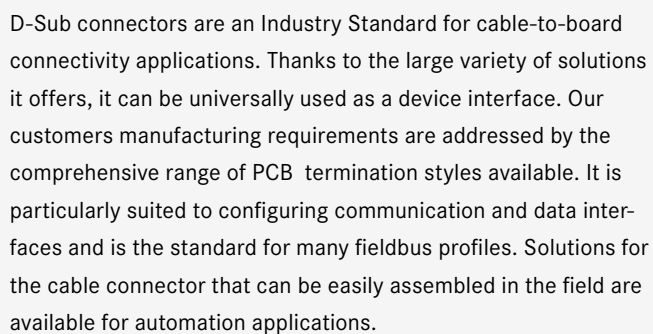




CONNECTION TYPE		ENVIRONMENT		APPLICATION						
Board to Board	Cable/Wire to Board	IP 20	IP 65 / IP 67	Data	Signal	Power	high performance			
							Data transfer rate	Shielding	Number of contacts, contact density	Voltage, working current

Cable termination

Han-Quick Lock®

IDC

Crimp

PCB termination

THT

SMC

SMT

Application standard

Housing integration

Separate housing

Integrated housing

CONTENTS	PAGE
D-Sub connector system – introduction	05.02
D-Sub Standard connectors (D-Sub – S)	05.04
D-Sub High Density connectors (D-Sub – HD)	05.36
D-Sub Mixed connectors (D-Sub – M)	05.48
D-Sub Filter connectors (D-Sub – F)	05.90
D-Sub Waterproof IP 67 connectors (D-Sub – W)	05.126
D-Sub Housing range (D-Sub – H) and accessories	05.150
D-Sub Standard press-in connectors	05.173
D-Sub Standard SMC connectors	05.178
D-Sub Standard SMT connectors	05.186
Cables for insulation displacement termination and cable assemblies	05.196

Tooling see chapter 20

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

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

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

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

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



D-SUB – MIXED CONNECTORS

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



D-SUB – WATERPROOF

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



D-SUB – FILTER CONNECTORS

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



D-SUB – HIGH DENSITY CONNECTORS

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



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

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

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

Clearance and creepage ≥ 1.0 mm

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

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

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

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

Contacts Copper alloy

Contact surface
Contact zone selectively plated according to performance level¹⁾

Metal shell Plated steel

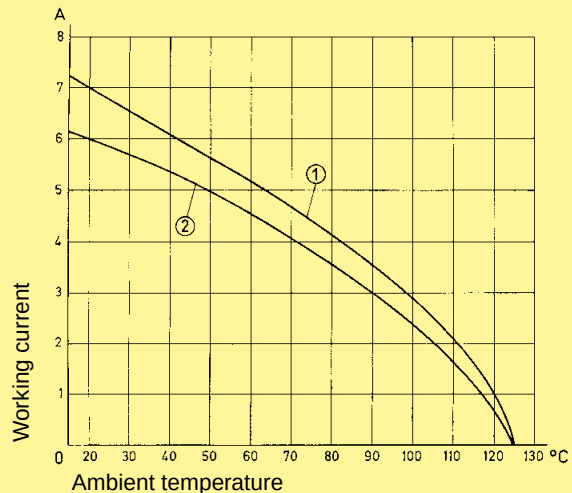
Insertion and withdrawal force
Connector on P.C.B.
Solder, straight with clips
– insertion max. per connector: 60 N
– withdrawal min. per connector: 10 N

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

Current carrying capacity

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

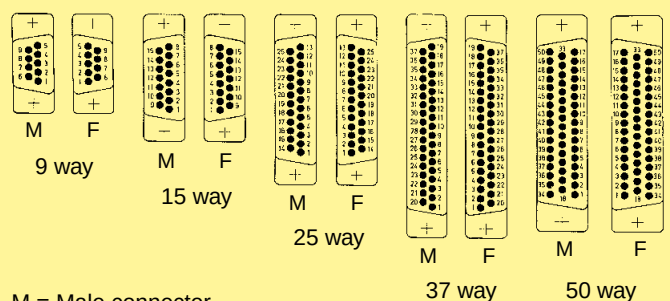
Control and test procedures according to DIN IEC 60 512.



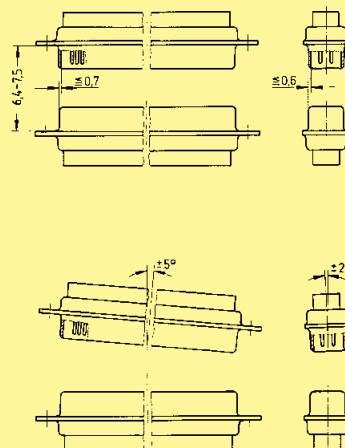
Example: 25 way connector

- ① Turned contacts
- ② Stamped contacts

Contact arrangement View from termination side



Mating conditions as per DIN 41 652



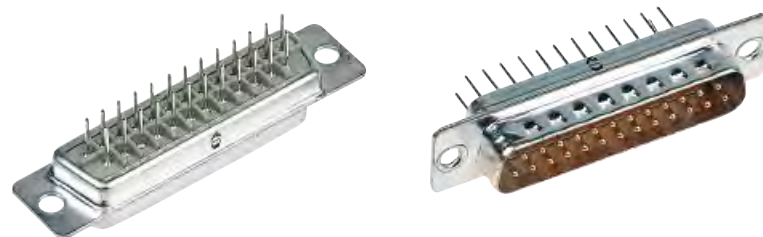
¹⁾ Performance level 3, 50 mating cycles, no gas test

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

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

Number of contacts

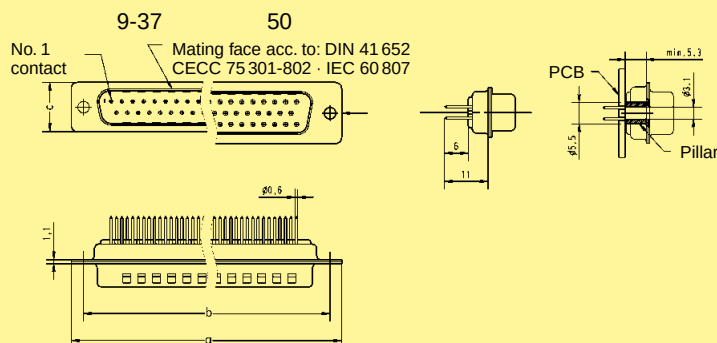
9–50



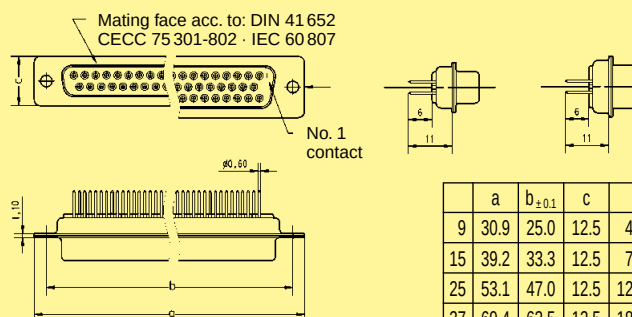
Turned solder pins, straight

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

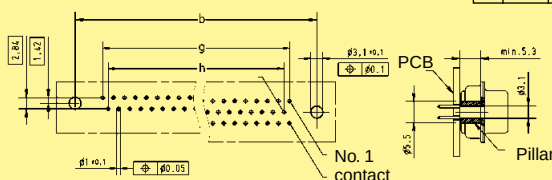
Male connector



Female connector



Board drillings



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

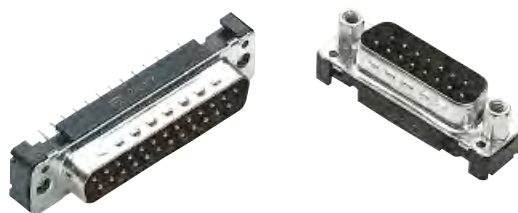
Dimensions in mm

¹⁾ Not normally kept in stock

Mating conditions see page 05.04

Number of contacts

9–50

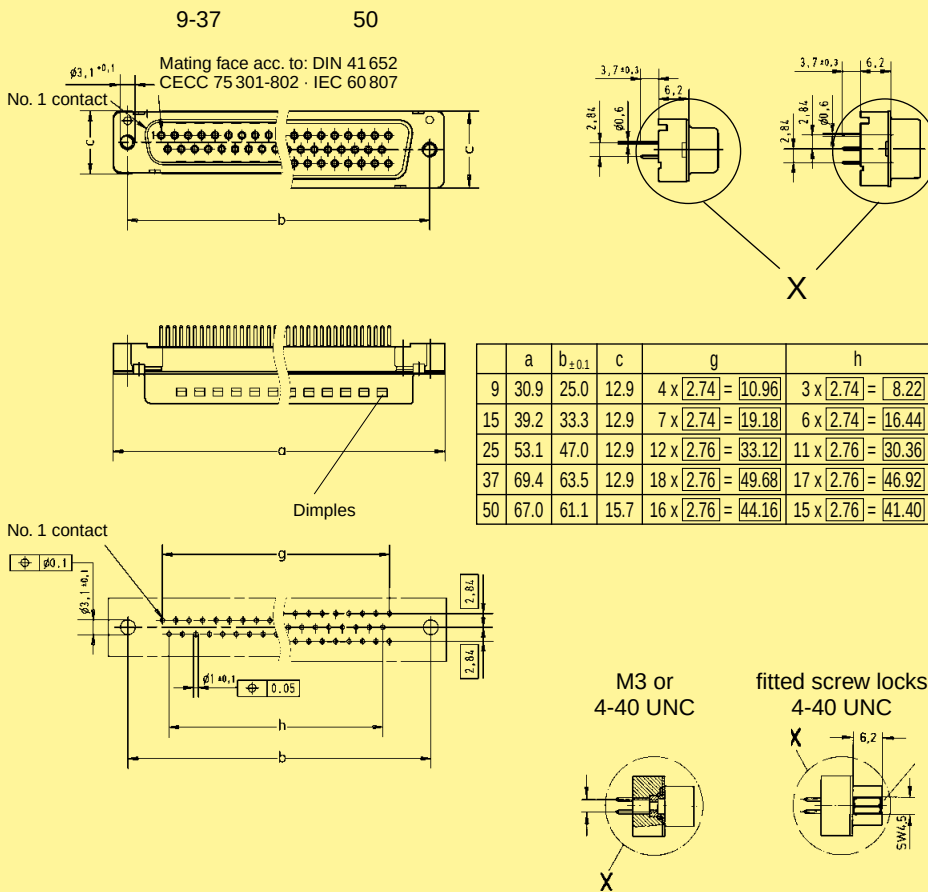


Turned solder pins, straight without grounding-pins

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

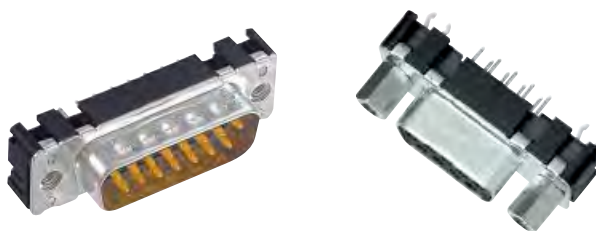
Male connector

Board drillings



Number of contacts

9–50



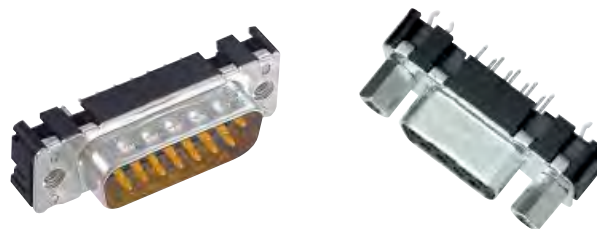
Stamped solder pins, straight with/without grounding board locks

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

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

Number of contacts

9–50



Stamped solder pins, straight with/without grounding board locks

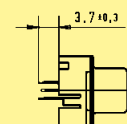
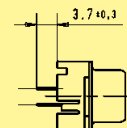
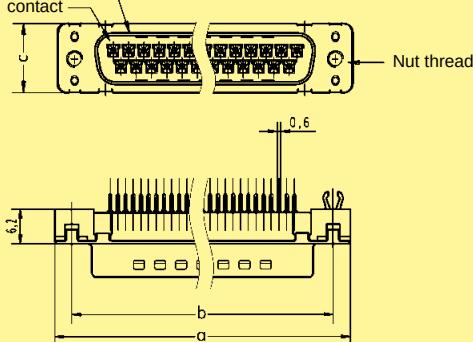
Identification

Drawing

Dimensions in mm

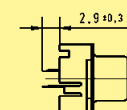
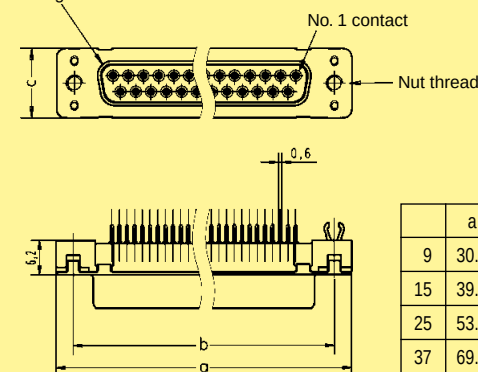
Male connector 9 – 37 contacts

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



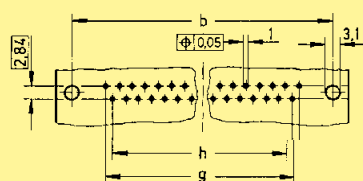
Female connector 9 – 37 contacts

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



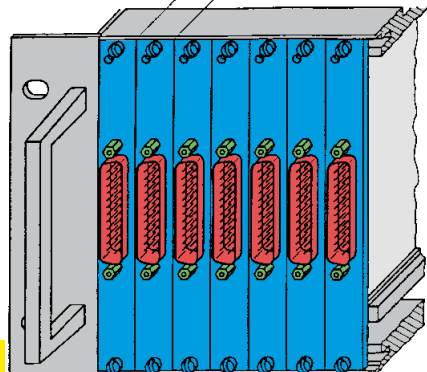
	a	b _{±0.1}	c	g	h
9	30.9	25.0	12.5	4 x <u>2.74</u> = <u>10.96</u>	3 x <u>2.74</u> = <u>8.22</u>
15	39.2	33.3	12.5	7 x <u>2.74</u> = <u>19.18</u>	6 x <u>2.74</u> = <u>16.44</u>
25	53.1	47.0	12.5	12 x <u>2.76</u> = <u>33.12</u>	11 x <u>2.76</u> = <u>30.36</u>
37	69.4	63.5	12.5	18 x <u>2.76</u> = <u>49.68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

Board drillings 9 – 37 contacts

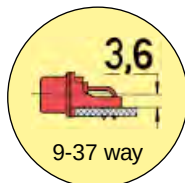


D-Sub

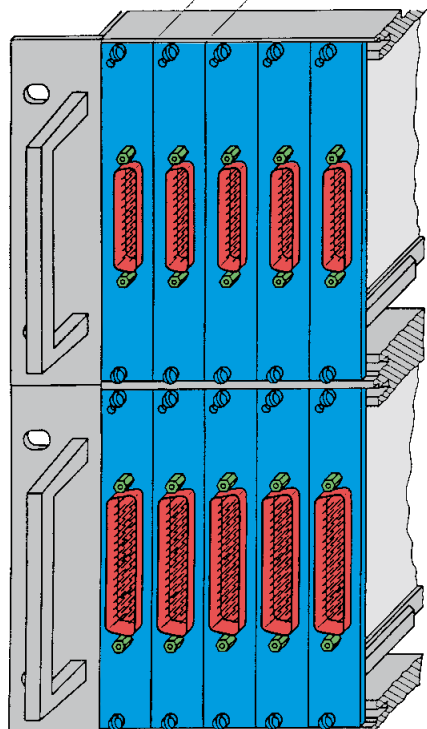
Front panel width 3 TE
3 x 5.08 mm



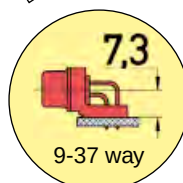
Low-Profile Versions
pages 05.18 – 05.21



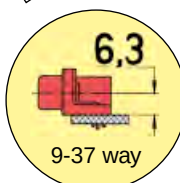
Front panel width 4 TE
4 x 5.08 mm



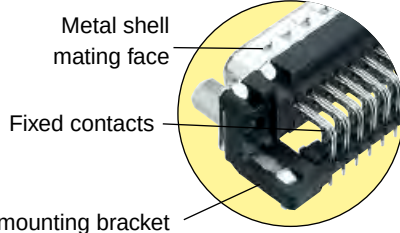
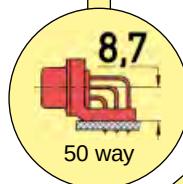
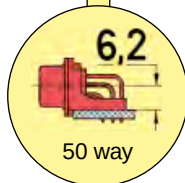
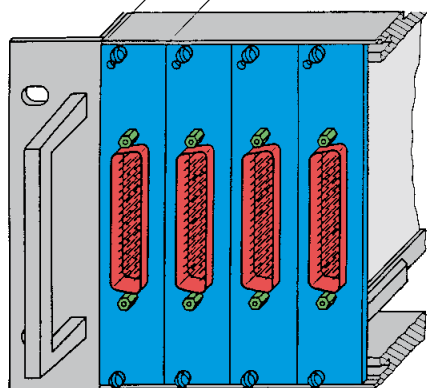
Standard Versions
pages 05.12 – 05.17



U.S. Footprint Versions
pages 05.22 – 05.23



Front panel width 5 TE
5 x 5.08 mm



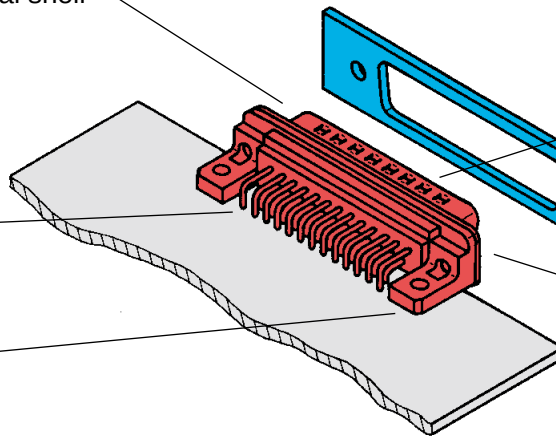
Advantages

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



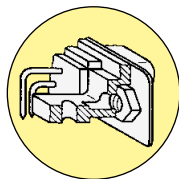
Contact surface finish to different performance levels

Panel

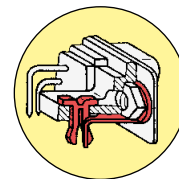
Different metal threads possible in flange area

- 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

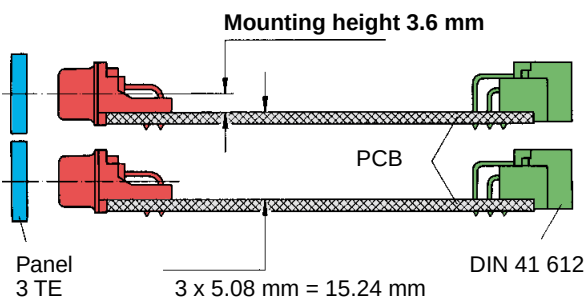
Mounting height

Low-Profile Versions

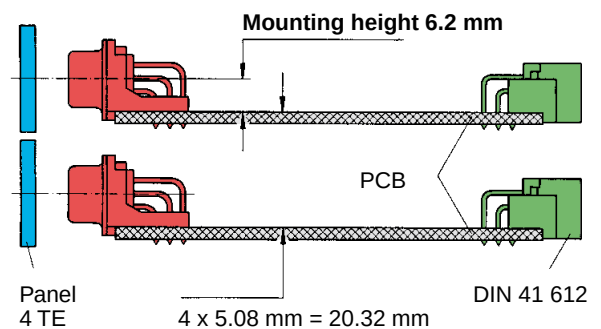
The reduced mounting height of these connectors allow them to be used on the same PCB as DIN 41 612

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

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

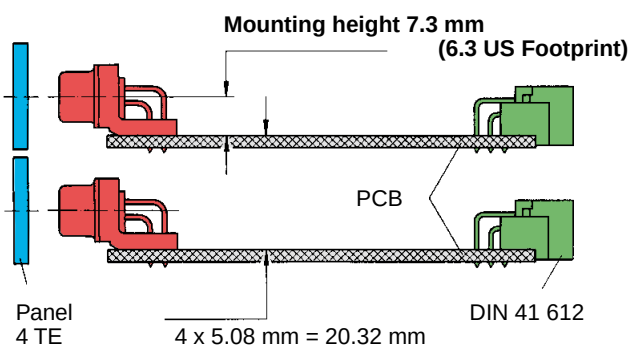


50 way connectors with 6.2 mm mounting height can be fitted to front panels of 4 TE (20.32 mm) width.

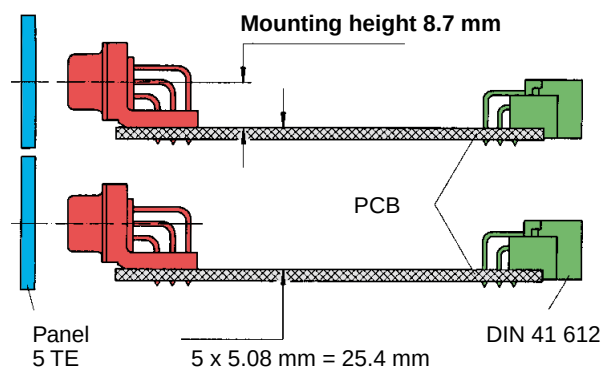


Standard Versions US Footprint

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



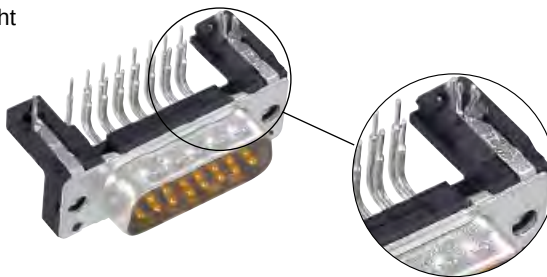
50 way connectors with 8.7 mm mounting height can be fitted to front panels of 5 TE (25.4 mm) width.



Number of contacts

Mounting height

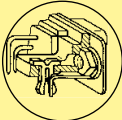
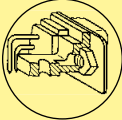
9–37
50



Standard Versions



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

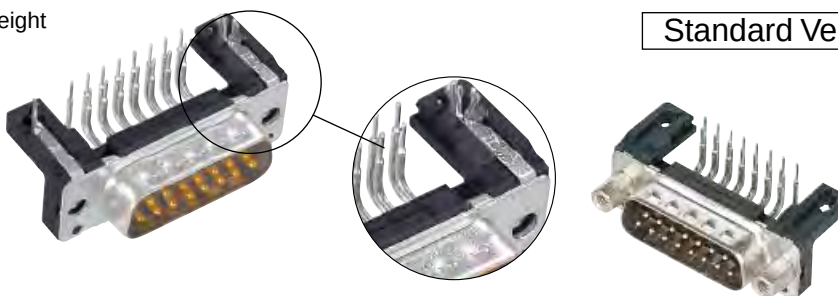
Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	
Male connector metal shell with dimples With snap-in clips and grounding board locks  available on request	9 15 25 37 50	2.84 mm pitch 09 66 163 781 . 09 66 263 781 . 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 .	
Without snap-in clips and grounding board locks  available on request	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 .	
Please insert digit for flange thread or fitted female screw locks M3 ▶ 1 4-40 UNC ▶ 2 fitted screw locks 4-40 UNC ▶ 3			

Number of contacts

Mounting height

Standard Versions

9-37
50



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

Identification

Drawing

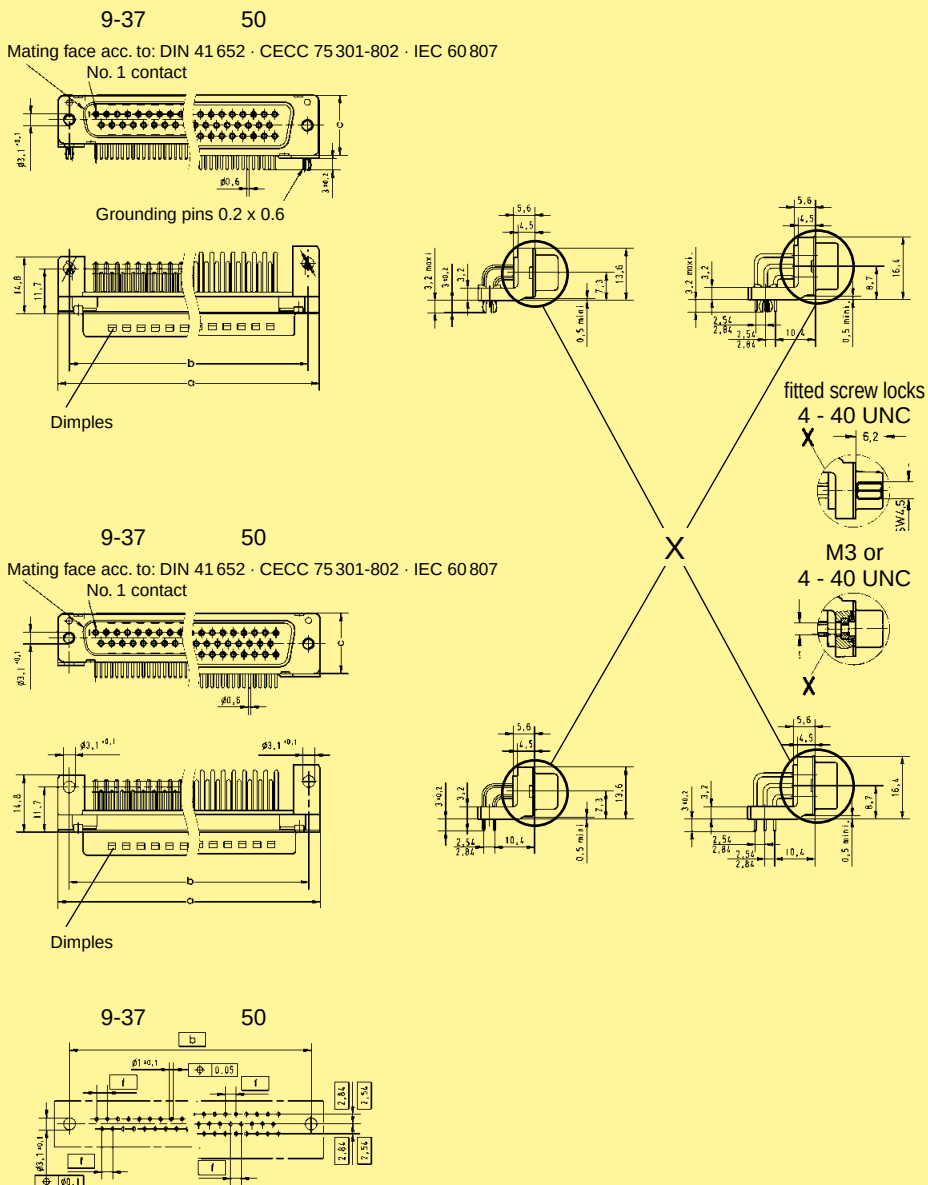
Dimensions in mm

Male connector

With snap-in clips
and grounding board locks

Without snap-in clips
and grounding board locks

Board drillings

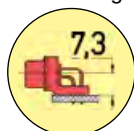


	a	b±0.1	c	f
9	30.90	25.00	12.90	2.74
15	39.20	33.30	12.90	2.74
25	53.10	47.00	12.90	2.76
37	69.40	63.50	12.90	2.76
50	67.00	61.10	15.70	2.76

