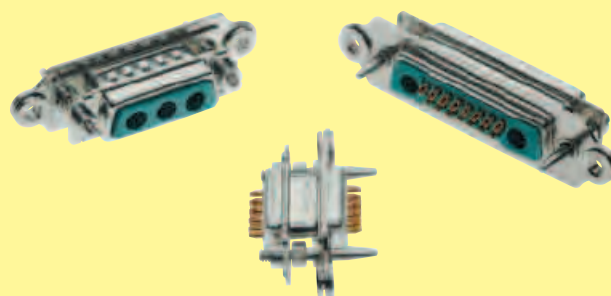
The range is designed around **the standard D-Sub shell sizes** with **the possibility to have a blend of contacts** such as signals with coaxial, power, high voltage or pneumatic contacts. Due to its construction, the product is **fully shielded** and helps reducing the EMI/RFI leakage.

All contacts are machined with two different platings.

When hot plug-in is required, **first mate last break** contacts can also be supplied.

For connectors to be fitted on a board with SMT components, they can be supplied in an **SMC (PiHIR) version** which is assembled in the reflow solder process, thus reducing assembly cost.

In addition, a complete range of accessories such as clinch nut, spacers, board locks, female screw lock, etc. are available. For **blind mating feature**, a specific high performance solution has been developed based on the combination of a floating plate and guiding pins providing up to 2.2 mm realignment capability. With all these accessories, the requirements of most applications are achievable and it makes this product range very attractive thanks to its versatility, reliability and cost effectiveness.



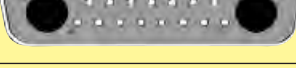
This blind mating concept is also achievable on the standard D as shown on the photo.

Contact arrangements

The table shows the standard range supported by HARTING. Two versions are special since they allow to mix in the same shell male and female contacts: 2W2C and 3W3C. The purpose of these versions is to have a 100 % mating proof feature (the insulator shape prevents a 180° reversed mating).

The structure of the connectors' identification is so that the left side digits give the total number of contacts and the right side digits the number of special contacts which can be either power, coaxial or high voltage style.

Example: 13W3 stands for 13 contacts in total with 10 signal contacts and 3 special contacts.

	Shell size	
2W2	1	
2W2C	1	
5W1	1	
3W3	2	
3W3C	2	
7W2	2	
11W1	2	
5W5	3	
9W4	3	
13W3	3	
17W2	3	
21W1	3	

	Shell size	
7W7	4	
8W8	4	
13W6	4	
21WA4	4	
25W3	4	
27W2	4	
24W7	5	
36W4	5	
43W2	5	

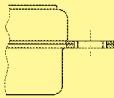
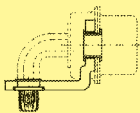
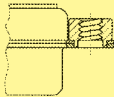
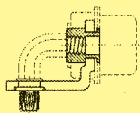
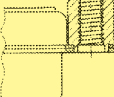
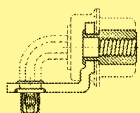
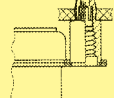
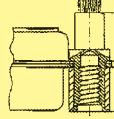
Note:
for any other layout please consult your HARTING representative.

Connectors for pcb applications – general information

The range of pcb connectors available at HARTING is summarised in the table under. For each of the basic connector versions, the available contact styles are documented with termination process, pitch, plating, rating for power contacts and impedance for coaxial contact etc..., as well as the accessory configuration.

Pcb connectors are delivered fully loaded thus providing a very good positioning of the contacts in their cavities for an easy and safe insertion of the pins in the pcb holes particularly crucial in the right angled versions.

Due to the numerous possibilities offered with the pcb connectors, suggested method is to contact your local HARTING representative to determine the part number to order; see customer request form on pages 05.86 and 05.87.

	Straight		Right angled	
Insulator body	• Standard • SMC: Solder Reflow Compatible		• Standard • SMC: Solder Reflow Compatible	
Signal contacts	Solder termination • Pitch: 2.84 mm • Plating: 0.76 µm Au over Ni • Pcb thickness from 1.6 to 3.2 mm		Solder termination • Pitch: 2.54 mm • Plating: 0.76 µm Au over Ni • Pcb thickness from 1.6 to 3.2 mm	
Power contacts	Solder termination • Rating: 20, 30, 40 A • Plating: 0.76 µm Au over Ni Press-in termination • Rating: 30 A • Plating: 0.76 µm Au over Ni		Solder termination • Rating: 20, 30, 40 A • Plating: 0.76 µm Au over Ni	
Coaxial contacts	Solder termination • 50 or 75 Ω • Plating: 1.3 µm Au over Ni inner conductor 0.76 µm Au over Ni outer ring		Solder termination • 50 or 75 Ω • Plating: 1.3 µm Au over Ni inner conductor 0.76 µm Au over Ni outer ring	
Accessories	Through hole		Metal bracket with board lock and through hole	
	Nut: M3 or UNC 4-40		Metal bracket with board lock and clinch nut M3 or UNC 4-40	
	Spacer: M3 or UNC 4-40		Metal bracket with board lock and female screw lock UNC 4-40	
	Spacer (M3 or UNC 4-40) with board lock			
	Spacer + board lock + female screw lock M3 or UNC 4-40			

Connectors for cable applications – general information

Two termination processes are available: crimp or solder

Shell		
Signal contacts	Crimp termination - For wire gauge: AWG 20-24 or 26-28 - Plating: 0.76 µm or 0.2 µm Au over Ni	Pre-mounted solder cup contacts Plating: 0.76 µm or 0.1 µm Au over Ni
Power contacts	Crimp - Rating: 10, 20, 30, 40 A - Plating: - Mating side 0.76 µm or 0.2 µm Au - Terminating side 0.2 µm Au Solder cup - Rating: 10, 20, 30, 40 A - Plating: - Mating side 0.76 µm or 0.2 µm Au - Terminating side 0.2 µm Au or 5 µm Sn	Crimp - Rating: 10, 20, 30, 40 A - Plating: - Mating side 0.76 µm or 0.2 µm Au - Terminating side 0.2 µm Au Solder cup - Rating: 10, 20, 30, 40 A - Plating: - Mating side 0.76 µm or 0.2 µm Au - Terminating side 0.2 µm Au or 5 µm Sn
Coaxial contacts ¹⁾	Solder/crimp termination resp. Crimp/crimp termination 50 or 75 Ω - Plating: - Mating side 1.3 µm or 0.2 µm Au inner conductor 0.76 µm or 0.2 µm Au outer ring - Terminating side 1.3 µm or 0.2 µm Au inner conductor 0.2 µm Au or 5 µm Sn outer ring - Ferrule 0.2 µm Au or 5 µm Sn - Cables: RG 178, 179 ...	Solder/crimp termination resp. Crimp/crimp termination 50 or 75 Ω - Plating: - Mating side 1.3 µm or 0.2 µm Au inner conductor 0.76 µm or 0.2 µm Au outer ring - Terminating side 1.3 µm or 0.2 µm Au inner conductor 0.2 µm Au or 5 µm Sn outer ring - Ferrule 0.2 µm Au or 5 µm Sn - Cables: RG 178, 179 ...
High voltage contacts	Solder termination Plating: 1.3 µm Au over Ni terminating and mating side	Solder termination Plating: 1.3 µm Au over Ni terminating and mating side

¹⁾ Coaxial contacts are provided in two versions:

- Inner conductor soldered and outer part crimped (solder/crimp termination)
- Both inner and outer part crimped (crimp/crimp termination); this version is recommended for medium or large size volume since crimping is faster than soldering.

Number of contacts 2, 3, 5, 7, 8, 9, 11, 13, 17, 21, 24, 25, 27, 36, 43

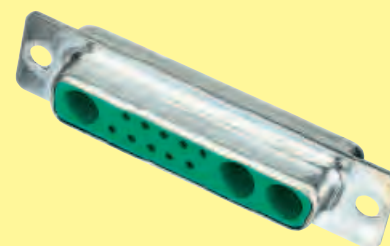
Approvals DIN 41 652, part 1

Working current 5 A for signal contacts

Temperature range -55 °C ... +125 °C
The higher temperature limit includes the ambient and heating effect of the contacts under load

Materials
Mouldings Thermoplastic resin, glass-fibre filled (Polyester)
UL 94-V0
color: green for standard
black for crimp

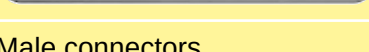
Metal shell Plated steel



7-27



D-Sub

Identification	No. of contacts ¹⁾	Part No.			
	7W2	male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	17W2	09 69 211 7072	09 69 211 5072	09 69 201 7072	09 69 201 5072
	21WA4	09 69 311 7172	09 69 311 5172	09 69 301 7172	09 69 301 5172
	27W2	09 69 411 7214	09 69 411 5214	09 69 401 7214	09 69 401 5214
	27W2	09 69 411 7272	09 69 411 5272	09 69 401 7272	09 69 401 5272

Technical drawing of a two-part mechanical assembly, showing front, side, and top views with dimensions and tolerances.

Front View (Top):

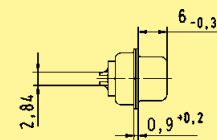
- Overall length: $12,5 \pm 0,4$
- Feature A: $0,25 \pm 0,2$
- Feature B: $0,25 \pm 0,2$
- Feature C: $0,25 \pm 0,2$
- Feature D: $0,25 \pm 0,2$
- Feature E: $0,25 \pm 0,2$
- Feature F: $0,25 \pm 0,2$
- Feature G: $0,25 \pm 0,2$
- Feature H: $0,25 \pm 0,2$
- Feature I: $0,25 \pm 0,2$
- Feature J: $0,25 \pm 0,2$
- Feature K: $0,25 \pm 0,2$
- Feature L: $0,25 \pm 0,2$
- Feature M: $0,25 \pm 0,2$
- Feature N: $0,25 \pm 0,2$
- Feature O: $0,25 \pm 0,2$
- Feature P: $0,25 \pm 0,2$
- Feature Q: $0,25 \pm 0,2$
- Feature R: $0,25 \pm 0,2$
- Feature S: $0,25 \pm 0,2$
- Feature T: $0,25 \pm 0,2$
- Feature U: $0,25 \pm 0,2$
- Feature V: $0,25 \pm 0,2$
- Feature W: $0,25 \pm 0,2$
- Feature X: $0,25 \pm 0,2$
- Feature Y: $0,25 \pm 0,2$
- Feature Z: $0,25 \pm 0,2$

Side View (Middle):

- Overall height: $8,1$
- Feature A: $0,25 \pm 0,2$
- Feature B: $0,25 \pm 0,2$
- Feature C: $0,25 \pm 0,2$
- Feature D: $0,25 \pm 0,2$
- Feature E: $0,25 \pm 0,2$
- Feature F: $0,25 \pm 0,2$
- Feature G: $0,25 \pm 0,2$
- Feature H: $0,25 \pm 0,2$
- Feature I: $0,25 \pm 0,2$
- Feature J: $0,25 \pm 0,2$
- Feature K: $0,25 \pm 0,2$
- Feature L: $0,25 \pm 0,2$
- Feature M: $0,25 \pm 0,2$
- Feature N: $0,25 \pm 0,2$
- Feature O: $0,25 \pm 0,2$
- Feature P: $0,25 \pm 0,2$
- Feature Q: $0,25 \pm 0,2$
- Feature R: $0,25 \pm 0,2$
- Feature S: $0,25 \pm 0,2$
- Feature T: $0,25 \pm 0,2$
- Feature U: $0,25 \pm 0,2$
- Feature V: $0,25 \pm 0,2$
- Feature W: $0,25 \pm 0,2$
- Feature X: $0,25 \pm 0,2$
- Feature Y: $0,25 \pm 0,2$
- Feature Z: $0,25 \pm 0,2$

Top View (Bottom):

- Overall width: $10,8 \pm 0,3$
- Feature A: $0,25 \pm 0,2$
- Feature B: $0,25 \pm 0,2$
- Feature C: $0,25 \pm 0,2$
- Feature D: $0,25 \pm 0,2$
- Feature E: $0,25 \pm 0,2$
- Feature F: $0,25 \pm 0,2$
- Feature G: $0,25 \pm 0,2$
- Feature H: $0,25 \pm 0,2$
- Feature I: $0,25 \pm 0,2$
- Feature J: $0,25 \pm 0,2$
- Feature K: $0,25 \pm 0,2$
- Feature L: $0,25 \pm 0,2$
- Feature M: $0,25 \pm 0,2$
- Feature N: $0,25 \pm 0,2$
- Feature O: $0,25 \pm 0,2$
- Feature P: $0,25 \pm 0,2$
- Feature Q: $0,25 \pm 0,2$
- Feature R: $0,25 \pm 0,2$
- Feature S: $0,25 \pm 0,2$
- Feature T: $0,25 \pm 0,2$
- Feature U: $0,25 \pm 0,2$
- Feature V: $0,25 \pm 0,2$
- Feature W: $0,25 \pm 0,2$
- Feature X: $0,25 \pm 0,2$
- Feature Y: $0,25 \pm 0,2$
- Feature Z: $0,25 \pm 0,2$



Solder cup termination for AWG 20 (0.5 mm²)

	a	b	c	d	e
7W2	24.6	39.1	27.5	33.30	25.2
17W2	38.3	53.0	41.3	47.04	38.9
21WA4	54.8	69.3	57.7	63.50	55.3
27W2	54.9	69.3	57.7	63.50	55.3

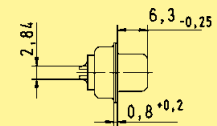
Technical drawing of a mechanical part, showing three views: front, top, and side.

Front View (Top): Shows a cylindrical part with a central hole and a series of smaller holes. The overall length is dimensioned as $12,5 \pm 0,4$. The distance from the left end to the first hole is $0,25$ (labeled A). The distance from the last hole to the right end is $0,25$ (labeled B). The total length is also dimensioned as $8,0 \pm 0,2$. The distance from the left end to the center of the first hole is a .

Top View (Bottom): Shows the part's profile. The overall width is dimensioned as $10,8 \pm 0,3$. The distance from the left end to the first hole is $0,25$ (labeled A). The distance from the last hole to the right end is $0,25$ (labeled B). The total width is also dimensioned as $6,3$. The distance from the left end to the center of the first hole is b . The distance from the center of the first hole to the center of the last hole is c . The distance from the center of the last hole to the right end is d . The distance from the left end to the center of the last hole is a .

Side View (Middle): Shows the part's profile. The overall height is dimensioned as $6,3$. The distance from the left end to the first hole is $0,25$ (labeled A). The distance from the last hole to the right end is $0,25$ (labeled B). The total height is also dimensioned as $10,8 \pm 0,3$. The distance from the left end to the center of the first hole is b . The distance from the center of the first hole to the center of the last hole is c . The distance from the center of the last hole to the right end is d . The distance from the left end to the center of the last hole is a .

Other Dimensions: The diameter of the central hole is $\varnothing 3,1 \pm 0,1$.



Solder cup termination for AWG 20 (0.5 mm²)

Dimensions in mm

Number of contacts

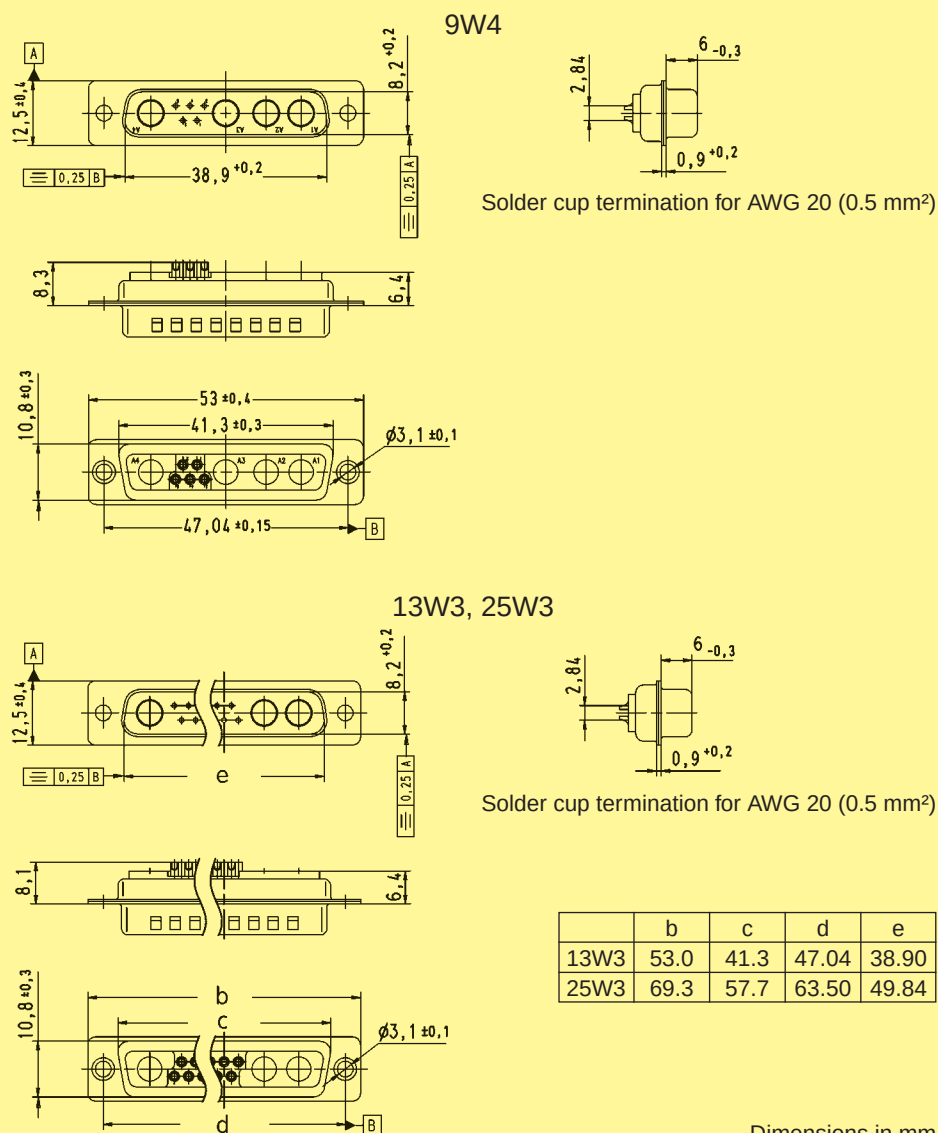
9–25



Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part No.			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	9W4	09 69 311 7094	09 69 311 5094	09 69 301 7094	09 69 301 5094
	13W3	09 69 311 7133	09 69 311 5133	09 69 301 7133	09 69 301 5133
	25W3	09 69 411 7253	09 69 411 5253	09 69 401 7253	09 69 401 5253

Male connectors

¹⁾ Explanations see page 05.49²⁾ S4: $\geq 0.76 \mu\text{m Au}$

Board drillings see pages 05.76 ff

Drawings for female connectors see page 05.55

Order special contacts separately. See pages 05.67 ff

Number of contacts

9–25



Mixed shells with pre-mounted signal solder cup contacts

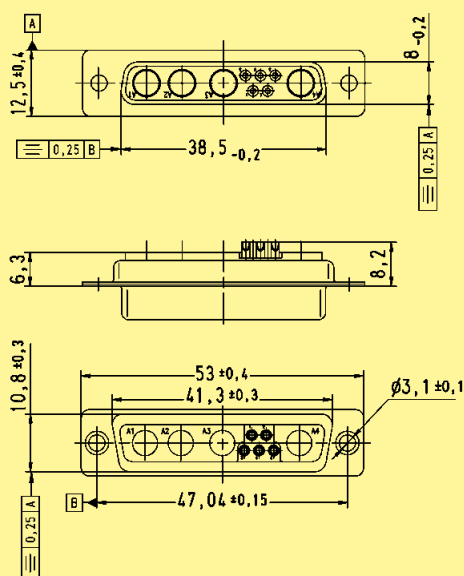
Identification

Drawing

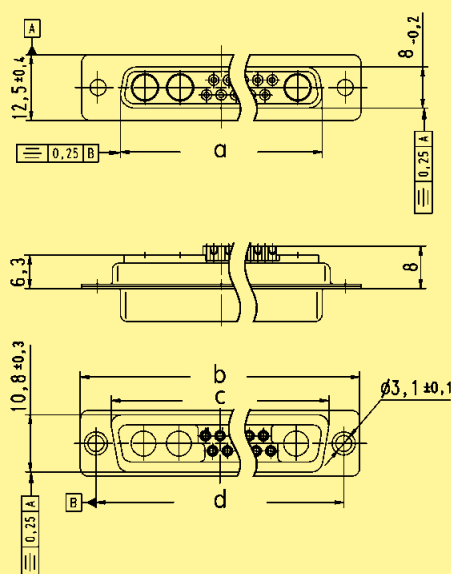
Dimensions in mm

Female connectors

9W4

Solder cup termination for AWG 20 (0.5 mm²)

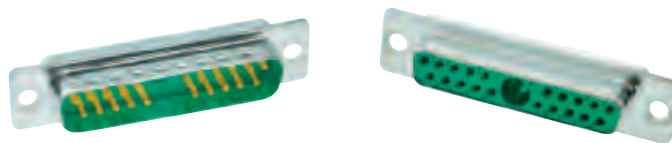
13W3, 25W3

Solder cup termination for AWG 20 (0.5 mm²)

	a	b	c	d
13W3	38.3	53.0	41.3	47.04
25W3	54.9	69.3	57.7	63.50

Number of contacts

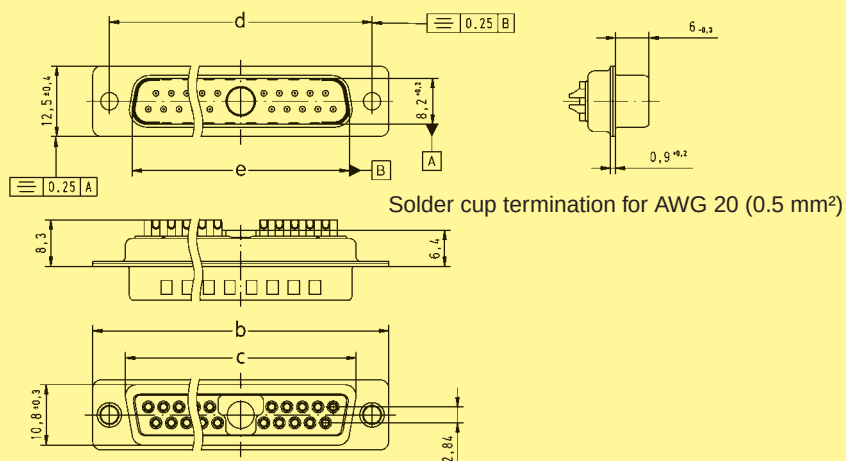
5–21



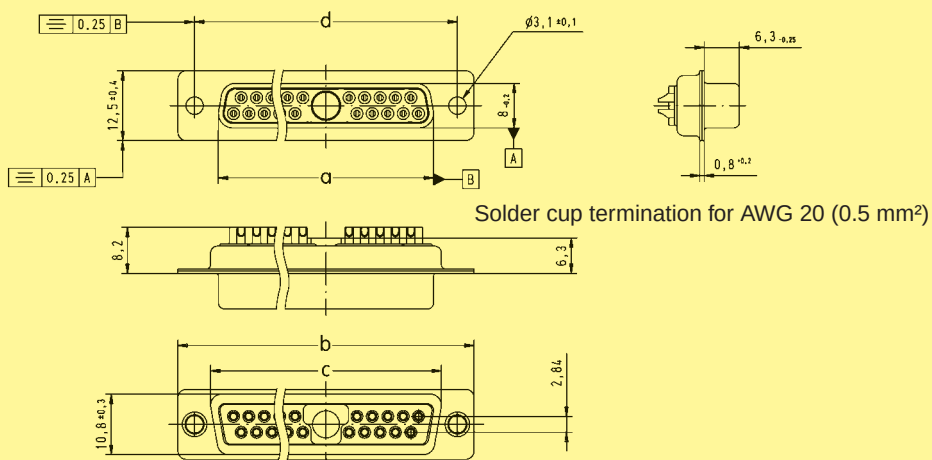
Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part No.			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	5W1	09 69 111 7051	09 69 111 5051	09 69 101 7051	09 69 101 5051
	11W1	09 69 211 7111	09 69 211 5111	09 69 201 7111	09 69 201 5111
	21W1	09 69 311 7211	09 69 311 5211	09 69 301 7211	09 69 301 5211

Male connectors



Female connectors



	a	b	c	d	e
5W1	16.4	30.8	19.3	25.00	16.9
11W1	24.7	39.1	27.5	33.30	25.2
21W1	38.5	53.0	41.3	47.04	38.9

Dimensions in mm

¹⁾ Explanations see page 05.49²⁾ S4: $\geq 0.76 \mu\text{m Au}$

Board drillings see pages 05.76 ff

Order special contacts separately. See pages 05.67 ff

13



Identification	No. of contacts ¹⁾	Part No.			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	13W6	09 69 411 7136	09 69 411 5136	09 69 401 7136	09 69 401 5136

Technical drawing of a shaft with a length of 1000 mm and a diameter of 100 mm. The shaft features a 6 mm diameter hole and a 0.9 mm diameter hole.

Technical drawing of the 1000 Series LED strip light, showing three views: top, side, and bottom. The drawing includes dimensions for length, width, height, and mounting hole diameter.

Top View Dimensions:

- Length: $63,5 \pm 0,15$ mm
- Width: $12,5 \pm 0,4$ mm
- Mounting hole diameter: $\varnothing 3,1 \pm 0,1$ mm
- Distance between mounting holes: $54,9 \pm 0,2$ mm

Side View Dimensions:

- Height: $6,3$ mm
- Mounting hole diameter: $\varnothing 3,1 \pm 0,1$ mm

Bottom View Dimensions:

- Length: $69,3 \pm 0,4$ mm
- Mounting hole diameter: $\varnothing 3,1 \pm 0,1$ mm

Detail View Dimensions:

- Mounting hole diameter: $\varnothing 3,1 \pm 0,1$ mm
- Distance between mounting holes: $54,9 \pm 0,2$ mm

Table of Dimensions for 1000 Series LED strip light

Series	Length (mm)	Width (mm)	Height (mm)	Mounting hole diameter (mm)	Distance between mounting holes (mm)
1000	63,5 ± 0,15	12,5 ± 0,4	6,3	Ø3,1 ± 0,1	54,9 ± 0,2

Technical drawing of a bolt head and nut assembly. The drawing shows a bolt head on the left and a nut on the right. The bolt head has a hexagonal shape with a central hole. The nut is a hexagonal nut with a central hole. The dimensions are given as $6,3 \pm 0,25$ for the bolt head width and $0,8 \pm 0,2$ for the nut width.

D-Sub

Number of contacts

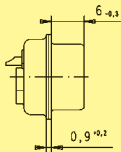
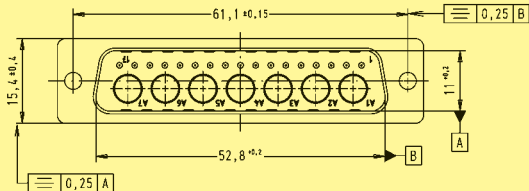
24



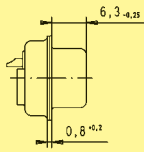
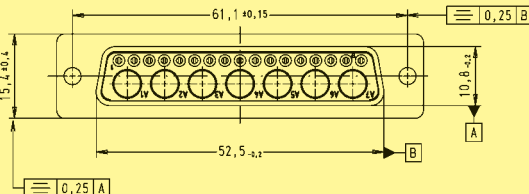
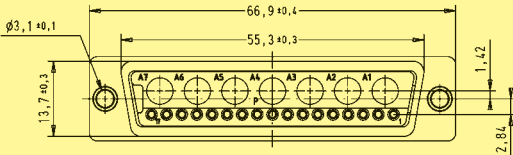
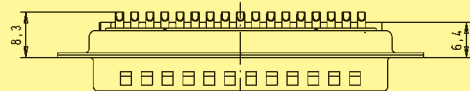
Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part No.			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	24W7	09 69 511 7247	09 69 511 5247	09 69 501 7247	09 69 501 5247

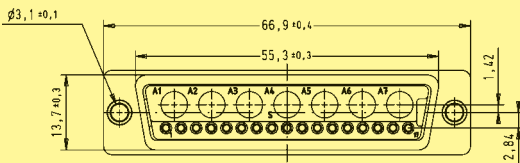
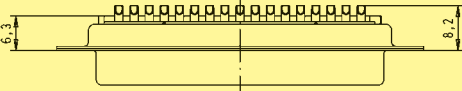
Male connectors



Solder cup termination for AWG 20 (0.5 mm²)



Solder cup termination for AWG 20 (0.5 mm²)



Female connectors

Dimensions in mm

¹⁾ Explanations see page 05.49
²⁾ S4: $\geq 0.76 \mu\text{m Au}$
Board drillings see pages 05.76 ff

Order special contacts separately. See pages 05.67 ff

Number of contacts

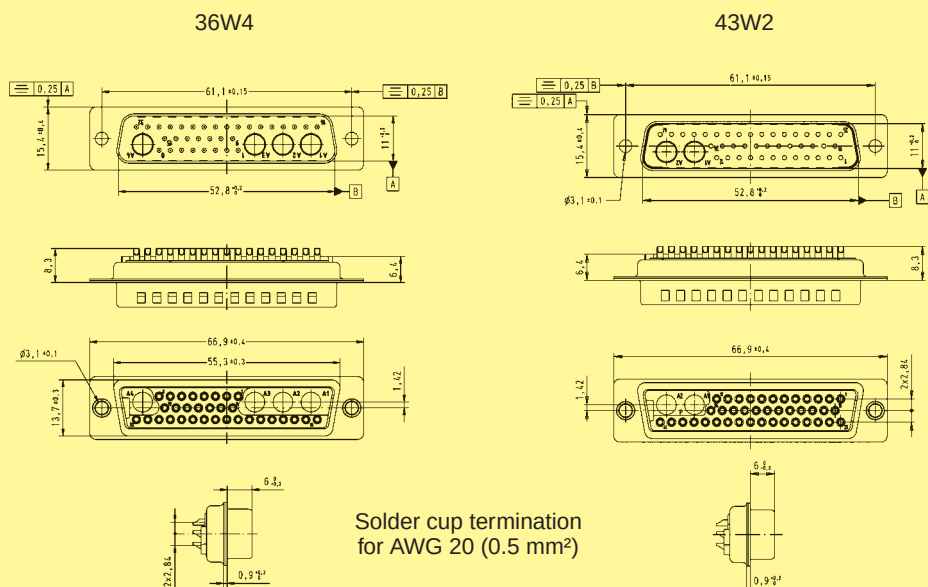
36–43



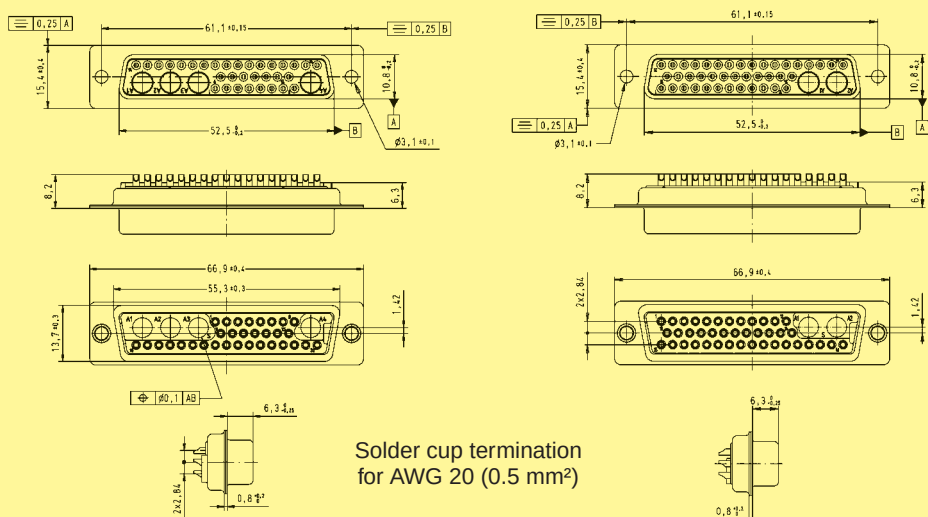
Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part No.			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	36W4	09 69 511 7364	09 69 511 5364	09 69 501 7364	09 69 501 5364
	43W2	09 69 511 7432	09 69 511 5432	09 69 501 7432	09 69 501 5432

Male connectors



Female connectors



Dimensions in mm

¹⁾ Explanations see page 05.49
²⁾ S4: $\geq 0.76 \mu\text{m Au}$
 Board drillings see pages 05.76 ff

Order special contacts separately. See pages 05.67 ff

Number of contacts

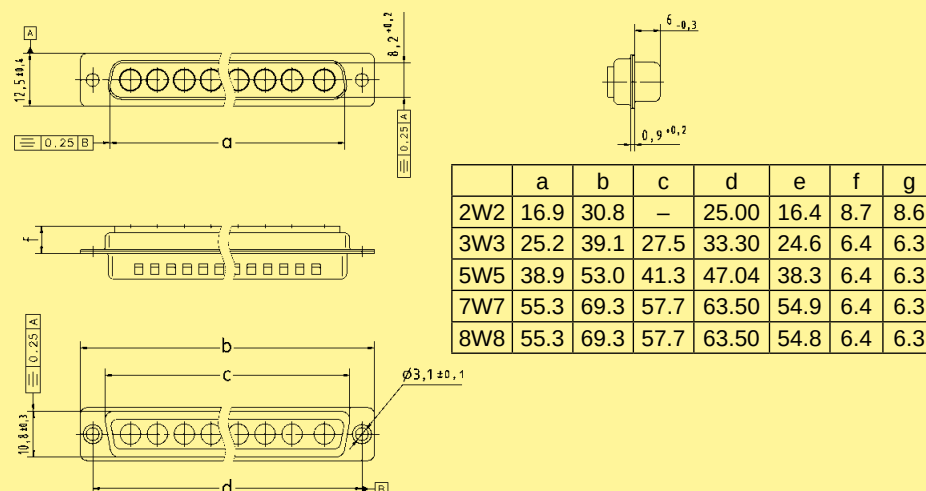
2–8



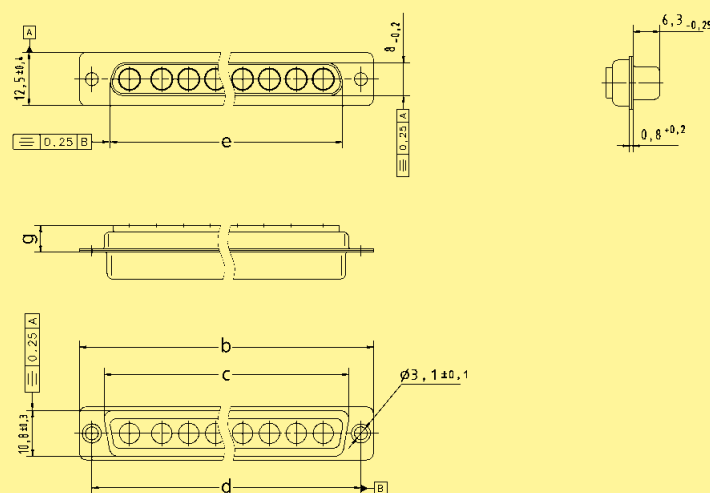
Shells without signal contacts for cable applications

Identification	No. of contacts ¹⁾	Part No.
		male connectors
	2W2	09 69 110 0522
	3W3	09 69 210 0033
	5W5	09 69 310 0055
	7W7	09 69 410 0077
	8W8	09 69 410 0088
		female connectors
		09 69 100 0522
		09 69 200 0033
		09 69 300 0055
		09 69 400 0077
		09 69 400 0088

Male connectors



Female connectors

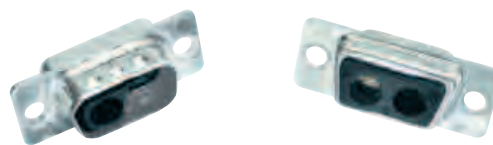


Dimensions in mm

¹⁾ Explanations see page 05.49
 Board drillings see pages 05.76 ff
 Order special contacts separately. See pages 05.67 ff

Number of contacts

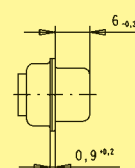
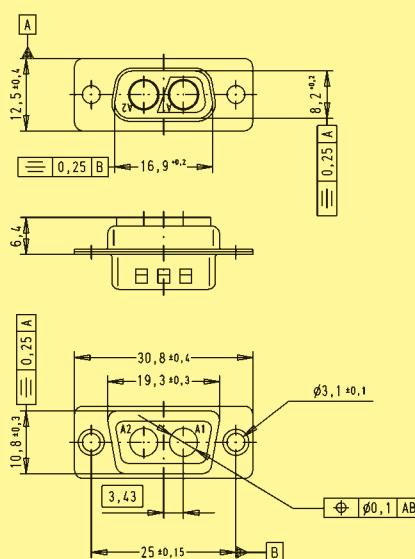
2



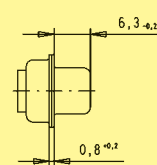
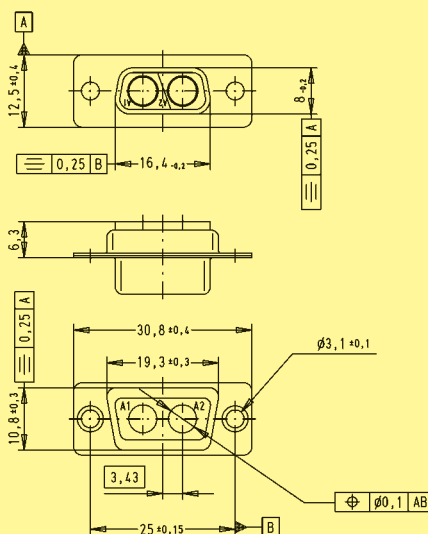
Coded shells without signal contacts for cable applications

Identification	No. of contacts ¹⁾	Part No.
		male connector
	2W2C	09 69 110 0022
		female connector
		09 69 100 0022

Male connectors



Female connectors

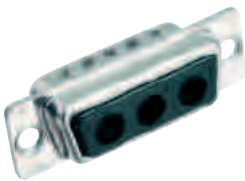


Dimensions in mm

¹⁾ Explanations see page 05.49
 Board drillings see pages 05.76 ff
 Order special contacts separately. See pages 05.67 ff

Number of contacts

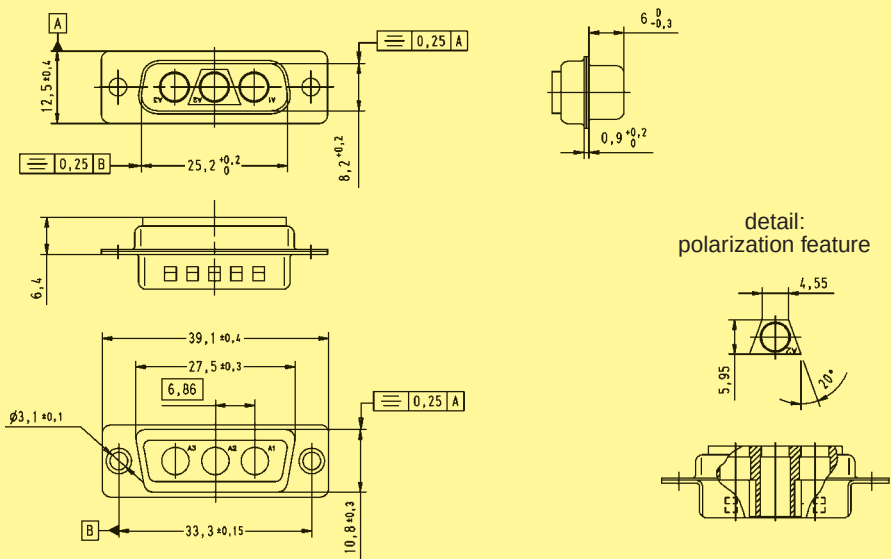
3



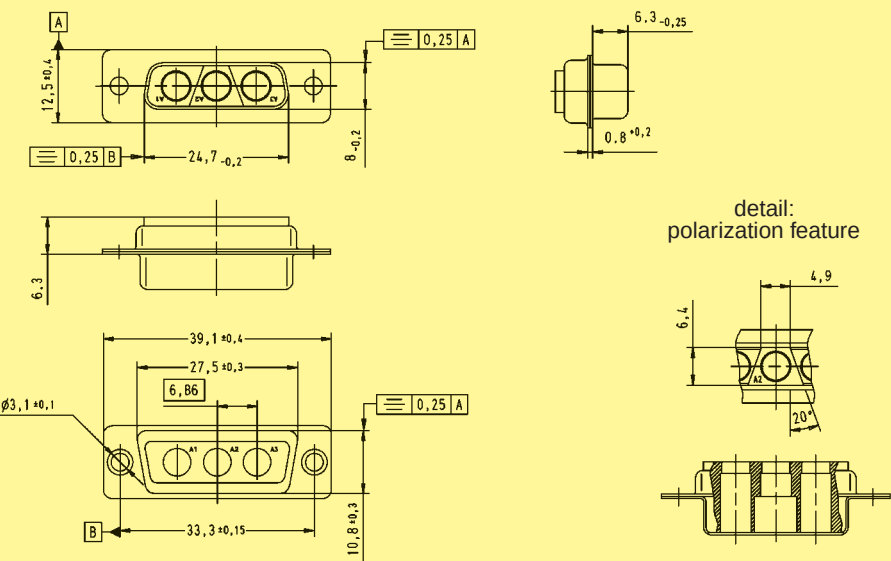
Coded shells without signal contacts for cable applications

Identification	No. of contacts ¹⁾	Part No.	
		male connector	female connector
	3W3C	09 69 210 0633	09 69 200 0633

Male connectors



Female connectors



Dimensions in mm

¹⁾ Explanations see page 05.49
Board drillings see pages 05.76 ff
Order special contacts separately. See pages 05.67 ff

Number of contacts

7-21

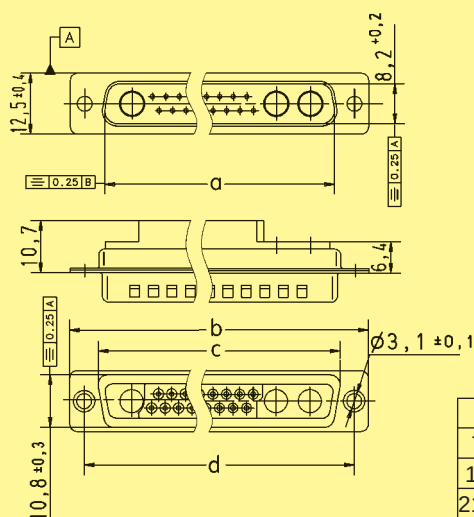


Mixed shells for signal crimp contacts

Identification	No. of contacts ¹⁾	Part No.	
		male connectors	female connectors
	7W2	09 69 212 0072	09 69 202 0072
	17W2	09 69 312 0172	09 69 302 0172
	21WA4	09 69 412 0214	09 69 402 0214

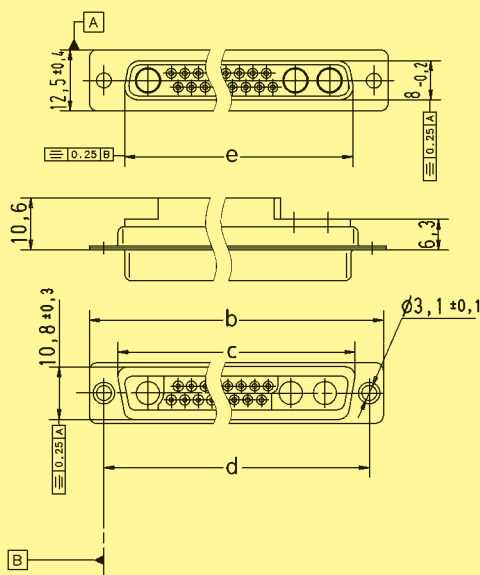
D-Sub

Male connectors



	a	b	c	d	e
7W2	25.2	39.1	27.5	33.30	24.7
17W2	38.9	53.0	41.3	47.04	38.5
21WA4	55.3	69.3	57.7	63.50	54.9

Female connectors



Dimensions in mm

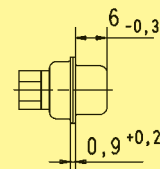
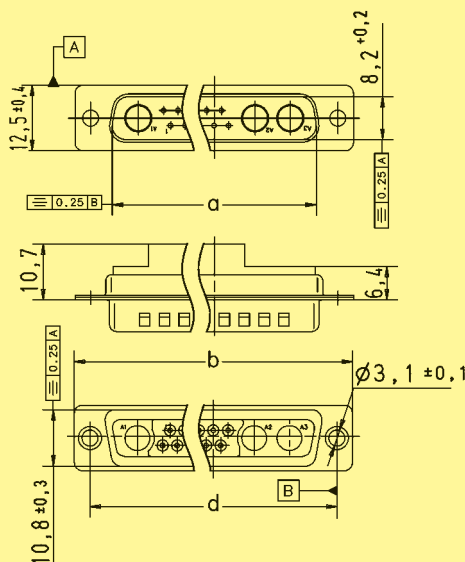
¹⁾ Explanations see page 05.49
 Board drillings see pages 05.76 ff
 Order special contacts separately. See pages 05.67 ff

13-25

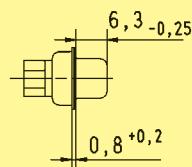
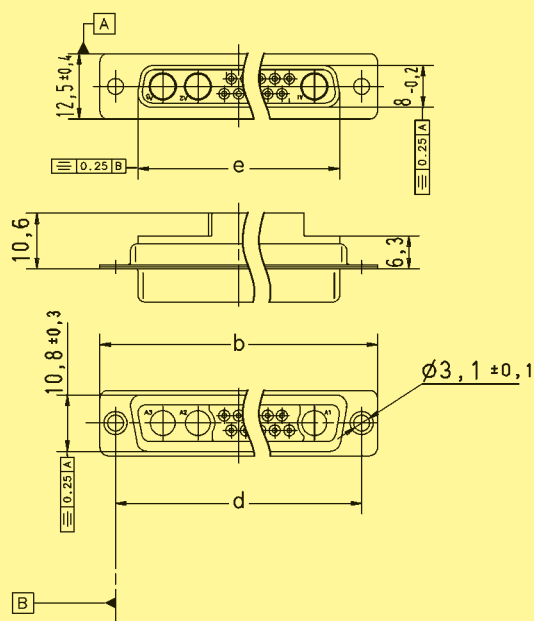


Mixed shells for signal crimp contacts

Identification	No. of contacts ¹⁾	Part No.	
		male connector	female connector
	13W3	09 69 312 0133	09 69 302 0133
	25W3	09 69 412 0253	09 69 402 0253

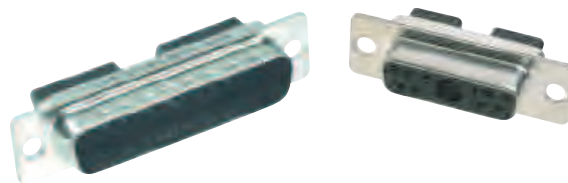


	a	b	d	e
13W3	38.9	53.0	47.04	38.5
25W3	55.3	69.3	63.50	54.9



Dimensions in mm

Number of contacts

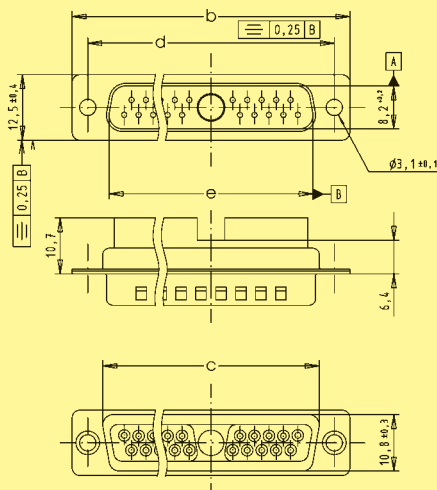
11–21

Mixed shells for signal crimp contacts

Identification	No. of contacts ¹⁾	Part No.	
		male connectors	female connectors
	11W1	09 69 212 0111	09 69 202 0111
	21W1	09 69 312 0211	09 69 302 0211

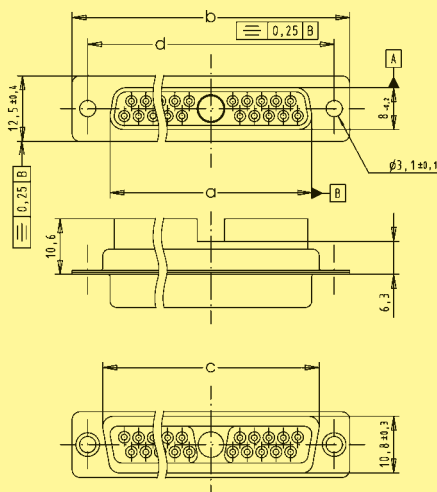
D-Sub

Male connectors



	a	b	c	d	e
11W1	24.7	39.1	27.5	33.30	25.2
21W1	38.5	53.0	41.3	47.04	38.9

Female connectors



Dimensions in mm

¹⁾ Explanations see page 05.49
 Order special contacts separately. See pages 05.67 ff
 Board drillings see pages 05.76 ff

