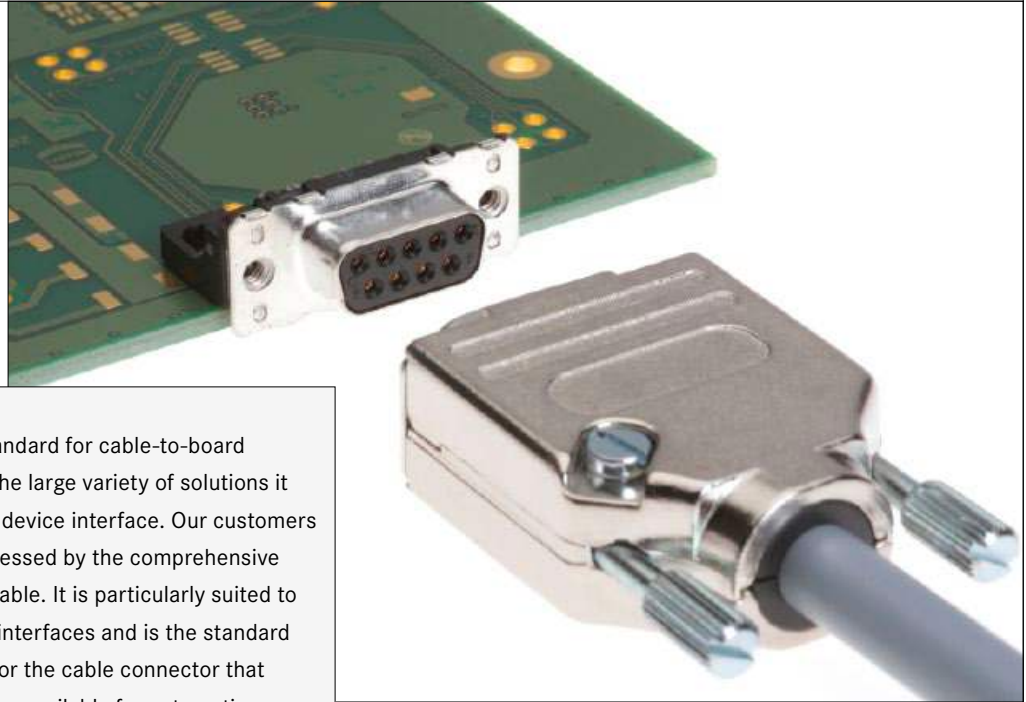


05. Subminiature D Connectors



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	IP20	IP65 / IP67	Data	Signal	Power	high performance			
							Data transfer rate	Shielding	Number of contacts, contact density	Voltage, working current
Cable termination			PCB termination			Application standard				
<i>Han-Quick Lock®</i>	<i>IDC</i>	<i>Crimp</i>	<i>THT</i>	<i>SMC</i>	<i>SMT</i>	 				
<i>Screw</i>	<i>Cage clamp</i>	<i>Axial screw</i>	<i>Press-in</i>							
							Housing integration			
							<i>Separate housing</i>		<i>Integrated housing</i>	

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)	05.38
D-Sub Mixed connectors (D-Sub – M)	05.50
D-Sub Filter connectors (D-Sub – F)	05.90
D-Sub Waterproof IP67 connectors (D-Sub – W)	05.116
D-Sub Housing range (D-Sub – H) and accessories	05.140
D-Sub Standard press-in connectors	05.171
D-Sub Standard SMC connectors	05.176
D-Sub Standard SMT connectors	05.184
Cables for insulation displacement termination and cable assemblies	05.194

05. Subminiature D Connectors



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 IP20 and IP65 / 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 Subminiature 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, IP65 / IP67 etc.

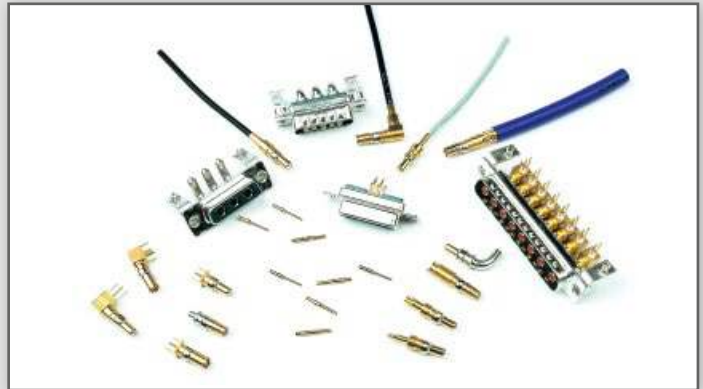
For the cabling HARTING provides cable assemblies for standard applications like fieldbus, cable or customized solutions.

D-Sub



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

IP65 / IP67 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 plated according to performance level¹⁾

Metal shell Plated steel

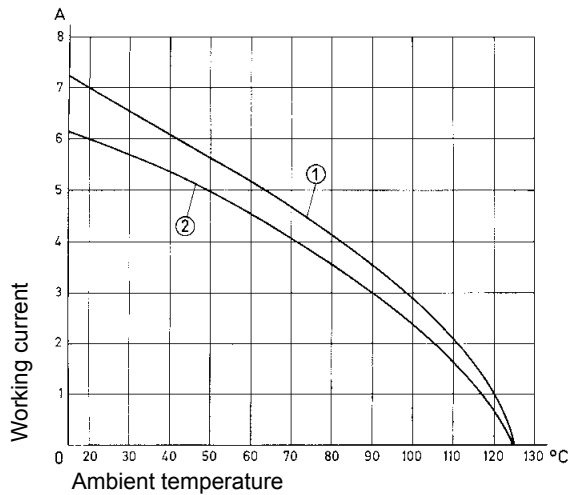
Insertion and withdrawal force
Connector on P.C.B.
Solder, straight with clips
– insertion max. per connector: 60 N
– withdrawal min. per connector: 10 N

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.

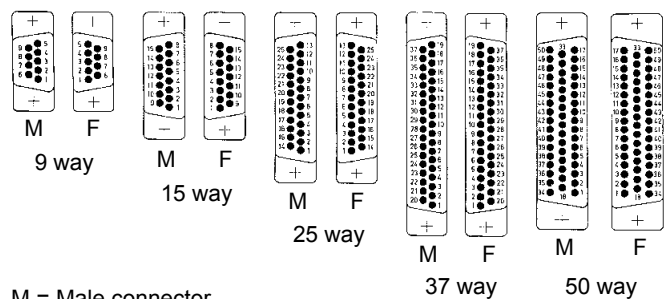
Control and test procedures according to DIN IEC 60 512.



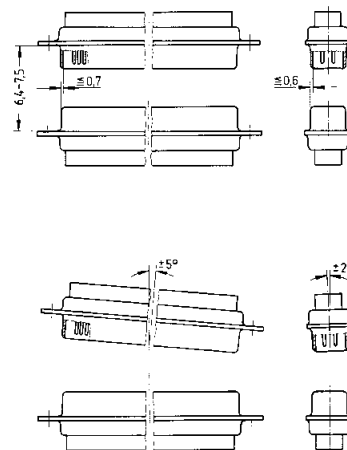
Example: 25 way connector

- ① Turned contacts
- ② Stamped contacts

Contact arrangement View from termination side



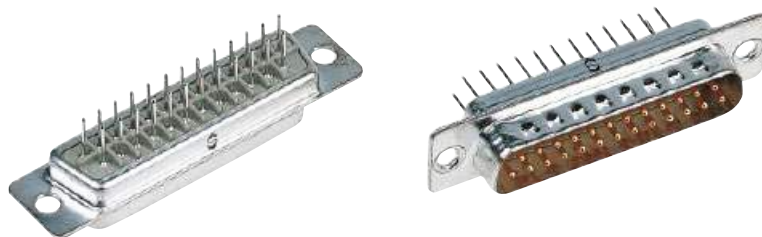
Mating conditions as per DIN 41 652



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

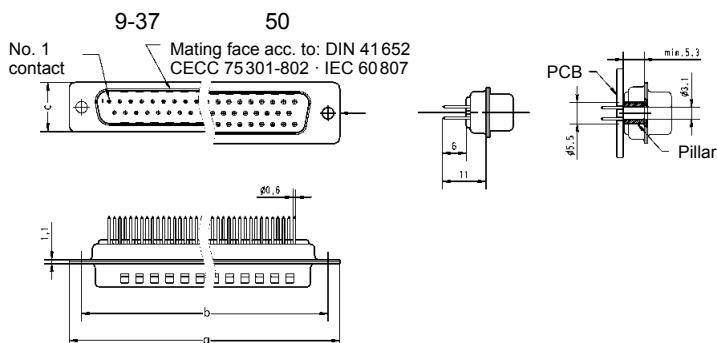
9-50



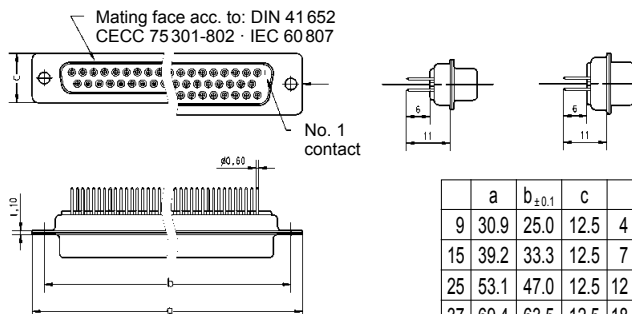
Turned solder pins, straight

Identification	No. of contacts	Part number	
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⁾	09 67 009 5655 09 67 015 5655 09 67 025 5655 09 67 037 5655 09 67 050 5655 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⁾	09 67 009 4755 09 67 015 4755 09 67 025 4755 09 67 037 4755 09 67 050 4755 ¹⁾

Male connector

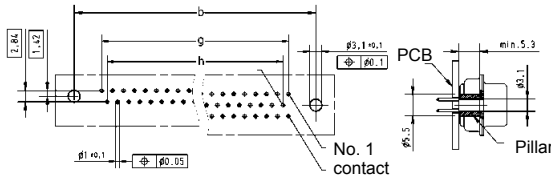


Female connector



	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
50	67.0	61.1	15.4	16 x 2.76 = 44.16	15 x 2.76 = 41.40

Board drillings



Dimensions in mm

¹⁾ Not normally kept in stock

Mating conditions see page 05.04

Number of contacts

9-50

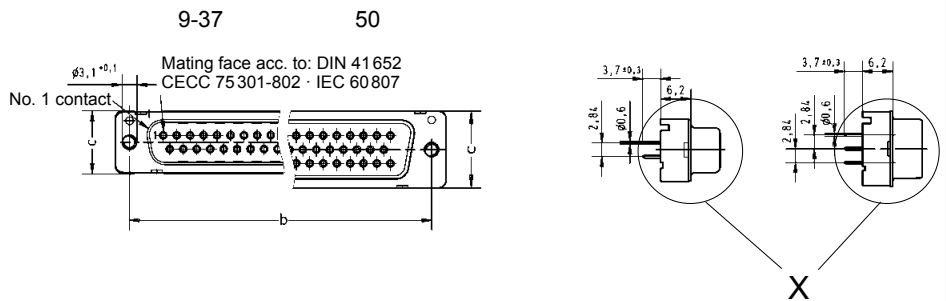


Turned solder pins, straight without grounding-pins

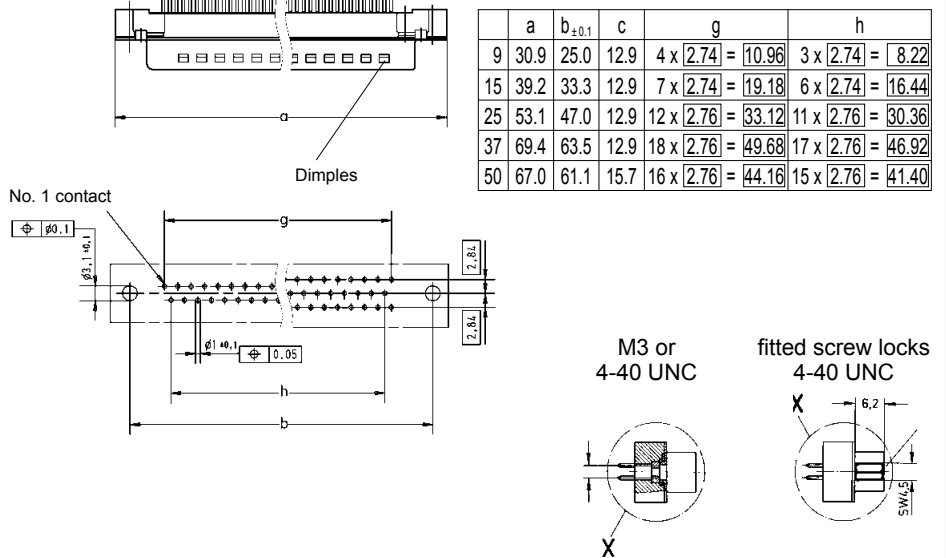
Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples available on request	9	09 66 121 770 .	09 66 121 670 .
	15	09 66 221 770 .	09 66 221 670 .
	25	09 66 321 770 .	09 66 321 670 .
	37	09 66 421 770 .	09 66 421 670 .
	50	09 66 521 770 .	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		

D-Sub

Male connector

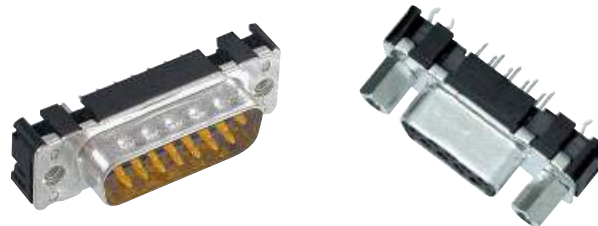


Board drillings



Number of contacts

9–50



Stamped solder pins, straight with/without grounding board locks

Identification	No. of contacts	Part number	
		Performance level 3	Performance level 2
Performance levels Explanations see page 05.04 Other performance levels on request			
Male connector metal shell with dimples			
Without grounding board locks	9 15 25 37	09 65 121 770 . 09 65 221 770 . 09 65 321 770 . 09 65 421 770 .	09 65 121 670 . 09 65 221 670 . 09 65 321 670 . 09 65 421 670 .
With grounding board locks	9 15 25 37	09 65 161 771 . 09 65 261 771 . 09 65 361 771 . 09 65 461 771 .	09 65 161 671 . 09 65 261 671 . 09 65 361 671 . 09 65 461 671 .
Female connector metal shell			
Without grounding board locks	9 15 25 37 50	09 66 111 750 . 09 66 211 750 . 09 66 311 750 . 09 66 411 750 . 09 66 511 750 .	09 66 111 650 . 09 66 211 650 . 09 66 311 650 . 09 66 411 650 . 09 66 511 650 .
With grounding board locks	9 15 25 37	09 66 151 751 . 09 66 251 751 . 09 66 351 751 . 09 66 451 751 .	09 66 151 651 . 09 66 251 651 . 09 66 351 651 . 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⁾			

D-Sub

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



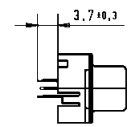
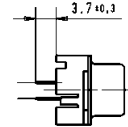
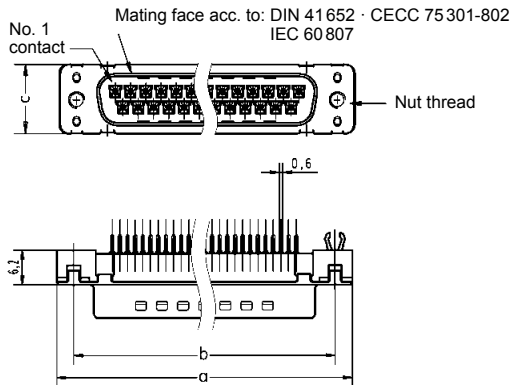
Stamped solder pins, straight with/without grounding board locks

Identification

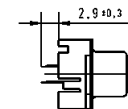
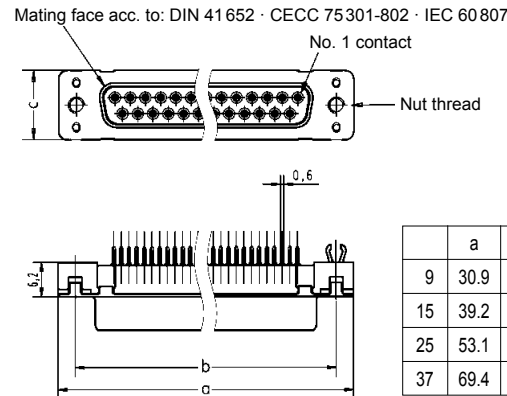
Drawing

Dimensions in mm

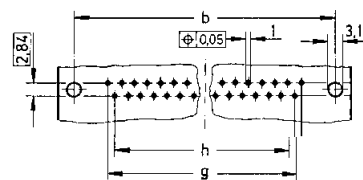
Male connector
9 – 37 contacts



Female connector
9 – 37 contacts

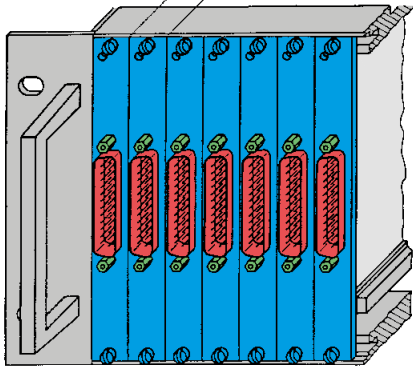


Board drillings
9 – 37 contacts

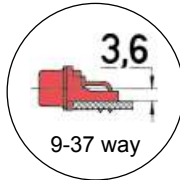


D-Sub

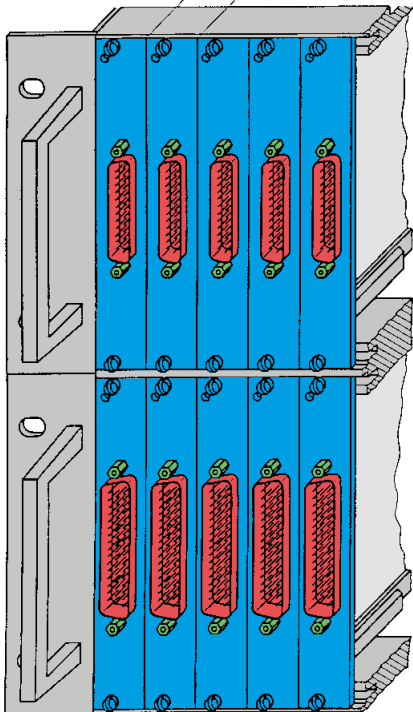
Front panel width 3 TE
3 x 5.08 mm



Low-Profile Versions
pages 05.18 – 05.21

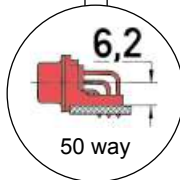
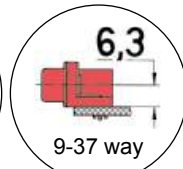
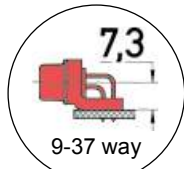


Front panel width 4 TE
4 x 5.08 mm

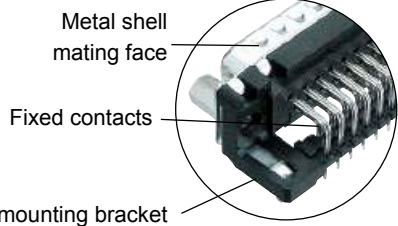
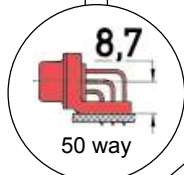
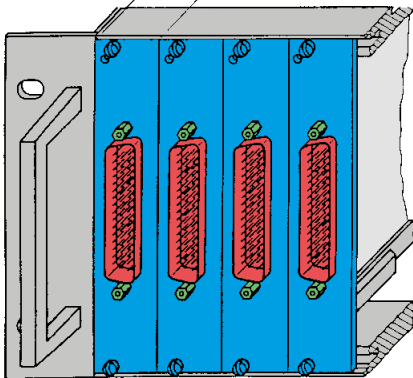


Standard Versions
pages 05.12 – 05.17

U.S. Footprint Versions
pages 05.22 – 05.23



Front panel width 5 TE
5 x 5.08 mm



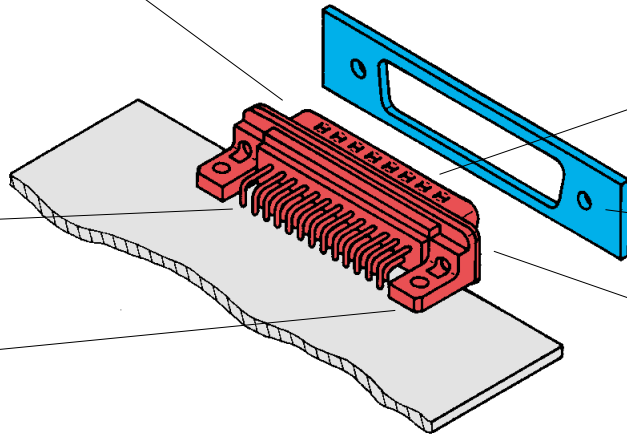
Advantages

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



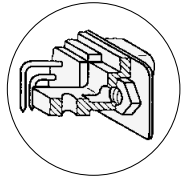
Contact surface finish to different performance levels

Panel

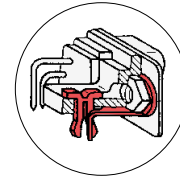
Different metal threads possible in flange area

- 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

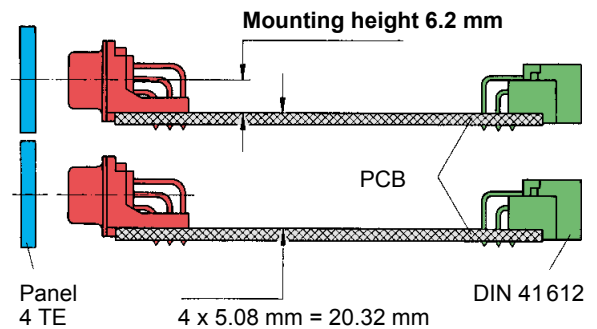
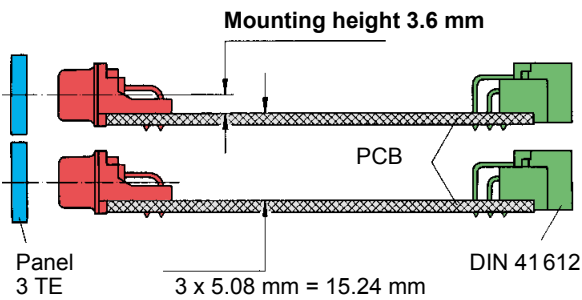
Low-Profile Versions

The reduced mounting height of these connectors allow them to be used on the same PCB as DIN 41612

types with no loss of packaging density when card frames to DIN 41494 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.

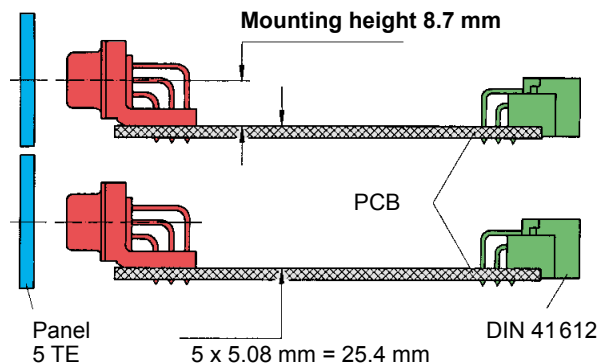
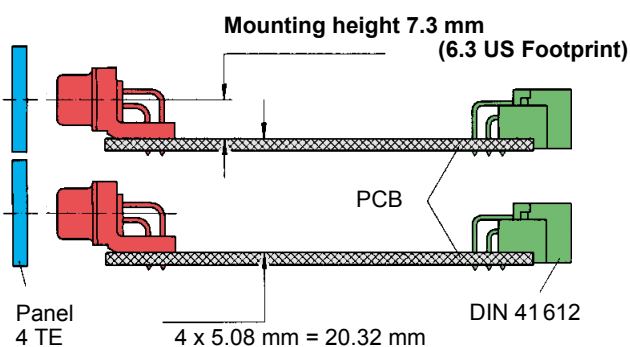
50 way connectors with 6.2 mm mounting height can be fitted to front panels of 4 TE (20.32 mm) width.



Standard Versions US Footprint

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

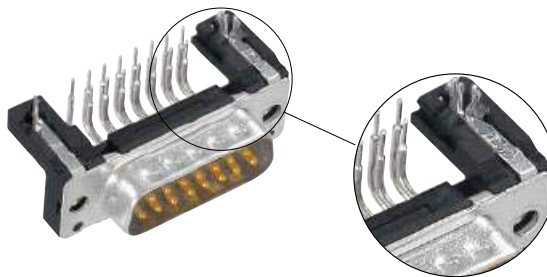
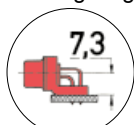
50 way connectors with 8.7 mm mounting height can be fitted to front panels of 5 TE (25.4 mm) width.



Number of contacts

Mounting height

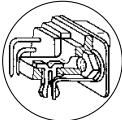
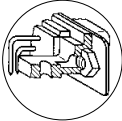
9–37
50



Standard Versions



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

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples With snap-in clips and grounding board locks 	9 15 25 37 50	2.84 mm pitch 09 66 163 781 . 09 66 263 781 . 09 66 363 781 . 09 66 463 781 . 09 66 563 781 . 2.54 mm pitch 09 66 162 781 . 09 66 262 781 . 09 66 362 781 . 09 66 462 781 . 09 66 562 781 .	2.84 mm pitch 09 66 163 681 . 09 66 263 681 . 09 66 363 681 . 09 66 463 681 . 09 66 563 681 . 2.54 mm pitch 09 66 162 681 . 09 66 262 681 . 09 66 362 681 . 09 66 462 681 . 09 66 562 681 .
Without snap-in clips and grounding board locks 	9 15 25 37 50	2.84 mm pitch 09 66 123 780 . 09 66 223 780 . 09 66 323 780 . 09 66 423 780 . 09 66 523 780 . 2.54 mm pitch 09 66 122 780 . 09 66 222 780 . 09 66 322 780 . 09 66 422 780 . 09 66 522 780 .	2.84 mm pitch 09 66 123 680 . 09 66 223 680 . 09 66 323 680 . 09 66 423 680 . 09 66 523 680 . 2.54 mm pitch 09 66 122 680 . 09 66 222 680 . 09 66 322 680 . 09 66 422 680 . 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			

D-Sub

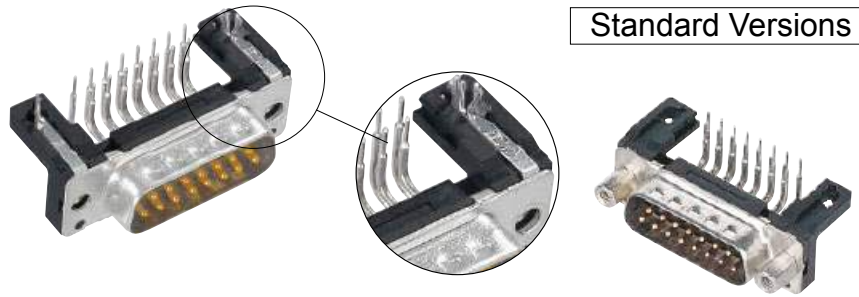
available on request

available on request

Number of contacts

9-37
50

Mounting height



Standard Versions

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

Identification

Drawing

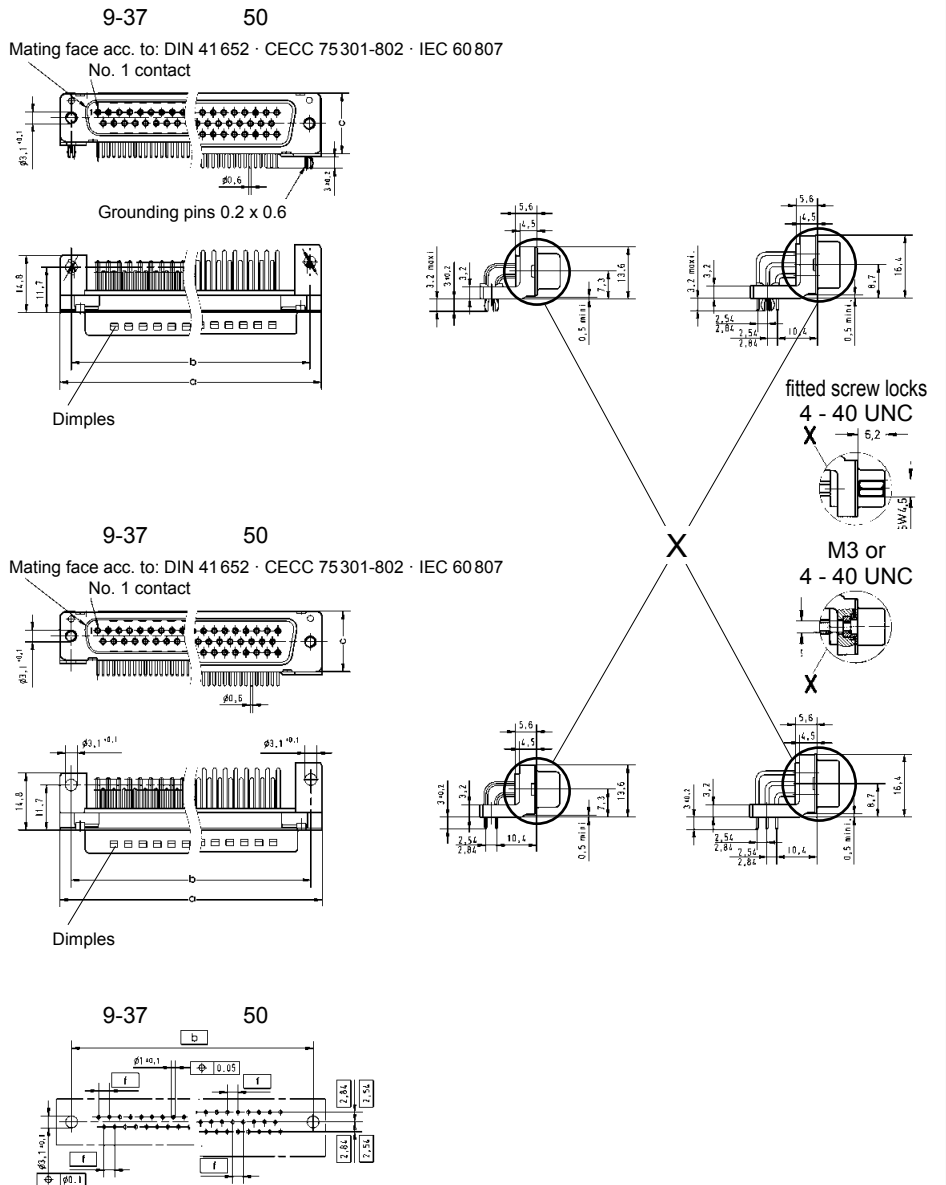
Dimensions in mm

Male connector

With snap-in clips and grounding board locks

Without snap-in clips and grounding board locks

Board drillings



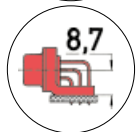
	a	b \pm 0.1	c	f
9	30.90	25.00	12.90	2.74
15	39.20	33.30	12.90	2.74
25	53.10	47.00	12.90	2.76
37	69.40	63.50	12.90	2.76
50	67.00	61.10	15.70	2.76

D-Sub

Number of contacts

Mounting height

9–37
50



Standard Versions

Stamped solder pins, angled with grounding board locks

Identification	No. of contacts	Part number		
		Performance level 3	Performance level 2	
Performance levels Explanations see page 05.04 Other performance levels on request				
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			

D-Sub

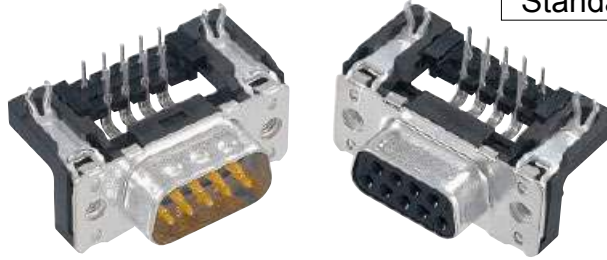
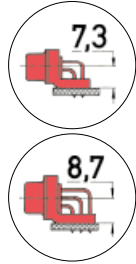
¹⁾ Not normally kept in stock

Number of contacts

Mounting height

Standard Versions

9-37
50



Stamped solder pins, angled with grounding board locks

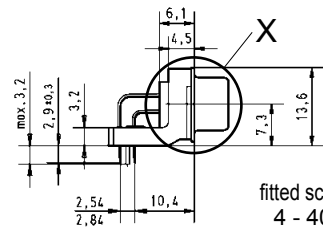
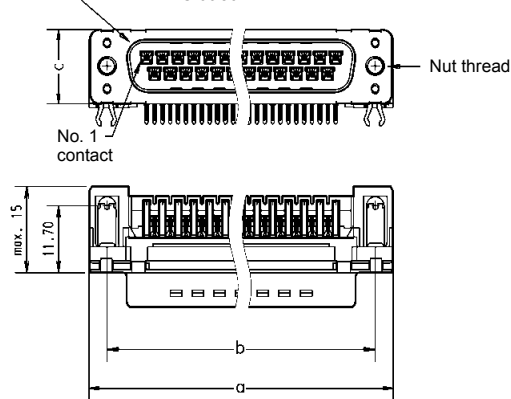
Identification

Drawing

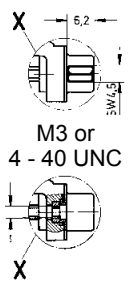
Dimensions in mm

Male connector

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

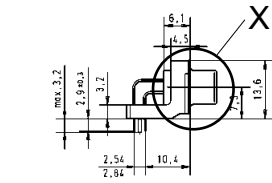
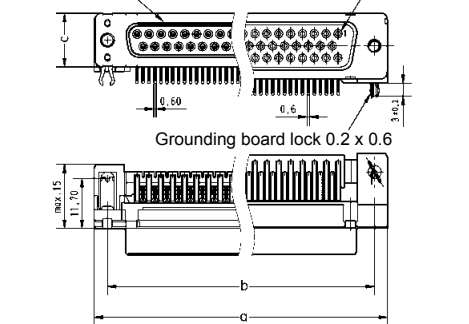


fitted screw locks
4 - 40 UNC

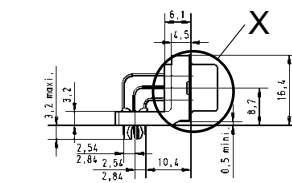


Female connector

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

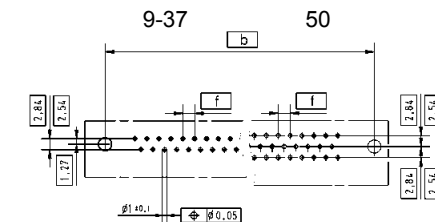


9-37



50

Board drillings



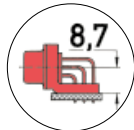
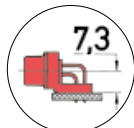
	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.40	2.76

Number of contacts

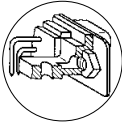
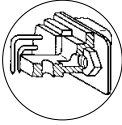
Mounting height

Standard Versions

9-37
50



Stamped solder pins, angled without grounding board locks

Identification	No. of contacts	Part number	
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	2.84 mm pitch 09 65 123 780 . 1) 09 65 223 780 . 1) 09 65 323 780 . 1) 09 65 423 780 . 1)	2.84 mm pitch 09 65 123 680 . 1) 09 65 223 680 . 1) 09 65 323 680 . 1) 09 65 423 680 . 1)
		2.54 mm pitch 09 65 122 780 . 09 65 222 780 . 09 65 322 780 . 09 65 422 780 .	2.54 mm pitch 09 65 122 680 . 09 65 222 680 . 09 65 322 680 . 09 65 422 680 .
Female connector metal shell 	9 15 25 37	2.84 mm pitch 09 66 113 760 . 1) 09 66 213 760 . 1) 09 66 313 760 . 1) 09 66 413 760 . 1)	2.84 mm pitch 09 66 113 660 . 1) 09 66 213 660 . 1) 09 66 313 660 . 1) 09 66 413 660 . 1)
		2.54 mm pitch 09 66 112 760 . 09 66 212 760 . 09 66 312 760 . 09 66 412 760 . 09 66 512 760 . 1)	2.54 mm pitch 09 66 112 660 . 09 66 212 660 . 09 66 312 660 . 09 66 412 660 . 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			

D-Sub

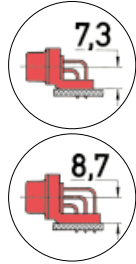
¹⁾ Not normally kept in stock

Number of contacts

Mounting height

Standard Versions

9-37
50



Stamped solder pins, angled without grounding board locks

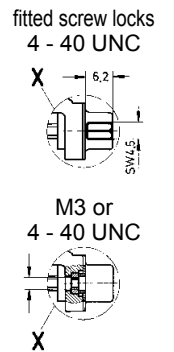
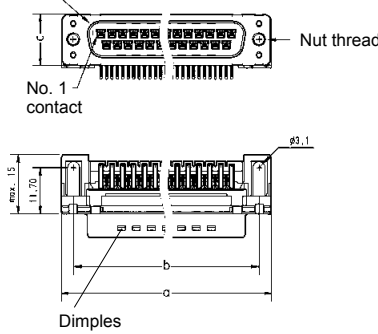
Identification

Drawing

Dimensions in mm

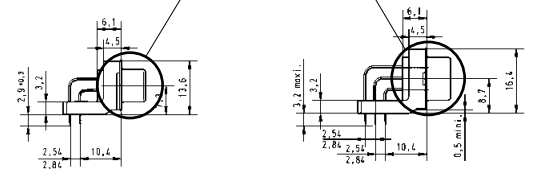
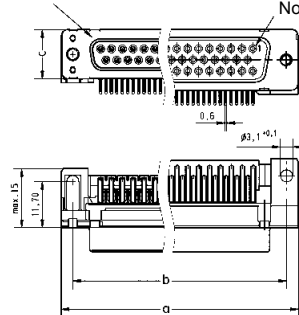
Male connector

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

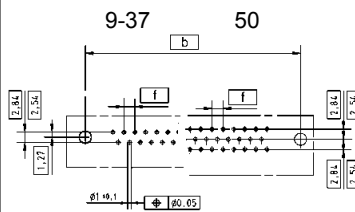


Female connector

9-37 50
Mating face acc. to: DIN 41652 · CECC 75301-802 · IEC 60807



Board drillings



	a	b \pm 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

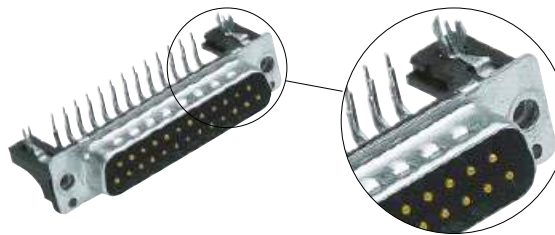
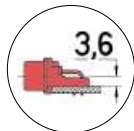
D-Sub

Number of contacts

Mounting height

Low-Profile Versions

9–37
50



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

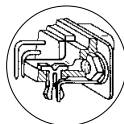
Identification	No. of contacts	Part number	
----------------	-----------------	-------------	--

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

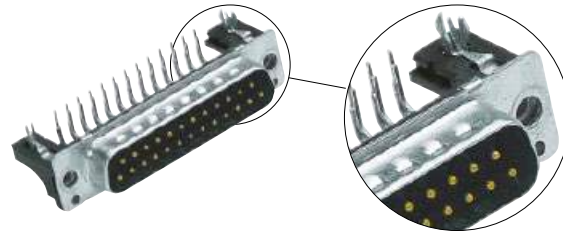
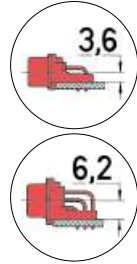
- M3 ▶ 5
- 4-40 UNC ▶ 6
- fitted screw locks 4-40 UNC ▶ 7

Number of contacts

Mounting height

Low-Profile Versions

9-37
50



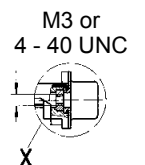
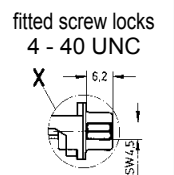
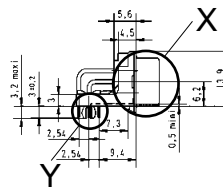
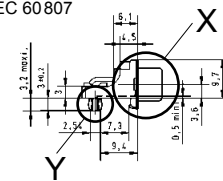
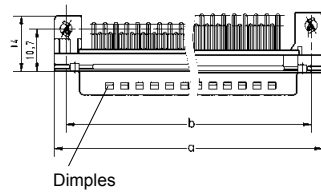
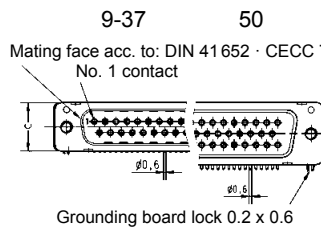
Turned solder pins, angled with snap-in-clips and grounding board locks

Identification

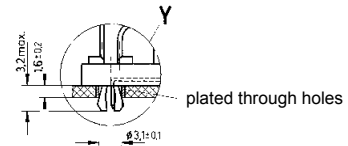
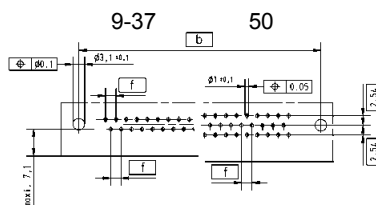
Drawing

Dimensions in mm

Male connector



Board drillings

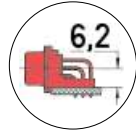
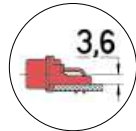


	a	b ± 0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.70	2.76

Number of contacts

Mounting height

9–37
50



Low-Profile Versions

Stamped solder pins, angled with grounding board locks

Identification	No. of contacts	Part number	
		Performance level 3	Performance level 2
Performance levels Explanations see page 05.04 Other contact surfaces on request			
Male connector metal shell with dimples	9 15 25 37	09 65 162 781 . 09 65 262 781 . 09 65 362 781 . 09 65 462 781 .	09 65 162 681 . 09 65 262 681 . 09 65 362 681 . 09 65 462 681 .
Female connector metal shell	9 15 25 37 50	09 66 152 761 . 09 66 252 761 . 09 66 352 761 . 09 66 452 761 . 09 66 552 761 . ¹⁾	09 66 152 661 . 09 66 252 661 . 09 66 352 661 . 09 66 452 661 . 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			

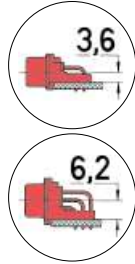
D-Sub

¹⁾ Not normally kept in stock

Number of contacts

Mounting height

9-37
50



Low-Profile Versions

Stamped solder pins, angled with grounding board locks

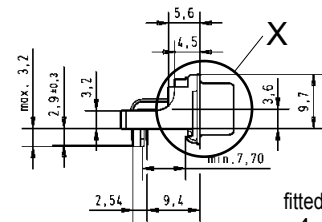
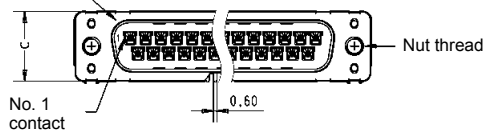
Identification

Drawing

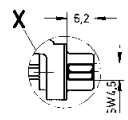
Dimensions in mm

Male connector

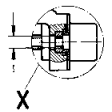
Mating face acc. to: DIN 41652 · CECC 75301-802
IEC 60807



fitted screw locks
4 - 40 UNC



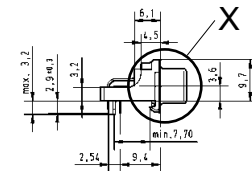
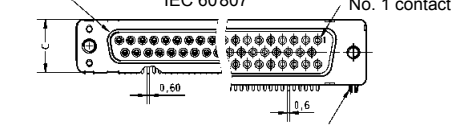
M3 or
4 - 40 UNC



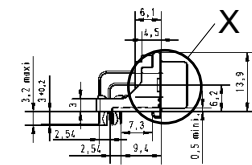
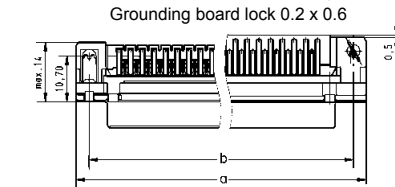
Female connector

9-37 50

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



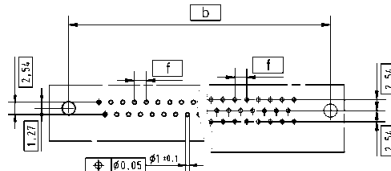
9-37



50

Board drillings

9-37 50



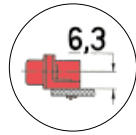
	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.40	2.76

U.S. Footprint

Number of contacts

Mounting height

9-37



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

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	
		S4 ¹⁾	
Male connector metal shell with dimples	9 15 25 37	2.84 mm pitch 09 68 163 781 . 09 68 263 781 . 09 68 363 781 . 09 68 463 781 .	2.84 mm pitch 09 68 163 581 . 09 68 263 581 . 09 68 363 581 . 09 68 463 581 .
Female connector metal shell	9 15 25 37	2.84 mm pitch 09 68 153 761 . 09 68 253 761 . 09 68 353 761 . 09 68 453 761 .	2.84 mm pitch 09 68 153 561 . 09 68 253 561 . 09 68 353 561 . 09 68 453 561 .
Please insert digit for flange thread or fitted female screw locks M3 ▶ ¹²⁾ 1 4-40 UNC ▶ 2 fitted screw locks 4-40 UNC ▶ 3			

D-Sub

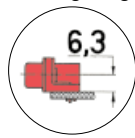
¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

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

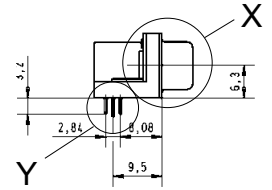
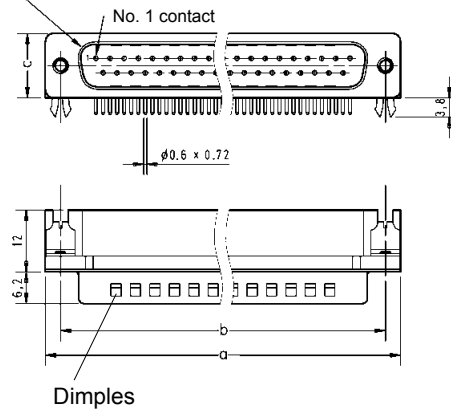
Identification

Drawing

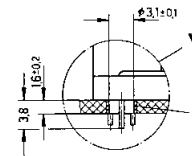
Dimensions in mm

Male connector

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

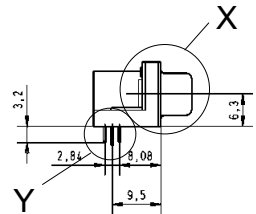
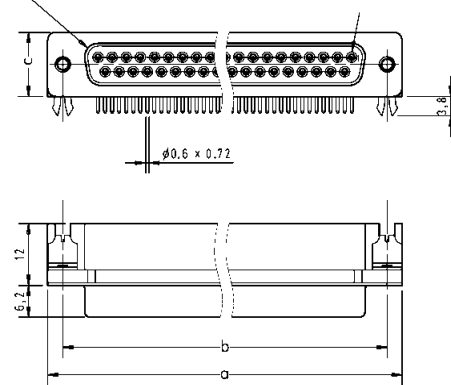


plated through holes

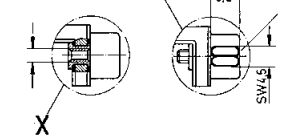


Female connector

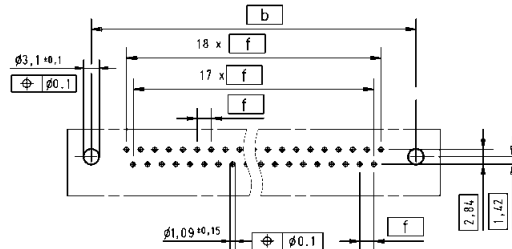
Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807



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

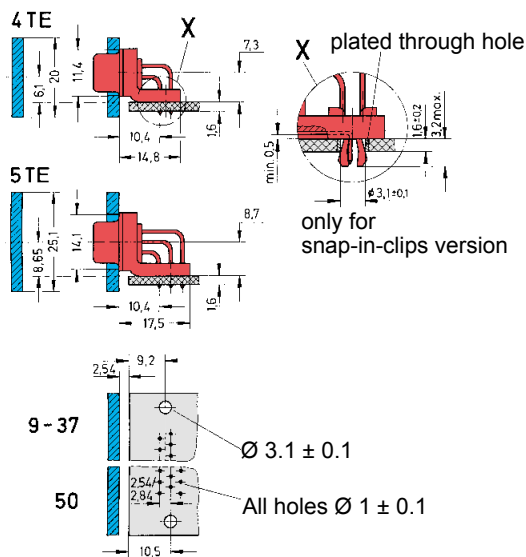
Drawing

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)

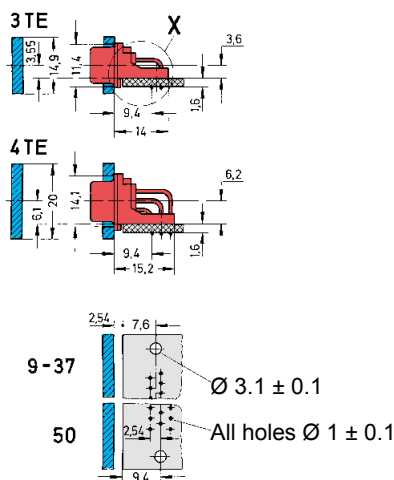


for connectors see pages 05.12 – 05.17

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)



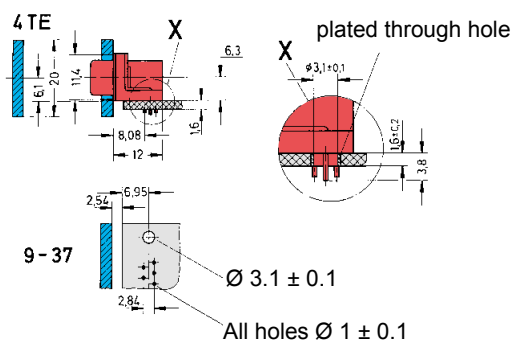
When used in a wave soldering process the mating face of the connector must be protected with adhesive tape.



for connectors see pages 05.18 – 05.21

U.S. Footprint Versions

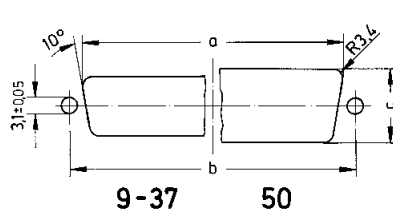
Mounting height 6.3 mm
9-37 way
for front panel
4 units of width (TE)



for connectors see pages 05.22 – 05.23

Panel cut out for front/rear mount

Values are taken from the CECC 75301-802



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, 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.
Insulation displacement 2 A max.