Number of contacts

Mounting height

9–37
50



Standard Versions

Stamped solder pins, angled with grounding board locks

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

Number of contacts

Mounting height

Standard Versions

9-37
50

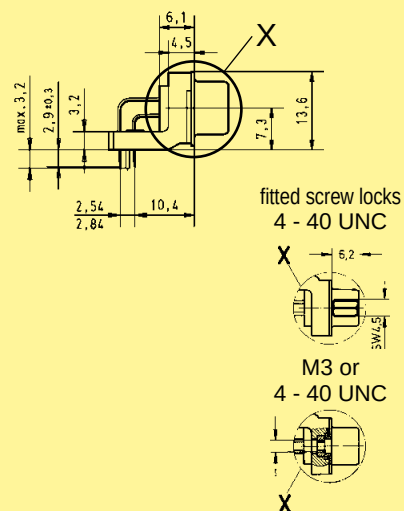
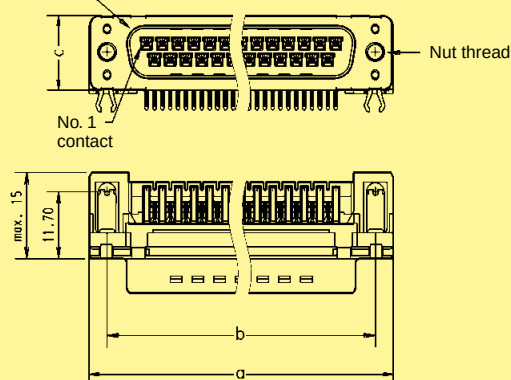

Stamped solder pins, angled with grounding board locks

Identification

Drawing

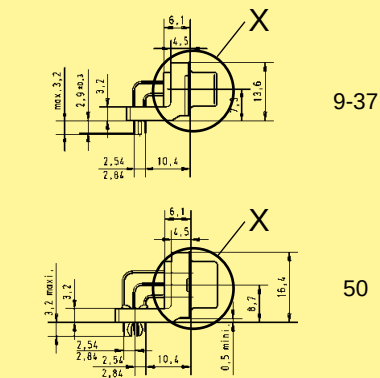
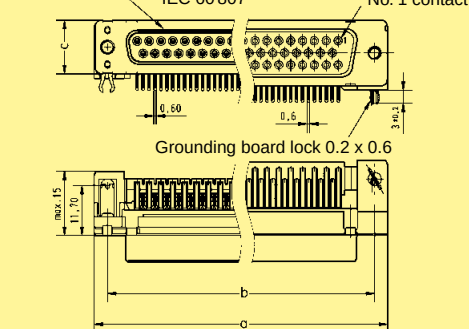
Dimensions in mm

Male connector

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


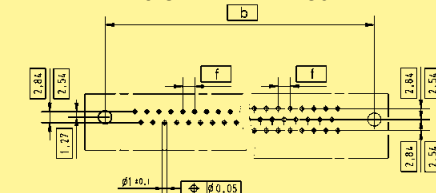
Female connector

9-37 50

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


Board drillings

9-37 50



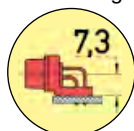
	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.40	2.76

Number of contacts

Mounting height

Standard Versions

9–37
50



Stamped solder pins, angled without grounding board locks

Identification

No. of contacts

Part No.

D-Sub

Performance levels

Explanations see page 05.04
Other performance levels on request

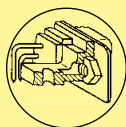


Performance level
3

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

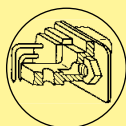
09 65 122 780 .
09 65 222 780 .
09 65 322 780 .
09 65 422 780 .

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 ► 0¹⁾

M3 ► 1

4-40 UNC ► 2

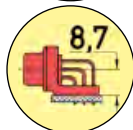
fitted screw locks 4-40 UNC ► 3

Number of contacts

Mounting height

Standard Versions

9–37
50



Stamped solder pins, angled without grounding board locks

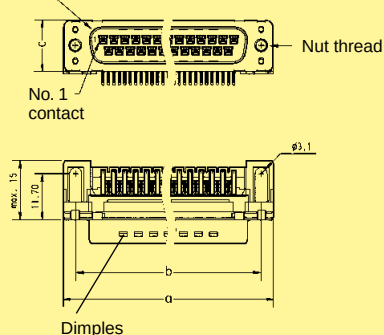
Identification

Drawing

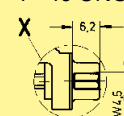
Dimensions in mm

Male connector

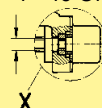
Mating face acc. to: DIN 41 652 · CECC 75 301-802 · IEC 60 807



fitted screw locks
4 - 40 UNC

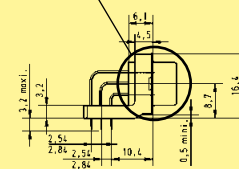
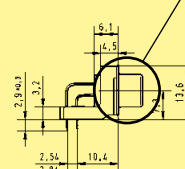
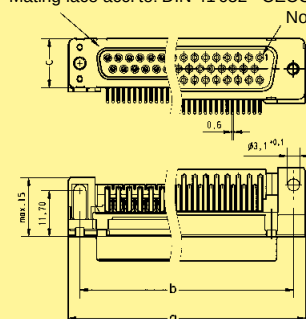


M3 or
4 - 40 UNC

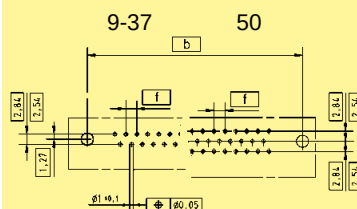


Female connector

9-37 50
Mating face acc. to: DIN 41 652 · CECC 75 301-802 · IEC 60 807



Board drillings



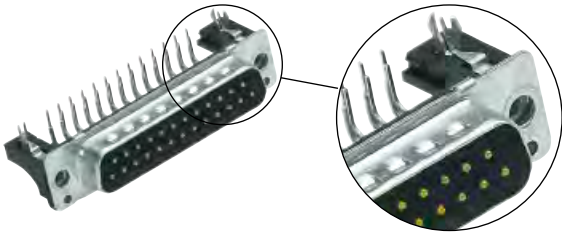
	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.40	2.76

Number of contacts

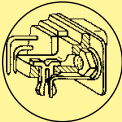
Mounting height

Low-Profile Versions

9–37
50



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

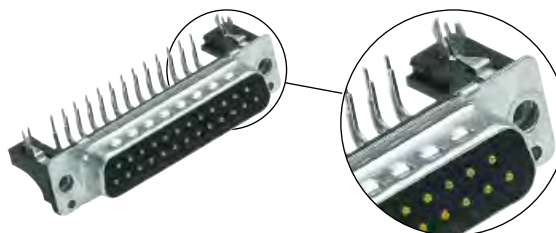
Identification		No. of contacts	Part No.	
D-Sub	Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	Performance level 2
	Male connector metal shell with dimples			
	 available on request			
			2.54 mm pitch	2.54 mm pitch
		9	09 66 162 781 .	09 66 162 681 .
		15	09 66 262 781 .	09 66 262 681 .
		25	09 66 362 781 .	09 66 362 681 .
		37	09 66 462 781 .	09 66 462 681 .
		50	09 66 562 781 .	09 66 562 681 .
	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



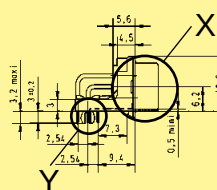
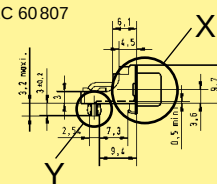
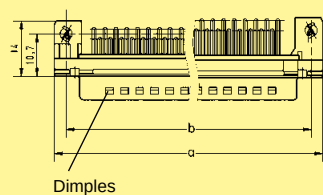
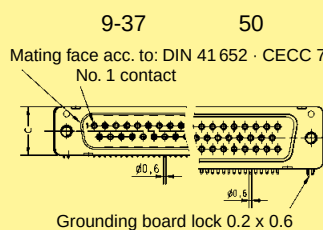
Turned solder pins, angled with snap-in-clips and grounding board locks

Identification

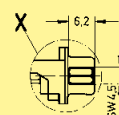
Drawing

Dimensions in mm

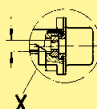
Male connector



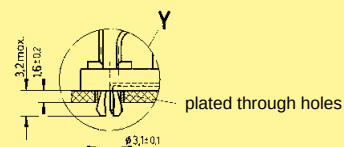
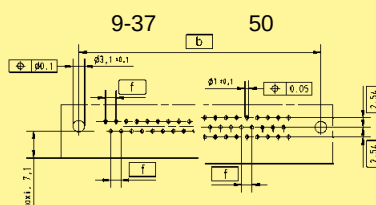
fitted screw locks
4 - 40 UNC



M3 or
4 - 40 UNC



Board drillings



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

D-Sub

Number of contacts

Mounting height

9–37
50



Low-Profile Versions

Stamped solder pins, angled with grounding board locks

Identification		No. of contacts	Part No.	
D-Sub	Performance levels Explanations see page 05.04 Other contact surfaces on request		Performance level 3	Performance level 2
	Male connector metal shell with dimples	9 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				

¹⁾ Not normally kept in stock

Number of contacts

Mounting height

Low-Profile Versions

9–37
50

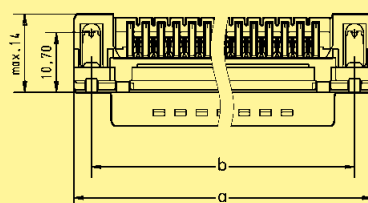
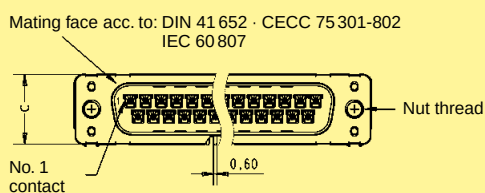

Stamped solder pins, angled with grounding board locks

Identification

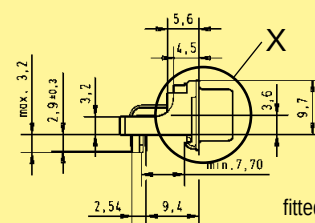
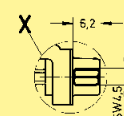
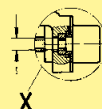
Drawing

Dimensions in mm

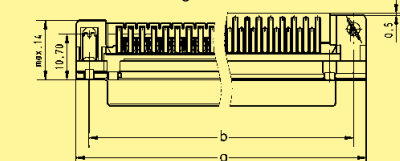
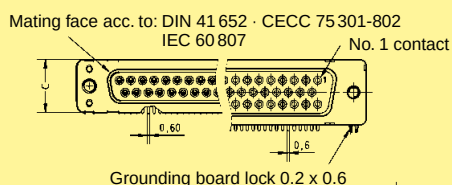
Male connector



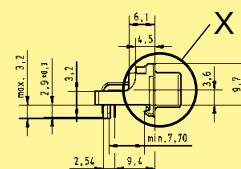
9-37 50


fitted screw locks
4 - 40 UNC

M3 or
4 - 40 UNC


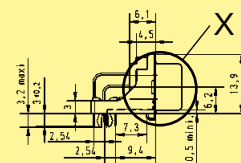
Female connector



9-37 50

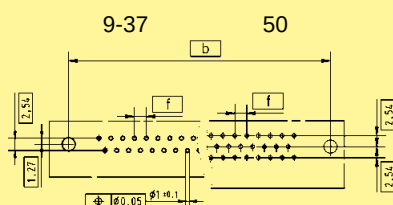


9-37



50

Board drillings



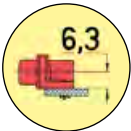
	a	b±0.1	c	f
9	30.90	25.00	12.50	2.74
15	39.20	33.30	12.50	2.74
25	53.10	47.00	12.50	2.76
37	69.40	63.50	12.50	2.76
50	67.00	61.10	15.40	2.76

U.S. Footprint

Number of contacts

9–37

Mounting height



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

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

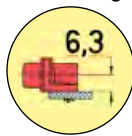
¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent
²⁾ Not normally kept in stock

U.S. Footprint

Number of contacts

Mounting height

9-37



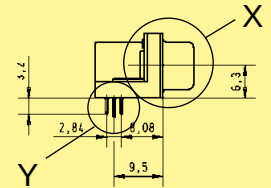
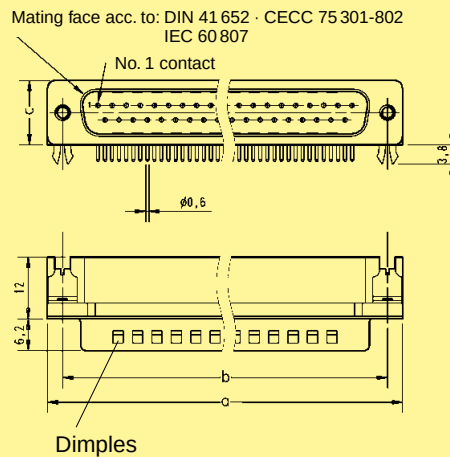
Stamped solder pins, angled with snap-in-clips and grounding board locks

Identification

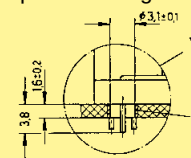
Drawing

Dimensions in mm

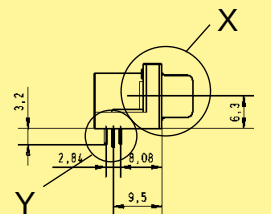
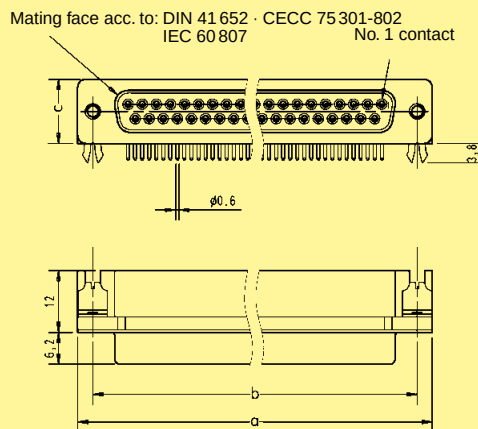
Male connector



plated through holes

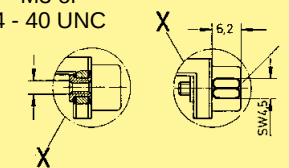


Female connector

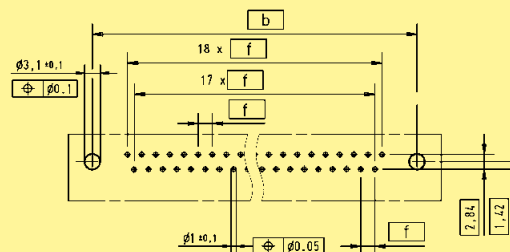


fitted screw locks
4 - 40 UNC

M3 or
4 - 40 UNC



Board drillings



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

Identification

Drawing

Dimensions in mm

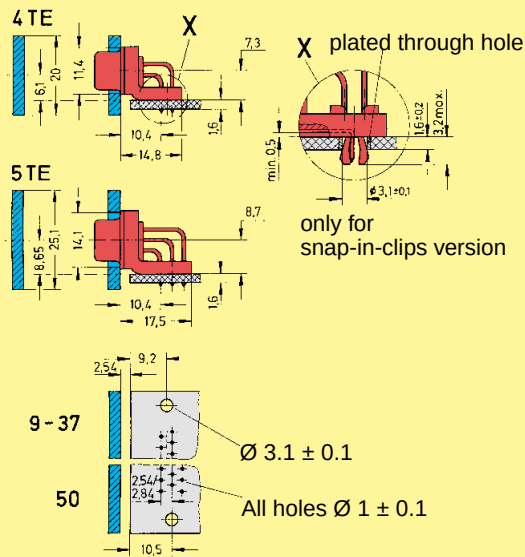
Standard Versions

Mounting height 7.3 mm

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

Mounting height 8.7 mm

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



for connectors see pages 05.12 – 05.17

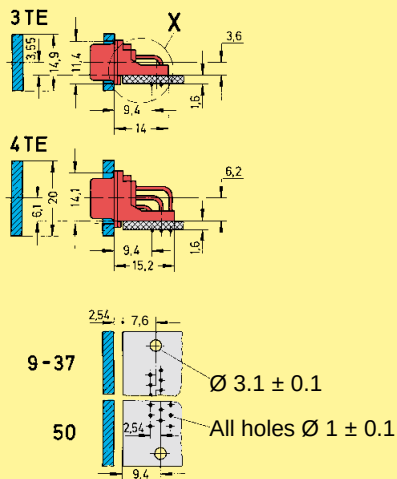
Low-Profile Versions

Mounting height 3.6 mm

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

Mounting height 6.2 mm

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



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

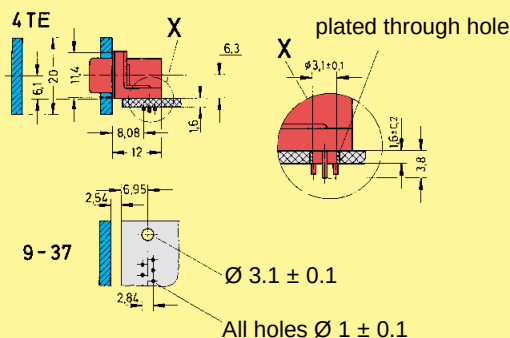


for connectors see pages 05.18 – 05.21

U.S. Footprint Versions

Mounting height 6.3 mm

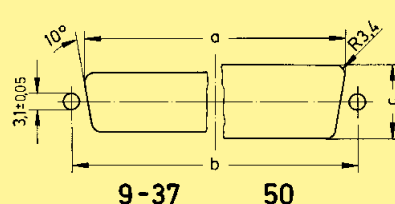
9-37 way
for front panel
4 units of width (TE)



for connectors see pages 05.22 – 05.23

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802



Front mount

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

Rear mount

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

Number of contacts 9, 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 -40 °C ... + 85 °C
bucket version

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

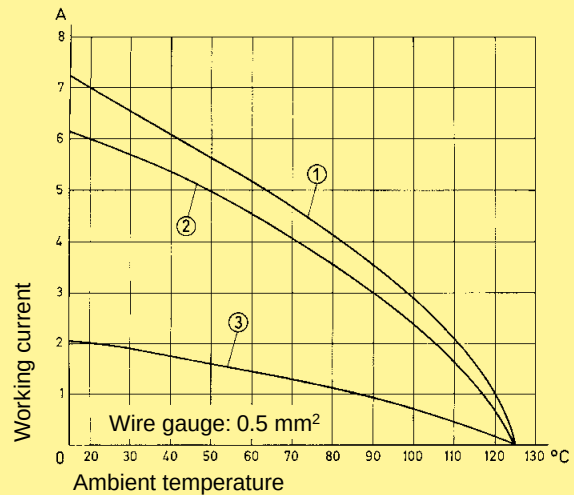
Mating force

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.

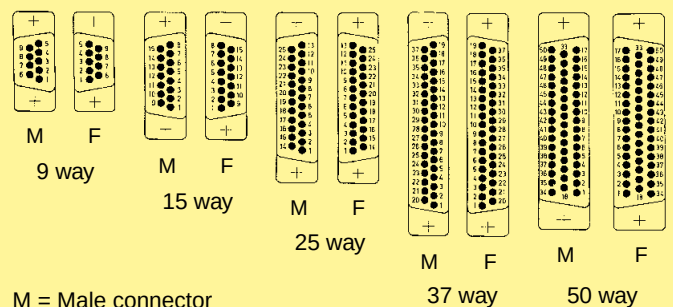
Control and test procedures according to DIN IEC 60512.



Example: 25 way connector

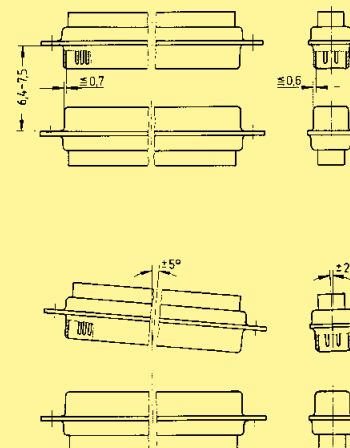
- ① Turned contacts
- ② Stamped contacts
- ③ Insulation displacement contacts

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 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 60512

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

Number of contacts

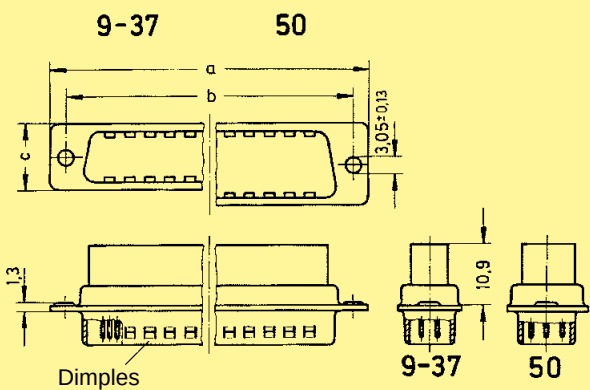
9–50



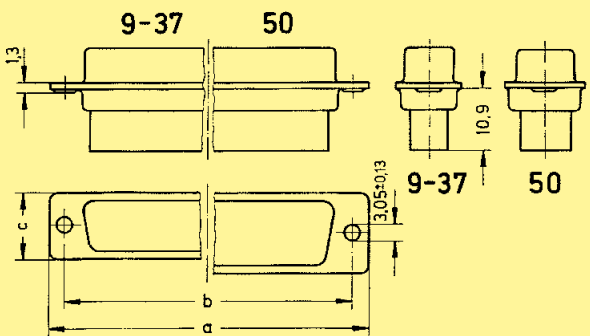
Crimp terminal

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

Male connector



Female connector



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

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

see page 05.24

Dimensions in mm

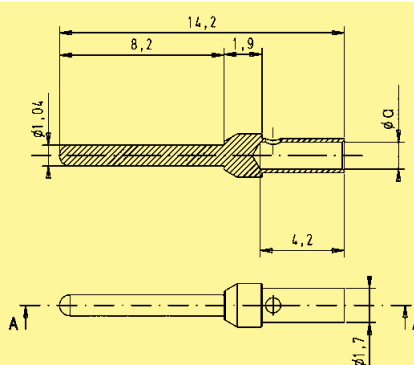


Turned crimp contacts

Identification	Wire gauge (mm ²)	Part No.		
		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

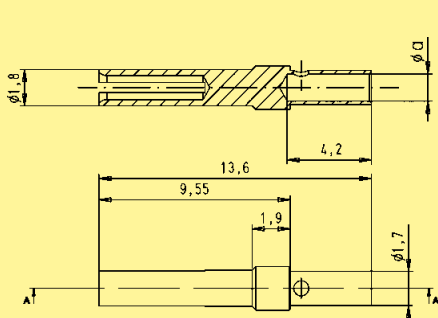
Male contacts



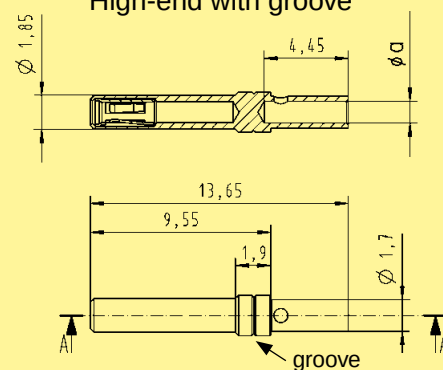
	a	groove
AWG 22-18	1.34	none
AWG 24-20	1.13	1
AWG 26-22	0.88	2
AWG 28-24	0.64	3