Number of contacts

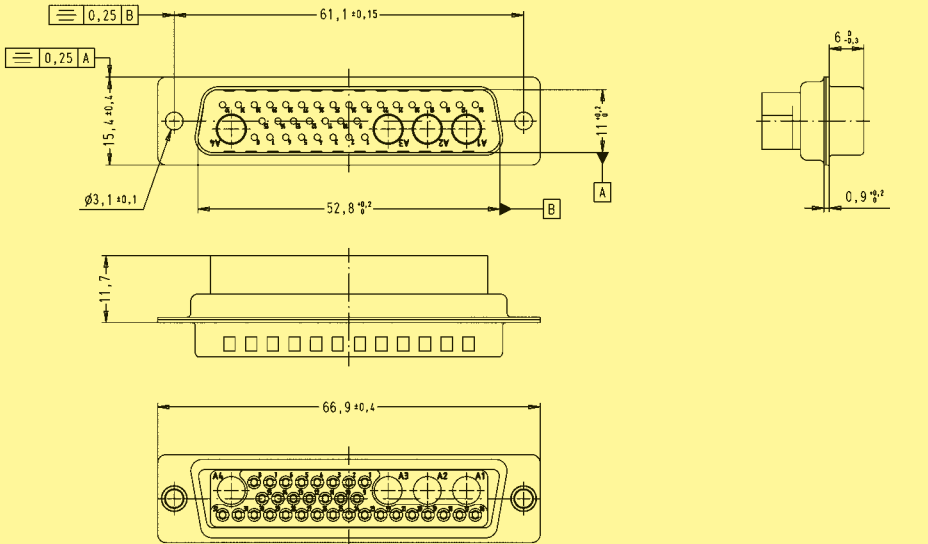
36



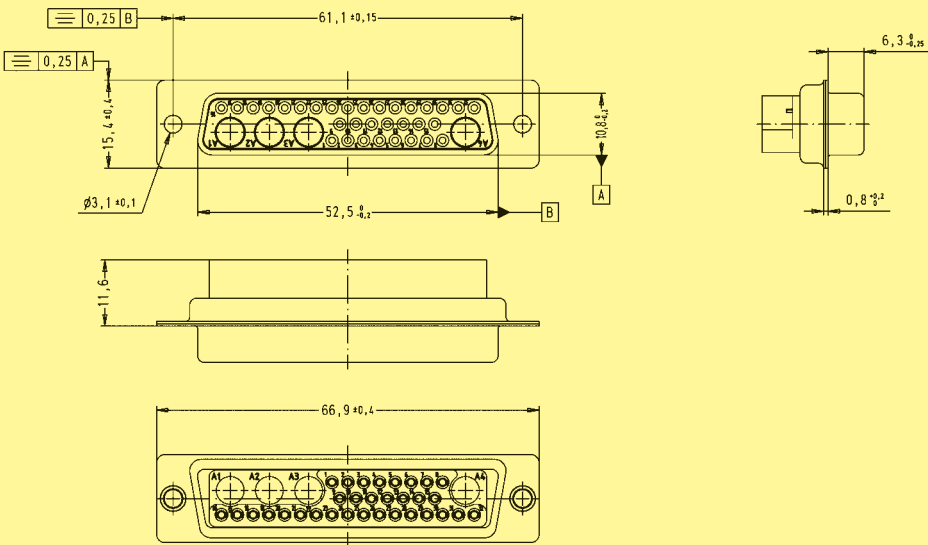
Mixed shells for signal crimp contacts

Identification	No. of contacts ¹⁾	Part No.	
		male connector	female connector
	36W4	09 69 512 0364	09 69 502 0364

Male connectors



Female connectors



Dimensions in mm

¹⁾ Explanations see page 05.49
Board drillings see pages 05.76 ff
Order special contacts separately. See pages 05.67 ff

	Signal contacts see page 05.68	Coaxial contacts see pages 05.72 – 05.74	Power contacts see pages 05.70 + 05.71	High voltage contacts see page 05.69	Pneumatic contacts see page 05.75
Working current	5 A	2 A	10 A, 20 A, 30 A or 40 A	6 A DC	–
Test voltage $U_{r.m.s.}$	–	750 V / 50 Hz	–	4 kV / 50 Hz	–
Operating voltage	–	–	–	≤ 3 kV	–
Contact resistance	–	≤ 10 mΩ (inner and outer conductor)	≤ 1 mΩ	≤ 3 mΩ (outer conductor)	–
Impedance	–	50 / 75 Ω	–	–	–
Frequency range	–	0 - 2 GHz	–	–	–
Temperature range	–	-55 °C ... +135 °C	-55 °C ... +155 °C	-55 °C ... +125 °C	-10 °C ... +60 °C
Mating cycles					
high performance level	≥ 500	≥ 500	≥ 500	–	–
standard performance level	–	≥ 200	≥ 200	≥ 500	–
Mating force	≤ 3.4 N	≤ 7 N/mated pair	≤ 7 N/mated pair	≤ 5 N	–
Unmating force	≥ 0.2 N	≤ 7 N/mated pair	appr. 5 N	appr. 2.5 N	–
Max. pressure	–	–	–	–	7 bars at 20 °C
Materials					
Contacts	Copper alloy	Copper alloy	Copper alloy	Copper alloy	German silver
Plating for PCB applications*					
Mating side / terminating side	0.76 μm Au / 0.76 μm Au		0.76 μm Au / 5 μm Sn or 0.2 μm Au / 5 μm Sn	1.3 μm Au / 1.3 μm Au	–
Inner conductor mating side / terminating side	–	1.3 μm Au / 1.3 μm Au or 0.2 μm Au / 0.2 μm Au	–	–	–
Outer conductor mating side / terminating side	–	0.76 μm Au / 0.2 μm Au or 0.2 μm Au / 5 μm Sn	–	–	–
Retaining clip	–	Copper alloy	Copper alloy	PI	–
Insulator	–	PBFE/PBTP/PI	–	PTFE	–
O-ring	–	–	–	–	Vitton

Technical characteristics for shells see page 05.04

* **High performance** or standard performance level

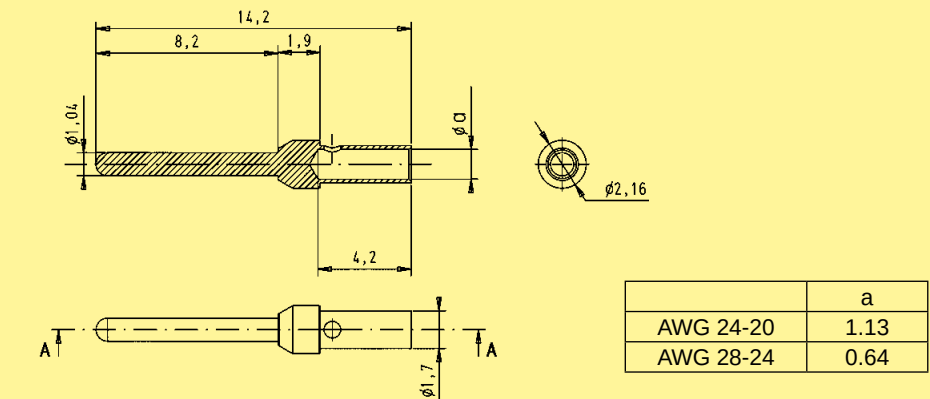


Turned crimp contacts for cable applications

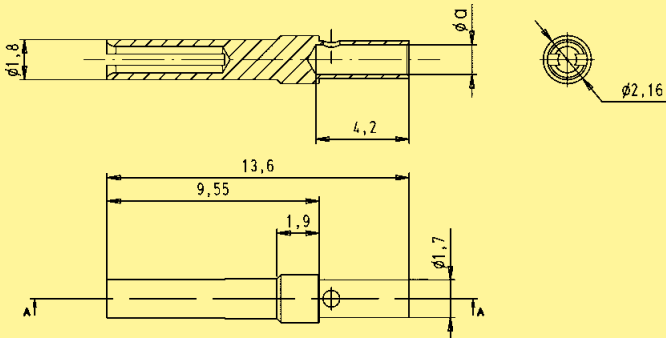
Identification	Wire gauge (mm ²)	Part No.	
Individual contacts ¹⁾		turned male contacts	turned female contacts
		Performance level 1*	Performance level 1*
	AWG 24-20 0.25-0.52	09 67 000 8576	09 67 000 8476
	AWG 28-24 0.09-0.25	09 67 000 7576	09 67 000 7476

¹⁾ Minimum order 100 pieces or multiples of 100

Male contacts



Female contacts



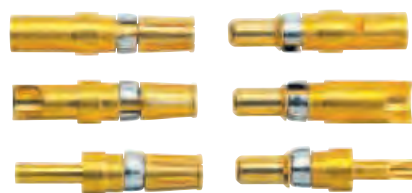
* Performance level 1 as per CECC 75 301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60 512
Use crimp tool with the part no. 09 99 000 0501 and the locator with the part no. 09 99 000 0531. Details see chapter 20



High voltage contacts for cable applications

Identification	Wire gauge (mm ²)	Part No.	
Straight versions	with solder termination	Male contacts Plating: 1.3 µm Au ¹⁾	Female contacts Plating: 1.3 µm Au ¹⁾
	with crimp termination ²⁾		
Right angled versions	with solder termination		
	with crimp termination ²⁾		
Straight versions	with solder termination	Male contacts	Female contacts
	with crimp termination ²⁾		
Right angled versions	with solder termination		
	with crimp termination ²⁾		

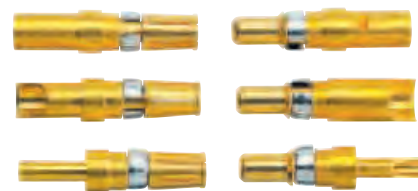
¹⁾ for mating and terminating side²⁾ Tooling see chapter 20



Straight power contacts for cable applications

Identification	Rating (A)	Part No.	
Performance levels 		Performance level 3	S4 ¹⁾
Solder version			
Male contacts	10	09 69 281 7420	09 69 281 5420
	20	09 69 281 7421	09 69 281 5421
	30	09 69 281 7422	09 69 281 5422
	40	09 69 281 7423	09 69 281 5423
Short male contacts	20	09 69 281 7821	09 69 281 5821
	40	09 69 281 7823	09 69 281 5823
Female contacts	10	09 69 181 7420	09 69 181 5420
	20	09 69 181 7421	09 69 181 5421
	30	09 69 181 7422	09 69 181 5422
	40	09 69 181 7423	09 69 181 5423
Short female contacts	20	09 69 181 7821	09 69 181 5821
	40	09 69 181 7823	09 69 181 5823
Crimp version ²⁾			
Male contacts	10	09 69 282 7420	09 69 282 5420
	20	09 69 282 7421	09 69 282 5421
	30	09 69 282 7422	09 69 282 5422
	40	09 69 282 7423	09 69 282 5423
Short male contacts	20	09 69 282 7821	09 69 282 5821
	40	09 69 282 7823	09 69 282 5823
Female contacts	10	09 69 182 7420	09 69 182 5420
	20	09 69 182 7421	09 69 182 5421
	30	09 69 182 7422	09 69 182 5422
	40	09 69 182 7423	09 69 182 5423
Short female contacts	20	09 69 182 7821	09 69 182 5821
	40	09 69 182 7823	09 69 182 5823

¹⁾ S4: $\geq 0.76 \mu\text{m Au}$ ²⁾ Tooling see chapter 20



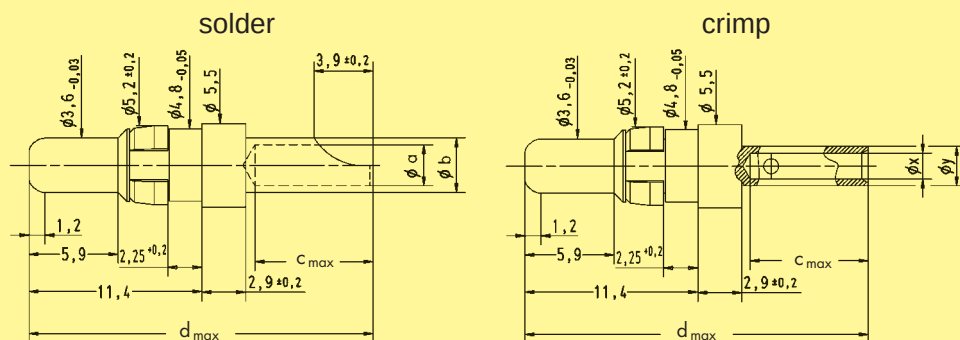
Straight power contacts for cable applications

Identification

Drawing

Dimensions in mm

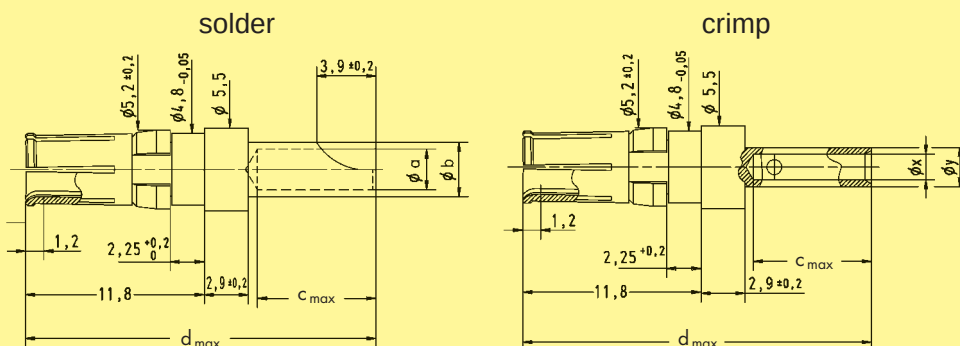
Male contacts



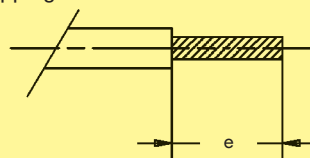
	Rating (A)	$\phi a -0.1$	$\phi b \pm 0.05$	C_{max}	d_{max}	e	$\phi x -0.1$	$\phi y \pm 0.05$	AWG
	10	1.8	2.54	7.8	23	7.5	1.7	2.6	16 - 20
	20	2.7	3.63	7.8	23	7.5	2.6	3.6	12 - 14
short version	20	2.7	3.63	4.7	19.2	4.5	2.6	3.6	12 - 14
	30	3.5	4.40	7.8	23	7.5	3.7	4.7	10 - 12
	40	4.8	5.50	7.8	23	7.5	4.6	5.8	8 - 10
short version	40	4.8	5.50	6.4	20	6.1	4.6	5.8	8 - 10

	Rating (A)	min./max. conductor ϕ	min./max. conductor cross section [mm ²]
	10	0.9 to 1.7	0.64 to 2.27
	20	1.8 to 2.6	2.54 to 5.31
short version	20	1.8 to 2.6	2.54 to 5.31
	30	2.2 to 3.7	3.80 to 10.75
	40	2.9 to 4.6	6.61 to 16.62
short version	40	2.9 to 4.6	6.61 to 16.62

Female contacts

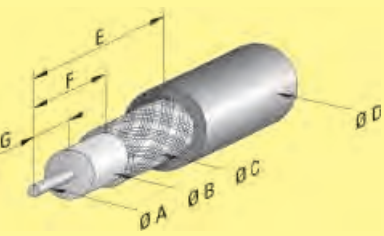


stripping dimensions for male and female contacts





Coaxial contacts for cable applications

Identification		Impedance (Ω)	Part No.							
			Straight male contacts			Straight female contacts				
			Performance level 3	S4 ¹⁾		Performance level 3	S4 ¹⁾			
Solder / crimp contact										
for cables RG 174 U, 188 AU, 316 U		50	09 69 281 7140	09 69 281 5140		09 69 181 7140	09 69 181 5140			
for cables RG 178 BU, 196 AU, 404 U		50	09 69 281 7141	09 69 281 5141		09 69 181 7141	09 69 181 5141			
for cables RG 58 CU, 141 AU		50	09 69 281 7143	09 69 281 5143		09 69 181 7143	09 69 181 5143			
for cables RG 179 BU, 187 AU		75	09 69 281 7230	09 69 281 5230		09 69 181 7230	09 69 181 5230			
for cables RGD 179		75	09 69 281 7233	09 69 281 5233		09 69 181 7233	09 69 181 5233			
Crimp / crimp contact										
for cables RG 174 U, 188 AU, 316 U		50	09 69 282 7140	09 69 282 5140		09 69 182 7140	09 69 182 5140			
for cables RG 179 BU, 187 AU		75	09 69 282 7230	09 69 282 5230		09 69 182 7230	09 69 182 5230			
for cables RG 59		75	09 69 282 7232	09 69 282 5232		09 69 182 7232	09 69 182 5232			
for cables RGD 179		75	09 69 282 7233	09 69 282 5233		09 69 182 7233	09 69 182 5233			
Harnessing dimensions (mm) 		Part No.								
		09 69 181 x140 09 69 281 x140		0.85	1.9	2.3	3.2	9.5	5.0	3.0
		09 69 181 x141 09 69 281 x141		0.85	1.2	1.4	2.3	9.5	5.0	3.0
		09 69 181 x143 09 69 281 x143		1.00	3.0	4.4	5.2	9.5	5.0	3.0
		09 69 181 x230 09 69 281 x230		0.50	1.9	2.3	3.2	9.5	5.0	3.0
		09 69 182 x140 09 69 282 x140		0.60	1.9	2.4	3.2	9.0	5.0	3.0
		09 69 182 x230 09 69 282 x230		0.60	1.9	2.4	3.2	9.0	5.0	3.0
		09 69 182 x232 09 69 282 x232		0.95	3.8	5.1	6.2	9.0	4.3	3.7
		09 69 181 x233 09 69 281 x233		0.50	1.9	2.6	3.5	9.5	5.0	3.0
		09 69 182 x233 09 69 282 x233		0.60	1.9	2.6	3.5	9.3	4.3	3.0

¹⁾ S4: ≥ 0.76 µm Au

Dimensions see pages 05.73 and 05.74

Tooling see chapter 20



Coaxial contacts for cable applications

Identification

Drawing

Dimensions in mm

Male contacts

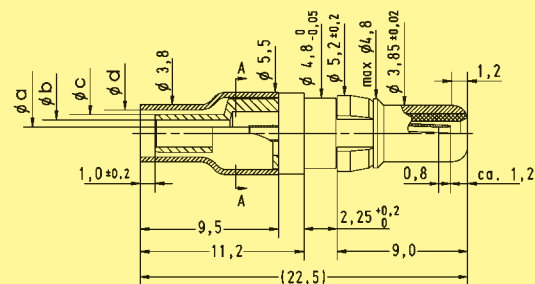
Part No.	ø a	ø b	ø c	ø d
09 69 281 x140	0.85	1.9	2.6	3.2
09 69 281 x141	0.85	1.2	1.7	2.3
09 69 281 x230	0.50	1.9	2.6	3.2

Part No.	ø a	ø b	ø c	ø d
09 69 281 x143	1.0	3.0	4.4	5.2

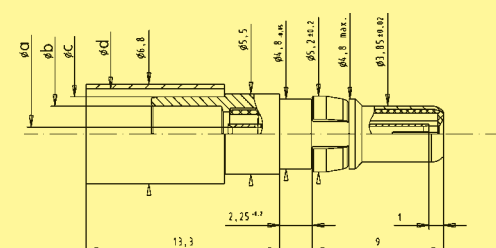
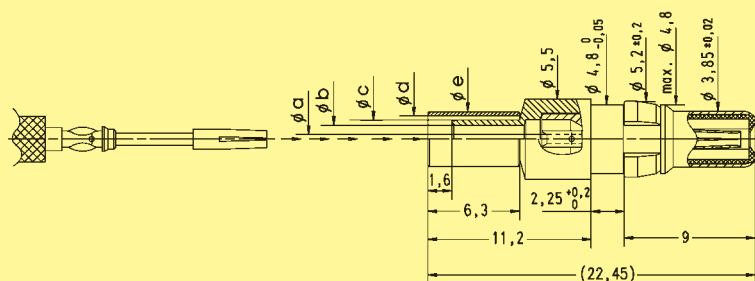
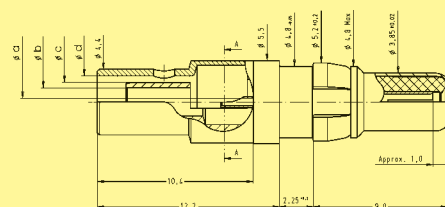
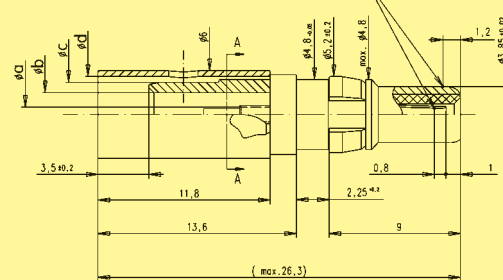
Part No.	ø a	ø b	ø c	ø d
09 69 281 x233	0.5	1.9	2.6	3.5

Part No.	ø a	ø b	ø c	ø d	ø e
09 69 282 x140	0.6	1.9	2.6	3.2	3.8
09 69 282 x230	0.6	1.9	2.6	3.2	3.8
09 69 282 x233	0.6	1.9	2.6	3.5	4.4

Part No.	ø a	ø b	ø c	ø d
09 69 282 x232	0.95	3.8	5.1	6.2



Points of plating thickness measurement





Coaxial contacts for cable applications

Identification

Drawing

Dimensions in mm

Female contacts

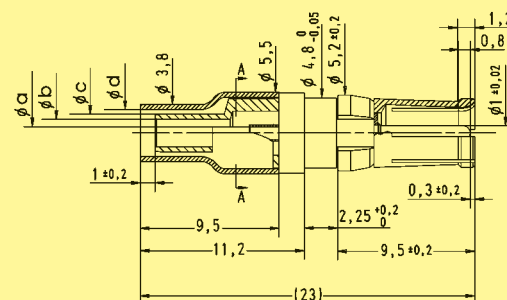
Part No.	$\varnothing a$	$\varnothing b$	$\varnothing c$	$\varnothing d$
09 69 181 x140	0.85	1.9	2.6	3.2
09 69 181 x141	0.85	1.2	1.7	2.3
09 69 181 x230	0.50	1.9	2.6	3.2

Part No.	$\varnothing a$	$\varnothing b$	$\varnothing c$	$\varnothing d$
09 69 181 x143	1.0	3.0	4.4	5.2

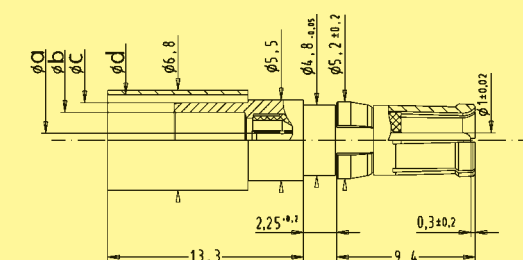
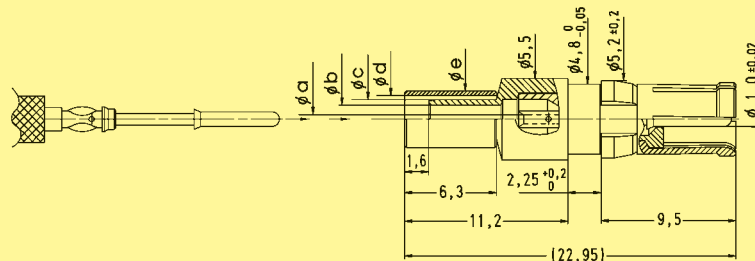
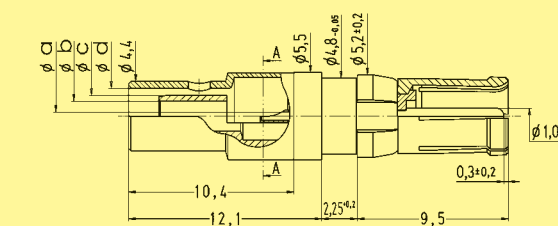
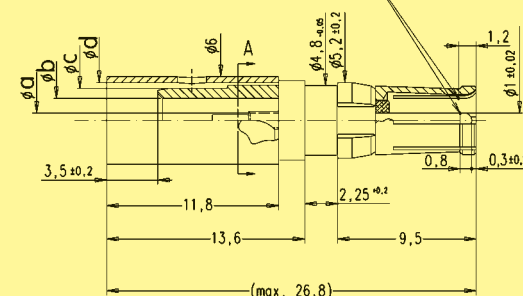
Part No.	$\varnothing a$	$\varnothing b$	$\varnothing c$	$\varnothing d$
09 69 181 x233	0.5	1.9	2.6	3.5

Part No.	$\varnothing a$	$\varnothing b$	$\varnothing c$	$\varnothing d$	$\varnothing e$
09 69 182 x140	0.6	1.9	2.6	3.2	3.8
09 69 182 x230	0.6	1.9	2.6	3.2	3.8
09 69 182 x233	0.6	1.9	2.6	3.5	4.4

Part No.	$\varnothing a$	$\varnothing b$	$\varnothing c$	$\varnothing d$
09 69 182 x232	0.95	3.8	5.1	6.2



Points of plating thickness measurement

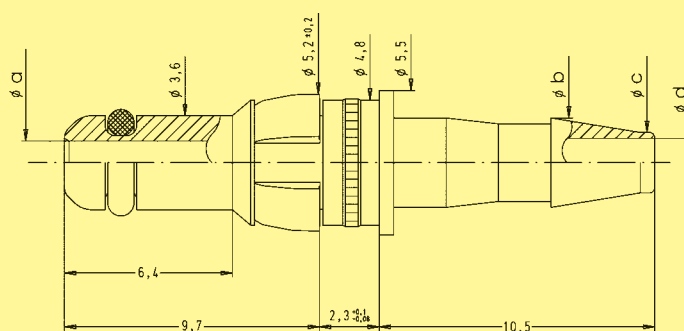




Pneumatic contacts for cable applications

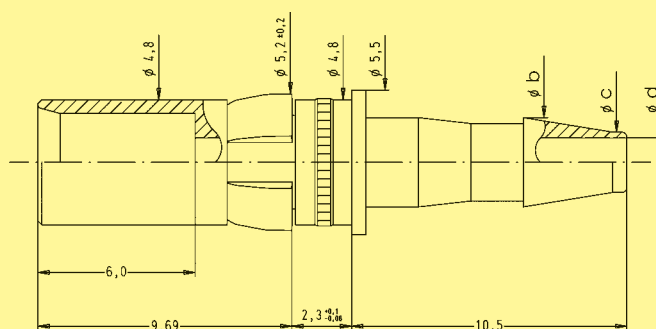
Identification	Inner diameter air tube (mm)	Part No.
Male contacts	2 2.6 3 4	09 69 287 0060 09 69 287 0061 09 69 287 0062 09 69 287 0063
Female contacts	2 2.6 3 4	09 69 187 0060 09 69 187 0061 09 69 187 0062 09 69 187 0063

Male contacts



Part No.	Ø a	Ø b	Ø c	Ø d
09 69 x87 0060	1.45	2.6	1.5	0.95
09 69 x87 0061	1.65	3.1	2.0	1.65
09 69 x87 0062	1.65	3.4	2.3	1.85
09 69 x87 0063	1.65	4.8	3.7	2.95

Female contacts



Dimensions in mm

Board drillings for connectors with straight pcb contacts

Pcb hole patterns

In the next pages, the pcb hole pattern is given for the power and the coaxial contact per connector layout. In the case of the power contact, the drilling hole dimension is not mentioned; the table here under provides relevant information according to the current rating of the contact and its version.

Power contact diameter and pcb related drilling diameter

Rating	Straight connectors		Right angled connectors	
	Pin Ø (mm)	Pcb drilling Ø (mm)	Pin Ø (mm)	Pcb drilling Ø (mm)
20 A	2.60	2.9	2.85	3.15
30 A	—	—	3.20	3.50
40 A	3.75	4.0	3.75	4.05

Identification

Drawing

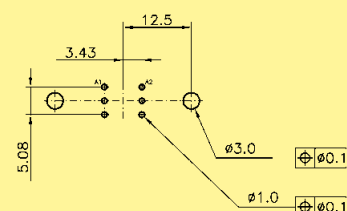
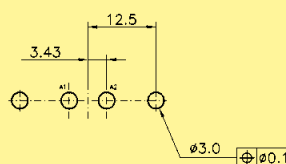
Dimensions in mm

Male connector*

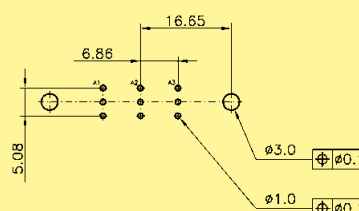
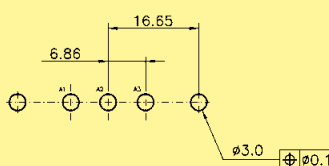
Power contact

Coaxial contact

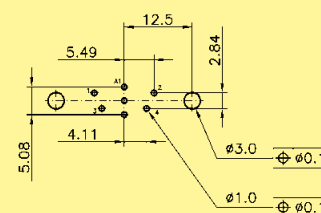
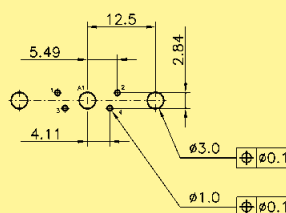
2W2 / 2W2C



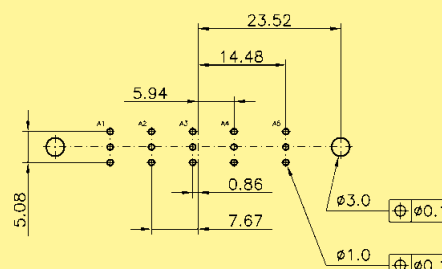
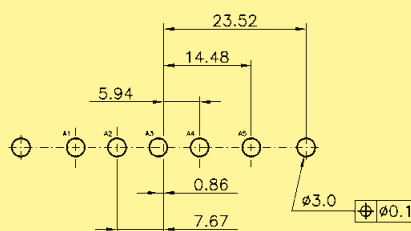
3W3 / 3W3C



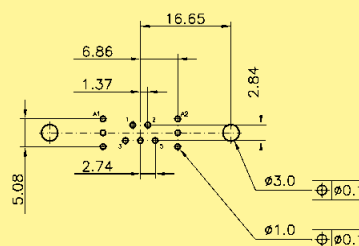
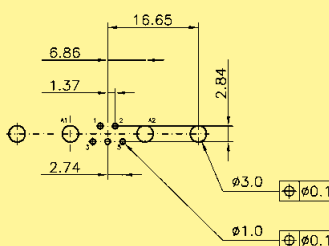
5W1



5W5



7W2



* When using a female connector with straight pcb contacts the board drilling pattern must be mirrored in the Y axis.



Board drillings for connectors with straight pcb contacts

Identification

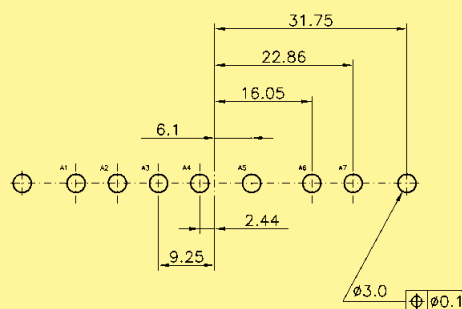
Drawing

Dimensions in mm

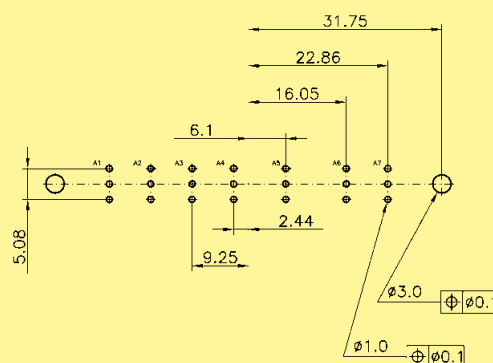
Male connector*

7W7

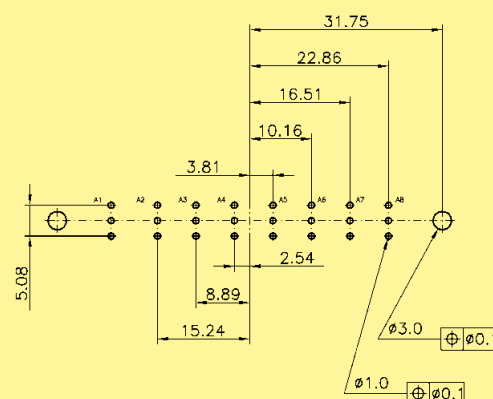
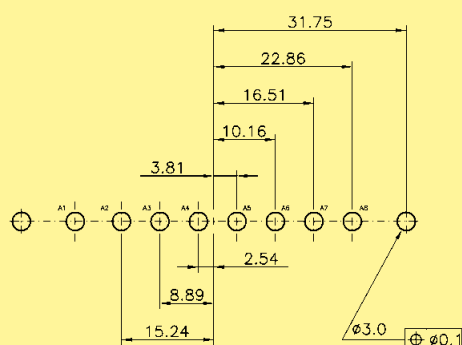
Power contact



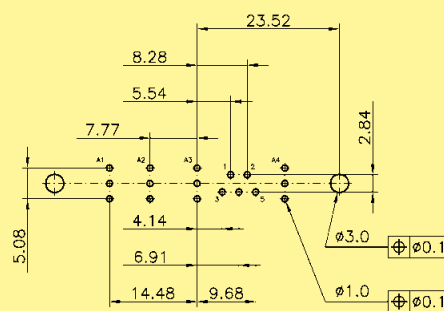
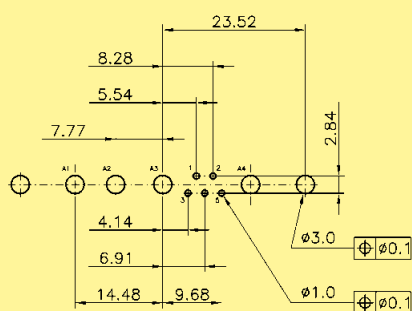
Coaxial contact



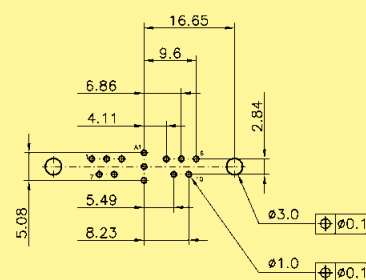
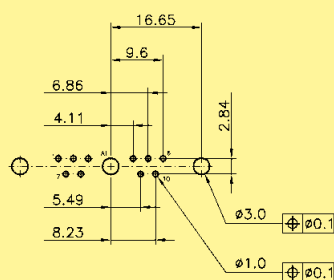
8W8



9W4



11W1



* When using a female connector with straight pcb contacts the board drilling pattern must be mirrored in the Y axis.

Board drillings for connectors with straight pcb contacts

Identification

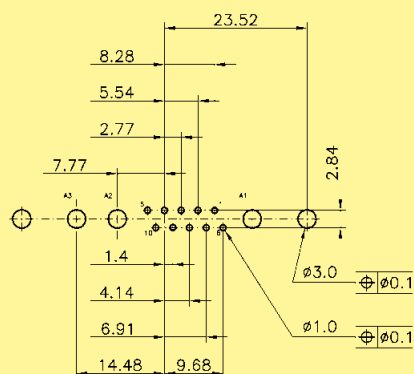
Drawing

Dimensions in mm

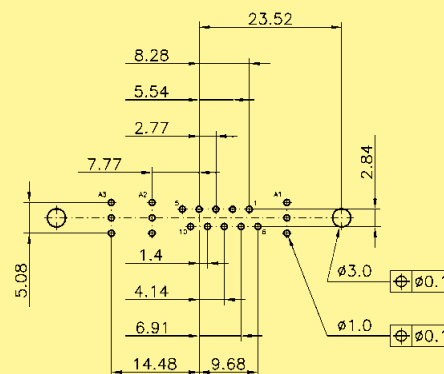
Male connector*

13W3

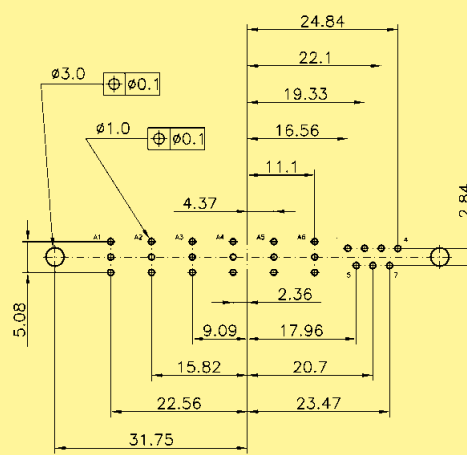
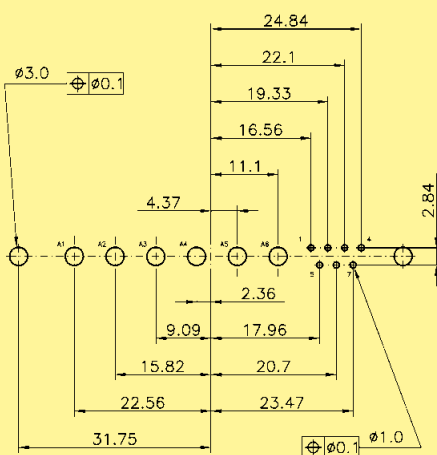
Power contact



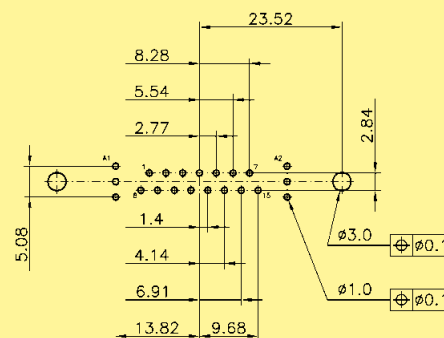
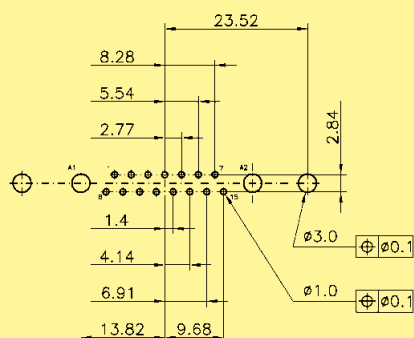
Coaxial contact



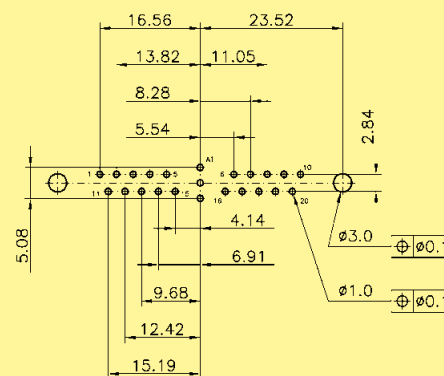
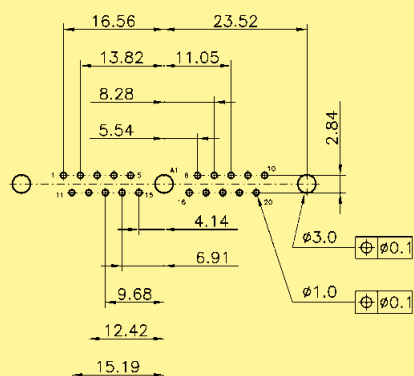
13W6



17W2



21W1



* When using a female connector with straight pcb contacts the board drilling pattern must be mirrored in the Y axis.

Board drillings for connectors with straight pcb contacts

Identification	Drawing	Dimensions in mm
Male connector*		
21WA4	Power contact	Coaxial contact
24W7		
25W3		

* When using a female connector with straight pcb contacts the board drilling pattern must be mirrored in the Y axis.

Board drillings for connectors with straight pcb contacts

Identification

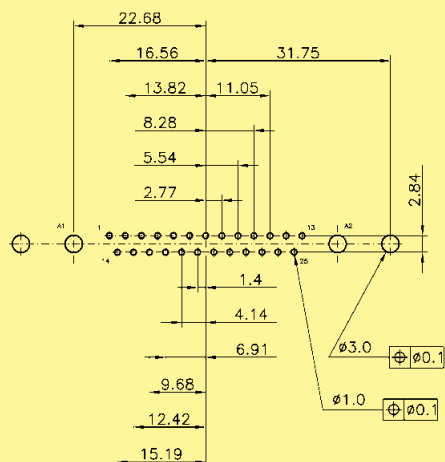
Drawing

Dimensions in mm

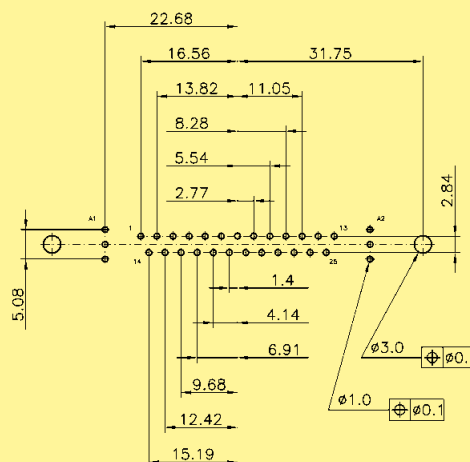
Male connector*

27W2

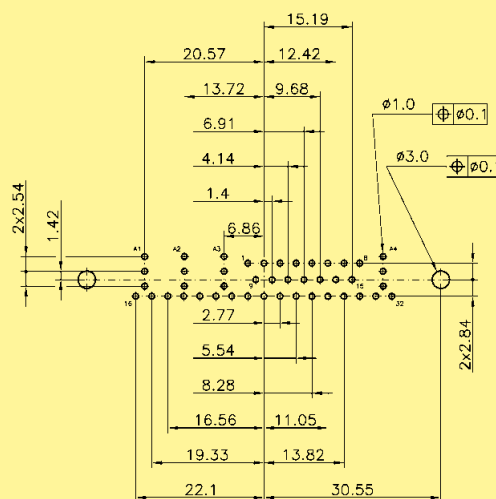
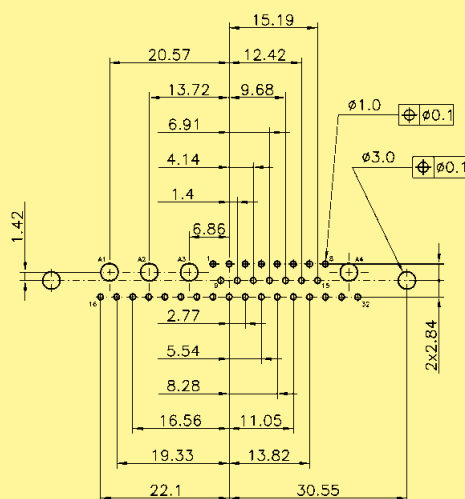
Power contact



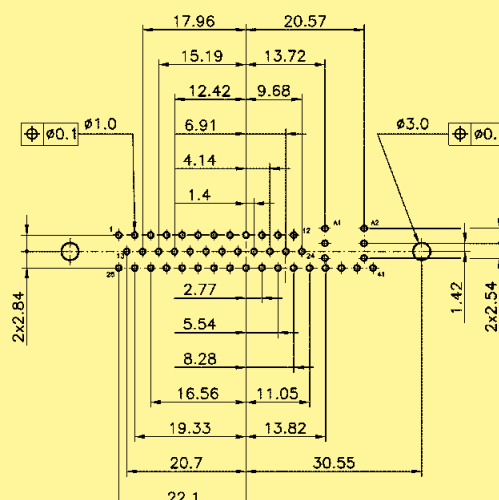
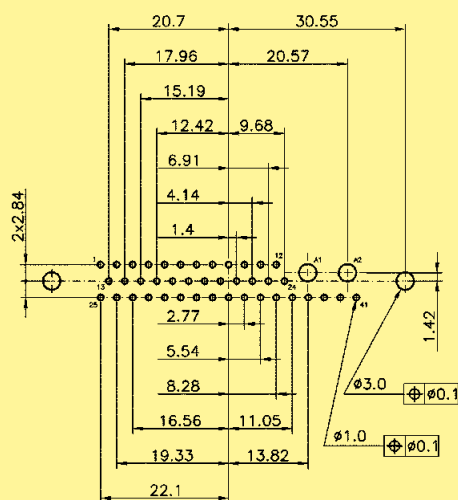
Coaxial contact



36W4



43W2



* When using a female connector with straight pcb contacts the board drilling pattern must be mirrored in the Y axis.



Board drillings for connectors with right angled pcb contacts

Identification

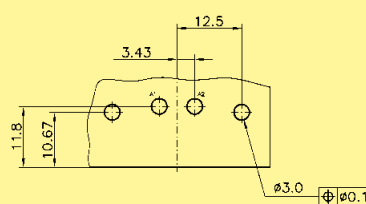
Drawing

Dimensions in mm

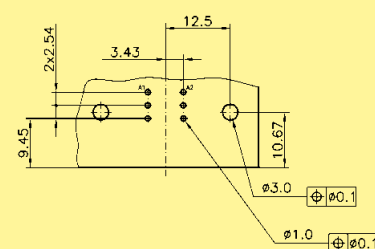
Male connector*

2W2 / 2W2C

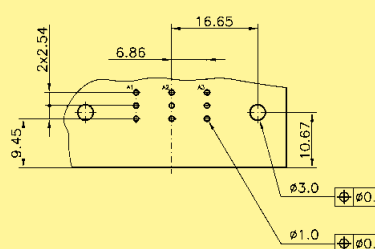
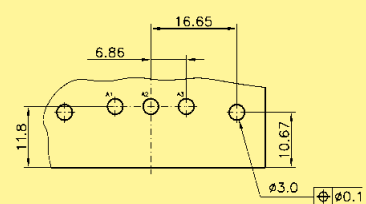
Power contact



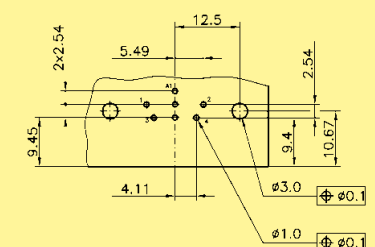
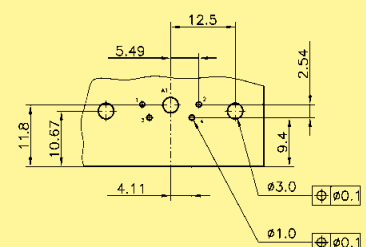
Coaxial contact



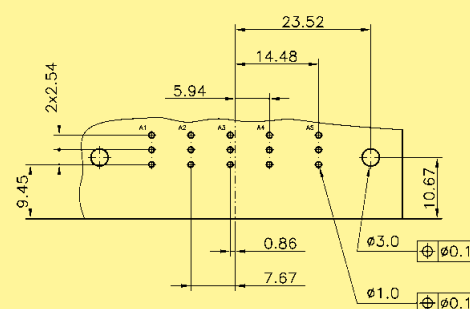
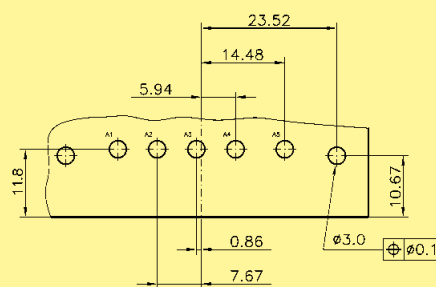
3W3 / 3W3C



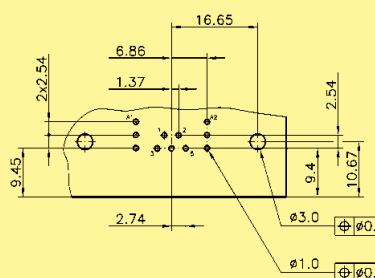
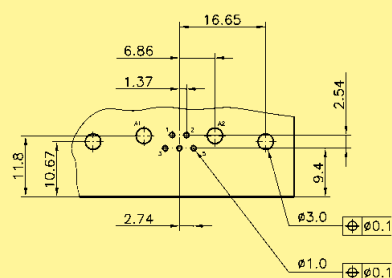
5W1



5W5



7W2



* When using a female connector with right angled pcb contacts the board drilling pattern must be mirrored in the Y axis.