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

Clearance and creepage ≥ 1.0 mm
 ≥ 0.7 mm (insulation displacement)

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

Temperature range
turned version -55 °C ... + 125 °C
stamped solder bucket version -40 °C ... + 85 °C

Terminations

- a) Solder buckets
AWG 20
- b) Stamped crimp contacts
AWG 28-24
0.09-0.25 mm²
max. insulation \varnothing 1.02 mm
AWG 24-20
0.25-0.56 mm²
max. insulation \varnothing 1.52 mm
- c) Turned crimp contacts
AWG 22-18
0.33-0.82 mm²
AWG 24-20
0.25-0.52 mm²
AWG 26-22
0.13-0.33 mm²
AWG 28-24
0.09-0.25 mm²
max. insulation \varnothing 2.15 mm
- d) Insulation displacement
AWG 28/7 and AWG 26/7

Materials

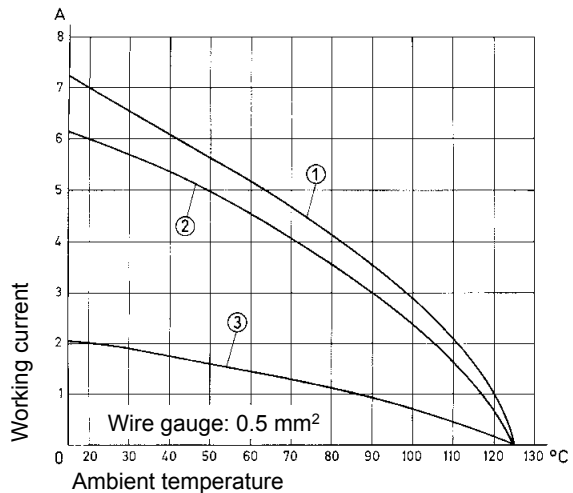
- Mouldings and hoods Thermoplastic resin, glass-fibre filled (PBTP), UL 94-V0
- Contacts Copper alloy
- Contact surface
Contact zone selectively plated according to performance level¹⁾
- Metal shell Plated steel

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

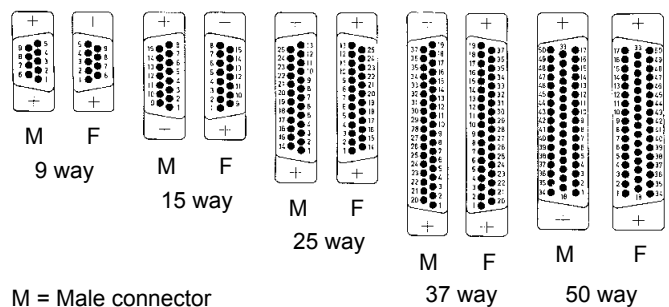
The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals. The current capacity-curve is valid for continuous, not interrupted current-loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature. Control and test procedures according to DIN IEC 60512.



Example: 25 way connector

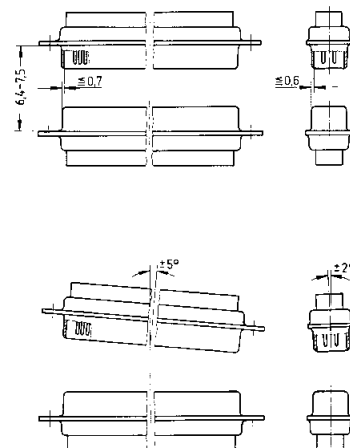
- ① Turned contacts
- ② Stamped contacts
- ③ Insulation displacement contacts

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 41652



¹⁾ Performance level 3, 50 mating cycles, no gas test
Performance level 2 as per CECC 75301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60512
Performance level 1 as per CECC 75301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60512

Number of contacts

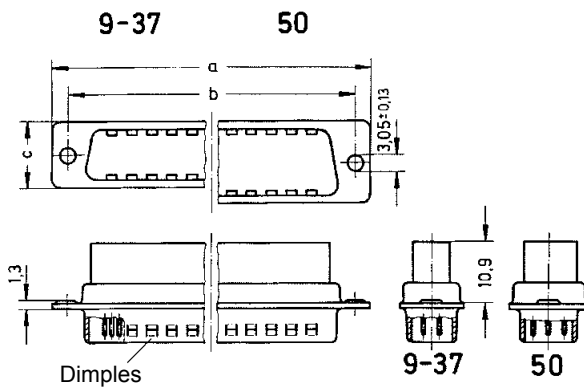
9-50



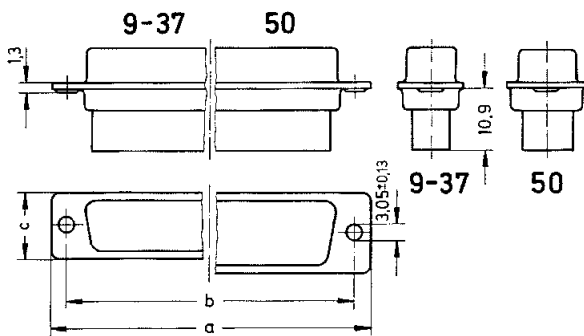
Crimp terminal

Identification	No. of contacts	Part number
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 mount
Values are taken from the
CECC 75301-802

see page 05.24

Dimensions in mm

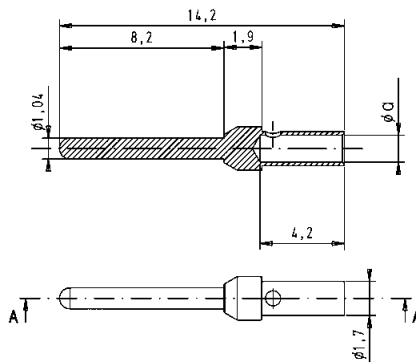


Turned crimp contacts

Identification	Wire gauge (mm ²)	Part number		
		Male contacts	Female contacts	High-end female contacts
		Performance level 1*	Performance level 1*	Performance level 1*
Individual contacts ¹⁾	AWG 22-18 0.33-0.82	09 67 000 3576	09 67 000 3476	09 67 000 3676
	AWG 24-20 0.25-0.52	09 67 000 8576	09 67 000 8476	09 67 000 8676
	AWG 26-22 0.13-0.33	09 67 000 5576	09 67 000 5476	09 67 000 5676
	AWG 28-24 0.09-0.25	09 67 000 7576	09 67 000 7476	09 67 000 7676

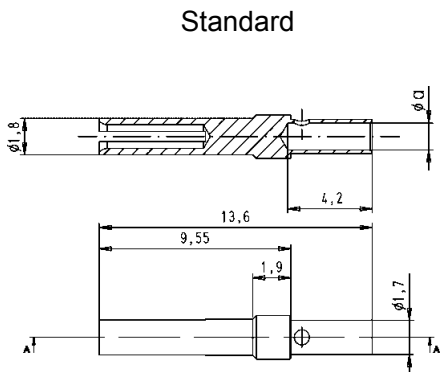
¹⁾ Minimum order 100 pieces or multiples of 100

Male contacts

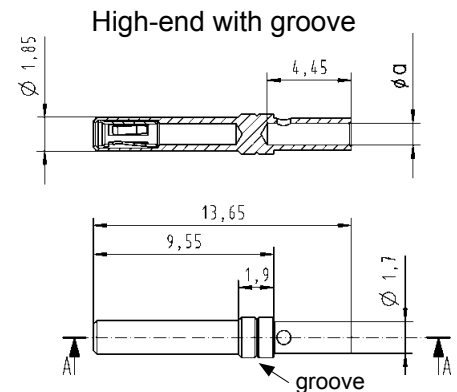


	a	groove
AWG 22-18	1.34	none
AWG 24-20	1.13	1
AWG 26-22	0.88	2
AWG 28-24	0.64	3

Female contacts



Standard



High-end with groove

D-Sub

* Performance level 1 as per CECC 75 301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60512
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

Stamped crimp contacts



Identification	Wire gauge (mm ²)	Part number		
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D-Sub

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 500 pieces/reel Unrolling left 10 000 pieces/reel Unrolling left Unrolling left reversed Unrolling right reversed	AWG 28-24 0.09-0.25 stranded	09 67 000 7177 ¹⁾ 09 67 000 7167 09 67 000 7157 09 67 000 7147 09 67 000 7137	09 67 000 7178 ¹⁾ 09 67 000 7168 09 67 000 7158 09 67 000 7148 09 67 000 7138	09 67 000 7176 ¹⁾ 09 67 000 7166 09 67 000 7156 09 67 000 7146 09 67 000 7136
---	--	--	--	--

Individual contacts 500 pieces/reel Unrolling left 10 000 pieces/reel Unrolling left Unrolling left reversed Unrolling right reversed	AWG 24-20 0.25-0.56 stranded	09 67 000 8177 ¹⁾ 09 67 000 8167 09 67 000 8157 09 67 000 8147 09 67 000 8137	09 67 000 8178 ¹⁾ 09 67 000 8168 09 67 000 8158 09 67 000 8148 09 67 000 8138	09 67 000 8176 ¹⁾ 09 67 000 8166 09 67 000 8156 09 67 000 8146 09 67 000 8136
---	--	--	--	--

Unrolling direction	<p>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</p> <p>for HARTING tools</p>
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¹⁾ Minimum order 500 pieces or multiples of 500
 Insertion and removal tool see chapter 20
 Contact dimensions see page 05.29

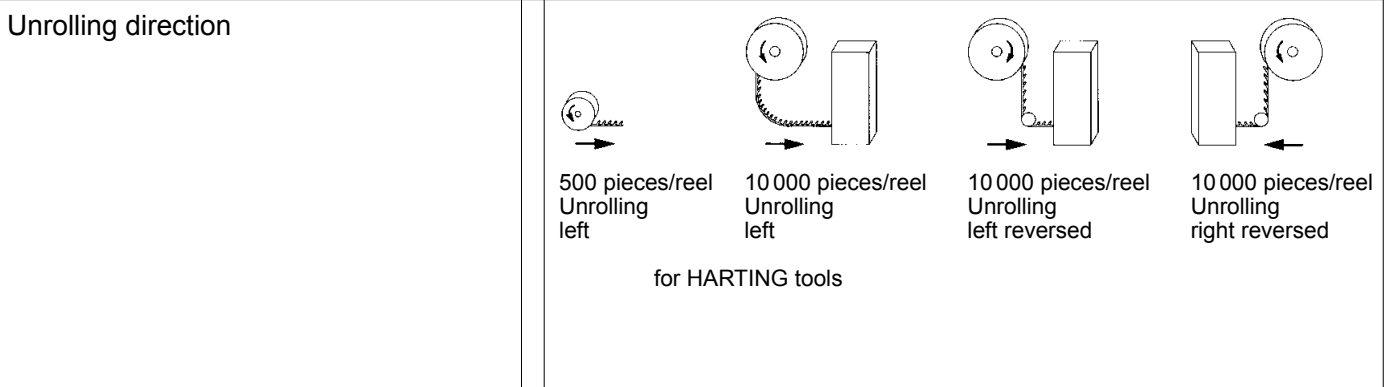
Stamped crimp contacts



Identification	Wire gauge (mm ²)	Part number		
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D-Sub

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	AWG 24-20 0.25-0.56 stranded	09 67 000 8277 ¹⁾	09 67 000 8278 ¹⁾	09 67 000 8276 ¹⁾
500 pieces/reel Unrolling left		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



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

Stamped crimp contacts

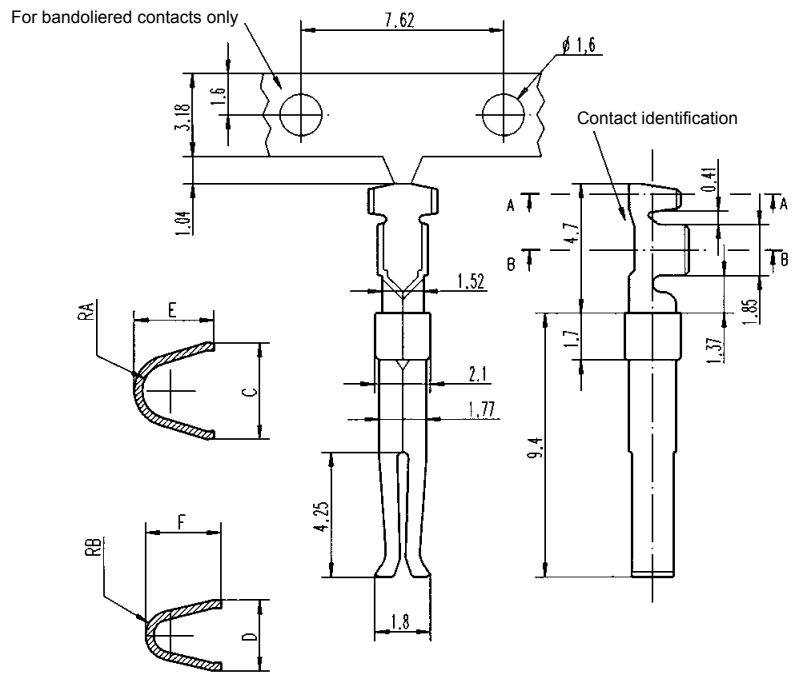


Identification

Drawing

Dimensions in mm

Female contacts

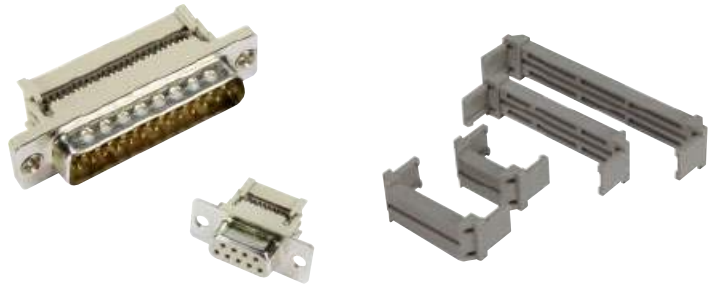


AWG	C	D	E	F	RA	RB	Contact identification
20-24	2.46	1.78	1.98	1.90	0.71	0.43	—
24-28	1.65	1.47	1.52	1.52	0.50	0.33	===

D-Sub

Number of contacts

9–37



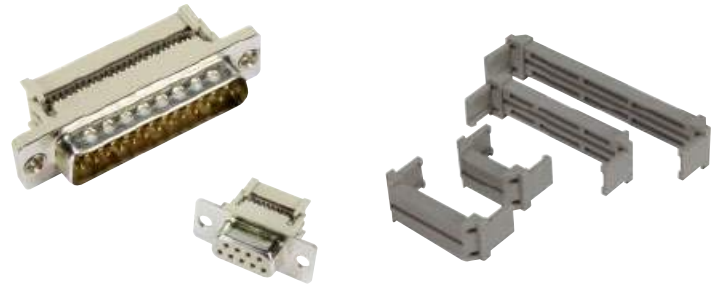
Insulation displacement termination

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
Male connector²⁾ pitch 1.27 mm metal shell with dimples	9	09 66 128 770 .	09 66 128 670 .
	15	09 66 228 770 .	09 66 228 670 .
	25	09 66 328 770 .	09 66 328 670 .
	37	09 66 428 770 .	09 66 428 670 .
Female connector pitch 1.27 mm metal shell	9	09 66 118 750 .	09 66 118 650 .
	15	09 66 218 750 .	09 66 218 650 .
	25	09 66 318 750 .	09 66 318 650 .
	37	09 66 418 750 .	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	09 66 108 0001	09 66 108 0001
	15	09 66 208 0001	09 66 208 0001
	25	09 66 308 0001	09 66 308 0001
	37	09 66 408 0001	09 66 408 0001

1) Not normally kept in stock
 2) Not released for halogen free flat cables

Number of contacts

9-37



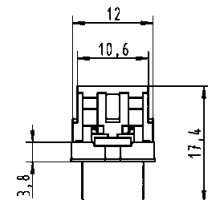
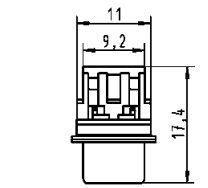
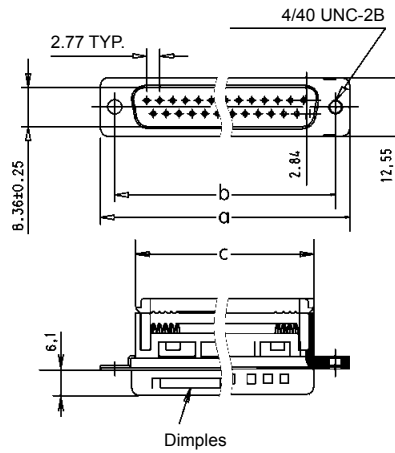
Insulation displacement termination

Identification

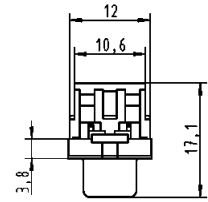
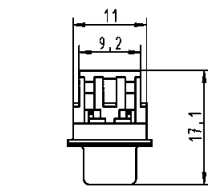
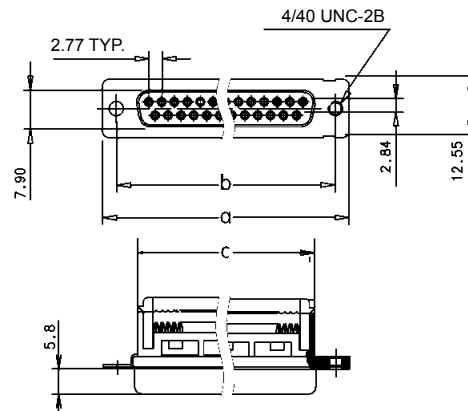
Drawing

Dimensions in mm

Male connector



Female connector



Male and female connectors

	a	b \pm 0.1	c
9	30.8	24.99	16.5
15	39.2	33.32	24.3
25	53.1	47.04	38.1
37	69.4	63.50	54.9

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

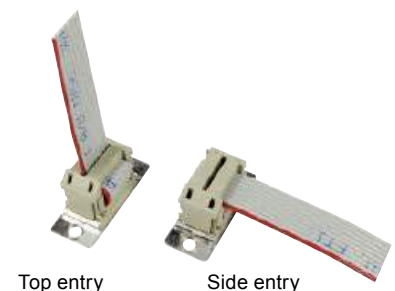
Strain relief clamps



Panel cut out
for front/rear mount

Values are taken from the
CECC 75301-802

see page 05.24



Top entry


Side entry

Number of contacts

9–50



Solder buckets

Identification	No. of contacts	Part number	
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	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
37	09 67 237 5604	09 67 237 5615	
50	09 67 250 5604	09 67 250 5615	
Female connector metal shell		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	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	09 67 250 4715	

Number of contacts

9-50



Solder buckets

Identification

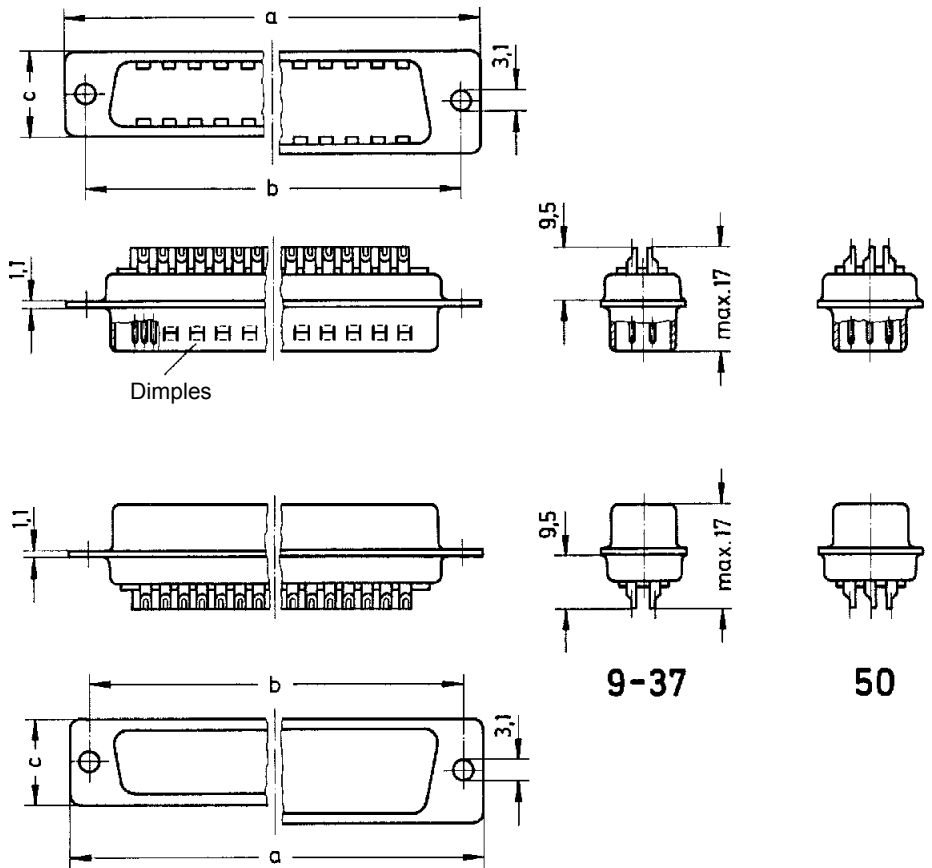
Drawing

Dimensions in mm

Male connector

9-37

50



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 mount

Values are taken from the
CECC 75301-802

see page 05.24

Number of contacts

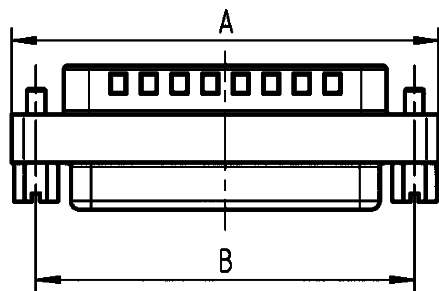
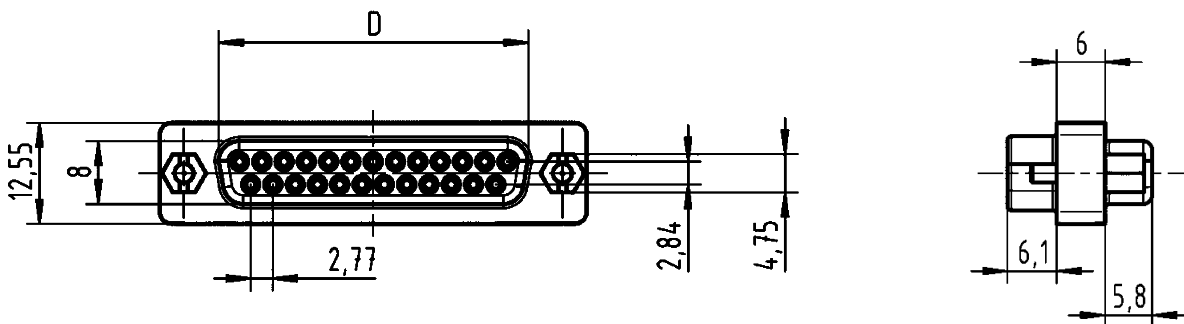
9-37



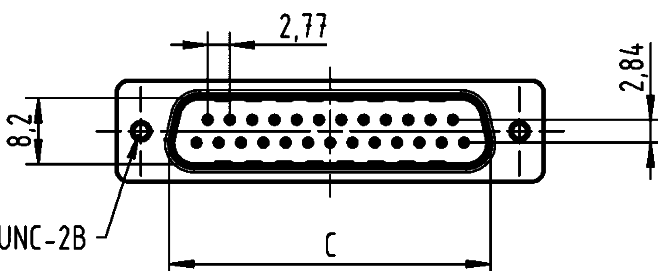
Gender changer

Identification	No. of contacts	Part number
Male / female gender changer	9	09 67 009 0605
	15	09 67 015 0605
	25	09 67 025 0605
	37	09 67 037 0605

Dimensions



	A	B	C	D
9	30.8	25.0	16.92	16.35
15	39.2	33.3	25.25	24.7
25	53.05	47.04	38.96	38.4
37	69.4	63.5	55.42	54.8



05 4-40UNC-2B

Number of contacts	15, 26, 44, 62, 78
Working current Stamped contacts	2 A max.
Test voltage $U_{r.m.s.}$	1 kV
Clearance and creepage	≥ 1.0 mm
Contact resistance	< 20 m Ω
Insulation resistance	< 25 m Ω (for right angled versions) $\geq 5 \times 10^9$ Ω
Temperature range	-40 °C ... + 85 °C The higher temperature limit includes the local ambient and heating effect of the contacts under load
Terminations	a) Solder pins \varnothing 0.65 mm for P.C.B. holes \varnothing 1.0 mm b) Crimp contacts AWG 26 - 24 0.14 - 0.22 mm ² max. insulation \varnothing 1.38 mm c) Solder cups AWG 24
Materials	
Mouldings and hoods	Thermoplastic resin, glass-fibre filled (PBTP), UL 94-V0
Contacts	Copper alloy
Contact surface	
Contact zone	selectively plated according to performance level ¹⁾
Metal shell	Nickel 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 (30 μ inch) Au or PdNi equivalent

Number of contacts

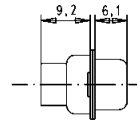
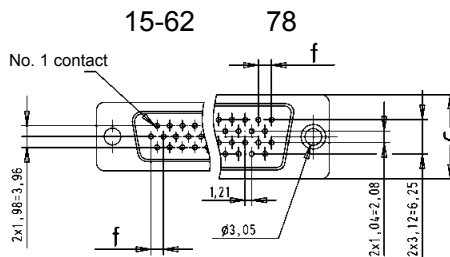
15-78



High density crimp terminal

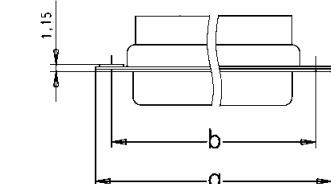
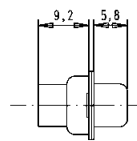
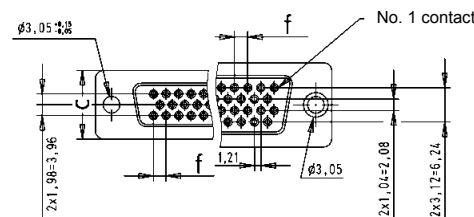
Identification	No. of contacts	Part number
Male connector Order contacts separately metal shell with dimples	15	09 56 100 5601
	26	09 56 200 5601
	44	09 56 300 5601
	62	09 56 400 5601
	78	09 56 500 5601
Female connector Order contacts separately metal shell	15	09 56 100 4701
	26	09 56 200 4701
	44	09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

Male connector



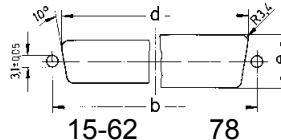
	a	b	c	f
15	30.9	25.0	12.5	2.29
26	39.2	33.3	12.5	2.29
44	53.1	47.0	12.5	2.29
62	69.4	63.5	12.5	2.41
78	67.0	61.1	15.4	2.41

Female connector



Panel cut out for front/rear mount

Values are taken from the CECC 75301-802



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



D-Sub

Identification	Wire gauge (mm ²)	Part number			
		stamped male contacts		stamped female contacts	
		Performance level 3	S4 ¹⁾	Performance level 3	S4 ¹⁾
Performance levels Explanations see page 05.04 Other performance levels on request					
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
500 pieces/reel Unrolling left		09 56 000 8167	09 56 000 8165	09 56 000 8267	09 56 000 8265
10 000 pieces/reel Unrolling left		09 56 000 8157	09 56 000 8155	09 56 000 8257	09 56 000 8255
Unrolling direction		<p>500 pieces/reel Unrolling left 10 000 pieces/reel Unrolling left</p> <p>for HARTING tools</p>			

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent
 Contact dimensions see page 05.41

Crimp contacts for high density connectors



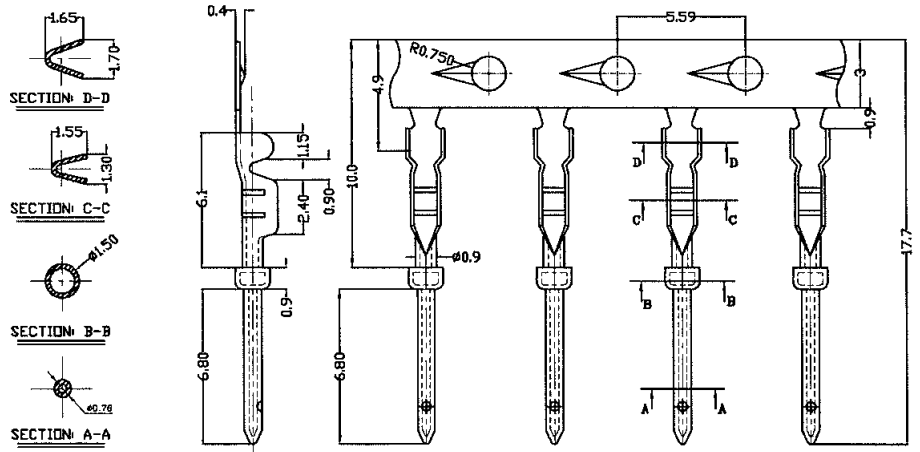
Identification

Drawing

Dimensions in mm

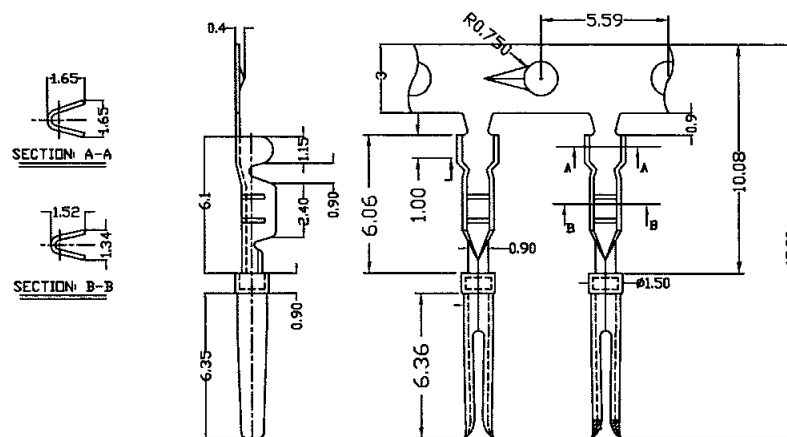
Male contacts

wire gauge AWG 26-24



Female contacts

wire gauge AWG 26-24



Number of contacts

15–78



High density with stamped solder cups, straight

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	S4¹⁾
Male connector metal shell with dimples	15 26 44 62 78	09 56 100 5604 09 56 200 5604 09 56 300 5604 09 56 400 5604 09 56 500 5604	09 56 100 5615 050 09 56 200 5615 050 09 56 300 5615 050 09 56 400 5615 050 09 56 500 5615 050
Female connector metal shell	15 26 44 62 78	09 56 100 4704 09 56 200 4704 09 56 300 4704 09 56 400 4704 09 56 500 4704	09 56 100 4715 050 09 56 200 4715 050 09 56 300 4715 050 09 56 400 4715 050 09 56 500 4715 050

D-Sub

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

15-78



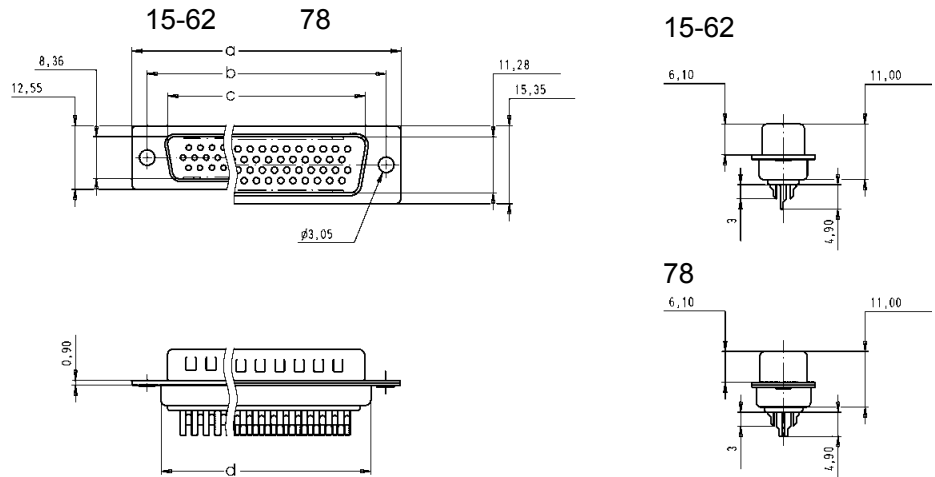
High density with stamped solder cups, straight

Identification

Drawing

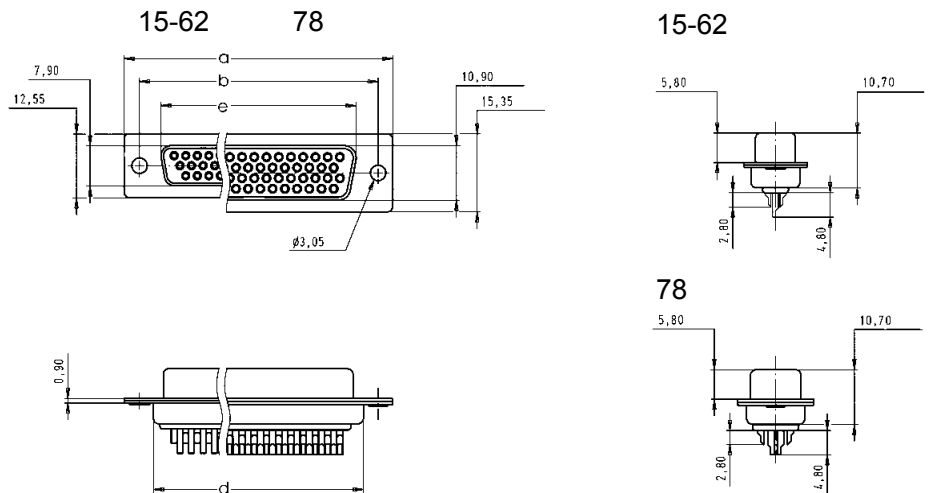
Dimensions in mm

Male connector



	a	b	c	d	e
15	30.81	25.00	16.92	19.20	16.33
26	39.20	33.30	25.25	27.70	24.70
44	53.05	47.00	38.96	41.10	38.40
62	69.40	63.50	55.42	57.30	54.80
78	67.00	61.00	52.81	55.10	52.20

Female connector



Number of contacts

15–78



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

Identification	No. of contacts	Part number	
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 56 162 781 . 09 56 262 781 . 09 56 362 781 . 09 56 462 781 . 09 56 562 781 .	09 56 162 581 . 09 56 262 581 . 09 56 362 581 . 09 56 462 581 . 09 56 562 581 .
Female connector metal shell	15 26 44 62 78	09 56 152 761 . 09 56 252 761 . 09 56 352 761 . 09 56 452 761 . 09 56 552 761 .	09 56 152 561 . 09 56 252 561 . 09 56 352 561 . 09 56 452 561 . 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			

D-Sub

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

15-78



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

Identification

Drawing

Dimensions in mm

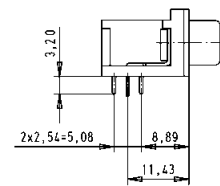
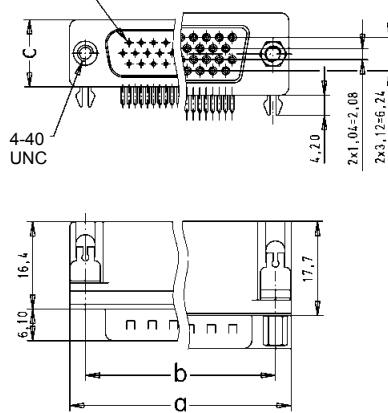
Male connector

15-62 78

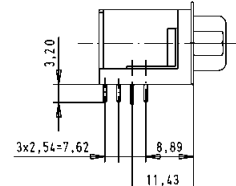
15-62

78

No. 1 contact



4-40 UNC



fitted screw locks
4-40 UNC

	a	b \pm 0.1	c
15	30.81	24.99	12.55
26	39.20	33.30	12.55
44	53.05	47.04	12.55
62	69.40	63.50	12.55
78	67.00	61.00	15.37

Female connector

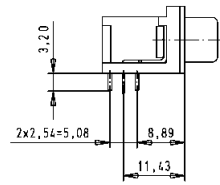
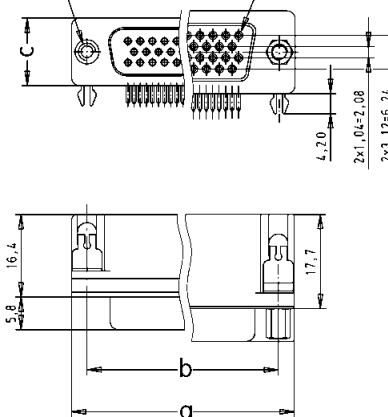
15-62 78

15-62

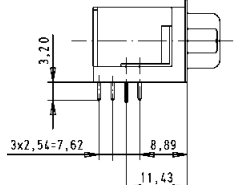
78

4-40 UNC

No. 1 contact



4-40 UNC



fitted screw locks
4-40 UNC

Number of contacts

15-78



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

Identification

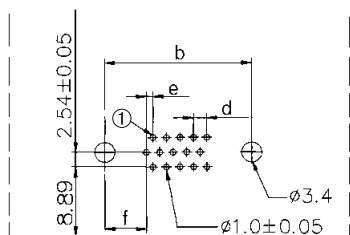
Drawing

Dimensions in mm

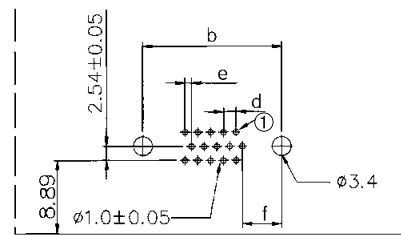
Board drillings

D-Sub

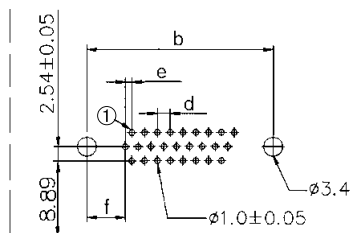
male 15



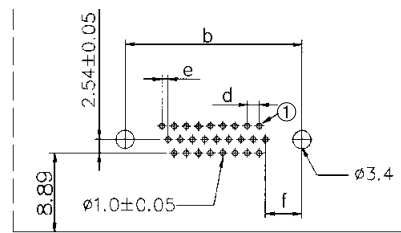
female 15



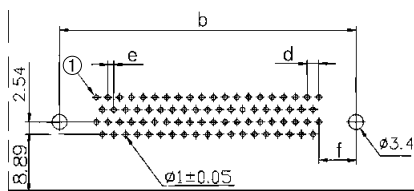
male 26-62



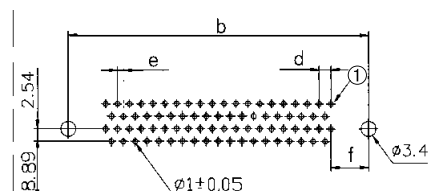
female 26-62



male 78



female 78



① = No. 1 contact

	$b_{\pm 0.1}$	d	e	f
15	24.99	2.29	1.145	7.04
26	33.30	2.29	1.145	6.88
44	47.04	2.29	1.145	6.88
62	63.50	2.41	1.205	7.00
78	61.00	2.41	1.205	7.65

Number of contacts

15-78



High density with stamped solder pins, straight

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	S4¹⁾
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

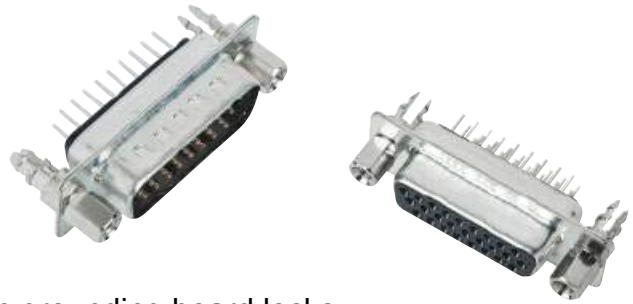
	15-62	78	15-62	78
Male connector				
Female connector				
Board drillings				

	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

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

15–78



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

Identification	No. of contacts	Part number	
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 56 161 771 . 09 56 261 771 . 09 56 361 771 . 09 56 461 771 . 09 56 561 771 .	09 56 161 571 . 09 56 261 571 . 09 56 361 571 . 09 56 461 571 . 09 56 561 571 .
Female connector metal shell	15 26 44 62 78	09 56 151 751 . 09 56 251 751 . 09 56 351 751 . 09 56 451 751 . 09 56 551 751 .	09 56 151 551 . 09 56 251 551 . 09 56 351 551 . 09 56 451 551 . 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			

D-Sub

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

15-78



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

Identification

Drawing

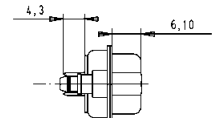
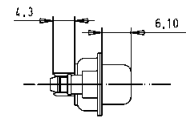
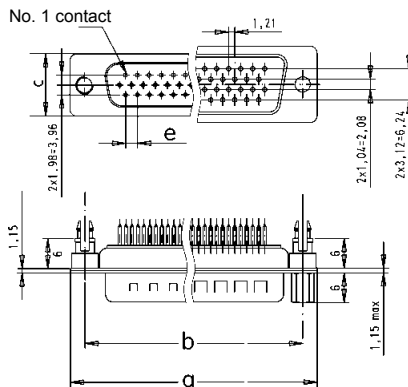
Dimensions in mm

Male connector

15-62 78

15-62

78



4-40 UNC

fitted screw locks
4-40 UNC

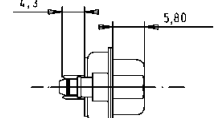
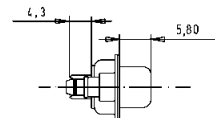
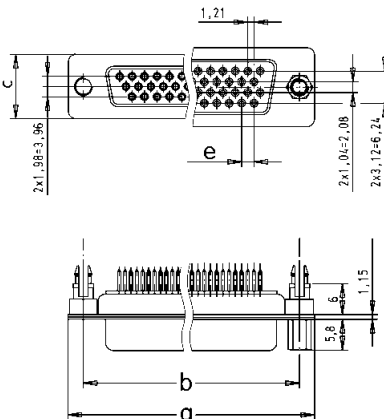
	a	b ± 0.1	c	e
15	30.9	25.0	12.5	2.29
26	39.2	33.3	12.5	2.29
44	53.1	47.0	12.5	2.29
62	69.4	63.5	12.5	2.41
78	67.0	61.1	15.4	2.41

Female connector

15-62 78

15-62

78



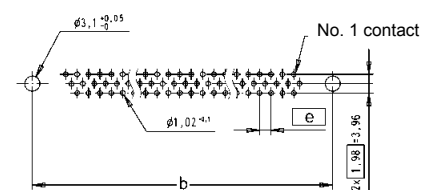
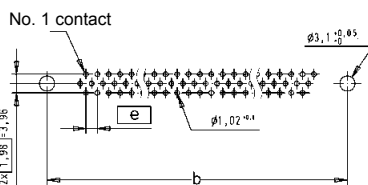
4-40 UNC

fitted screw locks
4-40 UNC

Board drillings

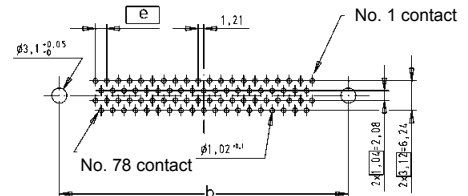
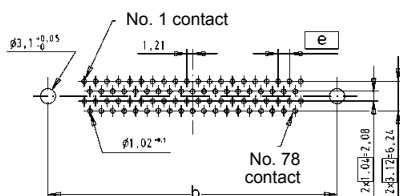
male 15-62

female 15-62



male 78

female 78





HARTINGs' mixed D-Sub range brings the advantage of an industry standard I/O inter-connect 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 05.88 and 05.89.