Female contacts

Standard

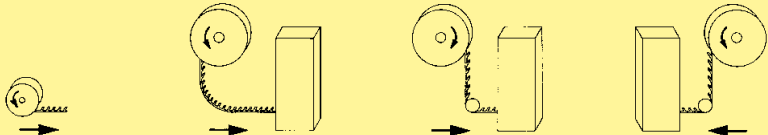


High-end with groove



Stamped crimp contacts



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

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

Stamped crimp contacts



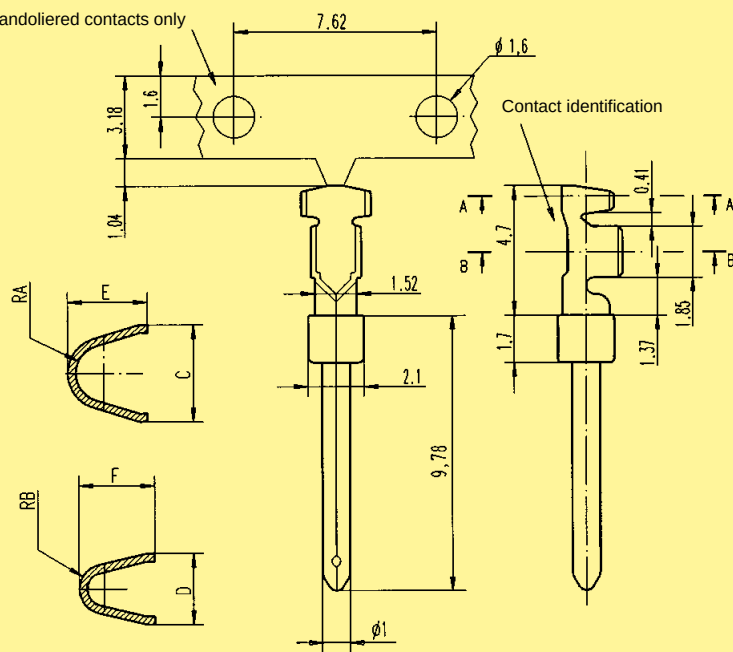
Identification

Drawing

Dimensions in mm

Male contacts

For bandoliered contacts only

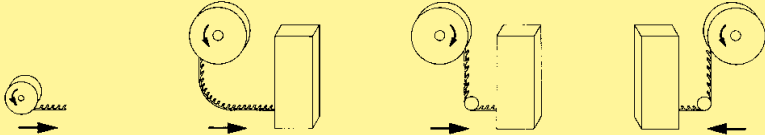


AWG	C	D	E	F	RA	RB	Contact identification
20-24	2.46	1.78	1.98	1.90	0.71	0.43	—
24-28	1.65	1.47	1.52	1.52	0.50	0.33	==

D-Sub

Stamped crimp contacts



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

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

Stamped crimp contacts



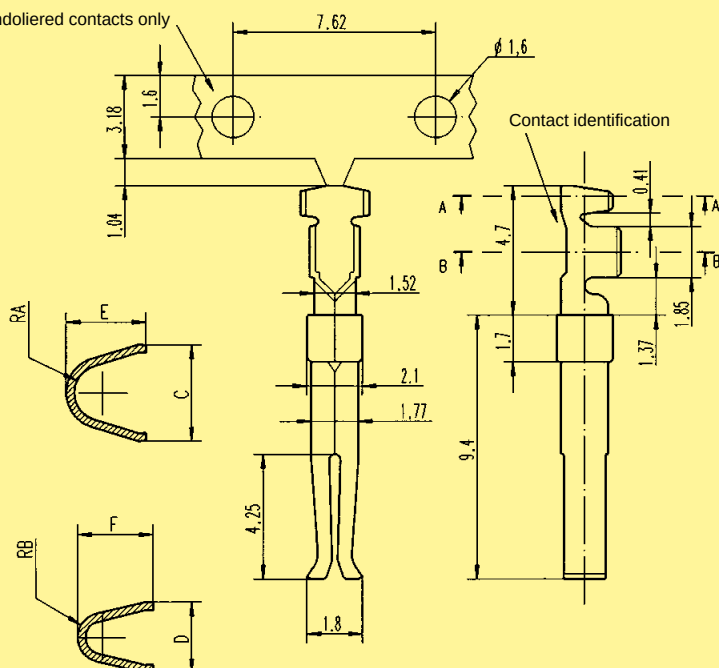
Identification

Drawing

Dimensions in mm

Female contacts

For bandoliered contacts only



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

Number of contacts

9–37



Insulation displacement termination

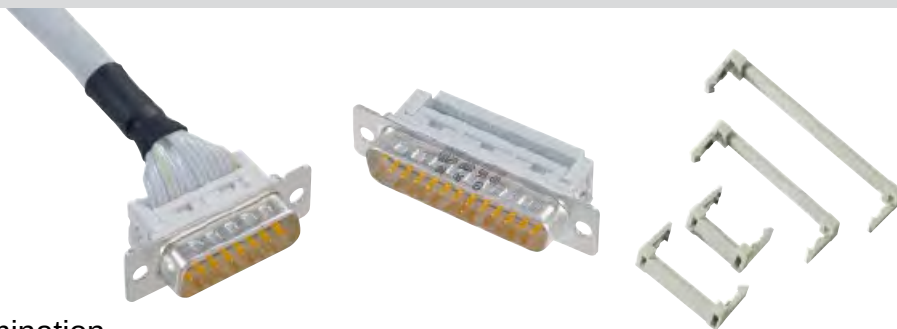
	Identification	No. of contacts	Part No.	
D-Sub	Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3	
	Male connector²⁾ pitch 1.27 mm metal shell with dimples Female connector²⁾ pitch 1.27 mm metal shell	9 15 25 37	09 66 128 770 . 09 66 228 770 . 09 66 328 770 . 09 66 428 770 .	Performance level 2 09 66 128 670 . 09 66 228 670 . 09 66 328 670 . 09 66 428 670 .
	Please insert digit for flange thread ø 3.1 mm hole ▶ 0 M3 ▶ 1 ¹⁾ 4-40 UNC ▶ 2			
	Strain relief clamp plastic for male and female connector	9 15 25 37	09 66 108 0001 09 66 208 0001 09 66 308 0001 09 66 408 0001	09 66 108 0001 09 66 208 0001 09 66 308 0001 09 66 408 0001

¹⁾ Not normally kept in stock²⁾ Not released for halogen free flat cables

Number of contacts

9–37

Insulation displacement termination

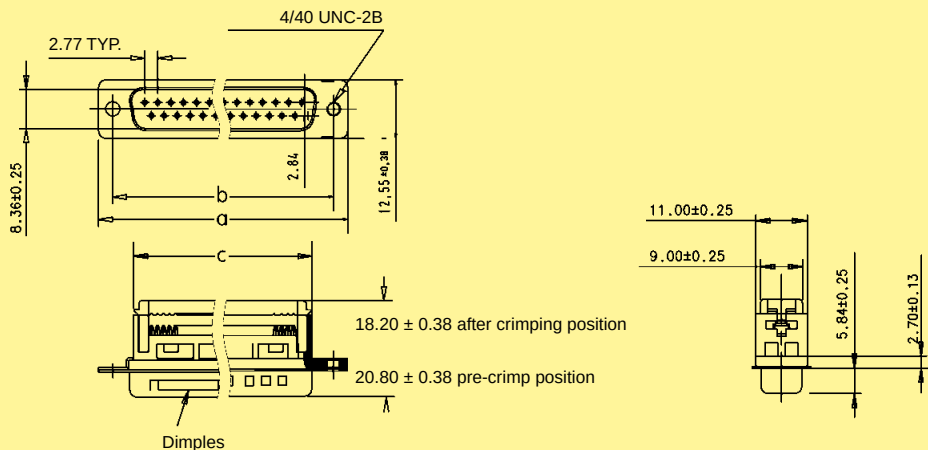


Identification

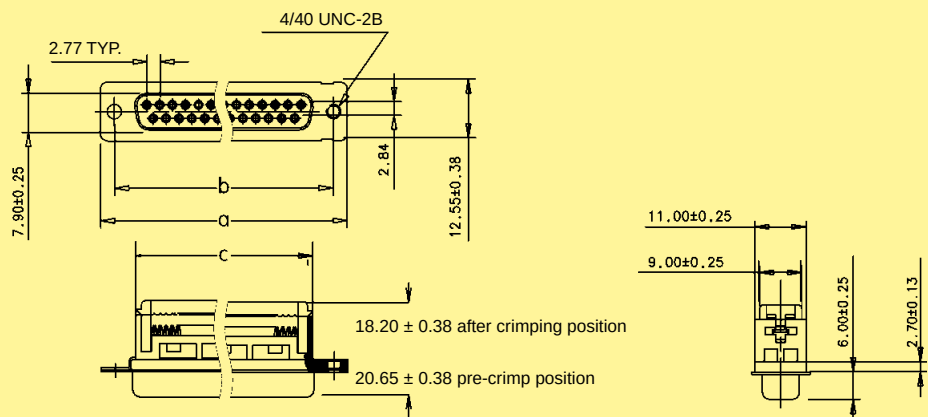
Drawing

Dimensions in mm

Male connector



Female connector

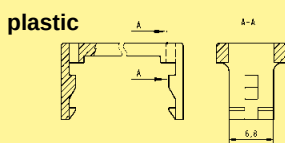


Male and female connectors

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

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

Strain relief clamps


Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802

see page 05.24

Number of contacts

9–50



Solder buckets

Identification		No. of contacts	Part No.	
D-Sub	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

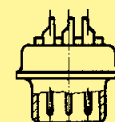
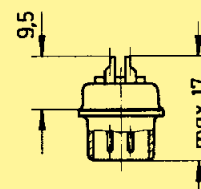
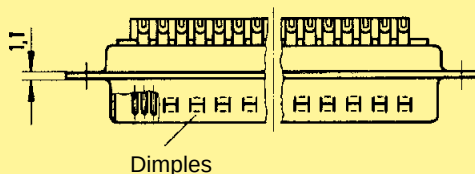
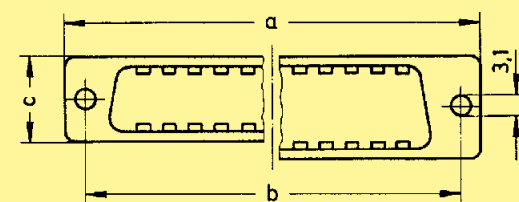
Solder buckets

Identification

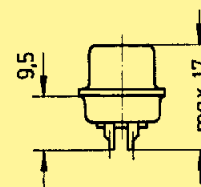
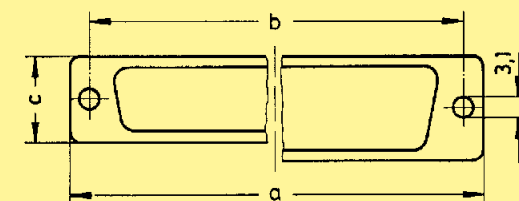
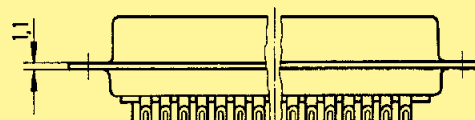
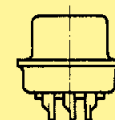
Drawing

Dimensions in mm

Male connector

9-37**50**

Female connector

**9-37****50**

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

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

see page 05.24

D-Sub

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	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

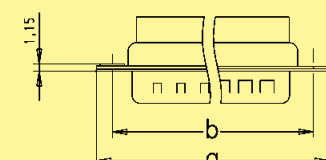
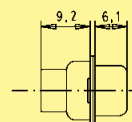
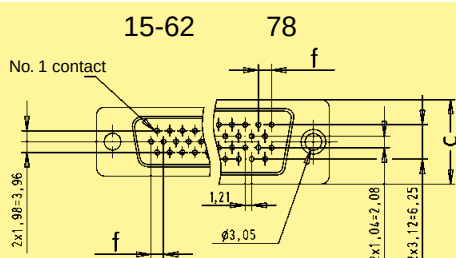
15–78



High density crimp terminal

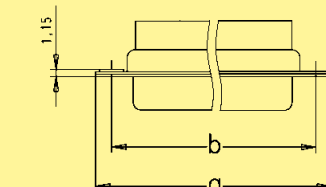
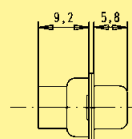
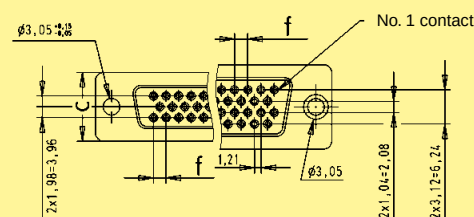
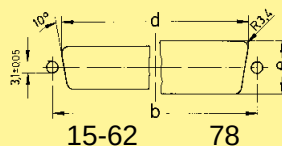
Identification	No. of contacts	Part No.
Male connector Order contacts separately metal shell with dimples	15	09 56 100 5601
	26	09 56 200 5601
	44	09 56 300 5601
	62	09 56 400 5601
	78	09 56 500 5601
Female connector Order contacts separately metal shell	15	09 56 100 4701
	26	09 56 200 4701
	44	09 56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

Male connector



	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 mountValues are taken from the
CECC 75 301-802

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

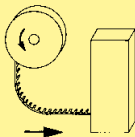
Rear mount

	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

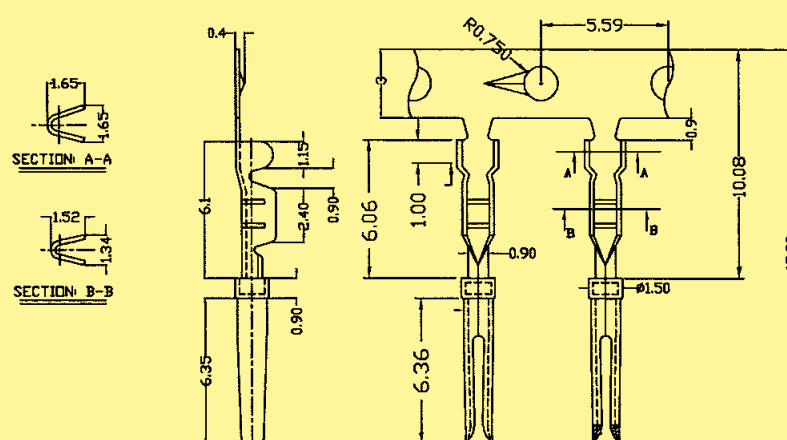


Identification		Wire gauge (mm²)	Part No.			
Performance levels Explanations see page 05.04 Other performance levels on request			stamped male contacts		stamped female contacts	
			Performance level 3	S4 ¹⁾	Performance level 3	S4 ¹⁾
500 pieces/box		AWG 26-24 0.14-0.22 stranded	09 56 000 8177	09 56 000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

¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent
Contact dimensions see page 05.39

Dimensions in mm

D-Sub



Number of contacts

15–78



High density with stamped solder cups, straight

Identification		No. of contacts	Part No.	
D-Sub	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 56 100 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

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

D-Sub

Number of contacts

15-78



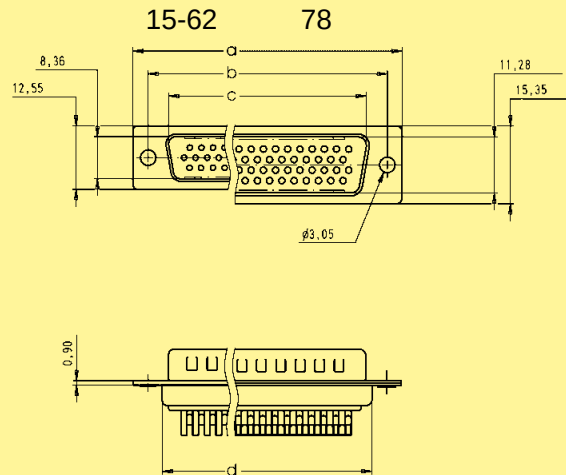
High density with stamped solder cups, straight

Identification

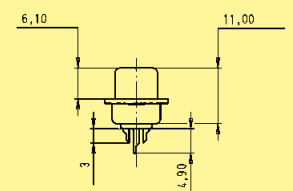
Drawing

Dimensions in mm

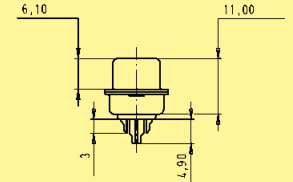
Male connector



15-62

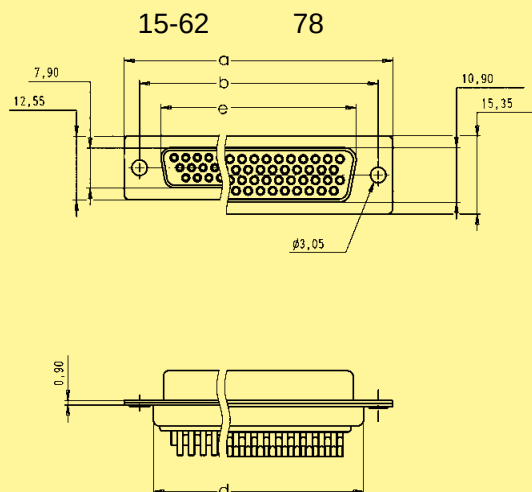


78

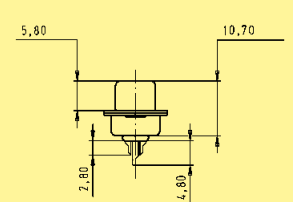


	a	b	c	d	e
15	30.81	25.00	16.92	19.20	16.33
26	39.20	33.30	25.25	27.70	24.70
44	53.05	47.00	38.96	41.10	38.40
62	69.40	63.50	55.42	57.30	54.80
78	67.00	61.00	52.81	55.10	52.20

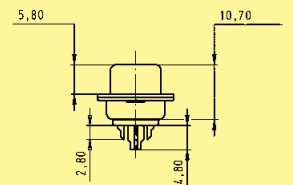
Female connector



15-62



78



D-Sub

Number of contacts

15–78



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

Identification		No. of contacts	Part No.			
D-Sub	Performance levels Explanations see page 05.04 Other performance levels on request		Performance level 3		S4 ¹⁾	
	Male connector metal shell with dimples					
		15	09 56 162 781 .		09 56 162 581 .	
		26	09 56 262 781 .		09 56 262 581 .	
		44	09 56 362 781 .		09 56 362 581 .	
	Female connector metal shell	62	09 56 462 781 .		09 56 462 581 .	
		78	09 56 562 781 .		09 56 562 581 .	
	Please insert digit for flange thread or fitted female screw locks	15	09 56 152 761 .		09 56 152 561 .	
		26	09 56 252 761 .		09 56 252 561 .	
		44	09 56 352 761 .		09 56 352 561 .	
		62	09 56 452 761 .		09 56 452 561 .	
		78	09 56 552 761 .		09 56 552 561 .	
05 42	4-40 UNC ▶ 2 fitted screw locks 4-40 UNC ▶ 3					

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

D-Sub

Number of contacts

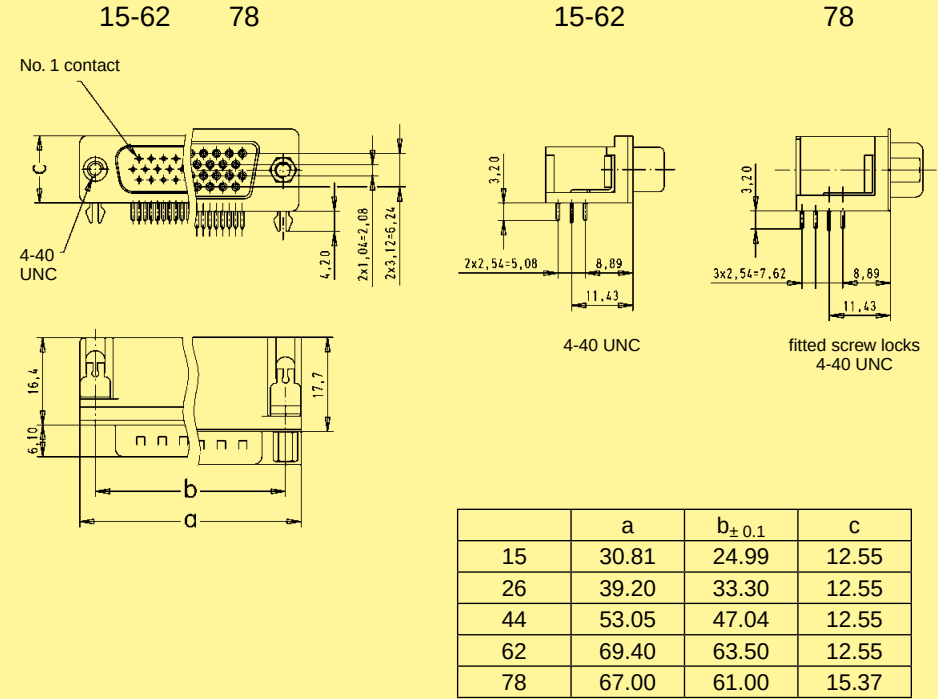
15-78



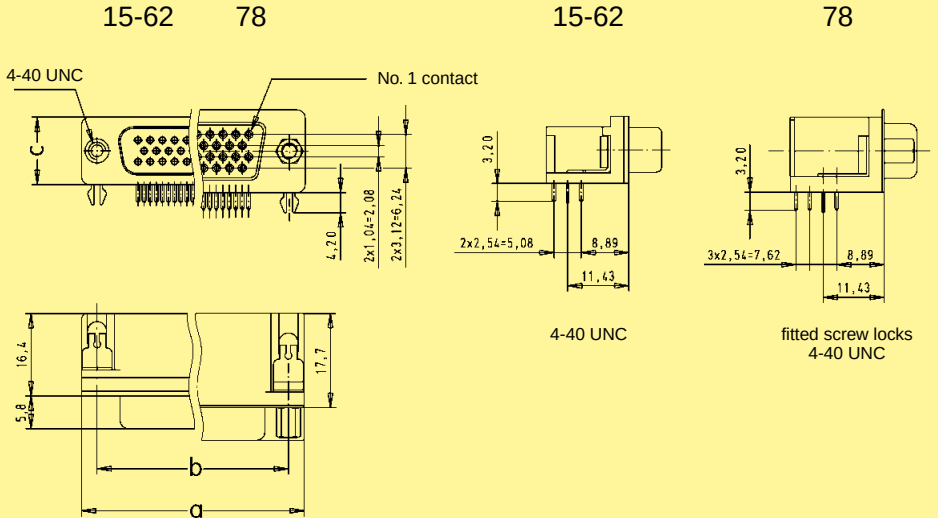
High density with stamped solder pins, angled with grounding board locks

Identification Drawing Dimensions in mm

Male connector



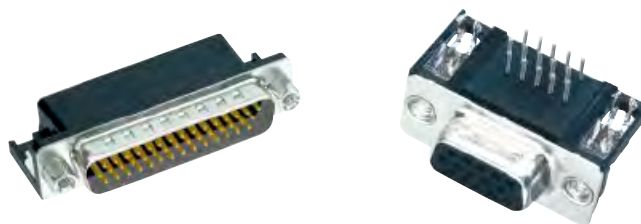
Female connector



D-Sub

Number of contacts

15-78



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

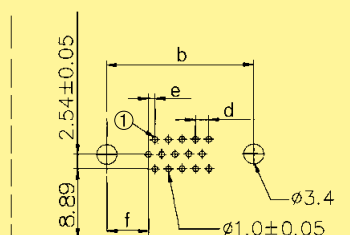
Identification

Drawing

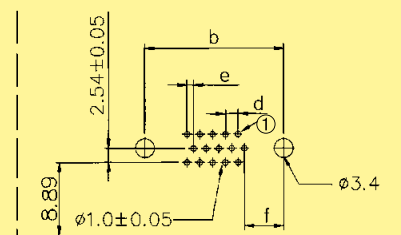
Dimensions in mm

Board drillings

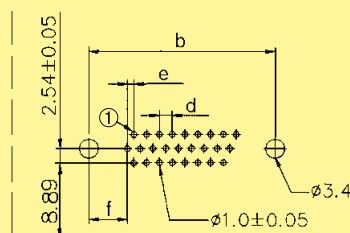
male 15



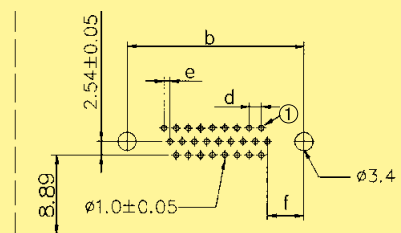
female 15



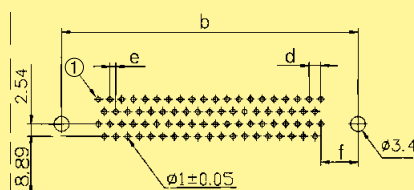
male 26-62



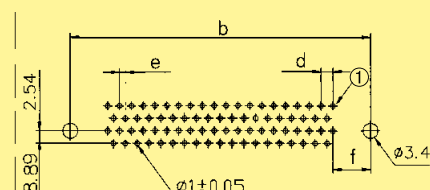
female 26-62



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



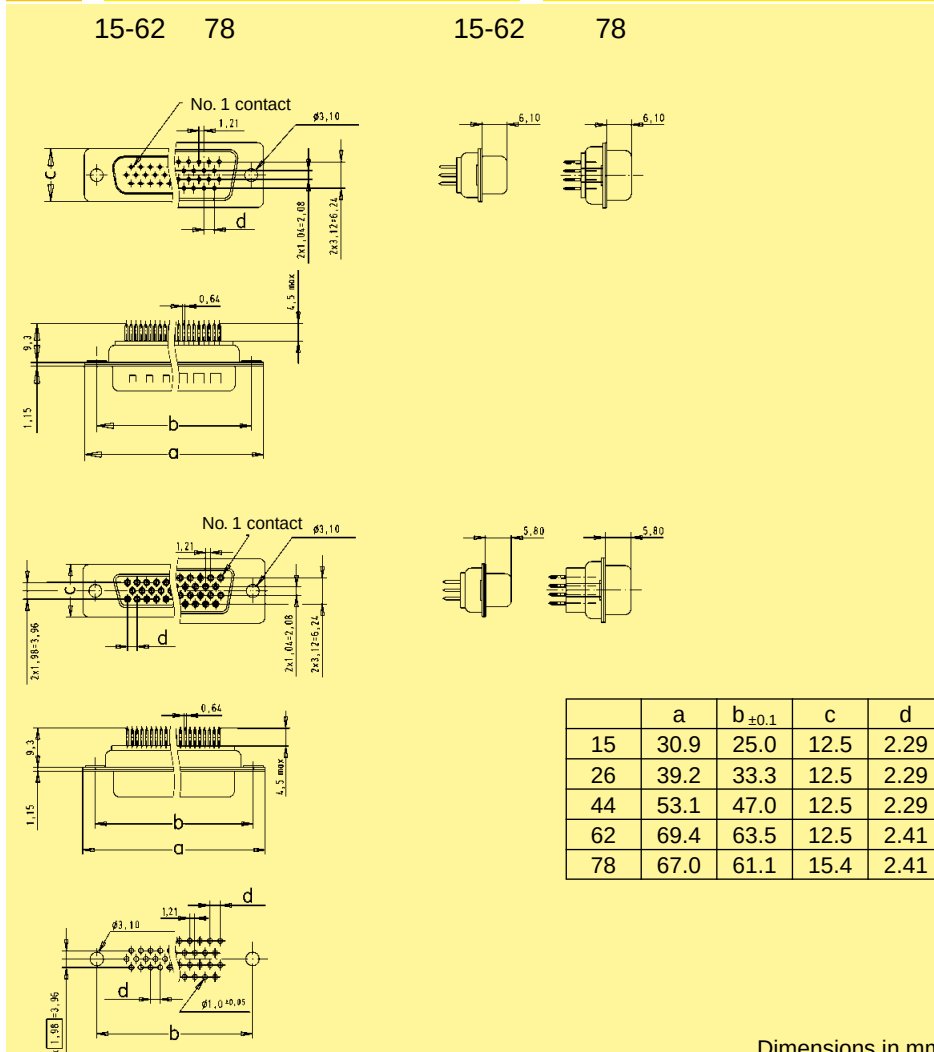
High density with stamped solder pins, straight