Board drillings for connectors with right angled pcb contacts

Identification

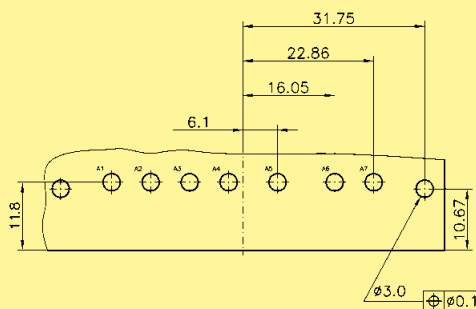
Drawing

Dimensions in mm

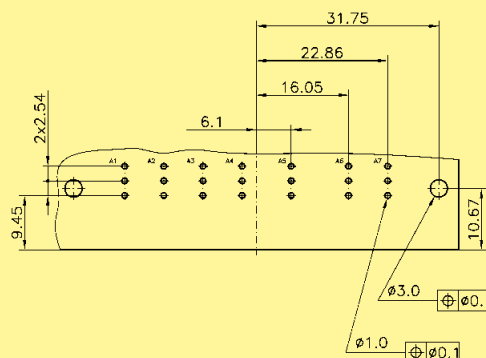
Male connector*

7W7

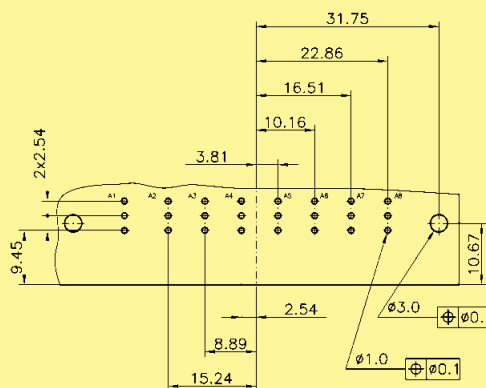
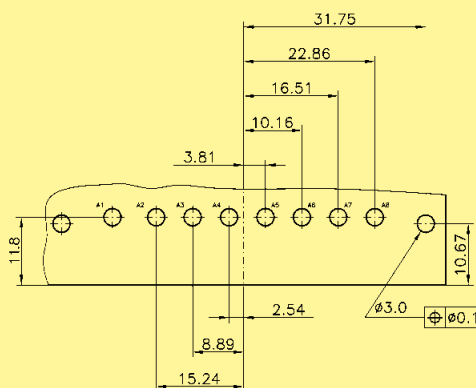
Power contact



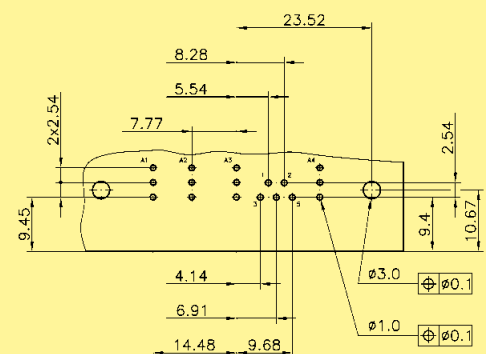
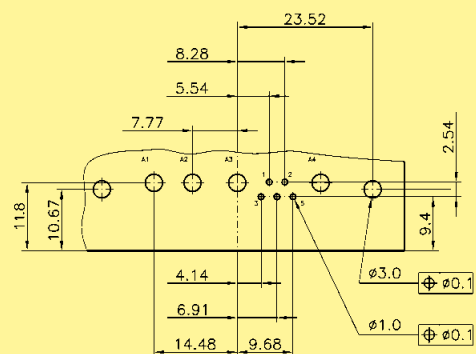
Coaxial contact



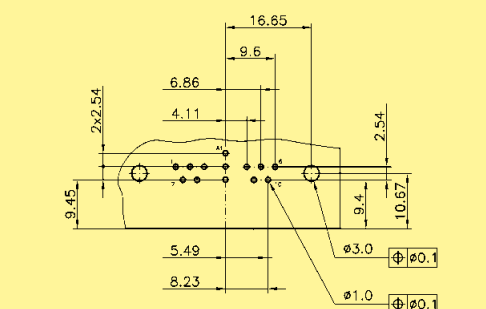
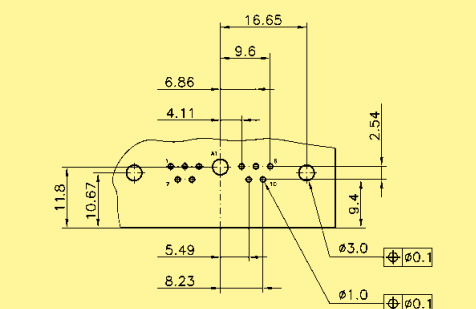
8W8



9W4



11W1



* When using a female connector with right angled pcb contacts the board drilling pattern must be mirrored in the Y axis.

Board drillings for connectors with right angled pcb contacts

Identification	Drawing	Dimensions in mm
Male connector*		
13W3	Power contact Coaxial contact	
13W6	Power contact Coaxial contact	
17W2	Power contact Coaxial contact	
21W1	Power contact Coaxial contact	

* When using a female connector with right angled pcb contacts the board drilling pattern must be mirrored in the Y axis.

D-Sub

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* When using a female connector with right angled pcb contacts the board drilling pattern must be mirrored in the Y axis.

Board drillings for connectors with right angled pcb contacts

Identification

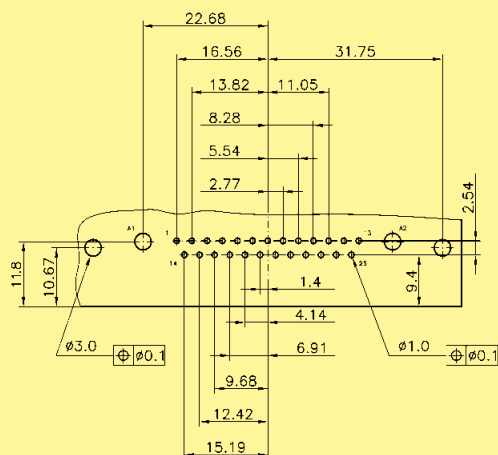
Drawing

Dimensions in mm

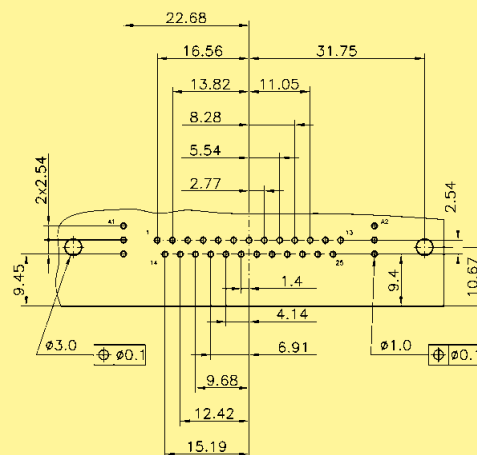
Male connector*

27W2

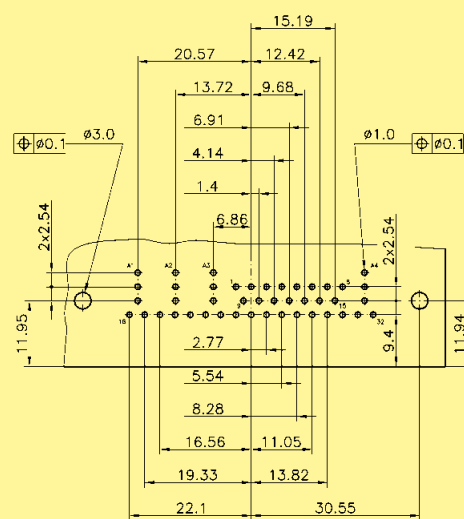
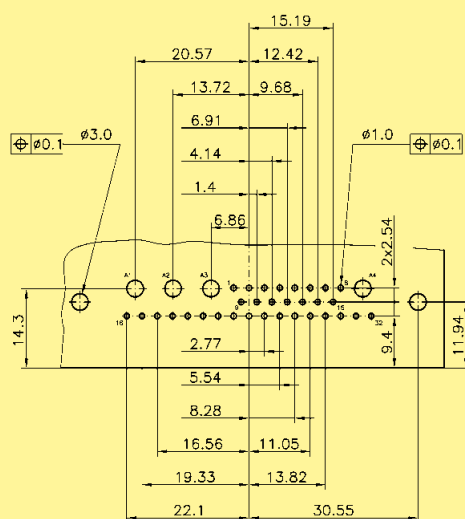
Power contact



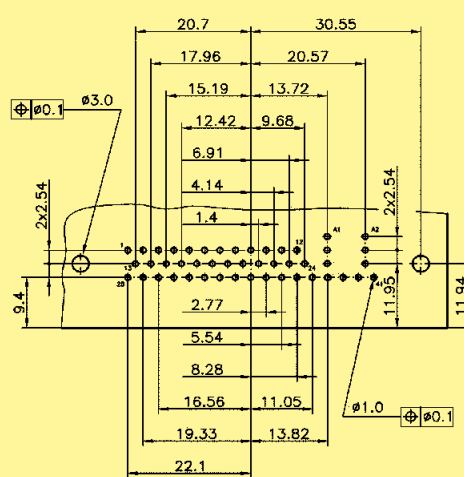
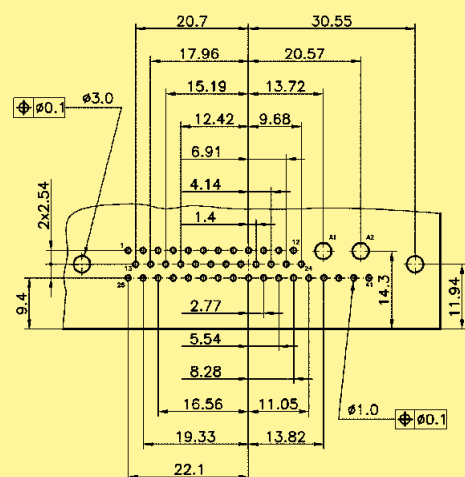
Coaxial contact



36W4



43W2

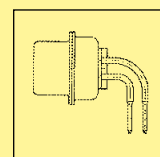
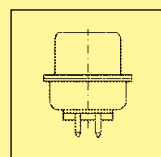


* When using a female connector with right angled pcb contacts the board drilling pattern must be mirrored in the Y axis.

HARTING customer request form for pcb connectors

1 Connector gender and type

- ☐ Plug (male contacts)
☐ Receptacle (female contacts)



- ☐ Straight ☐ Right angled

2 Contact arrangement

Standard

- | | | | |
|------------------------------|-------------------------------|--------------------------------|-------------------------------|
| ☐ 2W2 | ☐ 7W7 | ☐ 13W6 | ☐ 25W3 |
| ☐ 3W3 | ☐ 8W8 | ☐ 17W2 | ☐ 27W2 |
| ☐ 5W1 | ☐ 9W4 | ☐ 21W1 | ☐ 36W4 |
| ☐ 5W5 | ☐ 11W1 | ☐ 21WA4 | ☐ 43W2 |
| ☐ 7W2 | ☐ 13W3 | ☐ 24W7 | |

Special configurations
(mixed contact genders)

- ☐ 2W2C ☐ 3W3C

2.1 Any signal contacts?

- ☐ Yes (fill in questions below) ☐ No (go directly to item 2.2)
☐ Right angled 2.54 mm pitch
☐ Other pitch: _____

2.2 Any power contacts?

- ☐ Yes (fill in questions below) ☐ No (go directly to item 2.3)

Current rating

- ☐ 10 A ☐ 30 A
☐ 20 A ☐ 40 A

Termination type

- ☐ Solder pin for pcb
☐ Press-in for pcb (30 A, straight version only)

Performance level

[mating side / termination side]

- ☐ S4 [0.76 µm Au / 0.2 µm Au]
☐ PL 3 [0.2 µm Au / 5.0 µm Sn]

2.3 Any coaxial contacts?

- ☐ Yes (fill in questions below) ☐ No (go directly to item 2.4)

Impedance

- ☐ 50 Ω
☐ 75 Ω

Performance level

[mating side inner / outer conductor]

- ☐ S4 [1.3 µm Au / 0.76 µm Au]
☐ PL 3 [0.2 µm Au / 0.2 µm Au]

2.4 Any high voltage contacts?

- ☐ Yes ☐ No (go directly to item 2.5)

2.5 Any pneumatic contacts?

- ☐ Yes (fill in questions below) ☐ No (go directly to item 3)

Tube inner diameter /

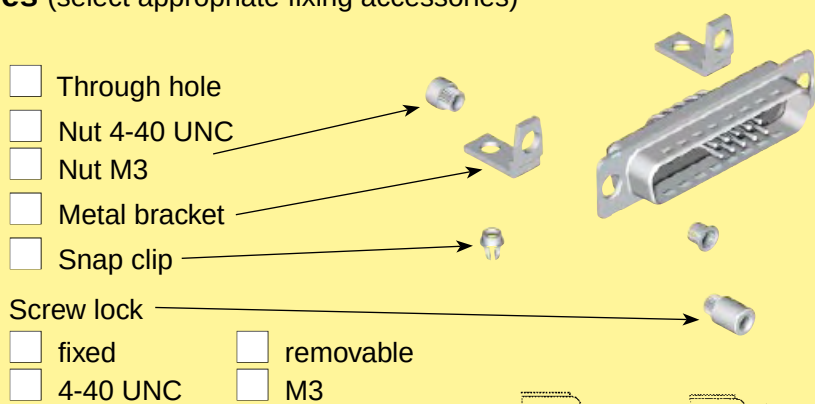
suitable compressed air tube

- | | |
|--------------------------------------|--|
| ☐ 2 mm / PU-2 | ☐ 2.6 mm / PU-N4* 2.5 |
| ☐ 3 mm / PU-3 | ☐ 4 mm / PU-4 |

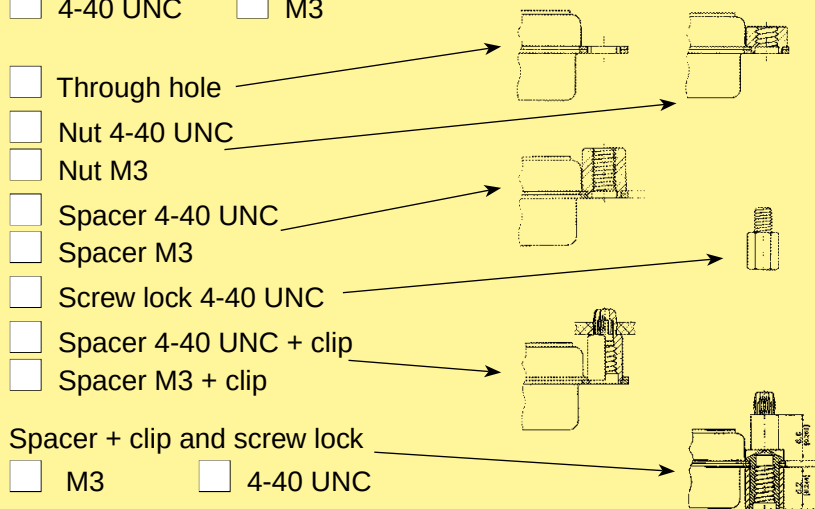
HARTING customer request form for pcb connectors

3 Pcb mounting accessories (select appropriate fixing accessories)

3.1 Right angled version

- ☐ Through hole
☐ Nut 4-40 UNC
☐ Nut M3
☐ Metal bracket
☐ Snap clip
 Screw lock
☐ fixed ☐ removable
☐ 4-40 UNC ☐ M3
- 

3.2 Straight version

- ☐ Through hole
☐ Nut 4-40 UNC
☐ Nut M3
☐ Spacer 4-40 UNC
☐ Spacer M3
☐ Screw lock 4-40 UNC
☐ Spacer 4-40 UNC + clip
☐ Spacer M3 + clip
 Spacer + clip and screw lock
☐ M3 ☐ 4-40 UNC
- 

4 Additional information

Pcb thickness:

(if possible provide pcb layout with plating specifications)

Operating temperature:

☐ standard

☐ SMC compatible

Is hot plugging required

☐ No

☐ Yes

Short description: _____

Is a vacuum pick and place process considered?

☐ No

☐ Yes

Is blind mating feature required?

☐ No

☐ Yes (provide precise requirements)

Name: _____

Drawing: ☐ no ☐ yes

Company: _____

Samples: ☐ no ☐ yes, quantity

Address: _____

Volume (pcs./year): _____

Phone: _____

Special requirements: _____

Fax: _____

E-Mail: _____

HARTING customer request form for cable connectors

1 Connector gender

- ☐ Plug (male contacts)
☐ Receptacle (female contacts)



21W4 mixed male for cable

2 Contact arrangement

Standard

- | | | | |
|------------------------------|-------------------------------|--------------------------------|-------------------------------|
| ☐ 2W2 | ☐ 7W7 | ☐ 13W6 | ☐ 25W3 |
| ☐ 3W3 | ☐ 8W8 | ☐ 17W2 | ☐ 27W2 |
| ☐ 5W1 | ☐ 9W4 | ☐ 21W1 | ☐ 36W4 |
| ☐ 5W5 | ☐ 11W1 | ☐ 21WA4 | ☐ 43W2 |
| ☐ 7W2 | ☐ 13W3 | ☐ 24W7 | |

Special configurations
(mixed contact genders)

- ☐ 2W2C ☐ 3W3C

2.1 Any signal contacts?

- ☐ Yes (fill in questions below) ☐ No (go directly to item 2.2)

Termination type

- ☐ Crimp ☐ Solder cup S4 [0.76 µm Au]

Signal cable size for crimp contact

- ☐ AWG 20-24 ☐ AWG 24-28

Crimp contact performance level

- ☐ S4 [0.76 µm Au / 0.2 µm Au]
☐ PL3 [0.2 µm Au / 5.0 µm Sn]

2.2 Any power contacts?

- ☐ Yes (fill in questions below) ☐ No (go directly to item 2.3)

Current rating

- ☐ 10 A ☐ 20 A ☐ 30 A ☐ 40 A

Termination type

- ☐ Crimp ☐ Solder cup

Performance level

[mating side / termination side]

- ☐ S4 [0.76 µm Au / 0.2 µm Au]
☐ PL3 [0.2 µm Au / 5.0 µm Sn]

2.3 Any coaxial contacts?

- ☐ Yes (fill in questions below) ☐ No (go directly to item 2.4)

Impedance

- ☐ 50 Ω ☐ 75 Ω

Termination type

- ☐ Crimp/crimp
☐ Crimp/solder [inner conductor is soldered, outer crimped]

Performance level

[mating side inner / outer conductor]

- ☐ S4 [1.3 µm Au / 0.76 µm Au]
☐ PL3 [0.2 µm Au / 0.2 µm Au]

Cable reference (e.g. RG 178): _____

HARTING customer request form for cable connectors

2.4 Any high voltage contacts? ☐ Yes ☐ No (go directly to item 2.5)
Termination type ☐ Crimp ☐ Solder cup

2.5 Any pneumatic contacts? ☐ Yes (fill in questions below) ☐ No (go directly to item 3)
Tube inner diameter /
suitable compressed air tube ☐ 2 mm / PU-2 ☐ 2.6 mm / PU-N4* 2.5
☐ 3 mm / PU-3 ☐ 4 mm / PU-4

3 Cable accessories

HARTING has a wide range of hoods including plastic, metallized plastic and full metal versions.

Name: _____	Drawing: ☐ no ☐ yes _____
Company: _____	Samples: ☐ no ☐ yes, quantity _____
Address: _____	Volume (pcs./year): _____
_____	_____
Phone: _____	Special requirements: _____
Fax: _____	_____
E-Mail: _____	_____

Interference – Yesterdays problem!

In a fast developing technological environment the management of electromagnetic interference is becoming more challenging.

Therefore HARTING developed a range of filter solutions to help designers of electronic equipments to achieve the demanding goal of electromagnetic compatibility.

HARTING offers a wide range of solutions by the integration of a filter inside one of the most standard I/O ports on the market; the D-Sub.

From standard simple ferrite-filter solution to complex customized high performance filters, you will be able to find in the HARTING filter D-Sub range the adequate solution to protect your application from any introduction or radiation of noise through D-Sub port apertures.

Advantages

Wide range:

- 9, 15, 25 and 37 contact versions
- Various terminations such as solder buckets, straight and right angled solder pins
- A large range of accessories
- High performance (C-filter) as well as simple, quick and cost effective solutions (ferrite-filter)

Compatible with standard wave and lead-free reflow soldering (C-filter)

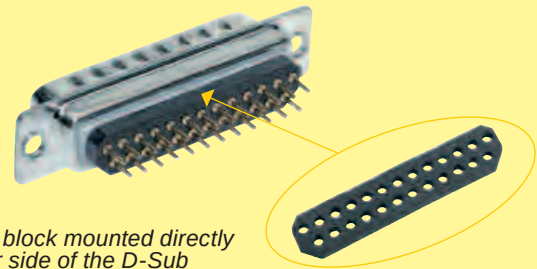
Same layout and shell dimensions as standard D-Sub connectors, no modification of PCB design necessary

Elimination of ringing, crosstalk phenomenon thanks to specific multilayer PCB used in C-filter design.

Flexible filter structure allowing a wide range of customization:

- Filter value (even pin by pin approach)
- Pi-filter
- Dielectric withstanding and working voltage
- Specific ESD / lightning protection

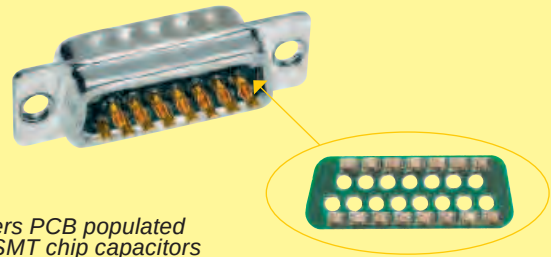
HARTINGs broad Filter range



Ferrite block mounted directly on rear side of the D-Sub

Ferrite-filter

Ferrite-filter D-Subs providing a low level of filtering thanks to simple blocks of inductive ferrite attached to the back end of the connectors. Providing a few dB attenuation only at high frequencies HARTING ferrite-filter D-Subs represent a cost effective solution in applications where the emission level is close to the limit.



4 layers PCB populated with SMT chip capacitors

C-filter

To address higher EMI disturbances HARTING propose a comprehensive range of C-filter D-Sub connectors. HARTING C-filter D-Sub integrates a patented 4 layer printed circuit board equipped with chip capacitors. This patented solution provides complete protection of the I/O port due to the filtering performance of the capacitors and the screening effect of the PCB. Further more the 4 layers PCB also limits the ability of interference to enter the equipment through the D-Sub aperture. Available in 4 standard filter values 47, 470, 1000 and 3900 pF HARTING C-filter D-Subs represent for all designers a smart filtering solution allowing replacement of a "defective" port by a filtered one without any change of the PCB design.

Filter adapter

To support engineers in the diagnosis of EMI disturbances HARTING has developed, in addition to its filter series a range of male/female filter D-Sub adapters.

These back-to-back adapters can be used as testing tools and replaced later on in production directly by a filtered D-Sub connector.

Number of contacts 9, 15, 25, 37

Working current 7.5 A max.

Working voltage 250 V AC max.

Dielectric withstanding voltage 500 V AC for 1 minute

Contact resistance $\leq 15 \text{ m}\Omega$
Insulation resistance $\geq 1000 \text{ M}\Omega$

Temperature range $-55^\circ\text{C} \dots +105^\circ\text{C}$

Terminations
 a) Solder buckets AWG 20
 b) Solder pins for P.C.B. holes $\varnothing 1 \pm 0.05 \text{ mm}$
 c) Solder pins, angled 90° for P.C.B. holes $\varnothing 1 \pm 0.05 \text{ mm}$

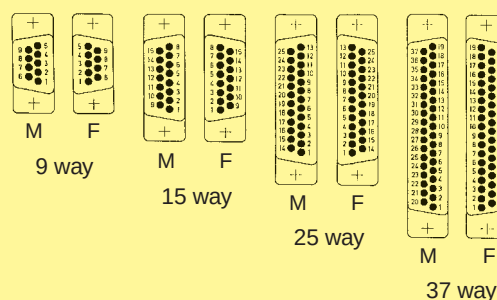
Materials
 Insulation PBT, flame retardant acc. to UL 94-V0

Contacts Copper alloy

Contact surface
 Performance level 3, as per IEC 60807-2, IEC 60512-25-2

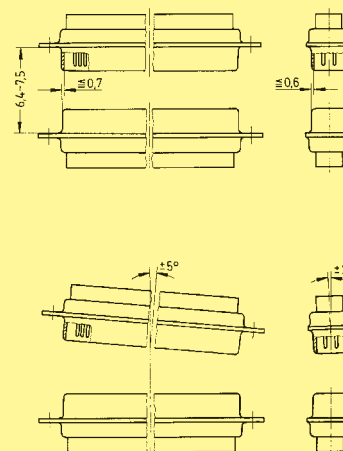
Metal shell Steel (tin-plated)

Contact arrangement
 View from termination side



M = Male connector
 F = Female connector

Mating conditions as per CECC 75 301



Minimum insertion loss

Frequency [MHz]	Attenuation [dB]
1	0.5
10	1.0
50	2.5
100	3.0
500	3.5
1000	4.0

Number of contacts

9–25



Solder pins, straight, through hole

Identification

No. of contacts

Part No.

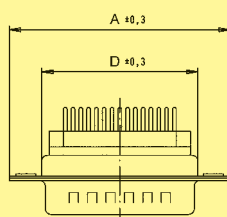
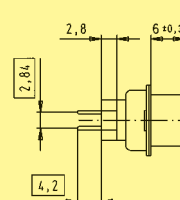
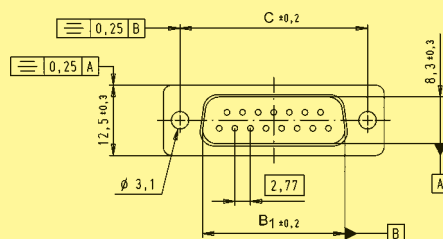
Connectors with ferrite-filter

male connectors

female connectors

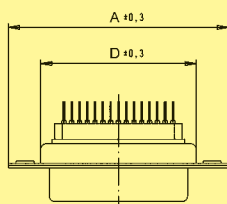
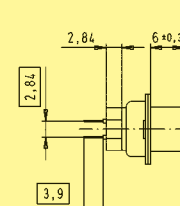
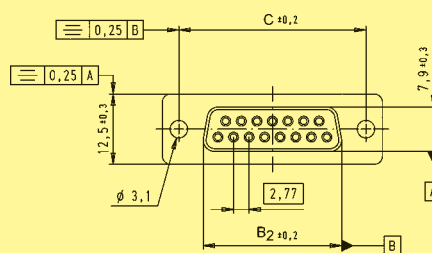
9
15
2509 64 122 7800
09 64 222 7800
09 64 322 780009 64 112 7800
09 64 212 7800
09 64 312 7800

Male connector

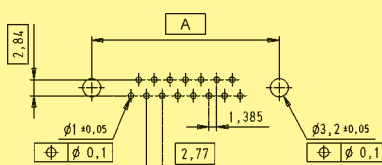


No. of contacts	A	B ₁	B ₂	C	D
9	30.8	16.92	16.3	25.0	19.2
15	39.2	25.25	24.6	33.3	27.7
25	53.1	38.96	38.3	47.1	41.1

Female connector



Board drillings



Dimensions in mm

Number of contacts

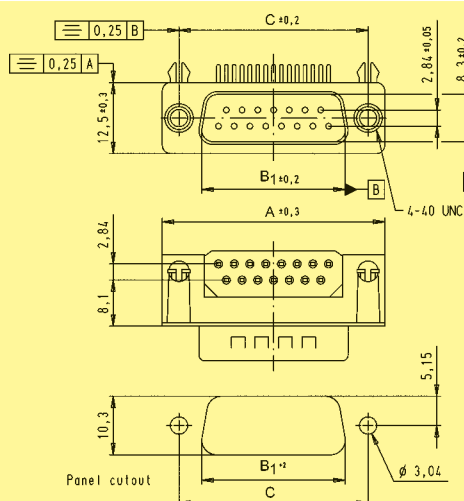
9–37



Solder pins, right angled, board lock and clinch nut

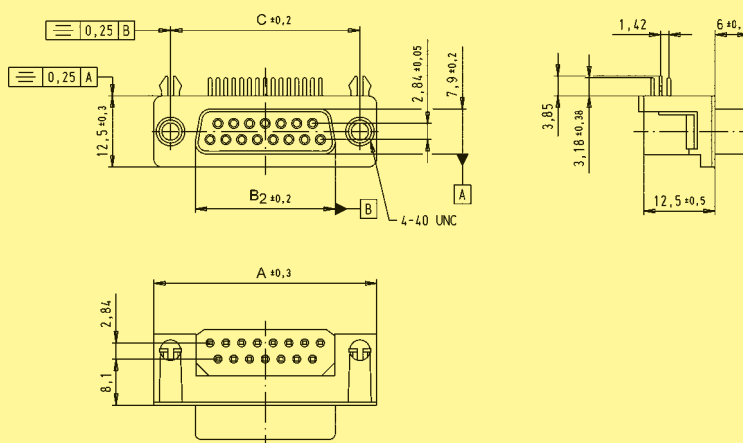
Identification	No. of contacts	Part No.
Connectors with ferrite-filter		male connectors
		female connectors
	9	09 64 123 7802
	15	09 64 223 7802
	25	09 64 323 7802
	37	09 64 423 7802

Male connector

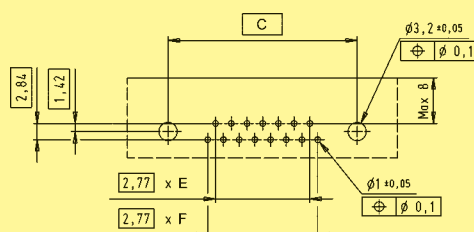


No. of contacts	A	B ₁	B ₂	C	E	F
9	30.8	16.92	16.3	25.0	3	4
15	39.2	25.25	24.6	33.3	6	7
25	53.1	38.96	38.3	47.1	11	12
37	69.4	55.42	54.8	63.5	17	18

Female connector



Board drillings



Dimensions in mm

Number of contacts

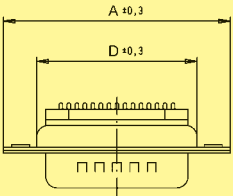
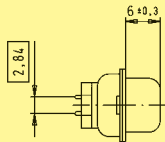
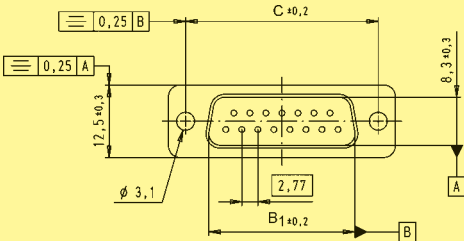
9–37



Solder buckets, through hole

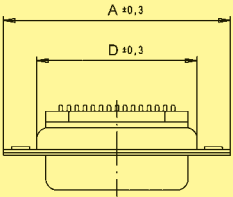
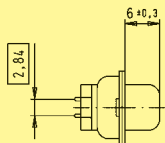
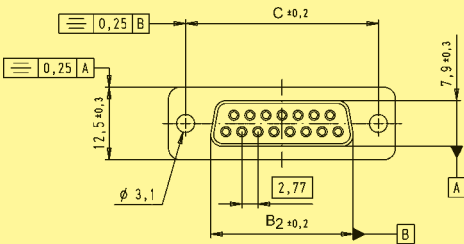
Identification	No. of contacts	Part No.	
Connectors with ferrite-filter		male connectors	female connectors
	9	09 64 121 7800	09 64 111 7800
	15	09 64 221 7800	09 64 211 7800
	25	09 64 321 7800	09 64 311 7800
	37	09 64 421 7800	09 64 411 7800

Male connector



No. of contacts	A	B ₁	B ₂	C	D
9	30.8	16.92	16.3	25.0	19.2
15	39.2	25.25	24.6	33.3	27.7
25	53.1	38.96	38.3	47.1	41.1
37	69.4	55.42	54.8	63.5	57.3

Female connector



Dimensions in mm

Number of contacts 9, 15, 25, 37

Working current 7.5 A max. (connectors)
6.5 A max. (filter adapters)

Working voltage 100 V max. for standard capacitance values – higher working voltages are available as specific.

Dielectric withstanding voltage 250 V DC max. – higher dielectric withstanding voltages are available as specific (see page 05.122)

Contact resistance $\leq 10 \text{ m}\Omega$
Insulation resistance $\geq 1000 \text{ M}\Omega$

Temperature range -55 °C ... +125 °C (connectors)
Heat deflection temperature limit according to DIN 53 461: ... +255 °C
-20 °C ... +125 °C (filter adapters)

Terminations
a) Solder buckets max. 0.8 mm²
b) Solder pins $\varnothing 0.6 \text{ mm}$ for P.C.B. holes $\varnothing 0.8/1 \text{ mm}$
c) Solder pins, angled 90° $\varnothing 0.6 \text{ mm}$ for P.C.B. holes $\varnothing 0.8/1 \text{ mm}$

Materials
Insulation PCT, glass-fibre filled, flame retardant acc. to UL 94-V0
Colour: natural

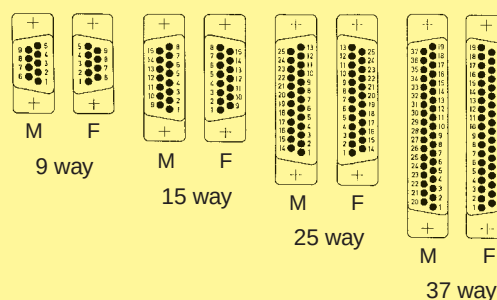
Contacts Copper alloy
Male and female contacts are turned

Contact surface
Contact zone Selectively plated according to performance level

Performance level Performance level 2, as per CECC 75 301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60 512

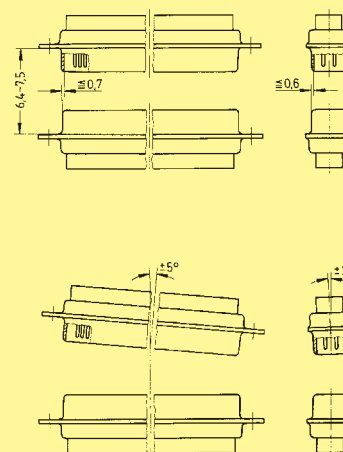
Metal shell Steel

Contact arrangement
View from termination side



M = Male connector
F = Female connector

Mating conditions as per CECC 75 301



Attenuation characteristics for standard capacitance values

Min. insertion loss

Capacitance [pF] ¹⁾	Attenuation (in dB) vs. frequency [MHz]						
	1	5	10	50	100	500	1000
47						30	35
470			1	11	16	35	32
1000		1	3	12	24	38	30
3900	1	6	11	25	35	38	32

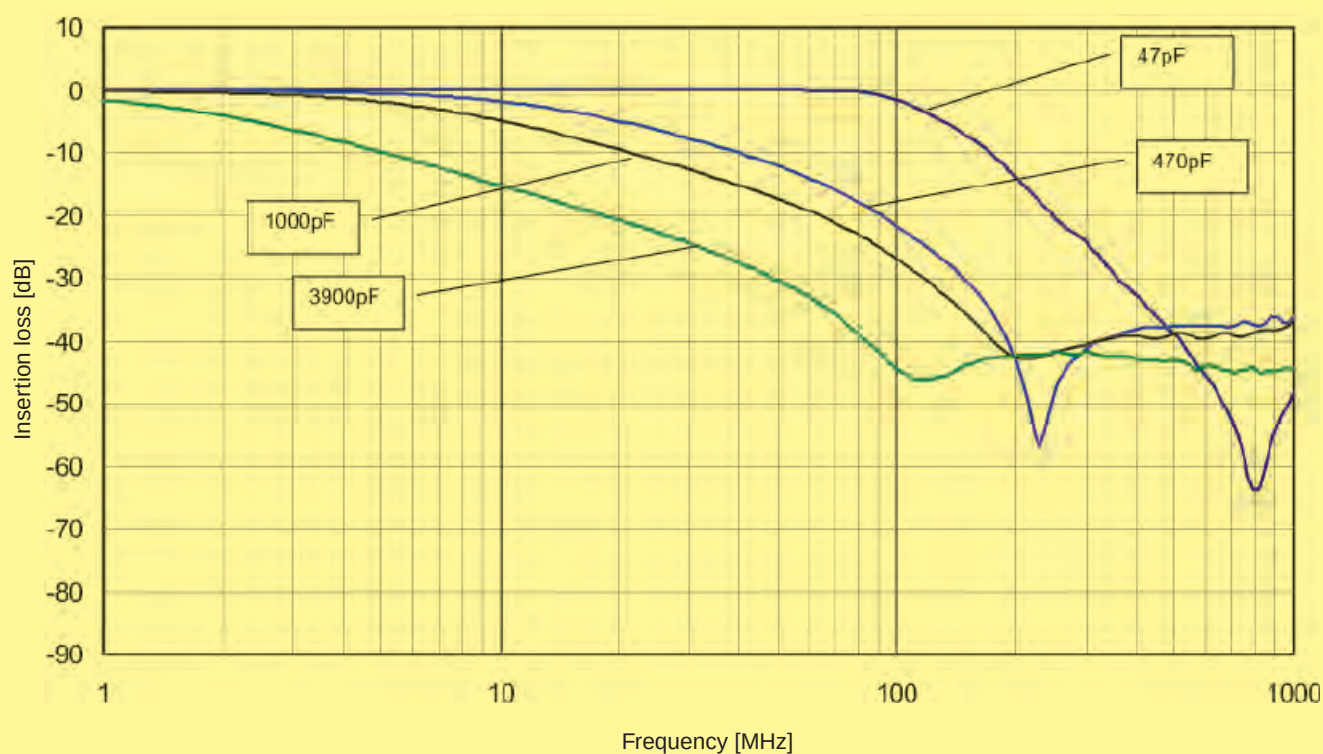
¹⁾ Capacitance tolerance = $\pm 20\%$ (For other capacitor values see pages 05.122 ff).

Measured in 50 Ω system according to MIL-STD-220, no load.

Working voltage: 100 V max. for standard capacitance values – higher working voltages are available as specific.

Dielectric withstanding voltage: 250 V DC max. – higher dielectric withstanding voltages are available as specific (see page 05.122)

Typical insertion loss for different filters (measured)



Number of contacts

9–37

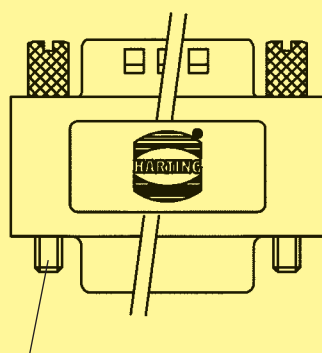
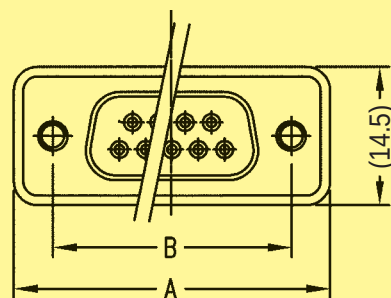


Filter adapters

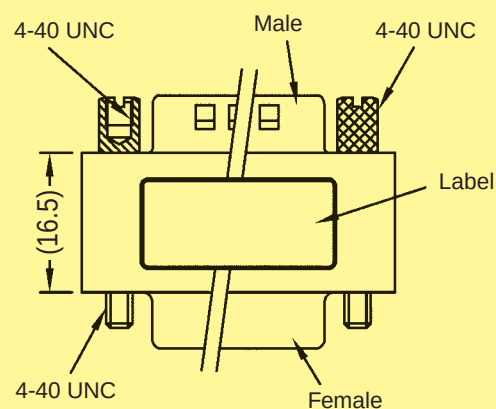
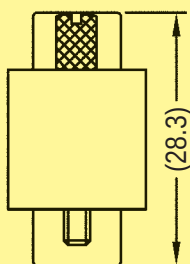
Identification	No. of contacts	Part No.
Male / female filter adapters with C filter	9	09 64 100 72 ..
	15	09 64 200 72 ..
	25	09 64 300 72 ..
	37	09 64 400 72 ..
Please insert digit for capacitance	47 pF ▶ 10	
	470 pF ▶ 20	
	1000 pF ▶ 30	
	3900 pF ▶ 40	

Dimensions

	A	B
9	32.8	24.99
15	41.1	33.32
25	55.0	47.04
37	71.3	63.50



Screws are not pre-mounted to allow mounting from any ends



Number of contacts

9–37



Turned solder pins, straight, through hole

Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter			
	9	09 64 122 7210	09 64 112 7210
	15	09 64 222 7210	09 64 212 7210
	25	09 64 322 7210	09 64 312 7210
	37	09 64 422 7210	09 64 412 7210
Connectors with 470 pF C filter			
	9	09 64 122 7220	09 64 112 7220
	15	09 64 222 7220	09 64 212 7220
	25	09 64 322 7220	09 64 312 7220
	37	09 64 422 7220	09 64 412 7220
Connectors with 1000 pF C filter			
	9	09 64 122 7230	09 64 112 7230
	15	09 64 222 7230	09 64 212 7230
	25	09 64 322 7230	09 64 312 7230
	37	09 64 422 7230	09 64 412 7230
Connectors with 3900 pF C filter			
	9	09 64 122 7240	09 64 112 7240
	15	09 64 222 7240	09 64 212 7240
	25	09 64 322 7240	09 64 312 7240
	37	09 64 422 7240	09 64 412 7240

D-Sub

Number of contacts

9-37



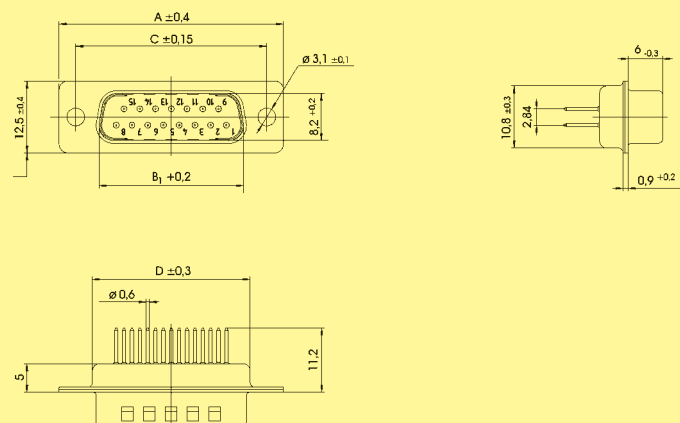
Turned solder pins, straight, through hole

Identification

Drawing

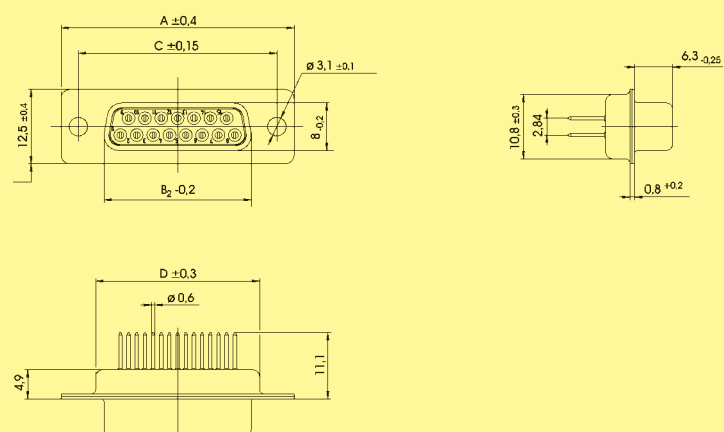
Dimensions in mm

Male connector

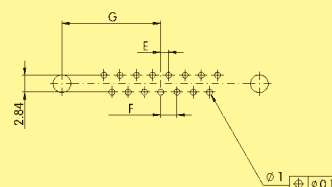


No. of contacts	A	B ₁	B ₂	C	D	E	F	G
9	30.8	16.9	16.4	25.00	19.3	1.37	2.74	12.50
15	39.1	25.2	24.7	33.30	27.5	1.37	2.74	16.65
25	53.0	38.9	38.5	47.04	41.3	1.40	2.77	23.52
37	69.3	55.3	54.9	63.50	57.7	1.40	2.77	31.75

Female connector

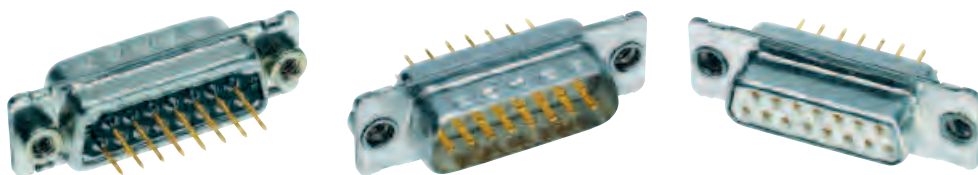


Board drillings



Number of contacts

9–37



Turned solder pins, straight, clinch nut

Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter	9	09 64 122 721 .	09 64 112 721 .
	15	09 64 222 721 .	09 64 212 721 .
	25	09 64 322 721 .	09 64 312 721 .
	37	09 64 422 721 .	09 64 412 721 .
Connectors with 470 pF C filter	9	09 64 122 722 .	09 64 112 722 .
	15	09 64 222 722 .	09 64 212 722 .
	25	09 64 322 722 .	09 64 312 722 .
	37	09 64 422 722 .	09 64 412 722 .
Connectors with 1000 pF C filter	9	09 64 122 723 .	09 64 112 723 .
	15	09 64 222 723 .	09 64 212 723 .
	25	09 64 322 723 .	09 64 312 723 .
	37	09 64 422 723 .	09 64 412 723 .
Connectors with 3900 pF C filter	9	09 64 122 724 .	09 64 112 724 .
	15	09 64 222 724 .	09 64 212 724 .
	25	09 64 322 724 .	09 64 312 724 .
	37	09 64 422 724 .	09 64 412 724 .
Please insert digit for flange thread	4-40 UNC ▶ 7		
	M3 ▶ 8		

D-Sub

Number of contacts

9–37



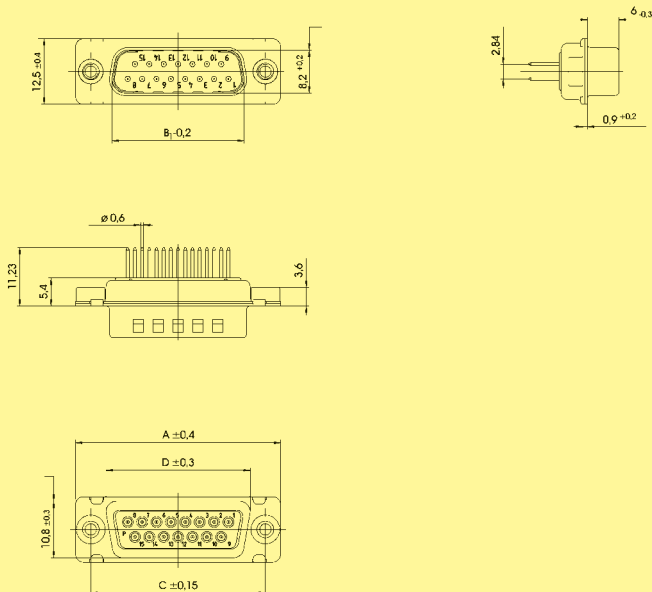
Turned solder pins, straight, clinch nut

Identification

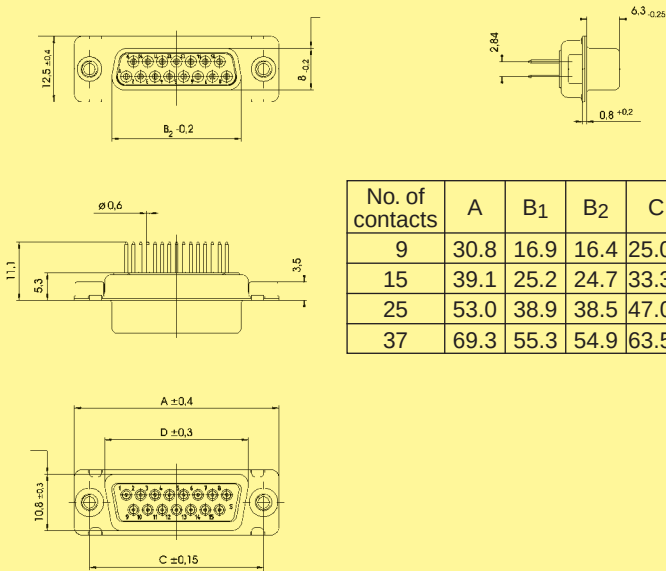
Drawing

Dimensions in mm

Male connector

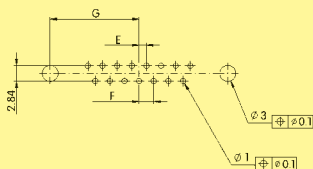


Female connector



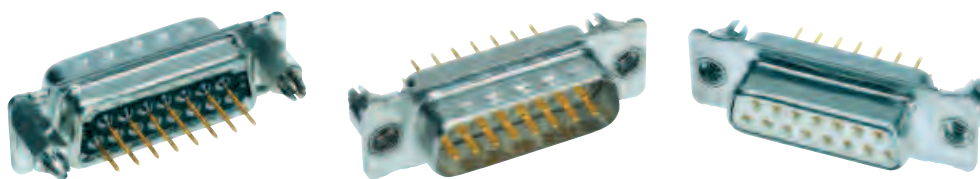
No. of contacts	A	B ₁	B ₂	C	D	E	F	G
9	30.8	16.9	16.4	25.00	19.3	1.37	2.74	12.50
15	39.1	25.2	24.7	33.30	27.5	1.37	2.74	16.65
25	53.0	38.9	38.5	47.04	41.3	1.40	2.77	23.52
37	69.3	55.3	54.9	63.50	57.7	1.40	2.77	31.75