	Straight		Right angled	
Insulator body	<ul style="list-style-type: none"> • Standard • SMC: Solder Reflow Compatible 		<ul style="list-style-type: none"> • Standard • SMC: Solder Reflow Compatible 	
Signal contacts	Solder termination <ul style="list-style-type: none"> • Pitch: 2.84 mm • Plating: 0.76 µm Au over Ni • Pcb thickness from 1.6 to 3.2 mm 		Solder termination <ul style="list-style-type: none"> • Pitch: 2.54 mm • Plating: 0.76 µm Au over Ni • Pcb thickness from 1.6 to 3.2 mm 	
Power contacts	Solder termination <ul style="list-style-type: none"> • Rating: 20, 30, 40 A • Plating: 0.76 µm Au over Ni Press-in termination <ul style="list-style-type: none"> • Rating: 30 A • Plating: 0.76 µm Au over Ni 		Solder termination <ul style="list-style-type: none"> • Rating: 20, 30, 40 A • Plating: 0.76 µm Au over Ni 	
Coaxial contacts	Solder termination <ul style="list-style-type: none"> • 50 or 75 Ω • Plating: 1.3 µm Au over Ni inner conductor 0.76 µm Au over Ni outer ring 		Solder termination <ul style="list-style-type: none"> • 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			

D-Sub

Connectors for cable applications – general information

Two termination processes are available: crimp or solder

<p>Shell</p>		
<p>Signal contacts</p>	<p>Crimp termination</p> <ul style="list-style-type: none"> For wire gauge: AWG 20-24 or 26-28 Plating: 0.76 µm or 0.2 µm Au over Ni 	<p>Pre-mounted solder cup contacts</p> <ul style="list-style-type: none"> Plating: 0.76 µm or 0.1 µm Au over Ni
<p>Power contacts</p>	<p>Crimp</p> <ul style="list-style-type: none"> Rating: 10, 20, 30, 40 A Plating: <ul style="list-style-type: none"> Mating side 0.76 µm or 0.2 µm Au Terminating side 0.2 µm Au <p>Solder cup</p> <ul style="list-style-type: none"> Rating: 10, 20, 30, 40 A Plating: <ul style="list-style-type: none"> Mating side 0.76 µm or 0.2 µm Au Terminating side 0.2 µm Au or 5 µm Sn 	<p>Crimp</p> <ul style="list-style-type: none"> Rating: 10, 20, 30, 40 A Plating: <ul style="list-style-type: none"> Mating side 0.76 µm or 0.2 µm Au Terminating side 0.2 µm Au <p>Solder cup</p> <ul style="list-style-type: none"> Rating: 10, 20, 30, 40 A Plating: <ul style="list-style-type: none"> Mating side 0.76 µm or 0.2 µm Au Terminating side 0.2 µm Au or 5 µm Sn
<p>Coaxial contacts¹⁾</p>	<p>Solder/crimp termination resp. Crimp/crimp termination</p> <ul style="list-style-type: none"> 50 or 75 Ω Plating: <ul style="list-style-type: none"> Mating side <ul style="list-style-type: none"> 1.3 µm or 0.2 µm Au inner conductor 0.76 µm or 0.2 µm Au outer ring Terminating side <ul style="list-style-type: none"> 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 ... 	<p>Solder/crimp termination resp. Crimp/crimp termination</p> <ul style="list-style-type: none"> 50 or 75 Ω Plating: <ul style="list-style-type: none"> Mating side <ul style="list-style-type: none"> 1.3 µm or 0.2 µm Au inner conductor 0.76 µm or 0.2 µm Au outer ring Terminating side <ul style="list-style-type: none"> 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 ...
<p>High voltage contacts</p>	<p>Solder termination</p> <ul style="list-style-type: none"> Plating: 1.3 µm Au over Ni terminating and mating side 	<p>Solder termination</p> <ul style="list-style-type: none"> 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 41652, 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 Tin plated steel



Number of contacts

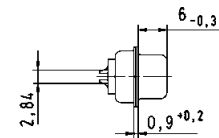
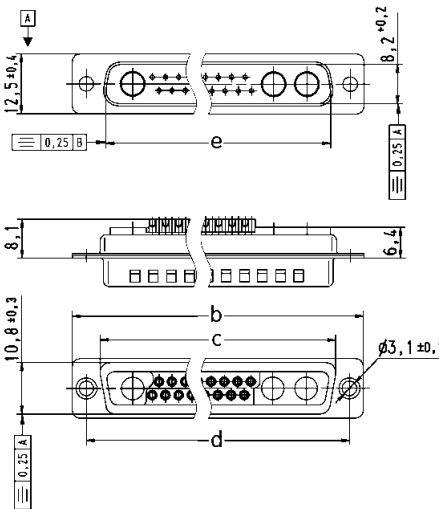
7-27



Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part number			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	7W2	09 69 211 7072	09 69 211 5072	09 69 201 7072	09 69 201 5072
	17W2	09 69 311 7172	09 69 311 5172	09 69 301 7172	09 69 301 5172
	21WA4	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

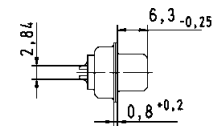
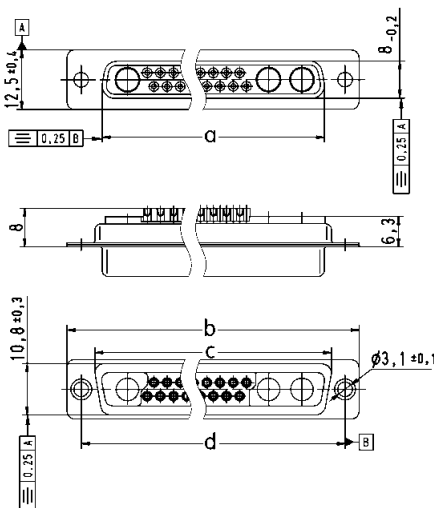
Male connectors



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

Female connectors



Solder cup termination for AWG 20 (0.5 mm²)

Dimensions in mm

¹⁾ Explanations see page 05.51

²⁾ S4 = 0.76 µm Au or PdNi equivalent

Board drillings see pages 05.78 ff

Order special contacts separately. See pages 05.69 ff

D-Sub

Number of contacts

9-25



Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part number			
		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

9W4

Solder cup termination for AWG 20 (0.5 mm²)

13W3, 25W3

Solder cup termination for AWG 20 (0.5 mm²)

	b	c	d	e
13W3	53.0	41.3	47.04	38.90
25W3	69.3	57.7	63.50	49.84

Dimensions in mm

1) Explanations see page 05.51
 2) S4 = 0.76 µm Au or PdNi equivalent
 Board drillings see pages 05.78 ff

Drawings for female connectors see page 05.57
 Order special contacts separately. See pages 05.69 ff

Number of contacts

9-25



Mixed shells with pre-mounted signal solder cup contacts

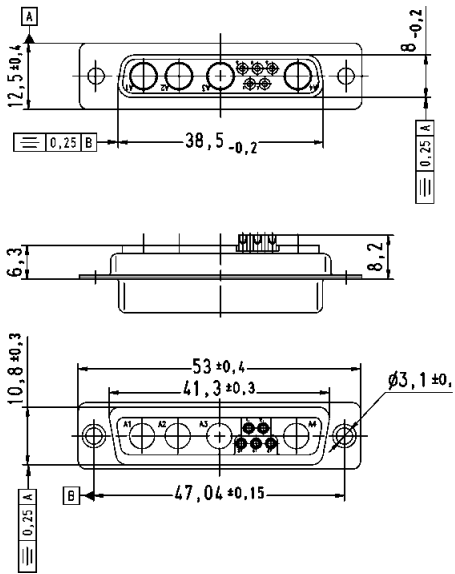
Identification

Drawing

Dimensions in mm

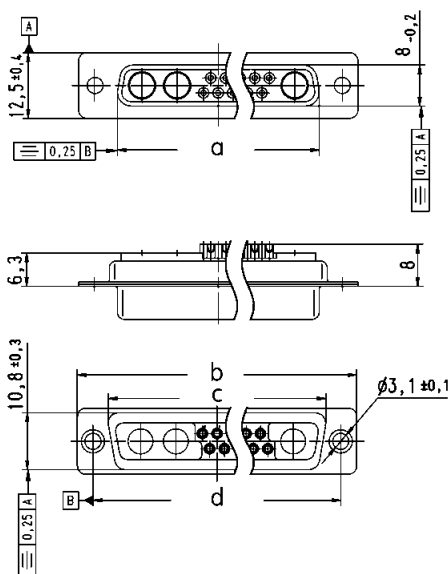
Female connectors

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

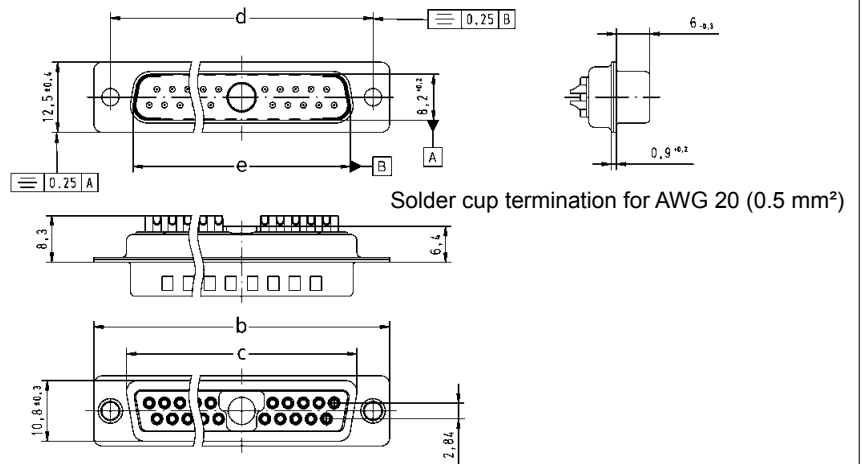
5-21



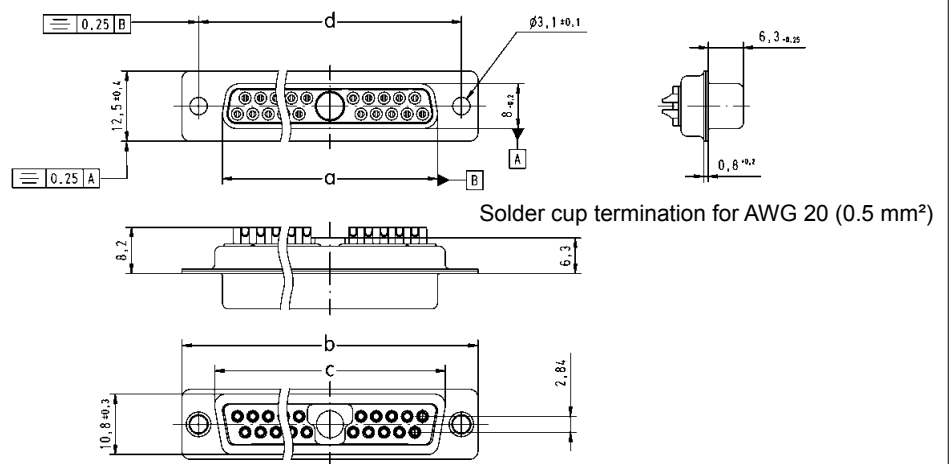
Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part number			
		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 05.51
²⁾ S4 = 0.76 µm Au or PdNi equivalent
 Board drillings see pages 05.78 ff

Order special contacts separately. See pages 05.69 ff

Number of contacts

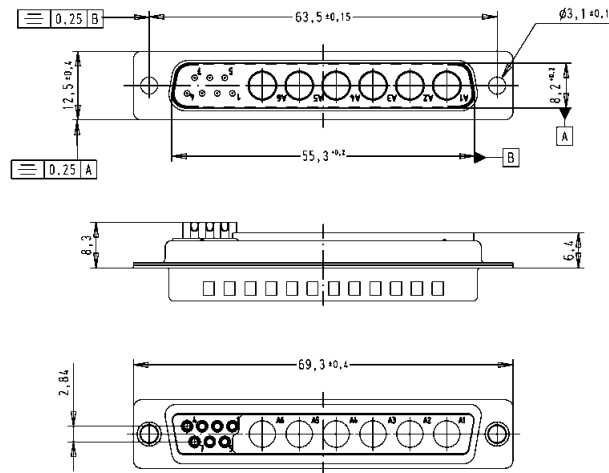
13



Mixed shells with pre-mounted signal solder cup contacts

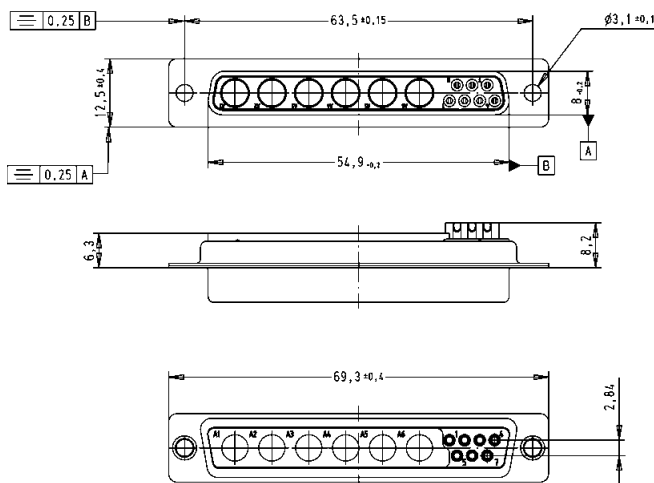
Identification	No. of contacts ¹⁾	Part number			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	13W6	09 69 411 7136	09 69 411 5136	09 69 401 7136	09 69 401 5136

Male connectors



Solder cup termination for AWG 20 (0.5 mm²)

Female connectors



Solder cup termination for AWG 20 (0.5 mm²)

Dimensions in mm

¹⁾ Explanations see page 05.51
²⁾ S4 = 0.76 µm Au or PdNi equivalent
 Board drillings see pages 05.78 ff

Order special contacts separately. See pages 05.69 ff


D-Sub

Number of contacts

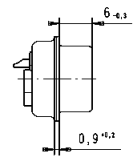
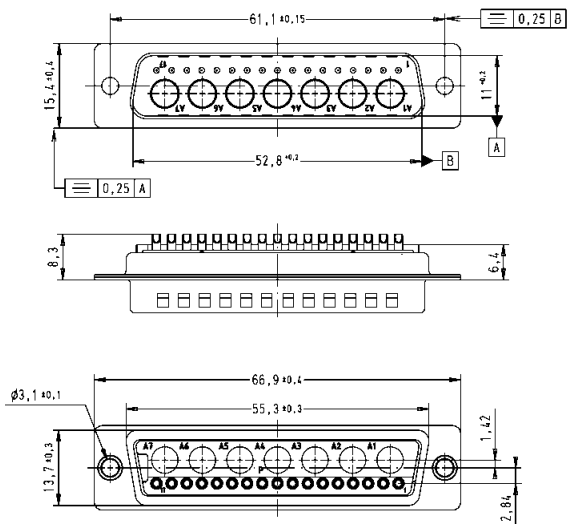
24



Mixed shells with pre-mounted signal solder cup contacts

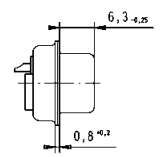
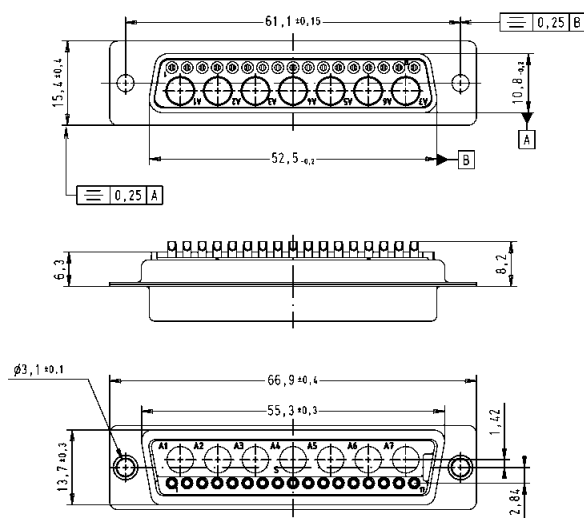
Identification	No. of contacts ¹⁾	Part number			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	24W7	09 69 511 7247	09 69 511 5247	09 69 501 7247	09 69 501 5247

Male connectors



Solder cup termination for AWG 20 (0.5 mm²)

Female connectors



Solder cup termination for AWG 20 (0.5 mm²)

Dimensions in mm

¹⁾ Explanations see page 05.51
²⁾ S4 = 0.76 µm Au or PdNi equivalent
 Board drillings see pages 05.78 ff

Order special contacts separately. See pages 05.69 ff

Number of contacts

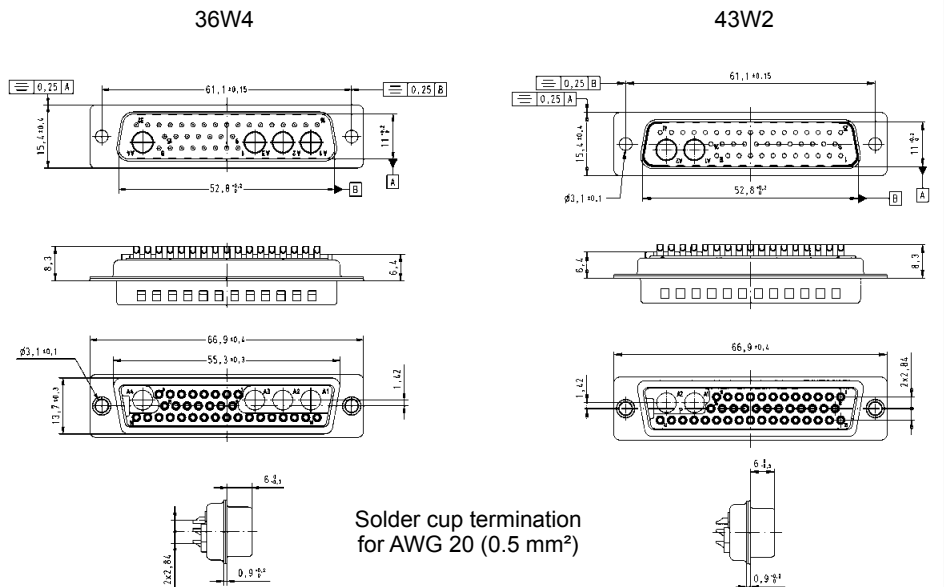
36-43



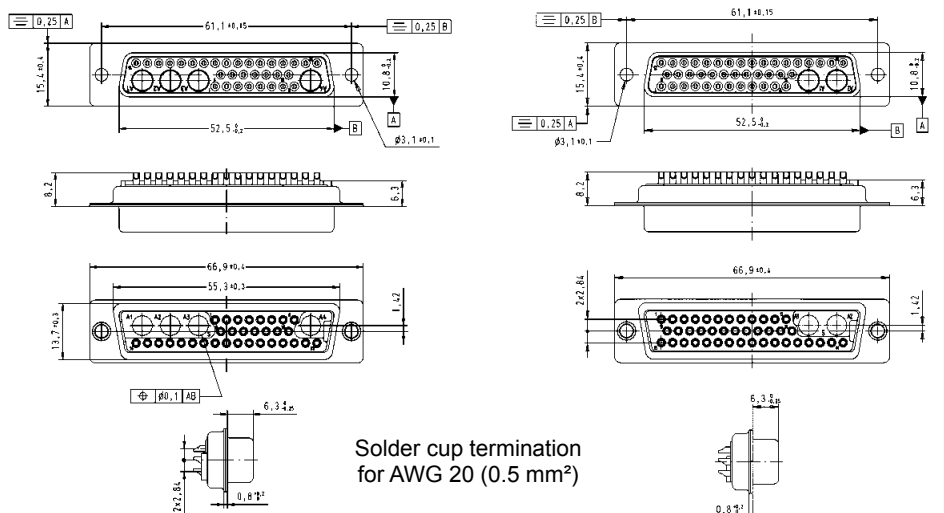
Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part number			
		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 05.51
²⁾ S4 = 0.76 µm Au or PdNi equivalent
 Board drillings see pages 05.78 ff

Order special contacts separately. See pages 05.69 ff

D-Sub

Number of contacts

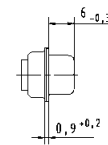
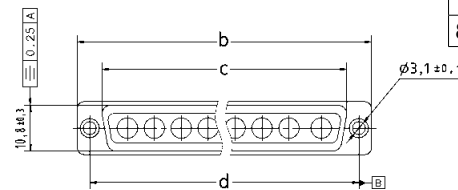
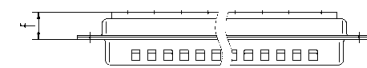
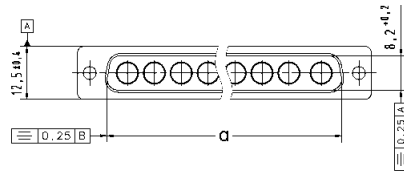
2-8



Shells without signal contacts for cable applications

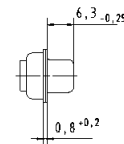
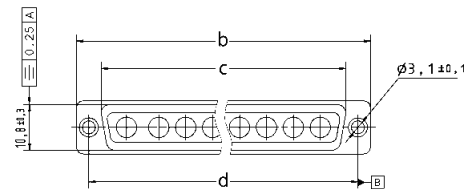
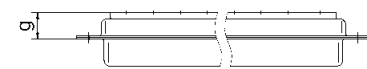
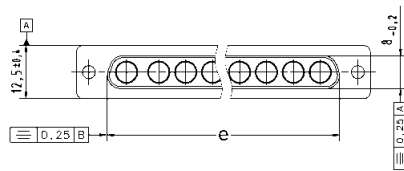
Identification	No. of contacts ¹⁾	Part number	
		male connectors	female connectors
	2W2	09 69 110 0522	09 69 100 0522
	3W3	09 69 210 0033	09 69 200 0033
	5W5	09 69 310 0055	09 69 300 0055
	7W7	09 69 410 0077	09 69 400 0077
	8W8	09 69 410 0088	09 69 400 0088

Male connectors



	a	b	c	d	e	f	g
2W2	16.9	30.8	—	25.00	16.4	8.7	8.6
3W3	25.2	39.1	27.5	33.30	24.6	6.4	6.3
5W5	38.9	53.0	41.3	47.04	38.3	6.4	6.3
7W7	55.3	69.3	57.7	63.50	54.9	6.4	6.3
8W8	55.3	69.3	57.7	63.50	54.8	6.4	6.3

Female connectors



Dimensions in mm

¹⁾ Explanations see page 05.51
Board drillings see pages 05.78 ff
Order special contacts separately. See pages 05.69 ff

Number of contacts

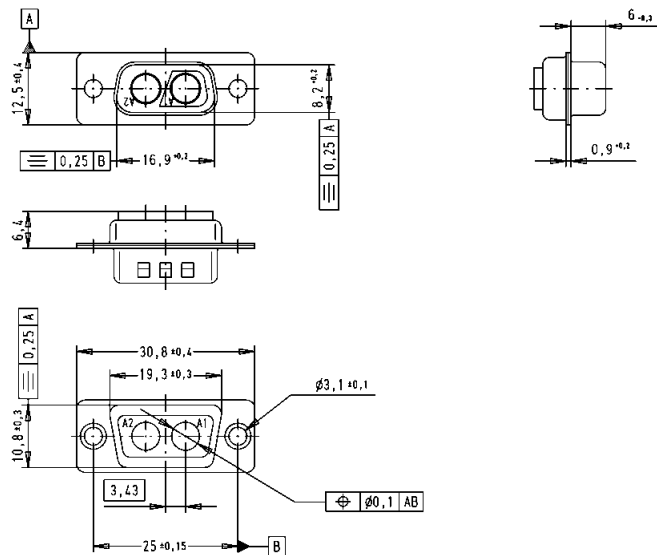
2



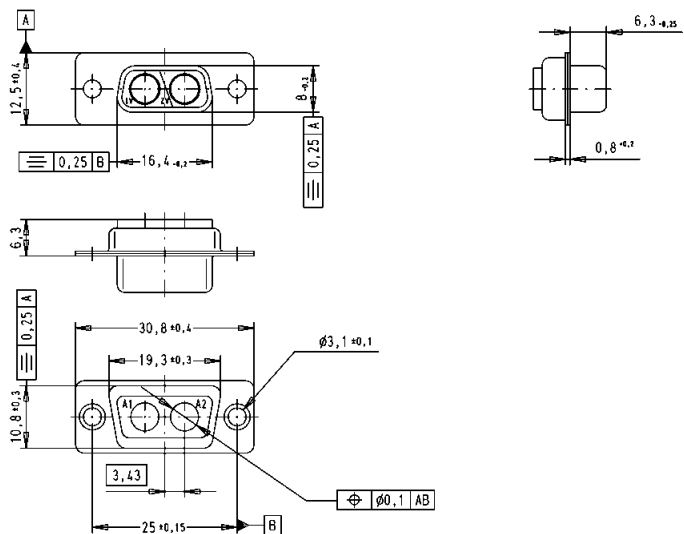
Coded shells without signal contacts for cable applications

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

Male connectors



Female connectors



Dimensions in mm

¹⁾ Explanations see page 05.51
 Board drillings see pages 05.78 ff
 Order special contacts separately. See pages 05.69 ff

D-Sub

Number of contacts

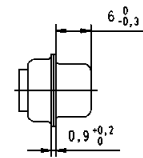
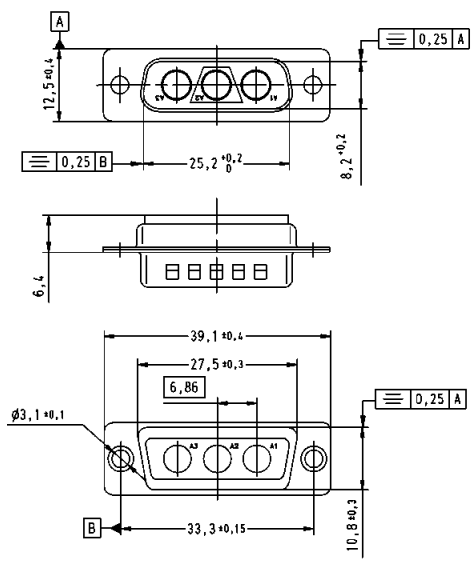
3



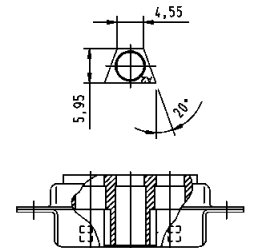
Coded shells without signal contacts for cable applications

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

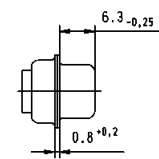
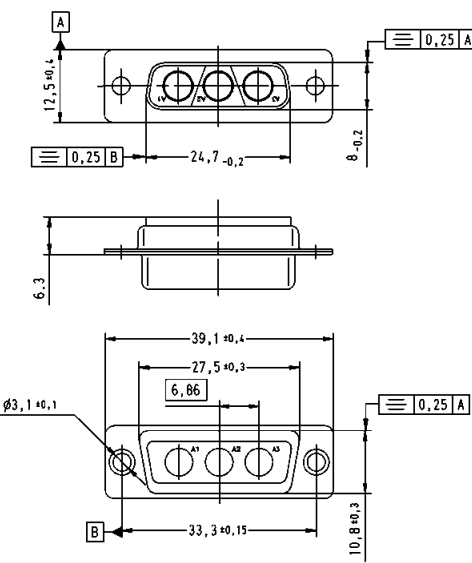
Male connectors



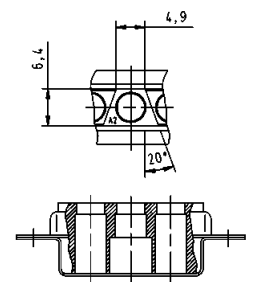
detail:
polarization feature



Female connectors



detail:
polarization feature



Dimensions in mm

¹⁾ Explanations see page 05.51
Board drillings see pages 05.78 ff
Order special contacts separately. See pages 05.69 ff

Number of contacts

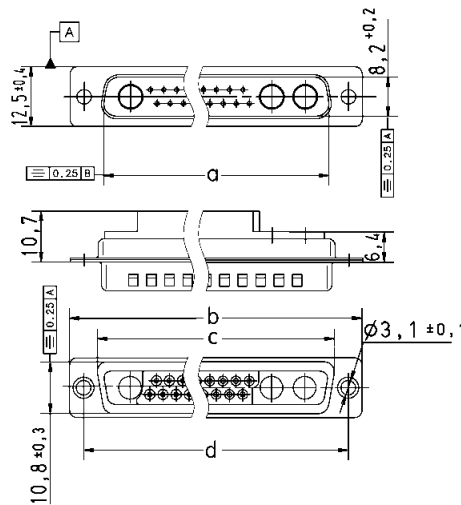
7-27



Mixed shells for signal crimp contacts

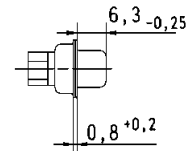
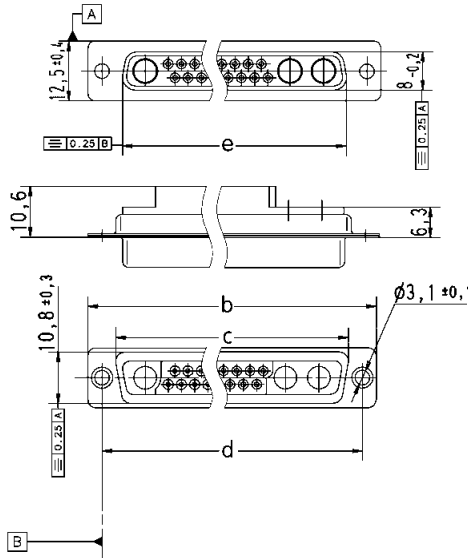
Identification	No. of contacts ¹⁾	Part number	
		male connectors	female connectors
	7W2	09 69 212 0072	09 69 202 0072
	17W2	09 69 312 0172	09 69 302 0172
	21WA4	09 69 412 0214	09 69 402 0214
	27W2	09 69 412 0272	09 69 402 0272

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
27W2	56.3	69.3	-	63.50	54.9

Female connectors



Dimensions in mm

¹⁾ Explanations see page 05.51
 Board drillings see pages 05.78 ff
 Order special contacts separately. See pages 05.69 ff

D-Sub

Number of contacts

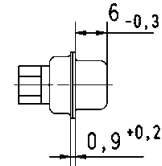
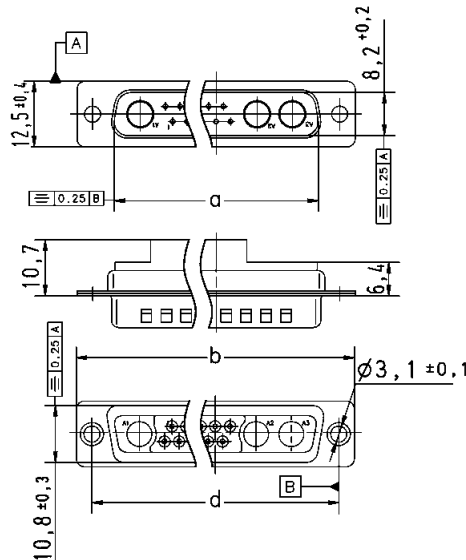
13-25



Mixed shells for signal crimp contacts

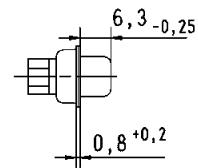
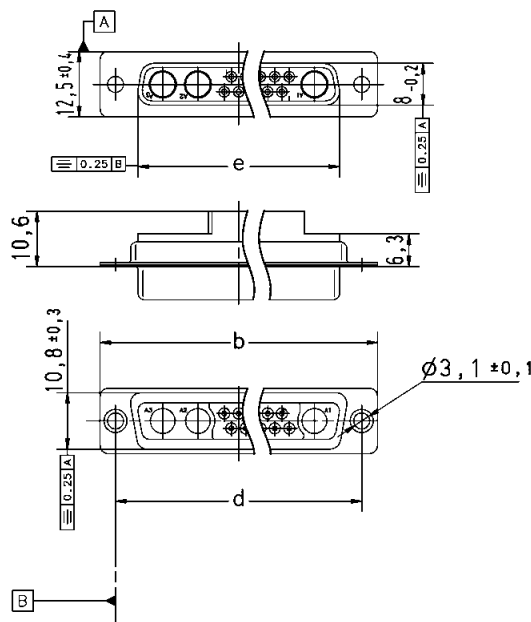
Identification	No. of contacts ¹⁾	Part number	
		male connectors	female connectors
	13W3	09 69 312 0133	09 69 302 0133
	25W3	09 69 412 0253	09 69 402 0253

Male connectors



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

Female connectors



Dimensions in mm

D-Sub

¹⁾ Explanations see page 05.51
 Board drillings see pages 05.78 ff
 Order special contacts separately. See pages 05.69 ff

Number of contacts

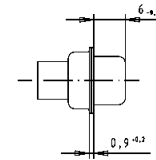
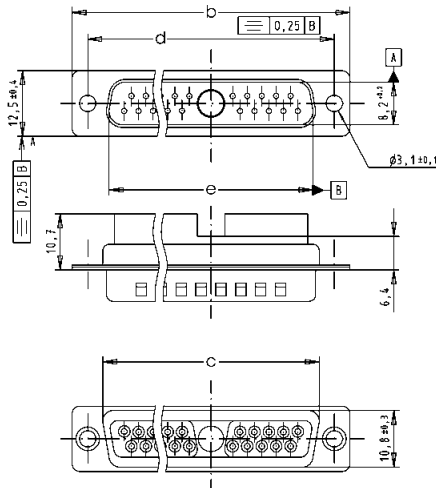
11-21



Mixed shells for signal crimp contacts

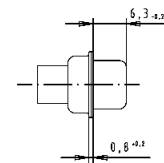
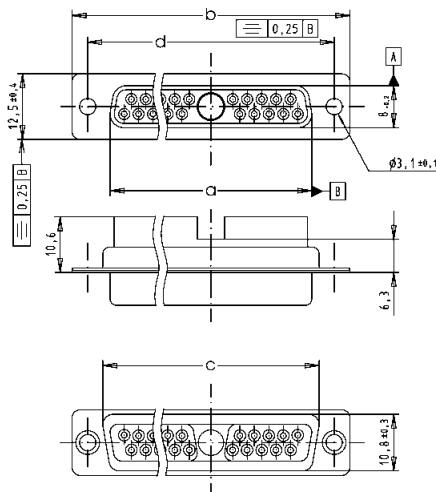
Identification	No. of contacts ¹⁾	Part number	
		male connectors	female connectors
	11W1	09 69 212 0111	09 69 202 0111
	21W1	09 69 312 0211	09 69 302 0211

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 05.51
 Order special contacts separately. See pages 05.69 ff
 Board drillings see pages 05.78 ff

Number of contacts

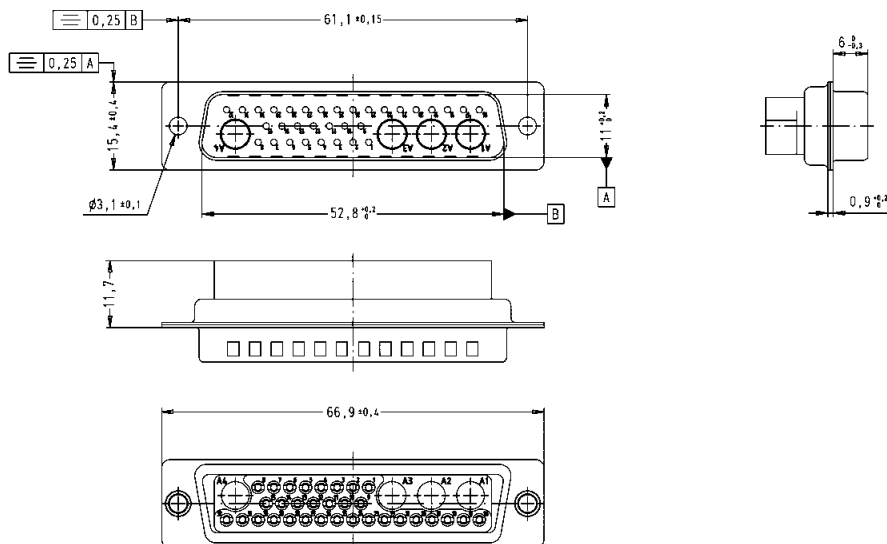
36



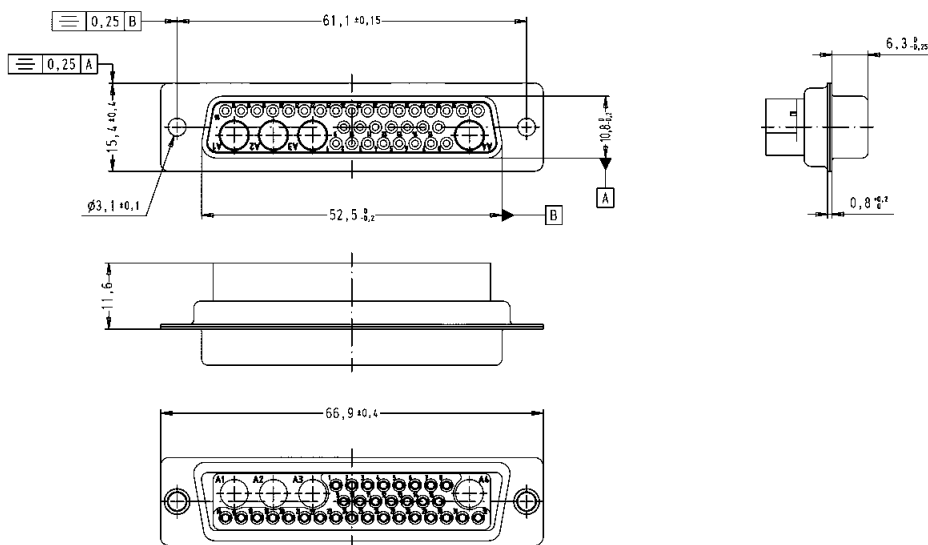
Mixed shells for signal crimp contacts

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

Male connectors



Female connectors



Dimensions in mm

¹⁾ Explanations see page 05.51
 Board drillings see pages 05.78 ff
 Order special contacts separately. See pages 05.69 ff

	Signal contacts see page 05.70	Coaxial contacts see pages 05.74 – 05.76	Power contacts see pages 05.72 + 05.73	High voltage contacts see page 05.71	Pneumatic contacts see page 05.77
Working current	5 A	2 A	10 A, 20 A, 30 A or 40 A	10 A DC	–
Test voltage $U_{r.m.s.}$ Operating voltage	–	750 V / 50 Hz –	– –	4 kV / 50 Hz ≤ 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 standard performance level	≥ 500 –	≥ 500 ≥ 200	≥ 500 ≥ 200	– ≥ 500	– –
Mating force Unmating force	≤ 3.4 N ≥ 0.2 N	≤ 7 N/mated pair ≤ 7 N/mated pair	≤ 7 N/mated pair appr. 5 N	≤ 5 N appr. 2.5 N	– –
Max. pressure	–	–	–	–	7 bars at 20 °C
Materials	Copper alloy	Copper alloy	Copper alloy	Copper alloy	German silver
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

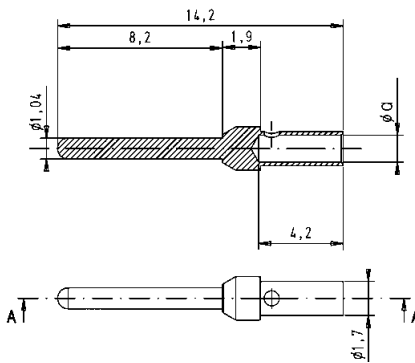


Turned crimp contacts

Identification	Wire gauge (mm ²)	Part number		
		Male contacts	Female contacts	High-end female contacts
		Performance level 1*	Performance level 1*	Performance level 1*
Individual contacts ¹⁾	AWG 22-18 0.33-0.82	09 67 000 3576	09 67 000 3476	09 67 000 3676
	AWG 24-20 0.25-0.52	09 67 000 8576	09 67 000 8476	09 67 000 8676
	AWG 26-22 0.13-0.33	09 67 000 5576	09 67 000 5476	09 67 000 5676
	AWG 28-24 0.09-0.25	09 67 000 7576	09 67 000 7476	09 67 000 7676

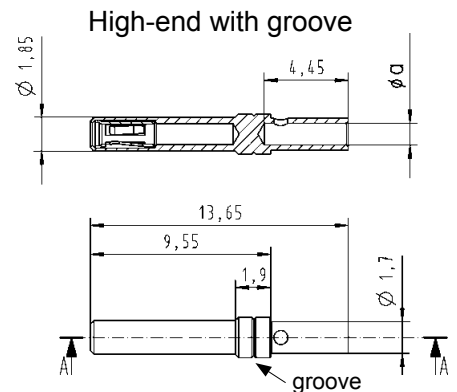
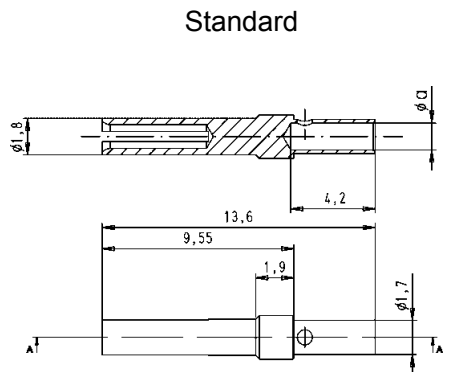
¹⁾ Minimum order 100 pieces or multiples of 100

Male contacts



	a	groove
AWG 22-18	1.34	none
AWG 24-20	1.13	1
AWG 26-22	0.88	2
AWG 28-24	0.64	3

Female contacts



* Performance level 1 as per CECC 75301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60512
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

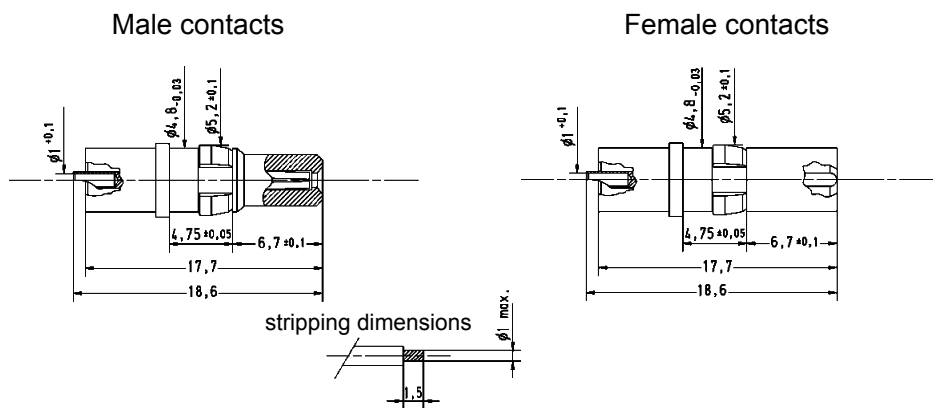


High voltage contacts for cable applications

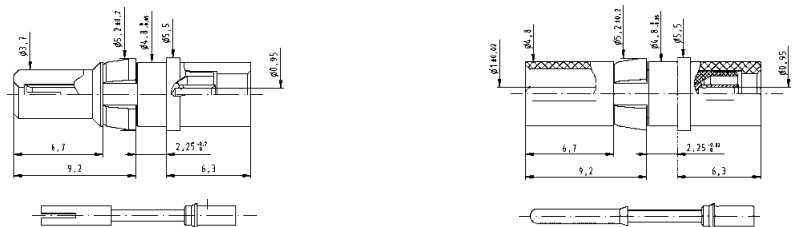
Identification	Wire gauge (mm ²)	Part number	
		Male contacts Plating: 1.3 µm Au ¹⁾	Female contacts Plating: 1.3 µm Au ¹⁾
Straight versions with solder termination	AWG 24 - 20 0.25 - 0.56	09 69 281 2550	09 69 181 2550
	with crimp termination ²⁾	AWG 30 - 24 0.05 - 0.25	09 69 282 2550
Right angled versions with solder termination	AWG 24 - 20 0.25 - 0.56	09 69 681 2550	09 69 581 2550

D-Sub

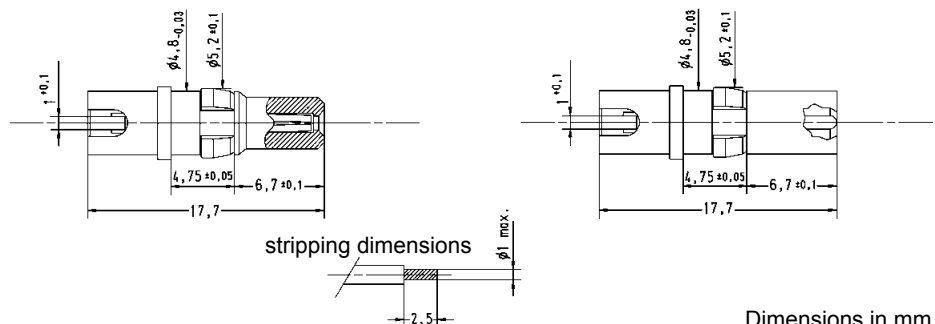
Straight versions
with solder termination



with crimp termination²⁾



Right angled versions
with solder termination



Dimensions in mm

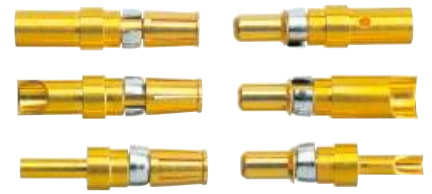
¹⁾ for mating and terminating side
²⁾ Tooling see chapter 20



Straight power contacts for cable applications

Identification	Rating (A)	Part number	
D-Sub	▶	Performance level 3	S4 ¹⁾
Performance levels			
Solder version			
Male contacts	10 20 30 40	09 69 281 7420 09 69 281 7421 09 69 281 7422 09 69 281 7423	09 69 281 5420 09 69 281 5421 09 69 281 5422 09 69 281 5423
Short male contacts	20 40	09 69 281 7821 09 69 281 7823	09 69 281 5821 09 69 281 5823
Female contacts	10 20 30 40	09 69 181 7420 09 69 181 7421 09 69 181 7422 09 69 181 7423	09 69 181 5420 09 69 181 5421 09 69 181 5422 09 69 181 5423
Short female contacts	20 40	09 69 181 7821 09 69 181 7823	09 69 181 5821 09 69 181 5823
Crimp version²⁾			
Male contacts	10 20 30 40	09 69 282 7420 09 69 282 7421 09 69 282 7422 09 69 282 7423	09 69 282 5420 09 69 282 5421 09 69 282 5422 09 69 282 5423
Short male contacts	20 40	09 69 282 7821 09 69 282 7823	09 69 282 5821 09 69 282 5823
Female contacts	10 20 30 40	09 69 182 7420 09 69 182 7421 09 69 182 7422 09 69 182 7423	09 69 182 5420 09 69 182 5421 09 69 182 5422 09 69 182 5423
Short female contacts	20 40	09 69 182 7821 09 69 182 7823	09 69 182 5821 09 69 182 5823

¹⁾ S4 = 0.76 µm Au or PdNi equivalent
²⁾ Tooling see chapter 20



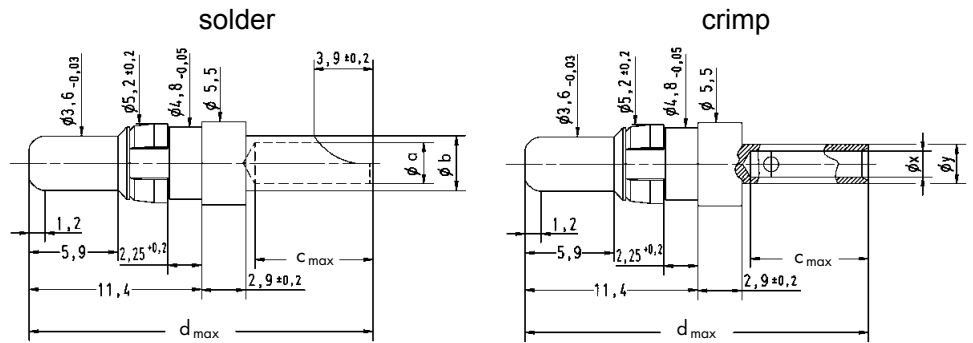
Straight power contacts for cable applications

Identification

Drawing

Dimensions in mm

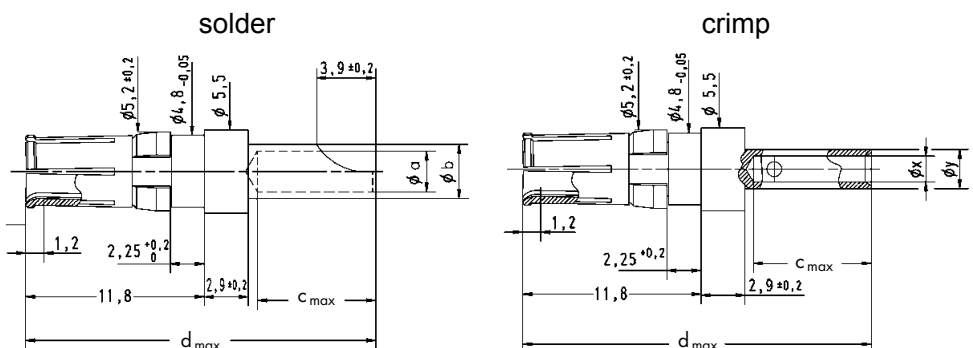
Male contacts



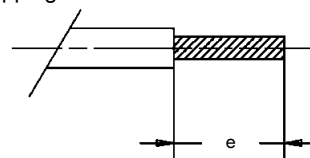
	Rating (A)	$\phi a -0.1$	$\phi b \pm 0.05$	c_{max}	d_{max}	e	$\phi x -0.1$	$\phi y \pm 0.05$	AWG
	10	1.8	2.54	7.8	23	7.5	1.7	2.6	16 - 20
	20	2.7	3.63	7.8	23	7.5	2.6	3.6	12 - 14
short version	20	2.7	3.63	4.7	17.4	4.5	2.6	3.6	12 - 14
	30	3.5	4.40	7.8	23	7.5	3.7	4.7	10 - 12
	40	4.8	5.50	7.8	23	7.5	4.6	5.8	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 number						
		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 number	Ø A	Ø B	Ø C	Ø D	E	F	G
	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 or PdNi equivalent
Dimensions see pages 05.75 and 05.76
Tooling see chapter 20



Coaxial contacts for cable applications

Identification

Drawing

Dimensions in mm

Male contacts

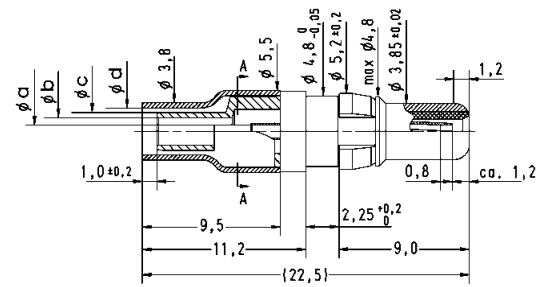
Part number	ø a	ø b	ø c	ø d
09 69 281 x140	0.85	1.9	2.6	3.2
09 69 281 x141	0.85	1.2	1.7	2.3
09 69 281 x230	0.50	1.9	2.6	3.2

Part number	ø a	ø b	ø c	ø d
09 69 281 x143	1.0	3.0	4.4	5.2

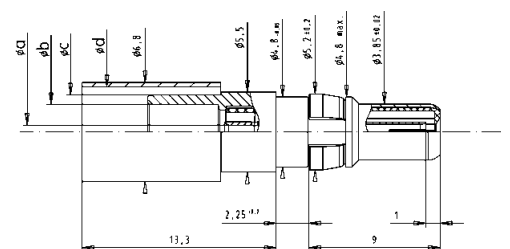
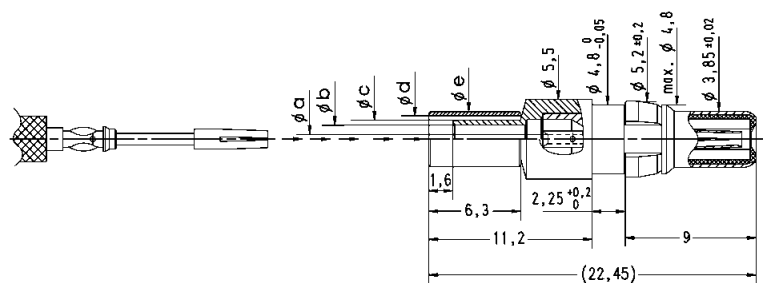
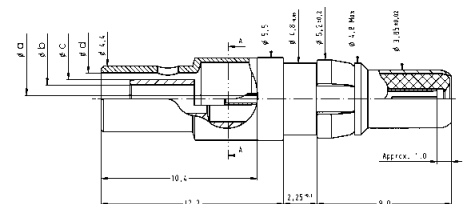
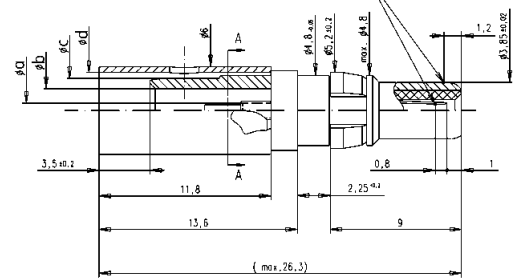
Part number	ø a	ø b	ø c	ø d
09 69 281 x233	0.5	1.9	2.6	3.5

Part number	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 number	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

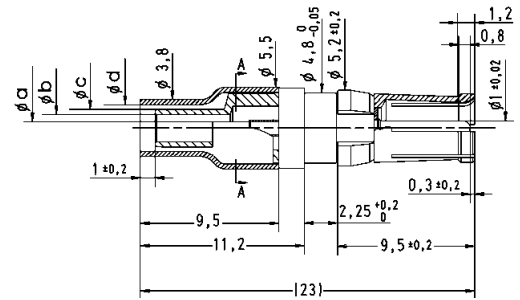
Part number	ø a	ø b	ø c	ø d
09 69 181 x140	0.85	1.9	2.6	3.2
09 69 181 x141	0.85	1.2	1.7	2.3
09 69 181 x230	0.50	1.9	2.6	3.2