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

Male connector

Female connector

Board drillings

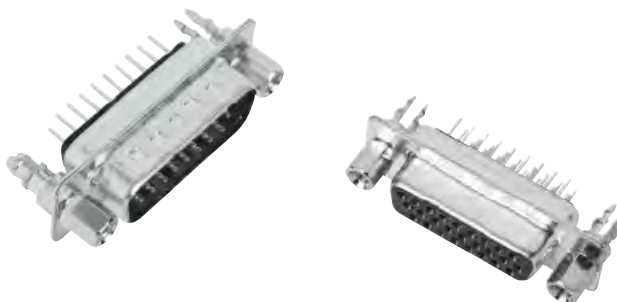


Dimensions in mm

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

Number of contacts

15–78



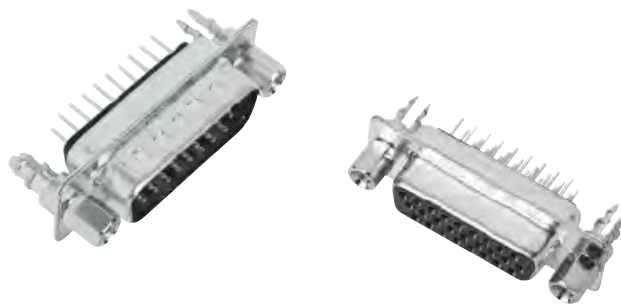
High density with stamped solder pins, straight with grounding board locks

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

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

Number of contacts

15-78



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

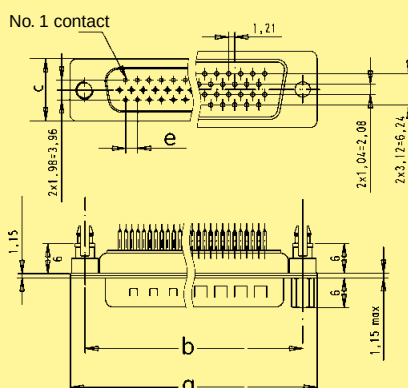
Identification

Drawing

Dimensions in mm

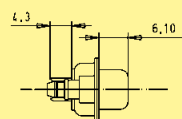
Male connector

15-62 78

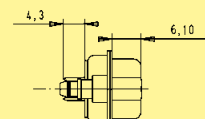


15-62

78



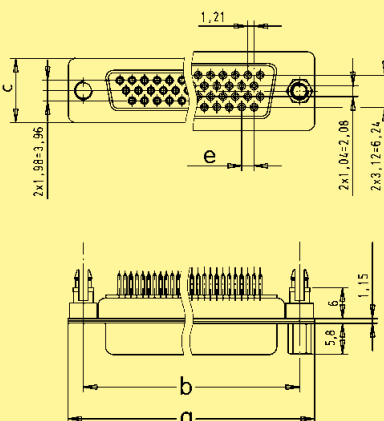
4-40 UNC

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

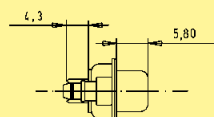
Female connector

15-62 78

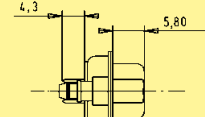


15-62

78

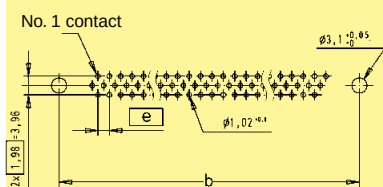


4-40 UNC

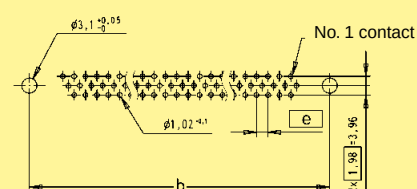
fitted screw locks
4-40 UNC

Board drillings

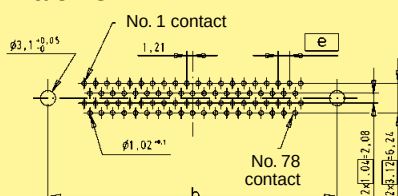
male 15-62



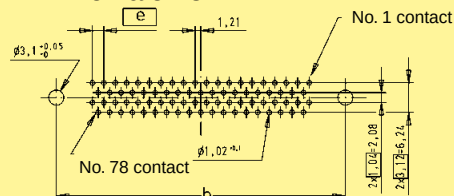
female 15-62



male 78



female 78



D-Sub



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

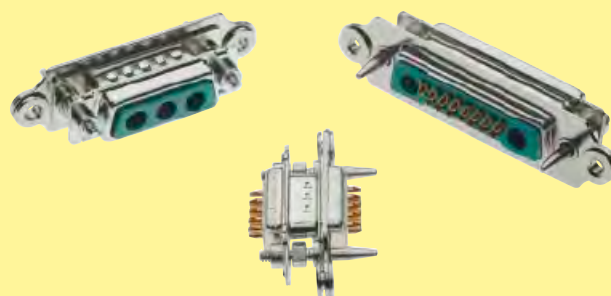
The range is designed around **the standard D-Sub shell sizes** with **the possibility to have a blend of contacts** such as signals with coaxial, power, high voltage or pneumatic contacts. Due to its construction, the product is **fully shielded** and helps reducing the EMI/RFI leakage.

All contacts are machined with two different platings.

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

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

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



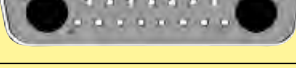
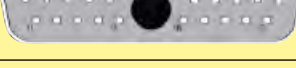
This blind mating concept is also achievable on the standard D as shown on the photo.

Contact arrangements

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

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

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

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

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

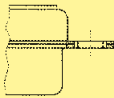
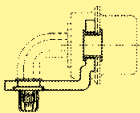
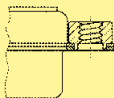
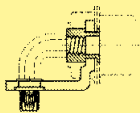
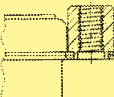
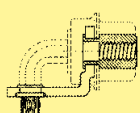
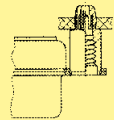
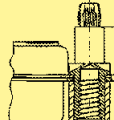
Note:
for any other layout please consult your HARTING representative.

Connectors for pcb applications – general information

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

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

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

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

Connectors for cable applications – general information

Two termination processes are available: crimp or solder

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

¹⁾ Coaxial contacts are provided in two versions:

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

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

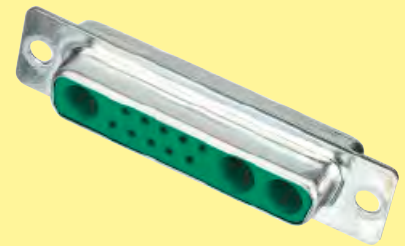
Approvals DIN 41 652, part 1

Working current 5 A for signal contacts

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

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

Metal shell Plated steel



Number of contacts

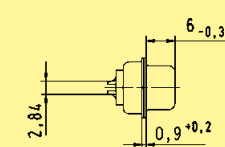
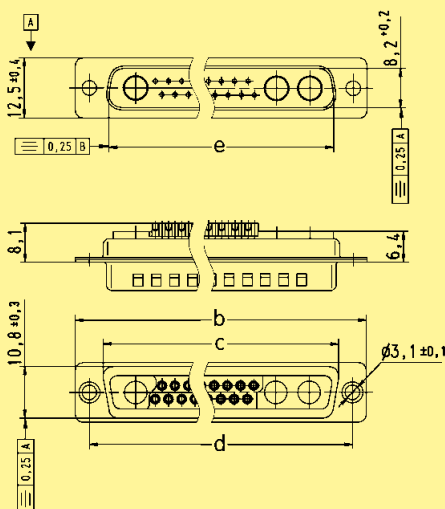
7-27



Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part No.			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	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

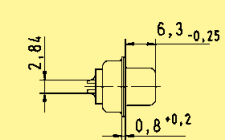
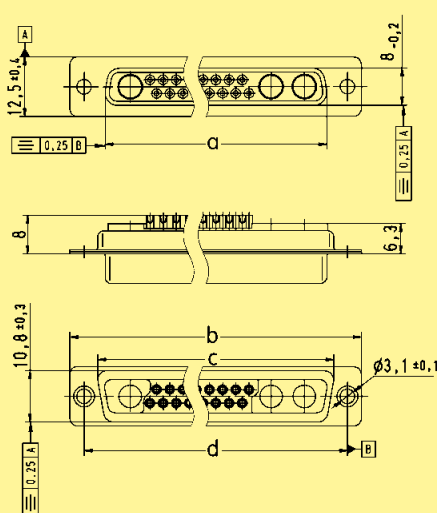
Male connectors



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 05.49²⁾ S4 = 0.76 µm Au or PdNi equivalent

Board drillings see pages 05.76 ff

Order special contacts separately. See pages 05.67 ff

Number of contacts

9–25



Mixed shells with pre-mounted signal solder cup contacts

D-Sub

Identification

No. of contacts¹⁾

Part No.

		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	9W4	09 69 311 7094	09 69 311 5094	09 69 301 7094	09 69 301 5094
	13W3	09 69 311 7133	09 69 311 5133	09 69 301 7133	09 69 301 5133
	25W3	09 69 411 7253	09 69 411 5253	09 69 401 7253	09 69 401 5253

Male connectors

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 05.49
²⁾ S4 = 0.76 µm Au or PdNi equivalent
Board drillings see pages 05.76 ff

Drawings for female connectors see page 05.55
Order special contacts separately. See pages 05.67 ff

Number of contacts

9–25



Mixed shells with pre-mounted signal solder cup contacts

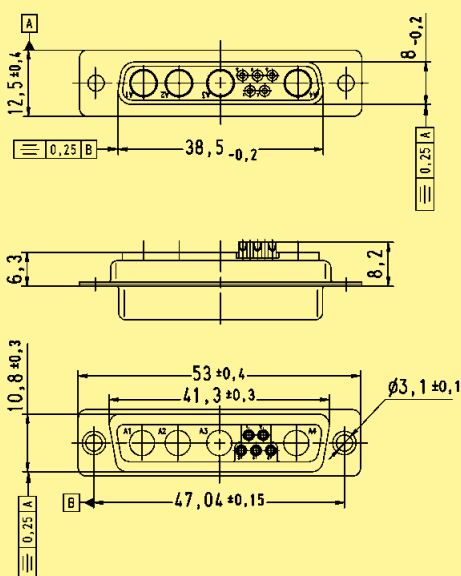
Identification

Drawing

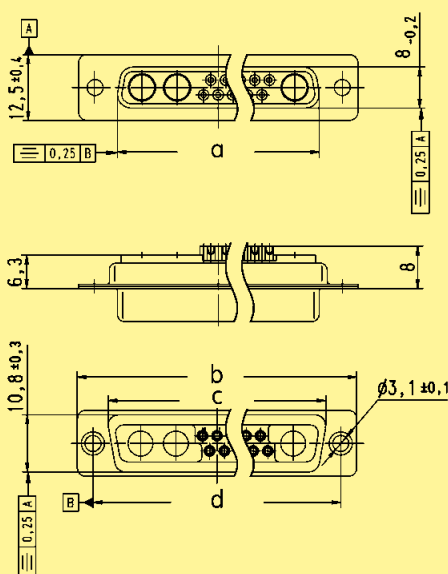
Dimensions in mm

Female connectors

9W4

Solder cup termination for AWG 20 (0.5 mm²)

13W3, 25W3

Solder cup termination for AWG 20 (0.5 mm²)

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

Number of contacts

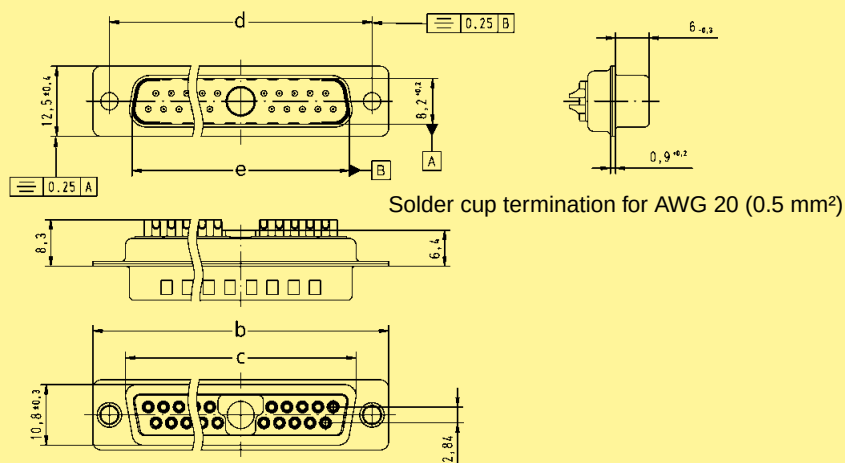
5–21



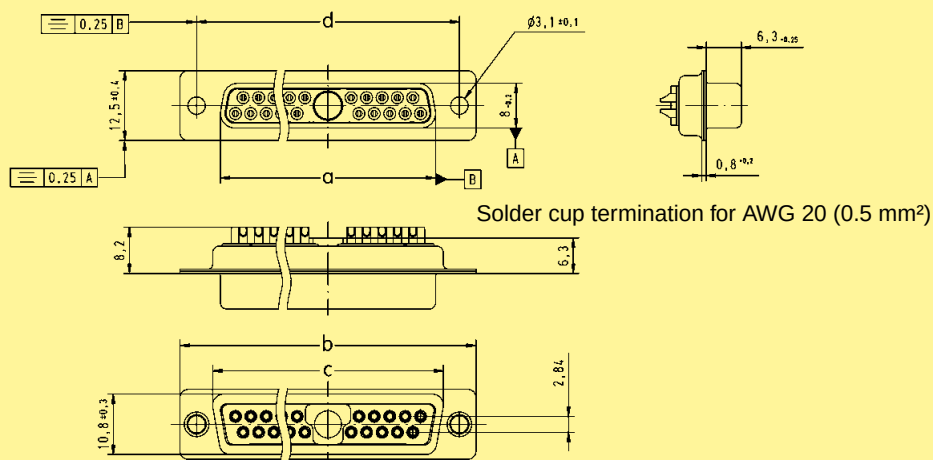
Mixed shells with pre-mounted signal solder cup contacts

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

Male connectors



Female connectors



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

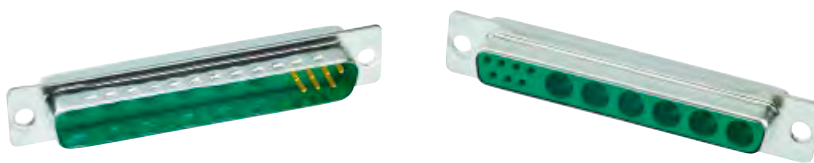
Dimensions in mm

¹⁾ Explanations see page 05.49²⁾ S4 = 0.76 µm Au or PdNi equivalent
Board drillings see pages 05.76 ff

Order special contacts separately. See pages 05.67 ff

Number of contacts

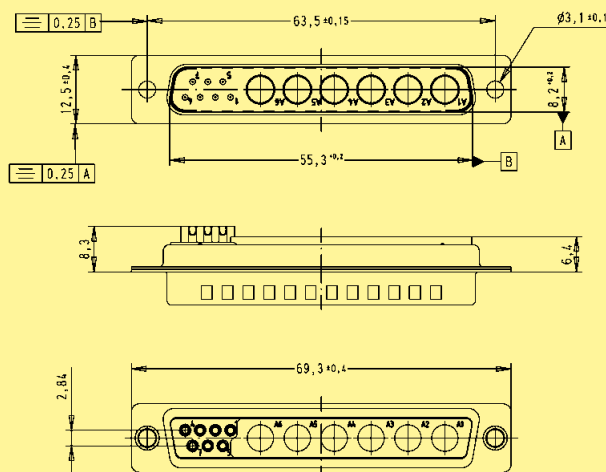
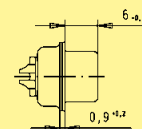
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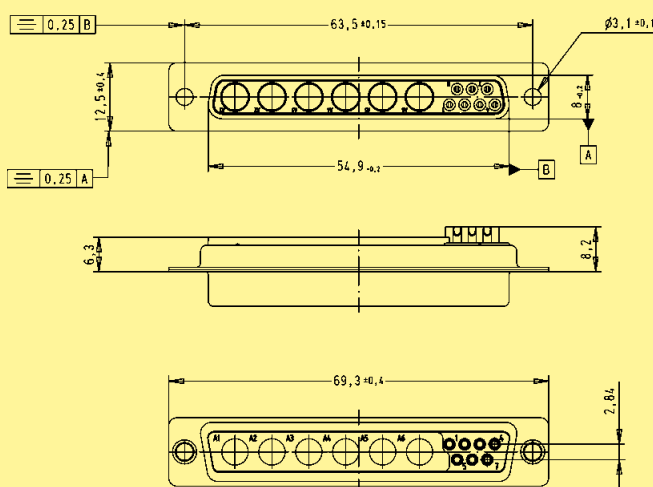
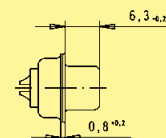
Mixed shells with pre-mounted signal solder cup contacts

Identification	No. of contacts ¹⁾	Part No.			
		male connectors		female connectors	
		Performance level 3	S4 ²⁾	Performance level 3	S4 ²⁾
	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 05.49
²⁾ S4 = 0.76 µm Au or PdNi equivalent
 Board drillings see pages 05.76 ff

Order special contacts separately. See pages 05.67 ff

Number of contacts

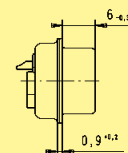
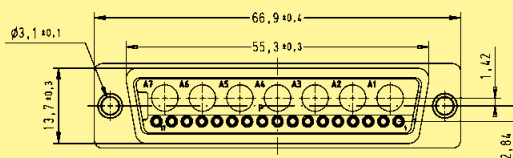
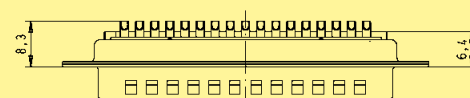
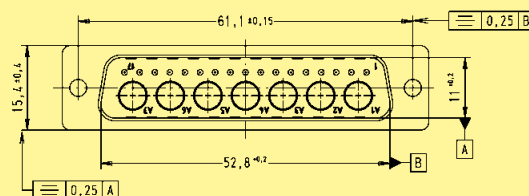
24



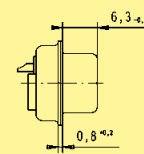
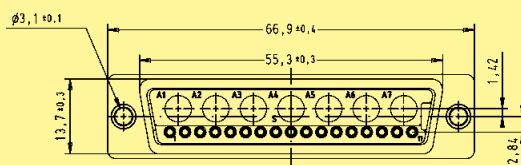
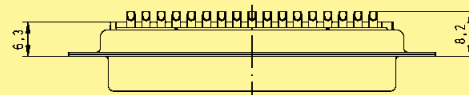
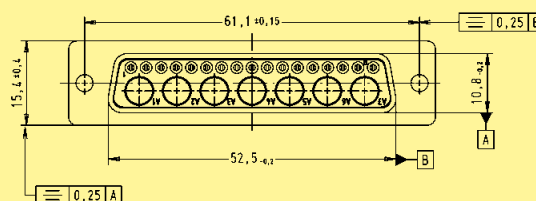
Mixed shells with pre-mounted signal solder cup contacts

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

Male connectors

Solder cup termination
for AWG 20 (0.5 mm²)

Female connectors

Solder cup termination
for AWG 20 (0.5 mm²)

Dimensions in mm

¹⁾ Explanations see page 05.49²⁾ S4 = 0.76 µm Au or PdNi equivalent
Board drillings see pages 05.76 ff

Order special contacts separately. See pages 05.67 ff

Number of contacts

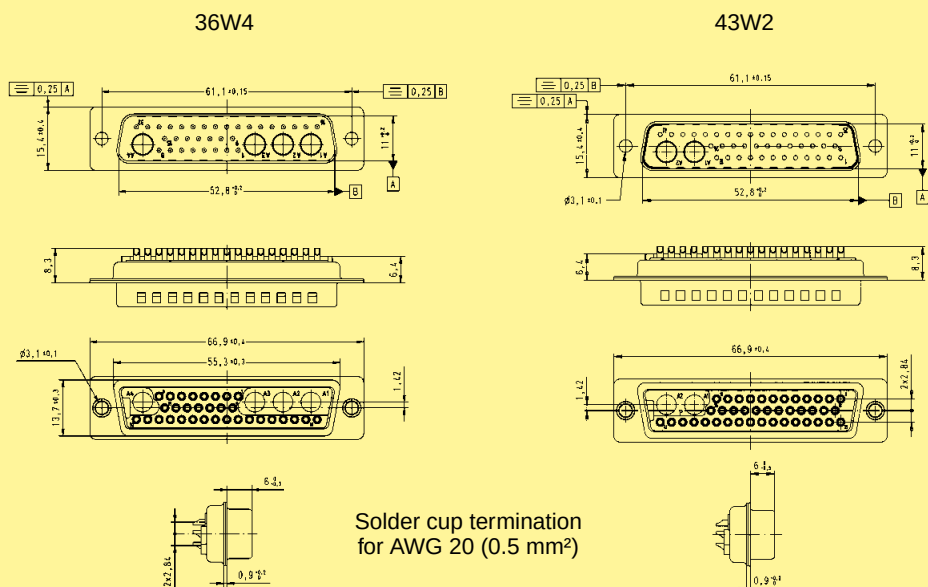
36–43



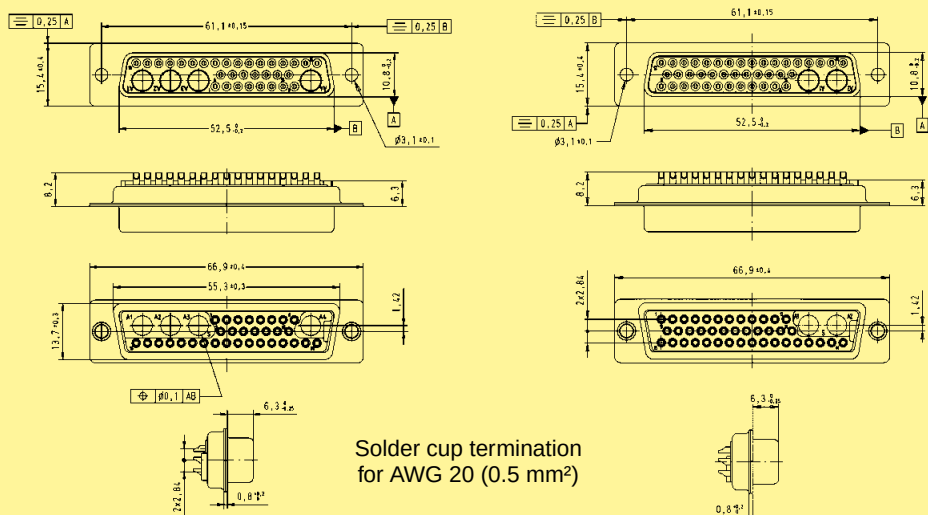
Mixed shells with pre-mounted signal solder cup contacts

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

Male connectors



Female connectors



Dimensions in mm

¹⁾ Explanations see page 05.49²⁾ S4 = 0.76 µm Au or PdNi equivalent
Board drillings see pages 05.76 ff

Order special contacts separately. See pages 05.67 ff

D-Sub

Number of contacts

2–8

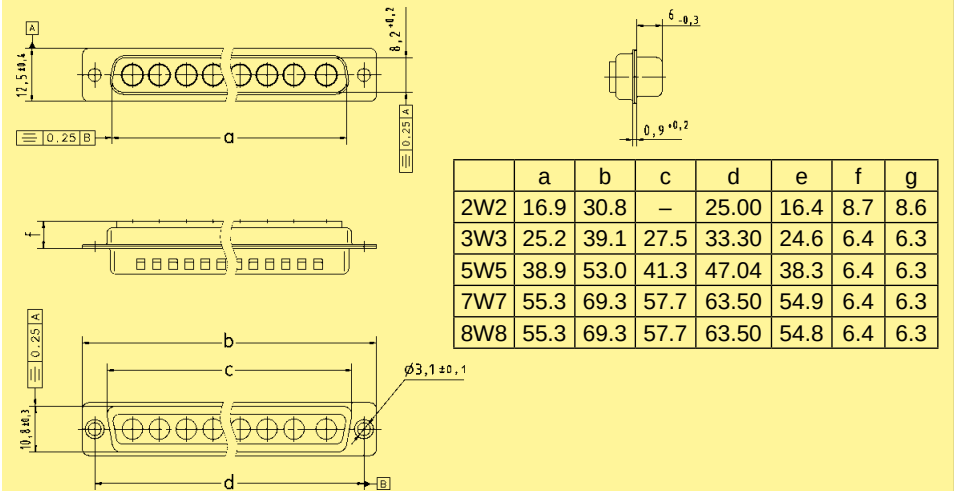


Shells without signal contacts for cable applications

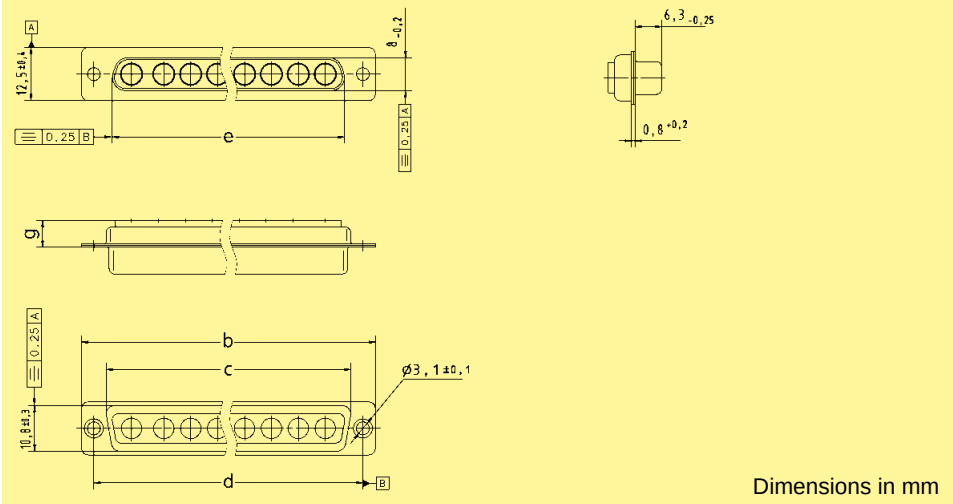
D-Sub

Identification	No. of contacts ¹⁾	Part No.	
		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