Board drillings



Number of contacts

9–37



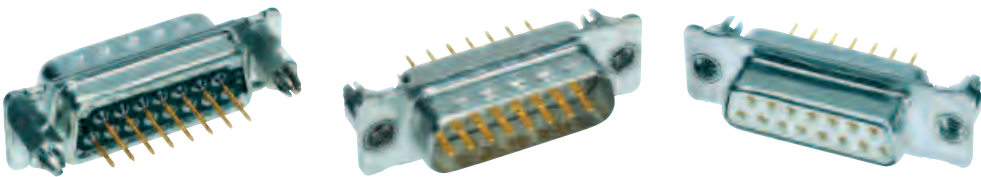
Turned solder pins, straight, straight board clips

Identification		No. of contacts	Part No.	
			male connectors	female connectors
Connectors with 47 pF C filter		9	09 64 122 721 .	09 64 112 721 .
		15	09 64 222 721 .	09 64 212 721 .
		25	09 64 322 721 .	09 64 312 721 .
		37	09 64 422 721 .	09 64 412 721 .
Connectors with 470 pF C filter		9	09 64 122 722 .	09 64 112 722 .
		15	09 64 222 722 .	09 64 212 722 .
		25	09 64 322 722 .	09 64 312 722 .
		37	09 64 422 722 .	09 64 412 722 .
Connectors with 1000 pF C filter		9	09 64 122 723 .	09 64 112 723 .
		15	09 64 222 723 .	09 64 212 723 .
		25	09 64 322 723 .	09 64 312 723 .
		37	09 64 422 723 .	09 64 412 723 .
Connectors with 3900 pF C filter		9	09 64 122 724 .	09 64 112 724 .
		15	09 64 222 724 .	09 64 212 724 .
		25	09 64 322 724 .	09 64 312 724 .
		37	09 64 422 724 .	09 64 412 724 .
Please insert digit for flange thread				
4-40 UNC ▶ 5				
M3 ▶ 6				

D-Sub

Number of contacts

9–37



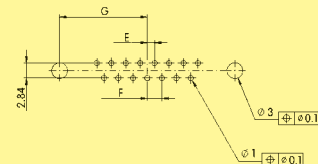
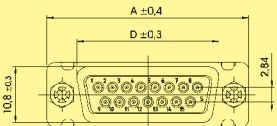
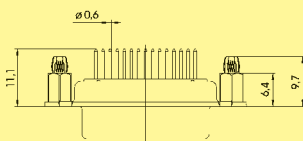
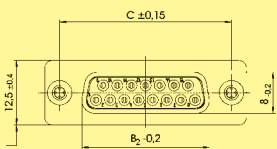
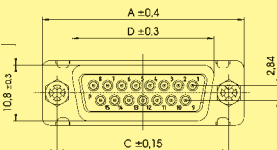
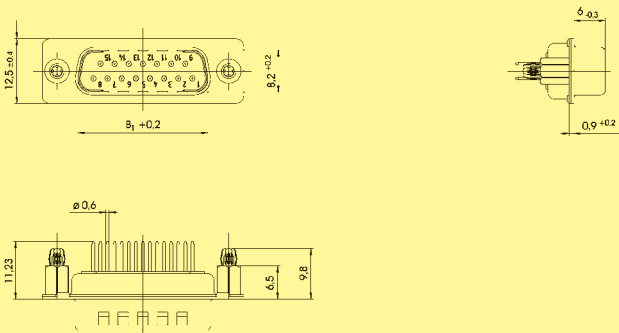
Turned solder pins, straight, straight board clips

Identification

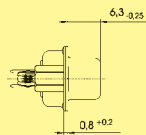
Drawing

Dimensions in mm

Male connector



Female connector

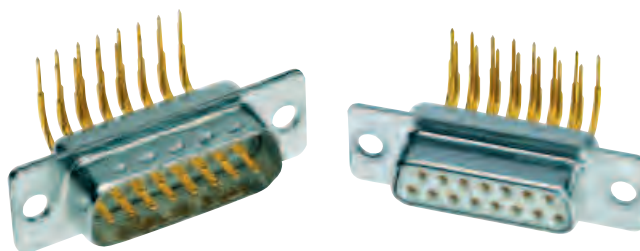


No. of contacts	A	B ₁	B ₂	C	D	E	F	G
9	30.8	16.9	16.4	25.00	19.3	1.37	2.74	12.50
15	39.1	25.2	24.7	33.30	27.5	1.37	2.74	16.65
25	53.0	38.9	38.5	47.04	41.3	1.40	2.77	23.52
37	69.3	55.3	54.9	63.50	57.7	1.40	2.77	31.75

Board drillings

Number of contacts

9–37



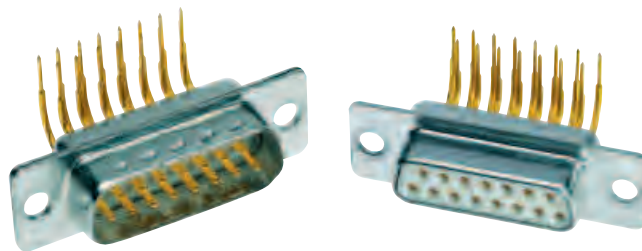
Turned solder pins, right angled, through hole

Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter			
	9	09 64 124 7210	09 64 114 7210
	15	09 64 224 7210	09 64 214 7210
	25	09 64 324 7210	09 64 314 7210
	37	09 64 424 7210	09 64 414 7210
Connectors with 470 pF C filter			
	9	09 64 124 7220	09 64 114 7220
	15	09 64 224 7220	09 64 214 7220
	25	09 64 324 7220	09 64 314 7220
	37	09 64 424 7220	09 64 414 7220
Connectors with 1000 pF C filter			
	9	09 64 124 7230	09 64 114 7230
	15	09 64 224 7230	09 64 214 7230
	25	09 64 324 7230	09 64 314 7230
	37	09 64 424 7230	09 64 414 7230
Connectors with 3900 pF C filter			
	9	09 64 124 7240	09 64 114 7240
	15	09 64 224 7240	09 64 214 7240
	25	09 64 324 7240	09 64 314 7240
	37	09 64 424 7240	09 64 414 7240

D-Sub

Number of contacts

9-37



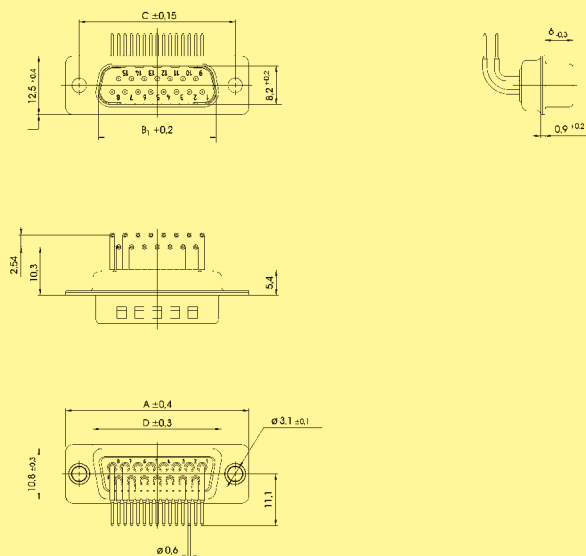
Turned solder pins, right angled, through hole

Identification

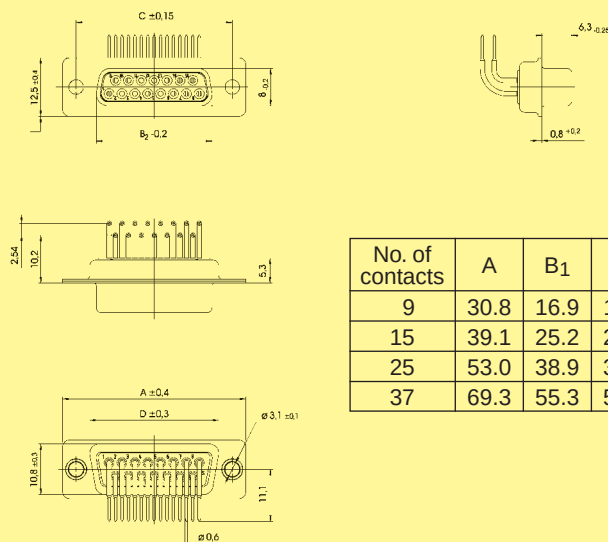
Drawing

Dimensions in mm

Male connector

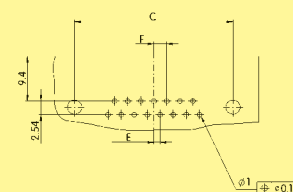


Female connector



No. of contacts	A	B ₁	B ₂	C	D	E	F
9	30.8	16.9	16.4	25.00	19.3	1.37	2.74
15	39.1	25.2	24.7	33.30	27.5	1.37	2.74
25	53.0	38.9	38.5	47.04	41.3	1.40	2.77
37	69.3	55.3	54.9	63.50	57.7	1.40	2.77

Board drillings



Number of contacts

9–37



Turned solder pins, right angled, bracket, board lock and through hole

Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter	9	09 64 124 7211	09 64 114 7211
	15	09 64 224 7211	09 64 214 7211
	25	09 64 324 7211	09 64 314 7211
	37	09 64 424 7211	09 64 414 7211
Connectors with 470 pF C filter	9	09 64 124 7221	09 64 114 7221
	15	09 64 224 7221	09 64 214 7221
	25	09 64 324 7221	09 64 314 7221
	37	09 64 424 7221	09 64 414 7221
Connectors with 1000 pF C filter	9	09 64 124 7231	09 64 114 7231
	15	09 64 224 7231	09 64 214 7231
	25	09 64 324 7231	09 64 314 7231
	37	09 64 424 7231	09 64 414 7231
Connectors with 3900 pF C filter	9	09 64 124 7241	09 64 114 7241
	15	09 64 224 7241	09 64 214 7241
	25	09 64 324 7241	09 64 314 7241
	37	09 64 424 7241	09 64 414 7241

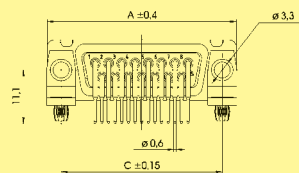
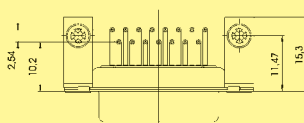
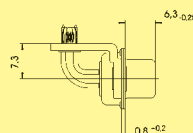
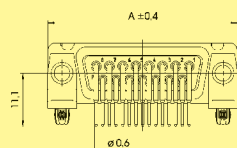
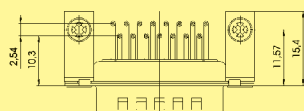
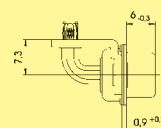
9-37



Identification

Dimensions in mm

Technical drawing of a 12-pin D-sub connector. The drawing shows a side view of the connector with dimensions. The overall length is 12.5 ± 0.4. The width is 9.2 ± 0.2. The pin pitch is 0.15. The pin diameter is 0.3. The mounting hole diameter is 3.1 ± 0.2. The drawing also shows the pin numbers 1 through 12.

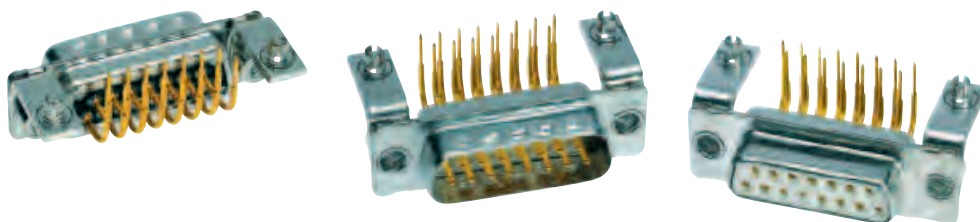


No. of contacts	A	B ₁	B ₂	C	E	F
9	30.8	16.9	16.4	25.00	1.37	2.74
15	39.1	25.2	24.7	33.30	1.37	2.74
25	53.0	38.9	38.5	47.04	1.40	2.77
37	69.3	55.3	54.9	63.50	1.40	2.77

[illegible]

Number of contacts

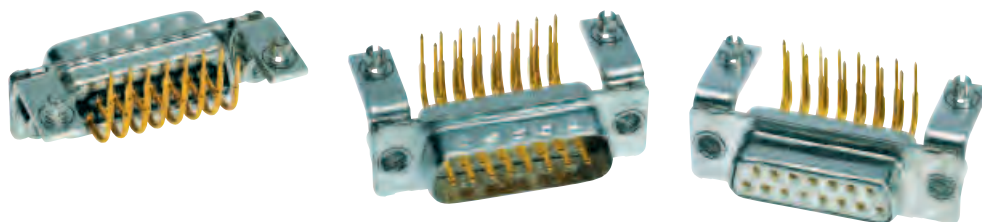
9–37



Turned solder pins, right angled, bracket, board lock and clinch nut

Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter	9	09 64 124 721 .	09 64 114 721 .
	15	09 64 224 721 .	09 64 214 721 .
	25	09 64 324 721 .	09 64 314 721 .
	37	09 64 424 721 .	09 64 414 721 .
Connectors with 470 pF C filter	9	09 64 124 722 .	09 64 114 722 .
	15	09 64 224 722 .	09 64 214 722 .
	25	09 64 324 722 .	09 64 314 722 .
	37	09 64 424 722 .	09 64 414 722 .
Connectors with 1000 pF C filter	9	09 64 124 723 .	09 64 114 723 .
	15	09 64 224 723 .	09 64 214 723 .
	25	09 64 324 723 .	09 64 314 723 .
	37	09 64 424 723 .	09 64 414 723 .
Connectors with 3900 pF C filter	9	09 64 124 724 .	09 64 114 724 .
	15	09 64 224 724 .	09 64 214 724 .
	25	09 64 324 724 .	09 64 314 724 .
	37	09 64 424 724 .	09 64 414 724 .
Please insert digit for flange thread	4-40 UNC ▶ 2		
	M3 ▶ 3		

9-37



Identification

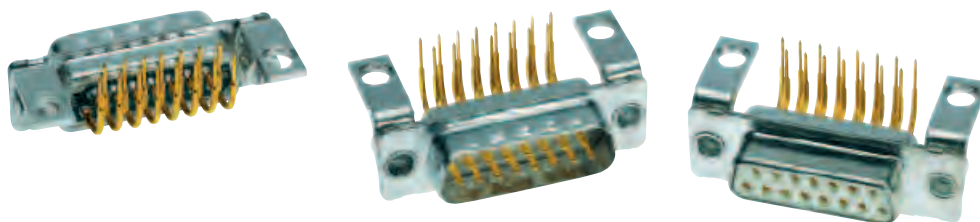
Dimensions in mm

No. of contacts	A	B ₁	B ₂	C	E	F
9	30.8	16.9	16.4	25.00	1.37	2.74
15	39.1	25.2	24.7	33.30	1.37	2.74
25	53.0	38.9	38.5	47.04	1.40	2.77
37	69.3	55.3	54.9	63.50	1.40	2.77

[illegible]

Number of contacts

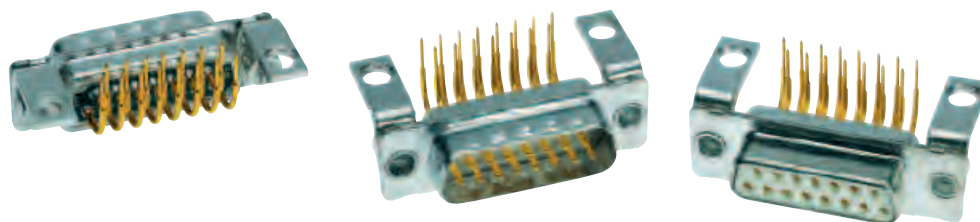
9–37



Turned solder pins, right angled, bracket and clinch nut

Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter	9	09 64 124 721 .	09 64 114 721 .
	15	09 64 224 721 .	09 64 214 721 .
	25	09 64 324 721 .	09 64 314 721 .
	37	09 64 424 721 .	09 64 414 721 .
Connectors with 470 pF C filter	9	09 64 124 722 .	09 64 114 722 .
	15	09 64 224 722 .	09 64 214 722 .
	25	09 64 324 722 .	09 64 314 722 .
	37	09 64 424 722 .	09 64 414 722 .
Connectors with 1000 pF C filter	9	09 64 124 723 .	09 64 114 723 .
	15	09 64 224 723 .	09 64 214 723 .
	25	09 64 324 723 .	09 64 314 723 .
	37	09 64 424 723 .	09 64 414 723 .
Connectors with 3900 pF C filter	9	09 64 124 724 .	09 64 114 724 .
	15	09 64 224 724 .	09 64 214 724 .
	25	09 64 324 724 .	09 64 314 724 .
	37	09 64 424 724 .	09 64 414 724 .
Please insert digit for flange thread	4-40 UNC ▶ 6		
	M3 ▶ 7		

9-37



Identification

Dimensions in mm

Technical drawing of a 12-pin D-sub connector. The drawing includes three views: a top view, a side view, and a detail view of the pin assembly.

Top View: Shows the connector housing with 12 pins arranged in two rows of six. Dimensions include a total width of 12.5 ± 0.2 , a pin pitch of 2.54 , and a housing width of 8.2 ± 0.2 . The pin pitch is also indicated as $C \pm 0.15$. The housing width is also indicated as $B_1 \pm 0.2$.

Side View: Shows the connector housing with a height of 11.57 and 16.4 .

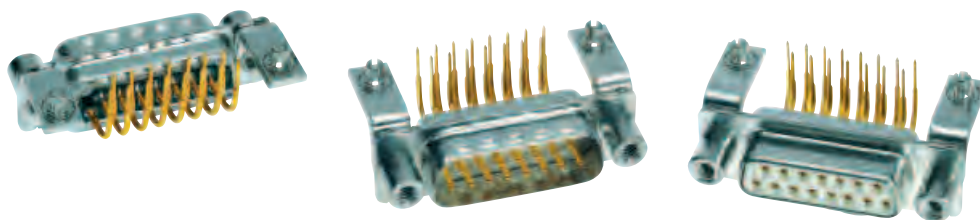
Detail View: Shows the pin assembly with dimensions 7.3 , 0.3 , and 0.9 ± 0.1 .

[illegible]

Technical drawing of a rectangular plate. The overall width is 9.4 and the overall height is 10.67. The distance from the left edge to the center of the hole pattern is 2.54. The distance from the center of the hole pattern to the right edge is C . The distance from the center of the hole pattern to the top edge is F . The distance from the center of the hole pattern to the bottom edge is E . The hole pattern consists of a central vertical column of 11 holes and two side columns of 5 holes each. The diameter of the holes is $\varnothing 1$. The hole pattern is defined by a tolerance zone of $\varnothing 0.1$.

Number of contacts

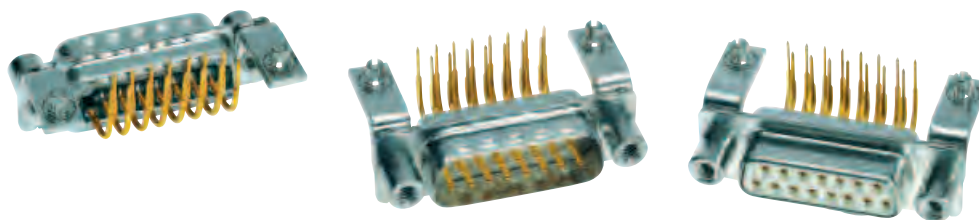
9–37



Turned solder pins, right angled, bracket, board lock and female screw

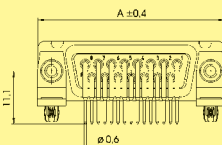
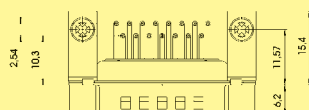
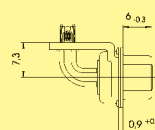
Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter	9	09 64 124 721 .	09 64 114 721 .
	15	09 64 224 721 .	09 64 214 721 .
	25	09 64 324 721 .	09 64 314 721 .
	37	09 64 424 721 .	09 64 414 721 .
Connectors with 470 pF C filter	9	09 64 124 722 .	09 64 114 722 .
	15	09 64 224 722 .	09 64 214 722 .
	25	09 64 324 722 .	09 64 314 722 .
	37	09 64 424 722 .	09 64 414 722 .
Connectors with 1000 pF C filter	9	09 64 124 723 .	09 64 114 723 .
	15	09 64 224 723 .	09 64 214 723 .
	25	09 64 324 723 .	09 64 314 723 .
	37	09 64 424 723 .	09 64 414 723 .
Connectors with 3900 pF C filter	9	09 64 124 724 .	09 64 114 724 .
	15	09 64 224 724 .	09 64 214 724 .
	25	09 64 324 724 .	09 64 314 724 .
	37	09 64 424 724 .	09 64 414 724 .
Please insert digit for flange thread	4-40 UNC ▶ 4		
	M3 ▶ 5		

9-37

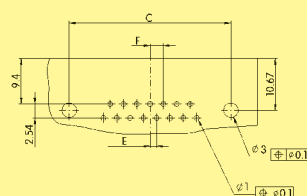
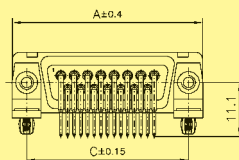
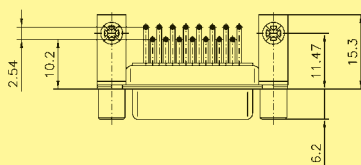
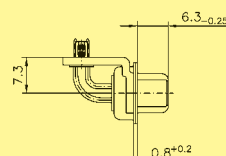


Identification

Dimensions in mm



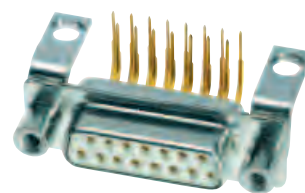
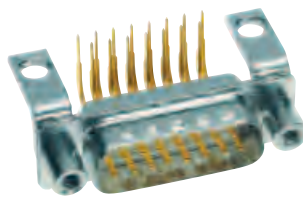
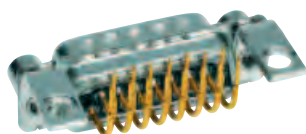
No. of contacts	A	B ₁	B ₂	C	E	F
9	30.8	16.9	16.4	25.00	1.37	2.74
15	39.1	25.2	24.7	33.30	1.37	2.74
25	53.0	38.9	38.5	47.04	1.40	2.77
37	69.3	55.3	54.9	63.50	1.40	2.77



Board drillings

Number of contacts

9–37



Turned solder pins, right angled, bracket and female screw

Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter	9	09 64 124 721 .	09 64 114 721 .
	15	09 64 224 721 .	09 64 214 721 .
	25	09 64 324 721 .	09 64 314 721 .
	37	09 64 424 721 .	09 64 414 721 .
Connectors with 470 pF C filter	9	09 64 124 722 .	09 64 114 722 .
	15	09 64 224 722 .	09 64 214 722 .
	25	09 64 324 722 .	09 64 314 722 .
	37	09 64 424 722 .	09 64 414 722 .
Connectors with 1000 pF C filter	9	09 64 124 723 .	09 64 114 723 .
	15	09 64 224 723 .	09 64 214 723 .
	25	09 64 324 723 .	09 64 314 723 .
	37	09 64 424 723 .	09 64 414 723 .
Connectors with 3900 pF C filter	9	09 64 124 724 .	09 64 114 724 .
	15	09 64 224 724 .	09 64 214 724 .
	25	09 64 324 724 .	09 64 314 724 .
	37	09 64 424 724 .	09 64 414 724 .
Please insert digit for flange thread	4-40 UNC ▶ 8		
	M3 ▶ 9		

D-Sub

Number of contacts

9–37



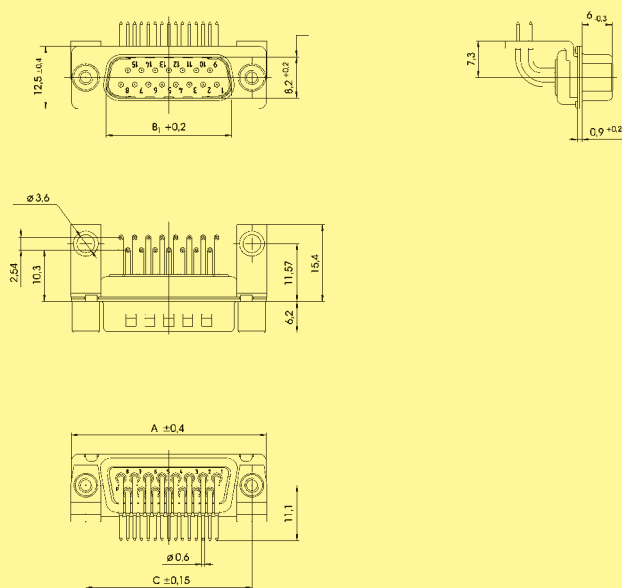
Turned solder pins, right angled, bracket and female screw

Identification

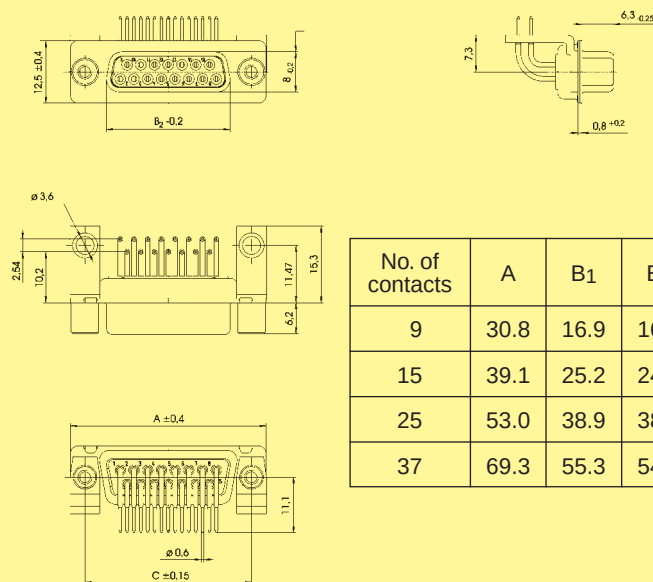
Drawing

Dimensions in mm

Male connector

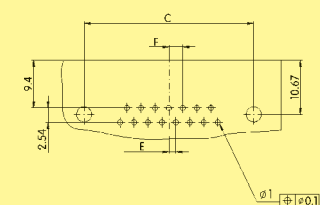


Female connector



No. of contacts	A	B1	B2	C	E	F
9	30.8	16.9	16.4	25.00	1.37	2.74
15	39.1	25.2	24.7	33.30	1.37	2.74
25	53.0	38.9	38.5	47.04	1.40	2.77
37	69.3	55.3	54.9	63.50	1.40	2.77

Board drillings



Number of contacts

9–37



Solder buckets, through hole

Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter			
	9	09 64 121 7210	09 64 111 7210
	15	09 64 221 7210	09 64 211 7210
	25	09 64 321 7210	09 64 311 7210
	37	09 64 421 7210	09 64 411 7210
Connectors with 470 pF C filter			
	9	09 64 121 7220	09 64 111 7220
	15	09 64 221 7220	09 64 211 7220
	25	09 64 321 7220	09 64 311 7220
	37	09 64 421 7220	09 64 411 7220
Connectors with 1000 pF C filter			
	9	09 64 121 7230	09 64 111 7230
	15	09 64 221 7230	09 64 211 7230
	25	09 64 321 7230	09 64 311 7230
	37	09 64 421 7230	09 64 411 7230
Connectors with 3900 pF C filter			
	9	09 64 121 7240	09 64 111 7240
	15	09 64 221 7240	09 64 211 7240
	25	09 64 321 7240	09 64 311 7240
	37	09 64 421 7240	09 64 411 7240

Number of contacts

9–37



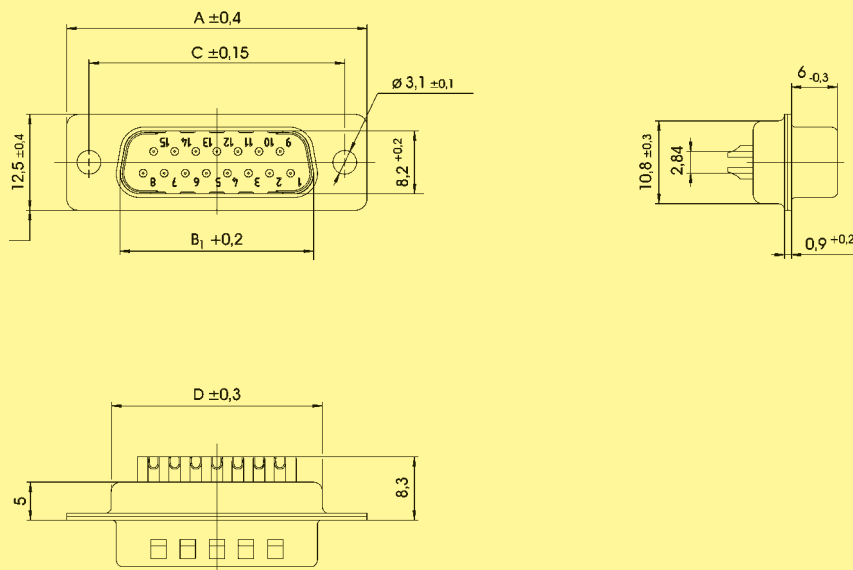
Solder buckets, through hole

Identification

Drawing

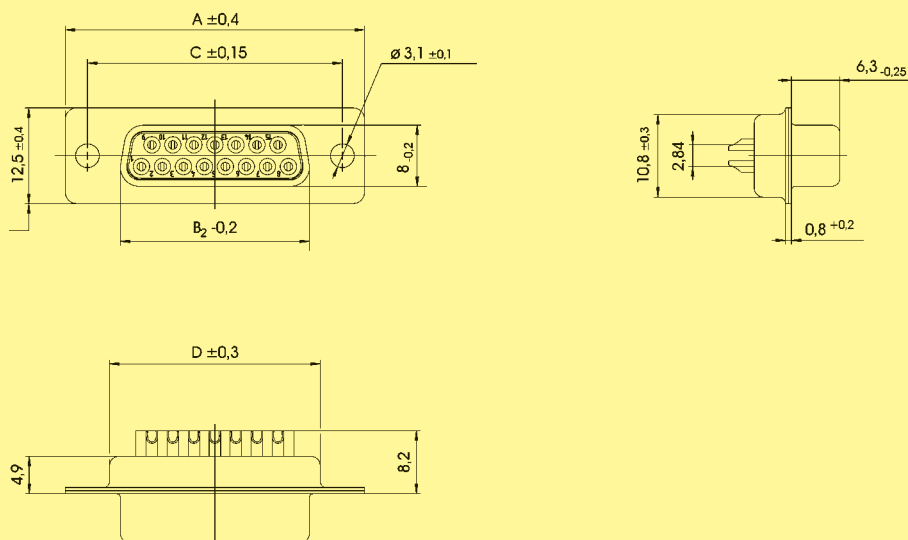
Dimensions in mm

Male connector



No. of contacts	A	B ₁	B ₂	C	D
9	30.8	16.9	16.4	25.00	19.3
15	39.1	25.2	24.7	33.30	27.5
25	53.0	38.9	38.5	47.04	41.3
37	69.3	55.3	54.9	63.50	57.7

Female connector



Number of contacts

9–37



Solder buckets, clinch nut

Identification	No. of contacts	Part No.	
		male connectors	female connectors
Connectors with 47 pF C filter	9	09 64 121 721 .	09 64 111 721 .
	15	09 64 221 721 .	09 64 211 721 .
	25	09 64 321 721 .	09 64 311 721 .
	37	09 64 421 721 .	09 64 411 721 .
Connectors with 470 pF C filter	9	09 64 121 722 .	09 64 111 722 .
	15	09 64 221 722 .	09 64 211 722 .
	25	09 64 321 722 .	09 64 311 722 .
	37	09 64 421 722 .	09 64 411 722 .
Connectors with 1000 pF C filter	9	09 64 121 723 .	09 64 111 723 .
	15	09 64 221 723 .	09 64 211 723 .
	25	09 64 321 723 .	09 64 311 723 .
	37	09 64 421 723 .	09 64 411 723 .
Connectors with 3900 pF C filter	9	09 64 121 724 .	09 64 111 724 .
	15	09 64 221 724 .	09 64 211 724 .
	25	09 64 321 724 .	09 64 311 724 .
	37	09 64 421 724 .	09 64 411 724 .
Please insert digit for flange thread	4-40 UNC ▶ 7		
	M3 ▶ 8		

D-Sub

Number of contacts

9–37



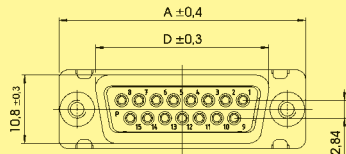
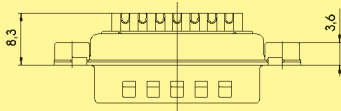
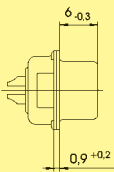
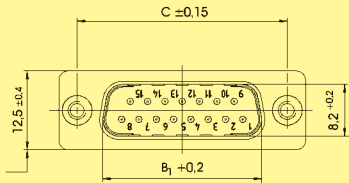
Solder buckets, clinch nut

Identification

Drawing

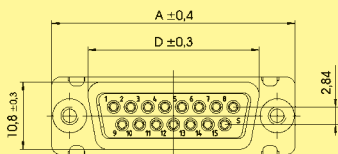
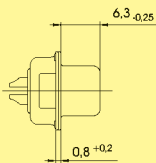
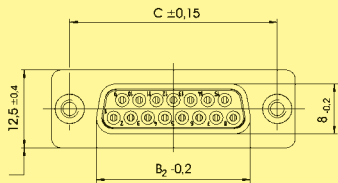
Dimensions in mm

Male connector



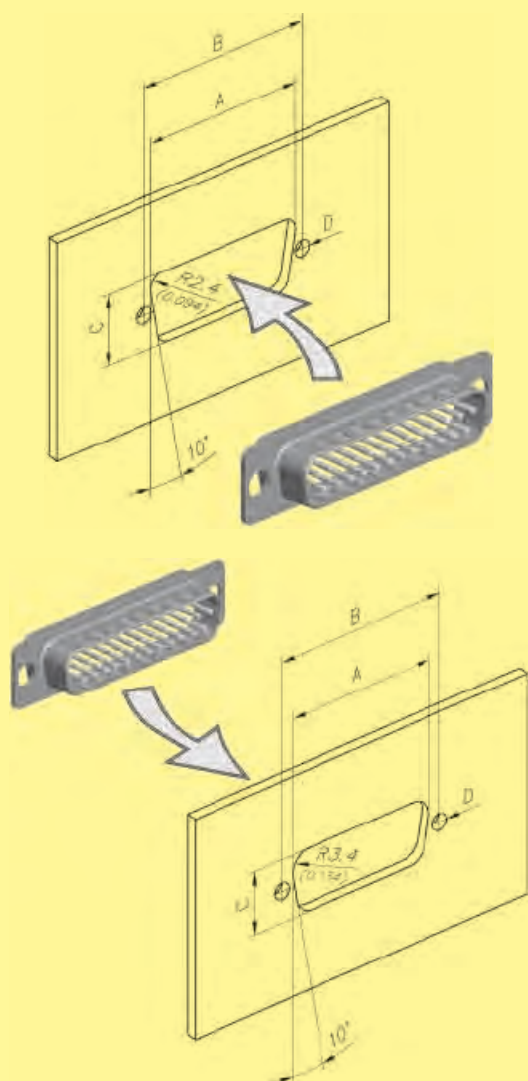
No. of contacts	A	B ₁	B ₂	C	D
9	30.8	16.9	16.4	25.00	19.3
15	39.1	25.2	24.7	33.30	27.5
25	53.0	38.9	38.5	47.04	41.3
37	69.3	55.3	54.9	63.50	57.7

Female connector

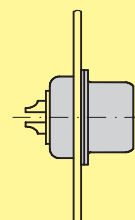


Panel cut outs / panel mountings

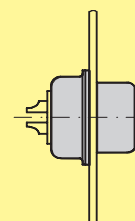
Panel cut outs



Front mounting

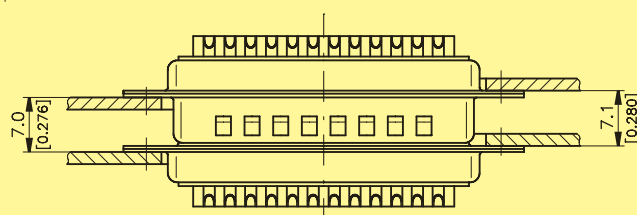
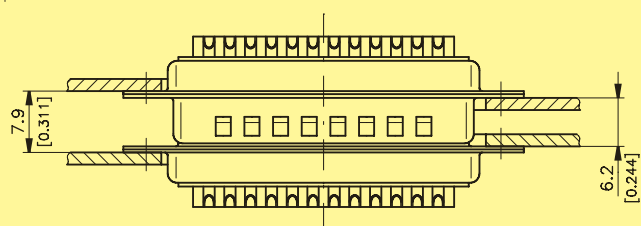


Rear mounting



No. of contacts	Mounting assembly	A ± 0.2	B ± 0.2	C ± 0.2
9	Front	22.2	25.0	12.3
	Rear	20.5	25.0	11.4
15	Front	30.5	33.3	12.3
	Rear	28.8	33.3	11.4
25	Front	44.3	47.0	12.3
	Rear	42.5	47.0	11.4
37	Front	60.7	63.5	12.3
	Rear	59.1	63.5	11.4

Panel mountings



For float mounting option please contact your local HARTING representative.

Dimensions in mm

General information

With the innovative EMC platform approach, this enables customers to select their optimum filter requirements, contact per contact. Allowing not only to segregate the filtering per contact but also to mix the type of filter used. This is then cast in a single competitive product (in a standard D-Sub shell).

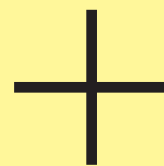
The biggest advantage of the HARTING technology is that multiple filter assemblies can be configured to create different filter designs: C, Pi, L and T types. Since any value of capacitor can be placed on any contact, a wide range of configurations can be built, it is even possible to have an individual pin unfiltered if necessary.

Furthermore, ***Pi filters can be supplied in a standard connector size shell.*** In addition, protection against lightening and transient voltage can be included upon request.

In the next few pages, you will find all the necessary information plus a selection guide to help you to choose your appropriate solution.



or



- C filter
- L filter
- Pi filter
- ESD protection
- Lightening protection
- Combination



With any capacitance on any pin in a **standard D-Sub shell.**

General information

Filter possibilities

C filter:

Non exhaustive list of C filter values that HARTING can supply (for specials see page 05.124 ff)

C filter capacitance in pF	Minimum insertion loss								Max. working voltage	Max. dielectric withstanding
	Attenuation [dB] vs frequency [MHz]									
	0.1	1	5	10	50	100	500	1000		
47							30	35	500 V DC	750 V DC
100					1	3	40	35	500 V DC	750 V DC
150					1	6	45	35	500 V DC	750 V DC
180					1	10	40	32	500 V DC	750 V DC
270				1	3	12	35	32	500 V DC	750 V DC
330				1	7	13	35	32	500 V DC	750 V DC
470				1	10	15	35	32	500 V DC	750 V DC
820				2	10	18	30	30	500 V DC	750 V DC
1000			1	3	12	20	34	30	500 V DC	750 V DC
1800			2	6	17	30	35	32	500 V DC	750 V DC
3900		1	6	11	25	35	35	32	500 V DC	750 V DC
4700		1	9	13	30	38	35	32	500 V DC	750 V DC
5600		2	10	14	30	32	32	32	500 V DC	750 V DC
10000		1	10	15	30	32	30	30	200 V DC	500 V DC
33000	1	9	19	29	32	34	39	32	100 V DC	150 V DC
47000	1	11	23	30	32	32	35	32	100 V DC	150 V DC
100000	2	18	32	40	34	34	36	35	25 V DC	40 V DC

Pi filter:

Non exhaustive list of Pi filter values that HARTING can supply (for specials see page 05.124 ff)

Pi filter capacitance in pF	Minimum insertion loss								Max. working voltage	Max. dielectric withstanding
	Attenuation [dB] vs frequency [MHz]									
	0.1	1	5	10	50	100	500	1000		
94						2	35	50	200 V DC	500 V DC
200					1	8	50	40	200 V DC	500 V DC
440				1	8	16	50	40	200 V DC	500 V DC
940				2	12	24	50	40	200 V DC	500 V DC
2000			2	7	17	40	45	40	200 V DC	500 V DC
4400			5	10	28	60	45	40	200 V DC	500 V DC
9400		2	10	15	48	50	45	40	200 V DC	500 V DC
20000		5	14	20	50	60	52	48	100 V DC	250 V DC
94000	2	15	32	50	51	52	48	42	50 V DC	125 V DC
200000	7	21	48	65	55	52	48	42	16 V DC	25 V DC

General information

Other protection possibilities

ESD protection

(Electro Static Discharge protection)

For equipment to comply with:

- IEC-1000-4-2; levels 1 to 4 (Contact discharge test)
- RTCA-160 D; section 25

Typical parasitic capacitance (pF)	Max. clamp voltage (V)	Working voltage (V)
0.5 V _{rms} @ 1 KHz	@ I = 1 A @ 8/20 μS	@ I = 10 μA
1750	7.5	3
1250	13	5
650	22	12
430	33	18
220	48	26
200	51	30

EMP protection

(Electro Magnetic Pulse protection)

For equipment to comply with:

- MIL-STD-461 C: requirements CS 06, CS 10, CS 11, RS 05
- IEC-1000-4-4; EFT TESTS
- RTCA-160 D; section 17

Typical parasitic capacitance (pF)	Max. clamp voltage (V)	Working voltage (V)
0.5 V _{rms} @ 1 KHz	@ I = 10 A @ 8/20 μS	@ I = 10 μA
5675	9	3
3620	15	5
1500	26	14
820	34	18
275	50	26

Lightening protection

For equipment to comply with:

- IEC-1000-4-5; levels 1 and 2 (1.2 μ / 50 μS)
- RTCA-160 D; section 22 (pin injection, level 1)

Typical parasitic capacitance (pF)	Max. clamp voltage (V)	Working voltage (V)
0.5 V _{rms} @ 1 KHz	@ I = 30 A @ 8/20 μS	@ I = 10 μA
5500	12	3
3175	18	5
2000	21	9
1680	30	14
900	38	18
720	60	26
600	63	30

HARTING customer request form

Our innovative technology offers all the possibilities you may need.

For customer solutions, please contact your local HARTING representative.

Here is a summary of the information we need to develop a customer solution:

Connector

Standard D-Sub

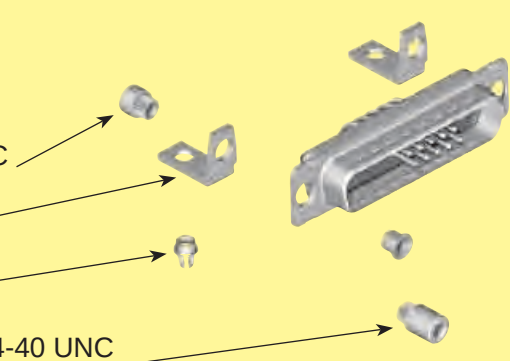
- Gender ☐ Male ☐ Female
- No. of contacts ☐ 9 ☐ 15 ☐ 25 ☐ 37 ☐ 50
- Termination ☐ Solder bucket ☐ Straight pcb
- ☐ R/A Eur, 2.54 mm ☐ R/A US, 2.84 mm

Mixed D-Sub

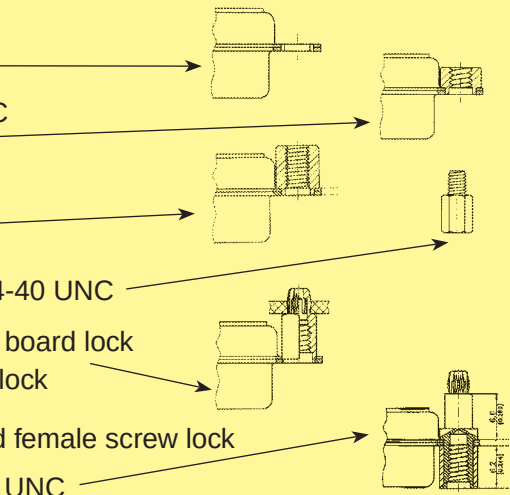
- Gender ☐ Male ☐ Female
- Contact arrangement ☐ 3W3 ☐ 3W3C ☐ Other _____
- Power contact rating ☐ 10 A ☐ 20 A ☐ 30 A ☐ 40 A
- Termination ☐ Solder bucket ☐ Straight pcb
- ☐ R/A pcb (please specify the board drillings)

Flange thread and board locking options

Right angled version

- ☐ Through hole
- ☐ Clinch nut 4-40 UNC
- ☐ Clinch nut M3
- ☐ Bracket
- ☐ Board lock
- ☐ Female screw lock 4-40 UNC
- ☐ Female screw lock M3
- 

Straight version

- ☐ Through hole
- ☐ Clinch nut 4-40 UNC
- ☐ Clinch nut M3
- ☐ Spacer 4-40 UNC
- ☐ Spacer M3
- ☐ Female screw lock 4-40 UNC
- ☐ Spacer 4-40 UNC + board lock
- ☐ Spacer M3 + board lock
- Spacer + board lock and female screw lock
- ☐ M3 ☐ 4-40 UNC
- 

HARTING customer request from

Filter

What working voltage is used? _____

What is the maximum dielectric withstanding voltage needed? _____

Type of filter _____ (C filter, Pi filter, L filter ...)

Capacitance _____

Are there other protections needed?

☐ No

☐ Yes

☐ ESD

☐ Transient

☐ EMP

☐ Lightening

If a pin-to-pin selection has to be done, please state the details

Pin 1: ?, Pin 2: ?, ...