Part number	ø a	ø b	ø c	ø d
09 69 181 x143	1.0	3.0	4.4	5.2

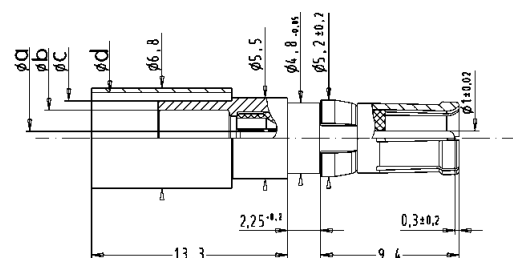
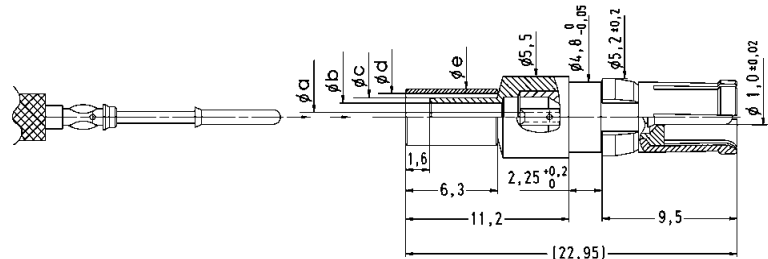
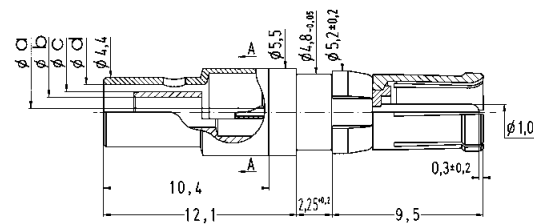
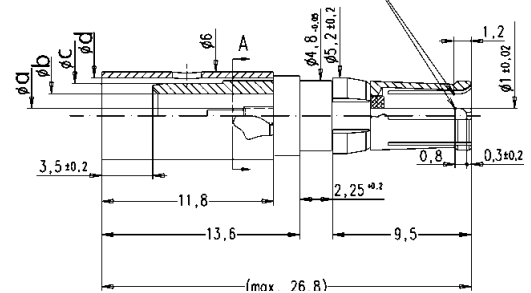
Part number	ø a	ø b	ø c	ø d
09 69 181 x233	0.5	1.9	2.6	3.5

Part number	ø a	ø b	ø c	ø d	ø 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 number	ø a	ø b	ø c	ø d
09 69 182 x232	0.95	3.8	5.1	6.2



Points of plating thickness measurement



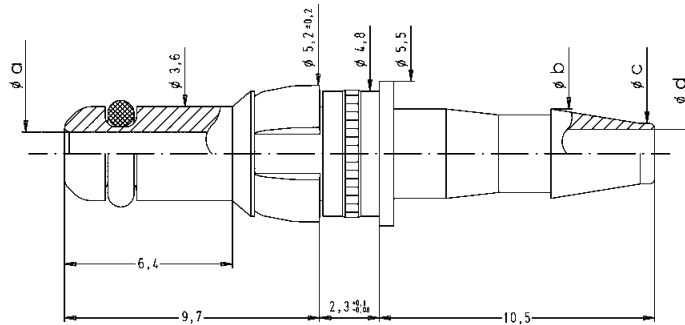
D-Sub



Pneumatic contacts for cable applications

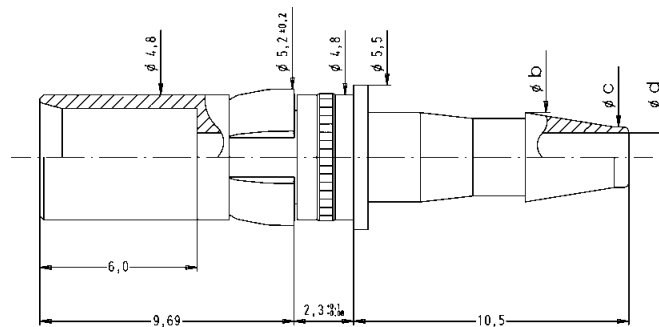
Identification	Inner diameter air tube (mm)	Part number
Male contacts	2	09 69 287 0060
	2.6	09 69 287 0061
	3	09 69 287 0062
	4	09 69 287 0063
Female contacts	2	09 69 187 0060
	2.6	09 69 187 0061
	3	09 69 187 0062
	4	09 69 187 0063

Male contacts



Part number	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

D-Sub

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

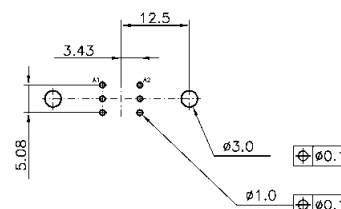
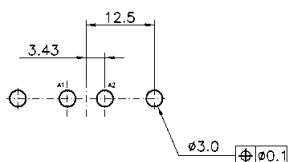
Identification Drawing Dimensions in mm

Male connector*

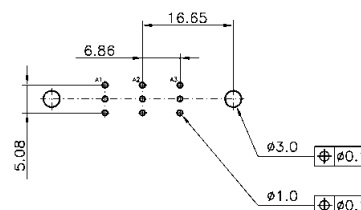
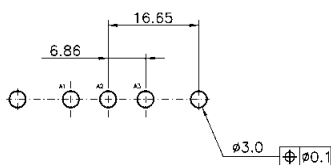
Power contact

Coaxial contact

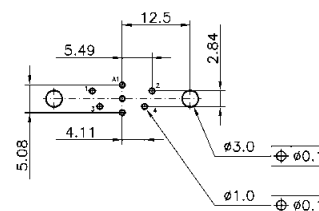
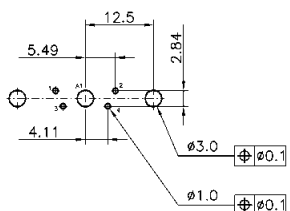
2W2 / 2W2C



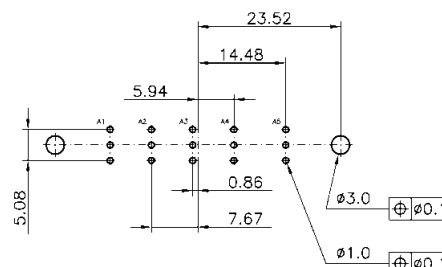
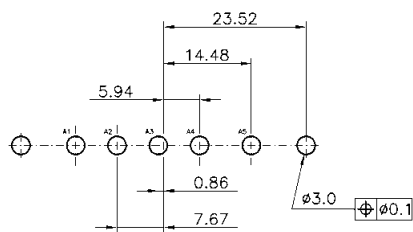
3W3 / 3W3C



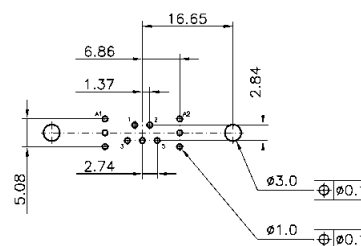
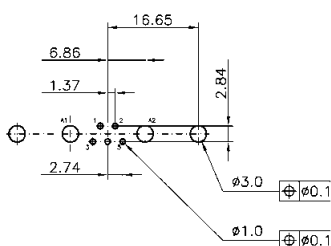
5W1



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

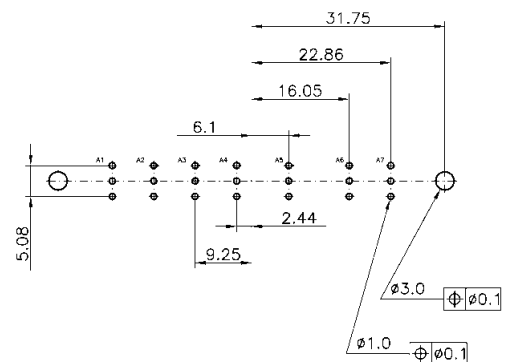
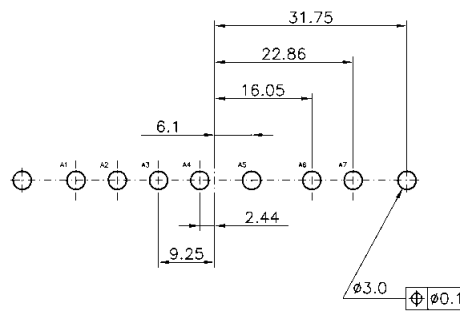
Identification Drawing Dimensions in mm

Male connector*

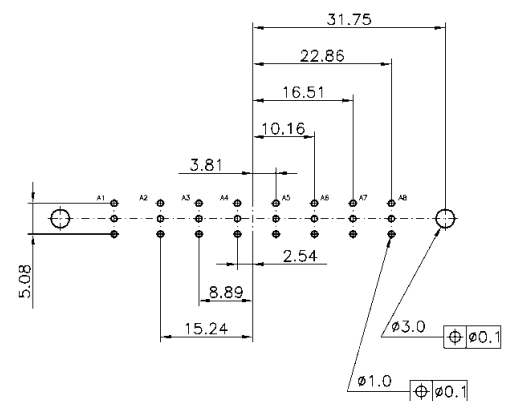
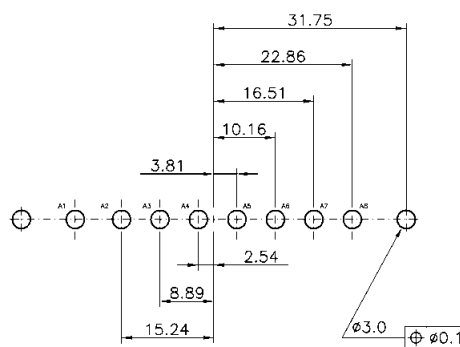
Power contact

Coaxial contact

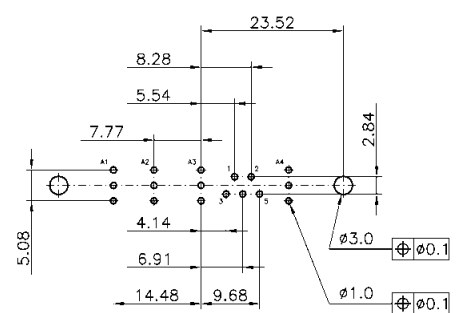
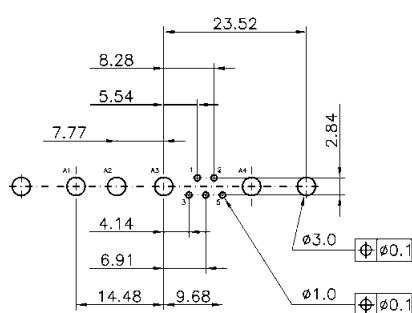
7W7



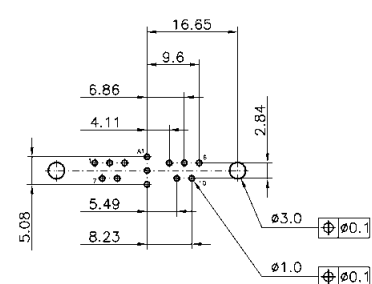
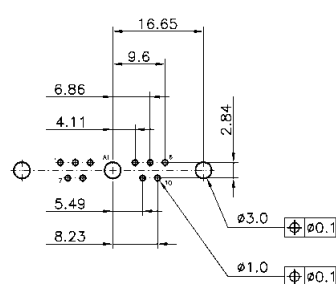
8W8



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

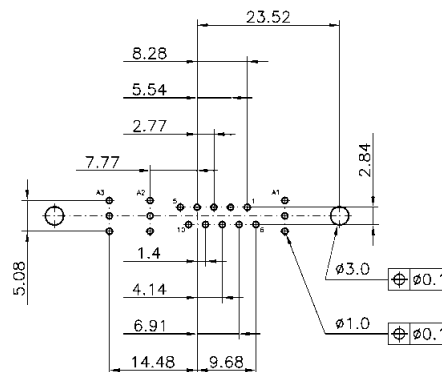
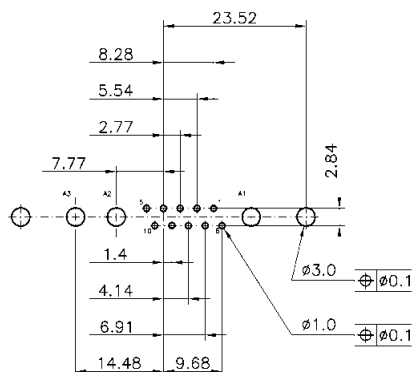
Dimensions in mm

Male connector*

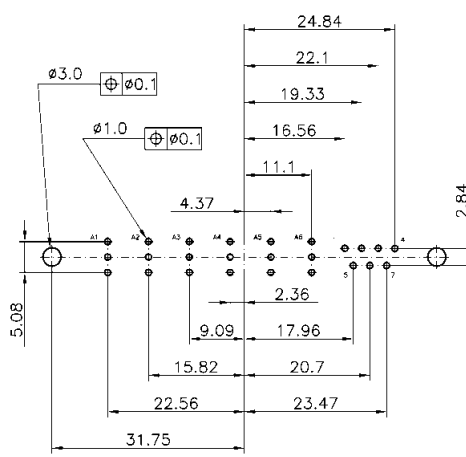
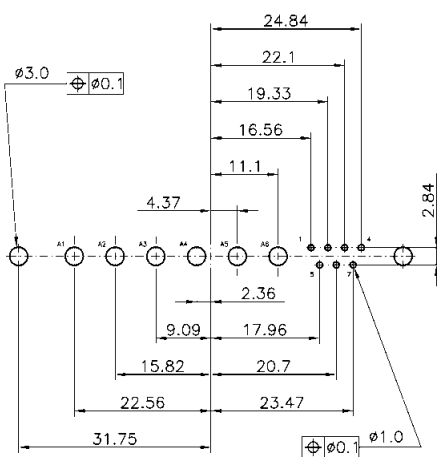
13W3

Power contact

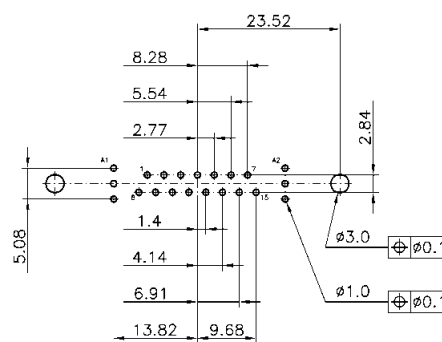
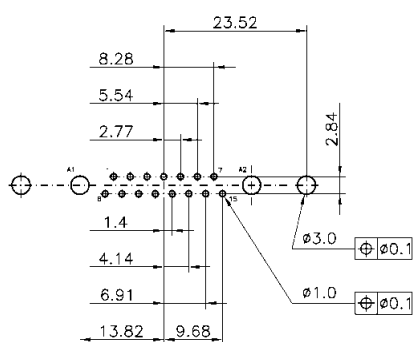
Coaxial contact



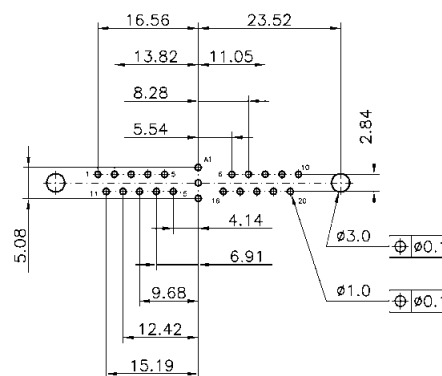
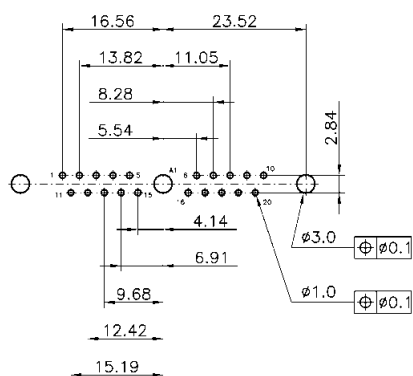
13W6



17W2



21W1



D-Sub

* 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

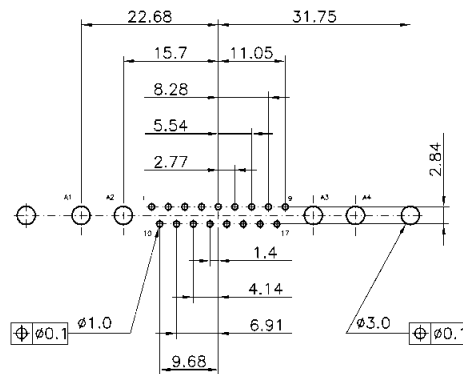
Drawing

Dimensions in mm

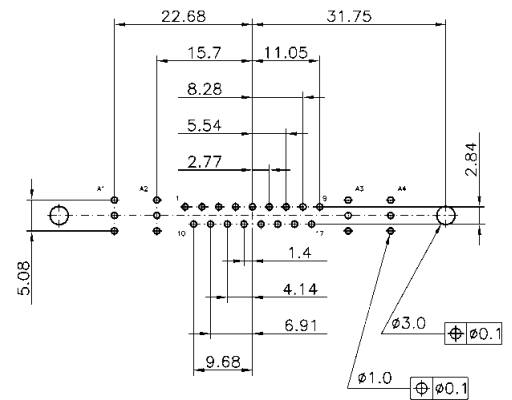
Male connector*

21WA4

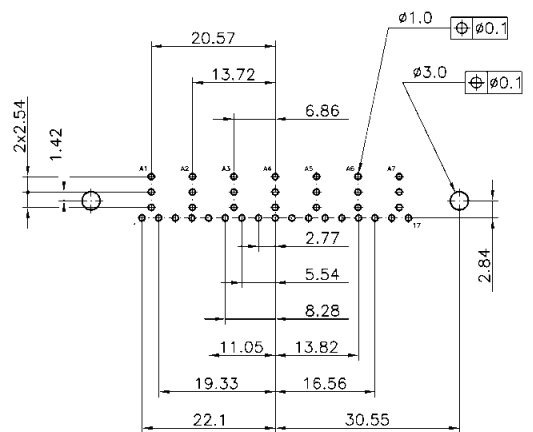
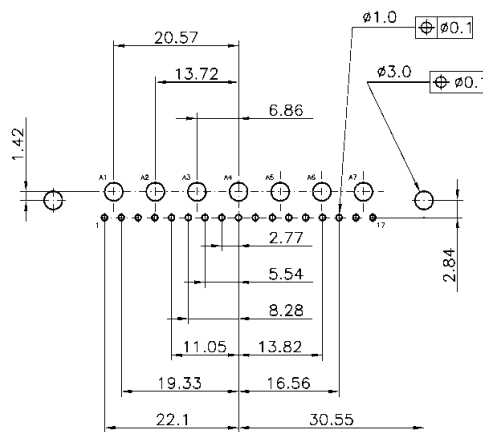
Power contact



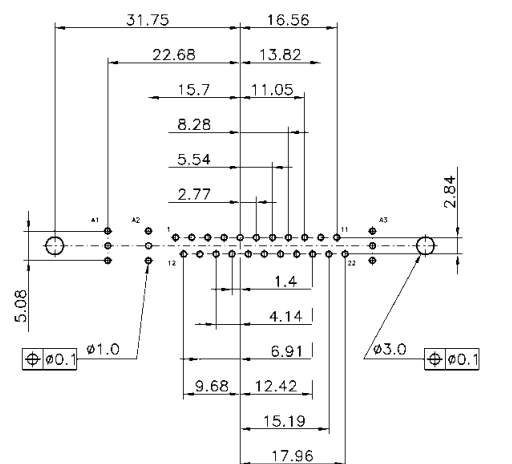
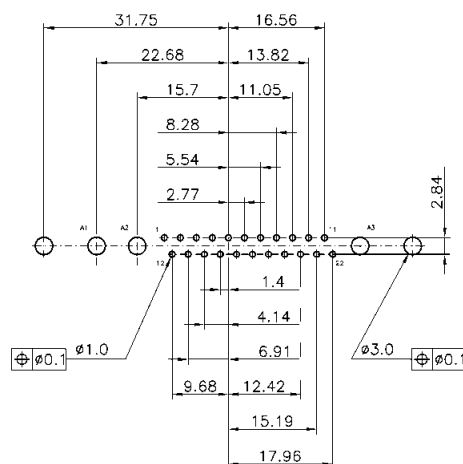
Coaxial contact



24W7



25W3



D-Sub

* 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

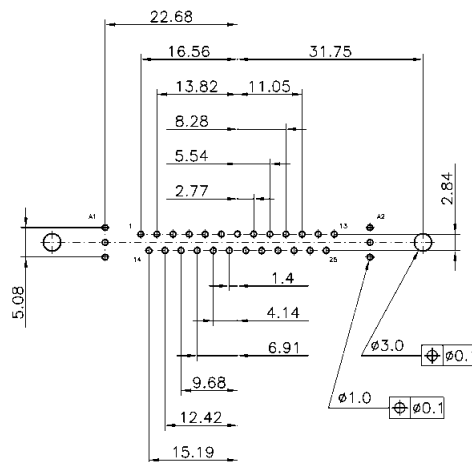
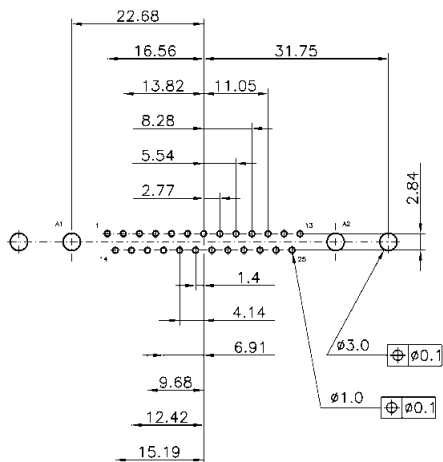
Dimensions in mm

Male connector*

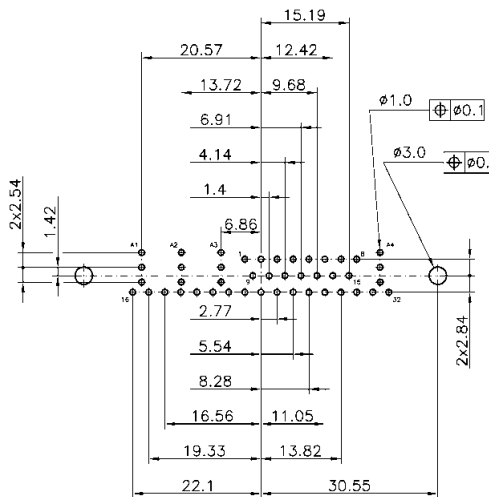
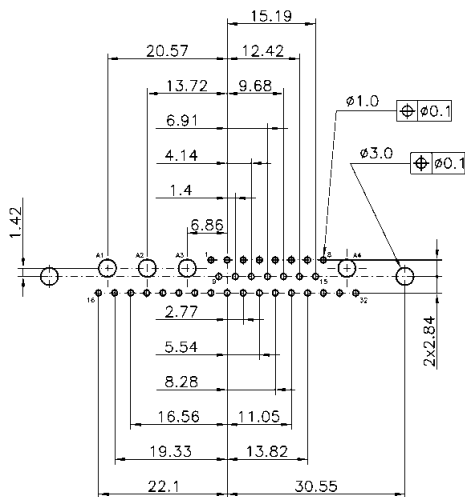
27W2

Power contact

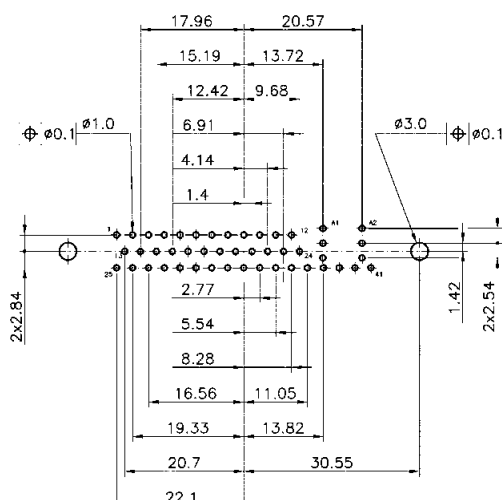
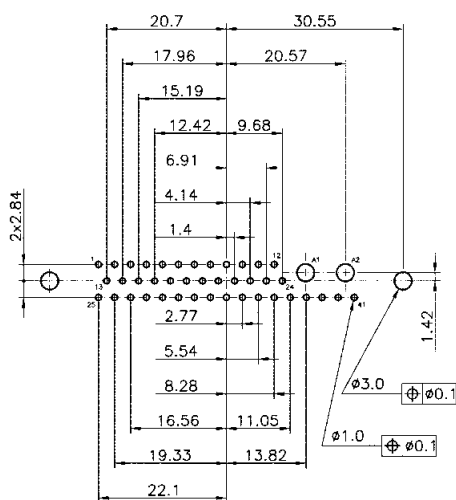
Coaxial contact



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

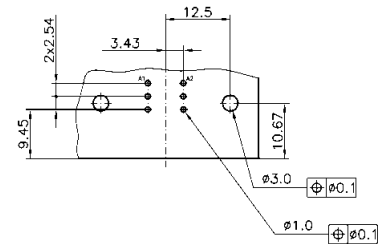
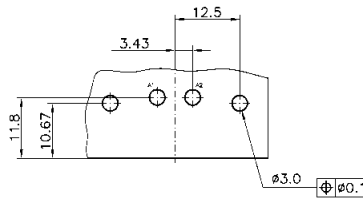
Identification Drawing Dimensions in mm

Male connector*

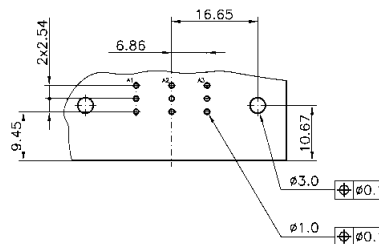
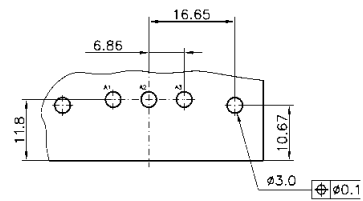
Power contact

Coaxial contact

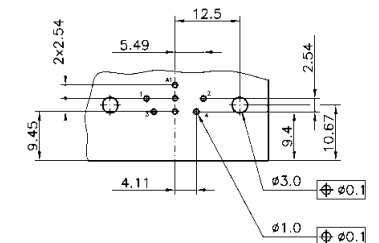
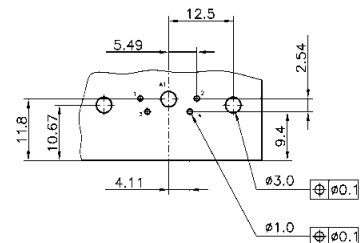
2W2 / 2W2C



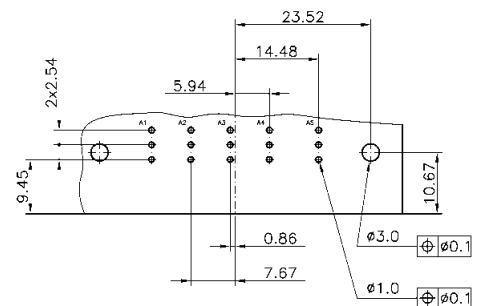
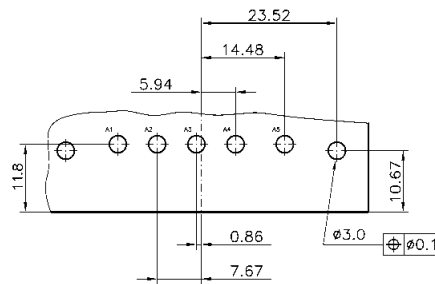
3W3 / 3W3C



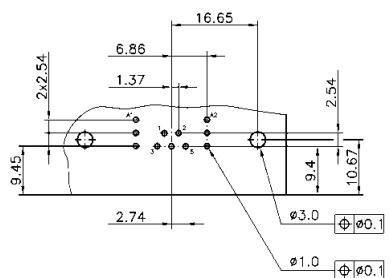
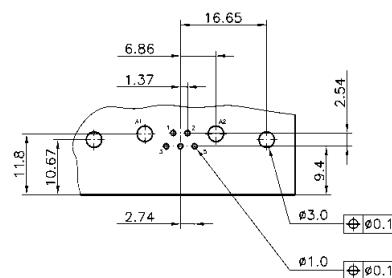
5W1



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

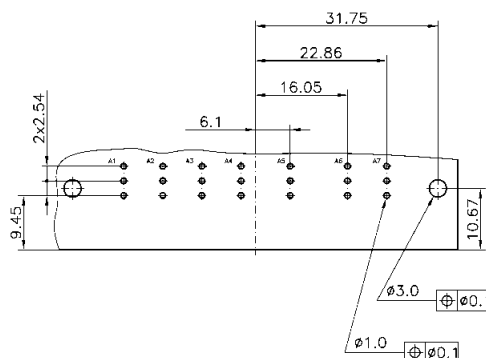
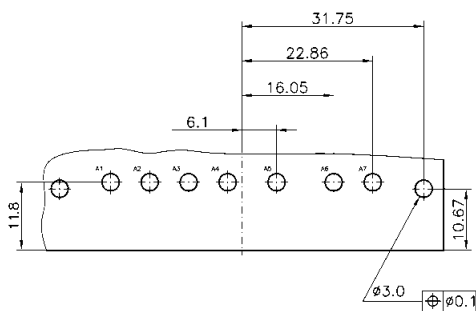
Dimensions in mm

Male connector*

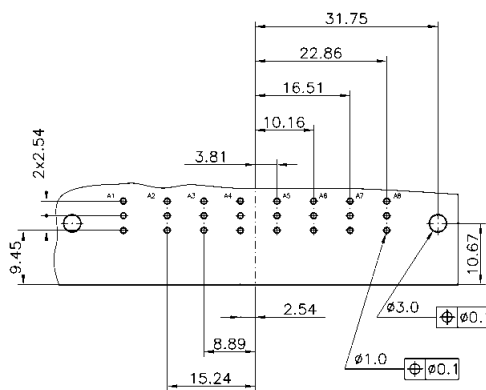
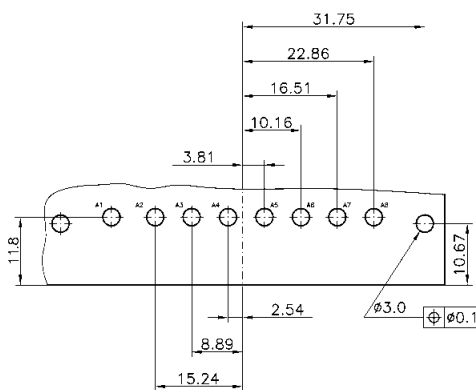
7W7

Power contact

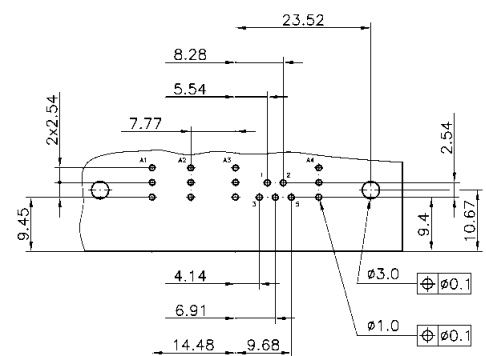
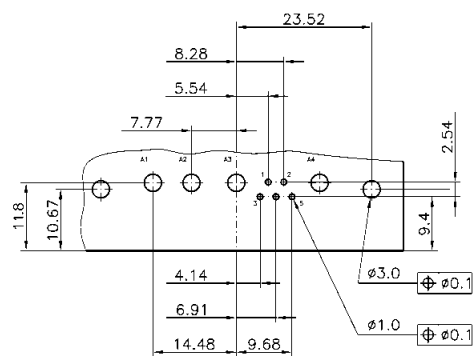
Coaxial contact



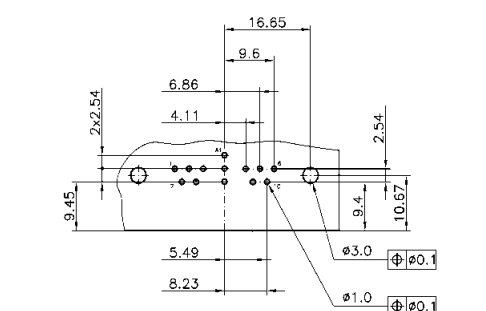
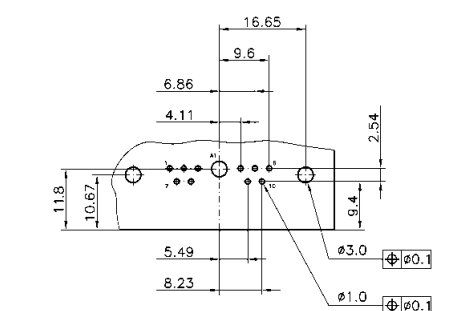
8W8



9W4



11W1



D-Sub

* 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

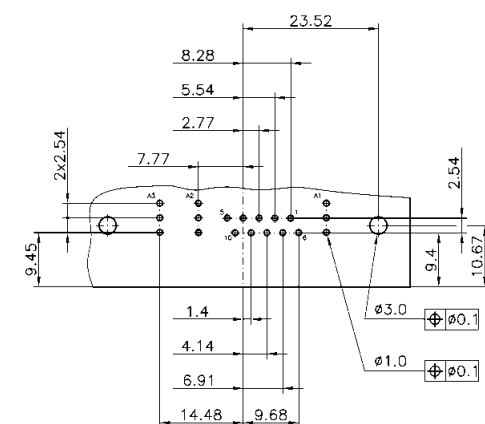
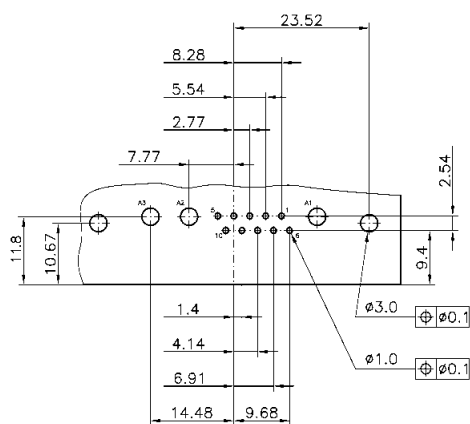
Dimensions in mm

Male connector*

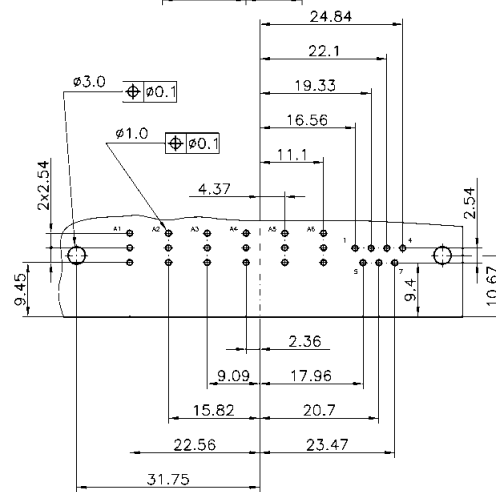
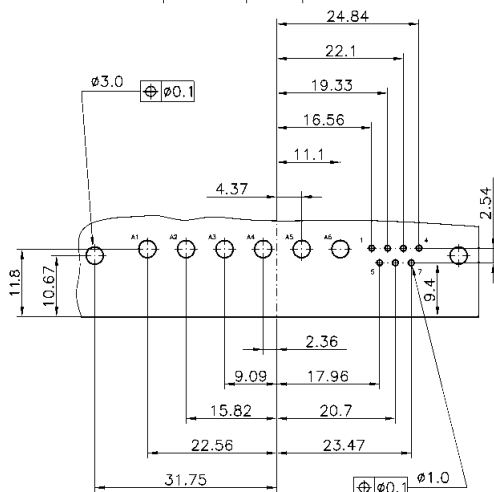
13W3

Power contact

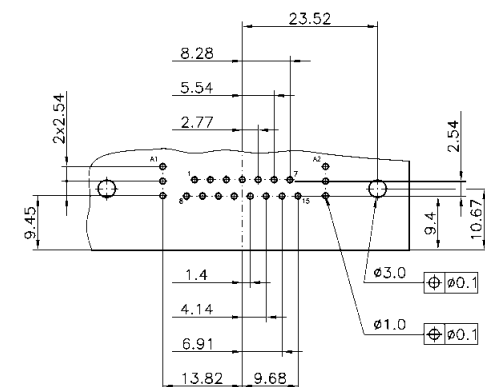
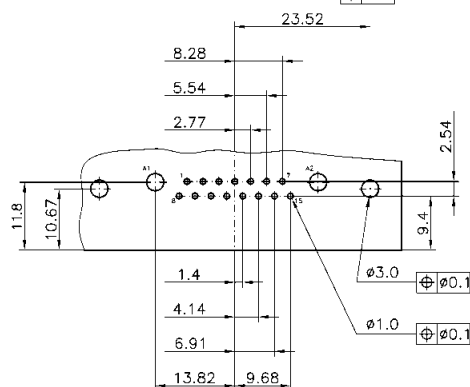
Coaxial contact



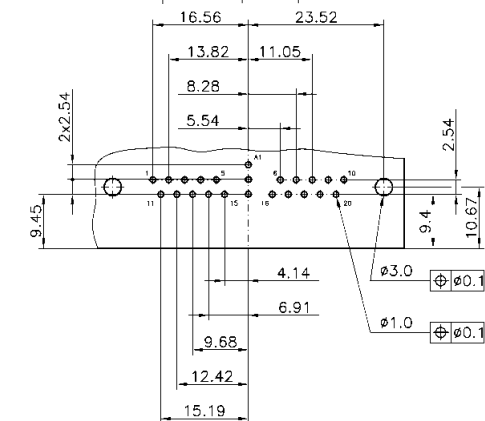
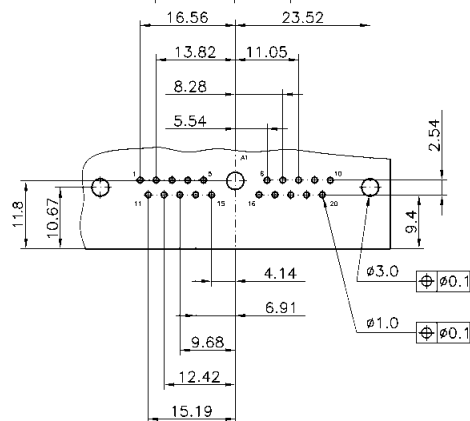
13W6



17W2



21W1



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

D-Sub

Board drillings for connectors with right angled pcb contacts

Identification

Drawing

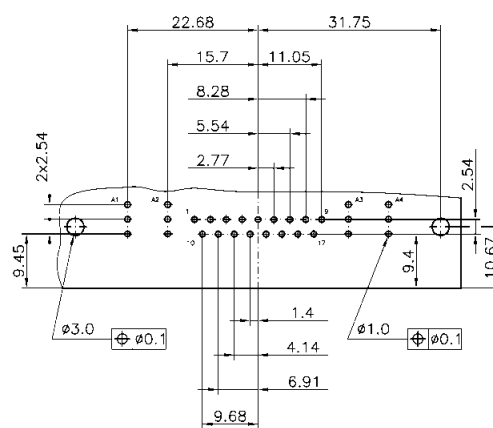
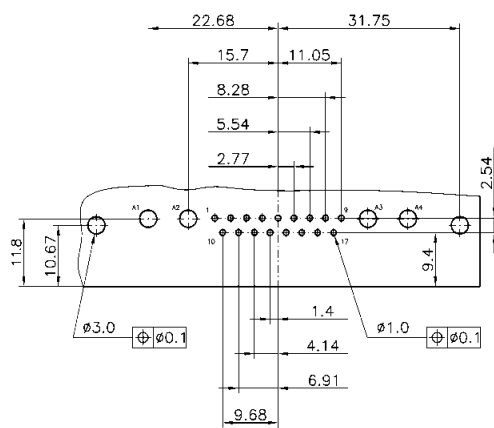
Dimensions in mm

Male connector*

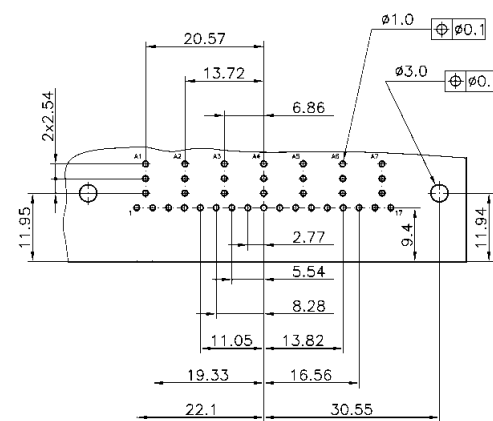
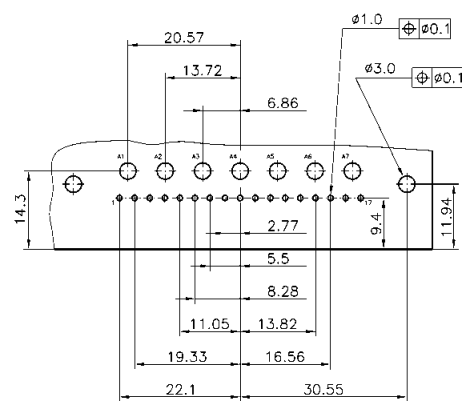
21WA4

Power contact

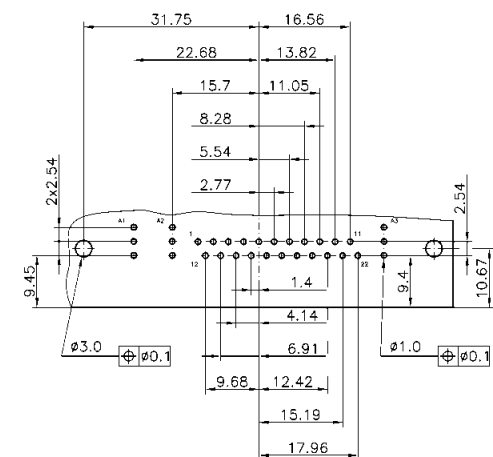
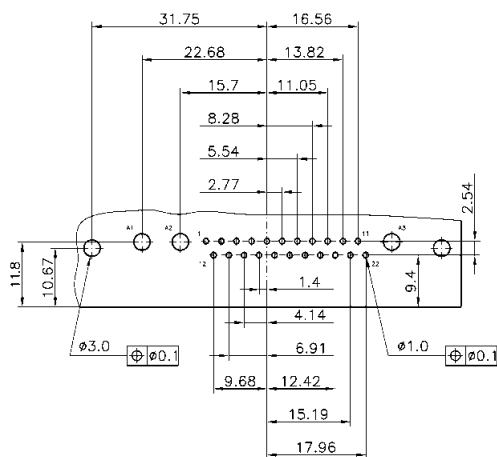
Coaxial contact



24W7



25W3



D-Sub

* 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

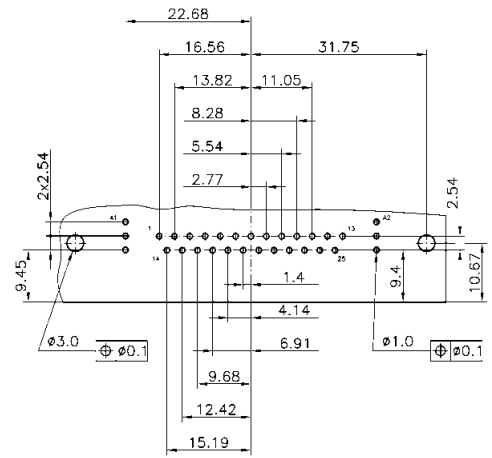
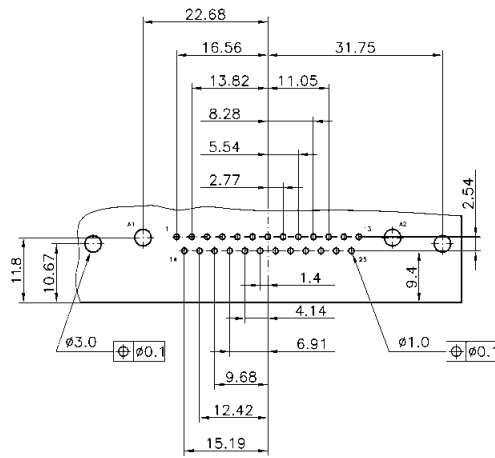
Dimensions in mm

Male connector*

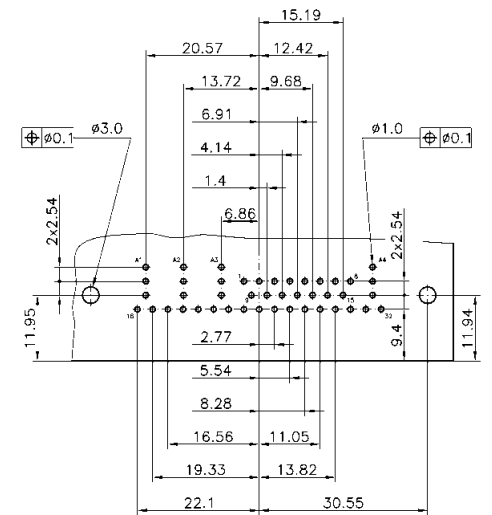
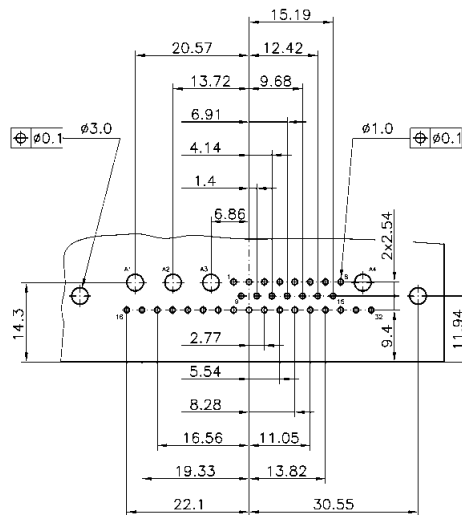
27W2

Power contact

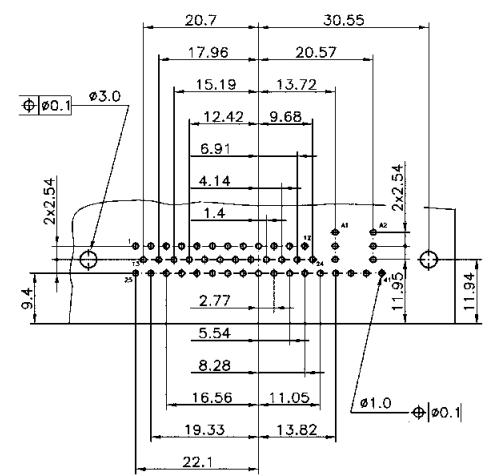
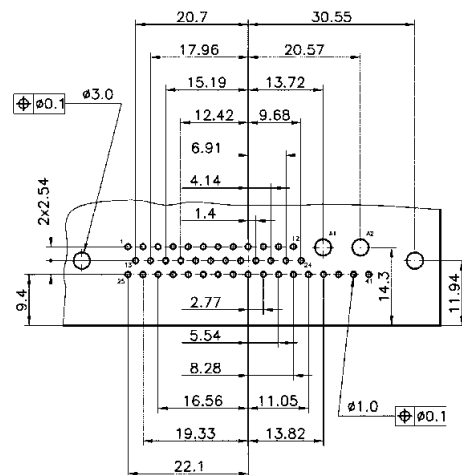
Coaxial contact



36W4



43W2



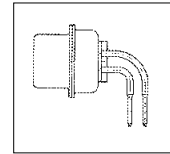
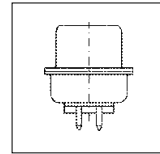
D-Sub

* 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

- | | | | |
|------------------------------|-------------------------------|--------------------------------|-------------------------------|
| <input type="checkbox"/> 2W2 | <input type="checkbox"/> 7W7 | <input type="checkbox"/> 13W6 | <input type="checkbox"/> 25W3 |
| <input type="checkbox"/> 3W3 | <input type="checkbox"/> 8W8 | <input type="checkbox"/> 17W2 | <input type="checkbox"/> 27W2 |
| <input type="checkbox"/> 5W1 | <input type="checkbox"/> 9W4 | <input type="checkbox"/> 21W1 | <input type="checkbox"/> 36W4 |
| <input type="checkbox"/> 5W5 | <input type="checkbox"/> 11W1 | <input type="checkbox"/> 21WA4 | <input type="checkbox"/> 43W2 |
| <input type="checkbox"/> 7W2 | <input type="checkbox"/> 13W3 | <input type="checkbox"/> 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

- | | |
|--------------------------------------|--|
| <input type="checkbox"/> 2 mm / PU-2 | <input type="checkbox"/> 2.6 mm / PU-N4* 2.5 |
| <input type="checkbox"/> 3 mm / PU-3 | <input type="checkbox"/> 4 mm / PU-4 |

D-Sub

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 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: _____

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)

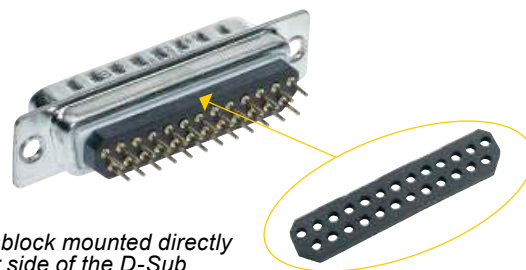
Same layout and shell dimensions as standard D-Sub connectors, no modification of PCB design necessary