Female connectors



Dimensions in mm

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

Number of contacts

2

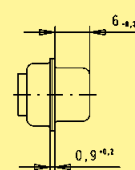
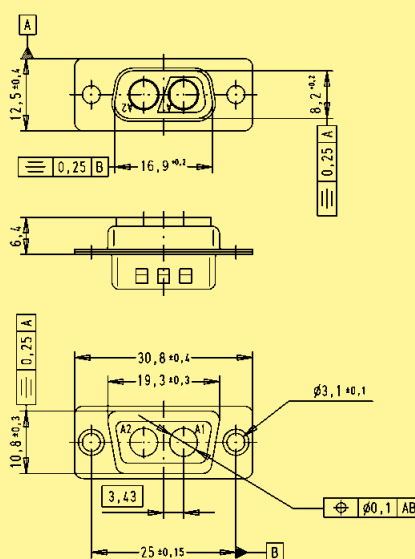


Coded shells without signal contacts for cable applications

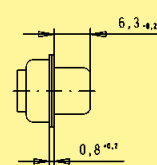
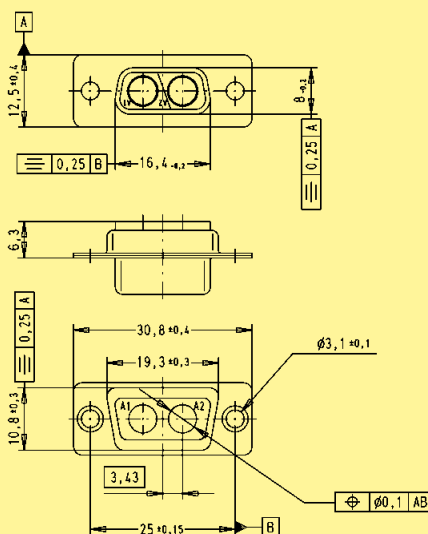
Identification	No. of contacts ¹⁾	Part No.
		male connector
	2W2C	09 69 110 0022
		female connector
		09 69 100 0022

D-Sub

Male connectors



Female connectors



Dimensions in mm

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

Number of contacts

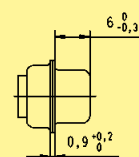
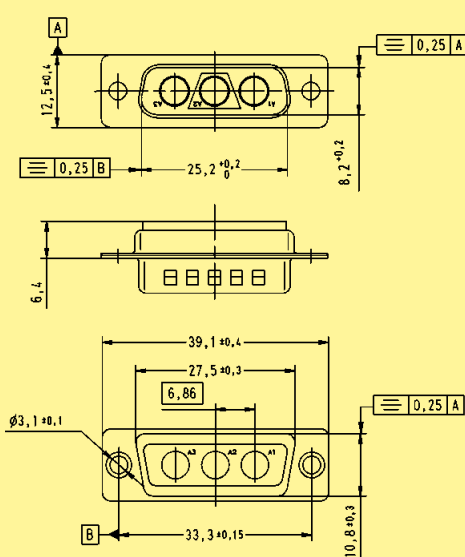
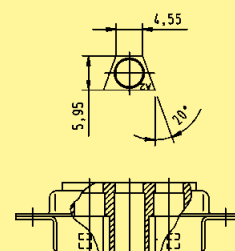
3



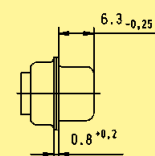
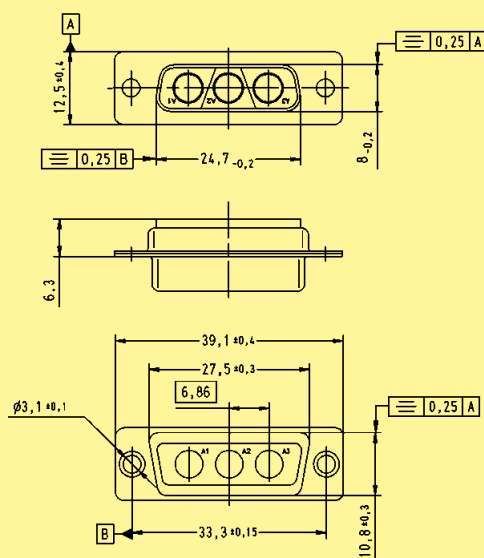
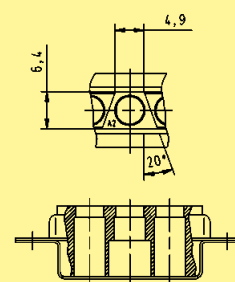
Coded shells without signal contacts for cable applications

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

Male connectors

detail:
polarization feature

Female connectors

detail:
polarization feature

Dimensions in mm

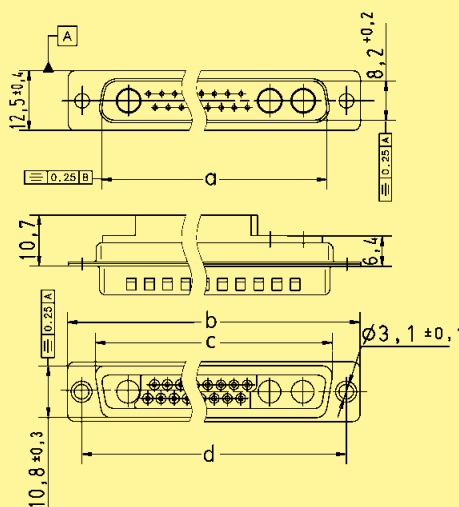
¹⁾ Explanations see page 05.49
 Board drillings see pages 05.76 ff
 Order special contacts separately. See pages 05.67 ff

7-27



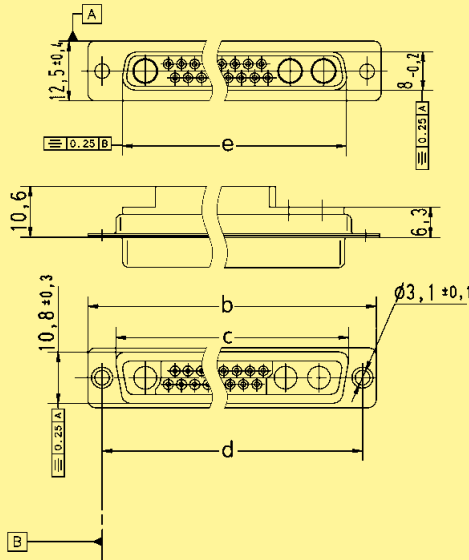
Qns-0

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



05
63

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

Number of contacts

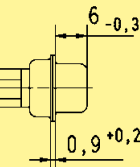
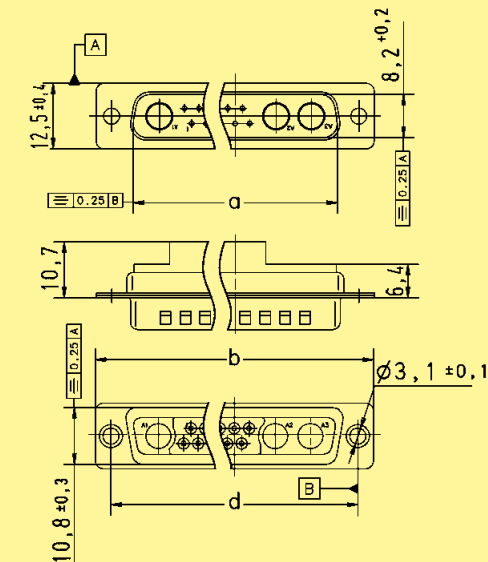
13–25



Mixed shells for signal crimp contacts

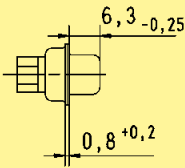
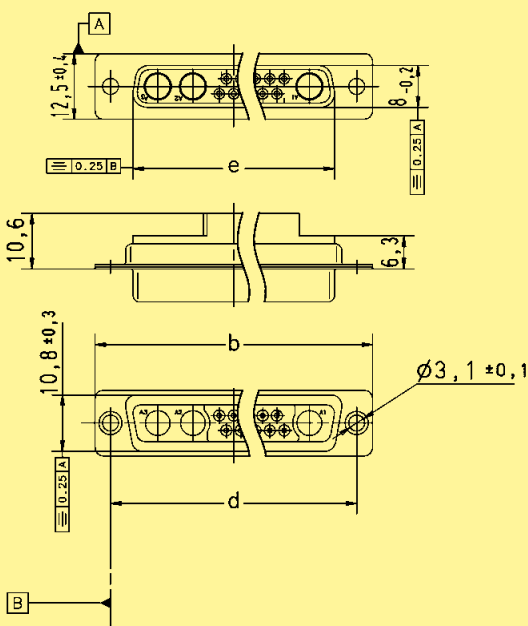
Identification	No. of contacts ¹⁾	Part No.	
 		male connectors	female connectors
	13W3	09 69 312 0133	09 69 302 0133
	25W3	09 69 412 0253	09 69 402 0253

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

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

Number of contacts

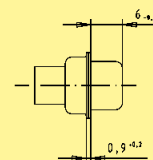
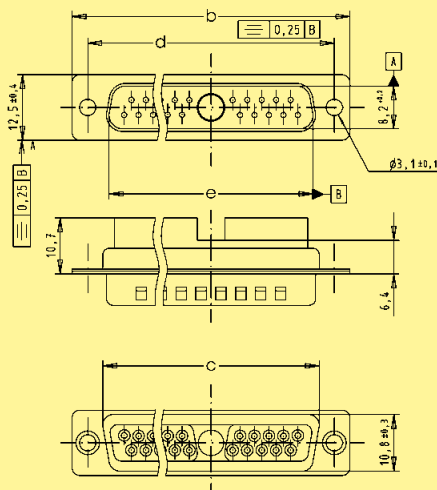
11-21

Mixed shells for signal crimp contacts

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

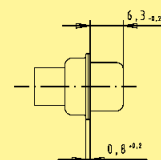
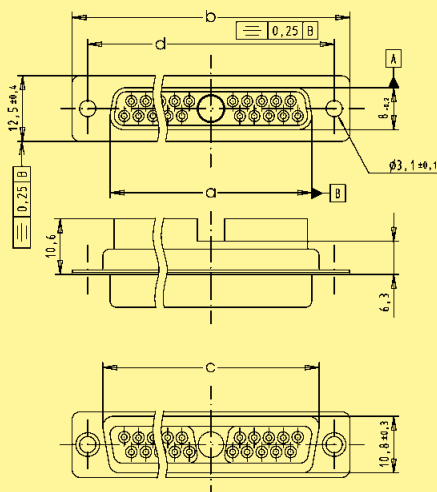
D-Sub

Male connectors



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

Female connectors



Dimensions in mm

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

Number of contacts

36



Mixed shells for signal crimp contacts

D-Sub

Identification

No. of contacts¹⁾

Part No.



36W4

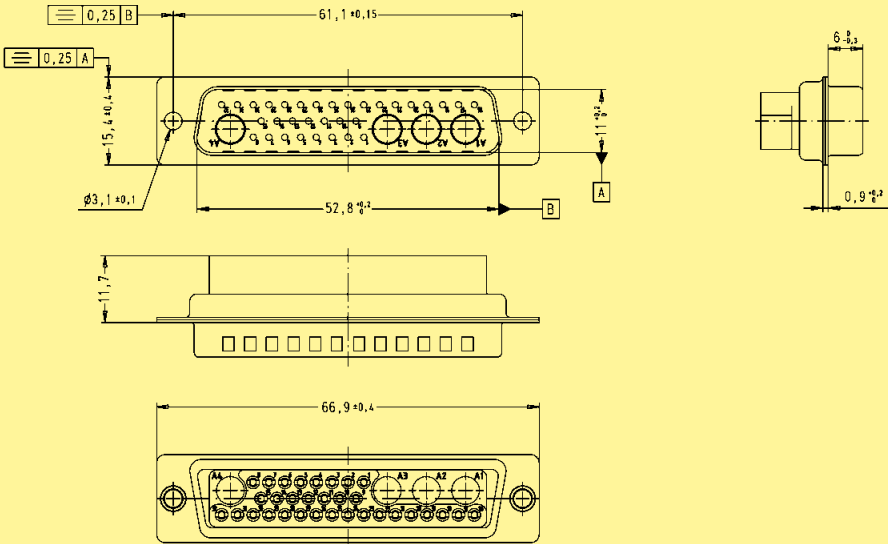
male connector

female connector

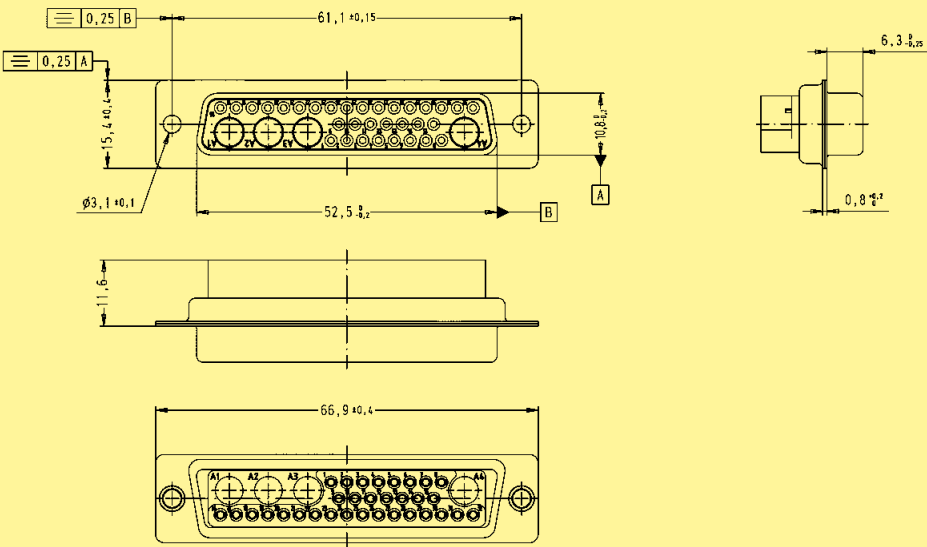
09 69 512 0364

09 69 502 0364

Male connectors



Female connectors



Dimensions in mm

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

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

Technical characteristics for shells see page 05.04

* **High performance** or standard performance level



Turned crimp contacts

D-Sub

Identification	Wire gauge (mm ²)	Part No.		
		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

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

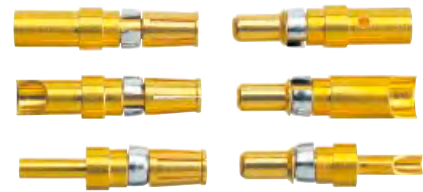


High voltage contacts for cable applications

Identification	Wire gauge (mm ²)	Part No.		D-Sub
		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	09 69 182 2550	
Right angled versions				
with solder termination	AWG 24 - 20 0.25 - 0.56	09 69 681 2550	09 69 581 2550	
Straight versions		Male contacts Female contacts		
with crimp termination ²⁾				
Right angled versions		Male contacts Female contacts		

Dimensions in mm

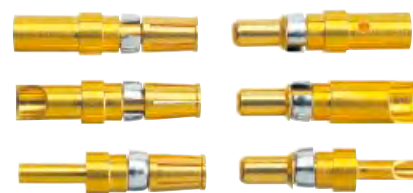
¹⁾ for mating and terminating side²⁾ Tooling see chapter 20



Straight power contacts for cable applications

Identification		Rating (A)	Part No.	
D-Sub	Performance levels 		Performance level 3	S4 ¹⁾
	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 version ²⁾			
	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

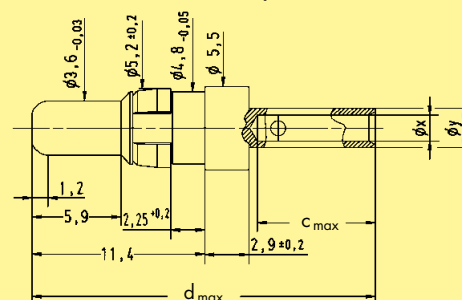
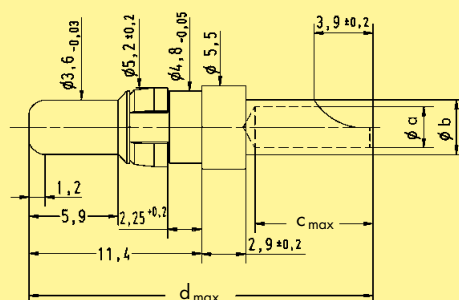
¹⁾ S4 = 0.76 µm Au or PdNi equivalent²⁾ Tooling see chapter 20



Qns-0

Dimensions in mm

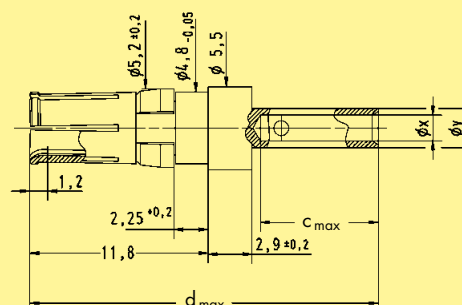
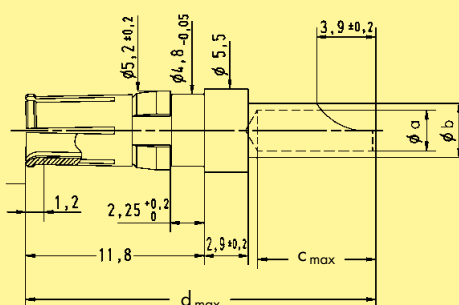
crimp



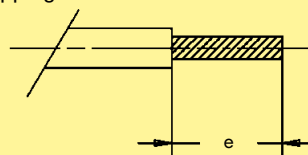
	Rating (A)	$\varnothing$ a -0.1	$\varnothing$ b ± 0.05	$c_{\max}$	$d_{\max}$	e	$\varnothing$ x -0.1	$\varnothing$ y ± 0.05	AWG
	10	1.8	2.54	7.8	23	7.5	1.7	2.6	16 - 20
	20	2.7	3.63	7.8	23	7.5	2.6	3.6	12 - 14
short version	20	2.7	3.63	4.7	19.2	4.5	2.6	3.6	12 - 14
	30	3.5	4.40	7.8	23	7.5	3.7	4.7	10 - 12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

	Rating (A)	min./max. conductor ø	min./max. conductor cross section [mm²]
	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

crimp



stripping dimensions for male and female contacts





Coaxial contacts for cable applications

Identification		Impedance (Ω)	Part No.																																																																																					
			Straight male contacts			Straight female contacts																																																																																		
			Performance level 3	S4 ¹⁾		Performance level 3	S4 ¹⁾																																																																																	
Solder / crimp contact																																																																																								
for cables RG 174 U, 188 AU, 316 U		50	09 69 281 7140	09 69 281 5140		09 69 181 7140	09 69 181 5140																																																																																	
for cables RG 178 BU, 196 AU, 404 U		50	09 69 281 7141	09 69 281 5141		09 69 181 7141	09 69 181 5141																																																																																	
for cables RG 58 CU, 141 AU		50	09 69 281 7143	09 69 281 5143		09 69 181 7143	09 69 181 5143																																																																																	
for cables RG 179 BU, 187 AU		75	09 69 281 7230	09 69 281 5230		09 69 181 7230	09 69 181 5230																																																																																	
for cables RGD 179		75	09 69 281 7233	09 69 281 5233		09 69 181 7233	09 69 181 5233																																																																																	
Crimp / crimp contact																																																																																								
for cables RG 174 U, 188 AU, 316 U		50	09 69 282 7140	09 69 282 5140		09 69 182 7140	09 69 182 5140																																																																																	
for cables RG 179 BU, 187 AU		75	09 69 282 7230	09 69 282 5230		09 69 182 7230	09 69 182 5230																																																																																	
for cables RG 59		75	09 69 282 7232	09 69 282 5232		09 69 182 7232	09 69 182 5232																																																																																	
for cables RGD 179		75	09 69 282 7233	09 69 282 5233		09 69 182 7233	09 69 182 5233																																																																																	
Harnessing dimensions (mm)		<table><tr><th>Part No.</th><th>Ø A</th><th>Ø B</th><th>Ø C</th><th>Ø D</th><th>E</th><th>F</th><th>G</th></tr><tr><td>09 69 181 x140 09 69 281 x140</td><td>0.85</td><td>1.9</td><td>2.3</td><td>3.2</td><td>9.5</td><td>5.0</td><td>3.0</td></tr><tr><td>09 69 181 x141 09 69 281 x141</td><td>0.85</td><td>1.2</td><td>1.4</td><td>2.3</td><td>9.5</td><td>5.0</td><td>3.0</td></tr><tr><td>09 69 181 x143 09 69 281 x143</td><td>1.00</td><td>3.0</td><td>4.4</td><td>5.2</td><td>9.5</td><td>5.0</td><td>3.0</td></tr><tr><td>09 69 181 x230 09 69 281 x230</td><td>0.50</td><td>1.9</td><td>2.3</td><td>3.2</td><td>9.5</td><td>5.0</td><td>3.0</td></tr><tr><td>09 69 182 x140 09 69 282 x140</td><td>0.60</td><td>1.9</td><td>2.4</td><td>3.2</td><td>9.0</td><td>5.0</td><td>3.0</td></tr><tr><td>09 69 182 x230 09 69 282 x230</td><td>0.60</td><td>1.9</td><td>2.4</td><td>3.2</td><td>9.0</td><td>5.0</td><td>3.0</td></tr><tr><td>09 69 182 x232 09 69 282 x232</td><td>0.95</td><td>3.8</td><td>5.1</td><td>6.2</td><td>9.0</td><td>4.3</td><td>3.7</td></tr><tr><td>09 69 181 x233 09 69 281 x233</td><td>0.50</td><td>1.9</td><td>2.6</td><td>3.5</td><td>9.5</td><td>5.0</td><td>3.0</td></tr><tr><td>09 69 182 x233 09 69 282 x233</td><td>0.60</td><td>1.9</td><td>2.6</td><td>3.5</td><td>9.3</td><td>4.3</td><td>3.0</td></tr></table>							Part No.	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
Part No.	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 05.73 and 05.74
Tooling see chapter 20



Coaxial contacts for cable applications

Identification

Drawing

Dimensions in mm

Male contacts

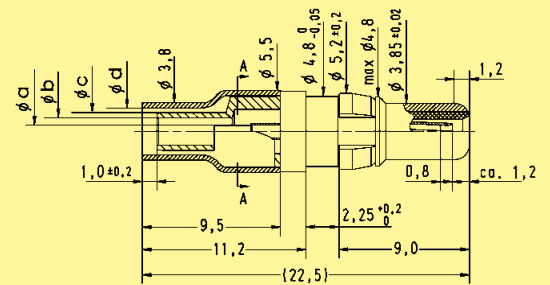
Part No.	ø a	ø b	ø c	ø d
09 69 281 x140	0.85	1.9	2.6	3.2
09 69 281 x141	0.85	1.2	1.7	2.3
09 69 281 x230	0.50	1.9	2.6	3.2

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

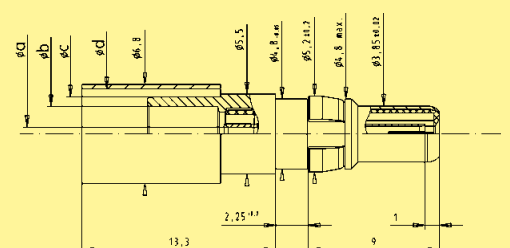
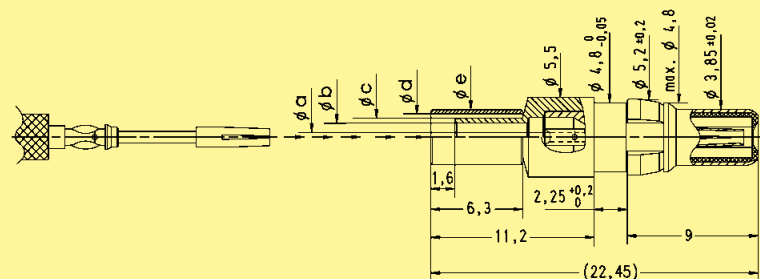
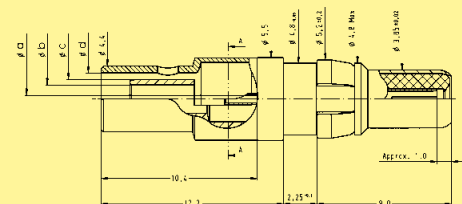
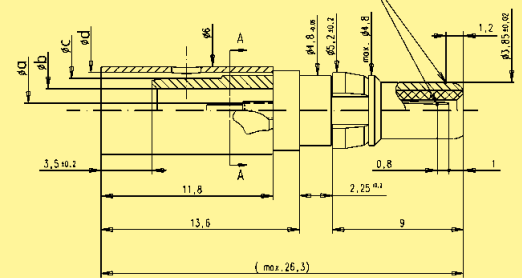
Part No.	ø a	ø b	ø c	ø d
09 69 281 x233	0.5	1.9	2.6	3.5

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

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



Points of plating thickness measurement





Coaxial contacts for cable applications

Identification

Drawing

Dimensions in mm

Female contacts

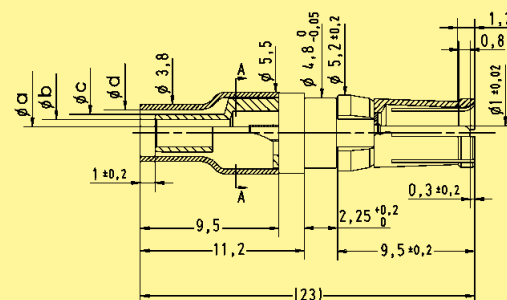
Part No.	ø a	ø b	ø c	ø d
09 69 181 x140	0.85	1.9	2.6	3.2
09 69 181 x141	0.85	1.2	1.7	2.3
09 69 181 x230	0.50	1.9	2.6	3.2