Name: _____

Drawing: ☐ no ☐ yes

Company: _____

Samples: ☐ no ☐ yes, quantity

Address: _____

Volume (pcs./year): _____

Phone: _____

Special requirements: _____

Fax: _____

E-Mail: _____

Number of contacts 9, 15, 25, 37, 50
UL recognized

Working current 5 A

Test voltage 1200 V for 1 minute
between 2 contacts / contact and shell

Clearance and creepage ≥ 1.0 mm

Contact resistance
Straight contact ≤ 10 m Ω
Angled contact ≤ 25 m Ω
Angled contact 50-pole ≤ 35 m Ω

Insulation resistance
between contacts ≥ 5000 M Ω

Dielectric strength 50 kV/mm

Temperature range -25 °C ... +70 °C

Protection IP 67
(per DIN 40 050 / IEC 529)

Termination
Solder cup max. AWG 20
Solder pin straight 0.6 mm diameter
Solder pin angled 0.6 mm diameter

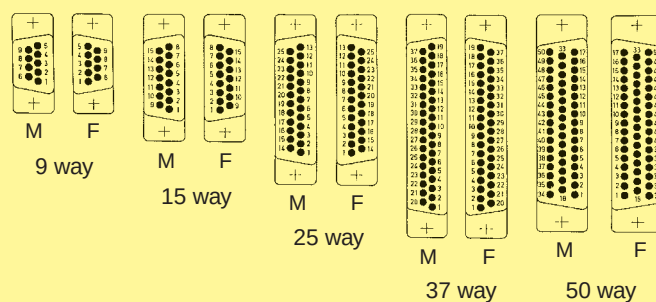
Material
Shell Brass, tin plated
Insulator and plastic watertight frame Thermoplastic,
glass-fibre filled, UL 94-V0
Metal watertight frame Nickel plated zinc die cast
Contact material Machined copper alloy

Contact surface
Contact zone 0.76 μ m Au min. over Ni

Waterproofing element Silicone

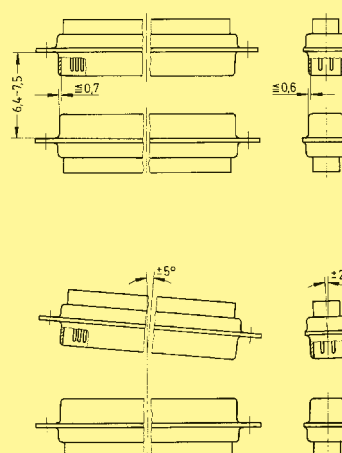
Mechanical
Mating cycles ≥ 500
Mating force per signal contact ≤ 3.4 N
Unmating force per signal contact ≥ 0.2 N

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 41 652



Number of contacts

9–50



IP 67, turned solder cups

D-Sub

Identification	No. of contacts	Part No.
		S4 ¹⁾
Male connector metal shell with dimples	9 15 25 37 50	09 67 409 5615 09 67 415 5615 09 67 425 5615 09 67 437 5615 09 67 450 5615
Female connector metal shell	9 15 25 37 50	09 67 409 4715 09 67 415 4715 09 67 425 4715 09 67 437 4715 09 67 450 4715

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

Number of contacts

9–50

IP 67, turned solder cups



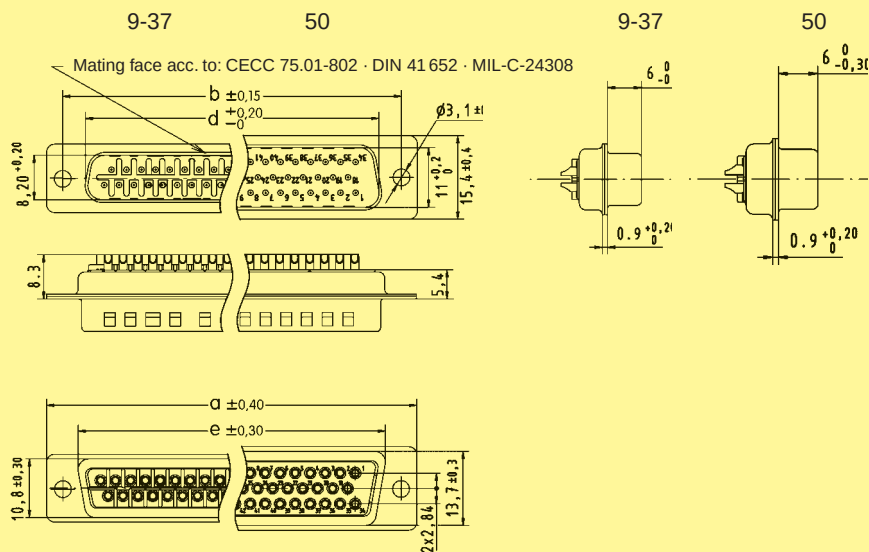
Identification

Drawing

Dimensions in mm

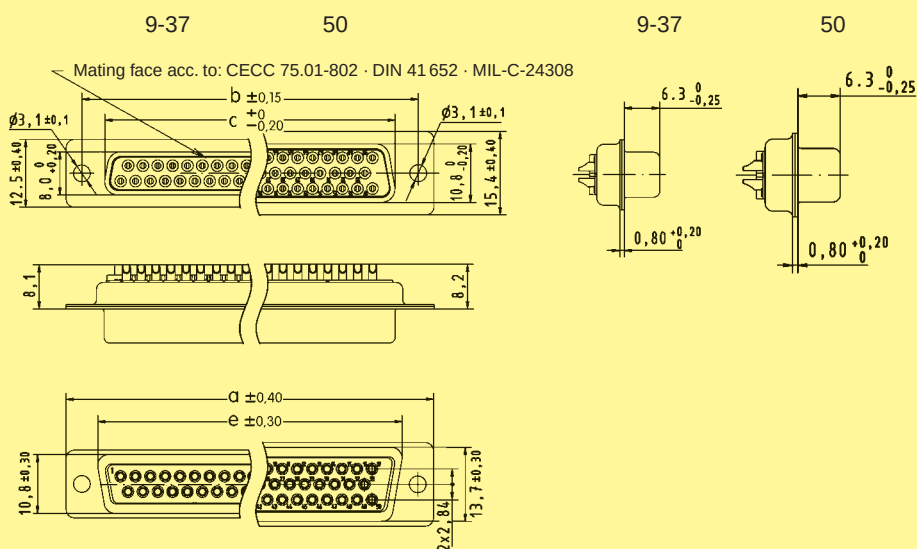
Male connector

9 – 50 contacts



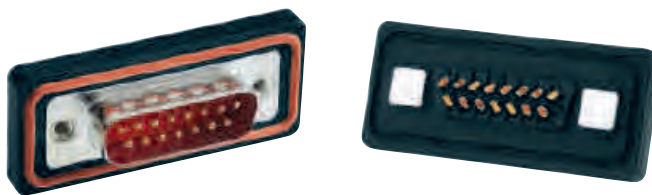
Female connector

9 – 50 contacts



	a	b	c	d	e
9	30.8	25.00	16.4	16.9	19.3
15	39.1	33.30	24.7	25.2	27.5
25	53.0	47.04	38.5	38.9	41.3
37	69.3	63.50	54.9	55.3	57.7
50	66.9	61.10	52.5	52.8	55.3

9-25



Identification

No. of contacts

Part No.

S4¹⁾

Male connector
metal shell with dimples

9
15
25

09 67 509	.	615
09 67 515	.	615
09 67 525	.	615

Please insert digit
for flange thread

4-40 UNC ▶ 7
M3 ▶ 9

Female connector
metal shell

9
15
25

09 67 509	.	715
09 67 515	.	715
09 67 525	.	715

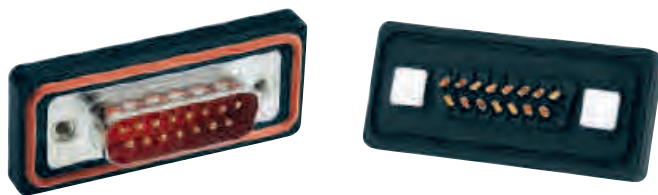
Please insert digit
for flange thread

4-40 UNC ▶	6
M3 ▶	8

¹⁾ S4: $\geq 0.76 \mu\text{m Au}$ (30 μinch)

Number of contacts

9–25



IP 67, turned solder cups, with rear plastic mounting plate

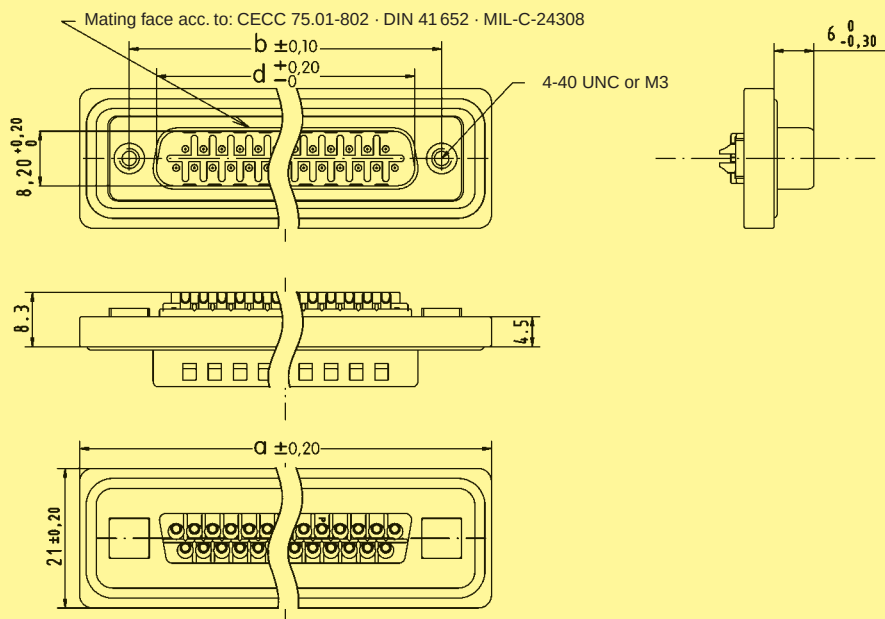
Identification

Drawing

Dimensions in mm

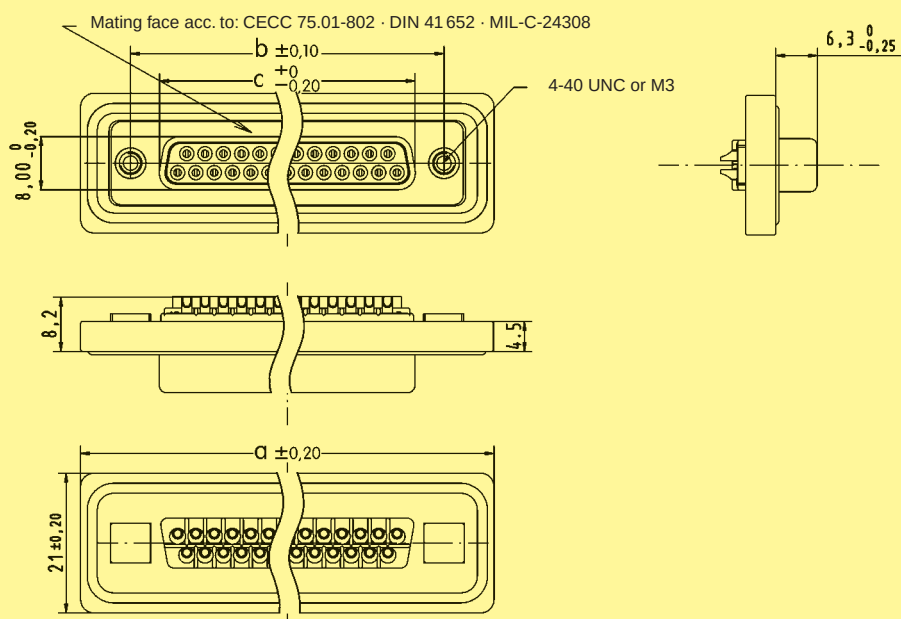
Male connector

9 – 25 contacts



Female connector

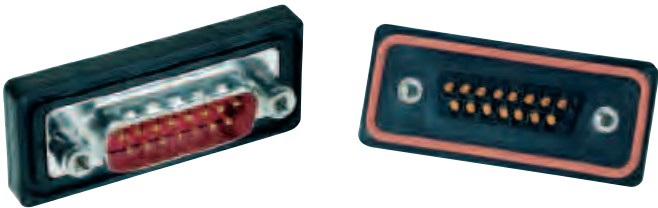
9 – 25 contacts



	a	b	c	d
9	40.0	25.00	16.4	16.9
15	48.3	33.30	24.7	25.2
25	62.0	47.04	38.5	38.9

Number of contacts

9–25



IP 67, turned solder cups, with front plastic mounting plate

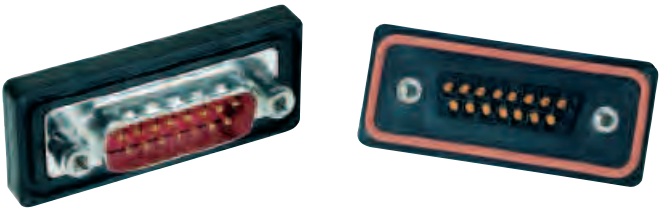
D-Sub

Identification	No. of contacts	Part No.	
		S4 ¹⁾	
Male connector metal shell with dimples	9 15 25	09 67 709 09 67 715 09 67 725	. 615 . 615 . 615
Please insert digit for flange thread			
4-40 UNC ▶ 7 M3 ▶ 9			
Female connector metal shell	9 15 25	09 67 709 09 67 715 09 67 725	. 715 . 715 . 715
Please insert digit for flange thread			
4-40 UNC ▶ 6 M3 ▶ 8			

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

Number of contacts

9–25



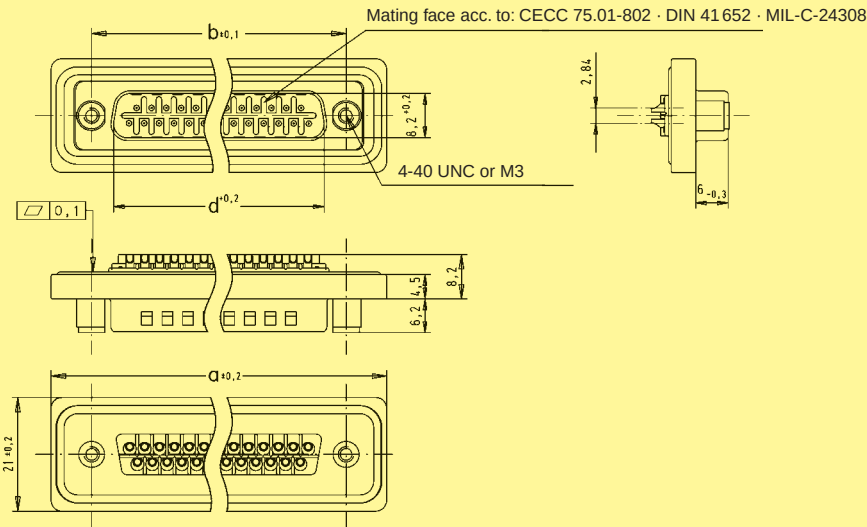
IP 67, turned solder cups, with front plastic mounting plate

Identification

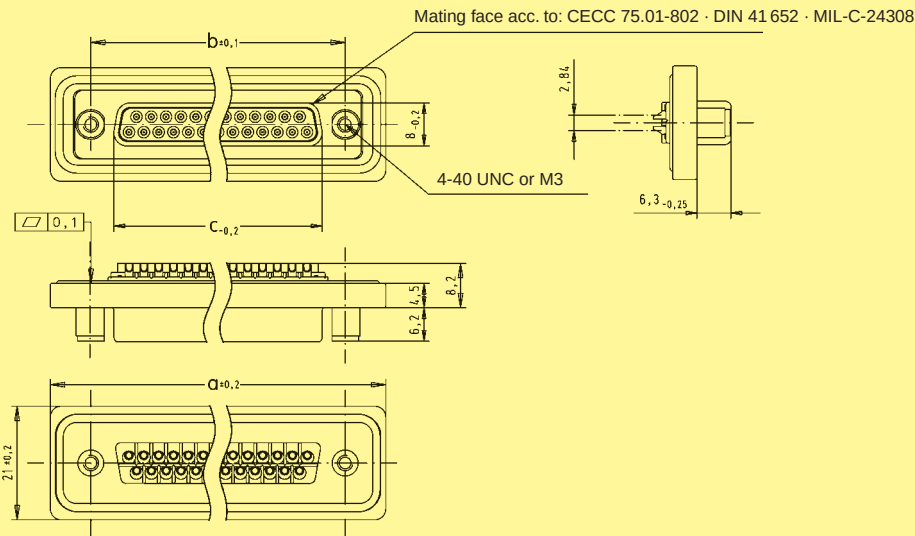
Drawing

Dimensions in mm

Male connector
9 – 25 contacts



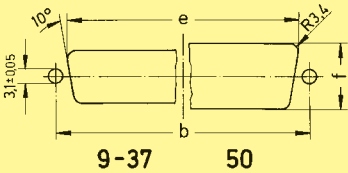
Female connector
9 – 25 contacts



	a	b	c	d
9	40.0	25.00	16.4	16.9
15	48.3	33.30	24.7	25.2
25	62.0	47.04	38.5	38.9

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802



Front mount

	b±0,13	e±0,2	f±0,2
9	25.0	22.2	12.3
15	33.3	30.5	12.3
25	47.0	44.3	12.3

Rear mount

	b±0,13	e±0,2	f±0,2
9	25.0	20.5	11.4
15	33.3	28.8	11.4
25	47.0	42.5	11.4

Number of contacts

9–50



IP 67, turned solder cups, with rear metal mounting plate

D-Sub

Identification	No. of contacts	Part No.	
		S4 ¹⁾	
Male connector metal shell with dimples	9 15 25 37 50	09 67 609 09 67 615 09 67 625 09 67 637 09 67 650	615 615 615 615 615
Please insert digit for flange thread	4-40 UNC ▶ 7 M3 ▶ 9		
Female connector metal shell	9 15 25 37 50	09 67 609 09 67 615 09 67 625 09 67 637 09 67 650	715 715 715 715 715
Please insert digit for flange thread	4-40 UNC ▶ 6 M3 ▶ 8		

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

Number of contacts

9–50



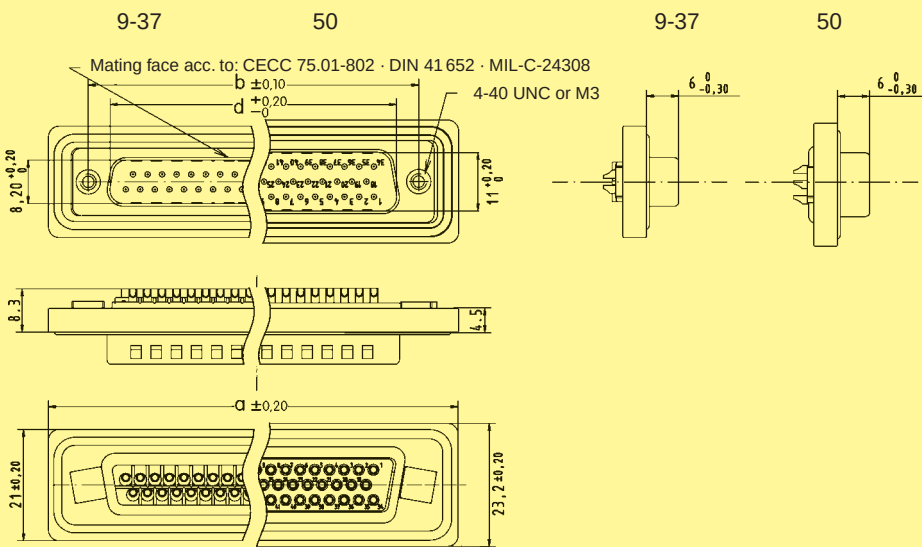
IP 67, turned solder cups, with rear metal mounting plate

Identification

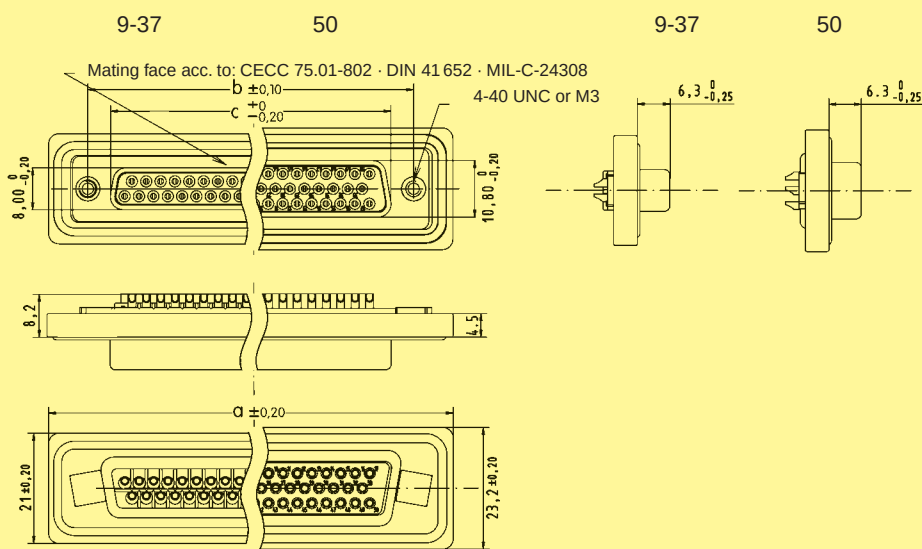
Drawing

Dimensions in mm

Male connector
9 – 50 contacts

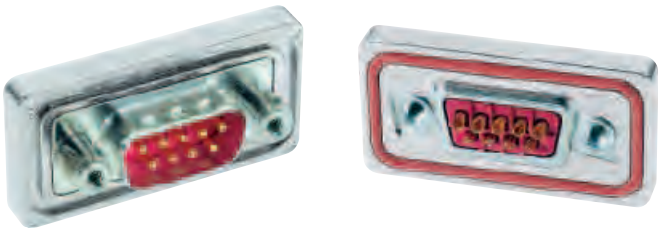


Female connector
9 – 50 contacts



	a	b	c	d
9	40,0	25,00	16,4	16,9
15	48,3	33,30	24,7	25,2
25	62,0	47,04	38,5	38,9
37	78,5	63,50	54,9	55,3
50	76,1	61,10	52,5	52,8

Number of contacts
9–50



IP 67, turned solder cups, with front metal mounting plate

D-Sub

Identification		No. of contacts	Part No.	
			S4 ¹⁾	
Male connector metal shell with dimples		9 15 25 37 50	09 67 809 09 67 815 09 67 825 09 67 837 09 67 850	. 615 . 615 . 615 . 615 . 615
Please insert digit for flange thread				
4-40 UNC ▶	7			
M3 ▶	9			
Female connector metal shell		9 15 25 37 50	09 67 809 09 67 815 09 67 825 09 67 837 09 67 850	. 715 . 715 . 715 . 715 . 715
Please insert digit for flange thread				
4-40 UNC ▶	6			
M3 ▶	8			

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

Number of contacts

9–50



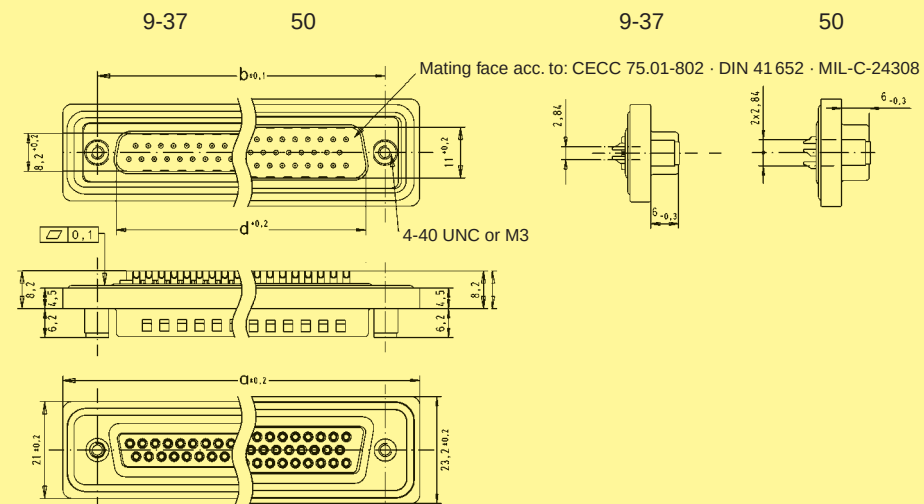
IP 67, turned solder cups, with front metal mounting plate

Identification

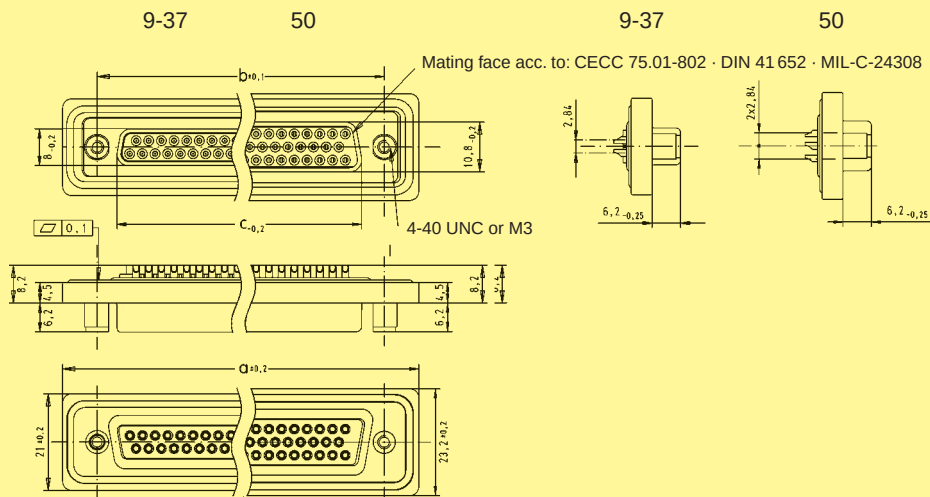
Drawing

Dimensions in mm

Male connector
9 – 50 contacts



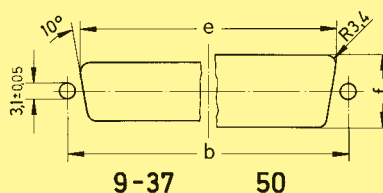
Female connector
9 – 50 contacts



	a	b	c	d
9	40.0	25.00	16.4	16.9
15	48.3	33.30	24.7	25.2
25	62.0	47.04	38.5	38.9
37	78.5	63.50	54.9	55.3
50	76.1	61.10	51.3	52.8

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802



Front mount

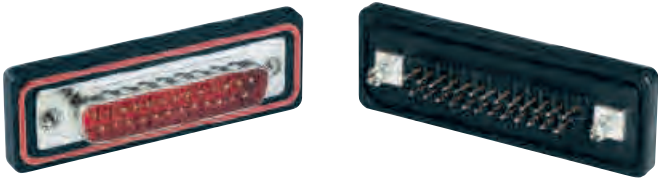
	$b_{\pm 0.13}$	$e_{\pm 0.2}$	$f_{\pm 0.2}$
9	25.0	22.2	12.3
15	33.3	30.5	12.3
25	47.0	44.3	12.3
37	63.5	60.7	12.3
50	61.1	58.3	15.1

Rear mount

	$b_{\pm 0.13}$	$e_{\pm 0.2}$	$f_{\pm 0.2}$
9	25.0	20.5	11.4
15	33.3	28.8	11.4
25	47.0	42.5	11.4
37	63.5	59.1	11.4
50	61.1	56.3	14.1

Number of contacts

9–25



IP 67, straight turned solder pins,
with rear plastic mounting plate, spacer and board lock

D-Sub

Identification	No. of contacts	Part No.	
		S4 ¹⁾	
Male connector metal shell with dimples			
	9	09 67 509	675
	15	09 67 515	675
	25	09 67 525	675
Please insert digit for flange thread			
	4-40 UNC ▶ 7		
	M3 ▶ 9		
Female connector metal shell			
	9	09 67 509	775
	15	09 67 515	775
	25	09 67 525	775
Please insert digit for flange thread			
	4-40 UNC ▶ 6		
	M3 ▶ 8		

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

Number of contacts

9–25



IP 67, straight turned solder pins,
with rear plastic mounting plate, spacer and board lock

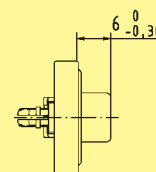
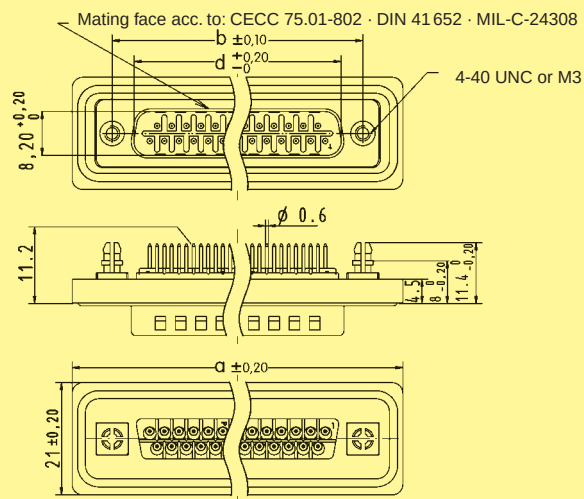
Identification

Drawing

Dimensions in mm

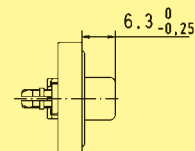
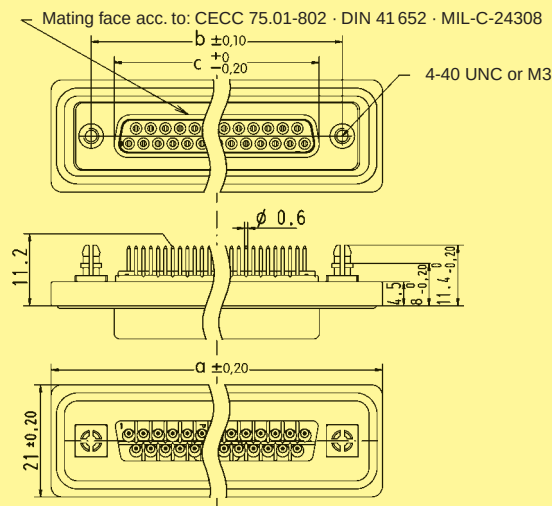
Male connector

9 – 25 contacts



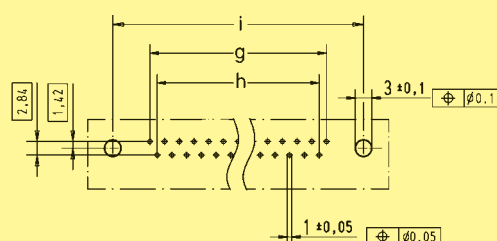
Female connector

9 – 25 contacts



	a	b	c	d	g	h	i
9	40.0	25.00	16.4	16.9	4 x 2.74 = 10.96	3 x 2.74 = 8.22	25.0
15	48.3	33.30	24.7	25.2	7 x 2.74 = 19.18	6 x 2.74 = 16.44	33.3
25	62.0	47.04	38.5	38.9	12 x 2.76 = 33.12	11 x 2.76 = 30.36	47.0

Board drillings



Number of contacts

9–50



IP 67, straight turned solder pins,
with rear metal mounting plate, spacer and board lock

D-Sub

Identification	No. of contacts	Part No.	
		S4 ¹⁾	
Male connector metal shell with dimples	9 15 25 37 50	09 67 609 09 67 615 09 67 625 09 67 637 09 67 650	. 675 . 675 . 675 . 675 . 675
Please insert digit for flange thread	4-40 UNC ▶ 7 M3 ▶ 9		
Female connector metal shell	9 15 25 37 50	09 67 609 09 67 615 09 67 625 09 67 637 09 67 650	. 775 . 775 . 775 . 775 . 775
Please insert digit for flange thread	4-40 UNC ▶ 6 M3 ▶ 8		

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

Number of contacts

9–50



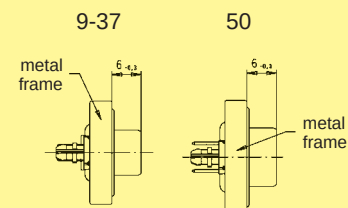
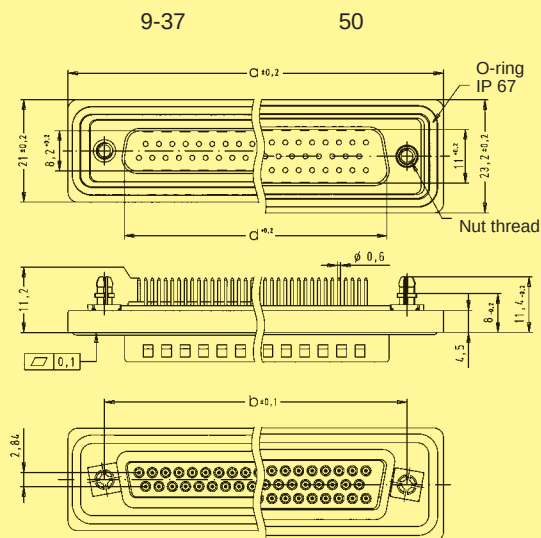
IP 67, straight turned solder pins,
with rear metal mounting plate, spacer and board lock

Identification

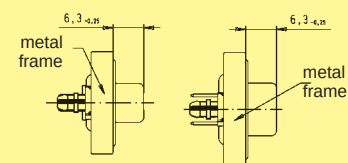
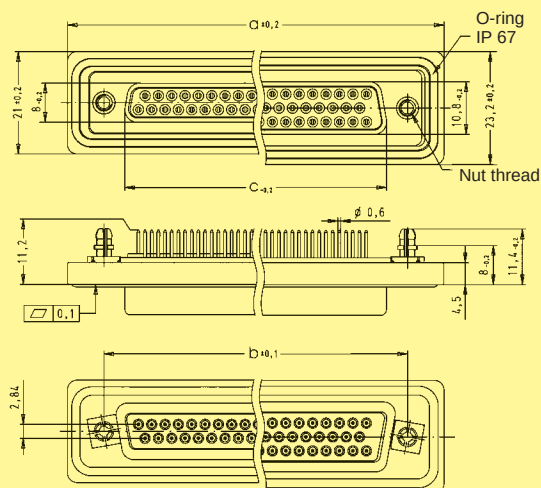
Drawing

Dimensions in mm

Male connector
9 – 50 contacts

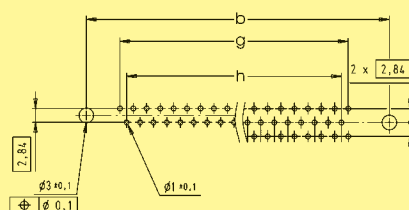


Female connector
9 – 50 contacts



	a	b	c	d	g	h
9	40.0	25.00	16.4	16.9	4 x $\frac{2.74}{10.96}$	3 x $\frac{2.74}{8.22}$
15	48.3	33.30	24.7	25.2	7 x $\frac{2.74}{19.18}$	6 x $\frac{2.74}{16.44}$
25	62.0	47.04	38.5	38.9	12 x $\frac{2.76}{33.12}$	11 x $\frac{2.76}{30.36}$
37	78.5	63.50	54.9	55.3	18 x $\frac{2.76}{49.68}$	17 x $\frac{2.76}{46.92}$
50	76.1	61.10	52.5	52.8	16 x $\frac{2.76}{44.16}$	15 x $\frac{2.76}{41.40}$

Board drillings



Number of contacts

9–25



IP 67, angled turned solder pins,
with rear plastic mounting plate, bracket and board lock

D-Sub

Identification	No. of contacts	Part No.	
		S4 ¹⁾	
Male connector metal shell with dimples	9 15 25	09 67 509 09 67 515 09 67 525	. 658 . 658 . 658
Please insert digit for flange thread			
4-40 UNC ▶ 7 M3 ▶ 9			
Female connector metal shell	9 15 25	09 67 509 09 67 515 09 67 525	. 758 . 758 . 758
Please insert digit for flange thread			
4-40 UNC ▶ 6 M3 ▶ 8			

¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

D-Sub

Number of contacts

9–25

IP 67, angled turned solder pins,
with rear plastic mounting plate, bracket and board lock

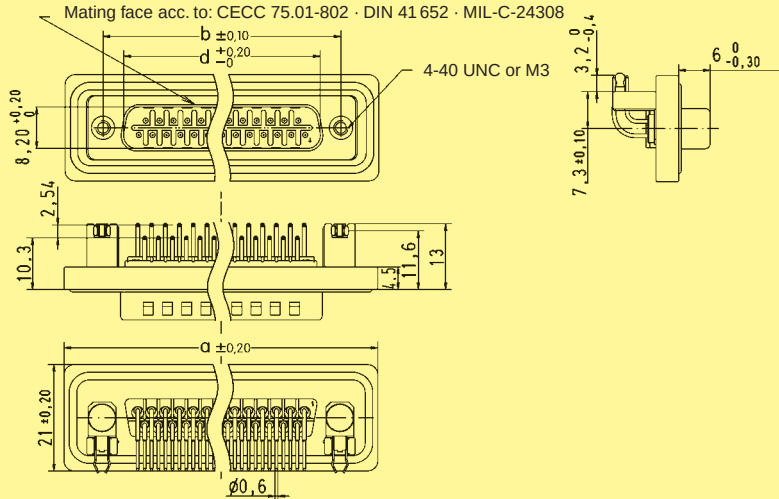


Identification

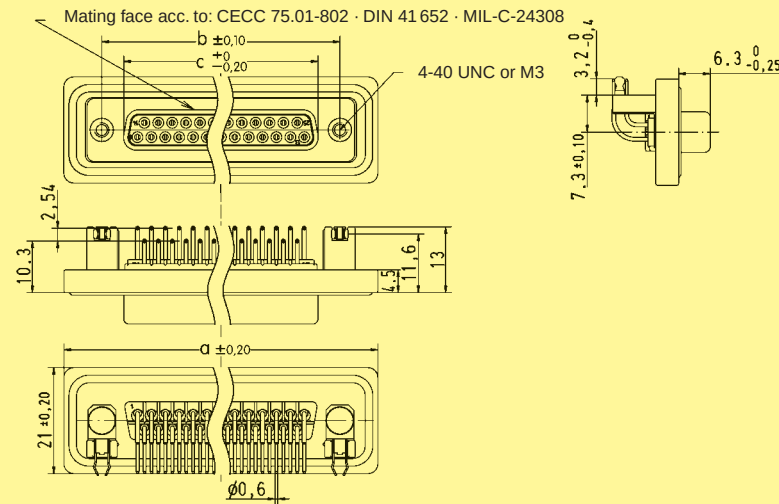
Drawing

Dimensions in mm

Male connector
9 – 25 contacts

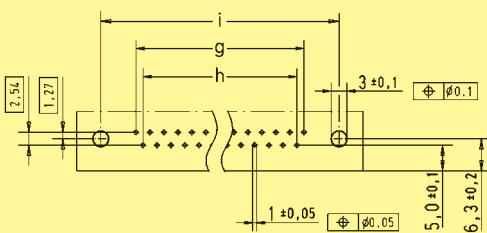


Female connector
9 – 25 contacts



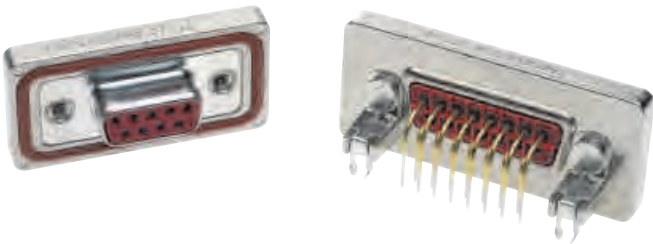
	a	b	c	d	g	h	i
9	40.0	25.00	16.4	16.9	4 x 2.74 = 10.96	3 x 2.74 = 8.22	25.0
15	48.3	33.30	24.7	25.2	7 x 2.74 = 19.18	6 x 2.74 = 16.44	33.3
25	62.0	47.04	38.5	38.9	12 x 2.76 = 33.12	11 x 2.76 = 30.36	47.0

Board drillings



Number of contacts

9–50



IP 67, angled turned solder pins,
with rear metal mounting plate, bracket and board lock

D-Sub

Identification	No. of contacts	Part No.	
		S4 ¹⁾	
Male connector metal shell with dimples	9 15 25 37 50	09 67 609 09 67 615 09 67 625 09 67 637 09 67 650	. 658 . 658 . 658 . 658 . 658
Please insert digit for flange thread			
4-40 UNC ▶ 7 M3 ▶ 9			
Female connector metal shell	9 15 25 37 50	09 67 609 09 67 615 09 67 625 09 67 637 09 67 650	. 758 . 758 . 758 . 758 . 758
Please insert digit for flange thread			
4-40 UNC ▶ 6 M3 ▶ 8			

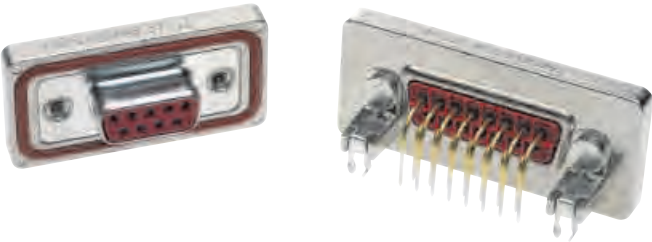
¹⁾ S4: ≥ 0.76 µm Au (30 µinch)

D-Sub

Number of contacts

9–50

IP 67, angled turned solder pins,
with rear metal mounting plate, bracket and board lock



Identification

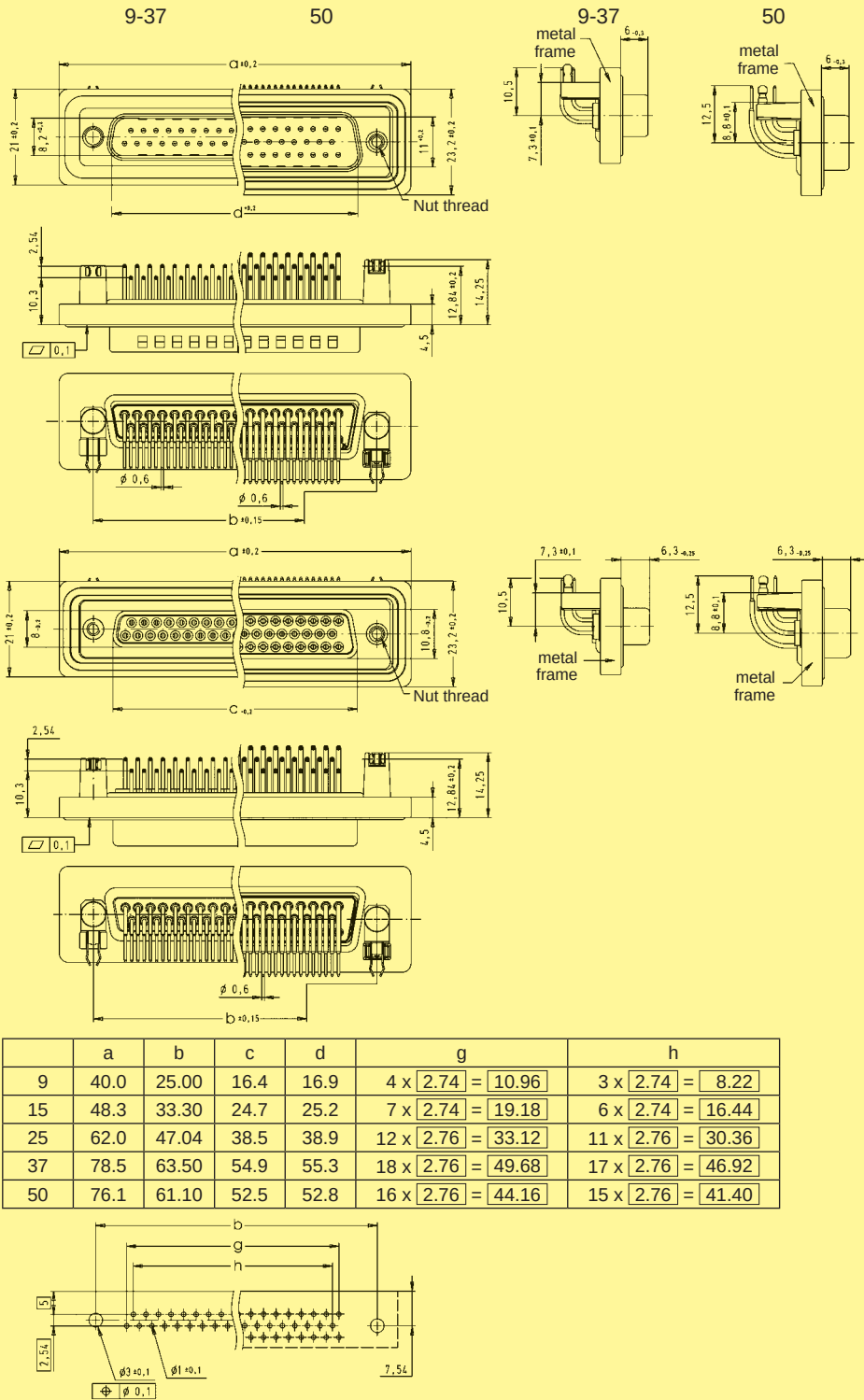
Drawing

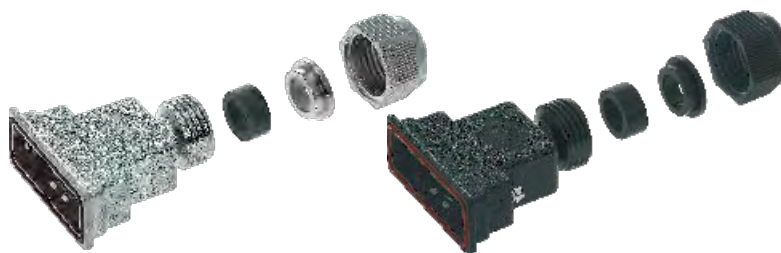
Dimensions in mm

Male connector
9 – 50 contacts

Female connector
9 – 50 contacts

Board drillings





IP 67 plastic hoods

IP 67 metallized plastic hoods

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
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Hood¹⁾

Black thermoplastic

9	09 67 009 043
15	09 67 015 043
25	09 67 025 043
37	09 67 037 043
50	09 67 050 043

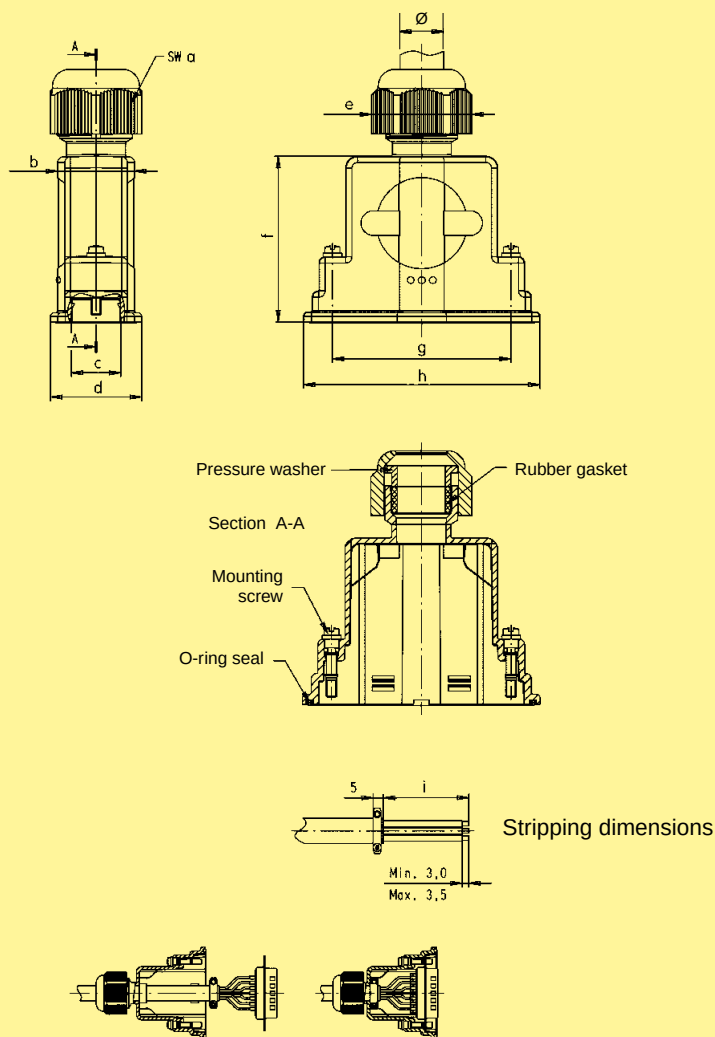
Metallized thermoplastic

9	09 67 009 053
15	09 67 015 053
25	09 67 025 053
37	09 67 037 053
50	09 67 050 053

Please insert digit for screw option

Locking screw, thread 4-40 UNC ▶ 8

Locking screw, thread M3 ▶ 9

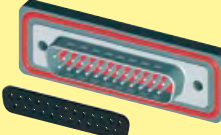
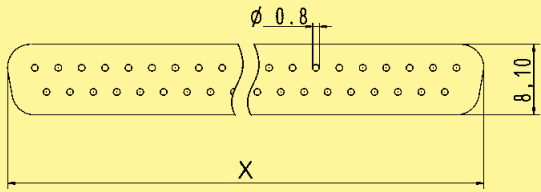
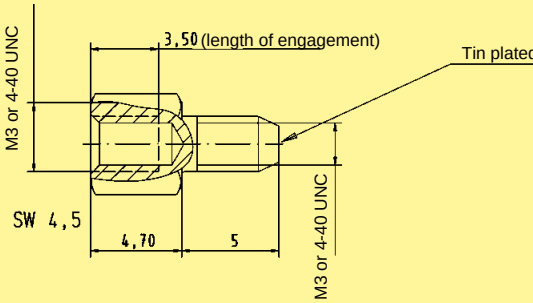
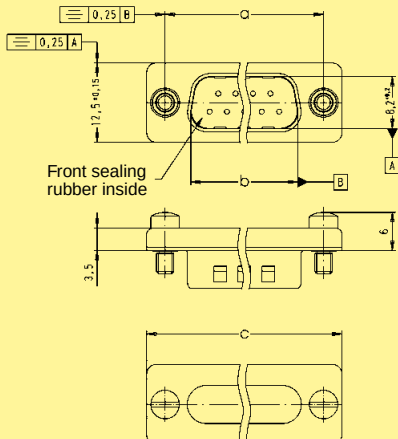
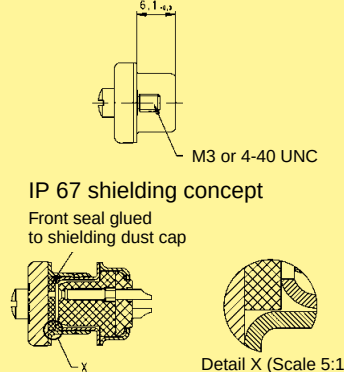
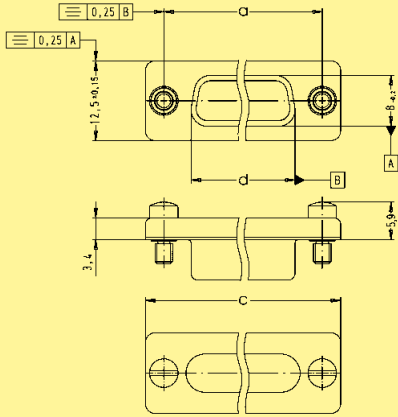
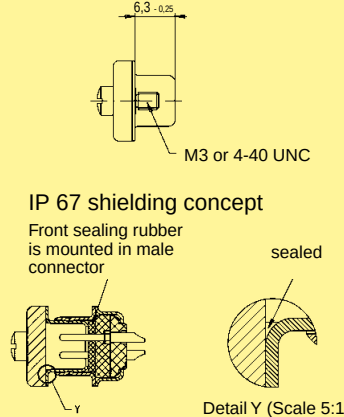
**Mounting instructions:**

- The peeled back cable braiding must not extend over the cable clamp, in order not to damage the gasket or to impair its performance.
- Pull back cable until cable clamp snaps into shielding plate.
- Snap connector into hood.