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

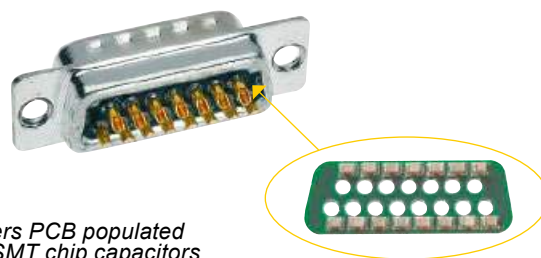
HARTINGs broad Filter range



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

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

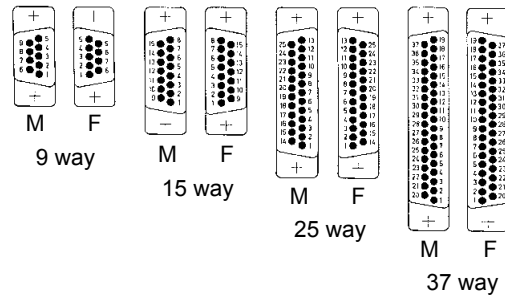
Materials
 Insulation PBT, flame retardant acc. to UL 94-V0

Contacts Copper alloy

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

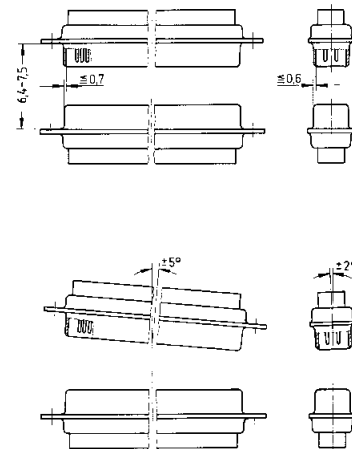
Metal shell Steel (tin-plated)

Contact arrangement
 View from termination side



M = Male connector
 F = Female connector

Mating conditions as per CECC 75301



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

D-Sub

Number of contacts

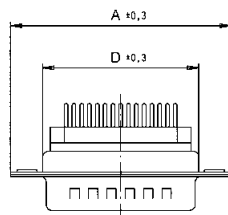
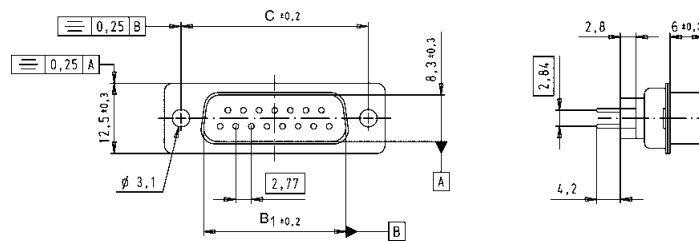
9-25



Solder pins, straight, through hole

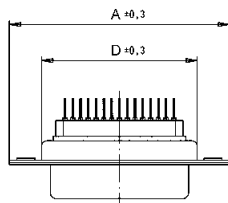
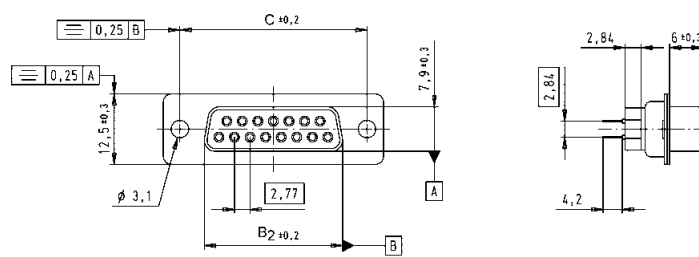
Identification	No. of contacts	Part number	
		male connectors	female connectors
Connectors with ferrite-filter	9	09 64 122 7800	09 64 112 7800
	15	09 64 222 7800	09 64 212 7800
	25	09 64 322 7800	09 64 312 7800

Male connector

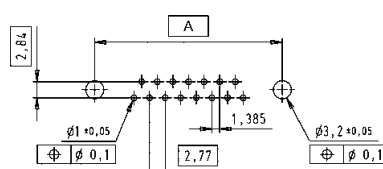


No. of contacts	A	B ₁	B ₂	C	D
9	30.8	16.92	16.3	25.0	19.2
15	39.2	25.25	24.6	33.3	27.7
25	53.1	38.96	38.3	47.1	41.1

Female connector



Board drillings



Dimensions in mm

Number of contacts

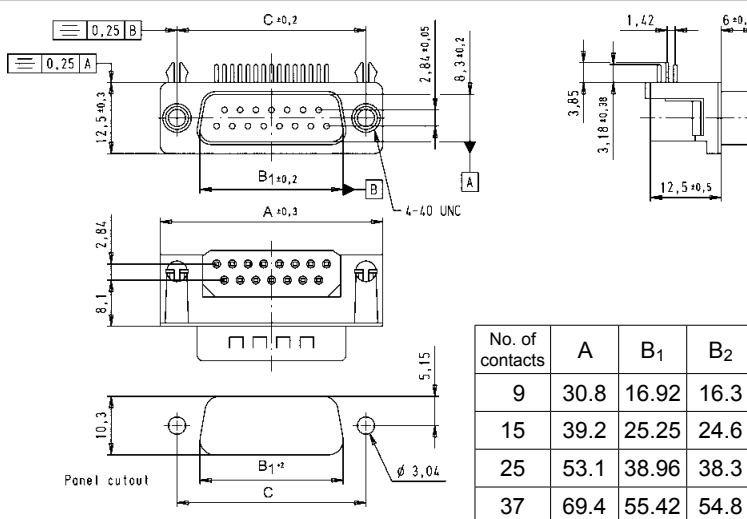
9-37



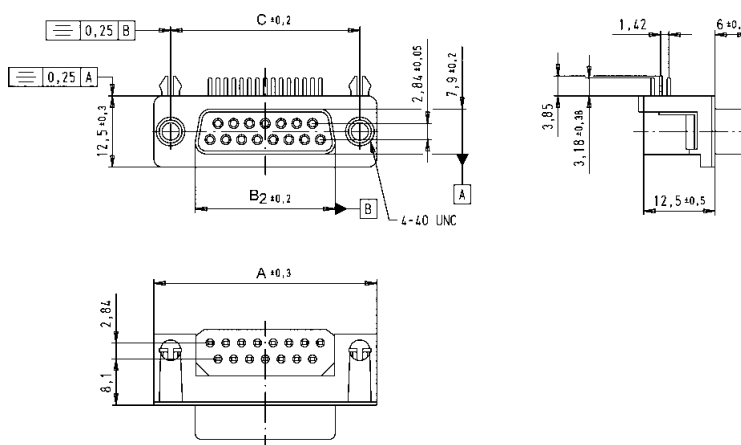
Solder pins, right angled, board lock and clinch nut

Identification	No. of contacts	Part number	
		male connectors	female connectors
Connectors with ferrite-filter	9	09 64 123 7802	09 64 113 7802
	15	09 64 223 7802	09 64 213 7802
	25	09 64 323 7802	09 64 313 7802
	37	09 64 423 7802	09 64 413 7802

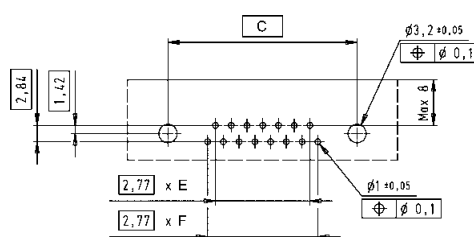
Male connector



Female connector



Board drillings



Dimensions in mm

D-Sub

Number of contacts

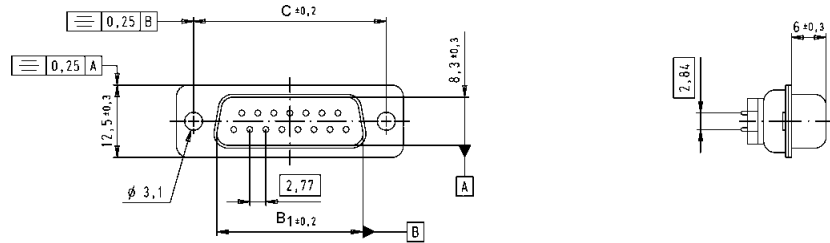
9-37



Solder buckets, through hole

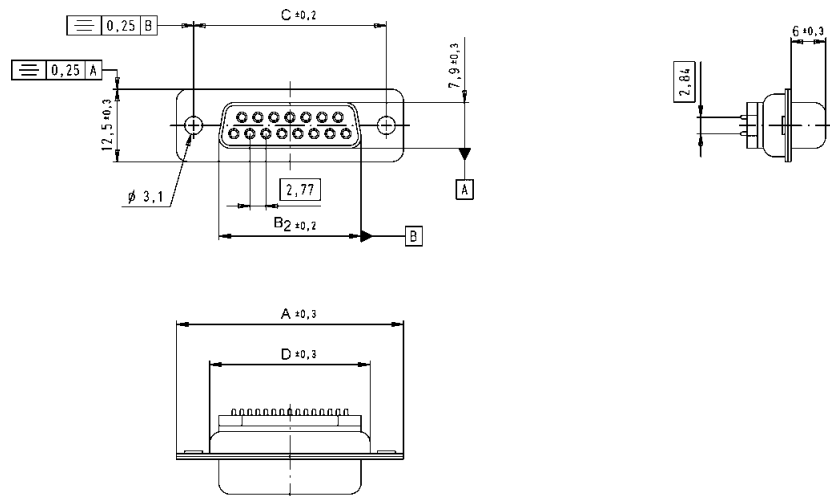
Identification	No. of contacts	Part number	
		male connectors	female connectors
Connectors with ferrite-filter	9	09 64 121 7800	09 64 111 7800
	15	09 64 221 7800	09 64 211 7800
	25	09 64 321 7800	09 64 311 7800
	37	09 64 421 7800	09 64 411 7800

Male connector



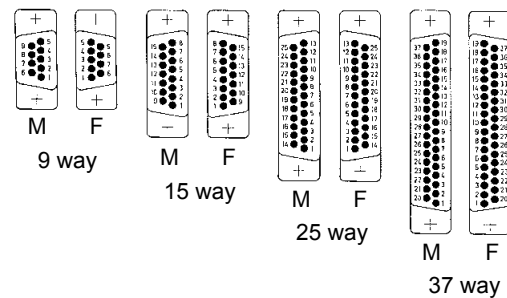
No. of contacts	A	B ₁	B ₂	C	D
9	30.8	16.92	16.3	25.0	19.2
15	39.2	25.25	24.6	33.3	27.7
25	53.1	38.96	38.3	47.1	41.1
37	69.4	55.42	54.8	63.5	57.3

Female connector



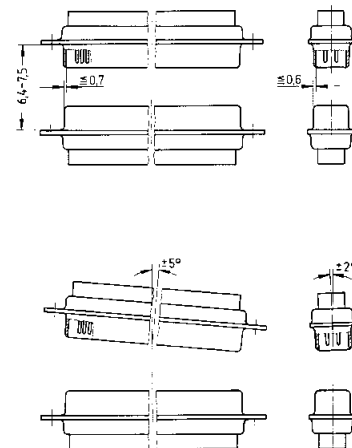
Number of contacts	9, 15, 25, 37
Working current	7.5 A max. (connectors) 6.5 A max. (filter adapters)
Working voltage	100 V max. for standard capacitance values – higher working voltages are available as specific.
Dielectric withstanding voltage	250 V DC max. – higher dielectric withstanding voltages are available as specific (see page 05.112)
Contact resistance	≤ 10 mΩ
Insulation resistance	≥ 1000 MΩ
Temperature range	-55 °C ... +125 °C (connectors) Heat deflection temperature limit according to DIN 53461: ... +255 °C -20 °C ... +125 °C (filter adapters)
Terminations	a) Solder buckets max. 0.8 mm ² b) Solder pins Ø 0.6 mm for P.C.B. holes Ø 0.8/1 mm c) Solder pins, angled 90° Ø 0.6 mm for P.C.B. holes Ø 0.8/1 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 60512
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⁾	Frequency [MHz]	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

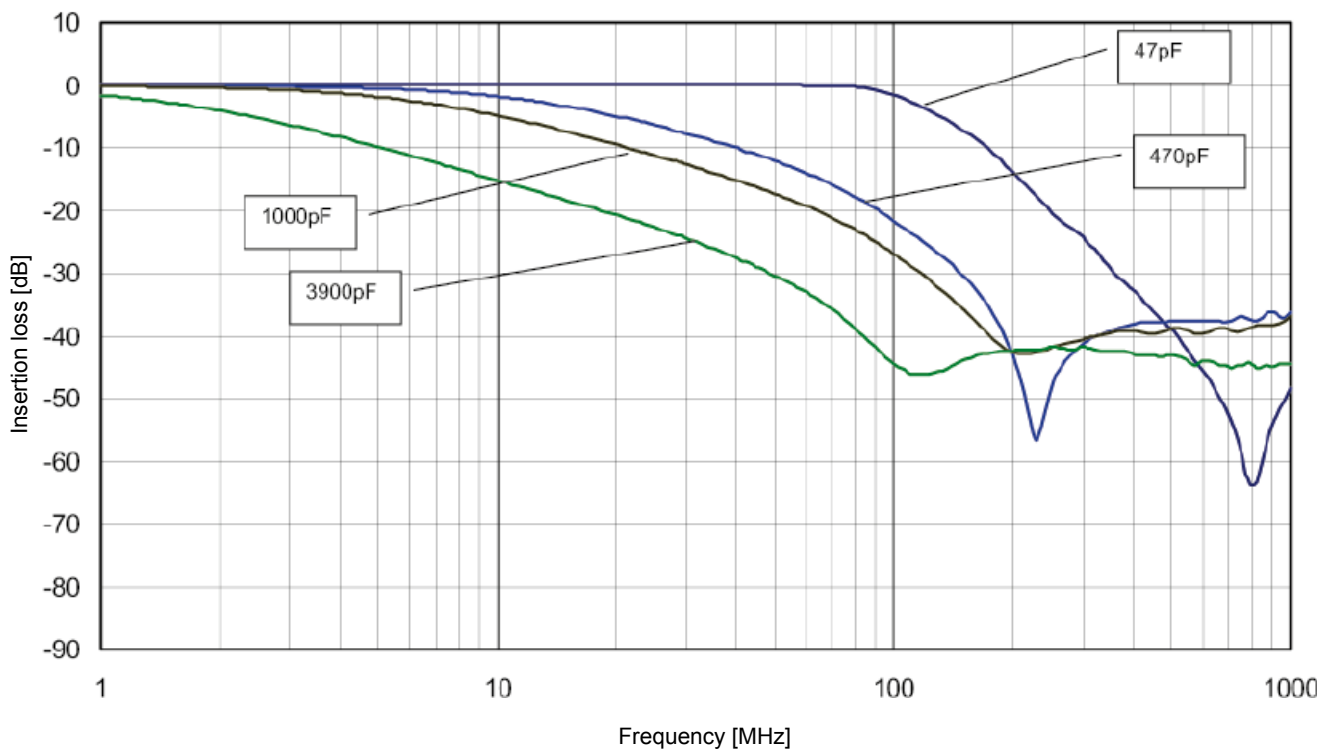
¹⁾ Capacitance tolerance = ± 20 % (For other capacitor values see pages 05.112 ff).

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 05.112)

Typical insertion loss for different filters (measured)



Number of contacts

9-37



Filter adapters

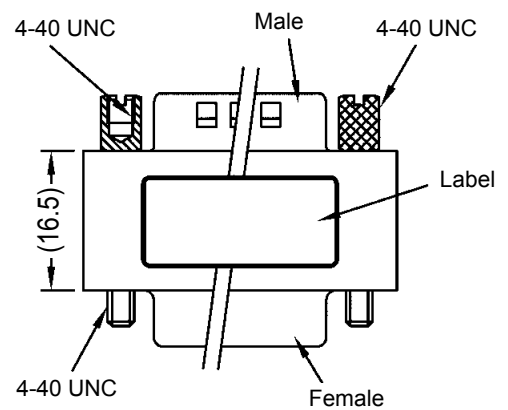
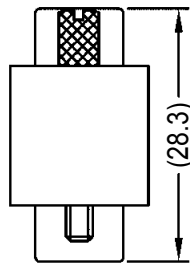
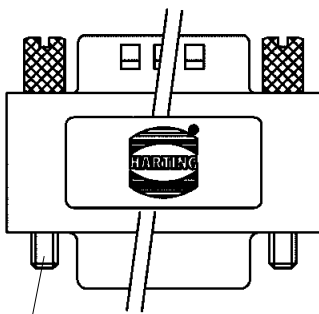
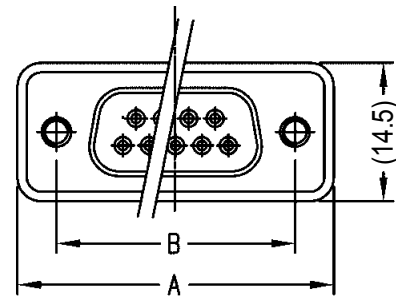
Identification	No. of contacts	Part number
Male / female filter adapters with C filter	9	09 64 100 72 ...
	15	09 64 200 72 ...
	25	09 64 300 72 ...
	37	09 64 400 72 ...

Please insert digit for capacitance	47 pF ▶	10
	470 pF ▶	20
	1000 pF ▶	30
	3900 pF ▶	40

D-Sub

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 number	
		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



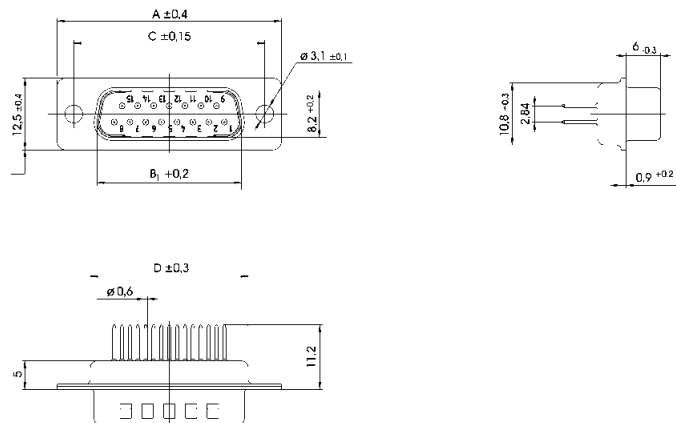
Turned solder pins, straight, through hole

Identification

Drawing

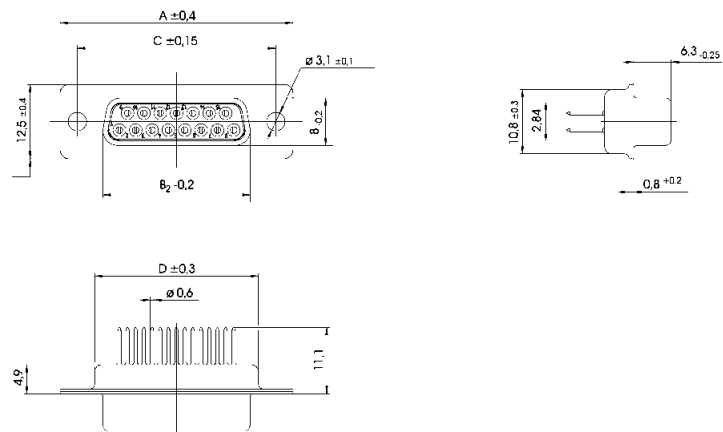
Dimensions in mm

Male connector

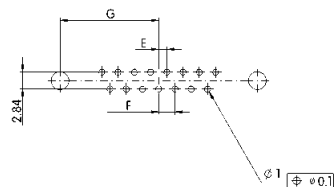


No. of contacts	A	B ₁	B ₂	C	D	E	F	G
9	30.8	16.9	16.4	25.00	19.3	1.37	2.74	12.50
15	39.1	25.2	24.7	33.30	27.5	1.37	2.74	16.65
25	53.0	38.9	38.5	47.04	41.3	1.40	2.77	23.52
37	69.3	55.3	54.9	63.50	57.7	1.40	2.77	31.75

Female connector



Board drillings



Number of contacts

9-37



Turned solder pins, straight, straight board clips

Identification	No. of contacts	Part number	
		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	

Number of contacts

9-37



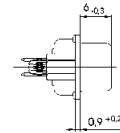
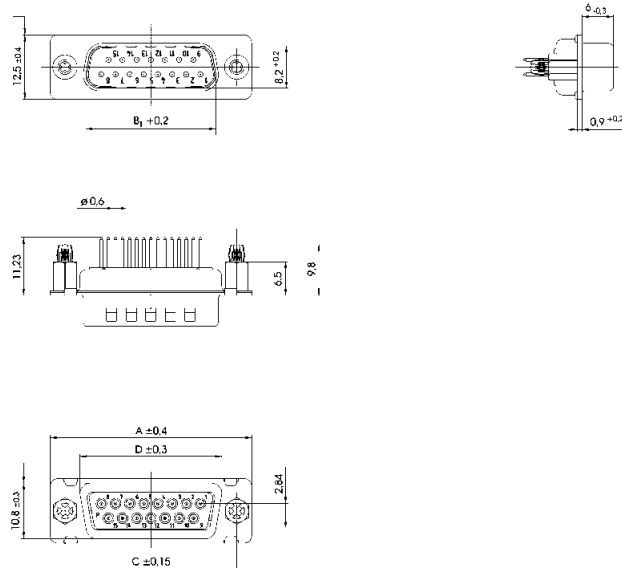
Turned solder pins, straight, straight board clips

Identification

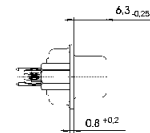
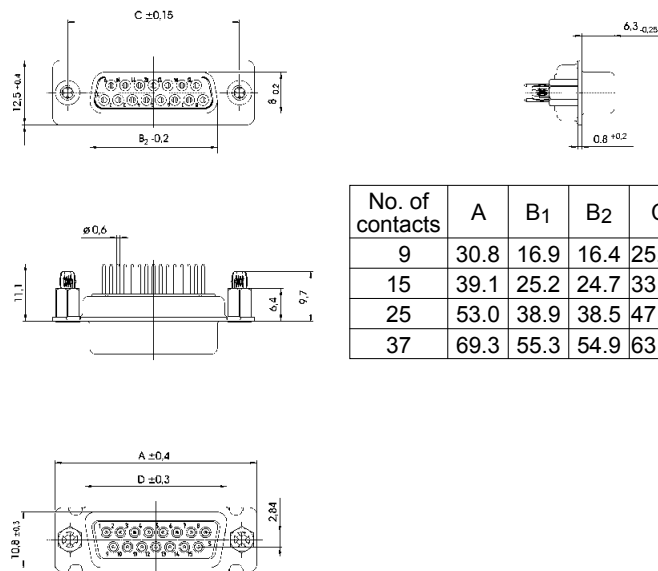
Drawing

Dimensions in mm

Male connector

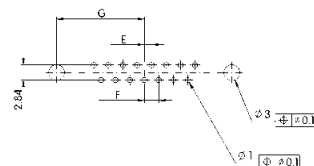


Female connector



No. of contacts	A	B1	B2	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



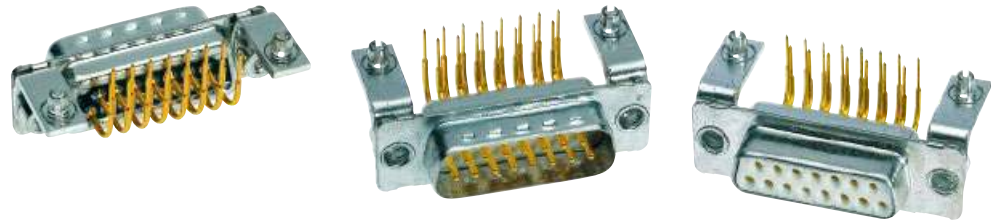
Turned solder pins, right angled, bracket, board lock and clinch nut

Identification	No. of contacts	Part number	
		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	

D-Sub

Number of contacts

9-37



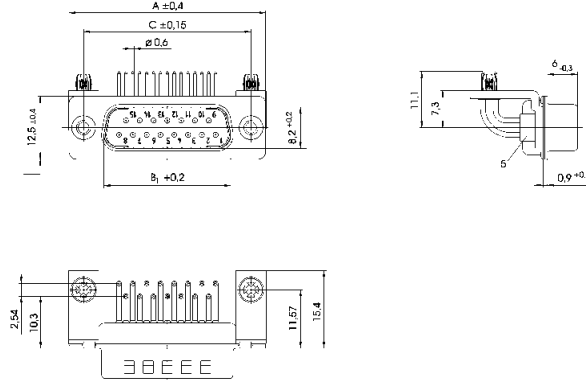
Turned solder pins, right angled, bracket, board lock and clinch nut

Identification

Drawing

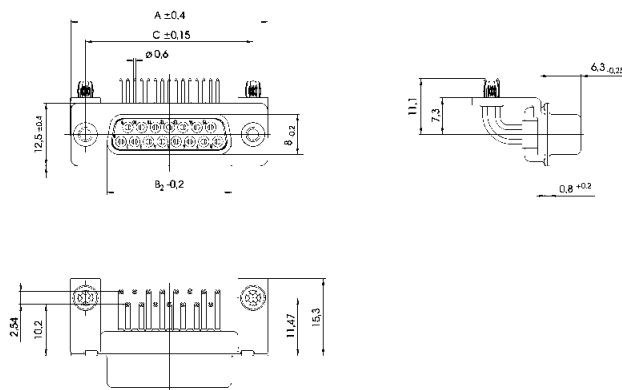
Dimensions in mm

Male connector

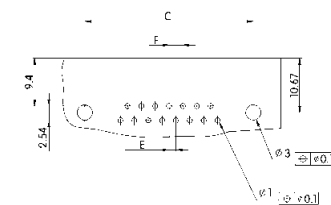


No. of contacts	A	B ₁	B ₂	C	E	F
9	30.8	16.9	16.4	25.00	1.37	2.74
15	39.1	25.2	24.7	33.30	1.37	2.74
25	53.0	38.9	38.5	47.04	1.40	2.77
37	69.3	55.3	54.9	63.50	1.40	2.77

Female connector



Board drillings



Number of contacts

9-37



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

Identification	No. of contacts	Part number	
		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	

D-Sub

Number of contacts

9-37



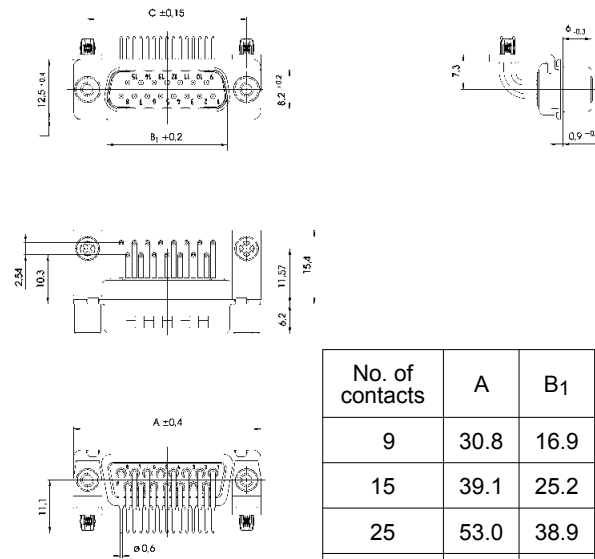
Turned solder pins, right angled, bracket, board lock and female screw

Identification

Drawing

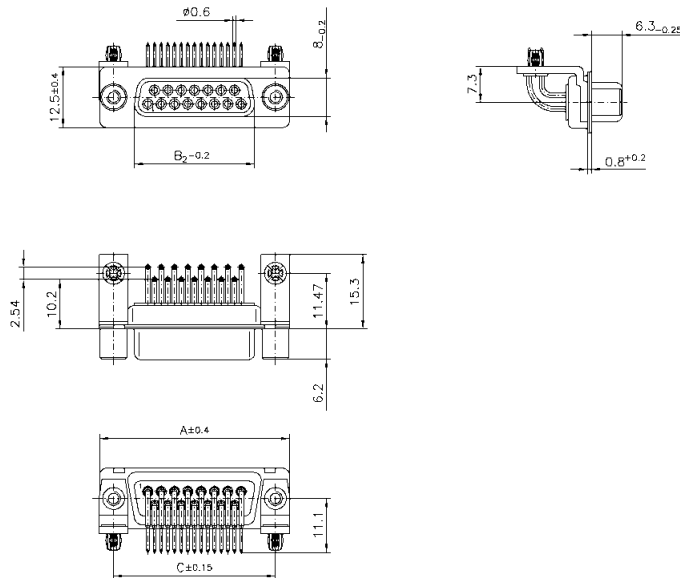
Dimensions in mm

Male connector

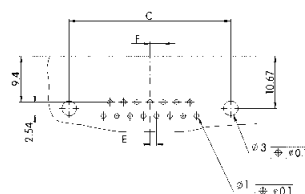


No. of contacts	A	B ₁	B ₂	C	E	F
9	30.8	16.9	16.4	25.00	1.37	2.74
15	39.1	25.2	24.7	33.30	1.37	2.74
25	53.0	38.9	38.5	47.04	1.40	2.77
37	69.3	55.3	54.9	63.50	1.40	2.77

Female connector



Board drillings



Number of contacts

9-37



Solder buckets, through hole

Identification	No. of contacts	Part number	
		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

D-Sub

Number of contacts

9-37



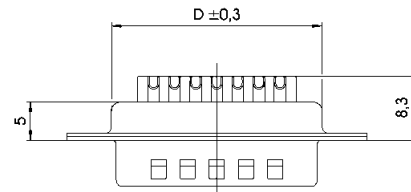
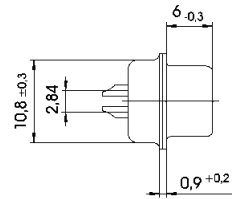
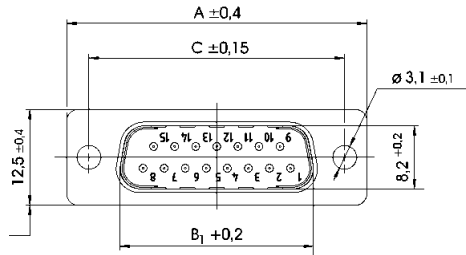
Solder buckets, through hole

Identification

Drawing

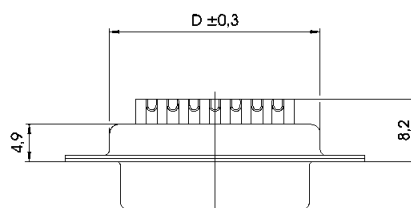
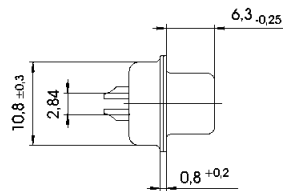
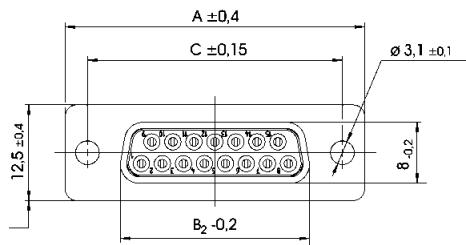
Dimensions in mm

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 number	
		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



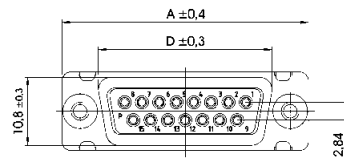
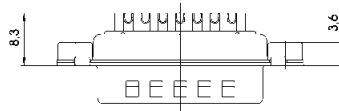
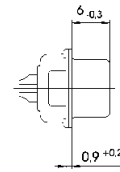
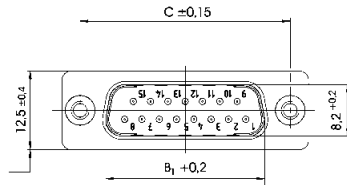
Solder buckets, clinch nut

Identification

Drawing

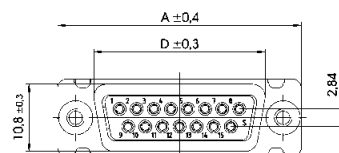
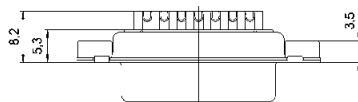
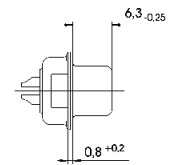
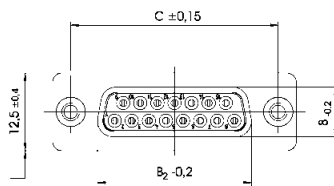
Dimensions in mm

Male connector



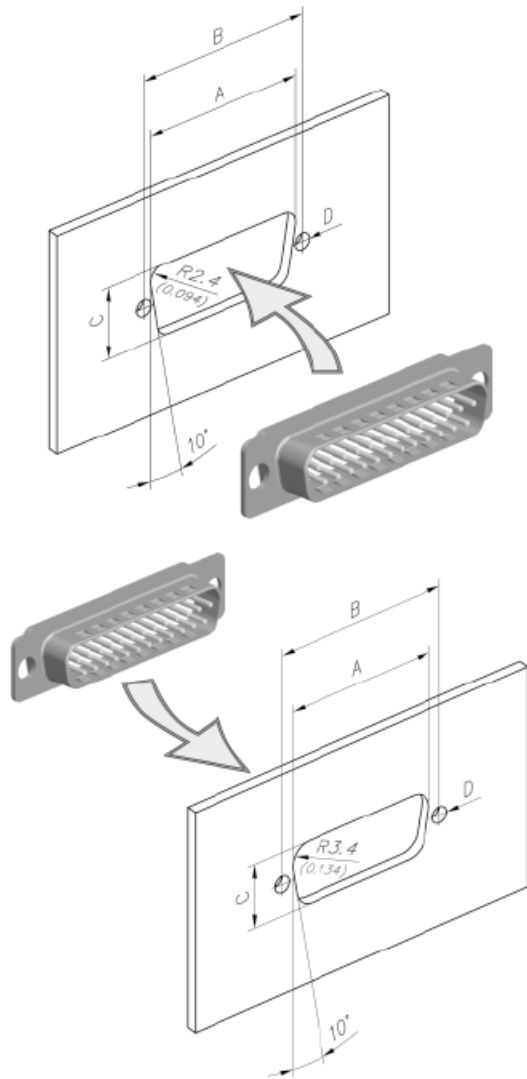
No. of contacts	A	B ₁	B ₂	C	D
9	30.8	16.9	16.4	25.00	19.3
15	39.1	25.2	24.7	33.30	27.5
25	53.0	38.9	38.5	47.04	41.3
37	69.3	55.3	54.9	63.50	57.7

Female connector

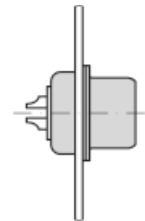


Panel cut outs / panel mountings

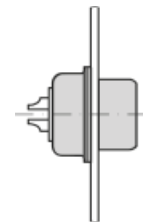
Panel cut outs



Front mounting

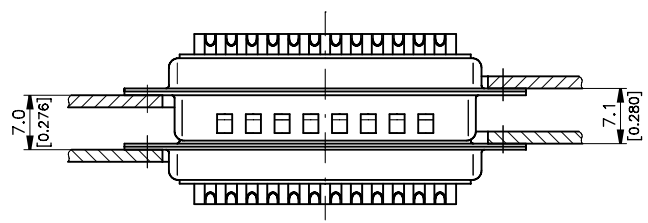
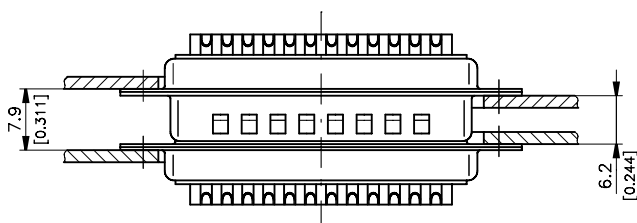


Rear mounting



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).

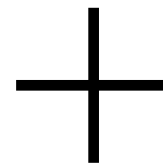
The biggest advantage of the HARTING technology is that multiple filter assemblies can be configured to create different filter designs: C, Pi, L and T types. Since any value of capacitor can be placed on any contact, a wide range of configurations can be built, it is even possible to have an individual 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 05.114 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 05.114 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	<input type="checkbox"/> Male	<input type="checkbox"/> Female			
	No. of contacts	<input type="checkbox"/> 9	<input type="checkbox"/> 15	<input type="checkbox"/> 25	<input type="checkbox"/> 37	<input type="checkbox"/> 50
	Termination	<input type="checkbox"/> Solder bucket	<input type="checkbox"/> Straight pcb	<input type="checkbox"/> R/A Eur, 2.54 mm	<input type="checkbox"/> R/A US, 2.84 mm	

Mixed D-Sub	Gender	<input type="checkbox"/> Male	<input type="checkbox"/> Female		
	Contact arrangement	<input type="checkbox"/> 3W3	<input type="checkbox"/> 3W3C	<input type="checkbox"/> Other _____	
	Power contact rating	<input type="checkbox"/> 10 A	<input type="checkbox"/> 20 A	<input type="checkbox"/> 30 A	<input type="checkbox"/> 40 A
	Termination	<input type="checkbox"/> Solder bucket	<input type="checkbox"/> Straight pcb	<input type="checkbox"/> R/A pcb (please specify the board drillings)	

Flange thread and board locking options

Right angled version

<input type="checkbox"/> Through hole	
<input type="checkbox"/> Clinch nut 4-40 UNC	
<input type="checkbox"/> Clinch nut M3	
<input type="checkbox"/> Bracket	
<input type="checkbox"/> Board lock	
<input type="checkbox"/> Female screw lock 4-40 UNC	
<input type="checkbox"/> Female screw lock M3	

Straight version

<input type="checkbox"/> Through hole	
<input type="checkbox"/> Clinch nut 4-40 UNC	
<input type="checkbox"/> Clinch nut M3	
<input type="checkbox"/> Spacer 4-40 UNC	
<input type="checkbox"/> Spacer M3	
<input type="checkbox"/> Female screw lock 4-40 UNC	
<input type="checkbox"/> Spacer 4-40 UNC + board lock	
<input type="checkbox"/> Spacer M3 + board lock	
Spacer + board lock and female screw lock	
<input type="checkbox"/> M3	<input type="checkbox"/> 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): _____

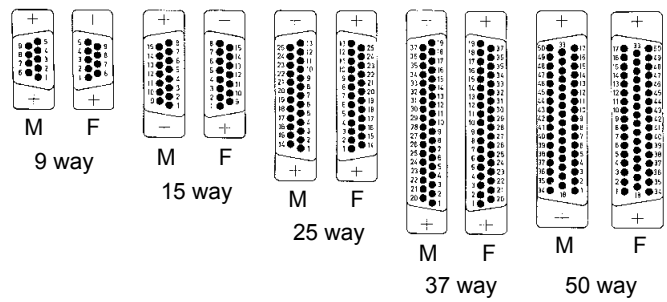
Phone: _____ Special requirements: _____

Fax: _____

E-Mail: _____

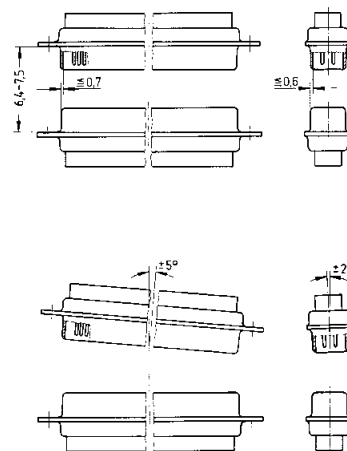
Number of contacts	9, 15, 25, 37, 50 UL recognized
Working current	5 A
Test voltage	1200 V for 1 minute between 2 contacts / contact and shell
Clearance and creepage	≥ 1.0 mm
Contact resistance	Straight contact ≤ 10 mΩ Angled contact ≤ 25 mΩ Angled contact 50-pole ≤ 35 mΩ
Insulation resistance	between contacts ≥ 5000 MΩ
Dielectric strength	50 kV/mm
Temperature range	-25 °C ... +70 °C
Protection	IP67 (per DIN 40050 / 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 S4 = 0.76 μm (30 μinch) Au or PdNi equivalent
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



IP67, turned solder cups

Identification	No. of contacts	Part number
		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

D-Sub

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

9-50



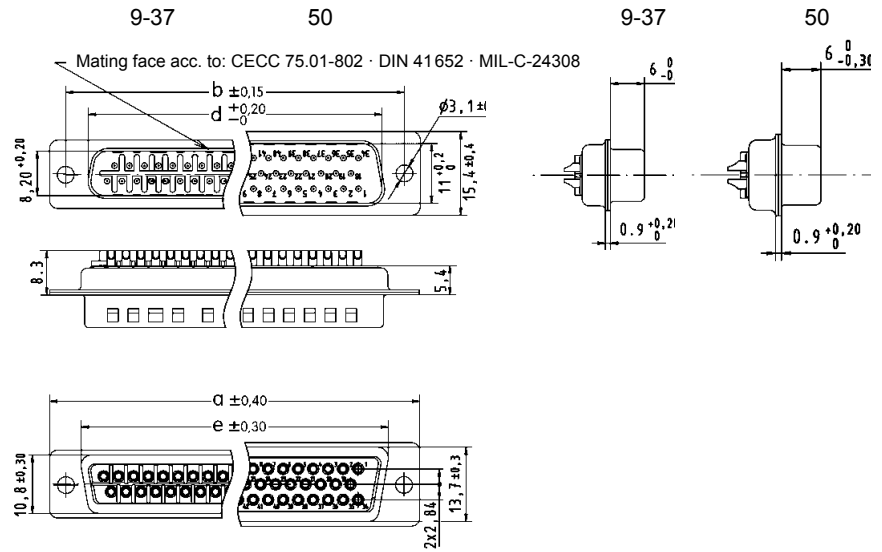
IP67, turned solder cups

Identification

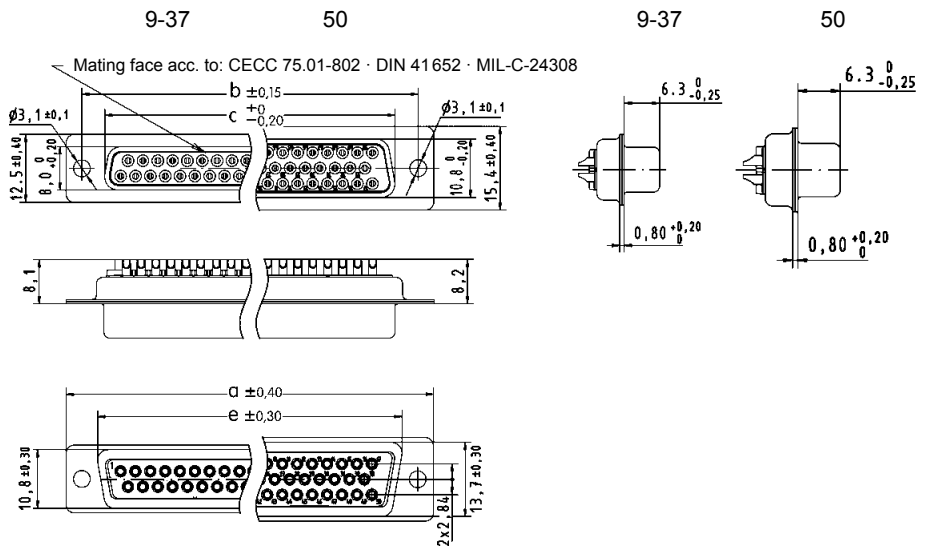
Drawing

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

Number of contacts

9-25



IP67, turned solder cups, with rear plastic mounting plate

Identification	No. of contacts	Part number
<p>Male connector metal shell with dimples</p> <p>Please insert digit for flange thread</p> <p>4-40 UNC ▶ 7 M3 ▶ 9</p>	<p>9 15 25</p>	<p>S4¹⁾</p> <p>09 67 509 . 615 09 67 515 . 615 09 67 525 . 615</p>
<p>Female connector metal shell</p> <p>Please insert digit for flange thread</p> <p>4-40 UNC ▶ 6 M3 ▶ 8</p>	<p>9 15 25</p>	<p>09 67 509 . 715 09 67 515 . 715 09 67 525 . 715</p>

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

9-25



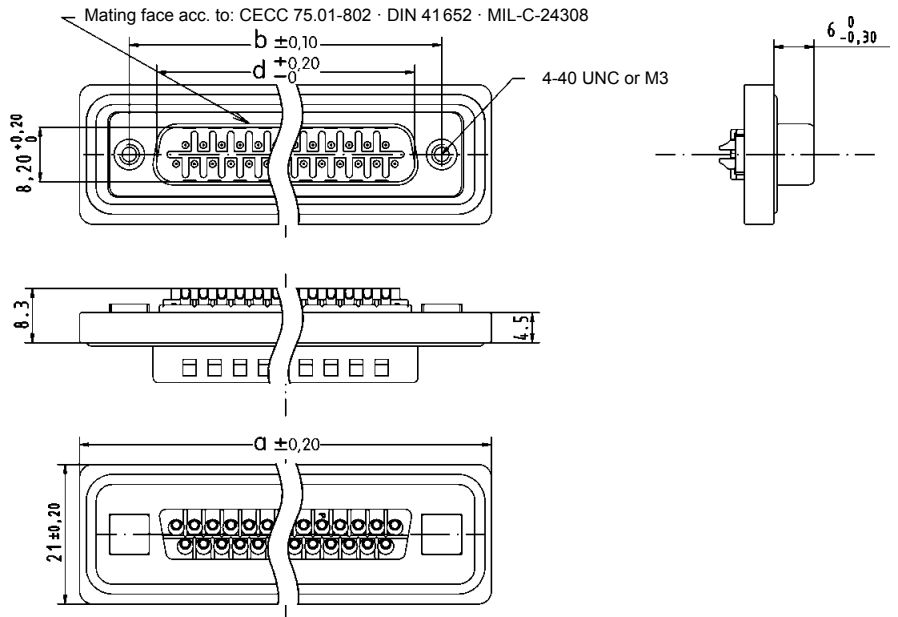
IP67, turned solder cups, with rear plastic mounting plate

Identification

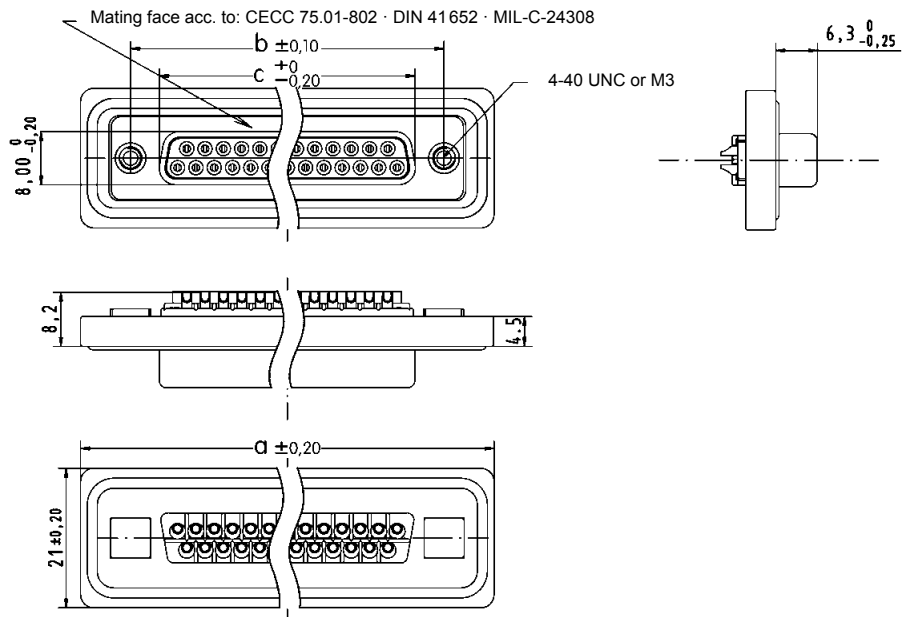
Drawing

Dimensions in mm

Male connector
9 – 25 contacts



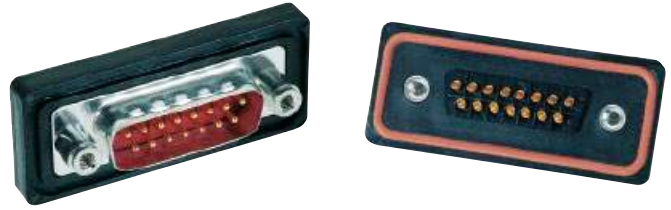
Female connector
9 – 25 contacts



	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



IP67, turned solder cups, with front plastic mounting plate

Identification	No. of contacts	Part number
S4¹⁾		
<p>Male connector metal shell with dimples</p> <p>Please insert digit for flange thread</p> <p>4-40 UNC ▶ 7 M3 ▶ 9</p>	<p>9 15 25</p>	<p>09 67 709 . 615 09 67 715 . 615 09 67 725 . 615</p>
<p>Female connector metal shell</p> <p>Please insert digit for flange thread</p> <p>4-40 UNC ▶ 6 M3 ▶ 8</p>	<p>9 15 25</p>	<p>09 67 709 . 715 09 67 715 . 715 09 67 725 . 715</p>

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

9-25



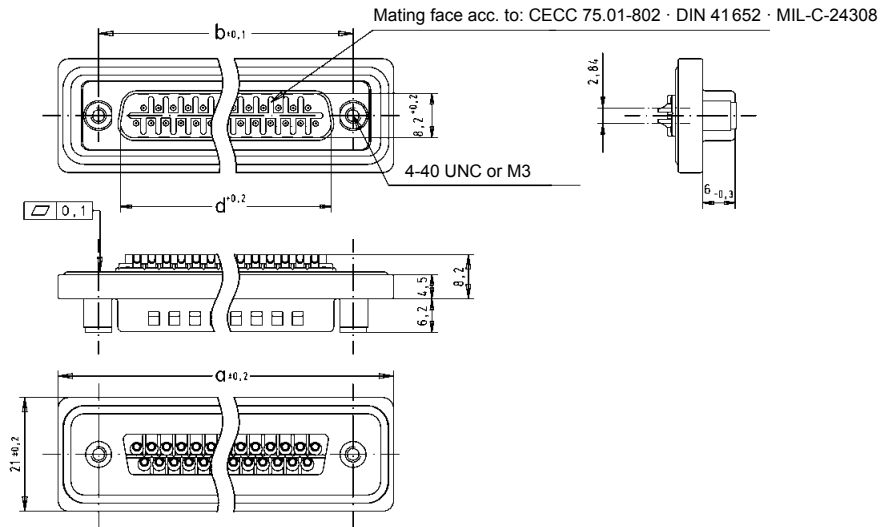
IP67, turned solder cups, with front plastic mounting plate