Part No.	ø a	ø b	ø c	ø d
09 69 181 x143	1.0	3.0	4.4	5.2

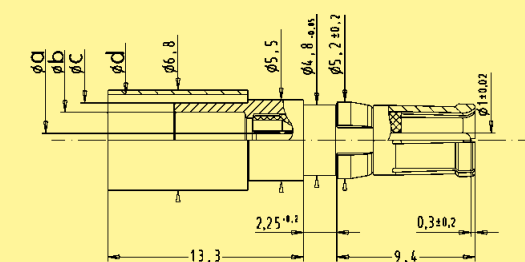
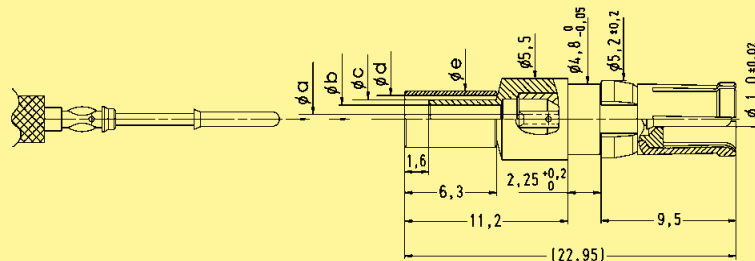
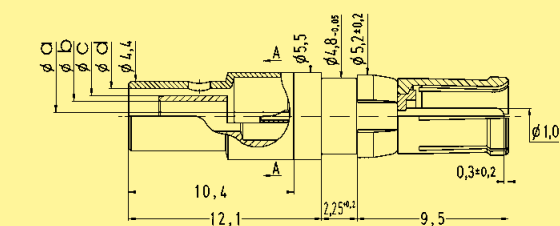
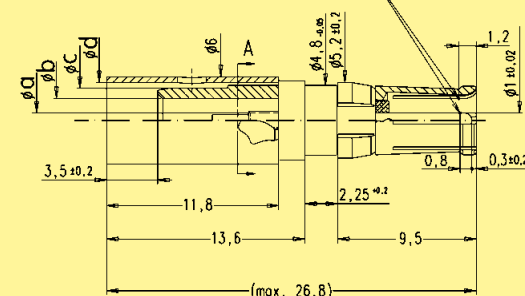
Part No.	ø a	ø b	ø c	ø d
09 69 181 x233	0.5	1.9	2.6	3.5

Part No.	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 No.	ø a	ø b	ø c	ø d
09 69 182 x232	0.95	3.8	5.1	6.2

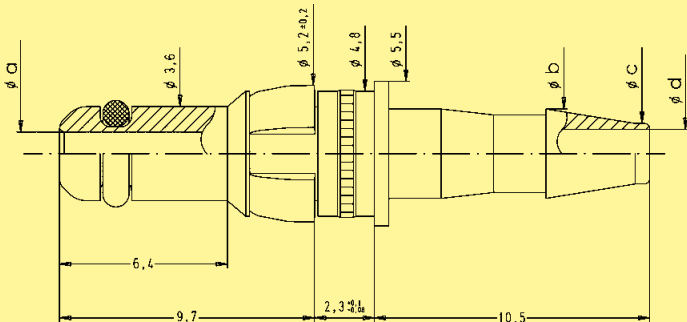
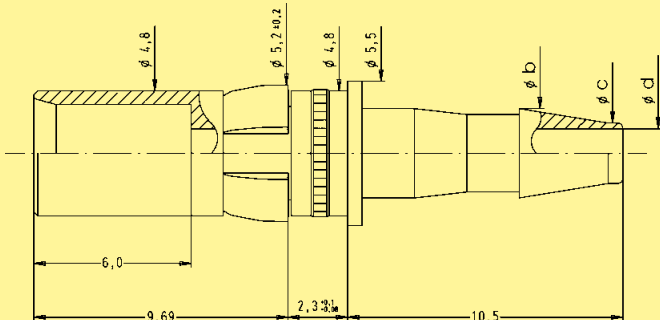


Points of plating thickness measurement





Pneumatic contacts for cable applications

Identification	Inner diameter air tube (mm)	Part No.																									
Male contacts	2 2.6 3 4	09 69 287 0060 09 69 287 0061 09 69 287 0062 09 69 287 0063																									
Female contacts	2 2.6 3 4	09 69 187 0060 09 69 187 0061 09 69 187 0062 09 69 187 0063																									
Male contacts	 <table><tr><th>Part No.</th><th>Ø a</th><th>Ø b</th><th>Ø c</th><th>Ø d</th></tr><tr><td>09 69 x87 0060</td><td>1.45</td><td>2.6</td><td>1.5</td><td>0.95</td></tr><tr><td>09 69 x87 0061</td><td>1.65</td><td>3.1</td><td>2.0</td><td>1.65</td></tr><tr><td>09 69 x87 0062</td><td>1.65</td><td>3.4</td><td>2.3</td><td>1.85</td></tr><tr><td>09 69 x87 0063</td><td>1.65</td><td>4.8</td><td>3.7</td><td>2.95</td></tr></table>		Part No.	Ø a	Ø b	Ø c	Ø d	09 69 x87 0060	1.45	2.6	1.5	0.95	09 69 x87 0061	1.65	3.1	2.0	1.65	09 69 x87 0062	1.65	3.4	2.3	1.85	09 69 x87 0063	1.65	4.8	3.7	2.95
Part No.	Ø a	Ø b	Ø c	Ø d																							
09 69 x87 0060	1.45	2.6	1.5	0.95																							
09 69 x87 0061	1.65	3.1	2.0	1.65																							
09 69 x87 0062	1.65	3.4	2.3	1.85																							
09 69 x87 0063	1.65	4.8	3.7	2.95																							
Female contacts																											

Dimensions in mm

Dimensions in mm

Board drillings for connectors with straight pcb contacts

Pcb hole patterns

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

Power contact diameter and pcb related drilling diameter

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

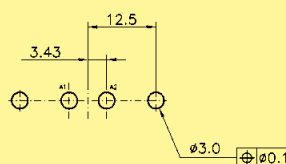
Identification

Drawing

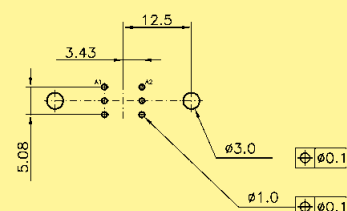
Dimensions in mm

Male connector*

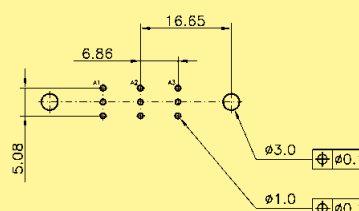
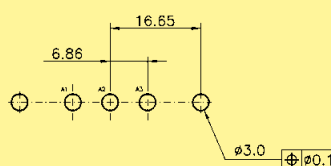
2W2 / 2W2C



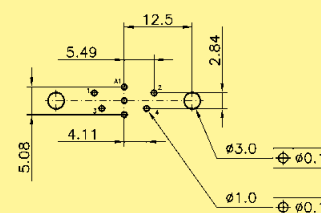
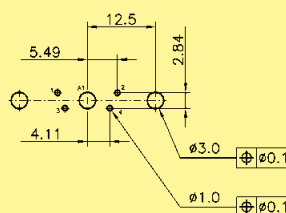
Coaxial contact



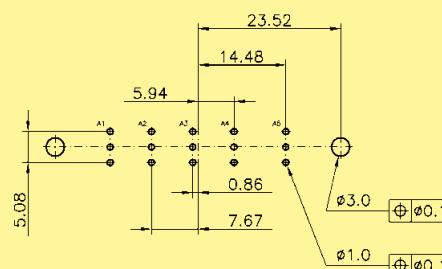
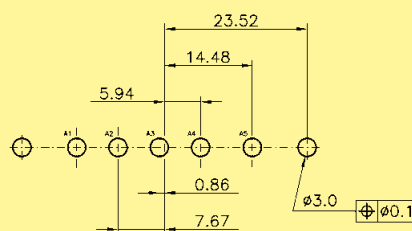
3W3 / 3W3C



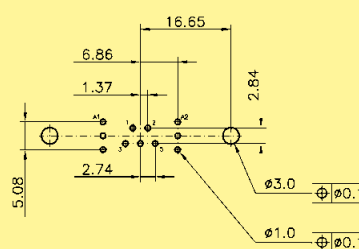
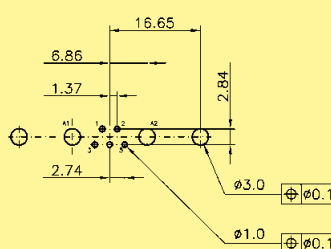
5W1



5W5



7W2



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



Board drillings for connectors with straight pcb contacts

Identification

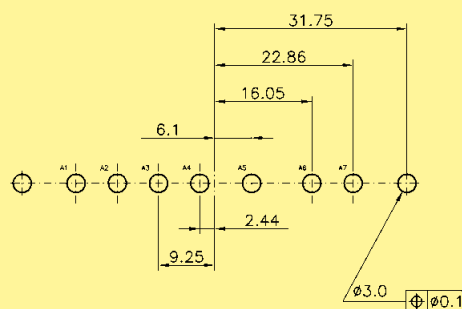
Drawing

Dimensions in mm

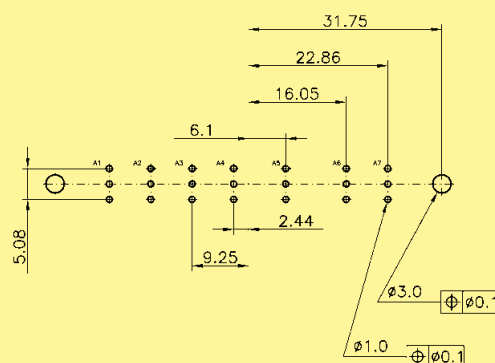
Male connector*

7W7

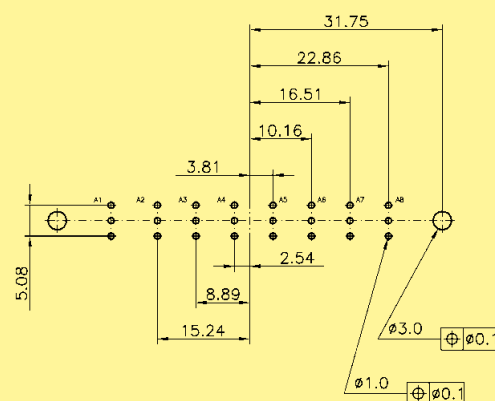
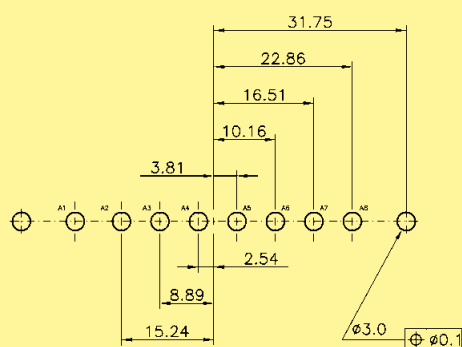
Power contact



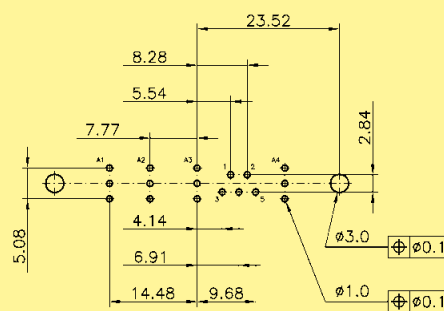
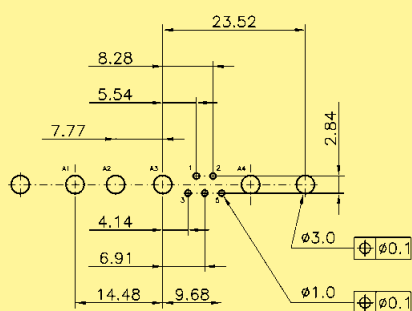
Coaxial contact



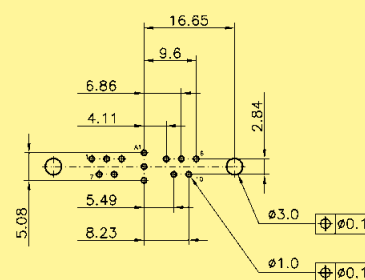
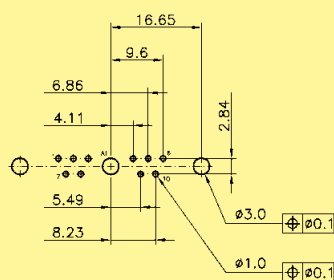
8W8



9W4



11W1



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

Board drillings for connectors with straight pcb contacts

Identification

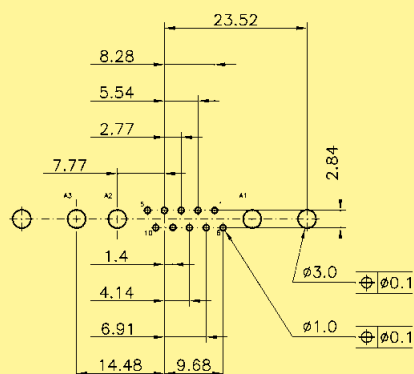
Drawing

Dimensions in mm

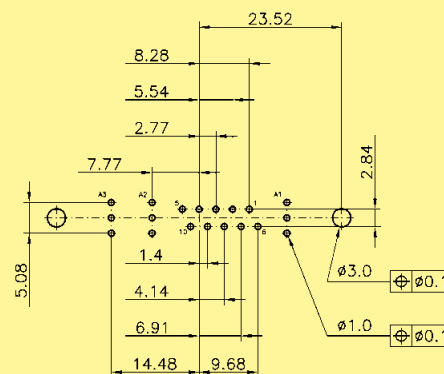
Male connector*

13W3

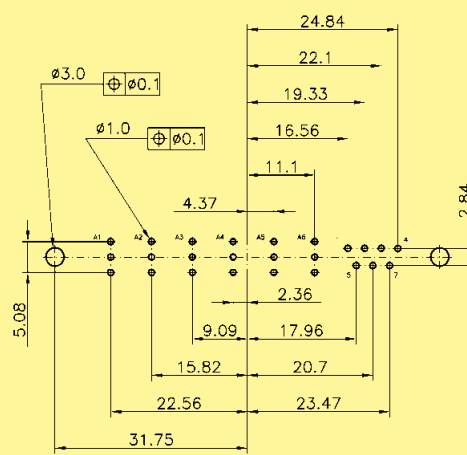
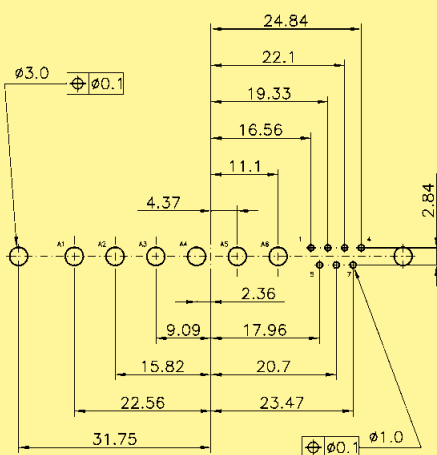
Power contact



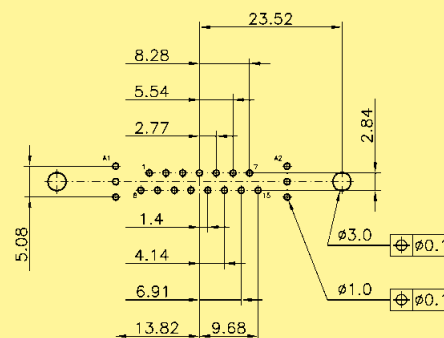
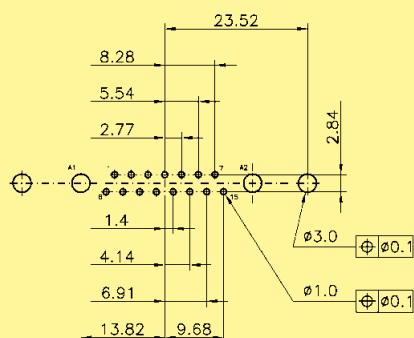
Coaxial contact



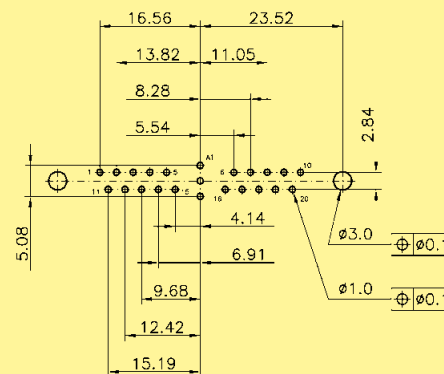
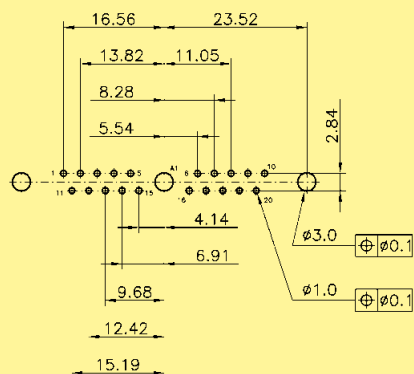
13W6



17W2



21W1



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

Board drillings for connectors with straight pcb contacts

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

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

Board drillings for connectors with straight pcb contacts

Identification

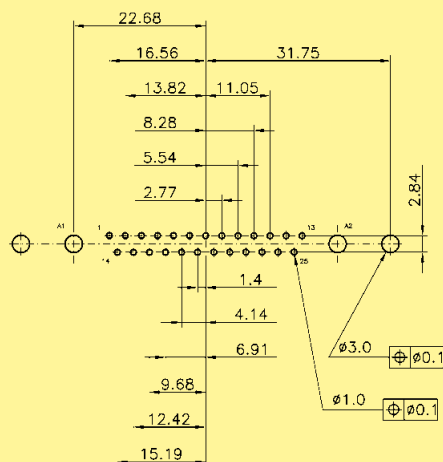
Drawing

Dimensions in mm

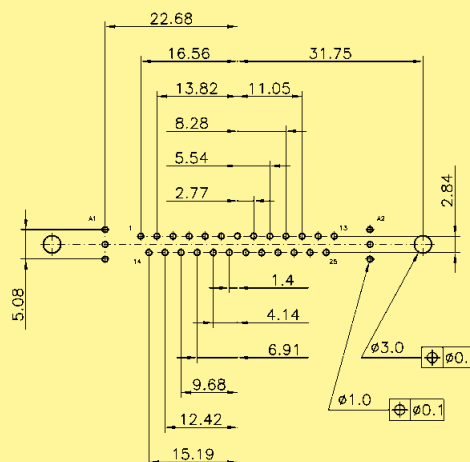
Male connector*

27W2

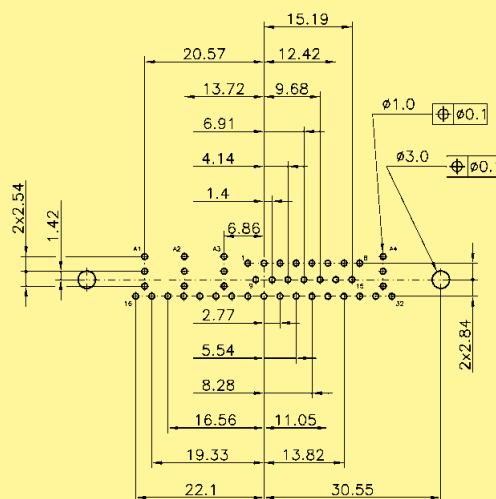
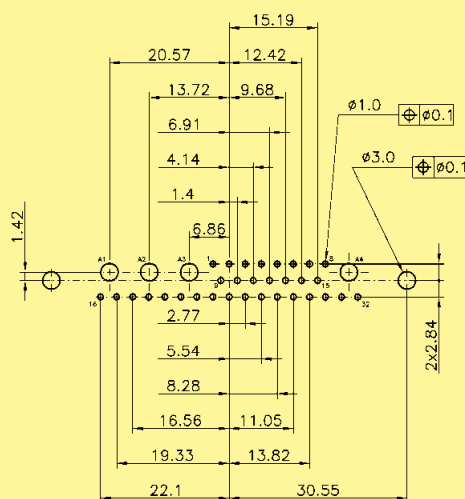
Power contact



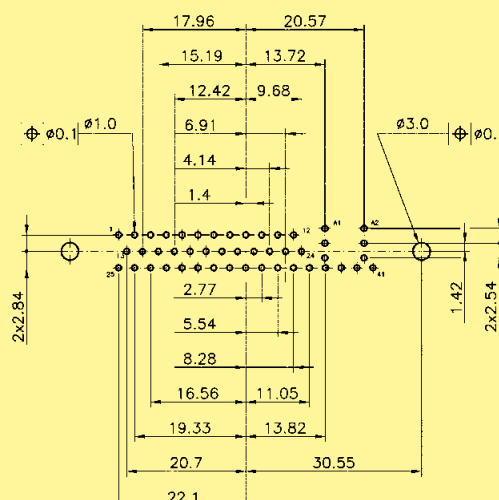
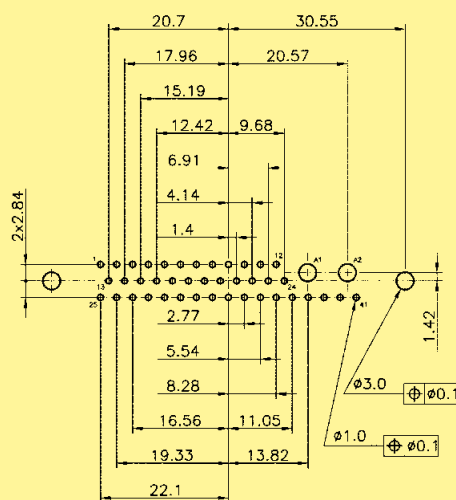
Coaxial contact



36W4



43W2



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



Board drillings for connectors with right angled pcb contacts

Identification

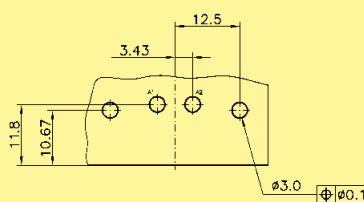
Drawing

Dimensions in mm

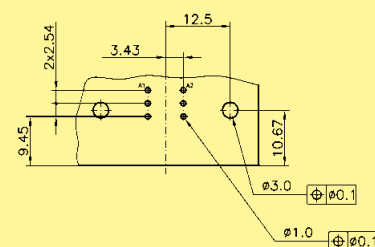
Male connector*

2W2 / 2W2C

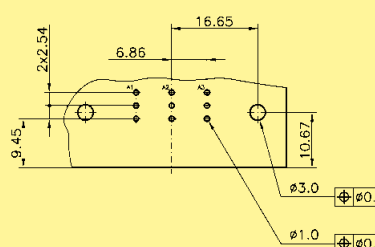
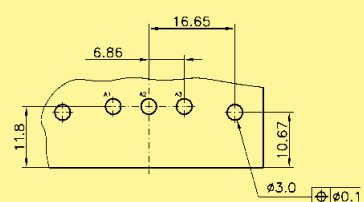
Power contact



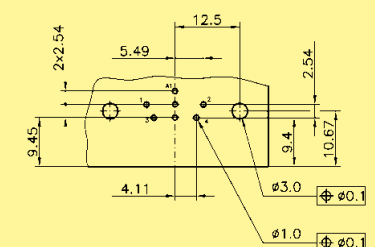
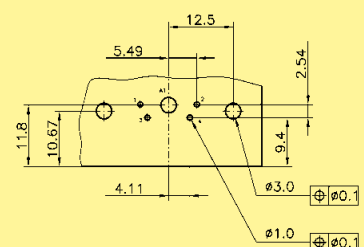
Coaxial contact



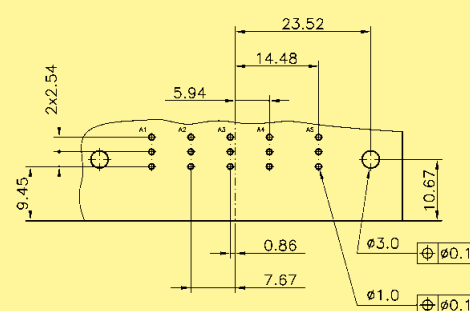
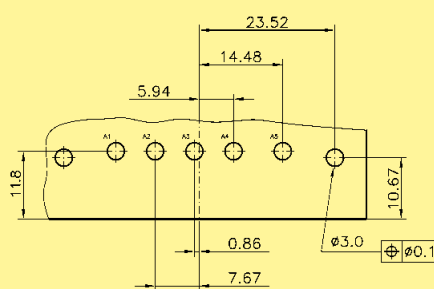
3W3 / 3W3C



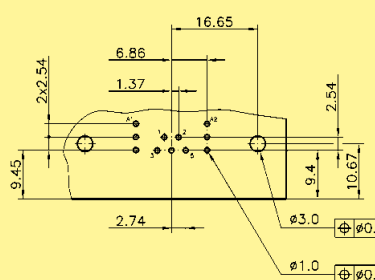
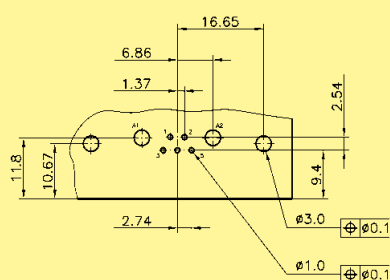
5W1