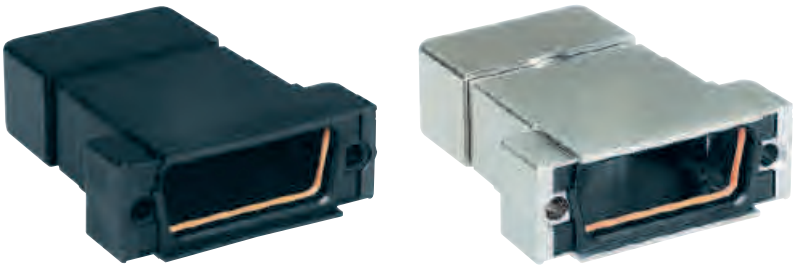
	a	b	c	d	e	f	g	h	i	Ø	
										min.	max.
9	20	16.5	13.0	20.2	22.1	36.4	25.0	39.8	18.0	6.0	8.0
15	24	16.5	13.0	20.2	26.6	36.4	33.3	48.5	18.0	6.0	10.5
25	24	20.3	13.0	24.0	26.6	43.6	47.0	62.3	45.0	8.0	12.0
37	24	20.3	13.0	24.0	26.6	52.1	63.5	78.6	60.0	8.0	12.0
50	29	22.0	16.0	27.6	32.1	52.1	61.1	75.7	60.0	9.0	14.0

¹⁾ Not to be used with 9 to 50-pole crimp connectors

Accessories for IP 67 connectors

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																				
Front sealing rubber¹⁾ IP 67  Mounting example 	9 15 25	09 67 002 9001 09 67 002 9002 09 67 002 9003		<table><tr><td></td><td>x</td></tr><tr><td>9</td><td>16.7</td></tr><tr><td>15</td><td>24.8</td></tr><tr><td>25</td><td>38.8</td></tr></table>		x	9	16.7	15	24.8	25	38.8												
	x																							
9	16.7																							
15	24.8																							
25	38.8																							
Female screw lock and spacing washer²⁾ M3  4-40 UNC 2) Order 2 for each connector		09 67 002 9006 09 67 002 9007																						
Dust cap for female connectors³⁾ M3  4-40 UNC 3) With inside glued front sealing rubber	9 15 25 9 15 25	09 67 002 9055 09 67 002 9056 09 67 002 9057 09 67 002 9050 09 67 002 9051 09 67 002 9052	  <table><tr><td></td><td>a</td><td>b</td><td>c</td><td>d</td></tr><tr><td>9</td><td>25.00</td><td>16.9</td><td>30.8</td><td>16.4</td></tr><tr><td>15</td><td>33.30</td><td>25.2</td><td>39.1</td><td>24.7</td></tr><tr><td>25</td><td>47.04</td><td>38.9</td><td>53.0</td><td>38.5</td></tr></table>		a	b	c	d	9	25.00	16.9	30.8	16.4	15	33.30	25.2	39.1	24.7	25	47.04	38.9	53.0	38.5	
	a	b	c	d																				
9	25.00	16.9	30.8	16.4																				
15	33.30	25.2	39.1	24.7																				
25	47.04	38.9	53.0	38.5																				
Dust cap for male connectors⁴⁾ M3  4-40 UNC 4) Order separately the front sealing rubber for an IP 67 performance	9 15 25 9 15 25	09 67 002 9065 09 67 002 9066 09 67 002 9067 09 67 002 9060 09 67 002 9061 09 67 002 9062	 																					

¹⁾ The front sealing rubber is to be used with hood 09 67 0xx 0436 and 09 67 0xx 0437 when a mated system needs to have the IP 67 performance; in this case, the front sealing rubber is positioned in the IP 67 male connector prior to the mating operation with the facing IP 67 connector; it provides a full protection of the contacts at the mated area by preventing possible ingress of liquids or dust between the shells.



IP 67 plastic hoods
IP 67 metallized plastic hoods

D-Sub

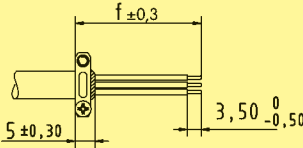
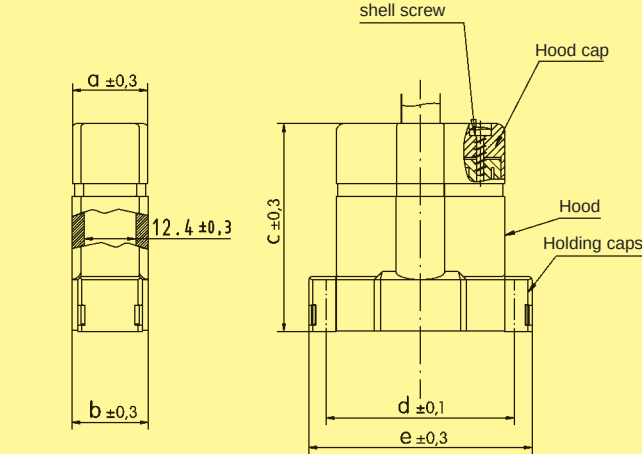
Identification No. of contacts Part No. Drawing Dimensions in mm

Hood
Black thermoplastic

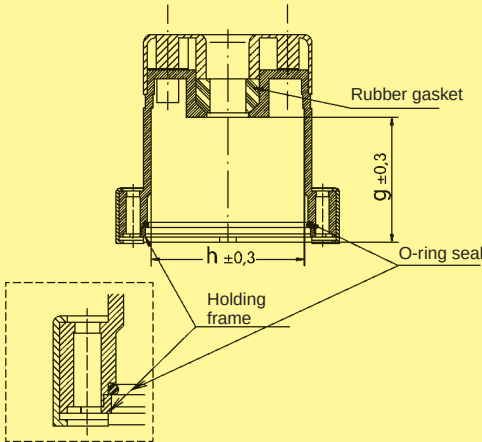
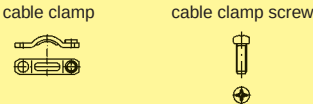
9 09 67 009 0436
15 09 67 015 0436
25 09 67 025 0436

Metallized
thermoplastic

9 09 67 009 0437
15 09 67 015 0437
25 09 67 025 0437

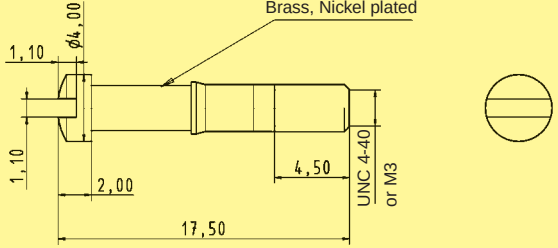
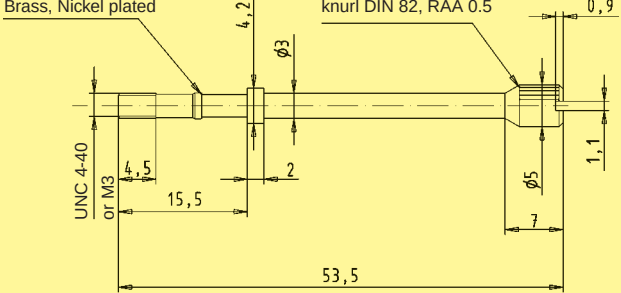
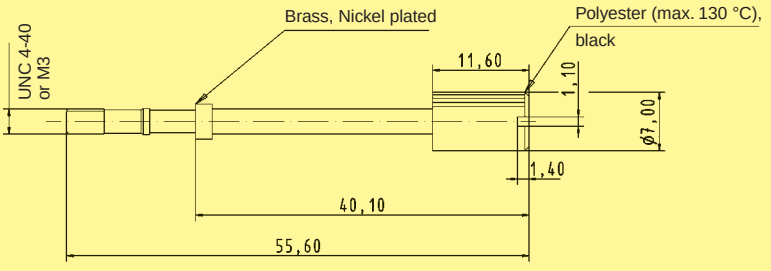


Mounting instructions
The stripped braid should not be fold back to avoid damaging the cable clamp and reducing its performance.



	a	b	c	d	e	f	g	h
9	15.6	15.6	41.0	25.00	33.6	23.0	25.0	17.0
15	15.6	15.6	46.8	33.30	42.0	27.5	30.8	25.1
25	18.8	19.1	52.0	47.04	55.7	31.5	33.8	38.8

Accessories for IP 67 hoods

Identification	Part No.	Drawing	Dimensions in mm
Short locking screw 4-40 UNC 	09 67 002 9008		
Short locking screw M3 	09 67 002 9009		
Knurled locking screw 4-40 UNC 	09 67 002 9010		
Knurled locking screw M3 	09 67 002 9011		
Knurled locking screw 4-40 UNC with plastic cap 	09 67 002 9012		
Knurled locking screw M3 with plastic cap 	09 67 002 9013		

HARTING – Guarantee a secure connection

Modern electronic applications demand a high degree of mechanical and electrical security.

To meet these requirements, continuous screening from the cable to the PCB via the connector is achieved by using state of the art components to DIN 41 652.

HARTING offer many solutions. These utilise various combinations of male and female connectors with hoods, featuring either screw locking or latching facilities.

Only 2 examples are shown:

- Continuous security screening and grounding with screw locking and metallized hood.
- Continuous grounding and vibration proof latching system with metallized hood.

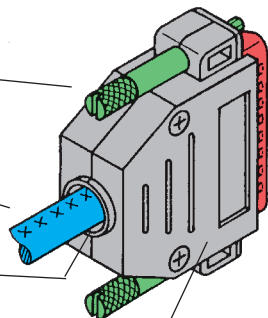
Male connector with dimples

Screw lock

Cable with protective screen

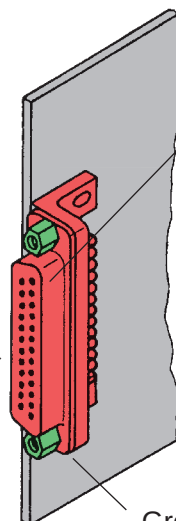
Strain relief

Metallized hood



Female connector with protective metal shell

Grounding contact between protective metal shell and PCB



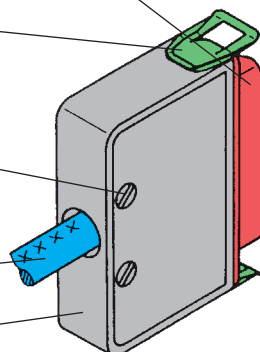
Female connector with protective metal shell

Spring latch

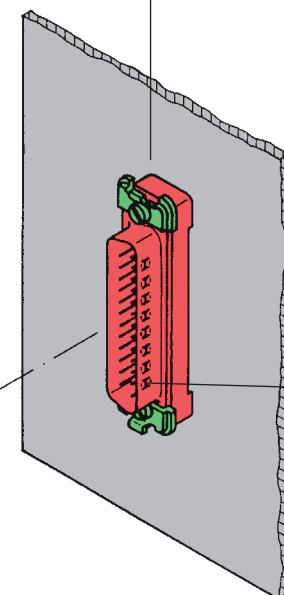
Strain relief

Cable with protective screen

Metallized hood



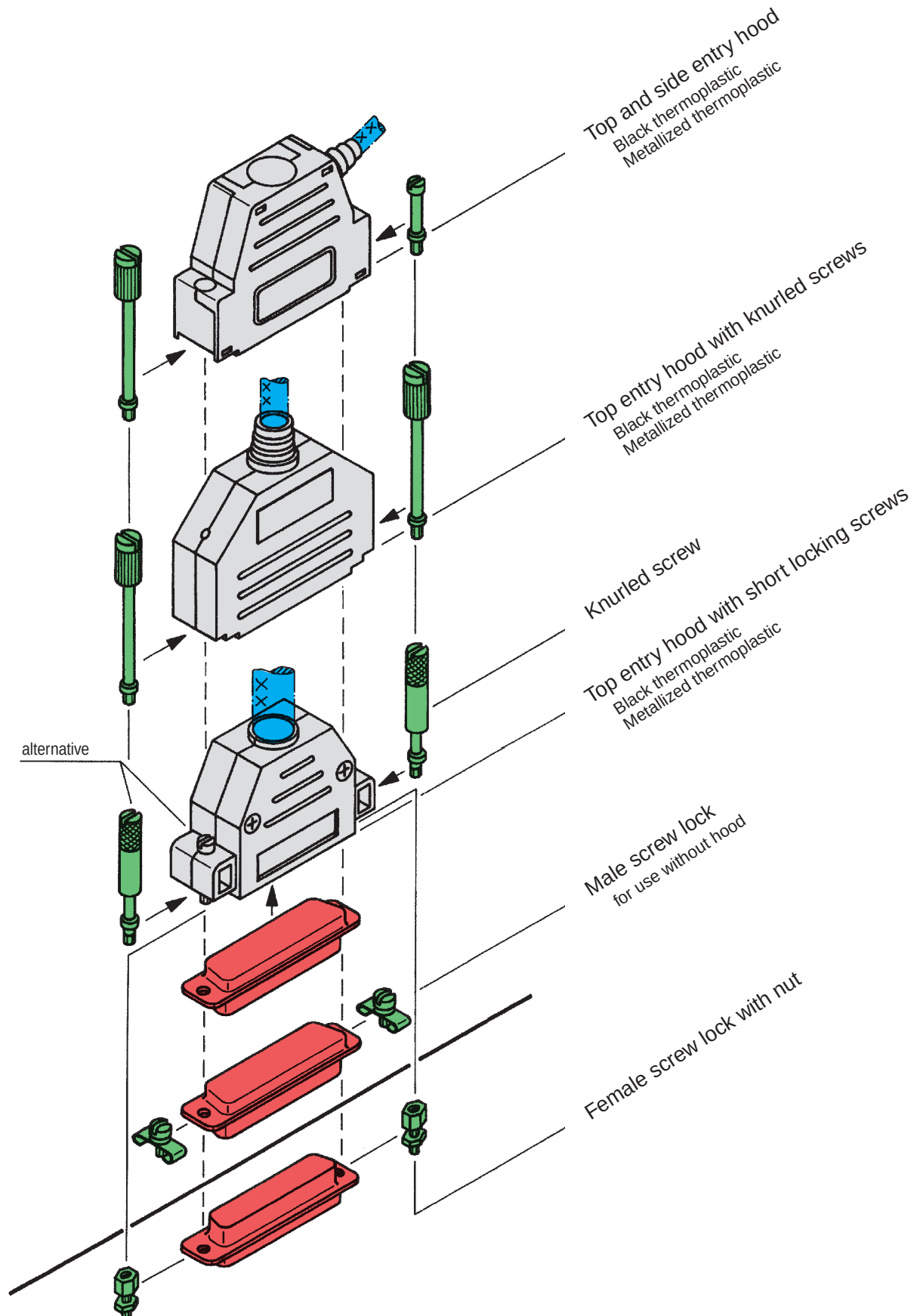
Male connector with dimples



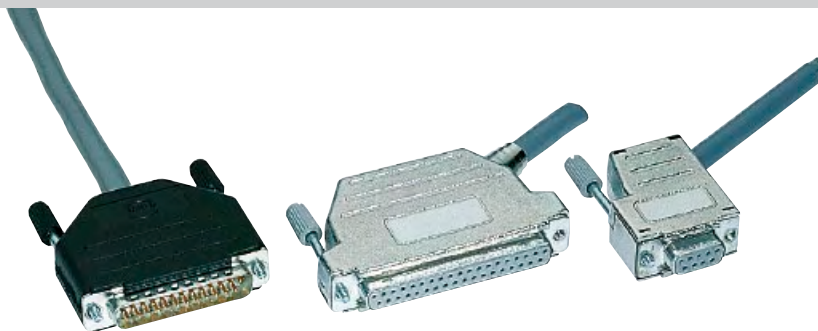
Number of contacts in the D-Sub standard/D-Sub high density range related to the shell size.

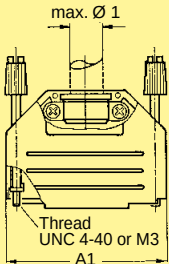
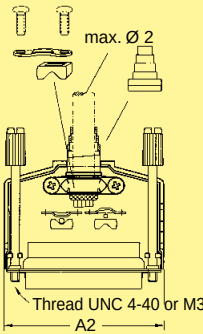
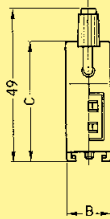
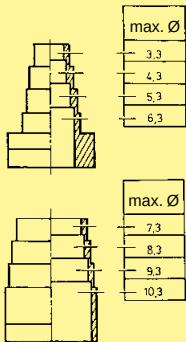
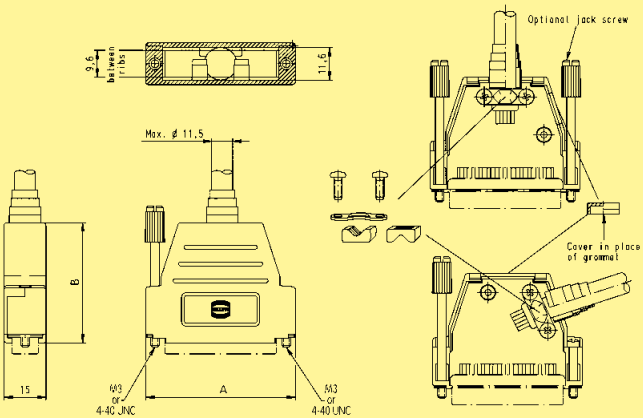
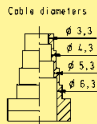
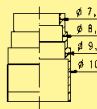
Shell size	D-Sub standard	D-Sub high density
1	9	15
2	15	26
3	25	44
4	37	62
5	50	78

Connector hoods for screw locking



Top and side entry hoods with knurled screws



Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																																																
Top entry hood Black thermoplastic																																																				
	9	09 67 009 042		<table><tr><td></td><td>A1</td><td>A2</td><td>B</td><td>C1</td><td>C2</td><td>max. Ø 1</td><td>max. Ø 2</td></tr><tr><td>9</td><td>31.5</td><td>32.5</td><td>15</td><td>34</td><td>38</td><td>8.0</td><td>11.5</td></tr><tr><td>15</td><td>40.0</td><td>41.0</td><td>15</td><td>34</td><td>38</td><td>11.5</td><td>11.5</td></tr><tr><td>25</td><td>53.5</td><td>54.5</td><td>15</td><td>40</td><td>40</td><td>11.5</td><td>11.5</td></tr><tr><td>37</td><td>71.0</td><td>71.0</td><td>15</td><td>40</td><td>40</td><td>11.5</td><td>11.5</td></tr><tr><td>50</td><td>67.5</td><td></td><td>19</td><td>40</td><td></td><td>14.0</td><td></td></tr></table>		A1	A2	B	C1	C2	max. Ø 1	max. Ø 2	9	31.5	32.5	15	34	38	8.0	11.5	15	40.0	41.0	15	34	38	11.5	11.5	25	53.5	54.5	15	40	40	11.5	11.5	37	71.0	71.0	15	40	40	11.5	11.5	50	67.5		19	40		14.0	
	A1	A2		B	C1	C2	max. Ø 1	max. Ø 2																																												
9	31.5	32.5		15	34	38	8.0	11.5																																												
15	40.0	41.0		15	34	38	11.5	11.5																																												
25	53.5	54.5		15	40	40	11.5	11.5																																												
37	71.0	71.0	15	40	40	11.5	11.5																																													
50	67.5		19	40		14.0																																														
Please insert digit for screw option	15	09 67 015 042																																																		
	25	09 67 025 042																																																		
	37	09 67 037 042																																																		
	50	09 67 050 042																																																		
Knurled screw, thread 4-40 UNC ▶ 4				C1: non-metallized																																																
Knurled screw, thread M3 ▶ 6				C2: metallized																																																
Top entry hood Metallized thermoplastic																																																				
	9	09 67 009 042																																																		
Please insert digit for screw option	15	09 67 015 042																																																		
	25	09 67 025 042																																																		
	37	09 67 037 042																																																		
Knurled screw, thread 4-40 UNC ▶ 5																																																				
Knurled screw, thread M3 ▶ 7																																																				
Top and side entry hood Black thermoplastic																																																				
	9 ³⁾	09 67 009 043																																																		
Please insert digit for screw option	15	09 67 015 043																																																		
	25	09 67 025 043																																																		
	37 ¹⁾	09 67 037 043																																																		
Knurled screw, thread 4-40 UNC ▶ 4																																																				
Knurled screw, thread M3 ▶ 0																																																				
Top and side entry hood Metallized thermoplastic																																																				
	9 ³⁾	09 67 009 043		<table><tr><td></td><td>A</td><td>B</td></tr><tr><td>9</td><td>31.5</td><td>40</td></tr><tr><td>15</td><td>40.0</td><td>40</td></tr><tr><td>25</td><td>53.5</td><td>43</td></tr><tr><td>37</td><td>71.3</td><td>40</td></tr></table>		A	B	9	31.5	40	15	40.0	40	25	53.5	43	37	71.3	40																																	
	A	B																																																		
9	31.5	40																																																		
15	40.0	40																																																		
25	53.5	43																																																		
37	71.3	40																																																		
Please insert digit for screw option	15	09 67 015 043																																																		
	25 ²⁾	09 67 025 043																																																		
	37 ¹⁾	09 67 037 043																																																		
Knurled screw, thread 4-40 UNC ▶ 5																																																				
Knurled screw, thread M3 ▶ 1																																																				
1) 37-pole is only available with side entry and with knurled screw, thread 4-40 UNC 2) Cable clamp kit for two outputs is available as accessories (it includes: screw, metal clamp, plastic insert and grommet). With Part No. 09 67 001 9988 ten of these kits are delivered. 3) 9-pole hood provided with only one screw on the opposite side of the cable entry.																																																				

1) 37-pole is only available with side entry and with knurled screw, thread 4-40 UNC

2) Cable clamp kit for two outputs is available as accessories (it includes: screw, metal clamp, plastic insert and grommet). With Part No. 09 67 001 9988 ten of these kits are delivered.

3) 9-pole hood provided with only one screw on the opposite side of the cable entry.



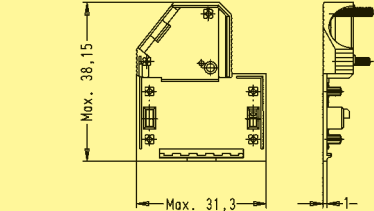
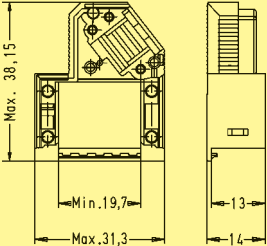
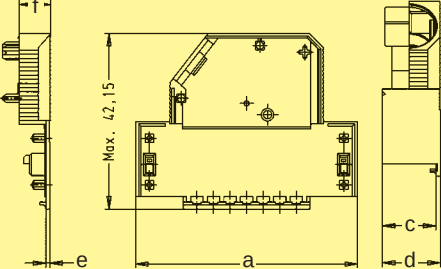
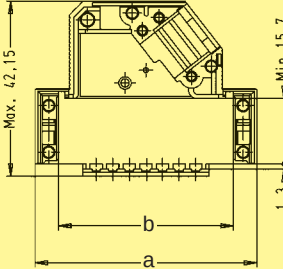
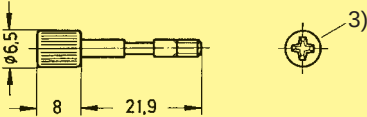
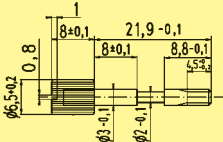
Top and side entry hoods with short screws

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm										
Top and side entry hood Black thermoplastic	9 ¹⁾ 15 25 37	09 67 009 046 . 09 67 015 046 . 09 67 025 046 . 09 67 037 046 .	<table><caption>Cable diameters</caption><tr><td>Ø 3.3</td></tr><tr><td>Ø 4.3</td></tr><tr><td>Ø 5.3</td></tr><tr><td>Ø 6.3</td></tr><tr><td>Ø 7.3</td></tr><tr><td>Ø 8.3</td></tr><tr><td>Ø 9.3</td></tr><tr><td>Ø 10.3</td></tr></table>	Ø 3.3	Ø 4.3	Ø 5.3	Ø 6.3	Ø 7.3	Ø 8.3	Ø 9.3	Ø 10.3			
Ø 3.3														
Ø 4.3														
Ø 5.3														
Ø 6.3														
Ø 7.3														
Ø 8.3														
Ø 9.3														
Ø 10.3														
Please insert digit for screw option														
Short screw, thread 4-40 UNC ▶ 3														
Short screw, thread M3 ▶ 2														
Top and side entry hood Metallized thermoplastic	9 ¹⁾ 15 25 37	09 67 009 046 . 09 67 015 046 . 09 67 025 046 . 09 67 037 046 .	<table><caption>Cable diameters</caption><tr><td>Ø 3.3</td></tr><tr><td>Ø 4.3</td></tr><tr><td>Ø 5.3</td></tr><tr><td>Ø 6.3</td></tr><tr><td>Ø 7.3</td></tr><tr><td>Ø 8.3</td></tr><tr><td>Ø 9.3</td></tr><tr><td>Ø 10.3</td></tr></table>	Ø 3.3	Ø 4.3	Ø 5.3	Ø 6.3	Ø 7.3	Ø 8.3	Ø 9.3	Ø 10.3			
Ø 3.3														
Ø 4.3														
Ø 5.3														
Ø 6.3														
Ø 7.3														
Ø 8.3														
Ø 9.3														
Ø 10.3														
Please insert digit for screw option														
Short screw, thread 4-40 UNC ▶ 5														
Short screw, thread M3 ▶ 4														
Spares														
Knurled screw, thread 4-40 UNC	9-25	09 67 002 9081												
Insert for metallized hoods	9-15 25-37	09 67 002 9103 09 67 002 9105												
Cable clamp	9-15 25-37	09 67 002 9104 09 67 002 9106												
Cable clamp screw	9-37	09 67 002 9102												
Grommet for black thermoplastic hood		09 67 001 9968	<table><caption>max. Ø</caption><tr><th>... 9968</th><th>... 9075</th></tr><tr><td>3.3</td><td>3.5</td></tr><tr><td>4.3</td><td>4.5</td></tr><tr><td>5.3</td><td>5.5</td></tr><tr><td>6.3</td><td>6.5</td></tr></table>	... 9968	... 9075	3.3	3.5	4.3	4.5	5.3	5.5	6.3	6.5	
... 9968	... 9075													
3.3	3.5													
4.3	4.5													
5.3	5.5													
6.3	6.5													
for metallized hood		09 67 002 9075	<table><caption>max. Ø</caption><tr><th>... 9968</th><th>... 9075</th></tr><tr><td>7.3</td><td>7.5</td></tr><tr><td>8.3</td><td>8.5</td></tr><tr><td>9.3</td><td>9.5</td></tr><tr><td>10.3</td><td>10.5</td></tr></table>	... 9968	... 9075	7.3	7.5	8.3	8.5	9.3	9.5	10.3	10.5	
... 9968	... 9075													
7.3	7.5													
8.3	8.5													
9.3	9.5													
10.3	10.5													

¹⁾ 9-pole hood provided with only one screw on the opposite side of the cable entry.
 Operating temperature for all hoods on this page: -55 °C ... +110 °C

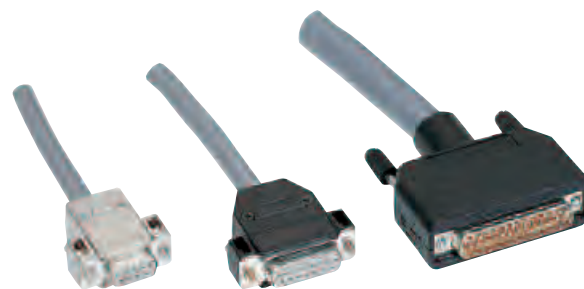


Side entry hoods with knurled screws

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																																			
Hood ¹⁾ grey thermoplastic RAL 7032	9 15 25 37 50	09 67 009 0571 09 67 015 0571 09 67 025 0571 09 67 037 0571 09 67 050 0571	Upper hood part 9 contacts  Lower hood part 																																				
grey thermoplastic with internal tin-plate screening	9 15 25 37 50	09 67 009 0573 09 67 015 0573 09 67 025 0573 09 67 037 0573 09 67 050 0573	15 – 50 contacts  	<table><thead><tr><th></th><th>a max.</th><th>b min.</th><th>c</th><th>d</th><th>e</th><th>f</th></tr></thead><tbody><tr><td>15</td><td>39.62</td><td>28.40</td><td>13.00</td><td>14.00</td><td>1.00</td><td>7.50</td></tr><tr><td>25</td><td>53.52</td><td>42.20</td><td>13.00</td><td>14.00</td><td>1.00</td><td>7.50</td></tr><tr><td>37</td><td>69.80</td><td>58.65</td><td>13.00</td><td>14.00</td><td>1.00</td><td>7.50</td></tr><tr><td>50</td><td>67.41</td><td>56.18</td><td>16.00</td><td>17.50</td><td>1.50</td><td>9.50</td></tr></tbody></table>		a max.	b min.	c	d	e	f	15	39.62	28.40	13.00	14.00	1.00	7.50	25	53.52	42.20	13.00	14.00	1.00	7.50	37	69.80	58.65	13.00	14.00	1.00	7.50	50	67.41	56.18	16.00	17.50	1.50	9.50
	a max.	b min.	c	d	e	f																																	
15	39.62	28.40	13.00	14.00	1.00	7.50																																	
25	53.52	42.20	13.00	14.00	1.00	7.50																																	
37	69.80	58.65	13.00	14.00	1.00	7.50																																	
50	67.41	56.18	16.00	17.50	1.50	9.50																																	
Knurled screw Thread UNC Thread M3	9-50	09 67 000 9971 ²⁾ 09 67 001 9965*	 Grey head / Nickel plated steel 																																				
Thread UNC Thread M3	9-50	09 67 001 9978 09 67 001 9977	Full metal part 																																				
Tooling for assembly of hoods Top part Bottom part		09 99 000 0215* 09 99 000 0216*																																					

* Not normally kept in stock

¹⁾ Order knurled screw separately²⁾ 9 way 1 per hood – 15-50 way 2 per hood³⁾ Screw driver type ISO PH 1 for philips screw No 1 ISO norm 4757
Operating temperature for all hoods on this page: -30 °C ... +100 °C



Top entry hoods with knurled or locking screws

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																																								
Hood³⁾ Black thermoplastic with short locking screws	9 15 25 37 50	09 67 009 0442 09 67 015 0442 09 67 025 0442 09 67 037 0442 09 67 050 0442	 <table><tr><td></td><td>a</td><td>b</td><td>c</td><td>d</td><td>min.</td><td>e</td><td>max.</td></tr><tr><td>15</td><td>40.0</td><td>34.7</td><td>15.2</td><td>33.3</td><td>3.3</td><td>8.5</td><td></td></tr><tr><td>25</td><td>53.2</td><td>39.7</td><td>15.2</td><td>47.0</td><td>3.5</td><td>11.0</td><td></td></tr><tr><td>37</td><td>70.0</td><td>39.7</td><td>15.2</td><td>63.5</td><td>3.5</td><td>11.0</td><td></td></tr><tr><td>50</td><td>67.5</td><td>39.7</td><td>18.2</td><td>61.1</td><td>9.3</td><td>12.0</td><td></td></tr></table>		a	b	c	d	min.	e	max.	15	40.0	34.7	15.2	33.3	3.3	8.5		25	53.2	39.7	15.2	47.0	3.5	11.0		37	70.0	39.7	15.2	63.5	3.5	11.0		50	67.5	39.7	18.2	61.1	9.3	12.0		
	a	b	c	d	min.	e	max.																																					
15	40.0	34.7	15.2	33.3	3.3	8.5																																						
25	53.2	39.7	15.2	47.0	3.5	11.0																																						
37	70.0	39.7	15.2	63.5	3.5	11.0																																						
50	67.5	39.7	18.2	61.1	9.3	12.0																																						
Hood³⁾ Metallized thermoplastic with short locking screws	9 15 25 37 50	09 67 009 04 09 67 015 04 09 67 025 04 09 67 037 04 09 67 050 04	 <table><tr><td></td><td>a</td><td>b</td><td>c</td><td>d</td><td>min.</td><td>e</td><td>max.</td></tr><tr><td>15</td><td>40.0</td><td>34.7</td><td>15.2</td><td>33.3</td><td>3.3</td><td>8.5</td><td></td></tr><tr><td>25</td><td>53.2</td><td>39.7</td><td>15.2</td><td>47.0</td><td>3.5</td><td>11.0</td><td></td></tr><tr><td>37</td><td>70.0</td><td>39.7</td><td>15.2</td><td>63.5</td><td>3.5</td><td>11.0</td><td></td></tr><tr><td>50</td><td>67.5</td><td>39.7</td><td>18.2</td><td>61.1</td><td>9.3</td><td>12.0</td><td></td></tr></table>		a	b	c	d	min.	e	max.	15	40.0	34.7	15.2	33.3	3.3	8.5		25	53.2	39.7	15.2	47.0	3.5	11.0		37	70.0	39.7	15.2	63.5	3.5	11.0		50	67.5	39.7	18.2	61.1	9.3	12.0		3 3 3 3 3
	a	b	c	d	min.	e	max.																																					
15	40.0	34.7	15.2	33.3	3.3	8.5																																						
25	53.2	39.7	15.2	47.0	3.5	11.0																																						
37	70.0	39.7	15.2	63.5	3.5	11.0																																						
50	67.5	39.7	18.2	61.1	9.3	12.0																																						
Please insert digit for screw option Thread 4-40 UNC ▶ 4 Thread M3 ▶ 2																																												
Knurled screw for metallized hood Thread UNC Thread M3	9-50 9-50	09 67 000 9925 ²⁾ 09 67 000 9930 ²⁾																																										
Screened hood Order cover and internal metal screen separately																																												
Cover⁴⁾ Black thermoplastic with knurled screws	9 15 25 37	09 67 009 0422 09 67 015 0422 09 67 025 0422 09 67 037 0422		<table><tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>9</td><td>35.0</td><td>54</td><td>19.1</td><td>34</td></tr><tr><td>15</td><td>43.0</td><td>54</td><td>19.1</td><td>34</td></tr><tr><td>25</td><td>57.5</td><td>54</td><td>19.1</td><td>34</td></tr><tr><td>37</td><td>74.0</td><td>54</td><td>19.1</td><td>34</td></tr></table>		A	B	C	D	9	35.0	54	19.1	34	15	43.0	54	19.1	34	25	57.5	54	19.1	34	37	74.0	54	19.1	34															
	A	B	C	D																																								
9	35.0	54	19.1	34																																								
15	43.0	54	19.1	34																																								
25	57.5	54	19.1	34																																								
37	74.0	54	19.1	34																																								
Internal metal screen⁴⁾ metallized (Crimp tool see chapter 20)	9 15 25 37	09 67 009 0421 09 67 015 0421 09 67 025 0421 09 67 037 0421		<table><tr><td></td><td colspan="2">Cable Ø (mm)</td></tr><tr><td></td><td>min.</td><td>max.</td></tr><tr><td>9</td><td>6.1</td><td>8.8</td></tr><tr><td>15</td><td>6.1</td><td>8.8</td></tr><tr><td>25</td><td>8.0</td><td>10.3</td></tr><tr><td>37</td><td>9.5</td><td>11.5</td></tr></table>		Cable Ø (mm)			min.	max.	9	6.1	8.8	15	6.1	8.8	25	8.0	10.3	37	9.5	11.5																						
	Cable Ø (mm)																																											
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9	6.1	8.8																																										
15	6.1	8.8																																										
25	8.0	10.3																																										
37	9.5	11.5																																										

1) Use of knurled screws is possible. Please order separately

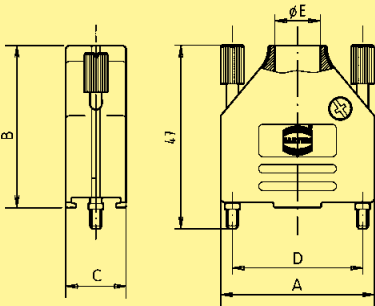
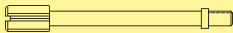
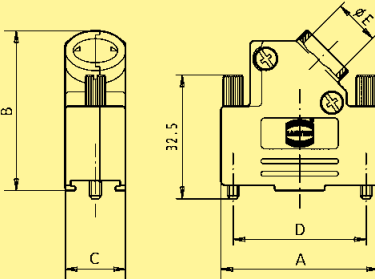
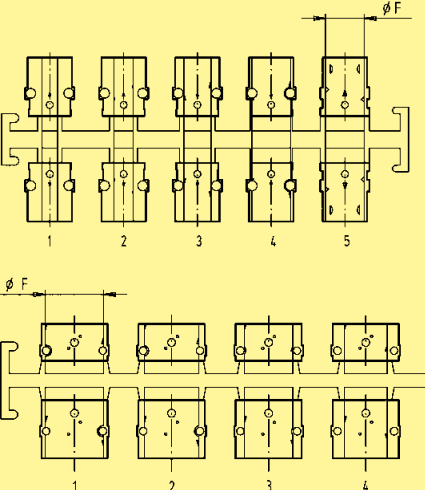
2) Order 2 for each hood

3) Operating temperature: -20 °C ... +90 °C

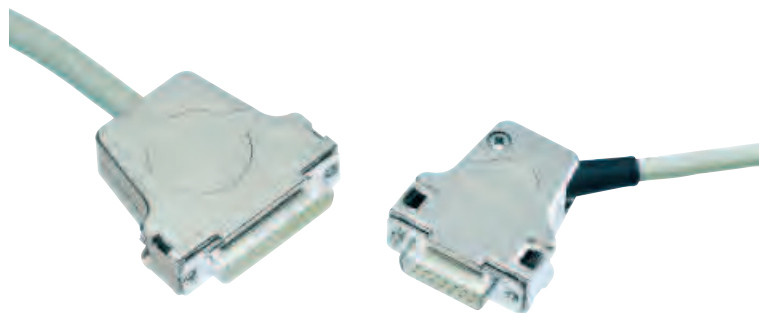
4) Operating temperature: -55 °C ... +110 °C



Full metal top and side entry hoods with knurled screws

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																																				
Top entry hood incl. grommet set halves Please insert digit for screw option Knurled screw, thread 4-40 UNC ▶ 3 Knurled screw, thread M3 ▶ 6 Spare knurled screw thread 4-40 UNC thread M3	9 15 25 37 50	09 67 009 034 09 67 015 034 09 67 025 034 09 67 037 034 09 67 050 034 09 67 002 9029 09 67 002 9101	 	<table><tr><th>Poles</th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th></tr><tr><td>9</td><td>31.0</td><td>39.5</td><td>14.8</td><td>25.0</td><td>11.7</td></tr><tr><td>15</td><td>39.5</td><td>41.5</td><td>14.8</td><td>33.3</td><td>11.7</td></tr><tr><td>25</td><td>53.5</td><td>48.5</td><td>14.8</td><td>47.0</td><td>11.7</td></tr><tr><td>37</td><td>71.0</td><td>53.0</td><td>14.8</td><td>63.5</td><td>11.7</td></tr><tr><td>50</td><td>67.5</td><td>54.0</td><td>18.7</td><td>61.1</td><td>17.0</td></tr></table>	Poles	A	B	C	D	E	9	31.0	39.5	14.8	25.0	11.7	15	39.5	41.5	14.8	33.3	11.7	25	53.5	48.5	14.8	47.0	11.7	37	71.0	53.0	14.8	63.5	11.7	50	67.5	54.0	18.7	61.1	17.0
Poles	A	B	C	D	E																																			
9	31.0	39.5	14.8	25.0	11.7																																			
15	39.5	41.5	14.8	33.3	11.7																																			
25	53.5	48.5	14.8	47.0	11.7																																			
37	71.0	53.0	14.8	63.5	11.7																																			
50	67.5	54.0	18.7	61.1	17.0																																			
Side entry hood incl. grommet set halves Please insert digit for screw option Knurled screw, thread 4-40 UNC ▶ 3 Knurled screw, thread M3 ▶ 6 Spare knurled screw thread 4-40 UNC thread M3	9¹⁾ 15 25 37 50	09 67 009 033 09 67 015 033 09 67 025 033 09 67 037 033 09 67 050 033 09 67 002 9028 09 67 001 9997	 	<table><tr><th>Poles</th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th></tr><tr><td>9</td><td>31.0</td><td>37.7</td><td>14.7</td><td>—</td><td>11.7</td></tr><tr><td>15</td><td>39.5</td><td>42.0</td><td>14.7</td><td>33.3</td><td>11.7</td></tr><tr><td>25</td><td>53.2</td><td>41.3</td><td>14.7</td><td>47.0</td><td>11.7</td></tr><tr><td>37</td><td>69.7</td><td>41.8</td><td>14.7</td><td>63.7</td><td>11.7</td></tr><tr><td>50</td><td>67.4</td><td>44.9</td><td>17.4</td><td>61.1</td><td>17.0</td></tr></table>	Poles	A	B	C	D	E	9	31.0	37.7	14.7	—	11.7	15	39.5	42.0	14.7	33.3	11.7	25	53.2	41.3	14.7	47.0	11.7	37	69.7	41.8	14.7	63.7	11.7	50	67.4	44.9	17.4	61.1	17.0
Poles	A	B	C	D	E																																			
9	31.0	37.7	14.7	—	11.7																																			
15	39.5	42.0	14.7	33.3	11.7																																			
25	53.2	41.3	14.7	47.0	11.7																																			
37	69.7	41.8	14.7	63.7	11.7																																			
50	67.4	44.9	17.4	61.1	17.0																																			
Spare grommet set halves 9-37 poles 50 poles		09 67 002 9092 09 67 002 9094		<table><tr><th colspan="3">Grommet dimensions</th></tr><tr><th rowspan="2">Number</th><th colspan="2">Diameter F</th></tr><tr><th>9-37 poles</th><th>50 poles</th></tr><tr><td>1</td><td>4.0</td><td>15.0</td></tr><tr><td>2</td><td>5.0</td><td>14.0</td></tr><tr><td>3</td><td>7.0</td><td>12.5</td></tr><tr><td>4</td><td>9.0</td><td>11.0</td></tr><tr><td>5</td><td>10.2</td><td>—</td></tr></table>	Grommet dimensions			Number	Diameter F		9-37 poles	50 poles	1	4.0	15.0	2	5.0	14.0	3	7.0	12.5	4	9.0	11.0	5	10.2	—													
Grommet dimensions																																								
Number	Diameter F																																							
	9-37 poles	50 poles																																						
1	4.0	15.0																																						
2	5.0	14.0																																						
3	7.0	12.5																																						
4	9.0	11.0																																						
5	10.2	—																																						

¹⁾ 9-pole hood provided with only one screw on the opposite side of the cable entry.
 Operating temperature for all hoods on this page: -40 °C ... +120 °C



Full metal top and side entry hoods
with short screws

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																																																								
Top entry hood Please insert digit for screw option Locking screw, thread 4-40 UNC ▶ 4 Locking screw, thread M3 ▶ 9	9 15 25 37 50	09 67 009 034 . 09 67 015 034 . 09 67 025 034 . 09 67 037 034 . 09 67 050 034 .	<table><tr><th rowspan="2">Poles</th><th rowspan="2">A</th><th rowspan="2">B</th><th rowspan="2">C</th><th rowspan="2">D</th><th colspan="2">Ø F1</th><th rowspan="2">Ø F2</th><th rowspan="2">Ø F3</th></tr><tr><th>Min.</th><th>Max.</th></tr><tr><td>9</td><td>31.8</td><td>42.4</td><td>20.8</td><td>15.4</td><td>3.0</td><td>9.5</td><td>6.5</td><td>—</td></tr><tr><td>15</td><td>40.3</td><td>43.5</td><td>23.3</td><td>15.4</td><td>3.0</td><td>8.5</td><td>6.5</td><td>12.5</td></tr><tr><td>25</td><td>54.0</td><td>47.7</td><td>31.7</td><td>15.4</td><td>3.0</td><td>8.5</td><td>8.0</td><td>12.5</td></tr><tr><td>37</td><td>70.2</td><td>50.4</td><td>48.2</td><td>18.4</td><td>3.0</td><td>12.0</td><td>9.0</td><td>15.0</td></tr><tr><td>50</td><td>67.8</td><td>50.5</td><td>45.8</td><td>18.2</td><td>3.0</td><td>12.0</td><td>9.7</td><td>15.0</td></tr></table> * Cable diameter without rubber bushing = Ø F1 Cable diameter with rubber bushing = Ø F2 Cable diameter without rubber bushing and without cable reduction plate = Ø F3	Poles	A	B	C	D	Ø F1		Ø F2	Ø F3	Min.	Max.	9	31.8	42.4	20.8	15.4	3.0	9.5	6.5	—	15	40.3	43.5	23.3	15.4	3.0	8.5	6.5	12.5	25	54.0	47.7	31.7	15.4	3.0	8.5	8.0	12.5	37	70.2	50.4	48.2	18.4	3.0	12.0	9.0	15.0	50	67.8	50.5	45.8	18.2	3.0	12.0	9.7	15.0	
Poles	A	B	C						D	Ø F1			Ø F2	Ø F3																																														
				Min.	Max.																																																							
9	31.8	42.4	20.8	15.4	3.0	9.5	6.5	—																																																				
15	40.3	43.5	23.3	15.4	3.0	8.5	6.5	12.5																																																				
25	54.0	47.7	31.7	15.4	3.0	8.5	8.0	12.5																																																				
37	70.2	50.4	48.2	18.4	3.0	12.0	9.0	15.0																																																				
50	67.8	50.5	45.8	18.2	3.0	12.0	9.7	15.0																																																				
Side entry hood Please insert digit for screw option Locking screw, thread 4-40 UNC ▶ 4 Locking screw, thread M3 ▶ 5	9 15 25 37 50	09 67 009 033 . 09 67 015 033 . 09 67 025 033 . 09 67 037 033 . 09 67 050 033 .																																																										
Spare short locking screw thread 4-40 UNC thread M3		09 67 002 9090 09 67 002 9091																																																										



Full metal top entry hoods
with premounted threaded inserts

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
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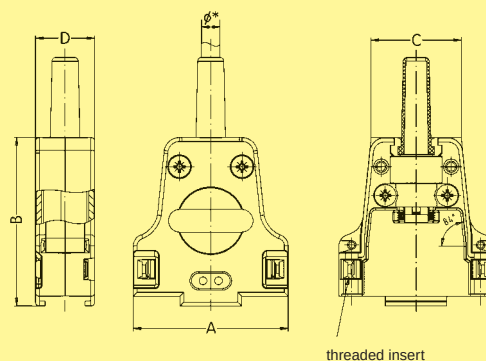
Top entry hood

9	09 67 009 032
15	09 67 015 032
25	09 67 025 032
37	09 67 037 032
50	09 67 050 032

Please insert digit
for premounted insert

thread 4-40 UNC ► 2

thread M3 ► 3



Poles	A	B	C	D	Ø F1		Ø F2	Ø F3
					Min.	Max.		
9	31.6	42.0	20.8	15.2	3.0	9.5	6.5	—
15	40.0	43.5	23.3	15.2	3.0	8.5	6.5	12.5
25	53.7	47.5	31.7	15.2	3.0	8.5	8.0	12.5
37	70.2	50.5	48.2	18.2	3.0	12.0	9.0	15.0
50	67.8	50.5	45.8	18.2	3.0	12.0	9.7	15.0

* Cable diameter without rubber bushing = Ø F1
Cable diameter with rubber bushing = Ø F2
Cable diameter without rubber bushing
and without cable reduction plate = Ø F3

Locking hook

09 67 002 9031¹⁾

Latch lock bolt

Front mount

thread 4-40 UNC
thread M3

09 67 002 9041¹⁾
09 67 002 9042¹⁾

Rear mount

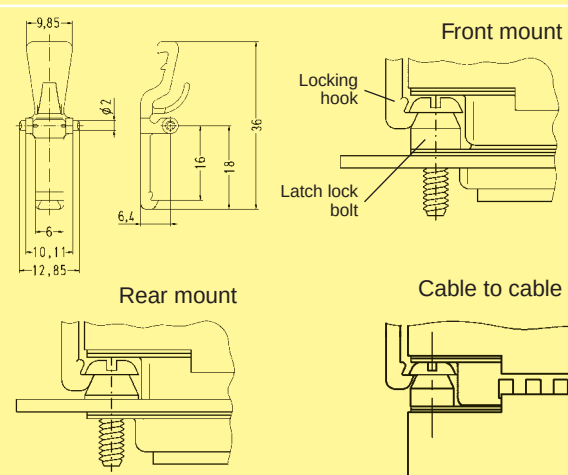
thread 4-40 UNC
thread M3

09 67 002 9032¹⁾
09 67 002 9040¹⁾

Cable to cable

thread 4-40 UNC
thread M3

09 67 002 9044¹⁾
09 67 002 9045¹⁾



¹⁾ Order 2 for each hood
Operating temperature for all hoods on this page: -35 °C ... +100 °C



Full metal top and side entry hoods with different screw options

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
40° side entry hood with internal grounding block	9	61 03 001		013
	15	61 03 001		014
	25	61 03 001		015
without internal grounding block	9	61 03 001		013 010
Top/side entry hood with internal grounding block	9	61 03 001		010
	15	61 03 001		016
	25	61 03 001		017 ¹⁾
	37	61 03 001		018 ¹⁾
	50	61 03 001		019 ¹⁾
without internal grounding block	9	61 03 001		010 010
Please insert digit for screw option				
Knurled screw, thread 4-40 UNC	0			
Hexagonal screw, thread M3 with captive washer	1			
Hexagonal screw, thread 4-40 UNC with captive washer	2			
Knurled screw, thread M3	3			
Top entry hood for InduCom 9				
Hexagonal screw, thread 4-40 UNC	9	66 67 009 0346		
Hexagonal screw, thread M3	9	66 67 009 0347		