Identification

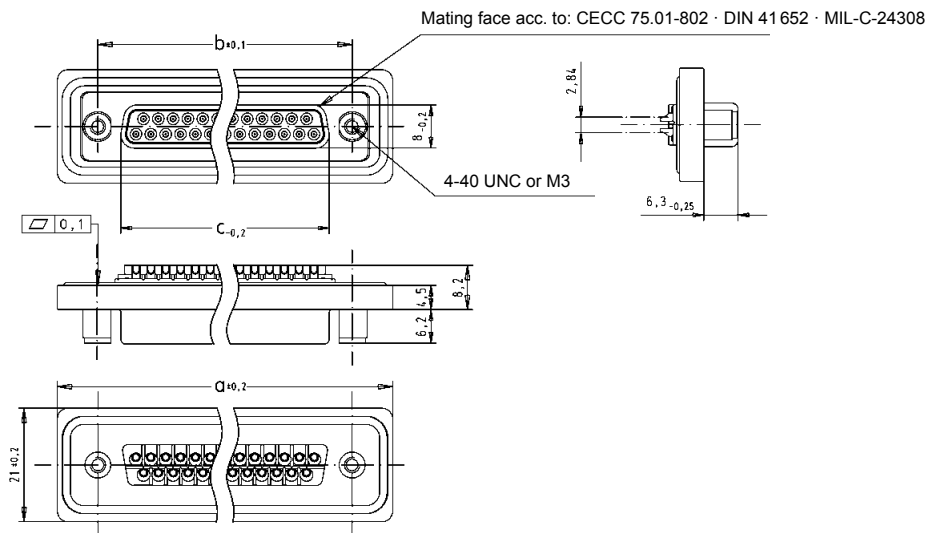
Drawing

Dimensions in mm

Male connector
9 – 25 contacts



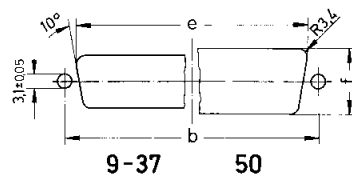
Female connector
9 – 25 contacts



	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 75301-802



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

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

Number of contacts

9–50



IP67, turned solder cups, with rear metal mounting plate

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

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

9-50



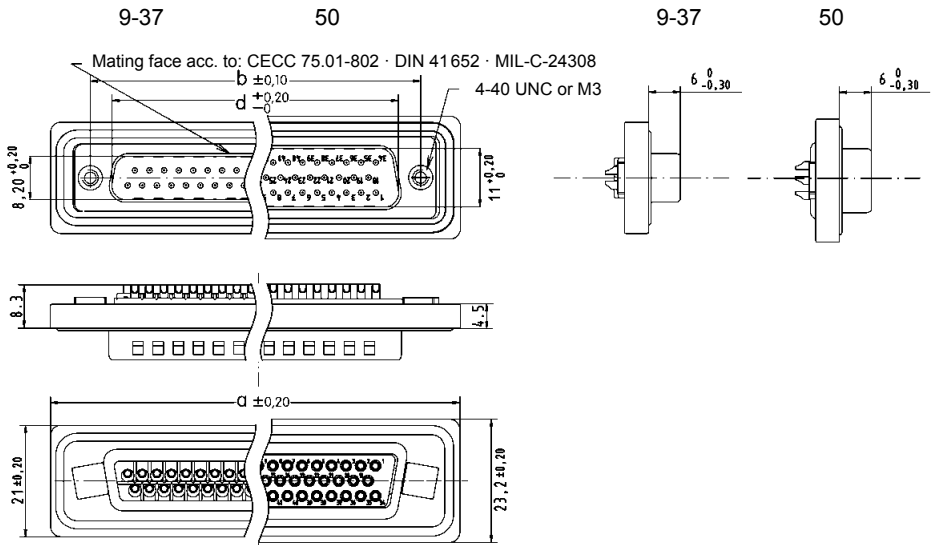
IP67, turned solder cups, with rear metal mounting plate

Identification

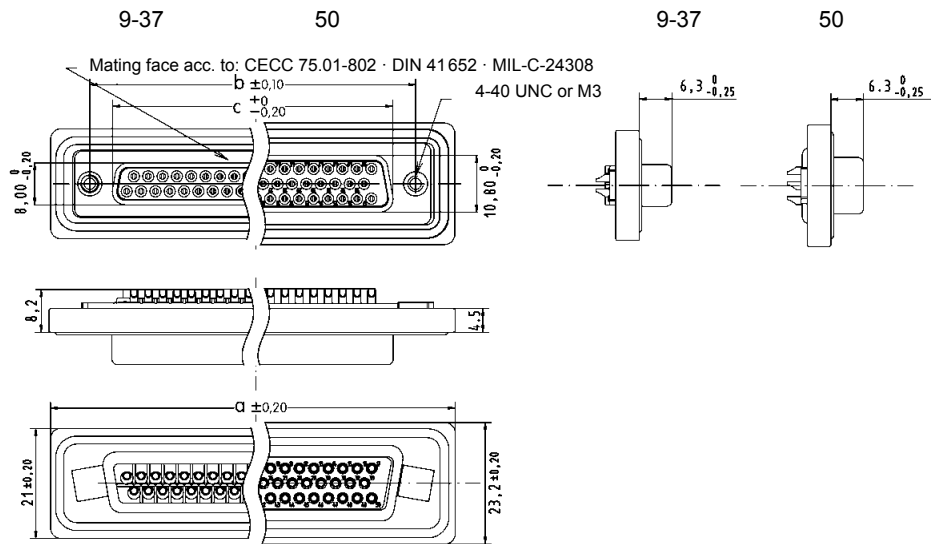
Drawing

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

D-Sub

Number of contacts

9-50



IP67, turned solder cups, with front metal mounting plate

Identification	No. of contacts	Part number
S4¹⁾		
<p>Male connector metal shell with dimples</p> <p>Please insert digit for flange thread</p> <p>4-40 UNC ▶ 7 M3 ▶ 9</p>	<p>9 15 25 37 50</p>	<p>09 67 809 . 615 09 67 815 . 615 09 67 825 . 615 09 67 837 . 615 09 67 850 . 615</p>
<p>Female connector metal shell</p> <p>Please insert digit for flange thread</p> <p>4-40 UNC ▶ 6 M3 ▶ 8</p>	<p>9 15 25 37 50</p>	<p>09 67 809 . 715 09 67 815 . 715 09 67 825 . 715 09 67 837 . 715 09 67 850 . 715</p>

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

9-50



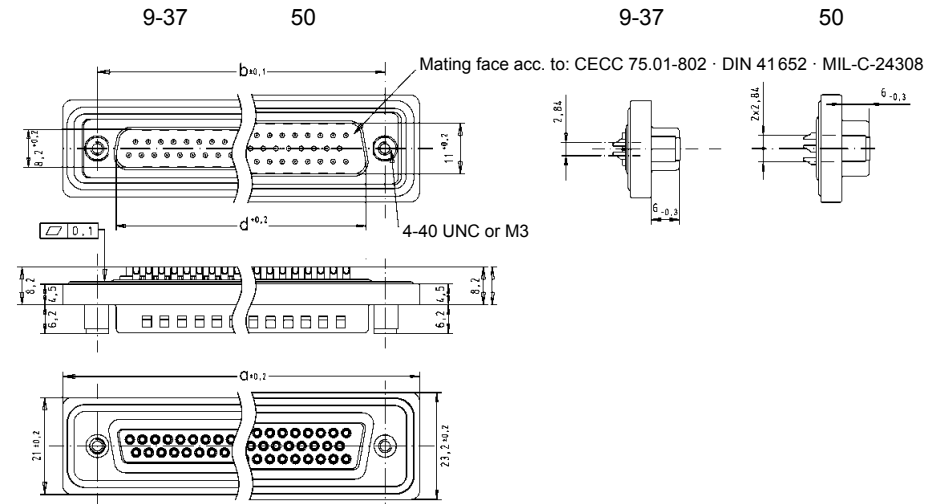
IP67, turned solder cups, with front metal mounting plate

Identification

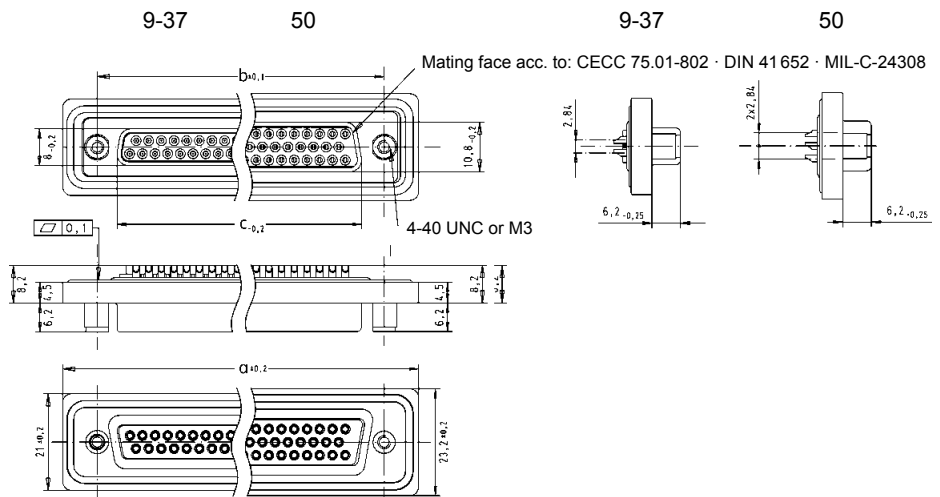
Drawing

Dimensions in mm

Male connector
9 – 50 contacts



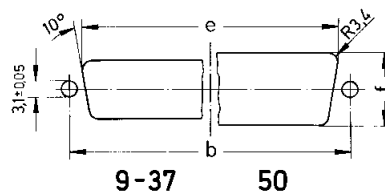
Female connector
9 – 50 contacts



	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 75301-802



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



IP67, straight turned solder pins,
with rear plastic mounting plate, spacer and board lock

Identification	No. of contacts	Part number
S4¹⁾		
<p>Male connector metal shell with dimples</p> <p>Please insert digit for flange thread</p> <p>4-40 UNC ▶ 7 M3 ▶ 9</p>	<p>9 15 25</p>	<p>09 67 509 . 675 09 67 515 . 675 09 67 525 . 675</p>
<p>Female connector metal shell</p> <p>Please insert digit for flange thread</p> <p>4-40 UNC ▶ 6 M3 ▶ 8</p>	<p>9 15 25</p>	<p>09 67 509 . 775 09 67 515 . 775 09 67 525 . 775</p>

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

9-25



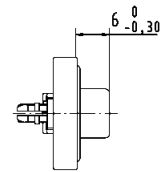
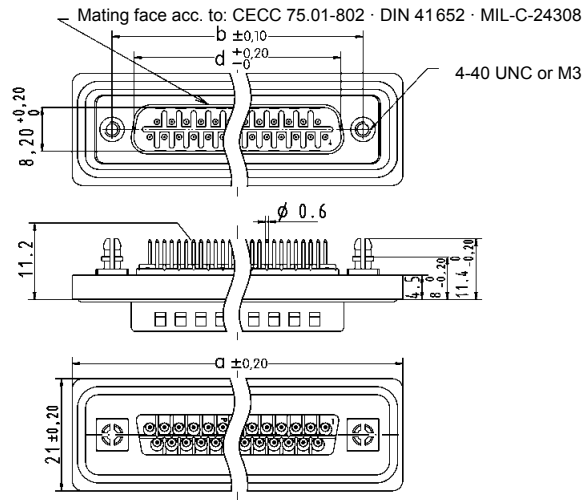
IP67, straight turned solder pins, with rear plastic mounting plate, spacer and board lock

Identification

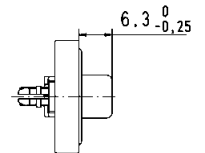
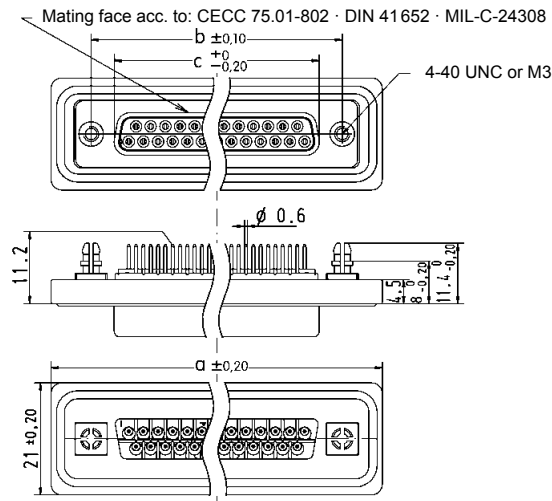
Drawing

Dimensions in mm

Male connector
9 – 25 contacts

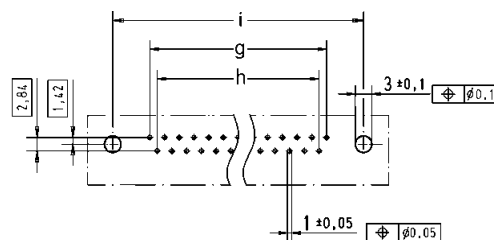


Female connector
9 – 25 contacts



	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



IP67, straight turned solder pins,
with rear metal mounting plate, spacer and board lock

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

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

9-25



IP67, angled turned solder pins,
with rear plastic mounting plate, bracket and board lock

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

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

9-25



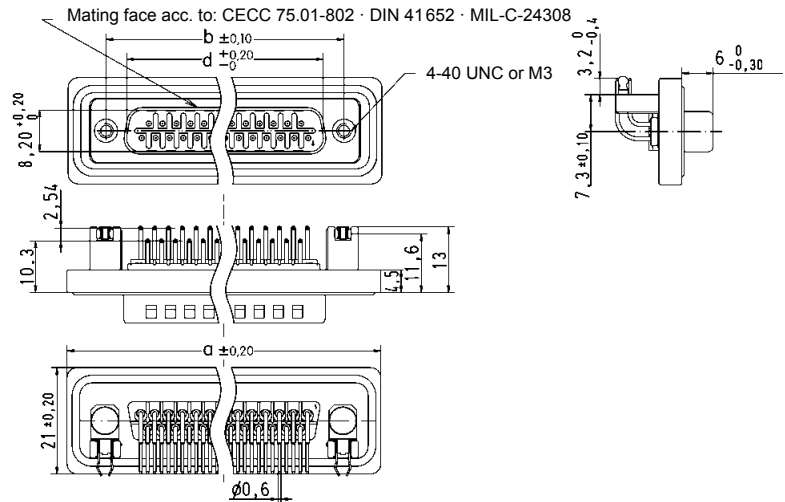
IP67, angled turned solder pins, with rear plastic mounting plate, bracket and board lock

Identification

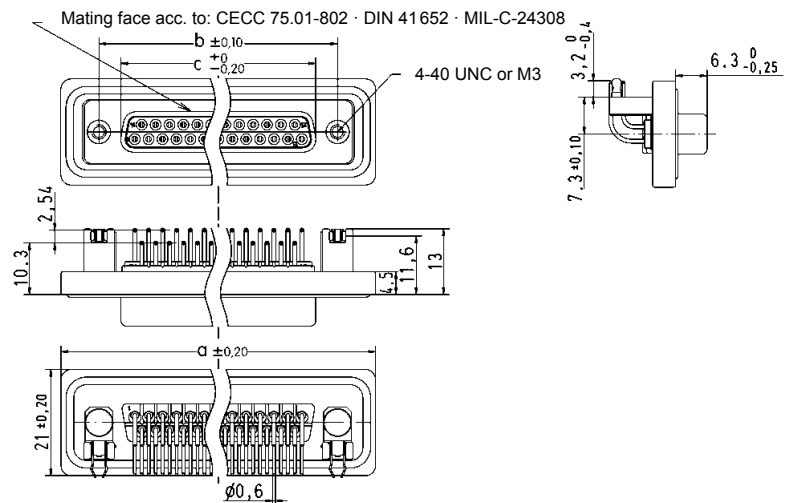
Drawing

Dimensions in mm

Male connector
9 – 25 contacts

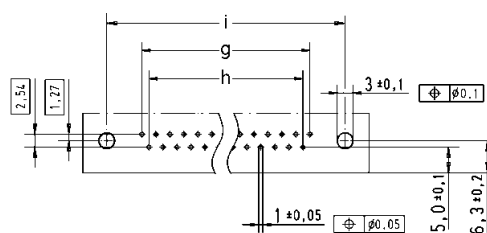


Female connector
9 – 25 contacts



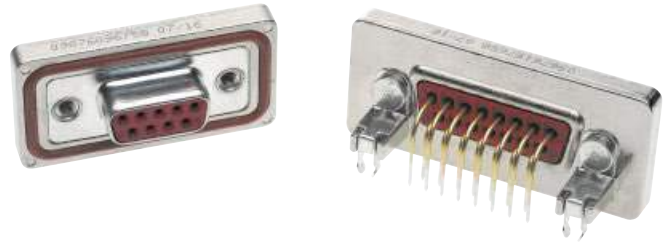
	a	b	c	d	g	h	i
9	40.0	25.00	16.4	16.9	4 x 2.74 = 10.96	3 x 2.74 = 8.22	25.0
15	48.3	33.30	24.7	25.2	7 x 2.74 = 19.18	6 x 2.74 = 16.44	33.3
25	62.0	47.04	38.5	38.9	12 x 2.76 = 33.12	11 x 2.76 = 30.36	47.0

Board drillings



Number of contacts

9-50



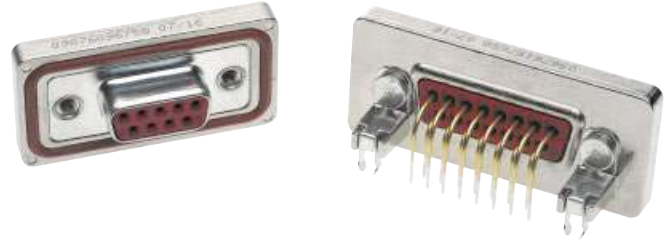
IP67, angled turned solder pins,
with rear metal mounting plate, bracket and board lock

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

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

Number of contacts

9-50



IP67, angled turned solder pins, with rear metal mounting plate, bracket and board lock

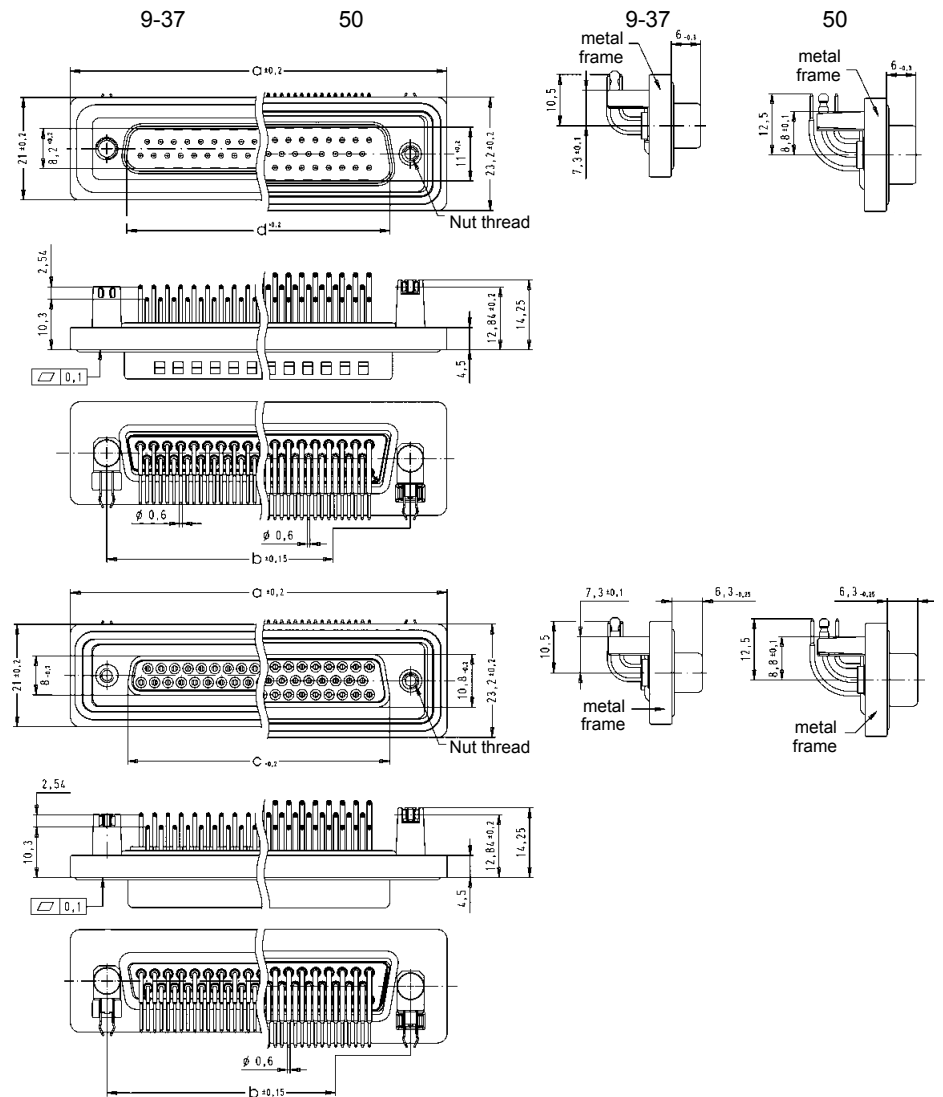
Identification

Drawing

Dimensions in mm

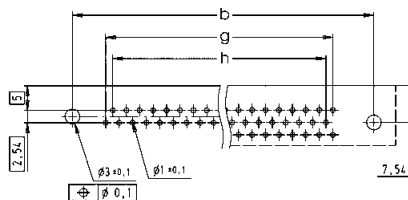
Male connector
9 – 50 contacts

Female connector
9 – 50 contacts



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

Board drillings





IP67 plastic hoods
IP67 metallized plastic hoods
for rear mount

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

Hood ¹⁾ 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 thermo- plastic	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



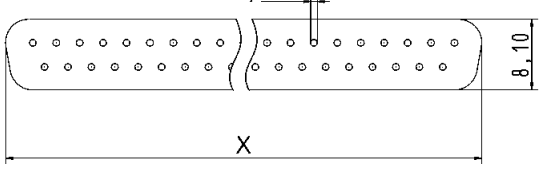

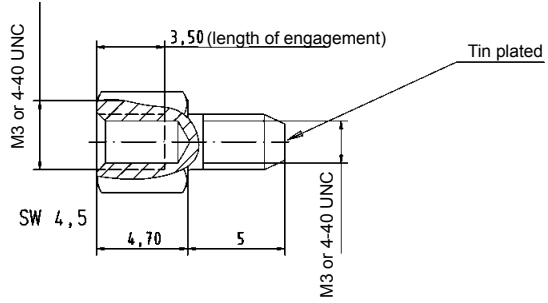

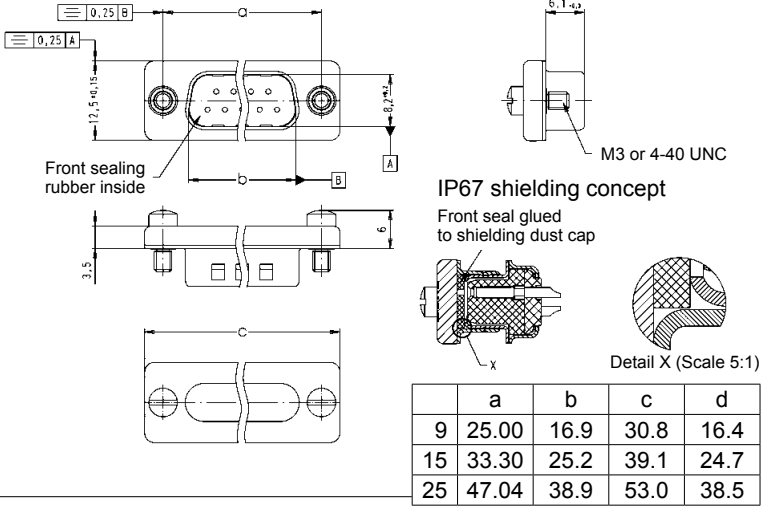

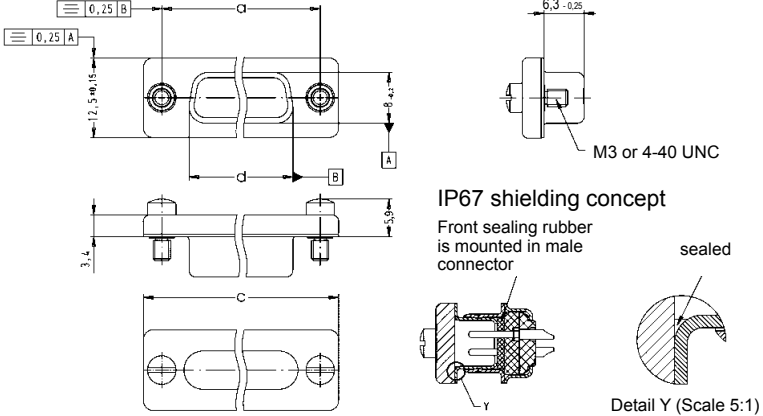
Mounting instructions:

- 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.

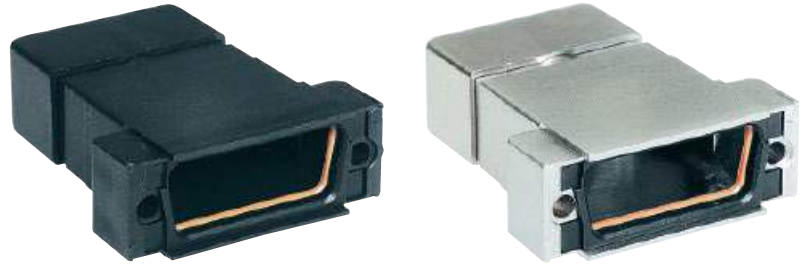
	a	b	c	d	e	f	g	h	i	Ø	
										min.	max.
9	20	16.5	13.0	20.2	22.1	36.4	25.0	39.8	18.0	6.0	8.0
15	24	16.5	13.0	20.2	26.6	36.4	33.3	48.5	18.0	6.0	10.5
25	24	20.3	13.0	24.0	26.6	43.6	47.0	62.3	45.0	8.0	12.0
37	24	20.3	13.0	24.0	26.6	52.1	63.5	78.6	60.0	8.0	12.0
50	29	22.0	16.0	27.6	32.1	52.1	61.1	75.7	60.0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

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

Accessories for IP67 connectors

Identification	No. of contacts	Part number	Drawing	Dimensions in mm																				
Front sealing rubber¹⁾ IP67  Mounting example 	9 15 25	09 67 002 9001 09 67 002 9002 09 67 002 9003		<table border="1"> <thead> <tr> <th></th> <th>X</th> </tr> </thead> <tbody> <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> </tbody> </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 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>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> </tbody> </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 IP67 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 IP67 performance; in this case, the front sealing rubber is positioned in the IP67 male connector prior to the mating operation with the facing IP67 connector; it provides a full protection of the contacts at the mated area by preventing possible ingress of liquids or dust between the shells.



IP67 plastic hoods
IP67 metallized plastic hoods

Identification	No. of contacts	Part number	Drawing	Dimensions in mm
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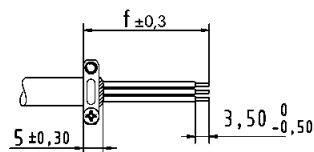
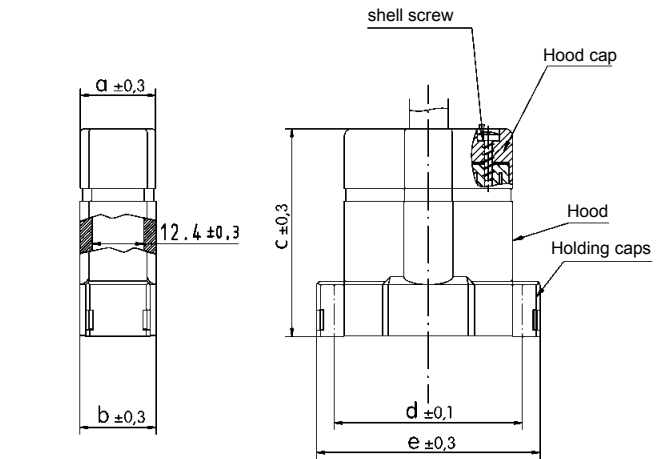
D-Sub

Hood
Black thermoplastic

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

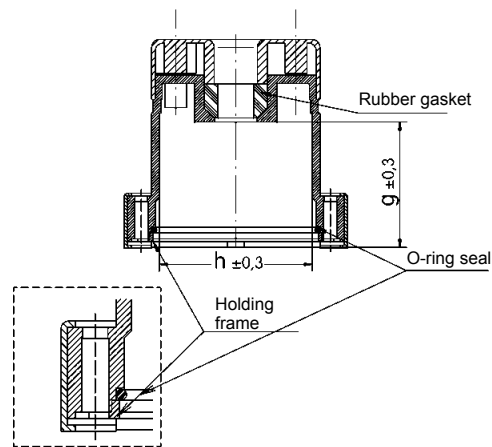
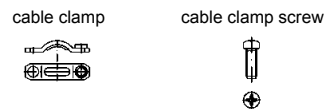
Metallized thermoplastic

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




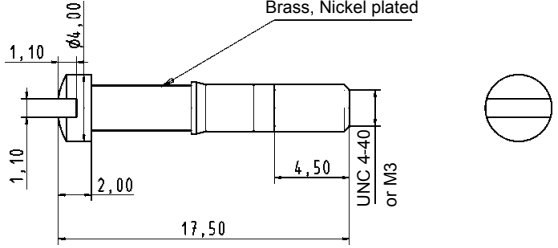



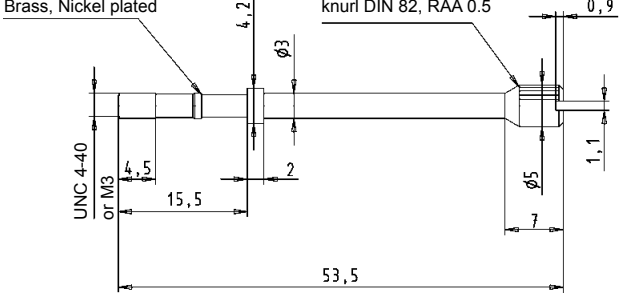
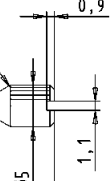


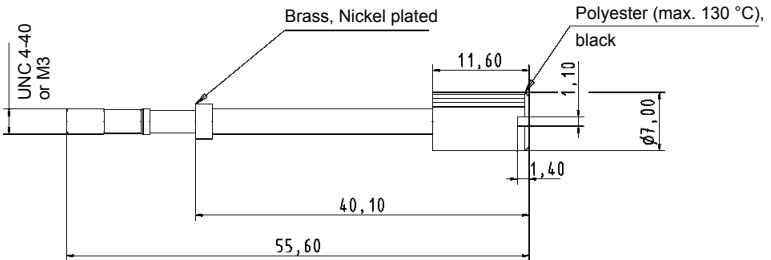
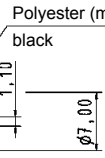

Mounting instructions

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 IP67 hoods

Identification	Part number	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		

D-Sub

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.

D-Sub

Male connector with dimples

Screw lock

Cable with protective screen

Strain relief

Metallized hood

Female connector with protective metal shell

Spring latch

Strain relief

Cable with protective screen

Metallized hood

Female connector with protective metal shell

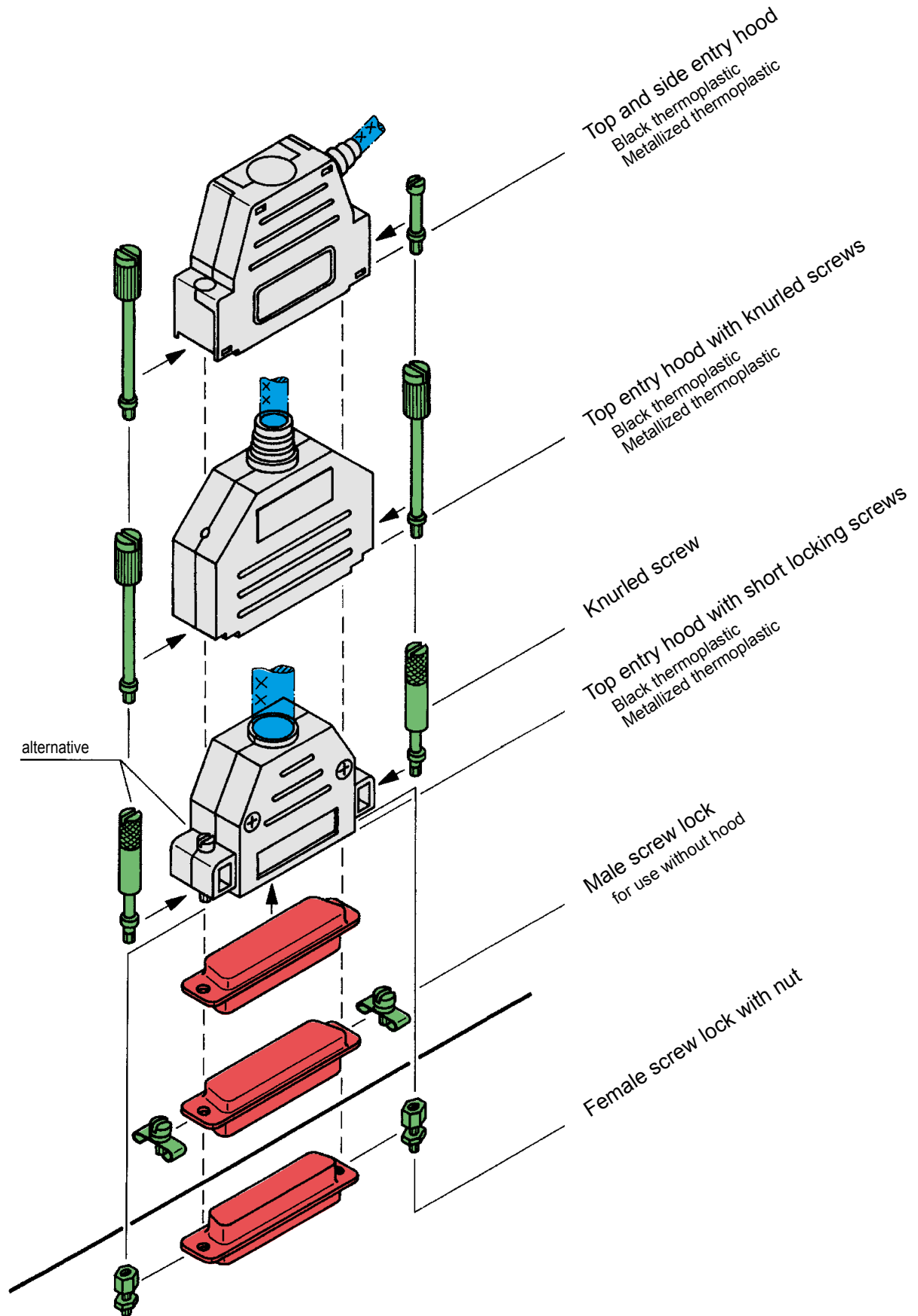
Grounding contact between protective metal shell and PCB

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



D-Sub



Top and side entry hoods with knurled screws

D-Sub

Identification No. of contacts Part number Drawing Dimensions in mm

Top entry hood Black 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
	50	09 67 050 042
Knurled screw, thread 4-40 UNC ▶ 4		
Knurled screw, thread M3 ▶ 6		

	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	

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		

C1: non-metallized C2: metallized

max. Ø: 3.3, 4.3, 5.3, 6.3

max. Ø: 7.3, 8.3, 9.3, 10.3

Cut appropriate cable entry to fit actual cable diameter

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		

Optional jack screw

Cable diameters: Ø 3.3, Ø 4.3, Ø 5.3, Ø 6.3, Ø 7.3, Ø 8.3, Ø 9.3, Ø 10.3

Cover in place of grommet

Top and side entry hood Metallized thermoplastic	9 ³⁾	09 67 009 043
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		

	A	B
9	31.5	40
15	40.0	40
25	53.5	43
37	71.3	40

- 37-pole is only available with side entry and with knurled screw, thread 4-40 UNC
- Cable clamp kit for two outputs is available as accessories (it includes: screw, metal clamp, plastic insert and grommet). With Part number 09 67 001 9988 ten of these kits are delivered.
- 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 number	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 border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <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> </tbody> </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 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 border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <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> </tbody> </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 Short screw, thread 4-40 UNC ▶ 5 Short screw, thread M3 ▶ 4																			

D-Sub

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

Scope of delivery and spare parts



	Knurled screw M3, beige	Knurled screw 4-40 UNC, beige	Knurled screw M3, black	Knurled screw 4-40 UNC, black	Cable clamp, small	Cable clamp, large	Cable clamp screw	Metallized insert, small
Part number	09 67 002 9152	09 67 002 9081	09 67 001 9961	09 67 002 9024	09 67 002 9104	09 67 002 9106	09 67 002 9102	09 67 002 9103
09 67 009 0424				2	1		2	
09 67 015 0424				2		1	2	
09 67 025 0424				2		1	2	
09 67 037 0424				2		1	2	
09 67 050 0424				2		1	2	
09 67 009 0426			2		1		2	
09 67 015 0426			2			1	2	
09 67 025 0426			2			1	2	
09 67 037 0426			2			1	2	
09 67 050 0426			2			1	2	
09 67 009 0425		2			1		2	1
09 67 015 0425		2				1	2	
09 67 025 0425		2				1	2	
09 67 037 0425		2				1	2	
09 67 009 0427	2				1		2	1
09 67 015 0427	2					1	2	
09 67 025 0427	2					1	2	
09 67 037 0427	2					1	2	
	Knurled screw M3, beige	Knurled screw 4-40 UNC, beige	Knurled screw M3, black	Knurled screw 4-40 UNC, black	Short screw M3, 18 mm	Short screw 4-40 UNC, 18 mm	Short screw M3, 12 mm	Short screw 4-40 UNC, 12 mm
Part number	09 67 002 9152	09 67 002 9081	09 67 001 9961	09 67 002 9024	09 67 002 9163	09 67 001 9979	09 67 002 9162	09 67 002 9078
09 67 009 0434				1				
09 67 015 0434				1				1
09 67 025 0434				1		1		
09 67 037 0434								1
09 67 009 0430			1					
09 67 015 0430			1				1	
09 67 025 0430			1		1			
09 67 009 0435		1						
09 67 015 0435		1						1
09 67 025 0435		1				1		
09 67 037 0435								1
09 67 009 0431	1							
09 67 015 0431	1						1	
09 67 025 0431	1				1			
09 67 009 0463						1		
09 67 015 0463								2
09 67 025 0463						2		
09 67 037 0463								2
09 67 009 0462					1			
09 67 015 0462							2	
09 67 025 0462					2			
09 67 037 0462							2	
09 67 009 0465						1		
09 67 015 0465								2
09 67 025 0465						2		
09 67 037 0465								2
09 67 009 0464					1			
09 67 015 0464							2	
09 67 025 0464					2			
09 67 037 0464							2	

D-Sub

Scope of delivery and spare parts



	Metallized insert, large	Small plastic insert, black	Large plastic insert, black	Grommet kit, metallized	Grommet kit, black (optional)	Rubber grommet, small (optional)	Rubber grommet, large (optional)
Part number	09 67 002 9105	09 67 002 9150	09 67 002 9151	09 67 002 9075	09 67 001 9968	09 67 002 9119	09 67 001 9981
09 67 009 0424		1			1	1	
09 67 015 0424			1		1		1
09 67 025 0424			1		1		1
09 67 037 0424			1		1		1
09 67 050 0424			1		1		no
09 67 009 0426		1			1	1	
09 67 015 0426			1		1		1
09 67 025 0426			1		1		1
09 67 037 0426			1		1		1
09 67 050 0426			1		1		no
09 67 009 0425							
09 67 015 0425	1			1			
09 67 025 0425	1			1			
09 67 037 0425	1			1			
09 67 009 0427							
09 67 015 0427	1			1			
09 67 025 0427	1			1			
09 67 037 0427	1			1			
	Cable clamp, small	Cable clamp screw	Metallized insert, small	Small plastic insert, black	Grommet kit, metallized	Plastic plug, metallized	Plastic plug, black
Part number	09 67 002 9104	09 67 002 9102	09 67 002 9103	09 67 002 9150	09 67 002 9075	09 67 001 9980	09 67 002 9161
09 67 009 0434	1	2		1			1
09 67 015 0434	1	2		1			1
09 67 025 0434	1	2		1			1
09 67 037 0434	1	2		1			
09 67 009 0430	1	2		1			1
09 67 015 0430	1	2		1			1
09 67 025 0430	1	2		1			1
09 67 009 0435	1	2	1		1	1	
09 67 015 0435	1	2	1		1	1	
09 67 025 0435	1	2	1		1	1	
09 67 037 0435	1	2	1		1	N/A	
09 67 009 0431	1	2	1		1	1	
09 67 015 0431	1	2	1		1	1	
09 67 025 0431	1	2	1		1	1	
09 67 009 0463	1	2		1			1
09 67 015 0463	1	2		1			1
09 67 025 0463	1	2		1			1
09 67 037 0463	1	2		1			N/A
09 67 009 0462	1	2		1			1
09 67 015 0462	1	2		1			1
09 67 025 0462	1	2		1			1
09 67 037 0462	1	2		1			N/A
09 67 009 0465	1	2	1		1	1	
09 67 015 0465	1	2	1		1	1	
09 67 025 0465	1	2	1		1	1	
09 67 037 0465	1	2	1		1	N/A	
09 67 009 0464	1	2	1		1	1	
09 67 015 0464	1	2	1		1	1	
09 67 025 0464	1	2	1		1	1	
09 67 037 0464	1	2	1		1	N/A	

D-Sub



Side entry hoods with knurled screws

Identification	No. of contacts	Part number	Drawing	Dimensions in mm																																		
Hood¹⁾ grey thermoplastic RAL 7032 grey thermoplastic with internal tin-plate screening 9-37 way for packaging density of 3 TE (15.24 mm)	9	09 67 009 0571	Upper hood part 9 contacts 	Lower hood part 																																		
	15	09 67 015 0571																																				
	25	09 67 025 0571	15 – 50 contacts 	Lower hood part 																																		
	37	09 67 037 0571																																				
	50	09 67 050 0571																																				
	9	09 67 009 0573																																				
	15	09 67 015 0573																																				
	25	09 67 025 0573																																				
	37	09 67 037 0573																																				
	50	09 67 050 0573																																				
			<table border="1"> <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 Thread UNC Thread M3	9-50	09 67 000 9971 ²⁾ 09 67 001 9965*	<p>Grey head / Nickel plated steel</p>																																			
		09 67 001 9978 09 67 001 9977	<p>Full metal part</p>																																			
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 separately
 2) 9 way 1 per hood – 15-50 way 2 per hood

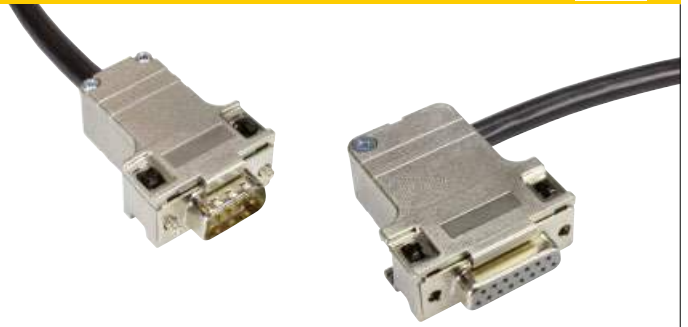
3) Screw driver type ISO PH 1 for philips screw No 1 ISO norm 4757
 Operating temperature for all hoods on this page: -30 °C ... +100 °C



Top entry hoods with knurled or locking screws

Identification	No. of contacts	Part number	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																																					
Hood³⁾ Metallized thermoplastic with short locking screws Please insert digit for screw option Thread 4-40 UNC ▶ 4 Thread M3 ▶ 2	9 15 25 37 50	09 67 009 04 . 3 09 67 015 04 . 3 09 67 025 04 . 3 09 67 037 04 . 3 09 67 050 04 . 3	<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>min.</th> <th>max.</th> </tr> </thead> <tbody> <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> </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> </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> </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> </tr> </tbody> </table>		a	b	c	d	min.	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.	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																																	
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 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>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> </tbody> </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 border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Cable Ø (mm)</th> </tr> <tr> <th>min.</th> <th>max.</th> </tr> </thead> <tbody> <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> </tbody> </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)																																						
	min.	max.																																					
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

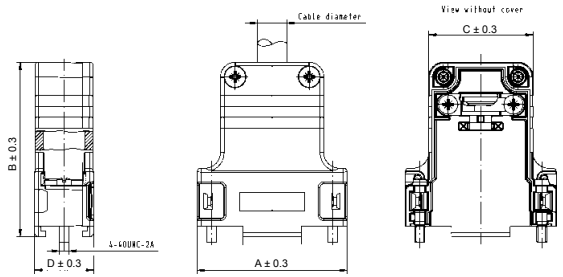


Metallized thermoplastic top and side entry hoods with short screws

Identification No. of contacts Part number Drawing Dimensions in mm

Top entry hood
Short screw,
thread 4-40 UNC

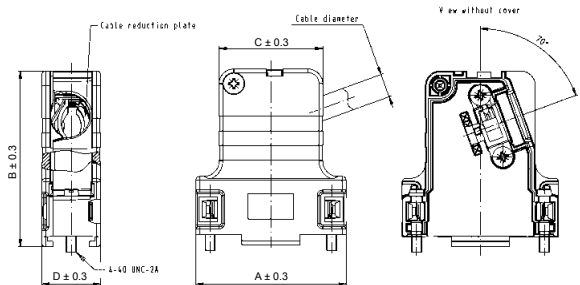
9	09 67 009 0446
15	09 67 015 0446
25	09 67 025 0446
37	09 67 037 0446
50	09 67 050 0446



Poles	A	B	C	D	Cable diameter	
					Min.	Max.
9	31.8	41.6	20.0	16.7	4.0	11.0
15	41.2	47.8	28.4	16.2	4.0	11.0
25	54.9	54.8	42.1	16.2	4.0	12.0
37	71.4	57.8	58.6	18.9	6.0	13.0
50	69.0	57.8	56.2	19.5	6.0	14.0

Side entry hood
Short screw,
thread 4-40 UNC

9	09 67 009 0448
15	09 67 015 0448
25	09 67 025 0448
37	09 67 037 0448
50	09 67 050 0448





Full metal top and side entry hoods with knurled screws

Identification	No. of contacts	Part number	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 ▶ 8 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		<table border="1"> <thead> <tr> <th>Poles</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <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> </tbody> </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	9 ¹⁾ 15 25 37 50	09 67 009 033 09 67 015 033 09 67 025 033 09 67 037 033 09 67 050 033		<table border="1"> <thead> <tr> <th>Poles</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <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> </tbody> </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 border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </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																																							
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1	4.0	15.0																																						
2	5.0	14.0																																						
3	7.0	12.5																																						
4	9.0	11.0																																						
5	10.2	—																																						

D-Sub

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

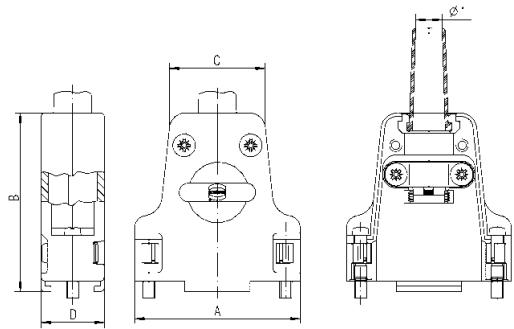
Identification No. of contacts Part number Drawing Dimensions in mm

Top entry hood

9	09 67 009 034
15	09 67 015 034
25	09 67 025 034
37	09 67 037 034
50	09 67 050 034

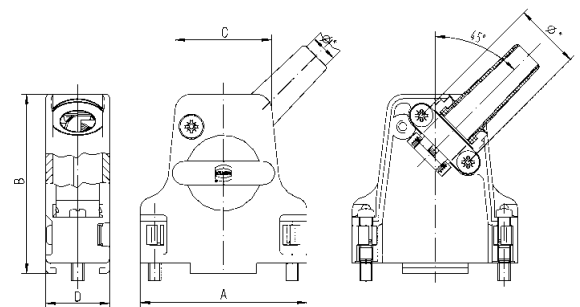
Please insert digit for screw option

- Locking screw, thread 4-40 UNC ▶ 4
- Locking screw, thread M3 ▶ 9



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

* 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



Side entry hood

9	09 67 009 033
15	09 67 015 033
25	09 67 025 033
37	09 67 037 033
50	09 67 050 033