5W5



7W2



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

Board drillings for connectors with right angled pcb contacts

Identification

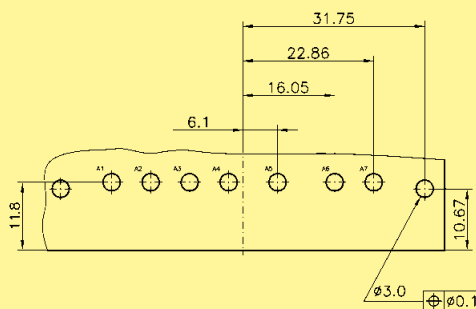
Drawing

Dimensions in mm

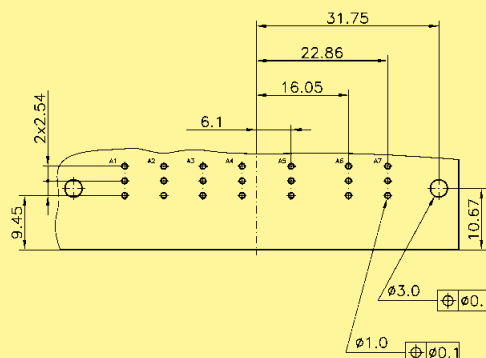
Male connector*

7W7

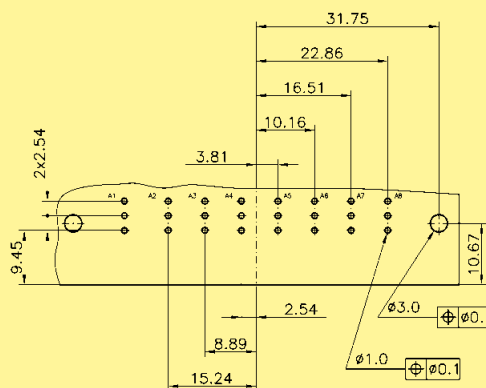
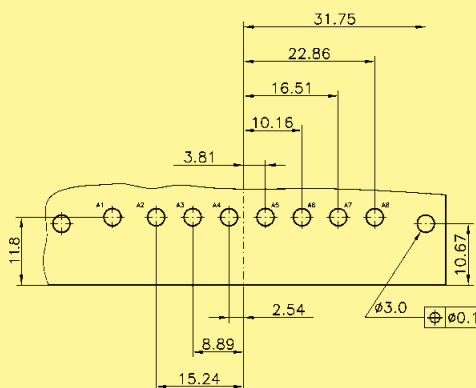
Power contact



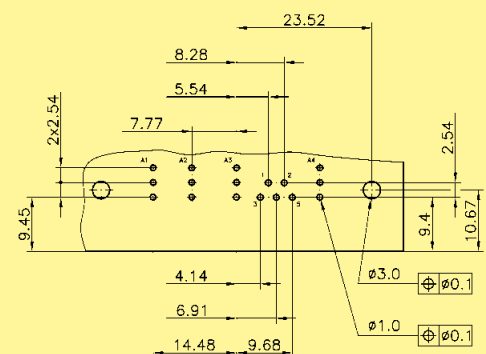
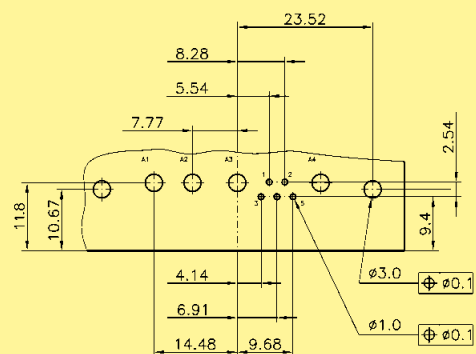
Coaxial contact



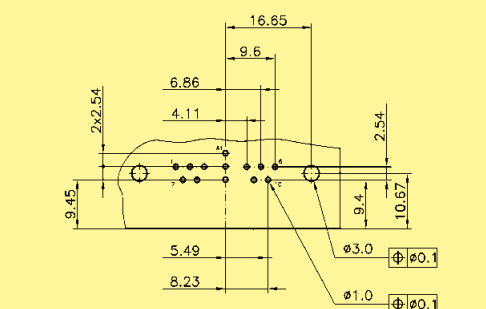
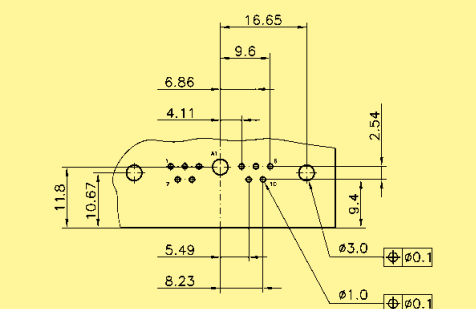
8W8



9W4



11W1



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

Board drillings for connectors with right angled pcb contacts

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

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

Board drillings for connectors with right angled pcb contacts

Identification

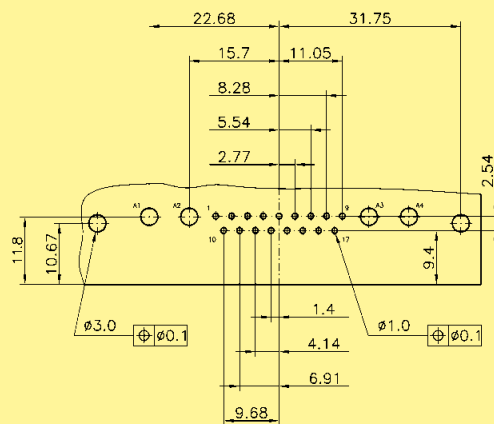
Drawing

Dimensions in mm

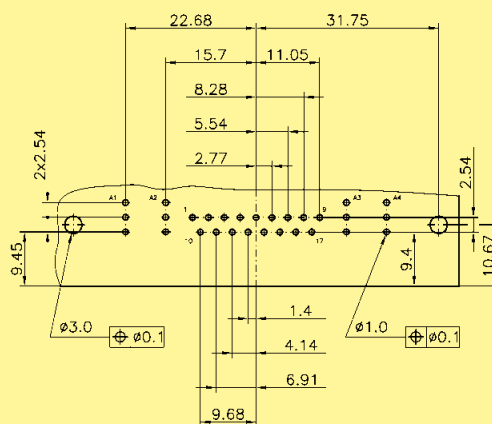
Male connector*

21WA4

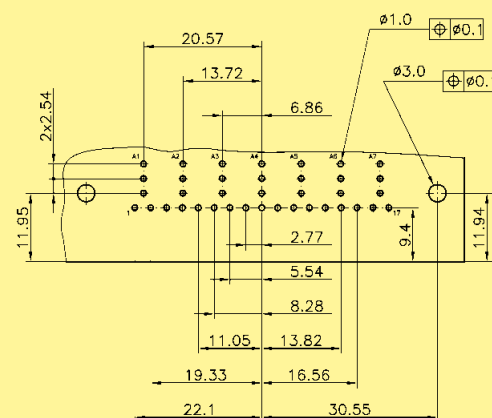
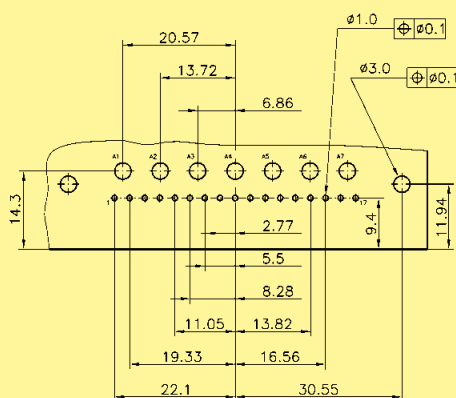
Power contact



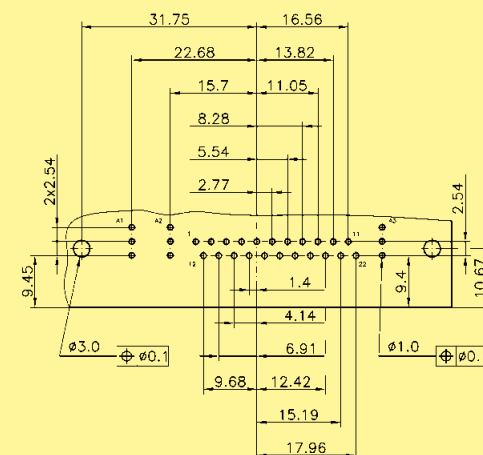
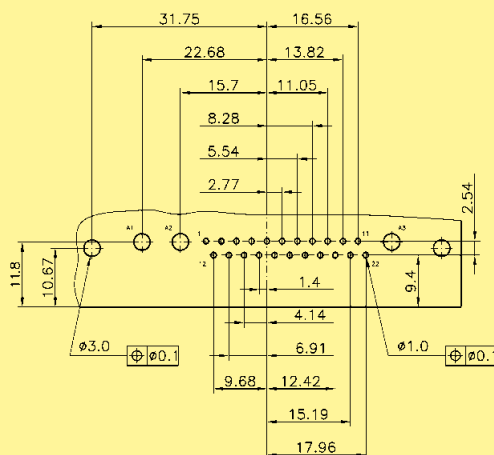
Coaxial contact



24W7



25W3



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

Board drillings for connectors with right angled pcb contacts

Identification

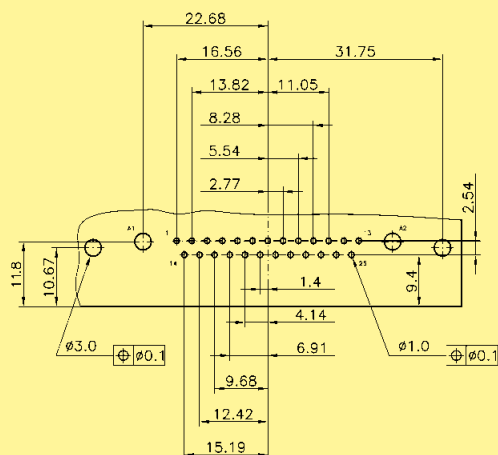
Drawing

Dimensions in mm

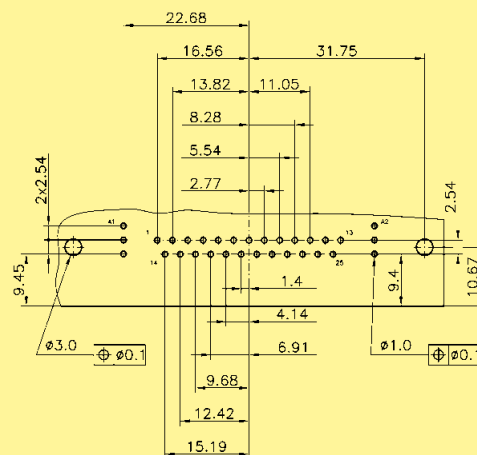
Male connector*

27W2

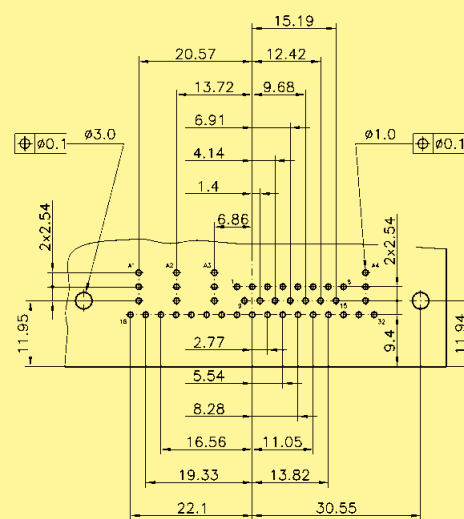
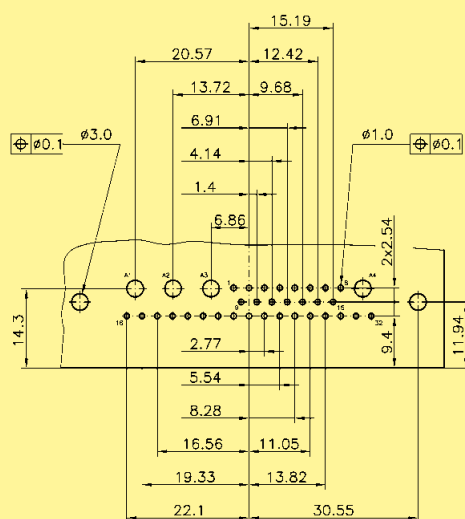
Power contact



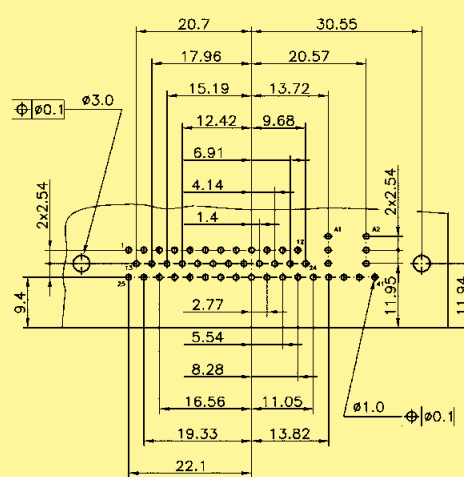
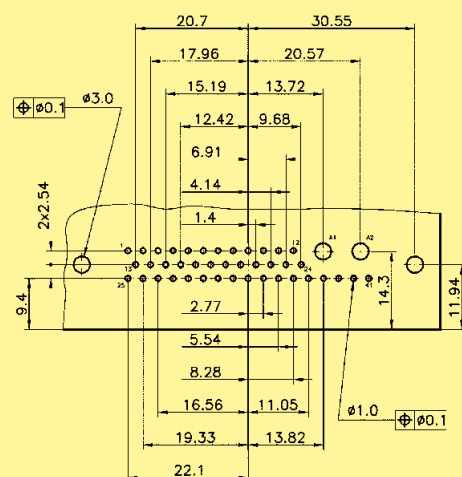
Coaxial contact



36W4



43W2

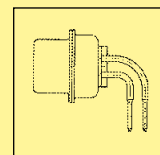
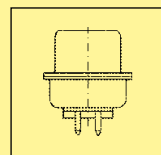


* When using a female connector with right angled pcb contacts the board drilling pattern must be mirrored in the Y axis.

HARTING customer request form for pcb connectors

1 Connector gender and type

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



- ☐ Straight ☐ Right angled

2 Contact arrangement

Standard

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

Special configurations
(mixed contact genders)

- ☐ 2W2C ☐ 3W3C

2.1 Any signal contacts?

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

2.2 Any power contacts?

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

Current rating

- ☐ 10 A ☐ 30 A
☐ 20 A ☐ 40 A

Termination type

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

Performance level

[mating side / termination side]

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

2.3 Any coaxial contacts?

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

Impedance

- ☐ 50 Ω
☐ 75 Ω

Performance level

[mating side inner / outer conductor]

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

2.4 Any high voltage contacts?

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

2.5 Any pneumatic contacts?

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

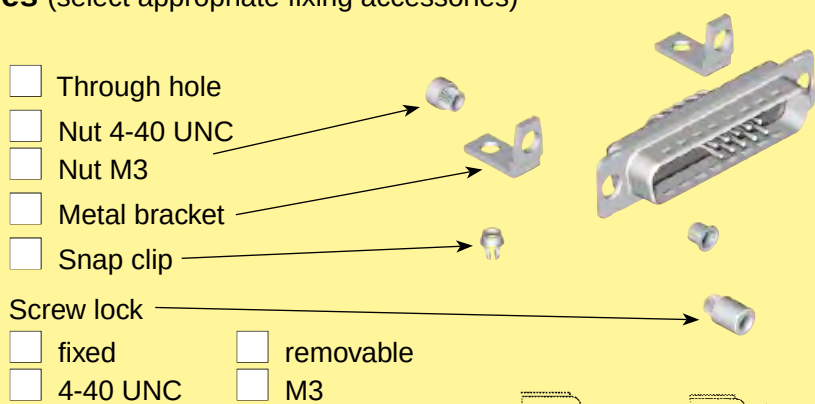
Tube inner diameter /
suitable compressed air tube

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

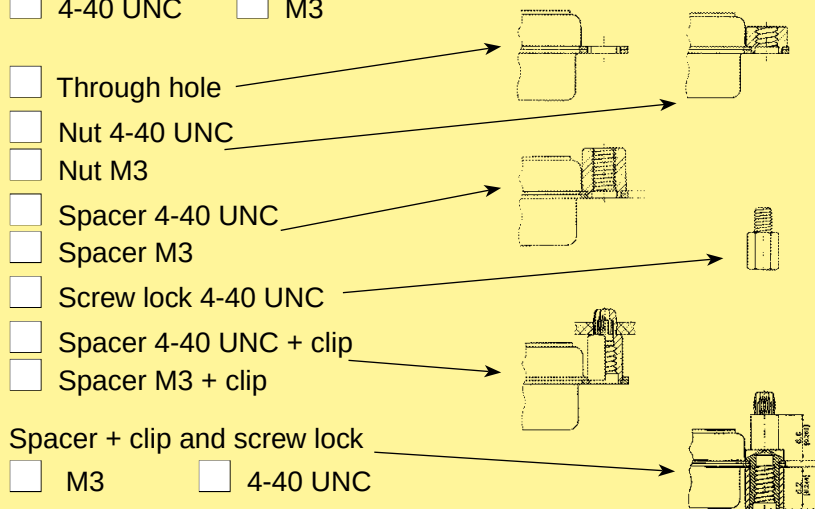
HARTING customer request form for pcb connectors

3 Pcb mounting accessories (select appropriate fixing accessories)

3.1 Right angled version

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

3.2 Straight version

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

4 Additional information

Pcb thickness:

Operating temperature:

Is hot plugging required

Is a vacuum pick and place process considered?

Is blind mating feature required?

(if possible provide pcb layout with plating specifications)

☐ standard

☐ No

☐ No

☐ No

☐ Yes

☐ Yes

☐ Yes (provide precise requirements)

☐ SMC compatible

Short description: _____

Name: _____

Company: _____

Address: _____

Phone: _____

Fax: _____

E-Mail: _____

Drawing: ☐ no ☐ yes

Samples: ☐ no ☐ yes, quantity

Volume (pcs./year): _____

Special requirements: _____

HARTING customer request form for cable connectors

1 Connector gender

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



21W4 mixed male for cable

2 Contact arrangement

Standard

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

Special configurations
(mixed contact genders)

- ☐ 2W2C ☐ 3W3C

2.1 Any signal contacts?

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

Termination type

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

Signal cable size for crimp contact

- ☐ AWG 20-24 ☐ AWG 24-28

Crimp contact performance level

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

2.2 Any power contacts?

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

Current rating

- ☐ 10 A ☐ 20 A ☐ 30 A ☐ 40 A

Termination type

- ☐ Crimp ☐ Solder cup

Performance level

[mating side / termination side]

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

2.3 Any coaxial contacts?

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

Impedance

- ☐ 50 Ω ☐ 75 Ω

Termination type

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

Performance level

[mating side inner / outer conductor]

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

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

HARTING customer request form for cable connectors

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

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

3 Cable accessories

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

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

Interference – Yesterdays problem!

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

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

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

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

Advantages

Wide range:

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

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

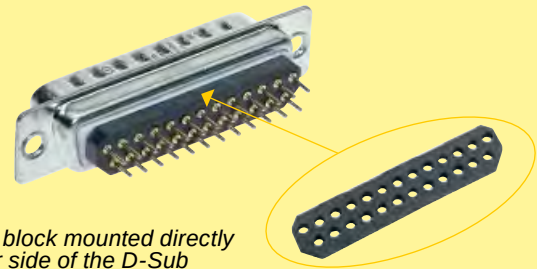
Same layout and shell dimensions as standard D-Sub connectors, no modification of PCB design necessary

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

Flexible filter structure allowing a wide range of customization:

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

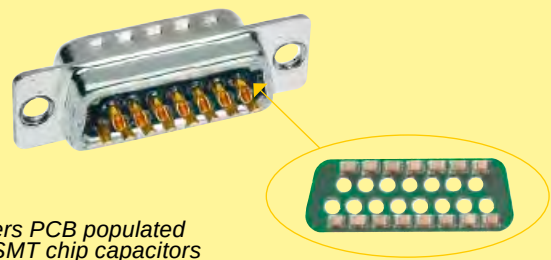
HARTINGs broad Filter range



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

Ferrite-filter

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



4 layers PCB populated with SMT chip capacitors

C-filter

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

Filter adapter

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

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

Number of contacts 9, 15, 25, 37

Working current 7.5 A max.

Working voltage 250 V AC max.

Dielectric withstanding voltage 500 V AC for 1 minute

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

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

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

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

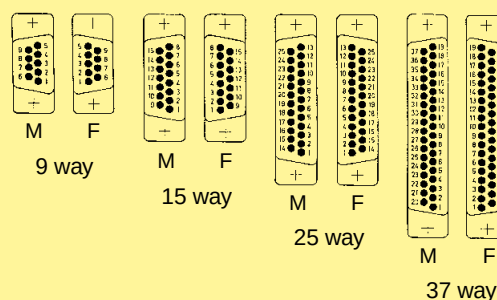
Contacts Copper alloy

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

Metal shell Steel (tin-plated)

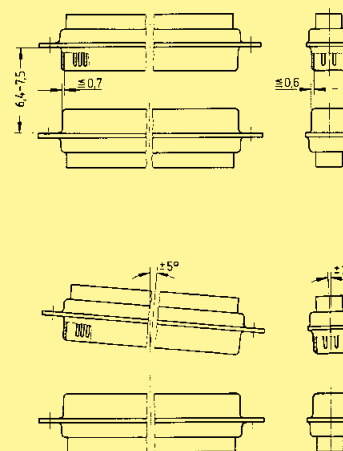
Contact arrangement

View from termination side



M = Male connector
F = Female connector

Mating conditions as per CECC 75 301



Minimum insertion loss

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

Number of contacts

9–25



Solder pins, straight, through hole

D-Sub

Identification

No. of contacts

Part No.

Connectors with ferrite-filter

male connectors

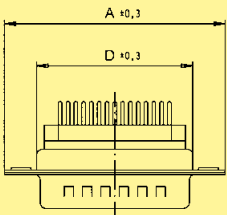
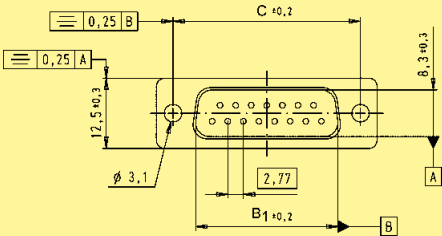
female connectors

9
15
25

09 64 122 7800
09 64 222 7800
09 64 322 7800

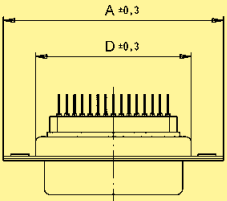
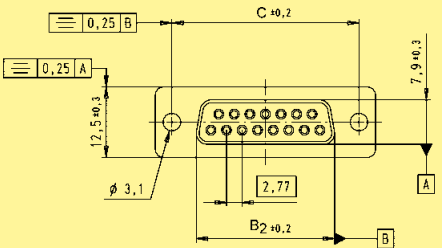
09 64 112 7800
09 64 212 7800
09 64 312 7800

Male connector

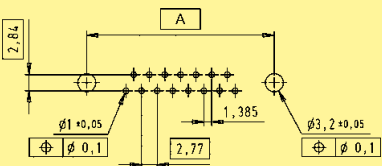


No. of contacts	A	B ₁	B ₂	C	D
9	30.8	16.92	16.3	25.0	19.2
15	39.2	25.25	24.6	33.3	27.7
25	53.1	38.96	38.3	47.1	41.1

Female connector



Board drillings



Dimensions in mm

Number of contacts

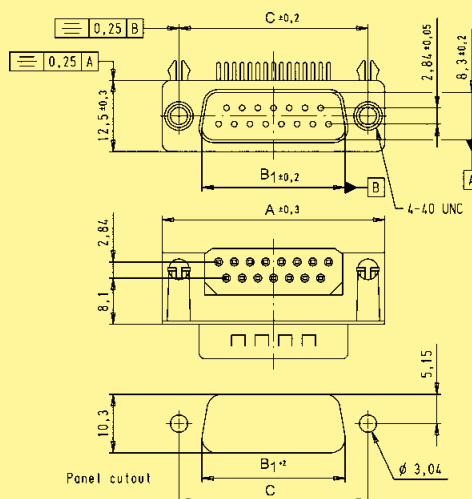
9–37



Solder pins, right angled, board lock and clinch nut

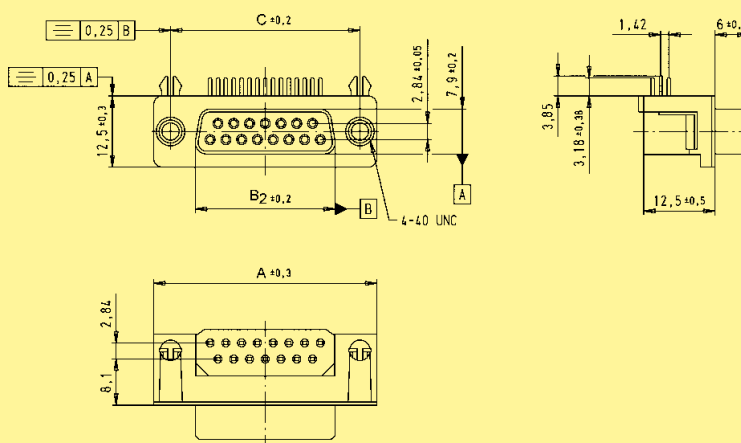
Identification	No. of contacts	Part No.
Connectors with ferrite-filter		male connectors
	9	09 64 123 7802
	15	09 64 223 7802
	25	09 64 323 7802
	37	09 64 423 7802
		female connectors
		09 64 113 7802
		09 64 213 7802
		09 64 313 7802
		09 64 413 7802

Male connector

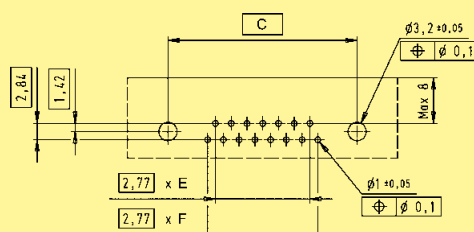


No. of contacts	A	B ₁	B ₂	C	E	F
9	30.8	16.92	16.3	25.0	3	4
15	39.2	25.25	24.6	33.3	6	7
25	53.1	38.96	38.3	47.1	11	12
37	69.4	55.42	54.8	63.5	17	18