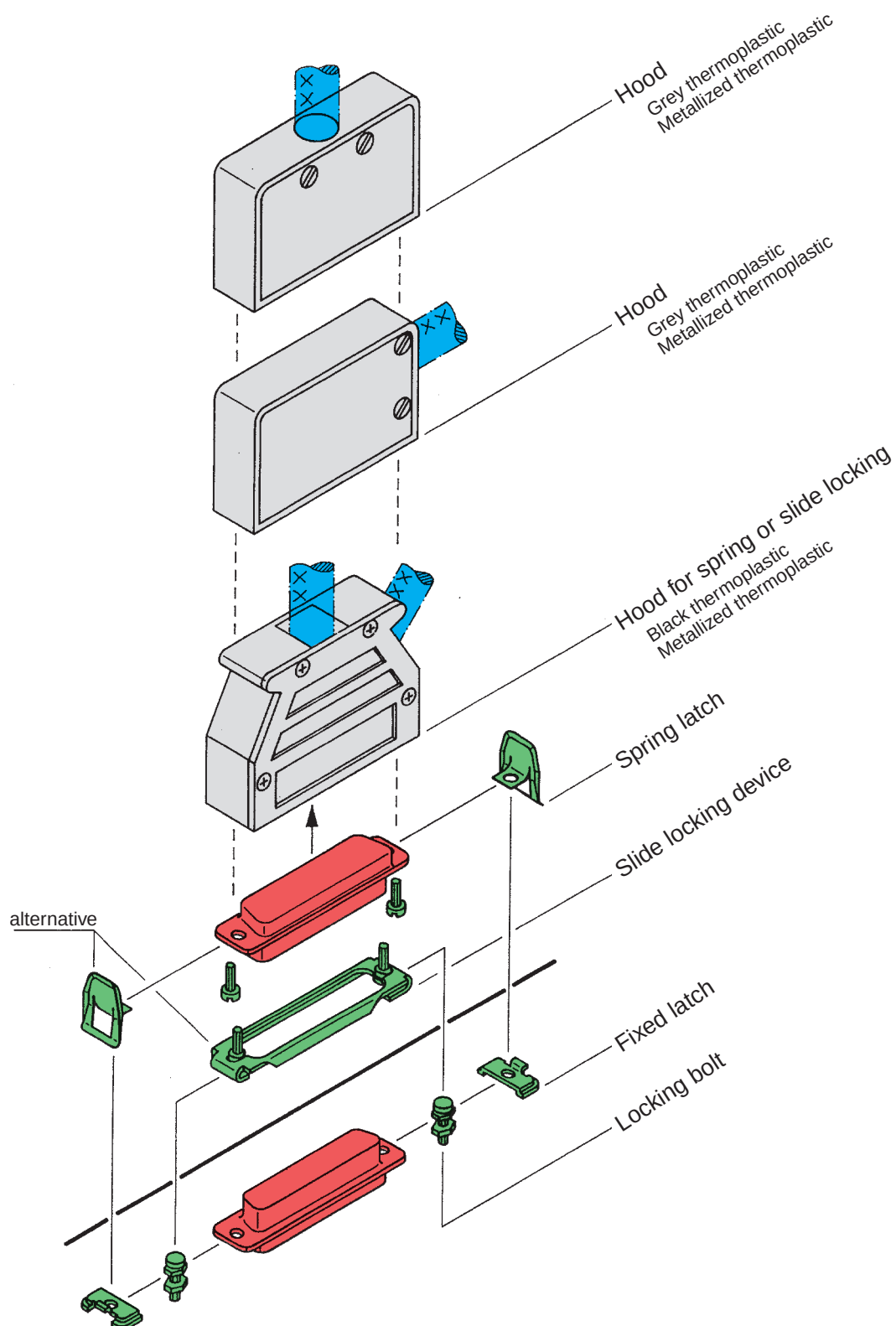
No. of contacts	A	B	C	D
9	31.0	25.0	35.0	15.0
15	39.3	33.3	35.0	15.0
25	53.0	47.0	35.0	15.0

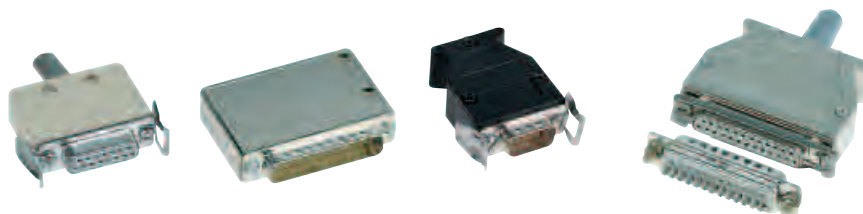
No. of contacts	No. of cable entries	A	B	C	D
9	1 (top)	31.0	25.0	38.0	15.0
15	1 (top)	39.5	33.3	35.0	15.0
25	3	53.0	47.0	43.0	15.0
37	3	69.5	63.5	43.0	15.0
50	3	67.2	61.6	43.0	17.8

2 cable entries

¹⁾ Part No. contains two blanking pieces
Operating temperature for all hoods on this page: -20 °C ... +90 °C

Connector hoods for spring or slide locking





Thermoplastic top
and side entry hoods
for spring or slide locking

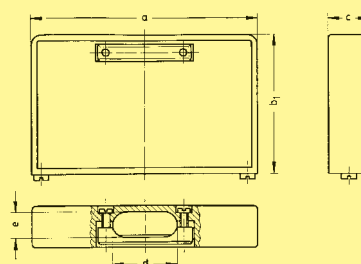
Identification No. of contacts Part No. Drawing Dimensions in mm

Top entry hood

9
15
25
37
50

Thermoplastic
grey²⁾
09 67 009 0411
09 67 015 0411
09 67 025 0411
09 67 037 0411
09 67 050 0411

Thermoplastic
metallized³⁾
09 67 009 0413
09 67 015 0413
09 67 025 0413
09 67 037 0413
09 67 050 0413



9-37 way
for packaging density
of 3 TE (15.24 mm)

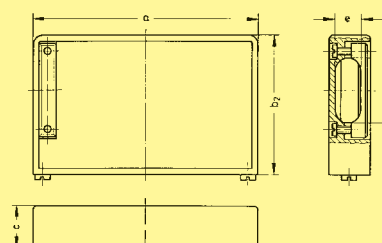
	a	b ₁	b ₂	c	d	e	
						min.	max.
9	31.0	23	28	12.8	10	5.75	9.0
15	39.4	28	28	12.8	10	5.75	9.0
25	53.3	34	34	12.8	14	5.75	9.0
37	69.7	43	43	12.8	20	5.75	9.0
50	67.1	41	41	15.8	20	5.75	11.6

Side entry hood

9
15
25
37
50

Thermoplastic
grey²⁾
09 67 009 0511
09 67 015 0511
09 67 025 0511
09 67 037 0511
09 67 050 0511

Thermoplastic
metallized³⁾
09 67 009 0513
09 67 015 0513
09 67 025 0513
09 67 037 0513
09 67 050 0513



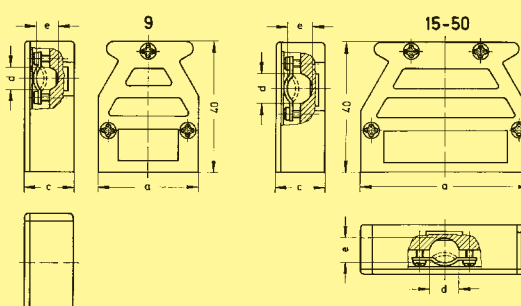
9-37 way
for packaging density
of 3 TE (15.24 mm)

Top and side entry hood¹⁾

9
15
25
37
50

Thermoplastic
black⁴⁾
09 67 009 0452
09 67 015 0452
09 67 025 0452
09 67 037 0452
09 67 050 0452

Thermoplastic
metallized⁴⁾
09 67 009 0453
09 67 015 0453
09 67 025 0453
09 67 037 0453
09 67 050 0453



	a	c	d	e	
				min.	max.
9	31.0	15.4	7	1.7	7.5
15	39.4	15.4	7	1.7	8.0
25	53.2	15.4	9	1.5	8.0
37	69.5	15.4	9	1.5	8.0
50	67.0	17.9	9	1.5	8.0

¹⁾ 9-poles is only side
entry

²⁾ Operating temperature: -55 °C ... +120 °C

³⁾ Operating temperature: -35 °C ... +60 °C

⁴⁾ Operating temperature: -20 °C ... +90 °C

Accessories see page 05.163



Full metal top and side entry hoods for spring or slide locking

Identification

No. of contacts

Part No.

Drawing

Dimensions in mm

Top/side entry hood with spring/slide locking

9

15

25

37

50

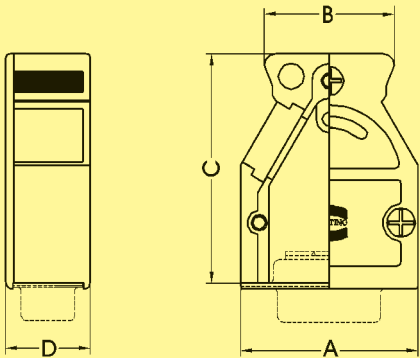
61 03 001 0022¹⁾

61 03 001 0011²⁾

61 03 001 0012²⁾

61 03 001 0021²⁾

61 03 001 0020²⁾



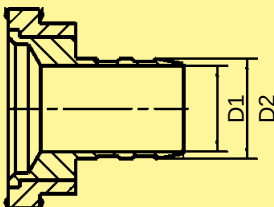
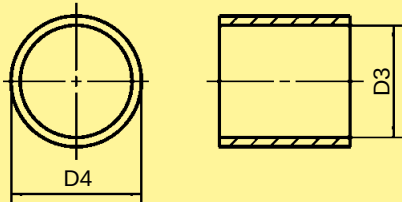
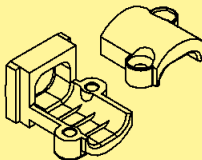
No. of contacts	No. of cable entries	A	B	C	D
9	2	31.0	22.6	40.0	14.8
15	3	39.0	30.6	40.0	14.8
25	3	53.0	42.6	40.0	14.8
37	3	69.5	59.2	40.0	14.8
50	3	67.0	55.0	40.0	17.6

Accessories for spring or slide locking hoods

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																														
Spring latch	9-50	corrosion resistant steel 09 67 000 9907 ¹⁾																																
Fixed latch ²⁾	9-37 50	corrosion resistant steel 09 67 001 9971 ¹⁾ 09 67 001 9972 ¹⁾																																
Slide locking device	9 15 25 37 50	corrosion resistant steel 09 67 000 9914 09 67 000 9915 09 67 000 9916 09 67 000 9917 09 67 000 9918	<table border="1"> <thead> <tr> <th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr> </thead> <tbody> <tr> <td>9</td><td>35.0</td><td>25.0</td><td>11.7</td><td>8.6</td></tr> <tr> <td>15</td><td>43.3</td><td>33.3</td><td>11.5</td><td>8.6</td></tr> <tr> <td>25</td><td>57.0</td><td>47.0</td><td>11.7</td><td>8.6</td></tr> <tr> <td>37</td><td>74.3</td><td>63.5</td><td>11.7</td><td>8.6</td></tr> <tr> <td>50</td><td>72.0</td><td>61.1</td><td>14.7</td><td>11.2</td></tr> </tbody> </table>		a	b	c	d	9	35.0	25.0	11.7	8.6	15	43.3	33.3	11.5	8.6	25	57.0	47.0	11.7	8.6	37	74.3	63.5	11.7	8.6	50	72.0	61.1	14.7	11.2	
	a	b	c	d																														
9	35.0	25.0	11.7	8.6																														
15	43.3	33.3	11.5	8.6																														
25	57.0	47.0	11.7	8.6																														
37	74.3	63.5	11.7	8.6																														
50	72.0	61.1	14.7	11.2																														
Locking bolt	9-50	tinned 09 67 001 9973 ¹⁾																																

¹⁾ Order 2 for each connector²⁾ Screws are not supplied with a fixed latch

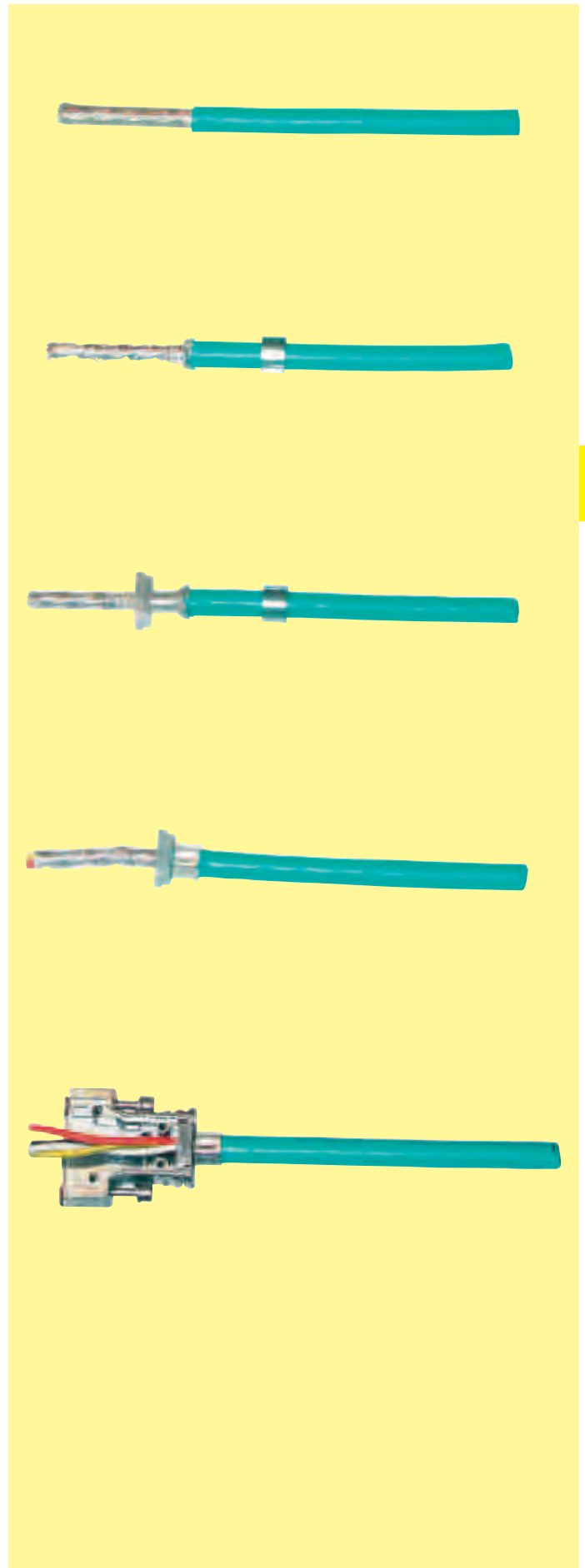
Accessories for full metal hoods

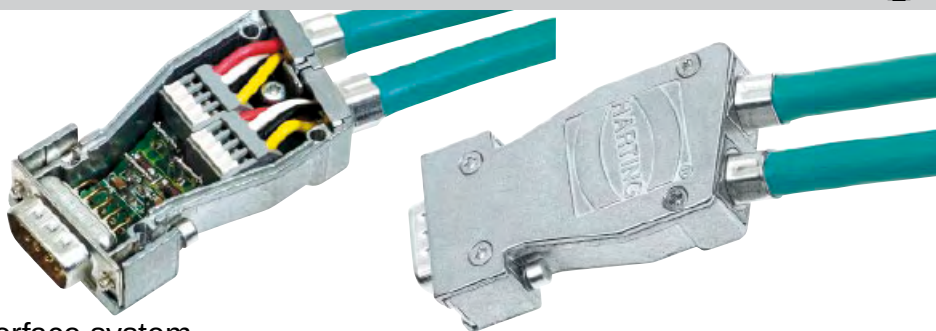
Identification	Part No.		Drawing	Dimensions in mm																																								
Crimp flange	Hoods for 9-37-pole D-Sub	Hoods for 50-pole D-Sub	<table><tr><th>D1</th><th>D2</th></tr><tr><td>3.0</td><td>4.0</td></tr><tr><td>3.5</td><td>4.5</td></tr><tr><td>4.0</td><td>5.0</td></tr><tr><td>4.5</td><td>5.5</td></tr><tr><td>5.0</td><td>6.0</td></tr><tr><td>5.5</td><td>6.5</td></tr><tr><td>6.0</td><td>7.0</td></tr><tr><td>6.5</td><td>7.5</td></tr><tr><td>7.0</td><td>8.0</td></tr><tr><td>7.5</td><td>8.5</td></tr><tr><td>8.0</td><td>9.0</td></tr><tr><td>8.5</td><td>9.5</td></tr><tr><td>9.0</td><td>10.0</td></tr></table> 		D1	D2	3.0	4.0	3.5	4.5	4.0	5.0	4.5	5.5	5.0	6.0	5.5	6.5	6.0	7.0	6.5	7.5	7.0	8.0	7.5	8.5	8.0	9.0	8.5	9.5	9.0	10.0												
	D1	D2																																										
	3.0	4.0																																										
	3.5	4.5																																										
	4.0	5.0																																										
	4.5	5.5																																										
	5.0	6.0																																										
	5.5	6.5																																										
	6.0	7.0																																										
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	7.5	8.5																																										
	8.0	9.0																																										
	8.5	9.5																																										
	9.0	10.0																																										
61 03 000 0062	61 03 000 5062																																											
61 03 000 0063	61 03 000 5063																																											
61 03 000 0064	61 03 000 5064																																											
61 03 000 0065	61 03 000 5065																																											
61 03 000 0066	61 03 000 5066																																											
61 03 000 0166	61 03 000 5166																																											
61 03 000 0067	61 03 000 5067																																											
61 03 000 0068	61 03 000 5068																																											
61 03 000 0069	61 03 000 5069																																											
61 03 000 0070	61 03 000 5070																																											
61 03 000 0071	61 03 000 5071																																											
61 03 000 0165	61 03 000 5165																																											
61 03 000 0072	61 03 000 5072																																											
Crimp ferrule	61 03 000 0045 61 03 000 0046 61 03 000 0047 61 03 000 0048 61 03 000 0049 61 03 000 0050 61 03 000 0051 61 03 000 0052 61 03 000 0053 61 03 000 0054 61 03 000 0055 61 03 000 0056 61 03 000 0057 61 03 000 0058 61 03 000 0142 61 03 000 0059 61 03 000 0127 61 03 000 0060 61 03 000 0061		<table><tr><th>D3</th><th>D4</th></tr><tr><td>5.0</td><td>6.0</td></tr><tr><td>5.5</td><td>6.5</td></tr><tr><td>6.0</td><td>7.0</td></tr><tr><td>6.5</td><td>7.5</td></tr><tr><td>7.0</td><td>8.0</td></tr><tr><td>7.5</td><td>8.5</td></tr><tr><td>8.0</td><td>9.0</td></tr><tr><td>8.5</td><td>9.5</td></tr><tr><td>9.0</td><td>10.0</td></tr><tr><td>9.5</td><td>10.5</td></tr><tr><td>10.0</td><td>11.0</td></tr><tr><td>10.5</td><td>11.5</td></tr><tr><td>11.0</td><td>12.0</td></tr><tr><td>11.5</td><td>12.5</td></tr><tr><td>12.0</td><td>13.0</td></tr><tr><td>12.5</td><td>13.5</td></tr><tr><td>13.0</td><td>14.0</td></tr><tr><td>13.7</td><td>15.0</td></tr><tr><td>14.0</td><td>15.0</td></tr></table> 		D3	D4	5.0	6.0	5.5	6.5	6.0	7.0	6.5	7.5	7.0	8.0	7.5	8.5	8.0	9.0	8.5	9.5	9.0	10.0	9.5	10.5	10.0	11.0	10.5	11.5	11.0	12.0	11.5	12.5	12.0	13.0	12.5	13.5	13.0	14.0	13.7	15.0	14.0	15.0
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14.0	15.0																																											
Cable clamp	cable-Ø appr. 5- 7 mm	61 03 000 0141																																										
	cable-Ø appr. 7-10 mm	61 03 000 0044																																										
	cable-Ø appr. 10-12 mm	61 03 000 0143																																										
	cable-Ø appr. 11-14 mm	61 03 000 0145																																										
Blanking piece for hoods	61 03 000 0042	61 03 000 0041																																										
Hexagonal screw	09 67 002 9020 09 67 002 9019																																											
				thread 4-40 UNC x 17.5-8.8 with captive washer																																								
Knurled screw	09 67 002 9018 09 67 002 9017																																											
				thread 4-40 UNC																																								

Crimp flange termination instruction

1. Strip the cable sheath to the correct length (approx. 35 to 40 mm, depending on interface type).
2. Place the crimp ferrule over the cable sheath. Bend the outer screen backwards over the cable sheath. Cut screen approx. 2 mm from the end of the cable sheath.
3. Place the crimp flange over the wires covered by the remaining foil shield. Push and twist the crimp flange under the outer screen and cable sheath until the end of the cable sheath touches the crimp flange. HARTING has developed a special tool for optimised installation of the shielding over the crimp flange, part number 61 03 600 0017.
4. Move the crimp ferrule back onto the crimp flange and crimp the two parts together with the special service crimp tool part number 61 03 600 0020. For an optimised crimp process the tool should be positioned as close as possible to the crimp flange shoulder.
5. Cut off the internal screen foil and push the crimp flange inside the metal hood.

HARTING offers to test and define the best crimp flange and ferrule combination for customer specific cables.





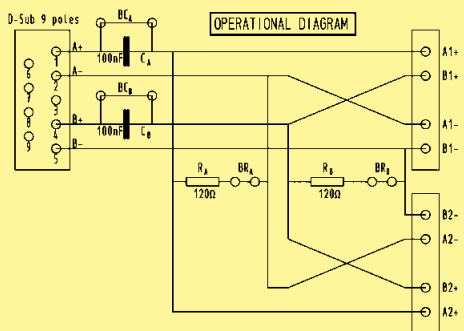
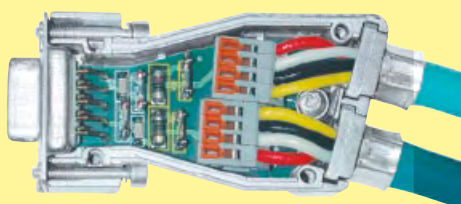
InduCom 9 – Industrial bus interface system

Identification

Part No.

General information

MVB Interface



66 63 009 5013

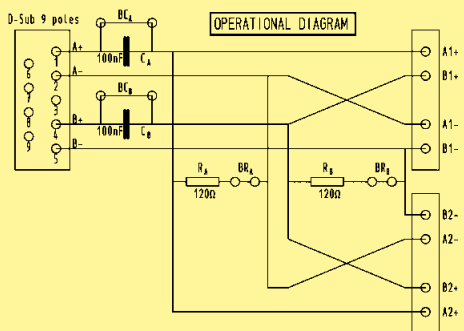
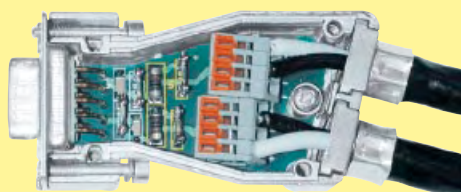
MVB backbone interface set

The Multifunctional Vehicle Bus (MVB) backbone interface is specially designed for communication cables in Train Control Networks (TCN). With this interface it is possible to realise a T-bus structure with MVB-cable with which you can disconnect the bus interface from the control unit without any interruption of the complete bus communication. On the PCB you will have load resistors and test capacitors which can be activated with solder bridges. The wires are terminated with the proven vibration resistant cage clamp technology.*

Components of the MVB interface set:

- 1 metal housing with 2 cable entries
- 2 hexagonal screws with UNC 4-40 threads
- 1 PCB with 9 way D-Sub male connector and cage clamps
- 2 crimp flanges for the MVB cable
- 2 crimp ferrules for the MVB cable
- 1 blanking piece

WTB Interface



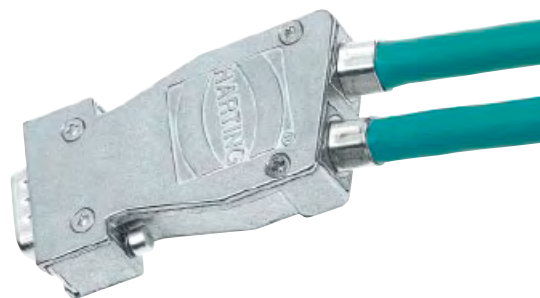
66 63 009 5014

WTB backbone interface set

The Wired Train Bus (WTB) backbone interface is specially designed for backbone cables in Train Control Networks (TCN). With this interface it is possible to realise a T-bus structure with WTB-cable with which you can disconnect the bus interface from the control unit without any interruption of the complete bus communication. On the PCB you will have load resistors and test capacitors which can be activated with solder bridges. The wires are terminated with the proven vibration resistant cage clamp technology.*

Components of the MVB interface set:

- 1 metal housing with 2 cable entries
- 2 hexagonal screws with UNC 4-40 threads
- 1 PCB with 9 way D-Sub male connector and cage clamps
- 2 crimp flanges for the WTB cable
- 2 crimp ferrules for the WTB cable
- 1 blanking piece



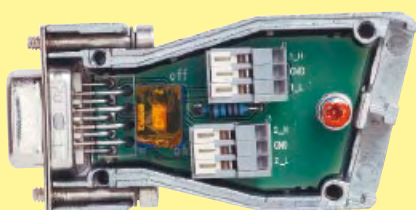
InduCom 9 – Industrial bus interface system

Identification

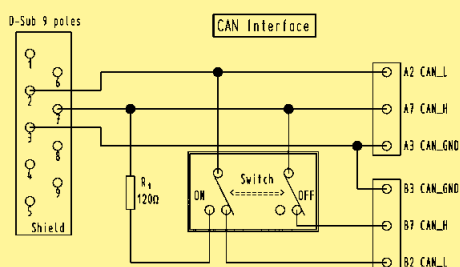
Part No.

General information

CAN Interface



66 63 009 6016

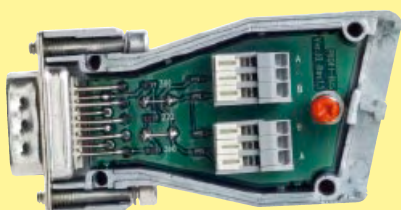


The Controller Area Network (CAN)-Interface is specially designed for usage in trains. With this interface it is possible to realise a T-bus structure with which you can disconnect the bus interface from the control unit without any interruption of the complete bus communication. On the PCB you will have a load resistor which can be activated with the switch.*

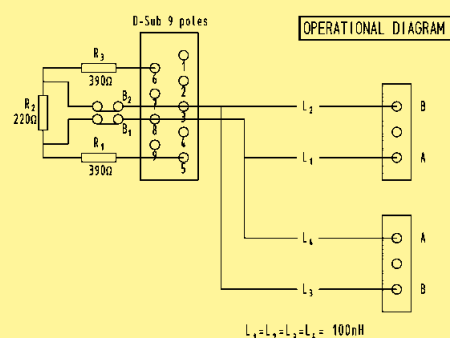
Components of the interface set:

- 1 metal housing with 2 cable entries
- 2 hexagonal screws with UNC 4-40 threads
- 1 PCB with 9 way D-Sub female connector and 2 cage clamps
- 1 blanking piece
- 2 crimp flanges
- 2 crimp ferrules

Profibus Interface



66 63 009 6004



The Profibus Interface is specially designed for usage in trains and in challenging engineering applications.

On the PCB you will have SMD parts which can be activated with solder bridges.

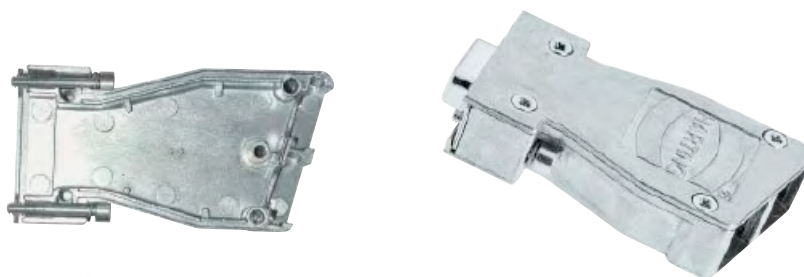
The wires are assembled with the proven vibration resistant cage clamp technology.*

Components of the interface set:

- 1 metal housing with 2 cable entries
- 2 hexagonal screws with UNC 4-40 threads
- 1 PCB with 9 way D-Sub female connector and 2 cage clamps
- 1 blanking piece

Further bus PCBs on request

* To check compatibility with cable types and manufacturers, please contact your local HARTING representative.



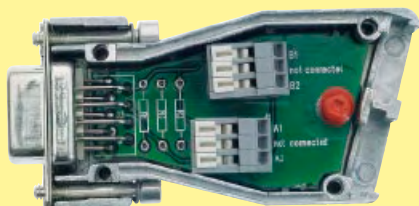
InduCom 9 – Industrial bus interface system

Identification

Part No.

General information

FIP Interface middle of the line



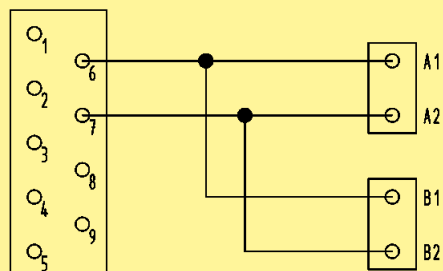
66 63 009 5017

The FIP (Factory Installation Protocol) Interface is specially designed for applications in trains. It is connected via the D-Sub. The wires are assembled with the proven vibration resistant cage clamp technology.*

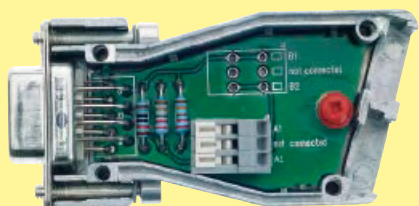
Components of the interface set:

- 1 metal housing with 2 cable entries
- 2 hexagonal screws with UNC 4-40 threads
- 1 pcb with 9 way D-Sub female connector and cage clamps

FIP interface



FIP Interface end of the line



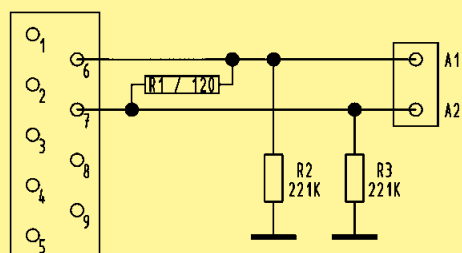
66 63 009 5018

The FIP (Factory Installation Protocol) Interface is specially designed for applications in trains. It is connected via the D-Sub. On the pcb you will have load resistors. The wires are assembled with the proven vibration resistant cage clamp technology.*

Components of the interface set:

- 1 metal housing with 2 cable entries
- 2 hexagonal screws with UNC 4-40 threads
- 1 pcb with 9 way D-Sub female connector and cage clamps
- 1 blanking piece

FIP interface



Accessories

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
Female screw locks without nut	9-50	09 67 000 9972 ¹⁾ 09 67 000 9974 ¹⁾		
for press-in connectors with grounding-pins or straight solder with grounding-clips.	9-50	09 66 000 9972 ¹⁾ 09 66 000 9974 ¹⁾²⁾		
with captive washer	9-50	09 67 001 9941 ¹⁾ 09 67 001 9954 ¹⁾		
with captive washer	9-50	09 67 001 9941 ¹⁾ 09 67 001 9954 ¹⁾		

¹⁾ Order 2 for each connector

²⁾ M3 inner thread available on request

Accessories

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
Female screw locks with nut Thread UNC/UNC Thread UNC/M3 Thread UNC/UNC	9-50 9-50 9-50	09 67 000 9922 ¹⁾ 09 67 000 9924 ¹⁾ 09 67 000 9973 ¹⁾	 	
Male screw locks for use without hood	9-37 50	09 67 001 9969 ¹⁾ 09 67 001 9970 ¹⁾		
Hex extender Thread 4-40 UNC Thread M3	9-50 9-50	09 67 001 9985 09 67 002 9120		
U-Clip with thread 4-40 UNC	9-50	09 67 001 9928 ¹⁾		
with thread 4-40 UNC and screw-lock	9-50	09 67 002 9030 ¹⁾		

Accessories

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																														
Dust cap black thermoplastic																																		
for male connector	9 15 25 37	09 67 009 0611 09 67 015 0611 09 67 025 0611 09 67 037 0611		<table><tr><td></td><td>A</td><td>B</td></tr><tr><td>9</td><td>17.0</td><td>22.40</td></tr><tr><td>15</td><td>25.3</td><td>30.80</td></tr><tr><td>25</td><td>38.9</td><td>44.40</td></tr><tr><td>37</td><td>55.4</td><td>60.75</td></tr></table>		A	B	9	17.0	22.40	15	25.3	30.80	25	38.9	44.40	37	55.4	60.75															
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15	25.3	30.80																																
25	38.9	44.40																																
37	55.4	60.75																																
for female connector	9 15 25 37	09 67 009 0711 09 67 015 0711 09 67 025 0711 09 67 037 0711		<table><tr><td></td><td>A</td><td>B</td></tr><tr><td>9</td><td>16.0</td><td>22.5</td></tr><tr><td>15</td><td>24.4</td><td>31.0</td></tr><tr><td>25</td><td>37.8</td><td>44.3</td></tr><tr><td>37</td><td>54.3</td><td>60.8</td></tr></table>		A	B	9	16.0	22.5	15	24.4	31.0	25	37.8	44.3	37	54.3	60.8															
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antistatic black thermoplastic																																		
for male connector	9 15 25 37 50	09 67 009 0612 09 67 015 0612 09 67 025 0612 09 67 037 0612 09 67 050 0612		<table><tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>9</td><td>17.7</td><td>21.8</td><td>13.2</td><td>9.1</td></tr><tr><td>15</td><td>26.0</td><td>30.0</td><td>13.2</td><td>9.1</td></tr><tr><td>25</td><td>40.0</td><td>44.2</td><td>13.2</td><td>9.1</td></tr><tr><td>37</td><td>56.4</td><td>59.8</td><td>13.2</td><td>9.1</td></tr><tr><td>50</td><td>53.9</td><td>57.8</td><td>15.9</td><td>11.7</td></tr></table>		A	B	C	D	9	17.7	21.8	13.2	9.1	15	26.0	30.0	13.2	9.1	25	40.0	44.2	13.2	9.1	37	56.4	59.8	13.2	9.1	50	53.9	57.8	15.9	11.7
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25	38.3	42.3	11.8	7.8																														
37	54.7	58.8	11.8	7.8																														
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for male connector	9 15 25 37 50	09 67 009 0613 09 67 015 0613 09 67 025 0613 09 67 037 0613 09 67 050 0613		<table><tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>9</td><td>17.7</td><td>21.8</td><td>13.2</td><td>9.1</td></tr><tr><td>15</td><td>26.0</td><td>30.0</td><td>13.2</td><td>9.1</td></tr><tr><td>25</td><td>40.0</td><td>44.2</td><td>13.2</td><td>9.1</td></tr><tr><td>37</td><td>56.4</td><td>59.8</td><td>13.2</td><td>9.1</td></tr><tr><td>50</td><td>53.9</td><td>57.8</td><td>15.9</td><td>11.7</td></tr></table>		A	B	C	D	9	17.7	21.8	13.2	9.1	15	26.0	30.0	13.2	9.1	25	40.0	44.2	13.2	9.1	37	56.4	59.8	13.2	9.1	50	53.9	57.8	15.9	11.7
	A	B	C	D																														
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Accessories

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																														
Dust cap metallized thermoplastic																																		
for male connector	9 15 25 37 50	09 67 009 0614 09 67 015 0614 09 67 025 0614 09 67 037 0614 09 67 050 0614		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>9</td><td>17.7</td><td>21.8</td><td>13.2</td><td>9.1</td></tr><tr><td>15</td><td>26.0</td><td>30.0</td><td>13.2</td><td>9.1</td></tr><tr><td>25</td><td>40.0</td><td>44.2</td><td>13.2</td><td>9.1</td></tr><tr><td>37</td><td>56.4</td><td>59.8</td><td>13.2</td><td>9.1</td></tr><tr><td>50</td><td>53.9</td><td>57.8</td><td>15.9</td><td>11.7</td></tr></table>		A	B	C	D	9	17.7	21.8	13.2	9.1	15	26.0	30.0	13.2	9.1	25	40.0	44.2	13.2	9.1	37	56.4	59.8	13.2	9.1	50	53.9	57.8	15.9	11.7
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50	52.6	56.2	14.5	10.5																														
metallized thermoplastic with chain																																		
for male connector	9 15 25 37 50	09 67 009 0615 09 67 015 0615 09 67 025 0615 09 67 037 0615 09 67 050 0615		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>9</td><td>17.5</td><td>19.6</td><td>11.1</td><td>9.2</td></tr><tr><td>15</td><td>25.7</td><td>27.8</td><td>11.1</td><td>9.2</td></tr><tr><td>25</td><td>39.6</td><td>41.8</td><td>11.1</td><td>9.2</td></tr><tr><td>37</td><td>55.7</td><td>57.4</td><td>11.1</td><td>9.2</td></tr><tr><td>50</td><td>53.4</td><td>55.3</td><td>13.8</td><td>11.9</td></tr></table>		A	B	C	D	9	17.5	19.6	11.1	9.2	15	25.7	27.8	11.1	9.2	25	39.6	41.8	11.1	9.2	37	55.7	57.4	11.1	9.2	50	53.4	55.3	13.8	11.9
	A	B	C	D																														
9	17.5	19.6	11.1	9.2																														
15	25.7	27.8	11.1	9.2																														
25	39.6	41.8	11.1	9.2																														
37	55.7	57.4	11.1	9.2																														
50	53.4	55.3	13.8	11.9																														
for female connector	9 15 25 37 50	09 67 009 0715 09 67 015 0715 09 67 025 0715 09 67 037 0715 09 67 050 0715		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>9</td><td>16.2</td><td>18.0</td><td>9.6</td><td>7.8</td></tr><tr><td>15</td><td>24.6</td><td>26.4</td><td>9.6</td><td>7.8</td></tr><tr><td>25</td><td>38.4</td><td>40.2</td><td>9.6</td><td>7.8</td></tr><tr><td>37</td><td>54.4</td><td>56.2</td><td>9.6</td><td>7.8</td></tr><tr><td>50</td><td>52.0</td><td>53.7</td><td>12.2</td><td>10.4</td></tr></table>		A	B	C	D	9	16.2	18.0	9.6	7.8	15	24.6	26.4	9.6	7.8	25	38.4	40.2	9.6	7.8	37	54.4	56.2	9.6	7.8	50	52.0	53.7	12.2	10.4
	A	B	C	D																														
9	16.2	18.0	9.6	7.8																														
15	24.6	26.4	9.6	7.8																														
25	38.4	40.2	9.6	7.8																														
37	54.4	56.2	9.6	7.8																														
50	52.0	53.7	12.2	10.4																														

Number of contacts 9, 15, 25, 37, 50
UL recognized

Working current
see current carrying capacity chart
Stamped contacts 6.5 A max.

Test voltage $U_{r.m.s.}$ 1 kV

Clearance and creepage ≥ 1.0 mm

Contact resistance ≤ 10 m Ω
Insulation resistance $\geq 10^{10}$ Ω

Temperature range -55 °C ... +125 °C
The higher temperature limit includes the local ambient and heating effect of the contacts under load

Terminations	Recommended PCB through holes	
	Signal pin	Grounding pin
<i>Tin-lead plated PCB</i>	Hole	1.15-0.03
	Cu	25-75 μ m
	Sn	5-15 μ m
	Plated hole	0.94-1.09 mm
<i>Chemical tin-plated PCB</i>	Hole	1.05-0.03
	Cu	25-50 μ m
	Sn	0.8-1.0 μ m
	Plated hole	1.00-1.10 mm
<i>Au / Ni plated PCB</i>	Hole	1.15-0.03
	Cu	25-50 μ m
	Ni	3-7 μ m
	Au	0.05-0.12 μ m
	Plated hole	1.00-1.10 mm
<i>Silver plated PCB</i>	Hole	1.15-0.03
	Cu	25-50 μ m
	Ag	0.1-0.3 μ m
	Plated hole	1.00-1.10 mm
<i>OSP copper plated PCB</i>	Hole	1.15-0.03
	Cu	25-50 μ m
	Plated hole	1.00-1.10 mm

PCB board thickness: ≥ 1.6 mm

Materials
Mouldings and hoods Liquid Crystal Polymer (LCP)
UL 94-V0

Contacts Copper alloy

Contact surface
Contact zone selectively gold-plated
acc. to performance level¹⁾

Metal shell Plated steel

Insertion and withdrawal force

Connector on P.C.B.

Press-in without grounding pins

– insertion max. per contact: 120 N

– withdrawal min. per contact: 20 N

Press-in with grounding pins

– insertion max. per grounding pin: 250 N

– withdrawal min. per grounding pin: 30 N

Mating force

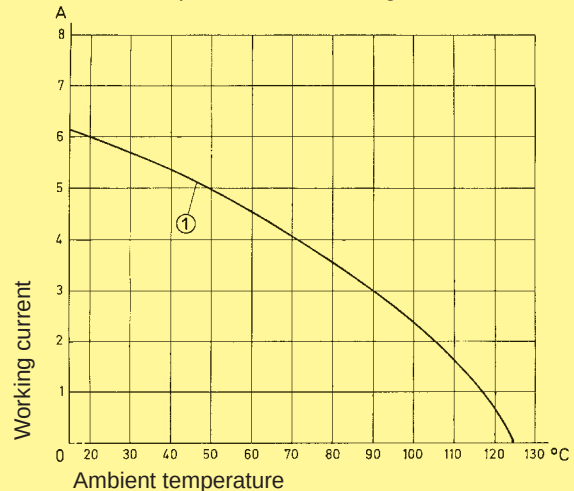
9 way	≤ 30 N
15 way	≤ 50 N
25 way	≤ 83 N
37 way	≤ 123 N
50 way	≤ 167 N

Current carrying capacity

The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals.

The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

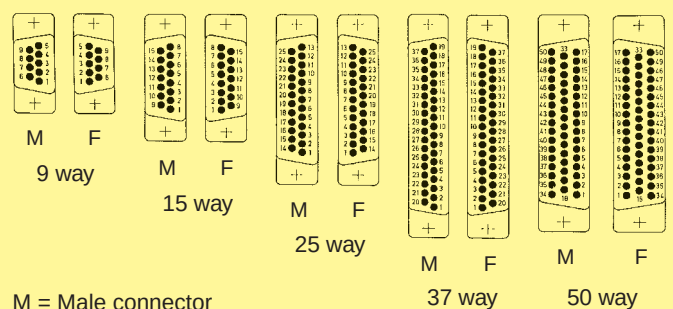
Control and test procedures according to DIN IEC 60 512.



Example: 25 way connector

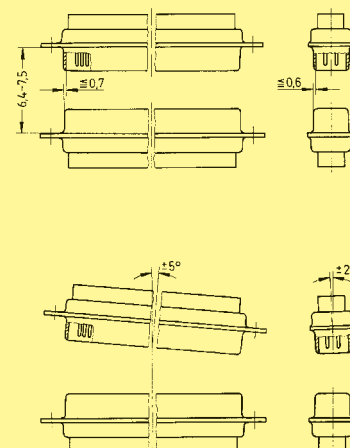
① Stamped contacts

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 41 652



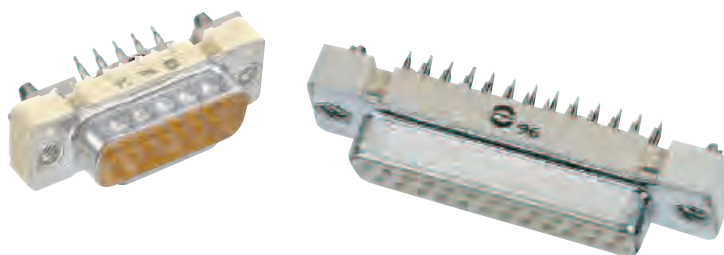
¹⁾ Performance level 3, 50 mating cycles, no gas test

Performance level 2 as per CECC 75 301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60 512

Performance level 1 as per CECC 75 301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60 512

Number of contacts

9–50



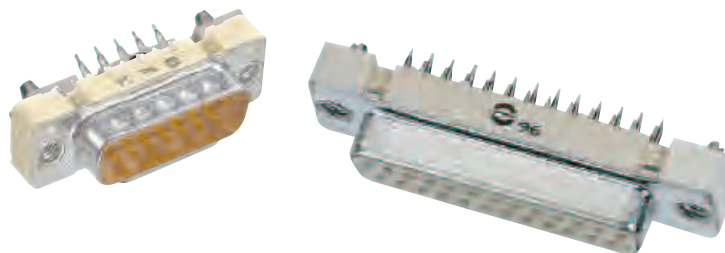
Press-in, straight with grounding press-in board locks

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.173 Other performance levels on request		Performance level 3	Performance level 2
Male connector Flange height x = 5.7 mm			
metal shell with dimples	9	09 66 164 771 .	09 66 164 671 .
	15	09 66 264 771 .	09 66 264 671 .
	25	09 66 364 771 .	09 66 364 671 .
Please insert digit for flange thread or fitted female screw locks			
M3 ▶	5		
4-40 UNC ▶	6		
fitted screw locks 4-40 UNC ▶	7 ¹⁾		
Female connector Flange height x = 5.7 mm			
metal shell	9	09 66 154 751 .	09 66 154 651 .
	15	09 66 254 751 .	09 66 254 651 .
	25	09 66 354 751 .	09 66 354 651 .
	37	09 66 454 751 .	09 66 454 651 .
Please insert digit for flange thread or fitted female screw locks			
M3 ▶	5		
4-40 UNC ▶	6		
fitted screw locks 4-40 UNC ▶	7 ¹⁾		
Female connector Flange height x = 6 mm			
metal shell	9	09 66 154 751 .	09 66 154 651 .
	15	09 66 254 751 .	09 66 254 651 .
	25	09 66 354 751 .	09 66 354 651 .
	37	09 66 454 751 .	09 66 454 651 .
	50	09 66 554 751 .	09 66 554 651 .
Please insert digit for flange thread or fitted female screw locks			
M3 ▶	1		
4-40 UNC ▶	2		
fitted screw locks 4-40 UNC ▶	3 ¹⁾		

¹⁾ Fitted screw locks 4-40 UNC not normally kept in stock for performance level 3
 Connector dimensions see page 05.175. Mating conditions see page 05.173.

Number of contacts

9–50



Press-in, straight with grounding press-in board locks

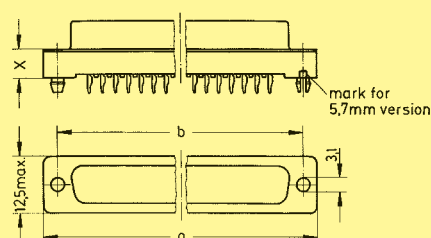
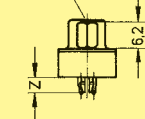
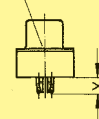
Identification

Drawing

Dimensions in mm

Male connector

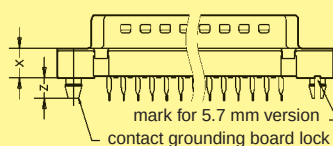
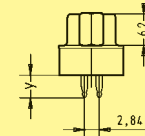
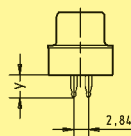
9 – 25 contacts

M3 or
4 - 40 UNCfitted screw locks
4 - 40 UNC

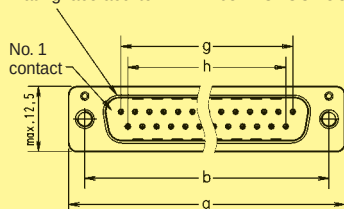
X	Y	Z
6.0 ± 0.2	4.20 ± 0.2	3.5 max.
5.7 ± 0.2	4.35 ± 0.2	3.9 max.