Please insert digit for screw option

- Locking screw, thread 4-40 UNC ▶ 4
- Locking screw, thread M3 ▶ 5

Spare short locking screw
 thread 4-40 UNC
 thread M3

09 67 002 9090
 09 67 002 9091





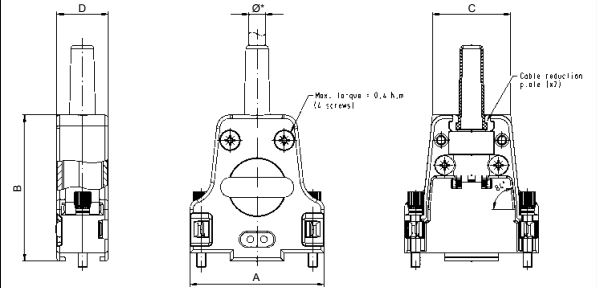
Full metal top and side entry hoods with hexagonal screws

Identification No. of contacts Part number Drawing Dimensions in mm

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 screw option
 Hexagonal screw, thread 4-40 UNC ▶ 0
 Hexagonal screw, thread M3 ▶ 1



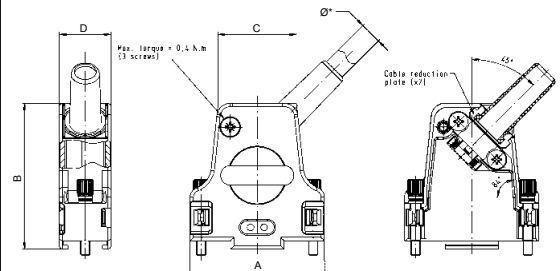
Poles	A	B	C	D	Ø F1		Ø F2	Ø F3
					Min.	Max.		
9	31.6	42.0	20.8	15.2	3.0	9.5	6.5	—
15	40.0	43.5	23.3	15.2	3.0	8.5	6.5	12.5
25	53.7	47.5	31.7	15.2	3.0	8.5	8.0	12.5
37	70.2	50.5	48.2	18.2	3.0	12.0	9.0	15.0
50	67.8	50.5	45.8	18.2	3.0	12.0	9.7	15.0

* 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

Side entry hood

9	09 67 009 033
15	09 67 015 033
25	09 67 025 033
37	09 67 037 033
50	09 67 050 033

Please insert digit for screw option
 Hexagonal screw, thread 4-40 UNC ▶ 8
 Hexagonal screw, thread M3 ▶ 9





Full metal top entry hoods with premounted threaded inserts

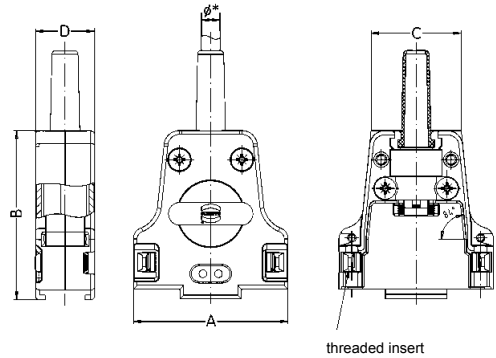
Identification No. of contacts Part number Drawing Dimensions in mm

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

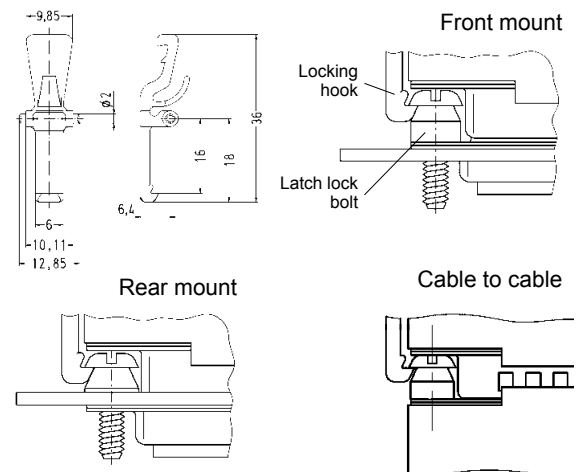
- thread 4-40 UNC
- thread M3

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⁾



D-Sub

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 number	Drawing	Dimensions in mm																																				
40° side entry hood with internal grounding block	9	61 03 001 . 013		<table border="1"> <thead> <tr> <th>No. of contacts</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>9</td> <td>31.0</td> <td>25.0</td> <td>35.0</td> <td>15.0</td> </tr> <tr> <td>15</td> <td>39.3</td> <td>33.3</td> <td>35.0</td> <td>15.0</td> </tr> <tr> <td>25</td> <td>53.0</td> <td>47.0</td> <td>35.0</td> <td>15.0</td> </tr> </tbody> </table>	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	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																																				
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		<table border="1"> <thead> <tr> <th>No. of contacts</th> <th>No. of cable entries</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> </tr> </thead> <tbody> <tr> <td>9</td> <td>1 (top)</td> <td>31.0</td> <td>25.0</td> <td>38.0</td> <td>15.0</td> </tr> <tr> <td>15</td> <td>1 (top)</td> <td>39.5</td> <td>33.3</td> <td>35.0</td> <td>15.0</td> </tr> <tr> <td>25</td> <td>3</td> <td>53.0</td> <td>47.0</td> <td>43.0</td> <td>15.0</td> </tr> <tr> <td>37</td> <td>3</td> <td>69.5</td> <td>63.5</td> <td>43.0</td> <td>15.0</td> </tr> <tr> <td>50</td> <td>3</td> <td>67.2</td> <td>61.6</td> <td>43.0</td> <td>17.8</td> </tr> </tbody> </table>	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
	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																																			
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																																						

D-Sub

¹⁾ Part number contains two blanking pieces
Operating temperature for all hoods on this page: -20 °C ... +90 °C

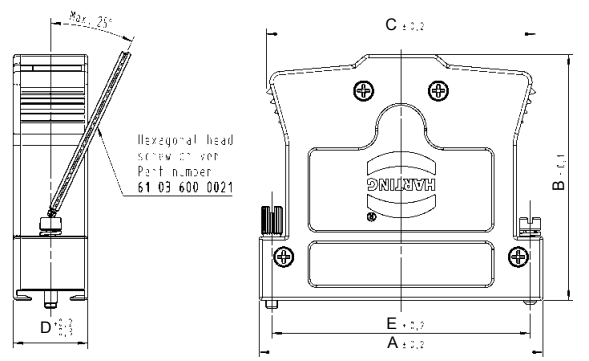
Accessories see page 05.162



Full metal top and side entry hoods with different screw options

Identification No. of contacts Part number Drawing Dimensions in mm

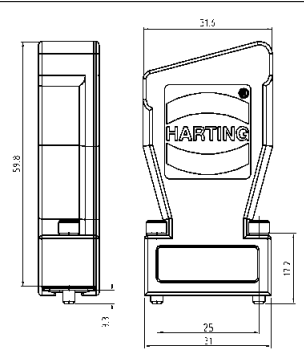
5° top entry hood with 3 cable entries	with internal grounding block	37	61 03 001 . 118
		50	61 03 001 . 119
	without internal grounding block	37	61 03 001 . 118 010
		50	61 03 001 . 119 010



No. of contacts	A	B	C	D	E
37	69.5	52.0	58.2	14.8	63.5
50	67.1	58.0	63.6	17.6	61.1

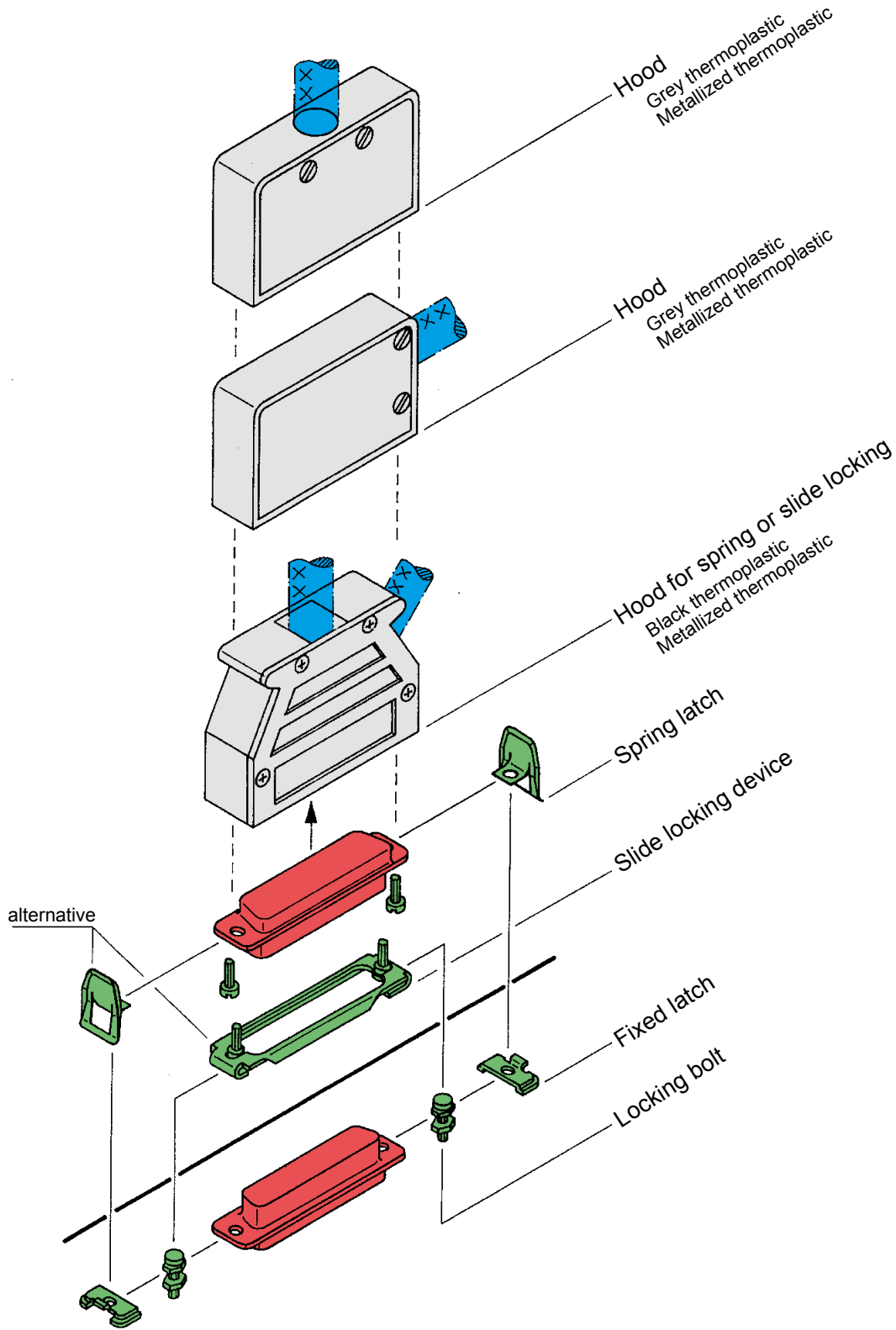
- Please insert digit for screw option
- Knurled screw, thread 4-40 UNC ▶ 0
 - Hexagonal screw, thread M3 with captive washer ▶ 1
 - Hexagonal screw, thread 4-40 UNC with captive washer ▶ 2
 - Knurled screw, thread M3 ▶ 3

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



2 cable entries

Connector hoods for spring or slide locking





Thermoplastic top and side entry hoods for spring or slide locking

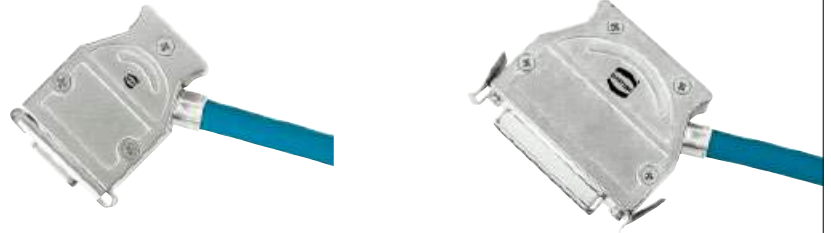
Identification	No. of contacts	Part number		Drawing	Dimensions in mm																																																								
Top entry hood 9-37 way for packaging density of 3 TE (15.24 mm)	9 15 25 37 50	Thermoplastic grey ²⁾ 09 67 009 0411 09 67 015 0411 09 67 025 0411 09 67 037 0411 09 67 050 0411	Thermoplastic metallized ³⁾ 09 67 009 0413 09 67 015 0413 09 67 025 0413 09 67 037 0413 09 67 050 0413		<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>b₁</th> <th>b₂</th> <th>c</th> <th>d</th> <th colspan="2">e</th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>min.</th> <th>max.</th> </tr> </thead> <tbody> <tr> <td>9</td> <td>31.0</td> <td>23</td> <td>28</td> <td>12.8</td> <td>10</td> <td>5.75</td> <td>9.0</td> </tr> <tr> <td>15</td> <td>39.4</td> <td>28</td> <td>28</td> <td>12.8</td> <td>10</td> <td>5.75</td> <td>9.0</td> </tr> <tr> <td>25</td> <td>53.3</td> <td>34</td> <td>34</td> <td>12.8</td> <td>14</td> <td>5.75</td> <td>9.0</td> </tr> <tr> <td>37</td> <td>69.7</td> <td>43</td> <td>43</td> <td>12.8</td> <td>20</td> <td>5.75</td> <td>9.0</td> </tr> <tr> <td>50</td> <td>67.1</td> <td>41</td> <td>41</td> <td>15.8</td> <td>20</td> <td>5.75</td> <td>11.6</td> </tr> </tbody> </table>		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
	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 9-37 way for packaging density of 3 TE (15.24 mm)	9 15 25 37 50	Thermoplastic grey ²⁾ 09 67 009 0511 09 67 015 0511 09 67 025 0511 09 67 037 0511 09 67 050 0511	Thermoplastic metallized ³⁾ 09 67 009 0513 09 67 015 0513 09 67 025 0513 09 67 037 0513 09 67 050 0513																																																										
Top and side entry hood¹⁾ 9-37 way for packaging density of 3 TE (15.24 mm)	9 15 25 37 50	Thermoplastic black ⁴⁾ 09 67 009 0452 09 67 015 0452 09 67 025 0452 09 67 037 0452 09 67 050 0452	Thermoplastic metallized ⁴⁾ 09 67 009 0453 09 67 015 0453 09 67 025 0453 09 67 037 0453 09 67 050 0453		<table border="1"> <thead> <tr> <th></th> <th>a</th> <th>c</th> <th>d</th> <th colspan="2">e</th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th>min.</th> <th>max.</th> </tr> </thead> <tbody> <tr> <td>9</td> <td>31.0</td> <td>15.4</td> <td>7</td> <td>1.7</td> <td>7.5</td> </tr> <tr> <td>15</td> <td>39.4</td> <td>15.4</td> <td>7</td> <td>1.7</td> <td>8.0</td> </tr> <tr> <td>25</td> <td>53.2</td> <td>15.4</td> <td>9</td> <td>1.5</td> <td>8.0</td> </tr> <tr> <td>37</td> <td>69.5</td> <td>15.4</td> <td>9</td> <td>1.5</td> <td>8.0</td> </tr> <tr> <td>50</td> <td>67.0</td> <td>17.9</td> <td>9</td> <td>1.5</td> <td>8.0</td> </tr> </tbody> </table>		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														
	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

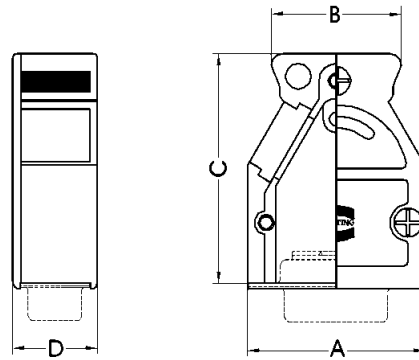


Full metal top and side entry hoods for spring or slide locking

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

Top/side entry hood with spring/slide locking

9	61 03 001 0022 ¹⁾
15	61 03 001 0011 ²⁾
25	61 03 001 0012 ²⁾
37	61 03 001 0021 ²⁾
50	61 03 001 0020 ²⁾



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 number	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⁾																																

D-Sub

¹⁾ Order 2 for each connector

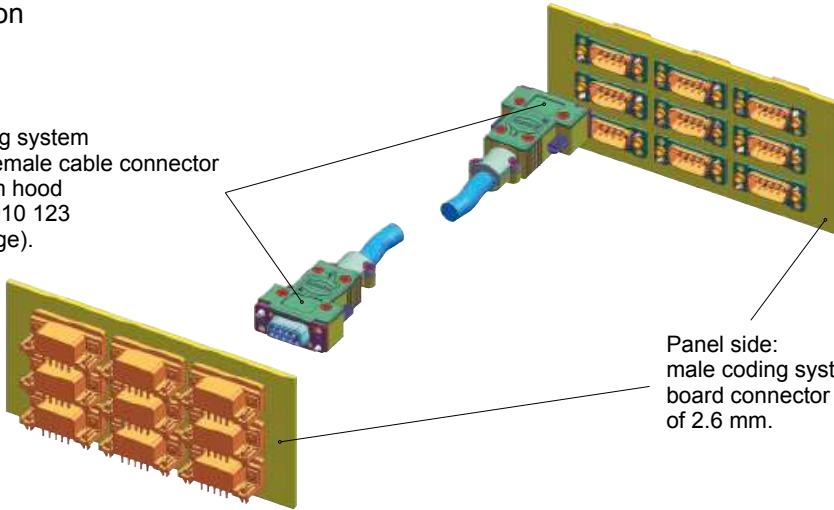
²⁾ Screws are not supplied with a fixed latch

Accessories – coding system

Coding system

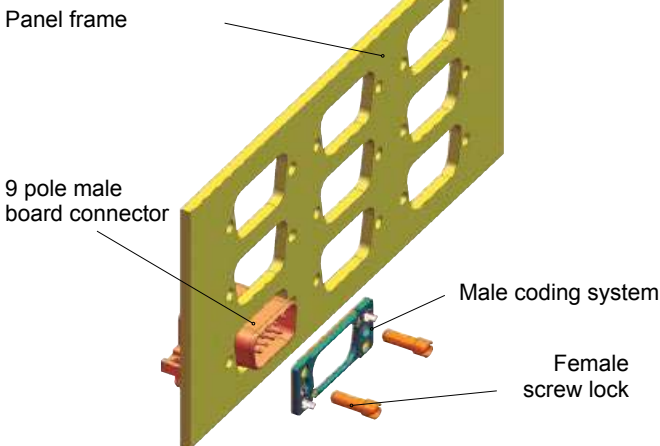
Example of application

Cable side:
female coding system
with 9 pole female cable connector
and InduCom hood
61 03 001 x010 123
(see next page).

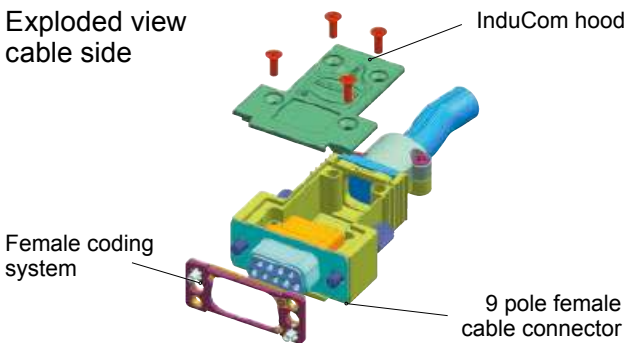


Panel side:
male coding system with 9 pole male
board connector and a board thickness
of 2.6 mm.

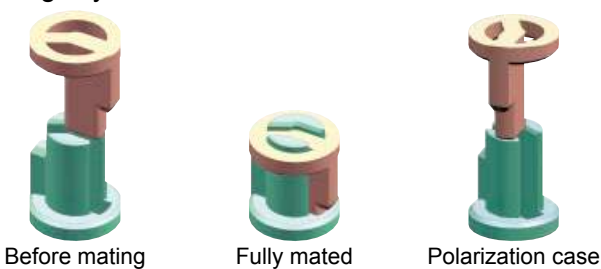
Exploded view
panel side



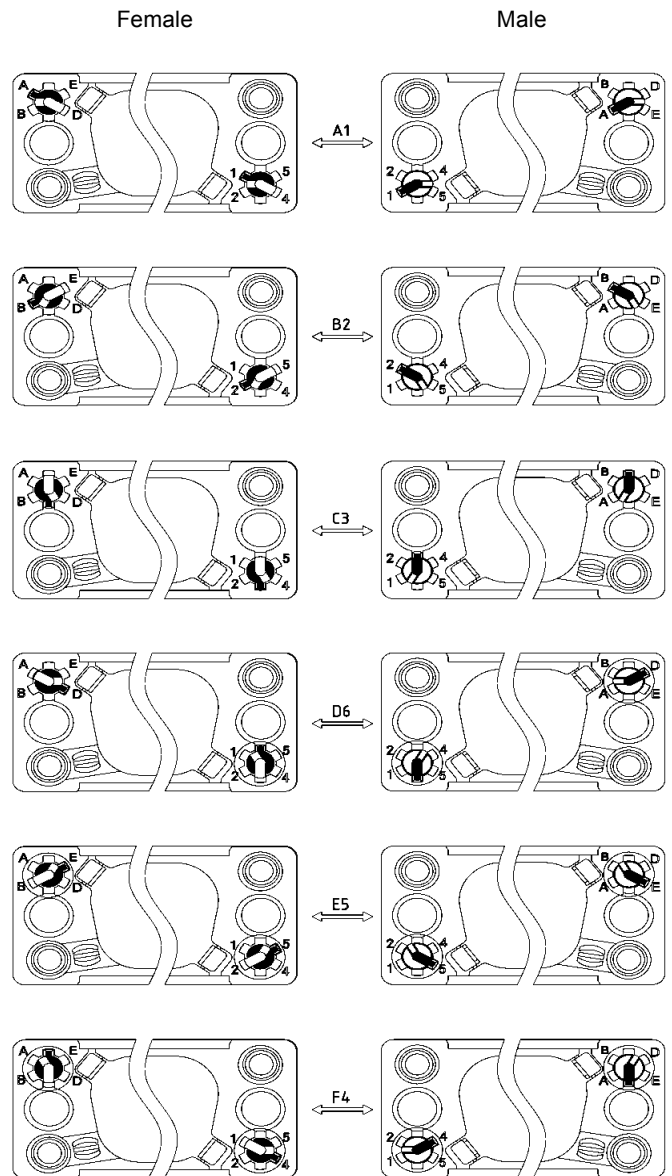
Exploded view
cable side



Coding key details



Standard coding combinations



D-Sub

Accessories – coding system

Identification	Part number	Panel thickness	Dimensions in mm																																				
Coding¹⁾																																							
Female	09 67 002 9121 xx 1 09 67 002 9121 xx 2 09 67 002 9121 xx 3 09 67 002 9121 xx 4	2.40 - 2.60 mm ³⁾ 2.00 - 2.40 mm 1.20 - 2.00 mm 0.80 - 1.20 mm																																					
Male	09 67 002 9122 xx 1 09 67 002 9122 xx 2 09 67 002 9122 xx 3 09 67 002 9122 xx 4	2.40 - 2.60 mm ³⁾ 2.00 - 2.40 mm 1.20 - 2.00 mm 0.80 - 1.20 mm																																					
Insert digits for coding configuration, e. g. "C3"		36 coding configurations ²⁾	<table border="1"> <tr><td>A1</td><td>B1</td><td>C1</td><td>D1</td><td>E1</td><td>F1</td></tr> <tr><td>A2</td><td>B2</td><td>C2</td><td>D2</td><td>E2</td><td>F2</td></tr> <tr><td>A3</td><td>B3</td><td>C3</td><td>D3</td><td>E3</td><td>F3</td></tr> <tr><td>A4</td><td>B4</td><td>C4</td><td>D4</td><td>E4</td><td>F4</td></tr> <tr><td>A5</td><td>B5</td><td>C5</td><td>D5</td><td>E5</td><td>F5</td></tr> <tr><td>A6</td><td>B6</td><td>C6</td><td>D6</td><td>E6</td><td>F6</td></tr> </table>	A1	B1	C1	D1	E1	F1	A2	B2	C2	D2	E2	F2	A3	B3	C3	D3	E3	F3	A4	B4	C4	D4	E4	F4	A5	B5	C5	D5	E5	F5	A6	B6	C6	D6	E6	F6
A1	B1	C1	D1	E1	F1																																		
A2	B2	C2	D2	E2	F2																																		
A3	B3	C3	D3	E3	F3																																		
A4	B4	C4	D4	E4	F4																																		
A5	B5	C5	D5	E5	F5																																		
A6	B6	C6	D6	E6	F6																																		
Depending on the panel thickness the suitable coding needs to be selected.																																							

Female screw lock for angled PCB connectors ³⁾	Part number	Panel thickness	Dimensions in mm												
<table border="1"> <thead> <tr><th colspan="2">Thread</th></tr> <tr><th>inner</th><th>outer</th></tr> </thead> <tbody> <tr><td>4 - 40 UNC</td><td>4 - 40 UNC</td></tr> <tr><td>4 - 40 UNC</td><td>M3</td></tr> <tr><td>M3</td><td>4 - 40 UNC</td></tr> <tr><td>M3</td><td>M3</td></tr> </tbody> </table>	Thread		inner	outer	4 - 40 UNC	4 - 40 UNC	4 - 40 UNC	M3	M3	4 - 40 UNC	M3	M3	09 67 002 9123 ⁴⁾ 09 67 002 9124 09 67 002 9125 09 67 002 9126	2.00 - 2.60 mm	
Thread															
inner	outer														
4 - 40 UNC	4 - 40 UNC														
4 - 40 UNC	M3														
M3	4 - 40 UNC														
M3	M3														
<table border="1"> <tbody> <tr><td>4 - 40 UNC</td><td>4 - 40 UNC</td></tr> <tr><td>4 - 40 UNC</td><td>M3</td></tr> <tr><td>M3</td><td>4 - 40 UNC</td></tr> <tr><td>M3</td><td>M3</td></tr> </tbody> </table>	4 - 40 UNC	4 - 40 UNC	4 - 40 UNC	M3	M3	4 - 40 UNC	M3	M3	09 67 002 9129 09 67 002 9130 09 67 002 9131 09 67 002 9132	1.20 - 2.00 mm					
4 - 40 UNC	4 - 40 UNC														
4 - 40 UNC	M3														
M3	4 - 40 UNC														
M3	M3														
<table border="1"> <tbody> <tr><td>4 - 40 UNC</td><td>4 - 40 UNC</td></tr> <tr><td>4 - 40 UNC</td><td>M3</td></tr> <tr><td>M3</td><td>4 - 40 UNC</td></tr> <tr><td>M3</td><td>M3</td></tr> </tbody> </table>	4 - 40 UNC	4 - 40 UNC	4 - 40 UNC	M3	M3	4 - 40 UNC	M3	M3	09 67 002 9133 09 67 002 9134 09 67 002 9135 09 67 002 9136	0.80 - 1.20 mm					
4 - 40 UNC	4 - 40 UNC														
4 - 40 UNC	M3														
M3	4 - 40 UNC														
M3	M3														

9 pole InduCom top entry hood for coding	Part number	Panel thickness	Dimensions in mm
Please insert digit for screw option Hexagonal screw, thread M3 with captive washer ▶ 1 Hexagonal screw, thread 4-40 UNC with captive washer ▶ 2	61 03 001 . 010 123		

1) MOQ = 50 pieces
 2) Stock items (standard versions) in bold type
 3) Female screw lock for straight PCB connectors on request
 4) Standard versions

Accessories for full metal hoods

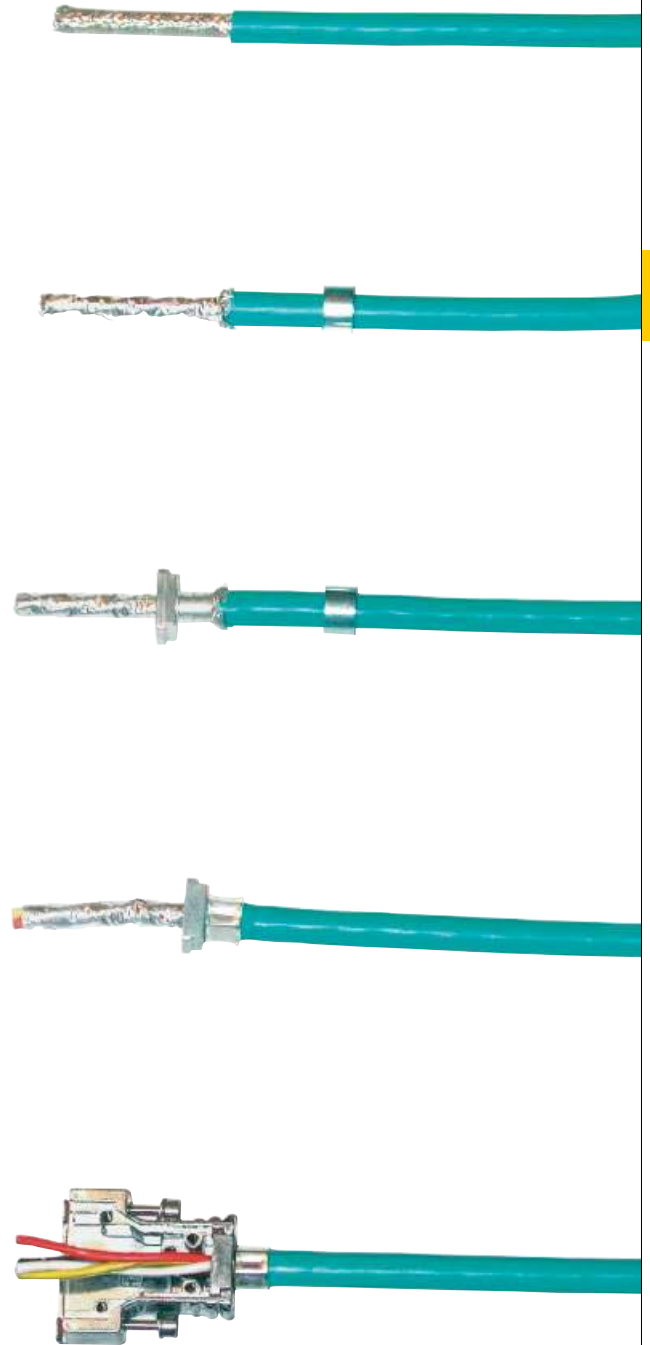
Identification	Part number		Drawing	Dimensions in mm																																								
	for 9-37-pole D-Sub	for 50-pole D-Sub																																										
Cable clamp Cable-Ø appr. 5- 7 mm Cable-Ø appr. 7-10 mm Cable-Ø appr. 9-12 mm Cable-Ø appr. 11-14 mm Cable-Ø appr. 14-16 mm	61 03 000 0141 61 03 000 0044 61 03 000 0143 61 03 000 0148	61 03 000 0145 61 03 000 0147																																										
Crimp flange	61 03 000 0062 61 03 000 0063 61 03 000 0064 61 03 000 0065 61 03 000 0066 61 03 000 0166 61 03 000 0067 61 03 000 0068 61 03 000 0069 61 03 000 0070 61 03 000 0071 61 03 000 0165 61 03 000 0072	61 03 000 5062 61 03 000 5063 61 03 000 5064 61 03 000 5065 61 03 000 5066 61 03 000 5166 61 03 000 5067 61 03 000 5068 61 03 000 5069 61 03 000 5070 61 03 000 5071 61 03 000 5165 61 03 000 5072	<table border="1"> <thead> <tr> <th>D1</th> <th>D2</th> </tr> </thead> <tbody> <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> </tbody> </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													
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8.5	9.5																																											
9.0	10.0																																											
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 border="1"> <thead> <tr> <th>D3</th> <th>D4</th> </tr> </thead> <tbody> <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> </tbody> </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	
D3	D4																																											
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12.5	13.5																																											
13.0	14.0																																											
13.7	15.0																																											
14.0	15.0																																											
Blanking piece for hoods	61 03 000 0042	61 03 000 0041																																										
Hexagonal screw thread 4-40 UNC x 17.5-8.8 with captive washer thread M3 x 17.5-8.8 with captive washer	09 67 002 9020 09 67 002 9019																																											
Knurled screw thread 4-40 UNC thread M3	09 67 002 9018 09 67 002 9017																																											

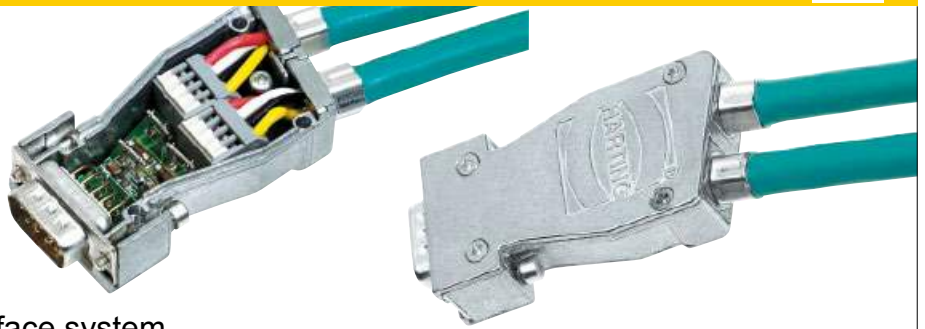
D-Sub

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.





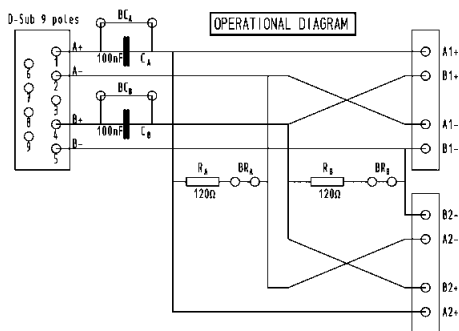
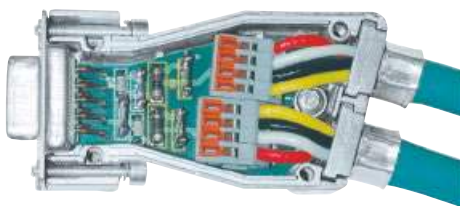
InduCom 9 – Industrial bus interface system

Identification

Part number

General information

MVB Interface



66 63 009 5013

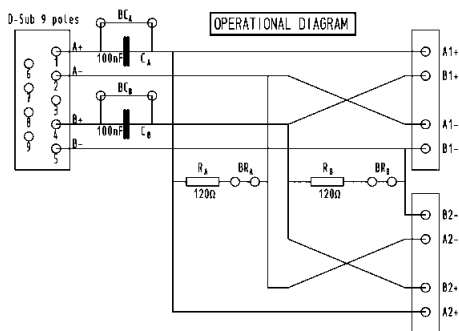
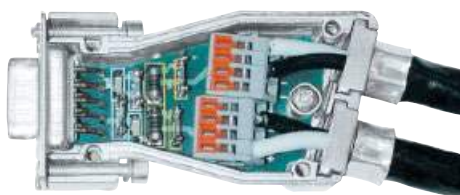
MVB backbone interface set

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.*


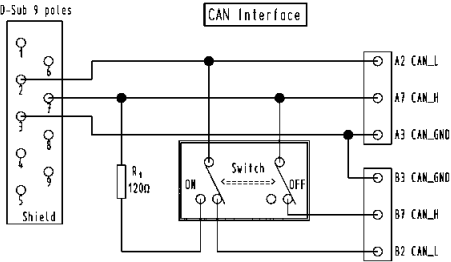
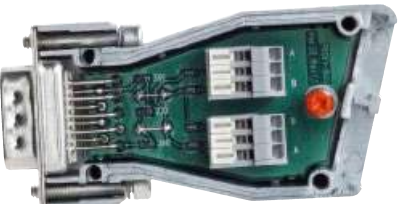
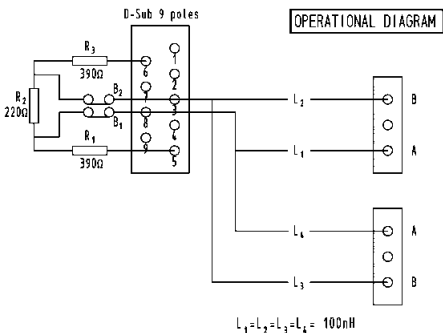
Components of the MVB interface set:

- 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

D-Sub



InduCom 9 – Industrial bus interface system

Identification	Part number	General information
<p>CAN Interface</p>  	<p>66 63 009 6016</p>	<p>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.*</p> <p>Components of the interface set:</p> <ul style="list-style-type: none"> • 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
<p>Profibus Interface</p>  	<p>66 63 009 6004</p>	<p>The Profibus Interface is specially designed for usage in trains and in challenging engineering applications.</p> <p>On the PCB you will have SMD parts which can be activated with solder bridges.</p> <p>The wires are assembled with the proven vibration resistant cage clamp technology.*</p> <p>Components of the interface set:</p> <ul style="list-style-type: none"> • 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

D-Sub

Further bus PCBs on request

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



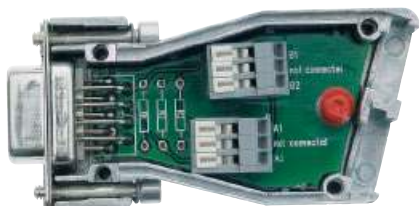
InduCom 9 – Industrial bus interface system

Identification

Part number

General information

FIP Interface middle of the line



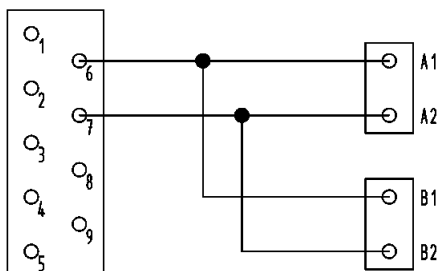
66 63 009 5017

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



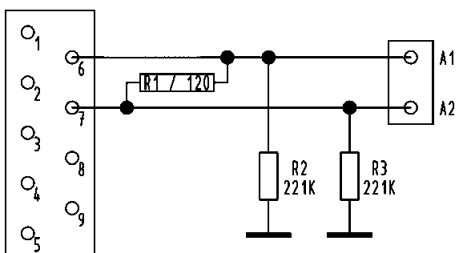
66 63 009 5018

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 number	Drawing	Dimensions in mm
Female screw locks without nut	9-50	09 67 000 9972 ¹⁾		4-40 UNC M3
	9-50	09 67 000 9974 ¹⁾		4-40 UNC
	9-50	09 67 001 9976 ¹⁾		M3
Thread M3/UNC	9-50	09 67 001 9974 ¹⁾		M3
	9-50	09 67 001 9974 ¹⁾		M3
	9-50	09 67 001 9974 ¹⁾		M3
Thread UNC/UNC	9-50	09 67 001 9941 ¹⁾		4-40 UNC
	9-50	09 67 001 9954 ¹⁾		4-40 UNC
	9-50	09 67 001 9954 ¹⁾		M3
for press-in connectors with grounding-pins or straight solder with grounding-clips.	9-50	09 66 000 9972 ¹⁾		4-40 UNC
	9-50	09 66 000 9974 ¹⁾²⁾		4-40 UNC
	9-50	09 66 000 9974 ¹⁾²⁾		M3
with captive washer	9-50	09 67 001 9957 ¹⁾		4-40 UNC
	9-50	09 67 001 9957 ¹⁾		4-40 UNC
	9-50	09 67 001 9957 ¹⁾		4-40 UNC

D-Sub

1) Order 2 for each connector
 2) M3 inner thread available on request

Accessories

Identification	No. of contacts	Part number	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⁾		4-40 UNC 4-40 UNC 4-40 UNC M3 4-40 UNC 4-40 UNC
Male screw locks for use without hood	9-37 50	09 67 001 9969 ¹⁾ 09 67 001 9970 ¹⁾		4-40 UNC
Hex extender Thread 4-40 UNC Thread M3	9-50 9-50	09 67 001 9985 09 67 002 9120		M3 or 4-40 UNC
U-Clip with thread 4-40 UNC	9-50	09 67 001 9928 ¹⁾		
U-Clip with thread 4-40 UNC and screw-lock	9-50	09 67 002 9030 ¹⁾		

D-Sub

¹⁾ Order 2 for each connector

Accessories

Identification	No. of contacts	Part number	Drawing	Dimensions in mm																															
Dust cap black thermoplastic for male connector	9	09 67 009 0611			<table border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <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> </tbody> </table>		A	B	9	17.0	22.40	15	25.3	30.80	25	38.9	44.40	37	55.4	60.75															
		A			B																														
	9	17.0			22.40																														
	15	25.3			30.80																														
	25	38.9	44.40																																
	37	55.4	60.75																																
	15	09 67 015 0611																																	
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	37	09 67 037 0611																																	
	9	09 67 009 0711			<table border="1"> <thead> <tr> <th></th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <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> </tbody> </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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25	37.8	44.3																																	
37	54.3	60.8																																	
15	09 67 015 0711																																		
25	09 67 025 0711																																		
37	09 67 037 0711																																		
antistatic black thermoplastic for male connector	9	09 67 009 0612			<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>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> </tbody> </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																												
	9	17.7			21.8	13.2	9.1																												
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	25	40.0			44.2	13.2	9.1																												
	37	56.4	59.8	13.2	9.1																														
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	A			B	C	D																													
9	15.9			20.0	11.8	7.8																													
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25	09 67 025 0712																																		
37	09 67 037 0712																																		
50	09 67 050 0712																																		
UL 94 V0 grey thermoplastic for male connector	9	09 67 009 0613			<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>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> </tbody> </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																												
	9	17.7			21.8	13.2	9.1																												
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	25	40.0			44.2	13.2	9.1																												
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50	09 67 050 0713																																		

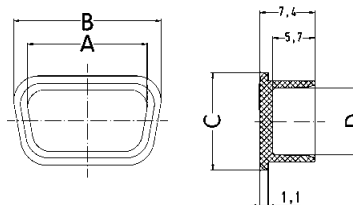
Accessories

Identification No. of contacts Part number Drawing Dimensions in mm

Dust cap
metallized
thermoplastic

for male connector

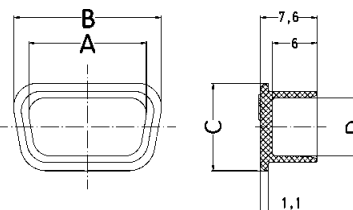
9	09 67 009 0614
15	09 67 015 0614
25	09 67 025 0614
37	09 67 037 0614
50	09 67 050 0614



	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

for female connector

9	09 67 009 0714
15	09 67 015 0714
25	09 67 025 0714
37	09 67 037 0714
50	09 67 050 0714

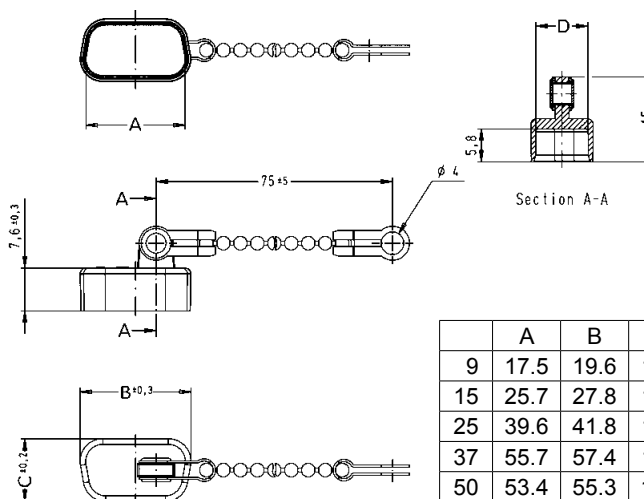


	A	B	C	D
9	15.9	20.0	11.8	7.8
15	24.4	28.5	11.8	7.8
25	38.3	42.3	11.8	7.8
37	54.7	58.8	11.8	7.8
50	52.6	56.2	14.5	10.5

metallized
thermoplastic
with chain

for male connector

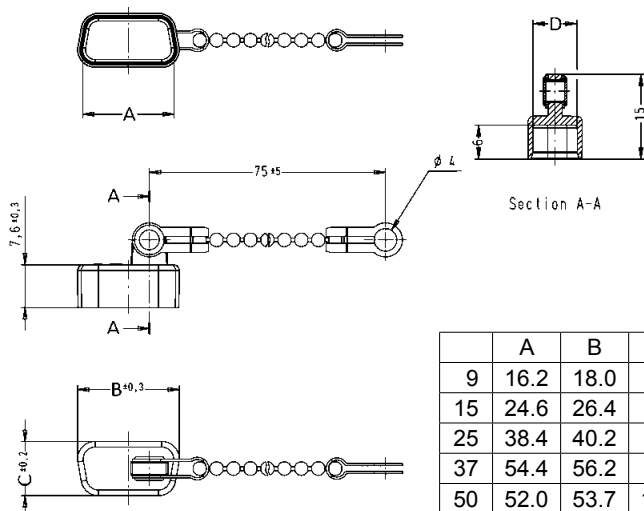
9	09 67 009 0615
15	09 67 015 0615
25	09 67 025 0615
37	09 67 037 0615
50	09 67 050 0615



	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	09 67 009 0715
15	09 67 015 0715
25	09 67 025 0715
37	09 67 037 0715
50	09 67 050 0715



	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
--	------------	---------------

Tin-lead plated PCB	Hole	1.15 ^{-0.03}	3.15 \pm 0.025
	Cu	25-75 μ m	25-75 μ m
	Sn	5-15 μ m	4-10 μ m
	Plated hole	0.94-1.09 mm	3.0-3.15 mm

Chemical tin-plated PCB	Hole	1.05 ^{-0.03}	3.15 \pm 0.025
	Cu	25-50 μ m	25-50 μ m
	Sn	0.8-1.0 μ m	0.8-1.0 μ m
	Plated hole	1.00-1.10 mm	3.0-3.15 mm

Au / Ni plated PCB	Hole	1.15 ^{-0.03}	3.15 \pm 0.025
	Cu	25-50 μ m	25-50 μ m
	Ni	3-7 μ m	4-7 μ m
	Au	0.05-0.12 μ m	0.05-0.12 μ m
Plated hole	1.00-1.10 mm	3.0-3.15 mm	

Silver plated PCB	Hole	1.15 ^{-0.03}	3.15 \pm 0.025
	Cu	25-50 μ m	25-50 μ m
	Ag	0.1-0.3 μ m	0.1-0.3 μ m
	Plated hole	1.00-1.10 mm	3.0-3.15 mm

OSP copper plated PCB	Hole	1.15 ^{-0.03}	3.15 \pm 0.025
	Cu	25-50 μ m	25-50 μ m
	Plated hole	1.00-1.10 mm	3.0-3.15 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 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

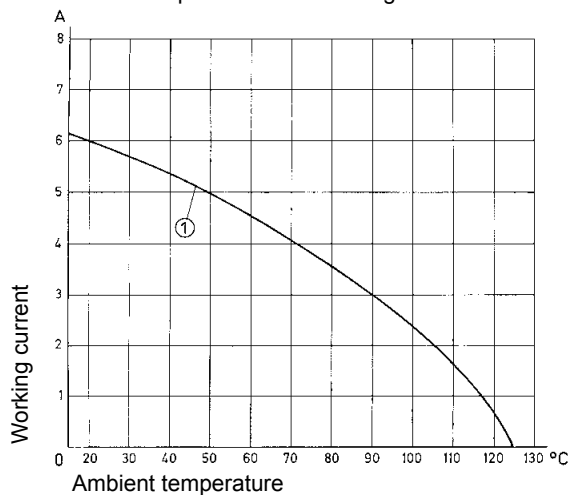
Mating force
9 way ≤ 30 N
15 way ≤ 50 N
25 way ≤ 83 N
37 way ≤ 123 N
50 way ≤ 167 N

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.

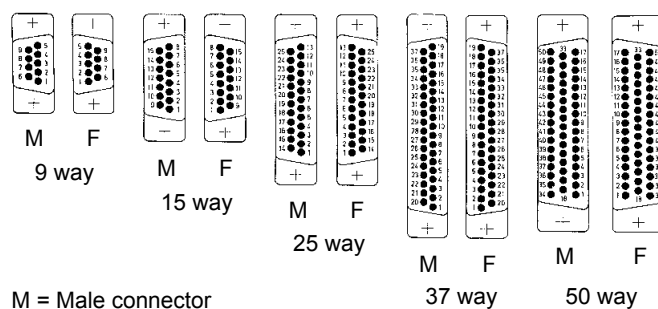
Control and test procedures according to DIN IEC 60512.



Example: 25 way connector

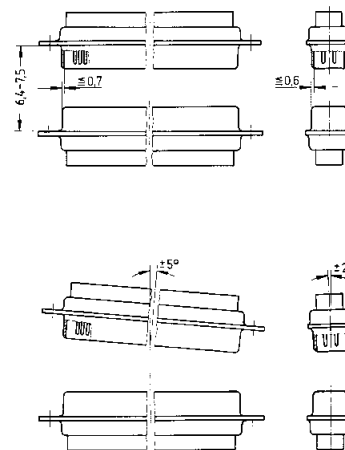
① Stamped contacts

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 41652



¹⁾ Performance level 3, 50 mating cycles, no gas test
Performance level 2 as per CECC 75301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60512
Performance level 1 as per CECC 75301-802, 500 mating cycles, 10 days 4 mixed gas test – IEC 60512

Number of contacts

9-50



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

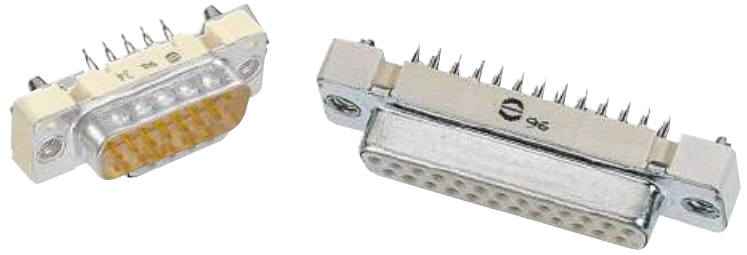
D-Sub

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.171 Other performance levels on request		Performance level 3	Performance level 2
Male connector Flange height x = 5.7 mm metal shell with dimples 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⁾	9 15 25	09 66 164 771 . 09 66 264 771 . 09 66 364 771 .	09 66 164 671 . 09 66 264 671 . 09 66 364 671 .
Female connector Flange height x = 5.7 mm metal shell 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⁾	9 15 25 37	09 66 154 751 . 09 66 254 751 . 09 66 354 751 . 09 66 454 751 .	09 66 154 651 . 09 66 254 651 . 09 66 354 651 . 09 66 454 651 .
Female connector Flange height x = 6 mm metal shell 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⁾	9 15 25 37 50	09 66 154 751 . 09 66 254 751 . 09 66 354 751 . 09 66 454 751 . 09 66 554 751 .	09 66 154 651 . 09 66 254 651 . 09 66 354 651 . 09 66 454 651 . 09 66 554 651 .