Female connector

9 – 37 contacts

M3 or
4 - 40 UNCfitted screw locks
4 - 40 UNC

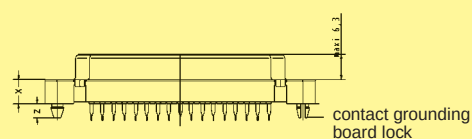
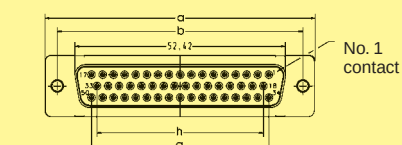
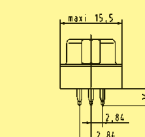
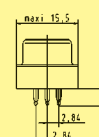
Mating face acc. to: DIN 41652 · CECC 75301-802 · IEC 60807



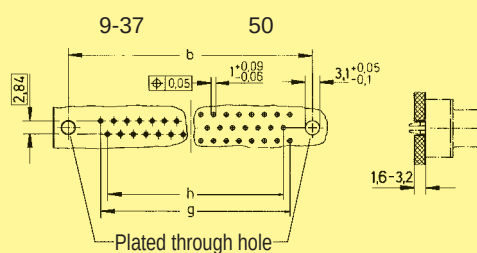
	a	b	g	h
9	31.00	24.90	$4 \times [2.74] = 10.96$	$3 \times [2.74] = 8.22$
15	39.30	33.20	$7 \times [2.74] = 19.18$	$6 \times [2.74] = 16.44$
25	53.10	47.00	$12 \times [2.76] = 33.12$	$11 \times [2.76] = 30.36$
37	69.65	63.55	$18 \times [2.76] = 49.68$	$17 \times [2.76] = 46.92$
50	67.00	61.10	$16 \times [2.76] = 44.16$	$15 \times [2.76] = 41.40$

Female connector

50 contacts

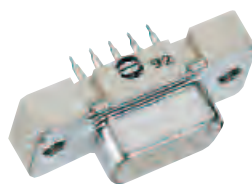
M3 or
4 - 40 UNCfitted screw locks
4 - 40 UNC

Board drillings



Number of contacts

9–50



Press-in, straight without grounding press-in board locks

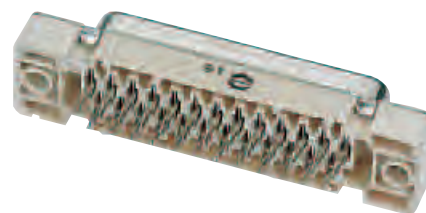
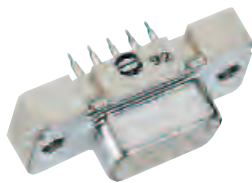
Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.173 Other performance levels on request		Performance level 3	Performance level 2
Male connector Flange height x = 5.7 mm			
metal shell with dimples	9	09 66 124 770 .	09 66 124 670 .
	15	09 66 224 770 .	09 66 224 670 .
	25	09 66 324 770 .	09 66 324 670 .
Please insert digit for flange thread or fitted female screw locks			
ø 3.1 mm hole ▶ 4 ¹⁾			
M3 ▶ 5			
4-40 UNC ▶ 6			
fitted screw locks 4-40 UNC ▶ 7 ²⁾			
Female connector Flange height x = 5.7 mm			
metal shell	9	09 66 114 750 .	09 66 114 650 .
	15	09 66 214 750 .	09 66 214 650 .
	25	09 66 314 750 .	09 66 314 650 .
	37	09 66 414 750 .	09 66 414 650 .
Please insert digit for flange thread or fitted female screw locks			
ø 3.1 mm hole ▶ 4 ¹⁾			
M3 ▶ 5			
4-40 UNC ▶ 6			
fitted screw locks 4-40 UNC ▶ 7 ²⁾			
Female connector Flange height x = 6 mm			
metal shell	9	09 66 114 750 .	09 66 114 650 .
	15	09 66 214 750 .	09 66 214 650 .
	25	09 66 314 750 .	09 66 314 650 .
	37	09 66 414 750 .	09 66 414 650 .
	50	09 66 514 750 .	09 66 514 650 .
Please insert digit for flange thread or fitted female screw locks			
ø 3.1 mm hole ▶ 0 ¹⁾			
M3 ▶ 1			
4-40 UNC ▶ 2			
fitted screw locks 4-40 UNC ▶ 3 ²⁾			

¹⁾ Not normally kept in stock²⁾ Fitted screw locks 4-40 UNC not normally kept in stock for performance level 3

Connector dimensions see page 05.177. Mating conditions see page 05.173.

Number of contacts

9–50

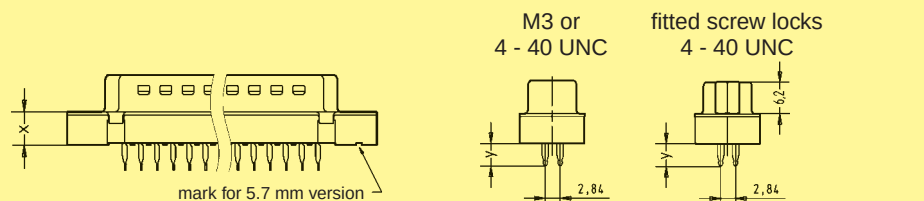
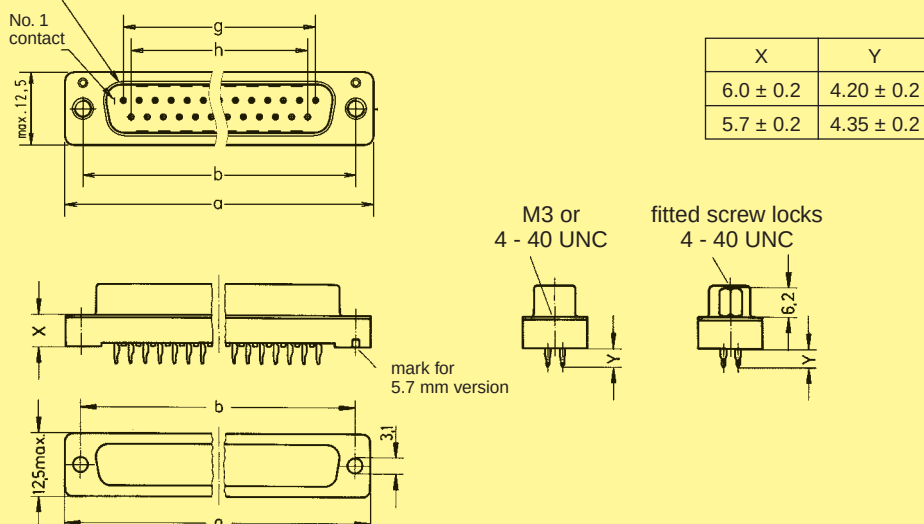
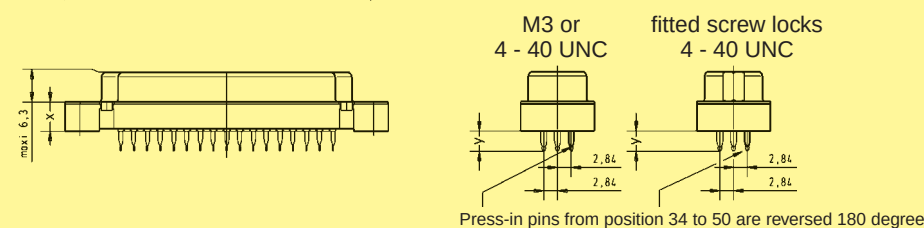


Press-in, straight without grounding press-in board locks

Identification

Drawing

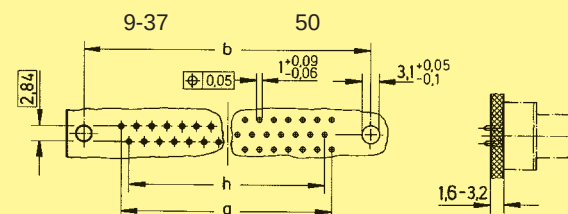
Dimensions in mm

Male connector
9 – 25 contacts

Female connector
9 – 37 contacts

Female connector
50 contacts


Mating face acc. to: DIN 41 652 · CECC 75 301-802 · IEC 60 807

	a	b	g	h
9	31.00	24.90	4 x [2.74] = 10.96	3 x [2.74] = 8.22
15	39.30	33.20	7 x [2.74] = 19.18	6 x [2.74] = 16.44
25	53.10	47.00	12 x [2.76] = 33.12	11 x [2.76] = 30.36
37	69.65	63.55	18 x [2.76] = 49.68	17 x [2.76] = 46.92
50	67.00	61.10	16 x [2.76] = 44.16	15 x [2.76] = 41.40

Board drillings



Number of contacts 9, 15, 25, 37
UL recognized

Working current
see current carrying capacity chart
Stamped contacts 6.5 A max.

Test voltage $U_{r.m.s.}$ 1 kV

Clearance and creepage ≥ 1.0 mm

Contact resistance ≤ 10 m Ω
Insulation resistance $\geq 10^{10}$ Ω

Temperature range -55 °C ... +125 °C
during reflow soldering max. + 240 °C for 15 s
The higher temperature limit includes the local ambient and heating effect of the contacts under load. All connectors are suitable for standard reflow processes.

Terminations
a) Solder pins $\varnothing$ 0.6 mm for P.C.B. holes $\varnothing$ 0.8/1 mm
b) Solder pins, angled 90° $\varnothing$ 0.6 mm for P.C.B. holes $\varnothing$ 1 mm

Materials
Mouldings Thermoplastic resin, glass-fibre filled (PCT), UL 94-V0

Contacts Copper alloy

Contact surface
Contact zone selectively gold-plated according to performance level¹⁾

Metal shell Plated steel

Insertion and withdrawal force
Connector on P.C.B.
Solder, straight with clips
– insertion max. per connector: 60 N
– withdrawal min. per connector: 10 N

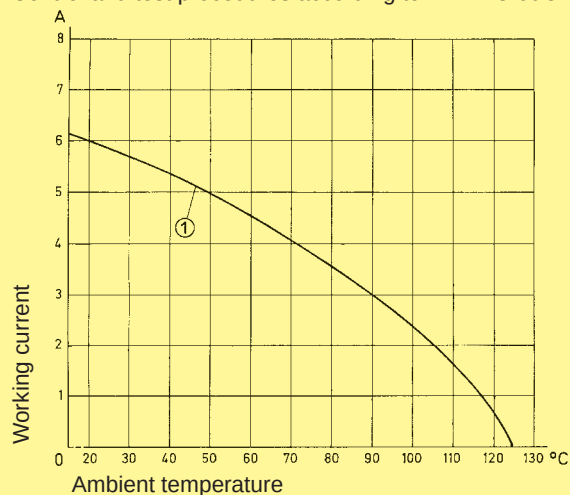
Mating force
9 way ≤ 30 N
15 way ≤ 50 N
25 way ≤ 83 N
37 way ≤ 123 N

Current carrying capacity

The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals.

The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

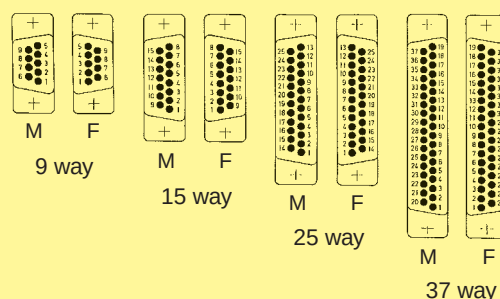
Control and test procedures according to DIN IEC 60 512.



Example: 25 way connector

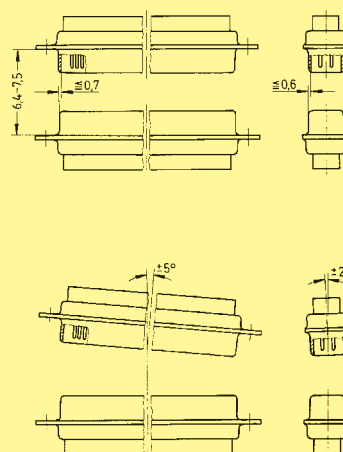
① Stamped contacts

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 41 652



¹⁾ Performance level 3, 50 mating cycles, no gas test

Performance level 2 as per CECC 75 301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60 512

Performance level 1 as per CECC 75 301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60 512

Identification

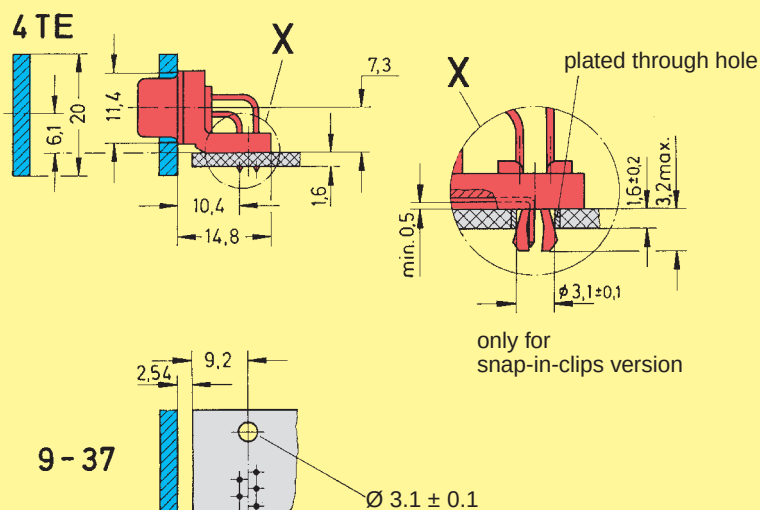
Drawing

Dimensions in mm

Standard Versions

Mounting height 7.3 mm

9-37 way
for front panel
4 units of width (TE)

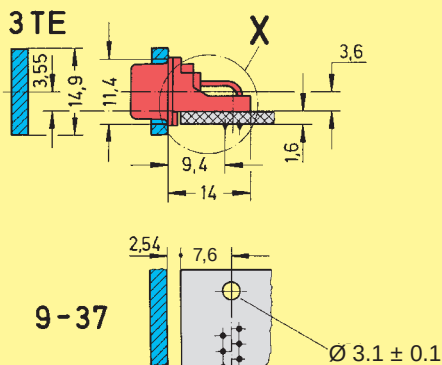


for connectors see pages 05.182 – 05.183

Low-Profile Versions

Mounting height 3.6 mm

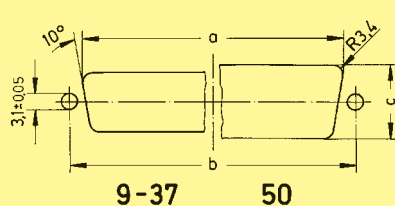
9-37 way
for front panel
3 units of width (TE)



for connectors see pages 05.184 – 05.185

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802



Front mount

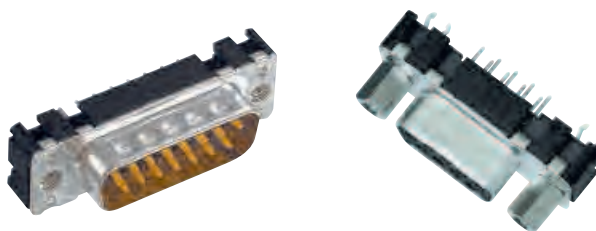
	a ± 0.2	b ± 0.13	c ± 0.2
9	22.2	25.0	12.3
15	30.5	33.3	12.3
25	44.3	47.0	12.3
37	60.7	63.5	12.3
50	58.3	61.1	15.1

Rear mount

	a ± 0.2	b ± 0.13	c ± 0.2
9	20.5	25.0	11.4
15	28.8	33.3	11.4
25	42.5	47.0	11.4
37	59.1	63.5	11.4
50	56.3	61.1	14.1

Number of contacts

9–37



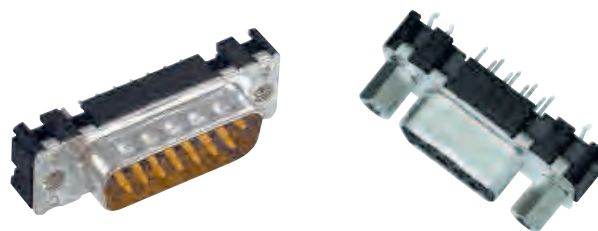
SMC stamped solder pins, straight with/without grounding board locks

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.178 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples			
Without grounding board locks	9 15 25 37	09 65 129 770 . 09 65 229 770 . 09 65 329 770 . 09 65 429 770 .	09 65 129 670 . 09 65 229 670 . 09 65 329 670 . 09 65 429 670 .
With grounding board locks	9 15 25 37	09 65 169 771 . 09 65 269 771 . 09 65 369 771 . 09 65 469 771 .	09 65 169 671 . 09 65 269 671 . 09 65 369 671 . 09 65 469 671 .
Female connector metal shell			
Without grounding board locks	9 15 25 37	09 66 115 750 . 09 66 215 750 . 09 66 315 750 . 09 66 415 750 .	09 66 115 650 . 09 66 215 650 . 09 66 315 650 . 09 66 415 650 .
With grounding board locks	9 15 25 37	09 66 155 751 . 09 66 255 751 . 09 66 355 751 . 09 66 455 751 .	09 66 155 651 . 09 66 255 651 . 09 66 355 651 . 09 66 455 651 .
Please insert digit for flange thread or fitted female screw locks			
M3 ► 1 4-40 UNC ► 2 fitted screw locks 4-40 UNC ► 3 ¹⁾			

¹⁾ Fitted screw locks 4-40 UNC not normally kept in stock for performance level 3
 Connector dimensions see page 05.181. Mating conditions see page 05.178.

Number of contacts

9–37



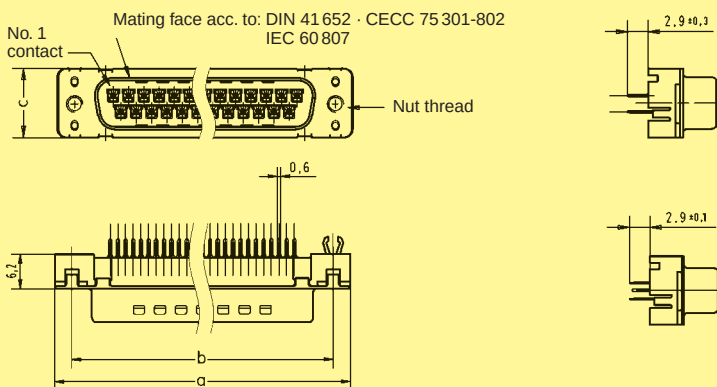
SMC stamped solder pins, straight with/without grounding board locks

Identification

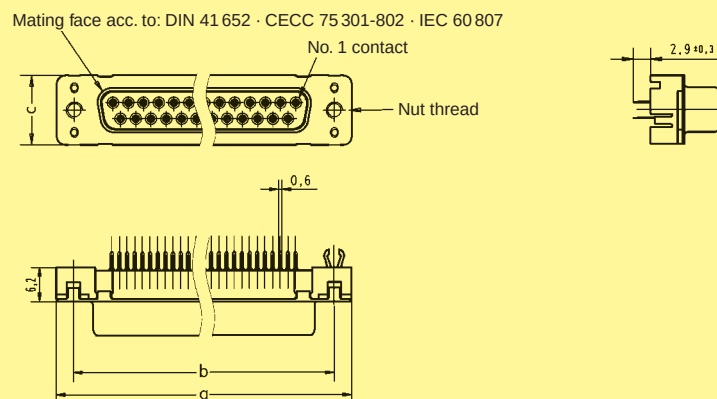
Drawing

Dimensions in mm

Male connector

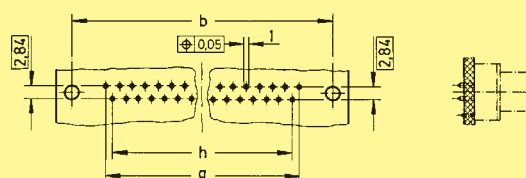


Female connector



	a	b _{±0.1}	c	g		h	
9	30.9	25.0	12.5	4 x	2.74 = 10.96	3 x	2.74 = 8.22
15	39.2	33.3	12.5	7 x	2.74 = 19.18	6 x	2.74 = 16.44
25	53.1	47.0	12.5	12 x	2.76 = 33.12	11 x	2.76 = 30.36
37	69.4	63.5	12.5	18 x	2.76 = 49.68	17 x	2.76 = 46.92

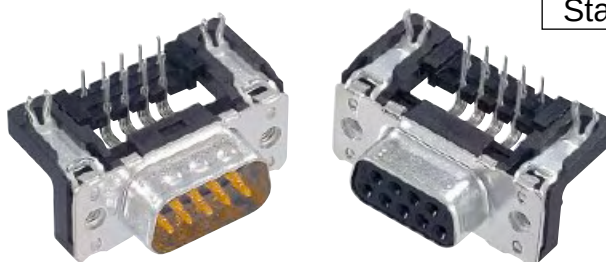
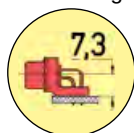
Board drillings



Number of contacts

9–37

Mounting height



Standard Versions

SMC stamped solder pins, angled with grounding board locks

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.178 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples		2.84 mm pitch	2.84 mm pitch
	9	09 65 167 781 . 1)	09 65 167 681 . 1)
	15	09 65 267 781 . 1)	09 65 267 681 . 1)
	25	09 65 367 781 . 1)	09 65 367 681 . 1)
	37	09 65 467 781 . 1)	09 65 467 681 . 1)
		2.54 mm pitch	2.54 mm pitch
	9	09 65 166 781 .	09 65 166 681 .
	15	09 65 266 781 .	09 65 266 681 .
	25	09 65 366 781 .	09 65 366 681 .
	37	09 65 466 781 .	09 65 466 681 .
Female connector metal shell		2.84 mm pitch	2.84 mm pitch
	9	09 66 157 761 . 1)	09 66 157 661 . 1)
	15	09 66 257 761 . 1)	09 66 257 661 . 1)
	25	09 66 357 761 . 1)	09 66 357 661 . 1)
	37	09 66 457 761 . 1)	09 66 457 661 . 1)
		2.54 mm pitch	2.54 mm pitch
	9	09 66 156 761 .	09 66 156 661 .
	15	09 66 256 761 .	09 66 256 661 .
	25	09 66 356 761 .	09 66 356 661 .
	37	09 66 456 761 .	09 66 456 661 .
Please insert digit for flange thread or fitted female screw locks Ø 3.1 mm hole ▶ 0 ¹⁾ M3 ▶ 1 4-40 UNC ▶ 2 fitted screw locks 4-40 UNC ▶ 3			

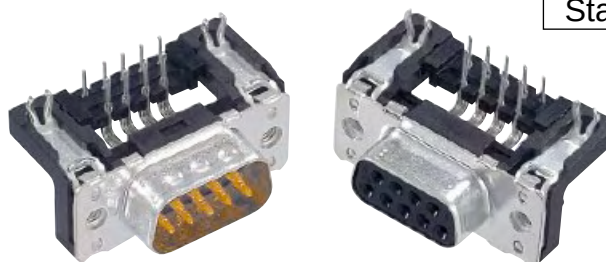
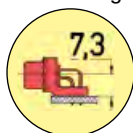
¹⁾ Not normally kept in stock

Standard Versions

Number of contacts

Mounting height

9–37



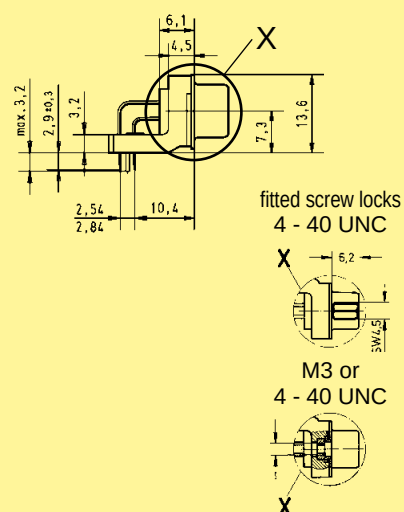
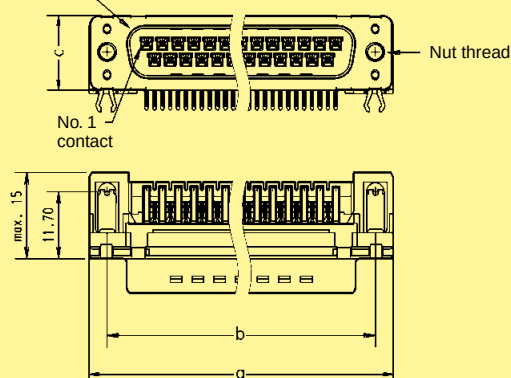
SMC stamped solder pins, angled with grounding board locks

Identification

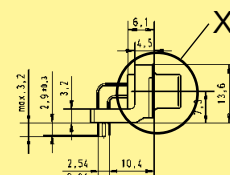
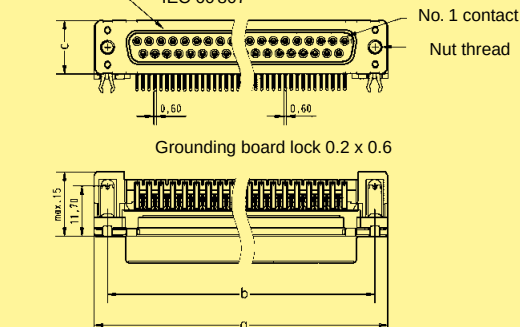
Drawing

Dimensions in mm

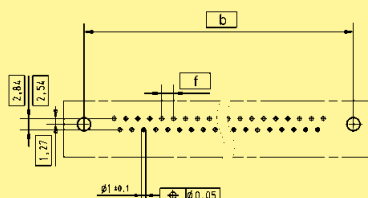
Male connector

Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807


Female connector

Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807


Board drillings



	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76

Number of contacts

9–37

Mounting height



Low-Profile Versions



SMC stamped solder pins, angled with grounding board locks

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.178 Other contact surfaces on request		Performance level 3	Performance level 2
Male connector metal shell with dimples			
	9	09 65 166 781 .	09 65 166 681 .
	15	09 65 266 781 .	09 65 266 681 .
	25	09 65 366 781 .	09 65 366 681 .
	37	09 65 466 781 .	09 65 466 681 .
Female connector metal shell			
	9	09 66 156 761 .	09 66 156 661 .
	15	09 66 256 761 .	09 66 256 661 .
	25	09 66 356 761 .	09 66 356 661 .
	37	09 66 456 761 .	09 66 456 661 .
Please insert digit for flange thread or fitted female screw locks			
M3 ▶	5		
4-40 UNC ▶	6		
fitted screw locks 4-40 UNC ▶	7		

Low-Profile Versions

Number of contacts

Mounting height

9–37



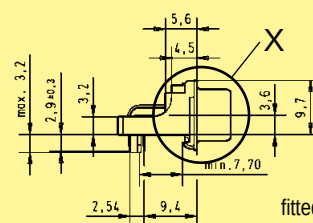
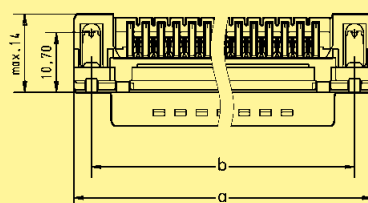
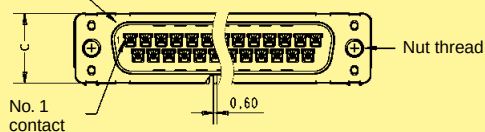
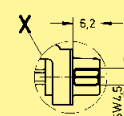
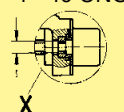
SMC stamped solder pins, angled with grounding board locks

Identification

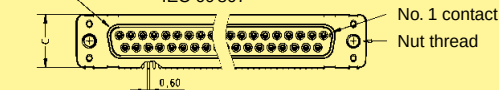
Drawing

Dimensions in mm

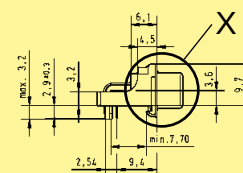
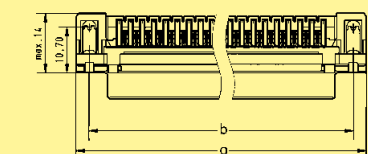
Male connector

Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807

fitted screw locks
4 - 40 UNC

M3 or
4 - 40 UNC


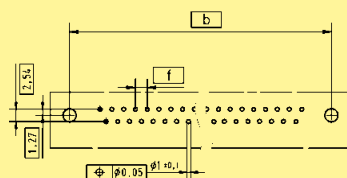
Female connector

Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807


Grounding board lock 0.2 x 0.6



Board drillings



	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76

Number of contacts 9, 15, 25, 37

Working current 5 A

Test voltage $U_{r.m.s.}$ 1 kV

Clearance and creepage ≥ 1.0 mm

Contact resistance < 25 m Ω
Insulation resistance > 5 G Ω

Temperature range as per profile JEDEC 020 D

Terminations Solder pins for P.C.B. pads

Materials

Mouldings LCP black
UL 94-V0

Contacts Phosphorus bronze

Grounding die Zamac

Shell Steel

Contact surface

Contact zone selectively gold-plated
according to performance level¹⁾

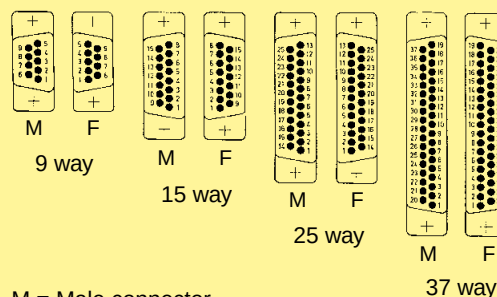
Grounding die Pure tin

Shell Nickel plated

Mating force

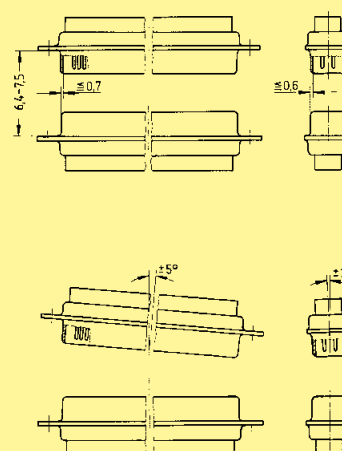
9 way ≤ 30 N
15 way ≤ 50 N
25 way ≤ 83 N
37 way ≤ 123 N

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 41 652



¹⁾ Performance level 3, 50 mating cycles, no gas test

Performance level 2 as per CECC 75 301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60 512

Performance level 1 as per CECC 75 301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60 512

Number of contacts

9–37



SMT stamped solder pins, angled with grounding board locks

Identification		No. of contacts	Part No.					
Performance levels Explanations see page 05.186 Other performance levels on request			Performance level 3		Performance level 2		Performance level 1	
Male connector metal shell with dimples								
		9	09 55 166 78 .. 741		09 55 166 68 .. 741		09 55 166 38 .. 741	
		15	09 55 266 78 .. 741		09 55 266 68 .. 741		09 55 266 38 .. 741	
		25	09 55 366 78 .. 741		09 55 366 68 .. 741		09 55 366 38 .. 741	
		37	09 55 466 78 .. 741		09 55 466 68 .. 741		09 55 466 38 .. 741	
Female connector metal shell								
		9	09 55 156 76 .. 741		09 55 156 66 .. 741		09 55 156 36 .. 741	
		15	09 55 256 76 .. 741		09 55 256 66 .. 741		09 55 256 36 .. 741	
		25	09 55 356 76 .. 741		09 55 356 66 .. 741		09 55 356 36 .. 741	
		37	09 55 456 76 .. 741		09 55 456 66 .. 741		09 55 456 36 .. 741	
Please insert digit for flange thread or fitted female screw locks								
M3 ▶ 11								
4-40 UNC ▶ 12								
non-removable								
fitted screw locks M3 ▶ 21								
non-removable								
fitted screw locks 4-40 UNC ▶ 22								

Number of contacts

9–37



SMT stamped solder pins, angled with grounding board locks

Identification

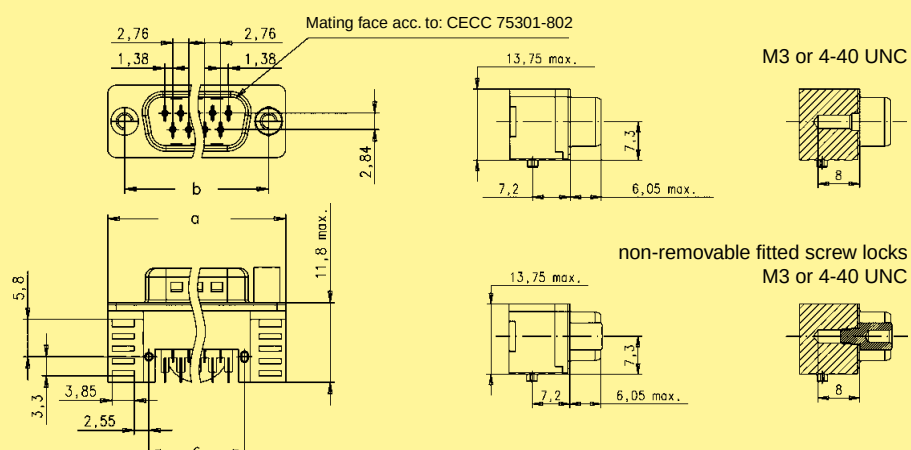
Drawing

Dimensions in mm

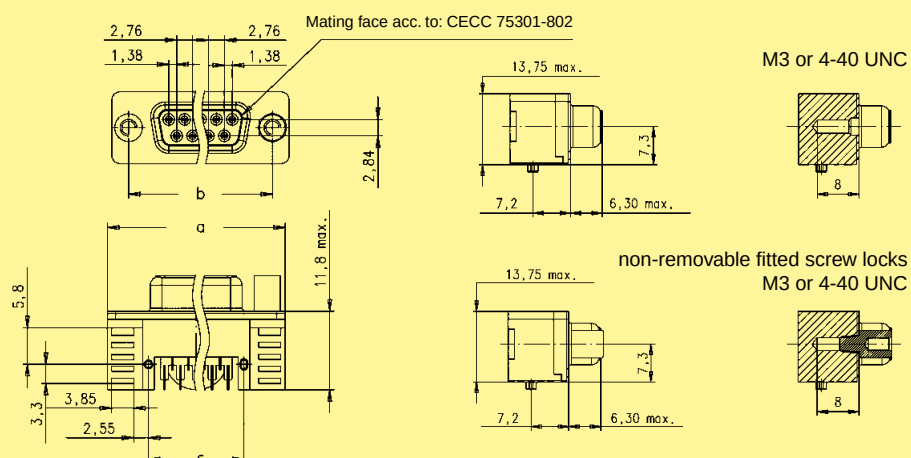
Male connector

M3 or 4-40 UNC

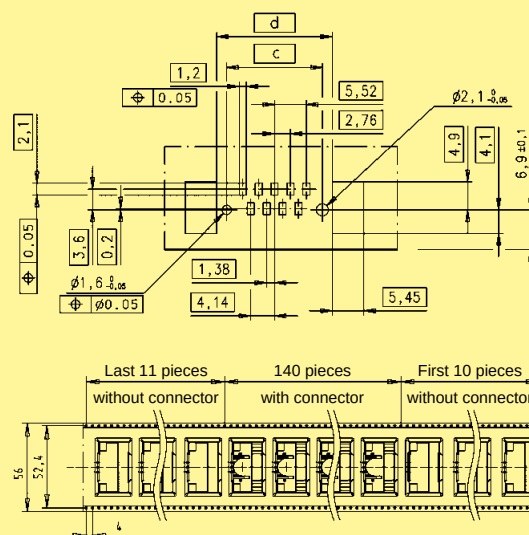
non-removable fitted screw locks M3 or 4-40 UNC



Female connector



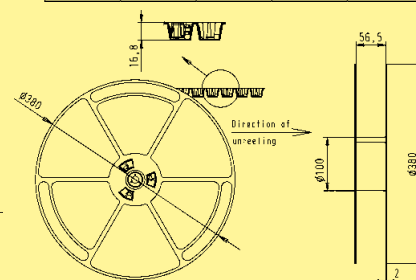
pcb layout



	a	b	c	d
9	31.10	24.99	16.60	20.1
15	39.52	33.32	24.90	28.4
25	53.29	47.04	38.64	42.1
37	69.60	63.50	55.10	58.6

Packaging

(1 reel = 140 pieces)
Reel diameter = 380 mm



Number of contacts

9–37



SMT stamped solder pins, angled with grounding board locks

Identification	No. of contacts	Part No.					
Performance levels Explanations see page 05.186 Other performance levels on request		Performance level 3		Performance level 2		Performance level 1	
Male connector metal shell with dimples							
	9	09 55 166 78 .. 741		09 55 166 68 .. 741		09 55 166 38 .. 741	
	15	09 55 266 78 .. 741		09 55 266 68 .. 741		09 55 266 38 .. 741	
	25	09 55 366 78 .. 741		09 55 366 68 .. 741		09 55 366 38 .. 741	
	37	09 55 466 78 .. 741		09 55 466 68 .. 741		09 55 466 38 .. 741	
Female connector metal shell							
	9	09 55 156 76 .. 741		09 55 156 66 .. 741		09 55 156 36 .. 741	
	15	09 55 256 76 .. 741		09 55 256 66 .. 741		09 55 256 36 .. 741	
	25	09 55 356 76 .. 741		09 55 356 66 .. 741		09 55 356 36 .. 741	
	37	09 55 456 76 .. 741		09 55 456 66 .. 741		09 55 456 36 .. 741	
Please insert digit for flange thread or fitted female screw locks M3 ▶ 15 4-40 UNC ▶ 16 non-removable fitted screw locks M3 ▶ 19 non-removable fitted screw locks 4-40 UNC ▶ 20							

Number of contacts

9–37



SMT stamped solder pins, angled with grounding board locks

Identification

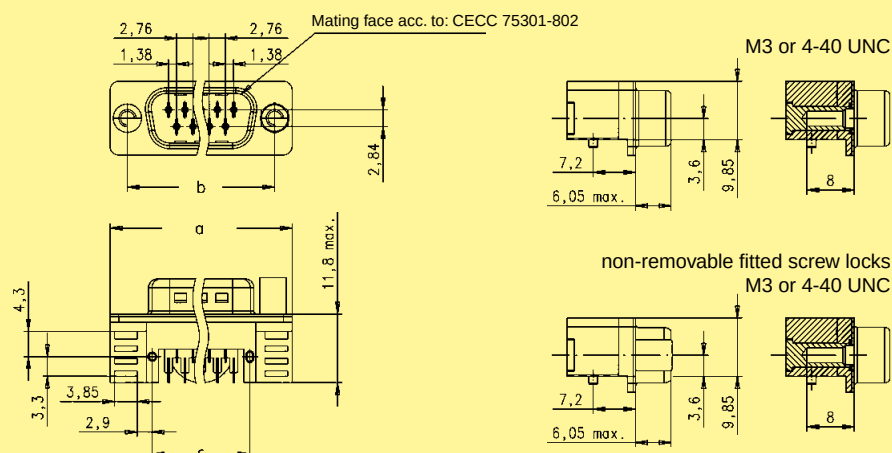
Drawing

Dimensions in mm

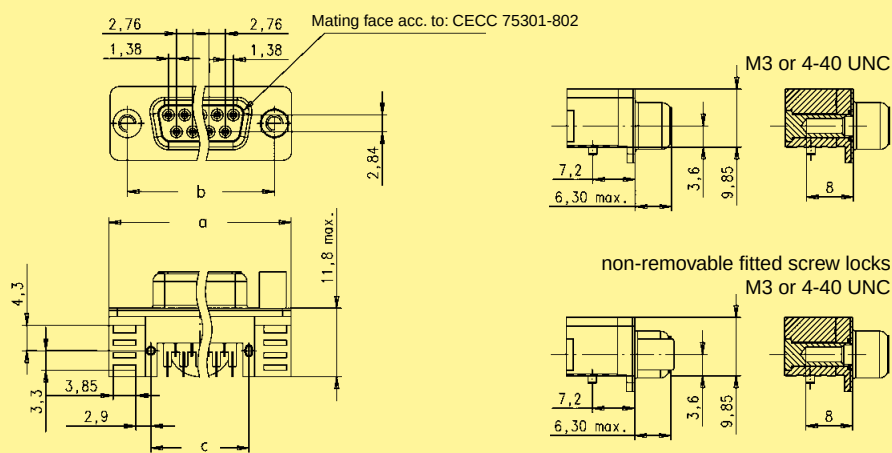
Male connector

M3 or 4-40 UNC

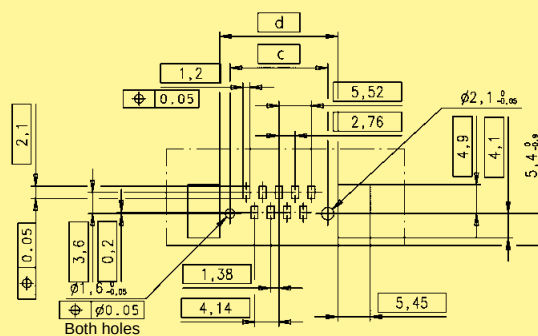
non-removable fitted screw locks M3 or 4-40 UNC



Female connector



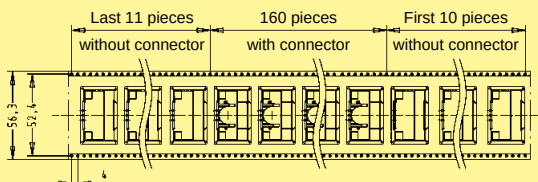
pcb layout



	a	b	c	d
9	31.10	24.99	16.60	20.1
15	39.52	33.32	24.90	28.4
25	53.29	47.04	38.64	42.1
37	69.60	63.50	55.10	58.6

Packaging

(1 reel = 160 pieces)
Reel diameter = 330 mm





Cable assemblies

D-Sub

Identification	Part No.	Drawing	Dimensions in mm
Cable assembly D-Sub HD 78-pole Hood: shielded plastic hood with side entry, screw 4-40 UNC Cable: 39 twisted pairs, AWG 26, double shielded, PVC Wiring: 1:1			
Length: L = 0.5 m	33 56 212 0050 028		
L = 1.0 m	33 56 213 1000 002		
L = 2.0 m	33 56 213 2000 016		
L = 5.0 m	33 56 212 0500 029		
L = 10.0 m	33 56 212 1000 030		
L = 20.0 m	33 56 212 2000 031		
Cable assembly D-Sub HD 44-pole Hood: shielded plastic hood with side entry, screw 4-40 UNC Cable: 22 twisted pairs, AWG 26, double shielded, PVC Wiring: 1:1			
Length: L = 0.5 m	33 56 213 0500 023		
L = 1.0 m	33 56 213 1000 024		
L = 1.5 m	33 56 213 1500 022		
L = 2.0 m	33 56 213 2000 025		
L = 5.0 m	33 56 213 5000 026		
L = 10.0 m	33 56 212 1000 027		
Cable assembly D-Sub HD 44-pole Hood: metal hood with top entry, screw 4-40 UNC Cable: 24 twisted pairs, AWG 26, double shielded, PVC Wiring: 1:1			
Length: L = 0.5 m	33 56 212 0050 032		
L = 1.0 m	33 56 212 0100 033		
L = 5.0 m	33 56 212 0500 034		
L = 10.0 m	33 56 212 1000 035		
L = 20.0 m	33 56 212 2000 036		



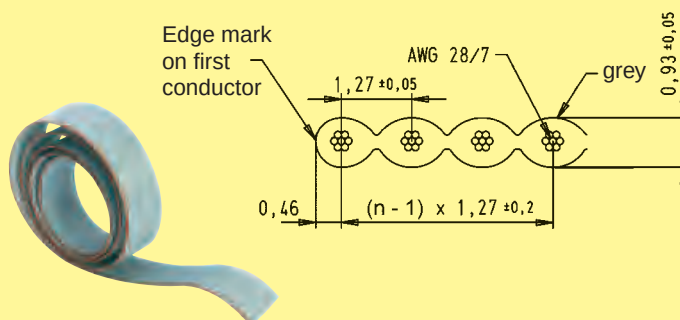
Identification	Part No.	Drawing	Dimensions in mm
Cable assembly D-Sub HD 44-pole Hood: overmoulded with side entry Cable: 24 twisted pairs, solid wires, AWG 26, shielded, halogen free Wiring: 1:1 Length: L = 0.5 m L = 1.0 m L = 2.0 m L = 5.0 m	33 56 224 5000 001 33 56 221 0010 001 33 56 221 0020 001 33 56 221 0050 001		
Cable assembly D-Sub 9-pole Hood: shielded plastic hood with side entry, screw 4-40 UNC Cable: 5 twisted pairs, stranded, AWG 24, shielded, PVC Wiring: 1:1 Length: L = 0.5 m L = 1.0 m L = 1.5 m L = 2.0 m L = 5.0 m	33 66 214 5000 058 33 66 213 1000 059 33 66 213 1500 060 33 66 213 2000 061 33 66 213 5000 062		

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
----------------	-----------------	----------	---------	------------------

Flat cable

grey
UL AWM-style 2651
CSA

9	09 18 009 700	□
15	09 18 015 700	□
25	09 18 025 700	□
37	09 18 037 700	□



Conductor material _____ Copper tinned
Gauge _____ AWG 28/7 0.089 mm²
Voltage rating _____ 300 V_{r.m.s.}
Current rating at 25 °C _____ 2.1 A max.
Capacity unbalanced _____ 45.9 pF/m
Impedance unbalanced _____ 105 Ω
Propagation delay _____ 4.9 ns/m nominal
Insulation material _____ PVC
Temperature rating (operating) _____ -20 °C ... +105 °C
Temperature rating (static) _____ -30 °C ... +105 °C
Flammability rating _____ UL: VW-1
Insulation resistance _____ > 100 MΩ/km

Length per reel

30.48 m
(100 feet)

1

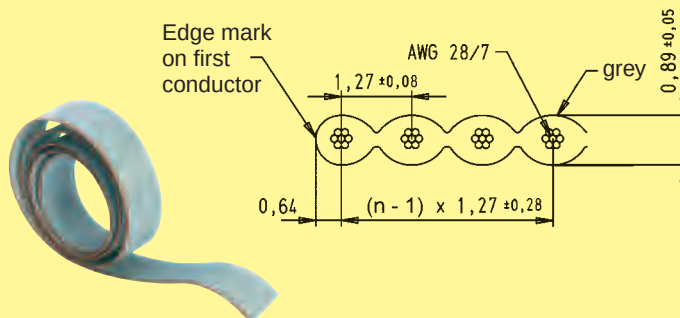
100 m
(328 feet)

4

Flat cable

grey
non-halogenated

9	09 18 009 700	□	900
15	09 18 015 700	□	900
25	09 18 025 700	□	900
37	09 18 037 700	□	900



Conductor material _____ Copper tinned
Gauge _____ AWG 28/7 0.089 mm²
Voltage rating _____ 300 V_{r.m.s.}
Current rating _____ 1.3 A
Capacity unbalanced _____ 42.7 pF/m at 1 MHz
Impedance unbalanced _____ 100 Ω
Inductance _____ 0.56 mH/m
Propagation delay _____ 4.8 ns/m
Insulation material _____ Non-halogenated flame retardant Polyolefin
Temperature rating _____ -40 °C ... +90 °C
Insulation resistance _____ 10000 MΩ/km

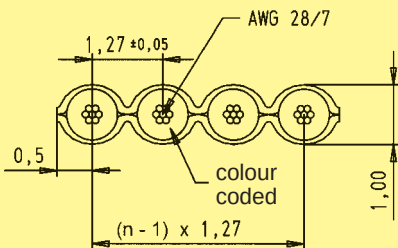
Length per reel

30.48 m
(100 feet)

1

100 m
(328 feet)

4

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
Flat cable colour coded Length per reel 30.48 m (100 feet) UL AWM-style 2651	9 15 25 37	09 18 009 7005 09 18 015 7005 09 18 025 7005 09 18 037 7005	 Colour code sequence (in 10 steps) brown, red, orange, yellow, green, blue, violet, grey, white, black  Conductor material _____ Copper tinned Gauge _____ AWG 28/7 0.09 mm² Voltage rating _____ 300 V_{r.m.s.} Current rating at 25 °C _____ 2.1 A max. Conductor resistance _____ 221 mΩ/m Capacity unbalanced _____ 42.7 pF/m Impedance unbalanced _____ 105 Ω Inductance unbalanced _____ 0.68 μH/m Signal delay _____ 4.9 ns/m Insulation material _____ PVC Temperature rating (operating) _____ -20 °C ... +105 °C Temperature rating (static) _____ -30 °C ... +105 °C Flammability rating _____ UL: VW 1 Insulation resistance _____ 100 MΩ/km	

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
Round flat cable with screening (shielding) UL listed PLCC CL2 CSA certified AWM FT-1	9	09 18 009 70	 ① Flat cable, AWG 28/7 ② Aluminium / Polyester tape (spiral wrap) ③ 85 % minimum coverage tinned copper braid ④ Outer jacket: black PVC	$\varnothing$ max. 6.86 7.62 9.14 10.41
	15	09 18 015 70		
	25	09 18 025 70		
	37	09 18 037 70		
Length per reel				
30.48 m (100 feet)	07			
100 m (328 feet)	10 *			
without screening (shielding) UL listed PLCC CL2 CSA certified AWM FT-1	9	09 18 009 70	 ① Flat cable, AWG 28/7 ② Clear polyester ③ Outer jacket: black PVC	6.35 6.86 8.38 9.65
	15	09 18 015 70		
	25	09 18 025 70		
	37	09 18 037 70		
Length per reel				
30.48 m (100 feet)	08			
100 m (328 feet)	11 *			

Conductor material	Copper tinned
Gauge	AWG 28/7 0.089 mm ²
Voltage rating	300 V _{r.m.s.}
Conductor resistance	225 mΩ/m
Capacity unbalanced	78.7 pF/m
Impedance unbalanced	75 Ω
Signal delay	5.25 ns/m nom.
Insulation material	PVC
Temperature rating	-20 °C ... +105 °C
Flammability rating	UL: VW 1
Insulation resistance	10 ⁴ MΩ/km

* Not normally kept in stock
Important: always store reels vertically