¹⁾ Fitted screw locks 4-40 UNC not normally kept in stock for performance level 3
 Connector dimensions see page 05.173. Mating conditions see page 05.171.

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 UNC

fitted 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 UNC

fitted 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 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

Female connector
50 contacts

M3 or
4 - 40 UNC

fitted screw locks
4 - 40 UNC

Board drillings

D-Sub

Number of contacts

9–50



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

D-Sub

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.171 Other performance levels on request		Performance level 3	Performance level 2
Male connector Flange height x = 5.7 mm metal shell with dimples 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⁾	9 15 25	09 66 124 770 . 09 66 224 770 . 09 66 324 770 .	09 66 124 670 . 09 66 224 670 . 09 66 324 670 .
Female connector Flange height x = 5.7 mm metal shell 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⁾	9 15 25 37	09 66 114 750 . 09 66 214 750 . 09 66 314 750 . 09 66 414 750 .	09 66 114 650 . 09 66 214 650 . 09 66 314 650 . 09 66 414 650 .
Female connector Flange height x = 6 mm metal shell 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⁾	9 15 25 37 50	09 66 114 750 . 09 66 214 750 . 09 66 314 750 . 09 66 414 750 . 09 66 514 750 .	09 66 114 650 . 09 66 214 650 . 09 66 314 650 . 09 66 414 650 . 09 66 514 650 .

¹⁾ Not normally kept in stock
²⁾ 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 05.171.

Number of contacts

9-50



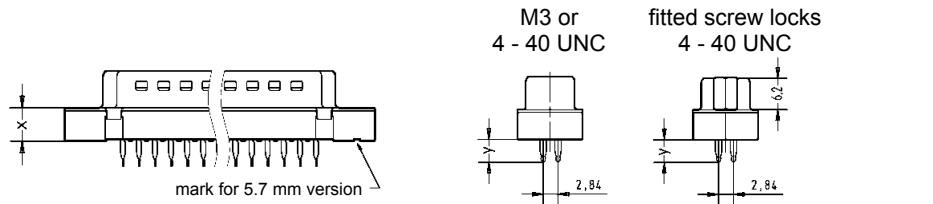
Press-in, straight without grounding press-in board locks

Identification

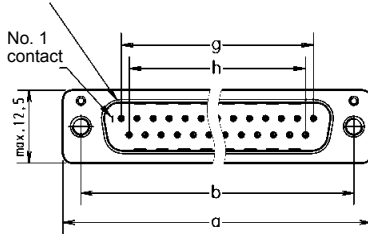
Drawing

Dimensions in mm

Male connector
9 – 25 contacts

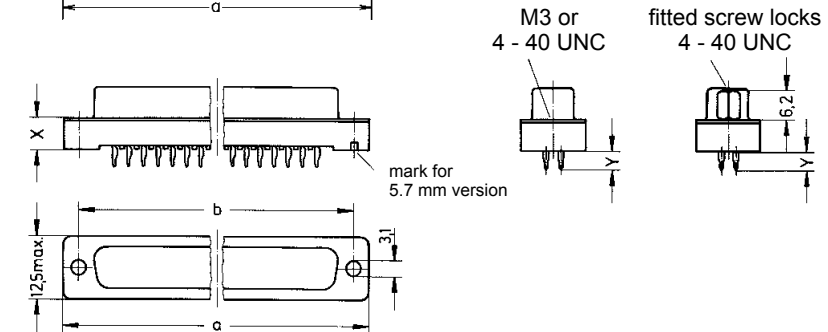


Mating face acc. to: DIN 41652 · CECC 75301-802 · IEC 60807

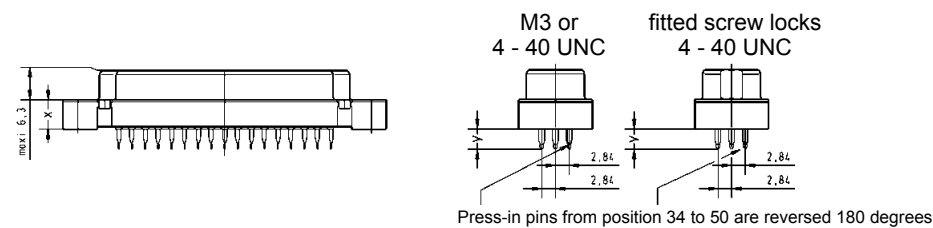


X	Y
6.0 ± 0.2	4.20 ± 0.2
5.7 ± 0.2	4.35 ± 0.2

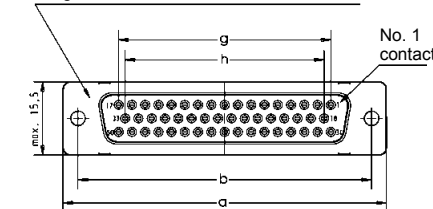
Female connector
9 – 37 contacts



Female connector
50 contacts

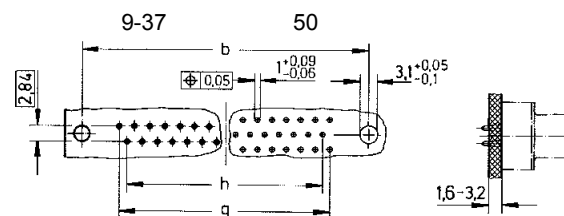


Mating face acc. to: DIN 41652 · CECC 75301-802 · IEC 60807



	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



D-Sub

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

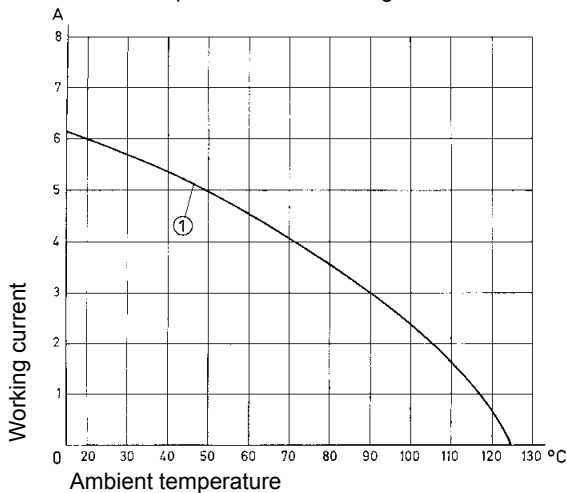
Mating force
9 way ≤ 30 N
15 way ≤ 50 N
25 way ≤ 83 N
37 way ≤ 123 N

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.

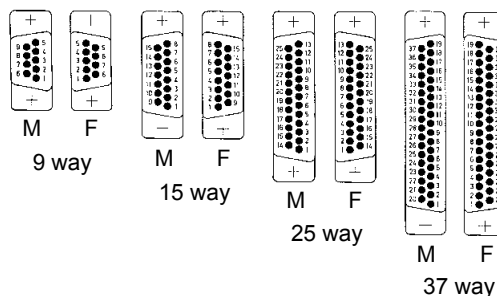
Control and test procedures according to DIN IEC 60 512.



Example: 25 way connector

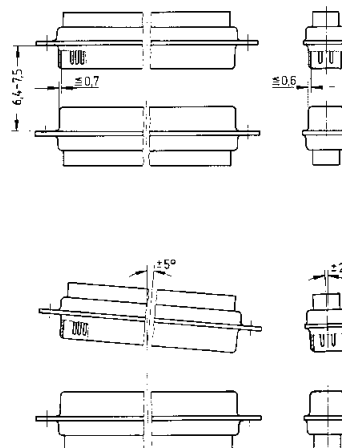
① Stamped contacts

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

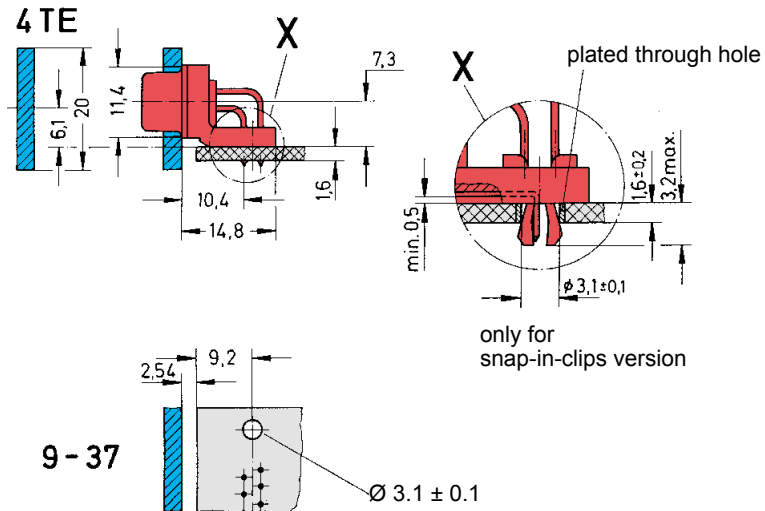
Identification

Drawing

Dimensions in mm

Standard Versions

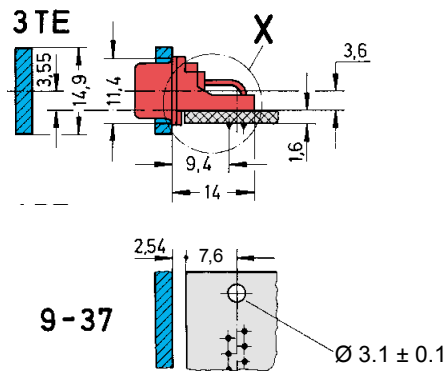
Mounting height 7.3 mm
 9-37 way
 for front panel
 4 units of width (TE)



for connectors see pages 05.180 – 05.181

Low-Profile Versions

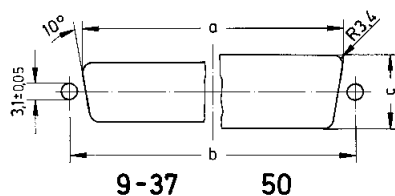
Mounting height 3.6 mm
 9-37 way
 for front panel
 3 units of width (TE)



for connectors see pages 05.182 – 05.183

Panel cut out for front/rear mount

Values are taken from the CECC 75301-802



Front mount

Rear 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

	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

D-Sub

Number of contacts

9-37



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

D-Sub

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.176 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 3¹⁾			

¹⁾ Fitted screw locks 4-40 UNC not normally kept in stock for performance level 3
 Connector dimensions see page 05.179. Mating conditions see page 05.176.

Number of contacts

9-37



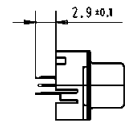
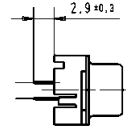
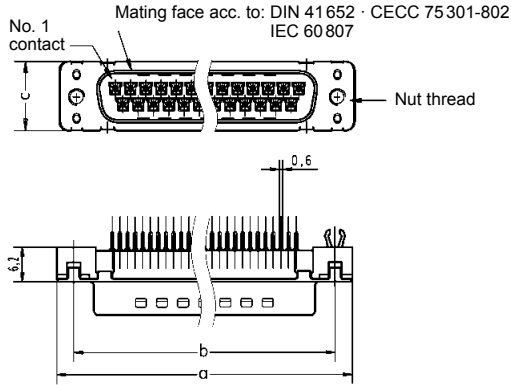
SMC stamped solder pins, straight with/without grounding board locks

Identification

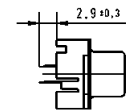
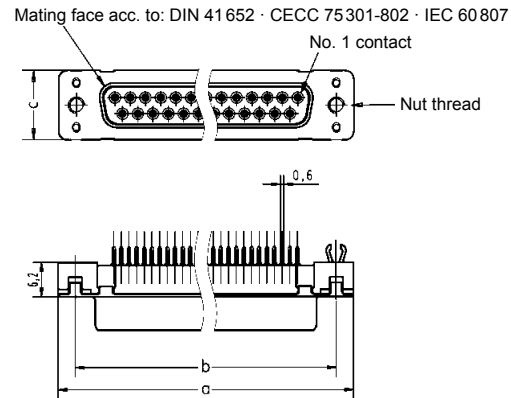
Drawing

Dimensions in mm

Male connector

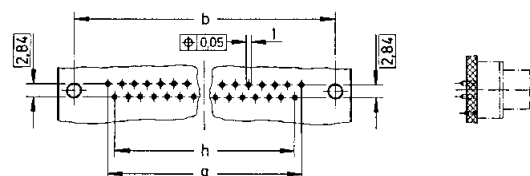


Female connector



	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



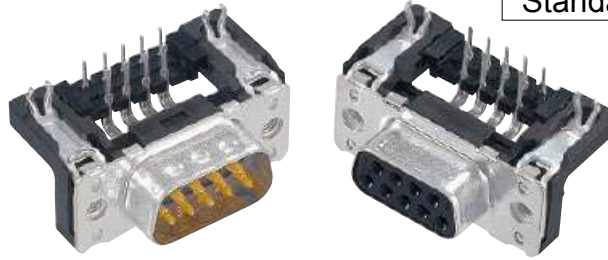
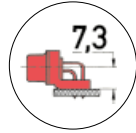
D-Sub

Standard Versions

Number of contacts

Mounting height

9-37



SMC stamped solder pins, angled with grounding board locks

D-Sub

Identification	No. of contacts	Part number		
Performance levels Explanations see page 05.176 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				

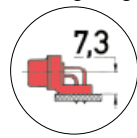
¹⁾ Not normally kept in stock

Standard Versions

Number of contacts

Mounting height

9-37



SMC stamped solder pins, angled with grounding board locks

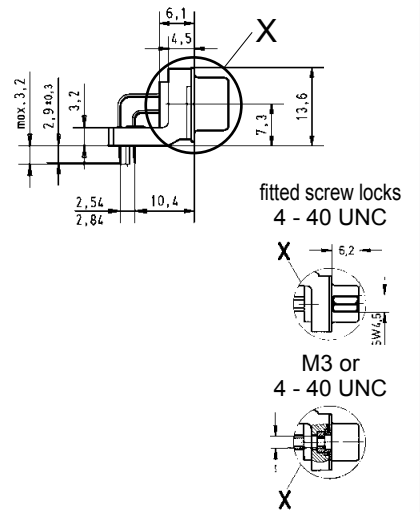
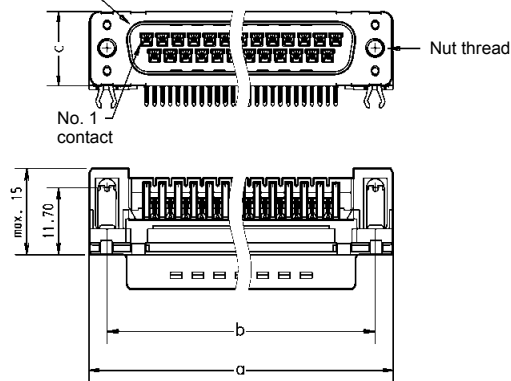
Identification

Drawing

Dimensions in mm

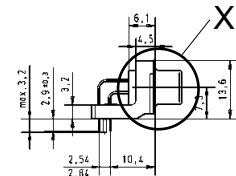
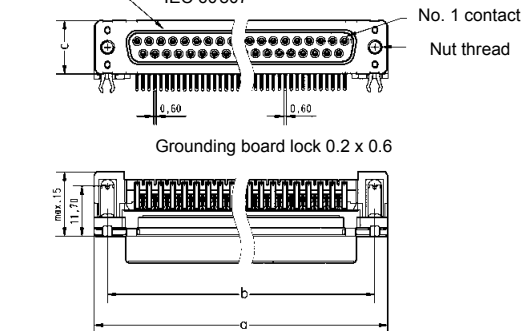
Male connector

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

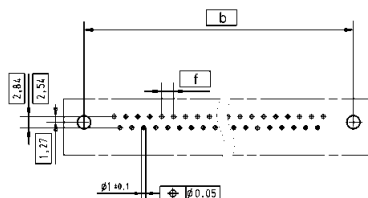


Female connector

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



Board drillings

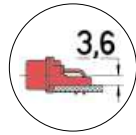


	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76

Number of contacts

Mounting height

9-37



Low-Profile Versions

SMC stamped solder pins, angled with grounding board locks

Identification	No. of contacts	Part number	
		Performance level 3	Performance level 2
Performance levels Explanations see page 05.176 Other contact surfaces on request			
Male connector metal shell with dimples	9 15 25 37	09 65 166 781 . 09 65 266 781 . 09 65 366 781 . 09 65 466 781 .	09 65 166 681 . 09 65 266 681 . 09 65 366 681 . 09 65 466 681 .
Female connector metal shell	9 15 25 37	09 66 156 761 . 09 66 256 761 . 09 66 356 761 . 09 66 456 761 .	09 66 156 661 . 09 66 256 661 . 09 66 356 661 . 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		

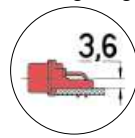
D-Sub

Low-Profile Versions

Number of contacts

Mounting height

9-37



SMC stamped solder pins, angled with grounding board locks

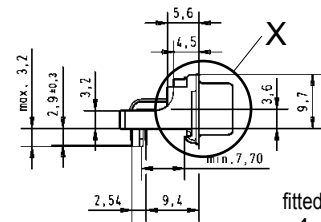
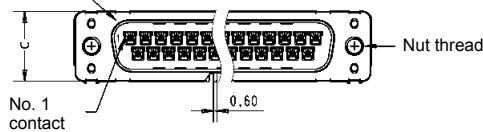
Identification

Drawing

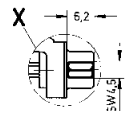
Dimensions in mm

Male connector

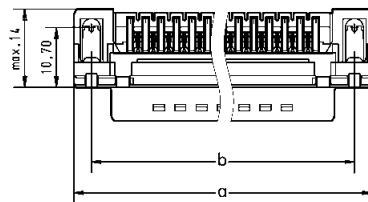
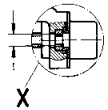
Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807



fitted screw locks
4 - 40 UNC

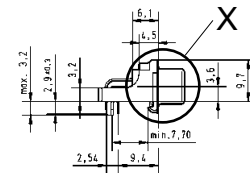
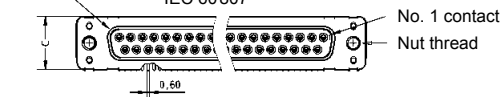


M3 or
4 - 40 UNC

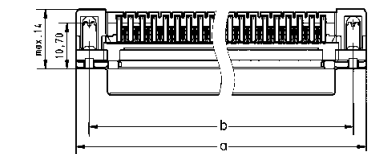


Female connector

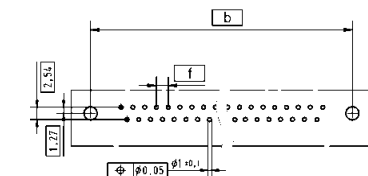
Mating face acc. to: DIN 41 652 · CECC 75 301-802
IEC 60 807



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
UL recognized

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

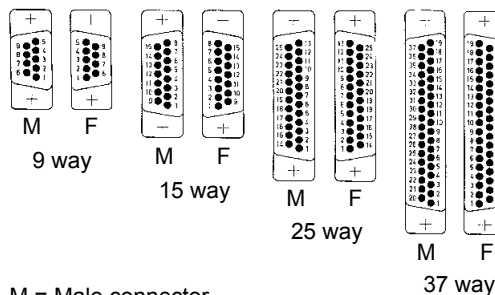
Materials
Mouldings LCP black
UL 94-V0
Contacts Phosphorus bronze
Grounding die Zamac
Shell Steel

Contact surface
Contact zone selectively plated
acc. to performance level¹⁾
Grounding die Pure tin
Shell Nickel plated

Mating force

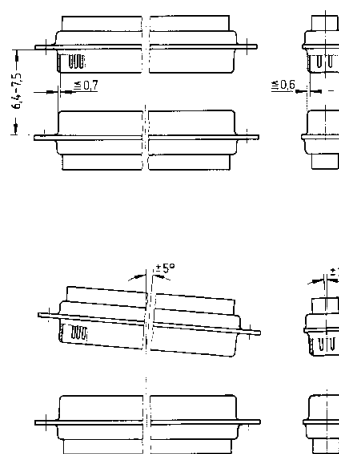
9 way	≤ 30 N
15 way	≤ 50 N
25 way	≤ 83 N
37 way	≤ 123 N

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 75301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60512

Standard Versions

Number of contacts

9–37



SMT stamped solder pins, angled with grounding dies

Identification	No. of contacts	Part number	
		Performance level 3	Performance level 2
Performance levels Explanations see page 05.184 Other performance levels on request			
Male connector metal shell with dimples	9 15 25 37	09 55 166 78 ... 741 09 55 266 78 ... 741 09 55 366 78 ... 741 09 55 466 78 ... 741	09 55 166 68 ... 741 09 55 266 68 ... 741 09 55 366 68 ... 741 09 55 466 68 ... 741
Female connector metal shell	9 15 25 37	09 55 156 76 ... 741 09 55 256 76 ... 741 09 55 356 76 ... 741 09 55 456 76 ... 741	09 55 156 66 ... 741 09 55 256 66 ... 741 09 55 356 66 ... 741 09 55 456 66 ... 741
Packaging: 140 pieces on a reel			
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			

Samples			
Male connector metal shell with dimples	9 15 25 37	If performance level 3 is required please order as substitute performance level 2	09 55 166 68 ... 333 09 55 266 68 ... 333 09 55 366 68 ... 333 09 55 466 68 ... 333
Female connector metal shell	9 15 25 37		09 55 156 66 ... 333 09 55 256 66 ... 333 09 55 356 66 ... 333 09 55 456 66 ... 333
Packaging 9, 15 contacts: 5 samples 25, 37 contacts: 3 samples			
Please insert digit for flange thread or fitted female screw locks			
4-40 UNC ▶ 12 non-removable fitted screw locks 4-40 UNC ▶ 22			

Standard Versions

Number of contacts

9-37



SMT stamped solder pins, angled with grounding dies

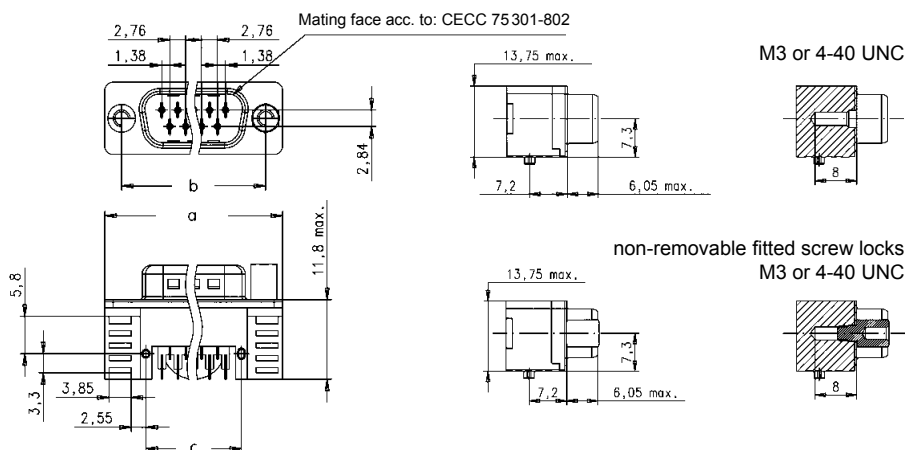
Identification

Drawing

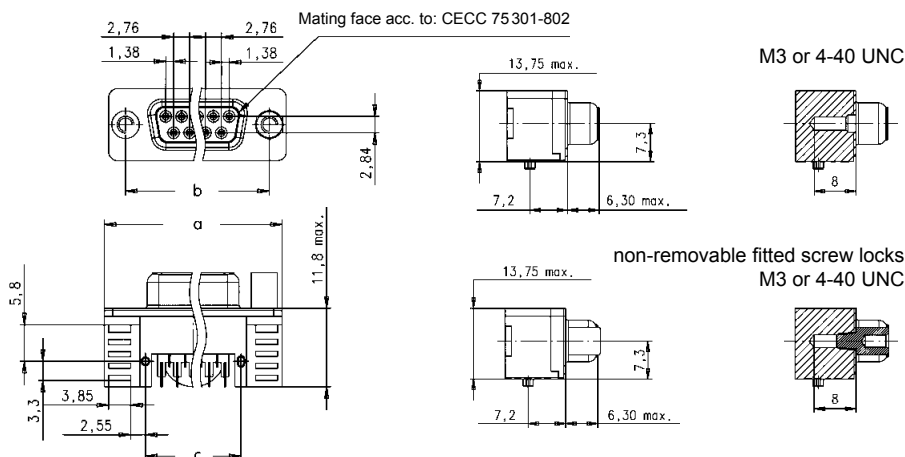
Dimensions in mm

Male connector

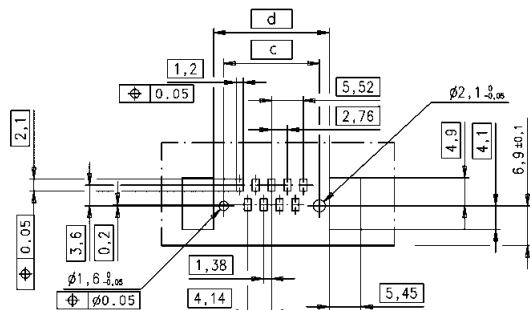
M3 or 4-40 UNC non-removable fitted screw locks M3 or 4-40 UNC



Female connector



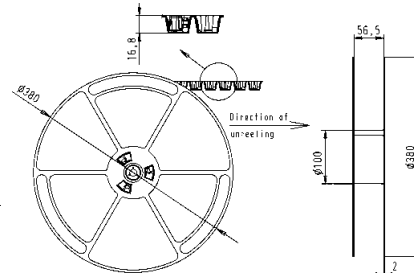
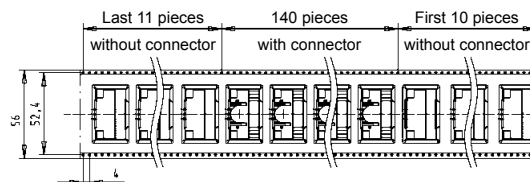
pcb layout



	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



D-Sub

Number of contacts

9–37



SMT stamped solder pins, angled with grounding dies

Identification	No. of contacts	Part number	
		Performance level 3	Performance level 2
Performance levels Explanations see page 05.184 Other performance levels on request			
Male connector metal shell with dimples	9 15 25 37	09 55 166 78 .. 741 09 55 266 78 .. 741 09 55 366 78 .. 741 09 55 466 78 .. 741	09 55 166 68 .. 741 09 55 266 68 .. 741 09 55 366 68 .. 741 09 55 466 68 .. 741
Female connector metal shell	9 15 25 37	09 55 156 76 .. 741 09 55 256 76 .. 741 09 55 356 76 .. 741 09 55 456 76 .. 741	09 55 156 66 .. 741 09 55 256 66 .. 741 09 55 356 66 .. 741 09 55 456 66 .. 741
Packaging: 160 pieces on a reel			
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			

Samples

Male connector metal shell with dimples	9 15 25 37	If performance level 3 is required please order as substitute performance level 2	09 55 166 68 .. 333 09 55 266 68 .. 333 09 55 366 68 .. 333 09 55 466 68 .. 333
Female connector metal shell	9 15 25 37		09 55 156 66 .. 333 09 55 256 66 .. 333 09 55 356 66 .. 333 09 55 456 66 .. 333
Packaging 9, 15 contacts: 5 samples 25, 37 contacts: 3 samples			
Please insert digit for flange thread or fitted female screw locks			
4-40 UNC ▶ 16 non-removable fitted screw locks 4-40 UNC ▶ 20			

Number of contacts

9-37



SMT stamped solder pins, angled with grounding dies

Identification

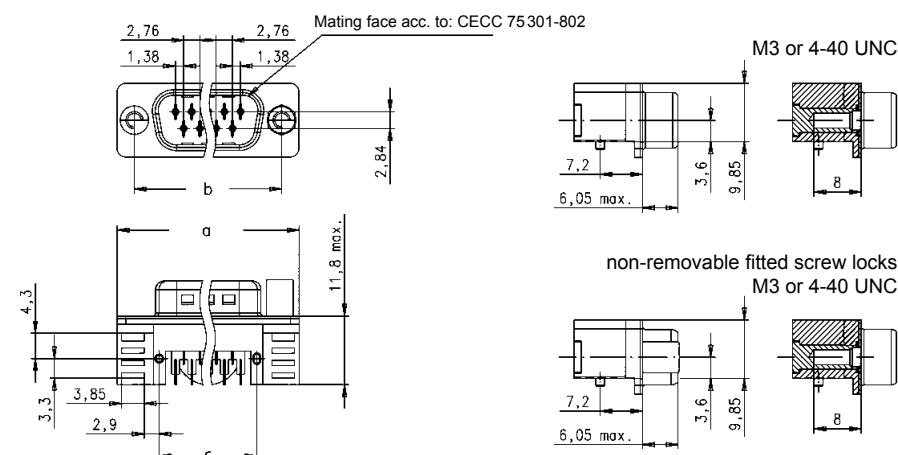
Drawing

Dimensions in mm

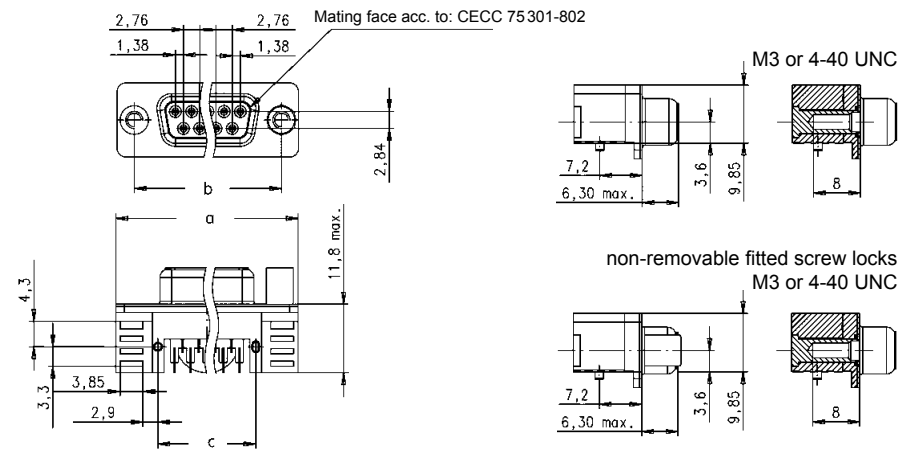
Male connector

M3 or 4-40 UNC

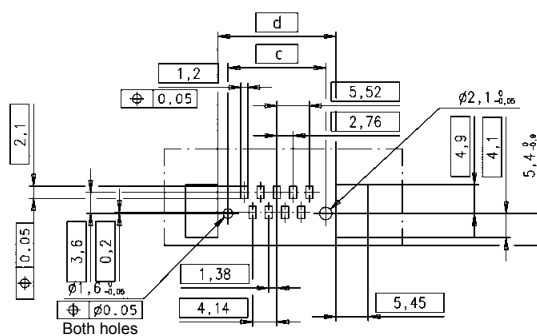
non-removable fitted screw locks M3 or 4-40 UNC



Female connector



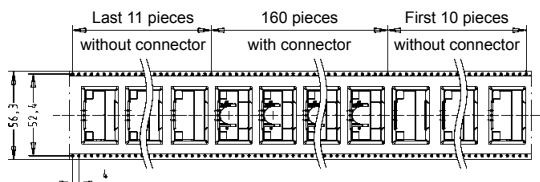
pcb layout



	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



Number of contacts

9–37



SMT stamped solder pins, straight without grounding pins

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.184 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples	9 15 25 37	09 55 129 78 ... 741 09 55 229 78 ... 741 09 55 329 78 ... 741 09 55 429 78 ... 741	09 55 129 68 ... 741 09 55 229 68 ... 741 09 55 329 68 ... 741 09 55 429 68 ... 741
Female connector metal shell	9 15 25 37	09 55 115 76 ... 741 09 55 215 76 ... 741 09 55 315 76 ... 741 09 55 415 76 ... 741	09 55 115 66 ... 741 09 55 215 66 ... 741 09 55 315 66 ... 741 09 55 415 66 ... 741
Packaging: 140 pieces on a reel			
Please insert digit for flange thread or fitted female screw locks			
M3 ▶ 11 4-40 UNC ▶ 12 fixed screw locks M3 ▶ 21 fixed screw locks 4-40 UNC ▶ 22			

Samples

Male connector metal shell with dimples	9 15 25 37	If performance level 3 is required please order as substitute performance level 2	09 55 129 68 ... 333 09 55 229 68 ... 333 09 55 329 68 ... 333 09 55 429 68 ... 333
Female connector metal shell	9 15 25 37		09 55 115 66 ... 333 09 55 215 66 ... 333 09 55 315 66 ... 333 09 55 415 66 ... 333
Packaging 9, 15 contacts: 5 samples 25, 37 contacts: 3 samples			
Please insert digit for flange thread or fitted female screw locks			
4-40 UNC ▶ 12 fixed screw locks 4-40 UNC ▶ 22			

Number of contacts

9–37



SMT stamped solder pins, straight without grounding pins

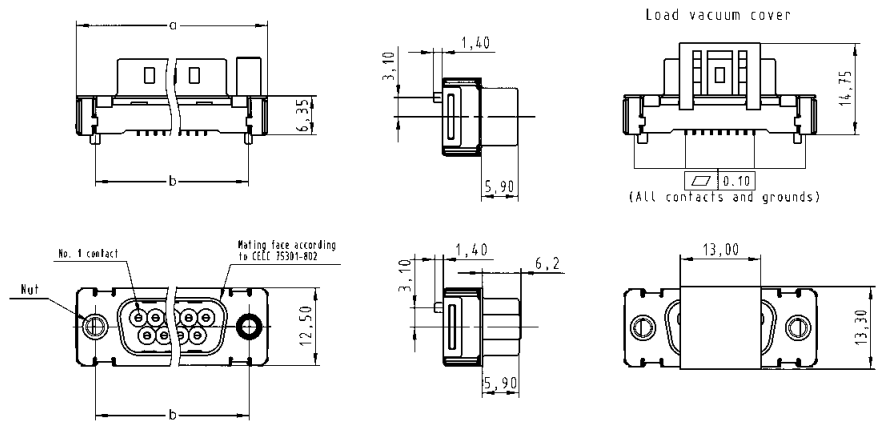
Identification

Drawing

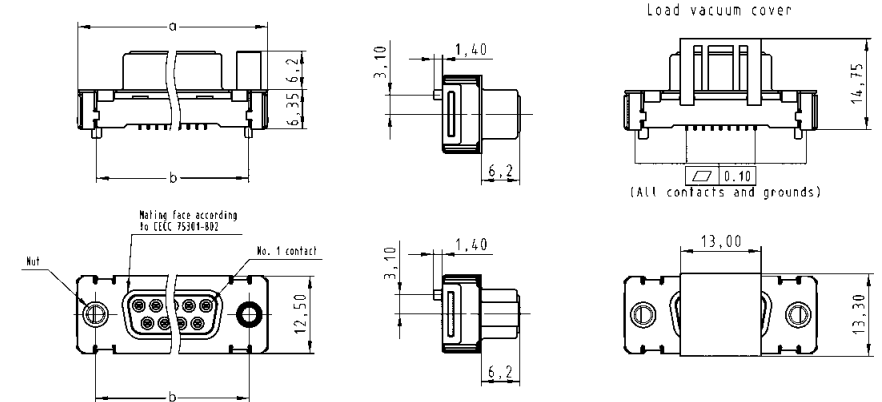
Dimensions in mm

Male connector

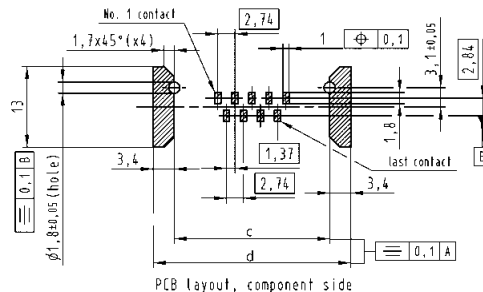
M3 or 4-40 UNC non-removable fitted screw locks M3 or 4-40 UNC



Female connector



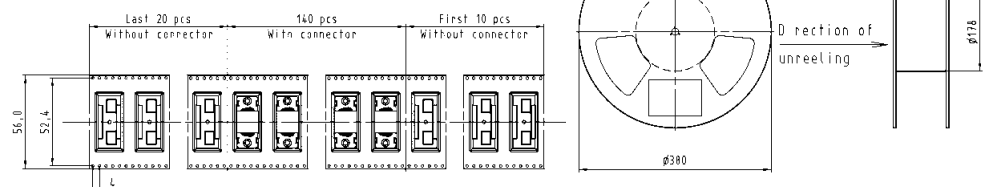
pcb layout



	a	b	c	d
9	31.12	25.00	25.0	31.8
15	39.45	33.33	33.3	40.1
25	53.35	47.04	47.0	53.8
37	69.62	63.50	63.5	70.3

Packaging

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



Number of contacts

9–37



SMT stamped solder pins, straight with grounding pins

Identification	No. of contacts	Part number	
Performance levels Explanations see page 05.184 Other performance levels on request		Performance level 3	Performance level 2
Male connector metal shell with dimples	9 15 25 37	09 55 169 78 ... 741 09 55 269 78 ... 741 09 55 369 78 ... 741 09 55 469 78 ... 741	09 55 169 68 ... 741 09 55 269 68 ... 741 09 55 369 68 ... 741 09 55 469 68 ... 741
Female connector metal shell	9 15 25 37	09 55 155 76 ... 741 09 55 255 76 ... 741 09 55 355 76 ... 741 09 55 455 76 ... 741	09 55 155 66 ... 741 09 55 255 66 ... 741 09 55 355 66 ... 741 09 55 455 66 ... 741
Packaging: 140 pieces on a reel			
Please insert digit for flange thread or fitted female screw locks			
M3 ▶ 11 4-40 UNC ▶ 12 fixed screw locks M3 ▶ 21 fixed screw locks 4-40 UNC ▶ 22			

Samples

Male connector metal shell with dimples	9	If performance level 3 is required please order as substitute performance level 2	09 55 169 68 ... 333
Female connector metal shell	9		09 55 155 66 ... 333
Packaging 9, 15 contacts: 5 samples 25, 37 contacts: 3 samples			
Please insert digit for flange thread or fitted female screw locks			
4-40 UNC ▶ 12 fixed screw locks 4-40 UNC ▶ 22			

Number of contacts

9-37



SMT stamped solder pins, straight with grounding pins

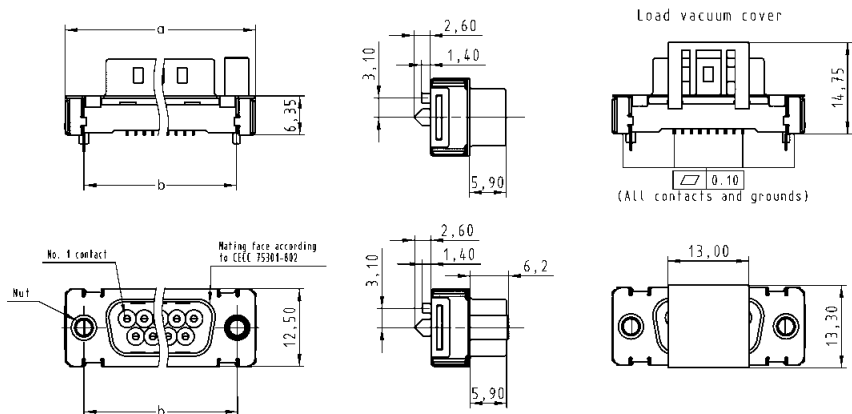
Identification

Drawing

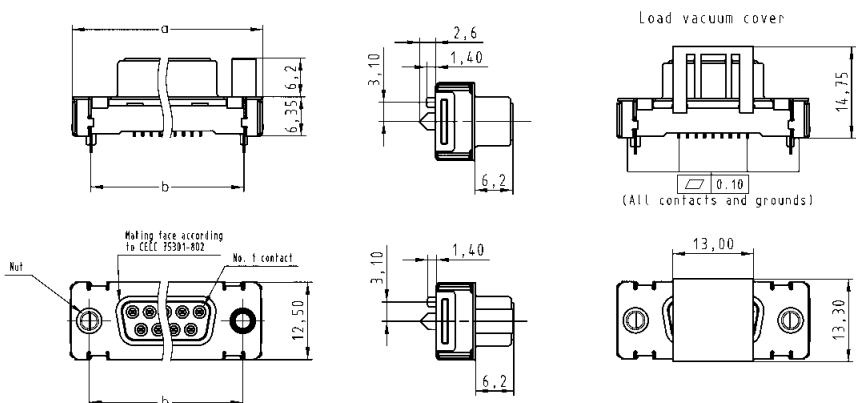
Dimensions in mm

Male connector

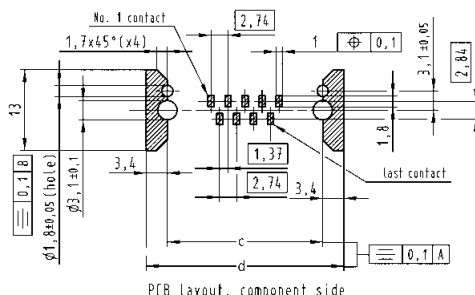
M3 or 4-40 UNC non-removable fitted screw locks M3 or 4-40 UNC



Female connector



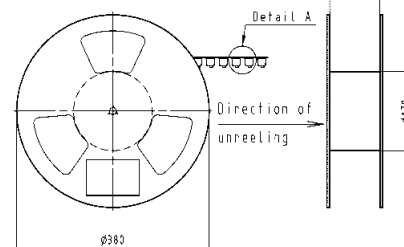
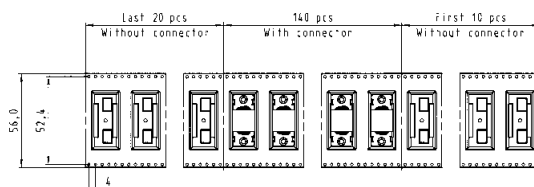
pcb layout



	a	b	c	d
9	31.12	25.00	25.0	31.8
15	39.45	33.33	33.3	40.1
25	53.35	47.04	47.0	53.8
37	69.62	63.50	63.5	70.3

Packaging

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



D-Sub



Cable assemblies

Identification	Part number	Drawing	Dimensions in mm
<p>Cable assembly D-Sub HD 78-pole</p> <p>Hood: shielded plastic hood with side entry, screw 4-40 UNC</p> <p>Cable: 39 twisted pairs, AWG 26, double shielded, PVC</p> <p>Wiring: 1:1</p> <p>Length: L = 0.5 m L = 1.0 m L = 2.0 m L = 5.0 m L = 10.0 m L = 20.0 m</p>	<p>33 56 212 0050 028 33 56 213 1000 002 33 56 213 2000 016 33 56 212 0500 029 33 56 212 1000 030 33 56 212 2000 031</p>		
<p>Cable assembly D-Sub HD 44-pole</p> <p>Hood: shielded plastic hood with side entry, screw 4-40 UNC</p> <p>Cable: 22 twisted pairs, AWG 26, double shielded, PVC</p> <p>Wiring: 1:1</p> <p>Length: L = 0.5 m L = 1.0 m L = 1.5 m L = 2.0 m L = 5.0 m L = 10.0 m</p>	<p>33 56 213 0500 023 33 56 213 1000 024 33 56 213 1500 022 33 56 213 2000 025 33 56 213 5000 026 33 56 212 1000 027</p>		
<p>Cable assembly D-Sub HD 44-pole</p> <p>Hood: metal hood with top entry, screw 4-40 UNC</p> <p>Cable: 24 twisted pairs, AWG 26, double shielded, PVC</p> <p>Wiring: 1:1</p> <p>Length: L = 0.5 m L = 1.0 m L = 5.0 m L = 10.0 m L = 20.0 m</p>	<p>33 56 212 0050 032 33 56 212 0100 033 33 56 212 0500 034 33 56 212 1000 035 33 56 212 2000 036</p>		

D-Sub

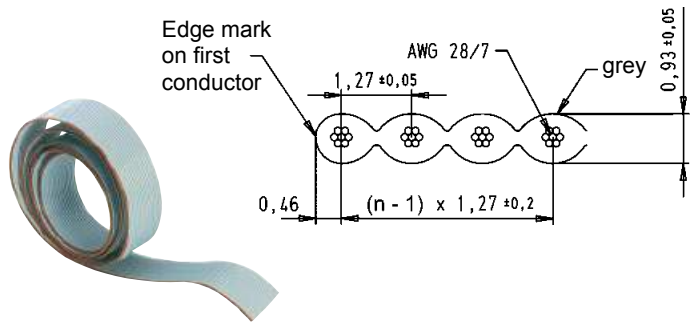


Cable assemblies

Identification	Part number	Drawing	Dimensions in mm
<p>Cable assembly D-Sub HD 44-pole</p> <p>Hood: overmoulded with side entry</p> <p>Cable: 24 twisted pairs, solid wires, AWG 26, shielded, halogen free</p> <p>Wiring: 1:1</p> <p>Length: L = 0.5 m L = 1.0 m L = 2.0 m L = 5.0 m</p>	<p>33 56 224 5000 001</p> <p>33 56 221 0010 001</p> <p>33 56 221 0020 001</p> <p>33 56 221 0050 001</p>		
<p>Cable assembly D-Sub 9-pole</p> <p>Hood: shielded plastic hood with side entry, screw 4-40 UNC</p> <p>Cable: 5 twisted pairs, stranded, AWG 24, shielded, PVC</p> <p>Wiring: 1:1</p> <p>Length: L = 0.5 m L = 1.0 m L = 1.5 m L = 2.0 m L = 5.0 m</p>	<p>33 66 214 5000 058</p> <p>33 66 213 1000 059</p> <p>33 66 213 1500 060</p> <p>33 66 213 2000 061</p> <p>33 66 213 5000 062</p>		

Identification	No. of contacts	Part number	Drawing	Dimensions in mm
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Flat cable grey UL AWM-style 2651 CSA	9	09 18 009 700 <input type="checkbox"/>
	15	09 18 015 700 <input type="checkbox"/>
	25	09 18 025 700 <input type="checkbox"/>
	37	09 18 037 700 <input type="checkbox"/>



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

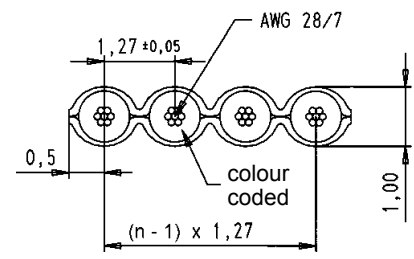

Length per reel

30.48 m
(100 feet)

1

100 m
(328 feet)

4

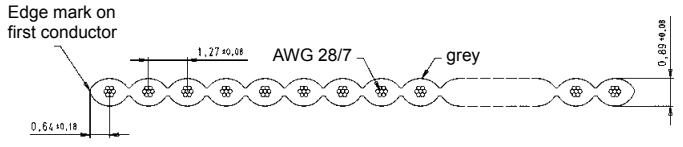
Identification	No. of contacts	Part number	Drawing	Dimensions in mm
<p>Flat cable colour coded</p> <p>Length per reel 30.48 m (100 feet)</p> <p>UL AWM-style 2651</p>	<p>9</p> <p>15</p> <p>25</p> <p>37</p>	<p>09 18 009 7005</p> <p>09 18 015 7005</p> <p>09 18 025 7005</p> <p>09 18 037 7005</p>	 <p>Colour code sequence (in 10 steps) brown, red, orange, yellow, green, blue, violet, grey, white, black</p>  <p>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</p>	

D-Sub

Important: always store reel vertically

D-Sub

Identification	No. of contacts	Part number	Drawing	Dimensions in mm
Round flat cable			ø max.	
with screening (shielding)	9	09 18 009 70	6.86	<p>① Flat cable, AWG 28/7 ② Aluminium / Polyester tape (spiral wrap) ③ 85 % minimum coverage tinned copper braid ④ Outer jacket: black PVC</p>
	15	09 18 015 70	7.62	
	25	09 18 025 70	9.14	
	37	09 18 037 70	10.41	
UL listed PLCC CL2 CSA certified AWM FT-1				
Length per reel				
30.48 m (100 feet)	07			
100 m (328 feet)	10*			
without screening (shielding)	9	09 18 009 7008	6.35	<p>① Flat cable, AWG 28/7 ② Clear polyester ③ Outer jacket: black PVC</p>
	15	09 18 015 7008	6.86	
	25	09 18 025 7008	8.38	
	37	09 18 037 7008	9.65	
UL listed PLCC CL2 CSA certified AWM FT-1				
Length per reel				
30.48 m (100 feet)				



No. of contacts	a	b	c
9 to 25	19.05	19.05	38.10
37	38.10	19.05	57.15

- Conductor material _____ Copper tinned
- Gauge _____ AWG 28/7 0.089 mm²
- 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 _____ 10⁴ MΩ/km

* Only available for 37 contacts
 Important: always store reels vertically