Female connector



Board drillings



Dimensions in mm

Number of contacts

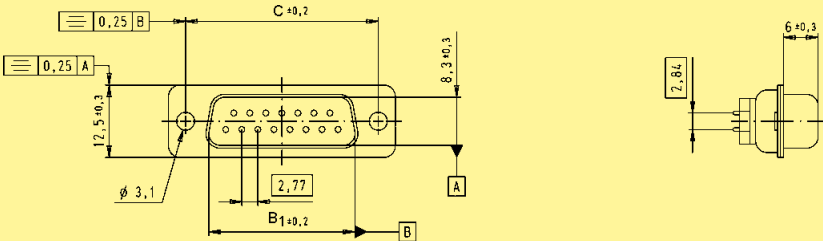
9–37



Solder buckets, through hole

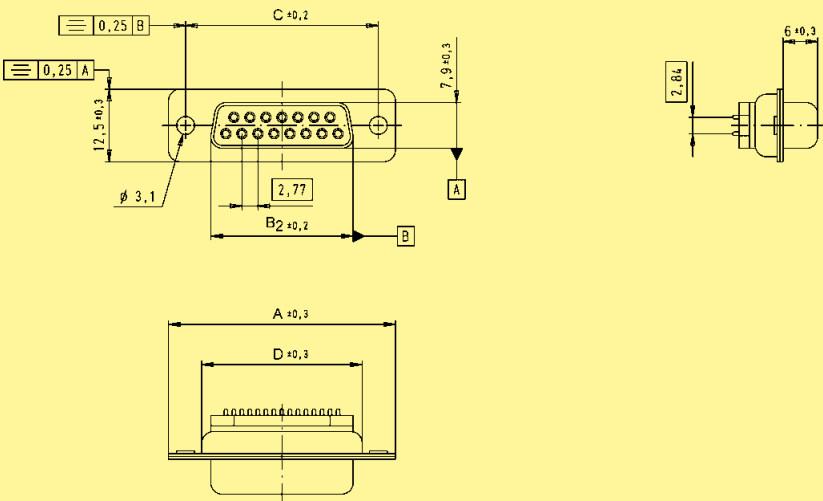
Identification	No. of contacts	Part No.	
Connectors with ferrite-filter		male connectors	female connectors
	9	09 64 121 7800	09 64 111 7800
	15	09 64 221 7800	09 64 211 7800
	25	09 64 321 7800	09 64 311 7800
	37	09 64 421 7800	09 64 411 7800

Male connector



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

Female connector

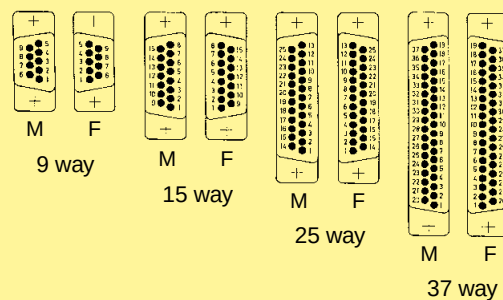


Dimensions in mm

Number of contacts	9, 15, 25, 37
Working current	7.5 A max. (connectors) 6.5 A max. (filter adapters)
Working voltage	100 V max. for standard capacitance values – higher working voltages are available as specific.
Dielectric withstanding voltage	250 V DC max. – higher dielectric withstanding voltages are available as specific (see page 05.122)
Contact resistance Insulation resistance	$\leq 10 \text{ m}\Omega$ $\geq 1000 \text{ M}\Omega$
Temperature range	-55 °C ... +125 °C (connectors) Heat deflection temperature limit according to DIN 53 461: ... +255 °C -20 °C ... +125 °C (filter adapters)
Terminations	a) Solder buckets max. 0.8 mm ² b) Solder pins $\varnothing 0.6 \text{ mm}$ for P.C.B. holes $\varnothing 0.8/1 \text{ mm}$ c) Solder pins, angled 90° $\varnothing 0.6 \text{ mm}$ for P.C.B. holes $\varnothing 0.8/1 \text{ mm}$
Materials	
Insulation	PCT, glass-fibre filled, flame retardant acc. to UL 94-V0 Colour: natural
Contacts	Copper alloy Male and female contacts are turned
Contact surface	
Contact zone	Selectively plated according to performance level
Performance level	Performance level 2, as per CECC 75 301-802, 250 mating cycles, 4 days 4 mixed gas test – IEC 60512
Metal shell	Steel

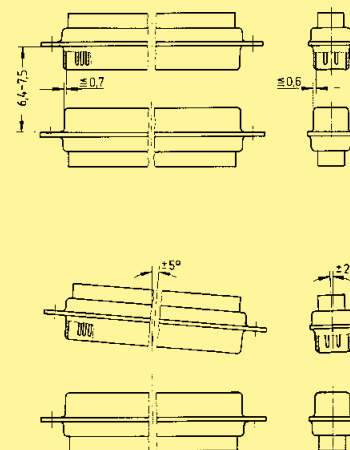
Contact arrangement

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

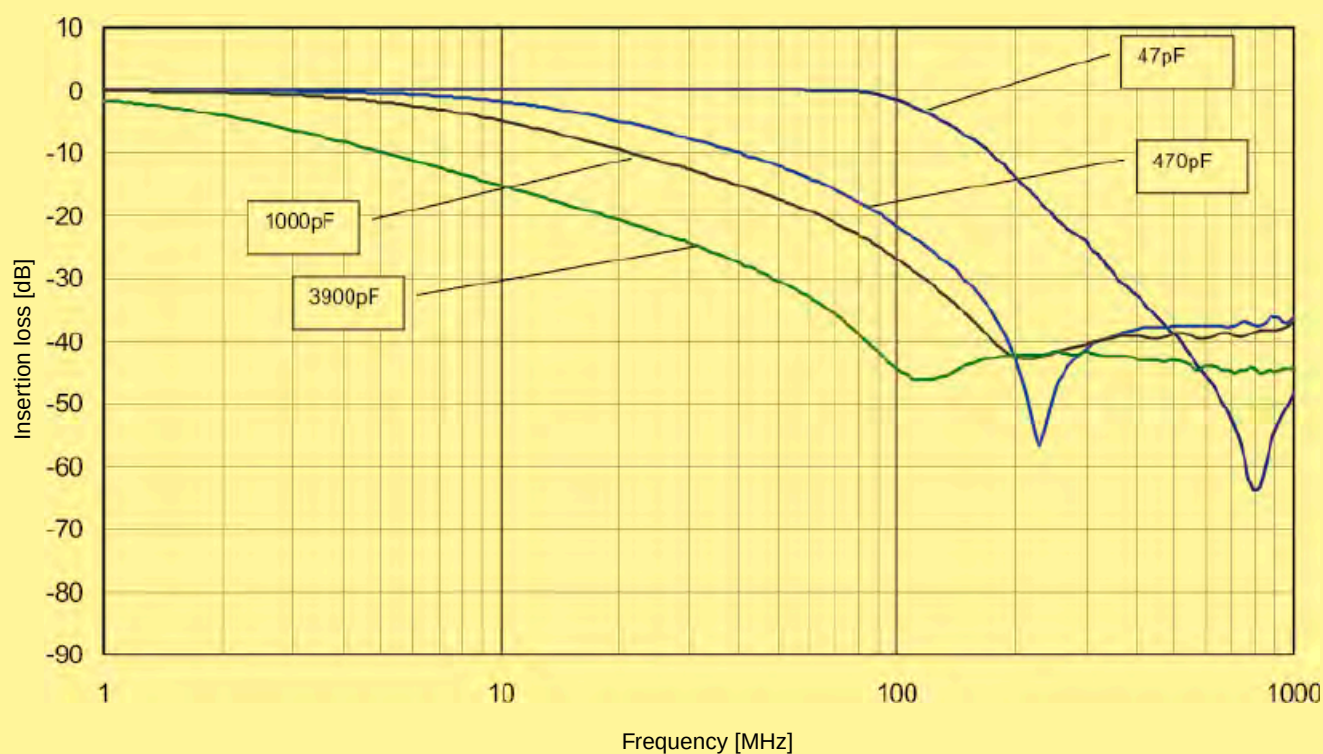
¹⁾ Capacitance tolerance = $\pm 20\%$ (For other capacitor values see pages 05.122 ff).

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

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

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

Typical insertion loss for different filters (measured)



Number of contacts

9–37



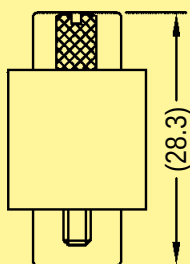
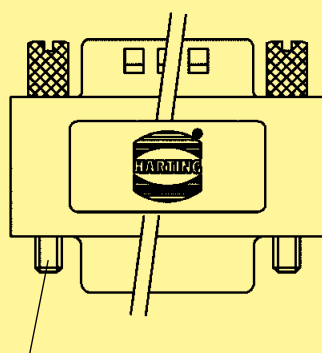
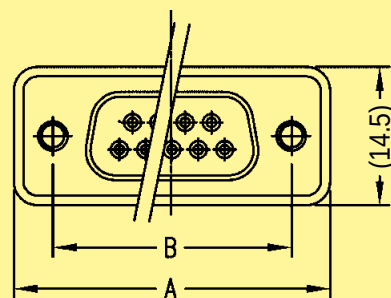
Filter adapters

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

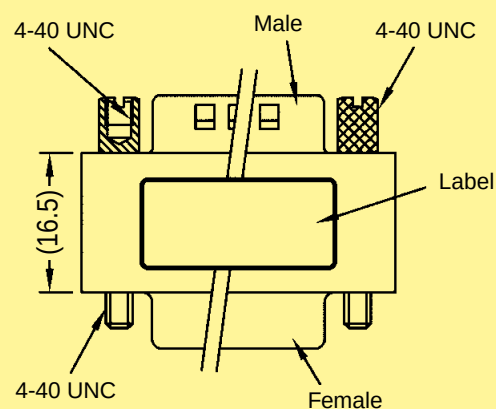
D-Sub

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

D-Sub

Number of contacts

9-37



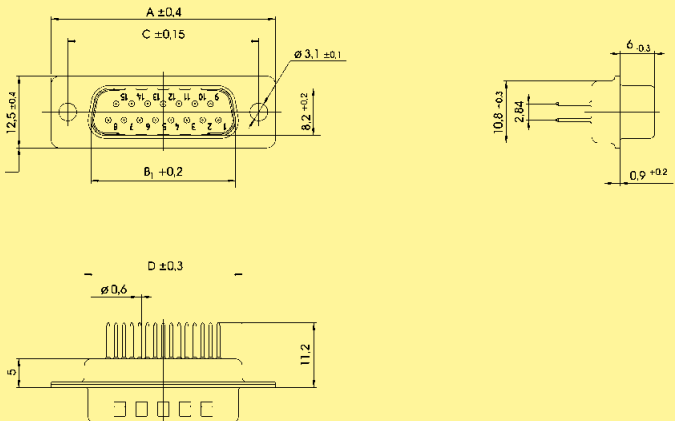
Turned solder pins, straight, through hole

Identification

Drawing

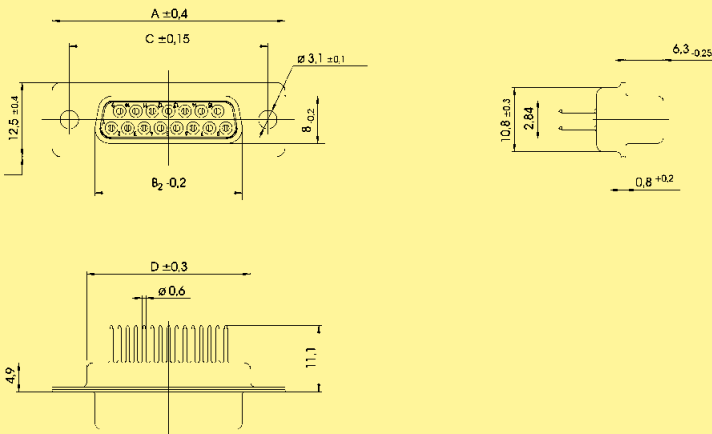
Dimensions in mm

Male connector

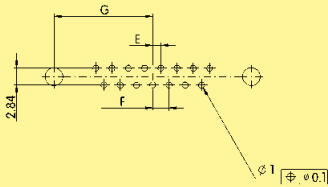


No. of contacts	A	B ₁	B ₂	C	D	E	F	G
9	30.8	16.9	16.4	25.00	19.3	1.37	2.74	12.50
15	39.1	25.2	24.7	33.30	27.5	1.37	2.74	16.65
25	53.0	38.9	38.5	47.04	41.3	1.40	2.77	23.52
37	69.3	55.3	54.9	63.50	57.7	1.40	2.77	31.75

Female connector



Board drillings



Number of contacts

9–37



Turned solder pins, straight, clinch nut

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

D-Sub

Number of contacts

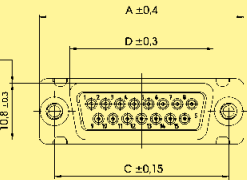
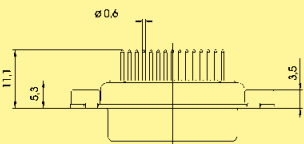
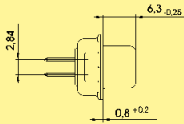
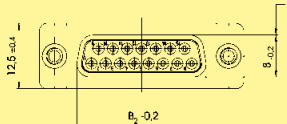
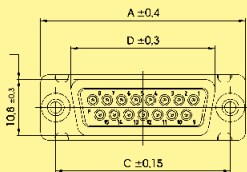
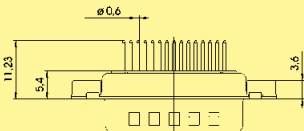
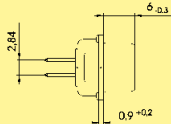
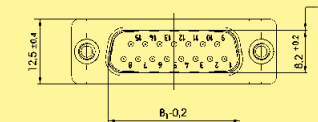
9-37



Turned solder pins, straight, clinch nut

Identification Drawing Dimensions in mm

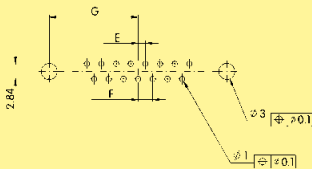
Male connector



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

D-Sub

Number of contacts

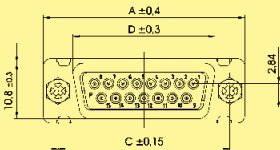
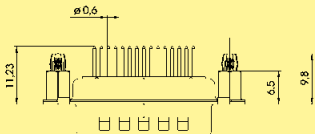
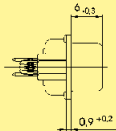
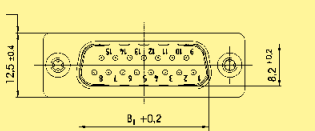
9-37



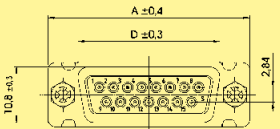
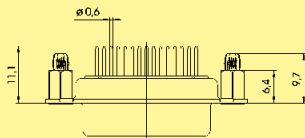
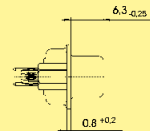
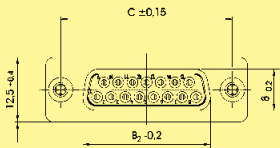
Turned solder pins, straight, straight board clips

Identification Drawing Dimensions in mm

Male connector

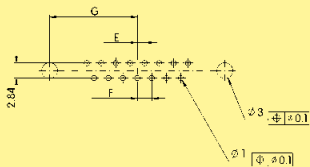


Female connector



No. of contacts	A	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, through hole

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

D-Sub

Number of contacts

9–37



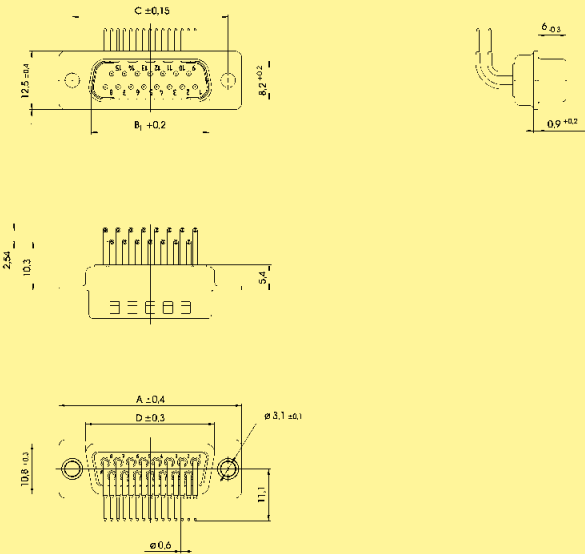
Turned solder pins, right angled, through hole

Identification

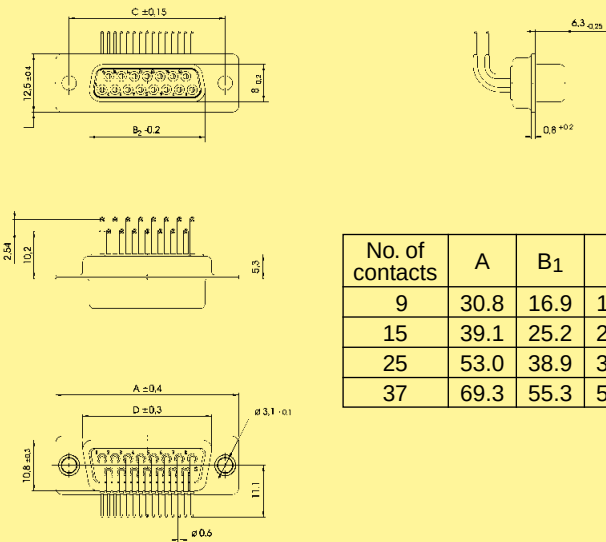
Drawing

Dimensions in mm

Male connector

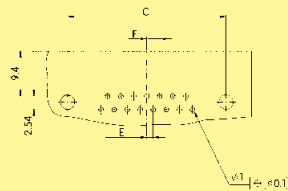


Female connector



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

Board drillings



Number of contacts

9–37



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

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

D-Sub

Number of contacts

9-37



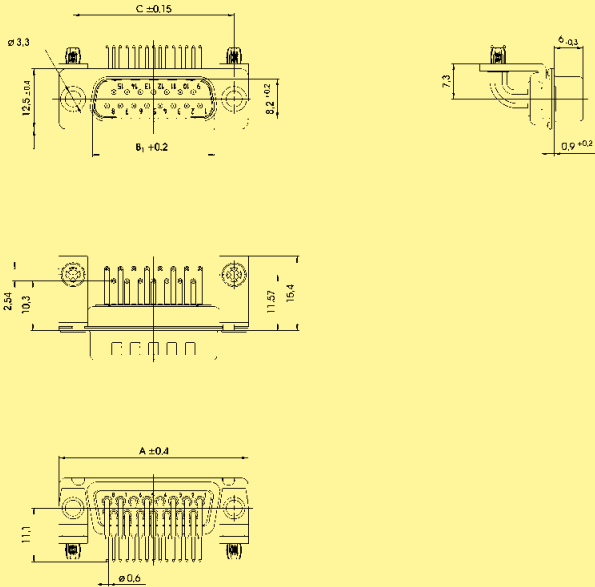
Turned solder pins, right angled, bracket, board lock and through hole

Identification

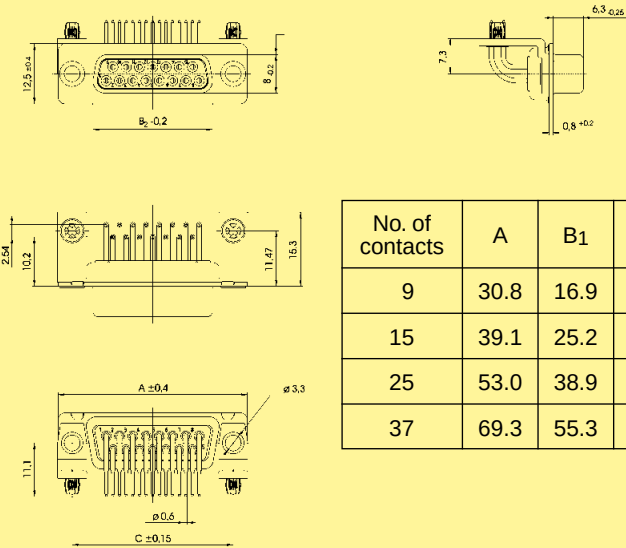
Drawing

Dimensions in mm

Male connector

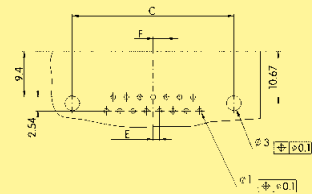


Female connector



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

Board drillings



D-Sub



Number of contacts

9–37



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

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

D-Sub

Number of contacts

9-37



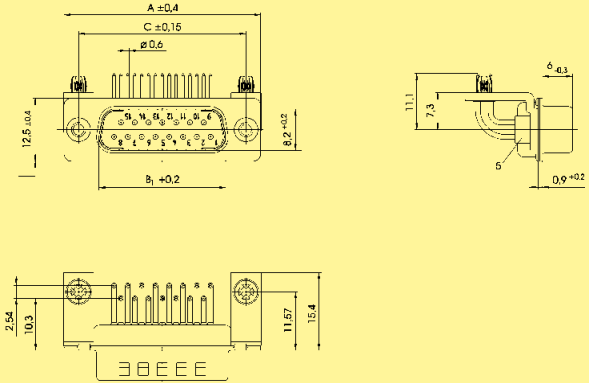
Turned solder pins, right angled, bracket, board lock and clinch nut

Identification

Drawing

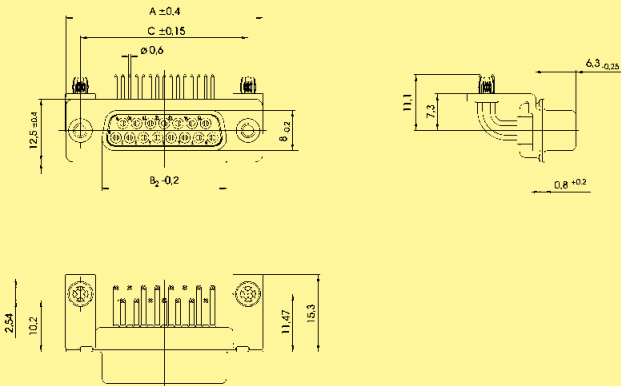
Dimensions in mm

Male connector

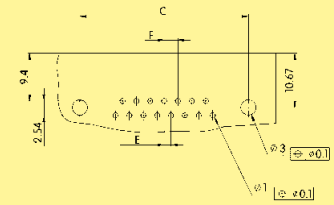


No. of contacts	A	B ₁	B ₂	C	E	F
9	30.8	16.9	16.4	25.00	1.37	2.74
15	39.1	25.2	24.7	33.30	1.37	2.74
25	53.0	38.9	38.5	47.04	1.40	2.77
37	69.3	55.3	54.9	63.50	1.40	2.77

Female connector



Board drillings

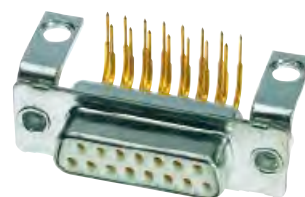


D-Sub



Number of contacts

9–37



Turned solder pins, right angled, bracket and clinch nut

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

4-40 UNC ▶ 6
M3 ▶ 7

D-Sub

Number of contacts

9–37



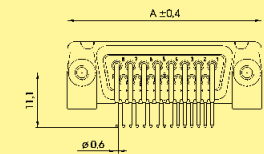
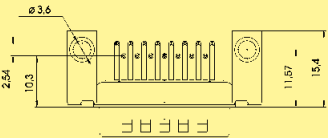
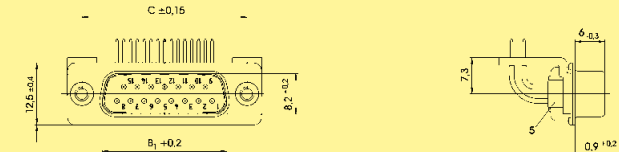
Turned solder pins, right angled, bracket and clinch nut

Identification

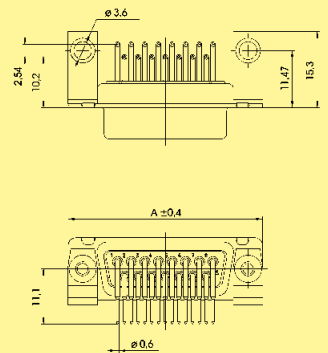
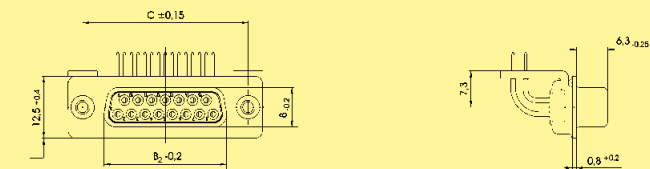
Drawing

Dimensions in mm

Male connector

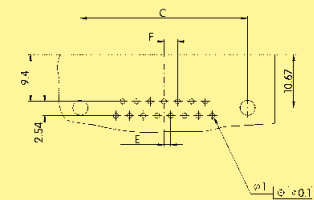


Female connector



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

Board drillings



D-Sub



Number of contacts

9–37



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

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

D-Sub

Number of contacts

9-37



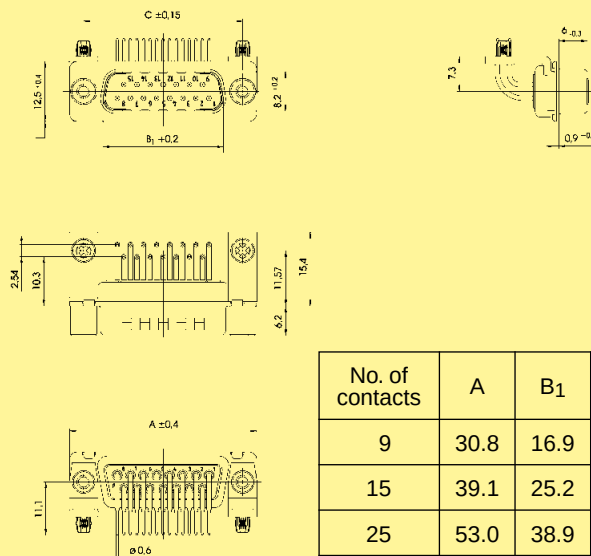
Turned solder pins, right angled, bracket, board lock and female screw

Identification

Drawing

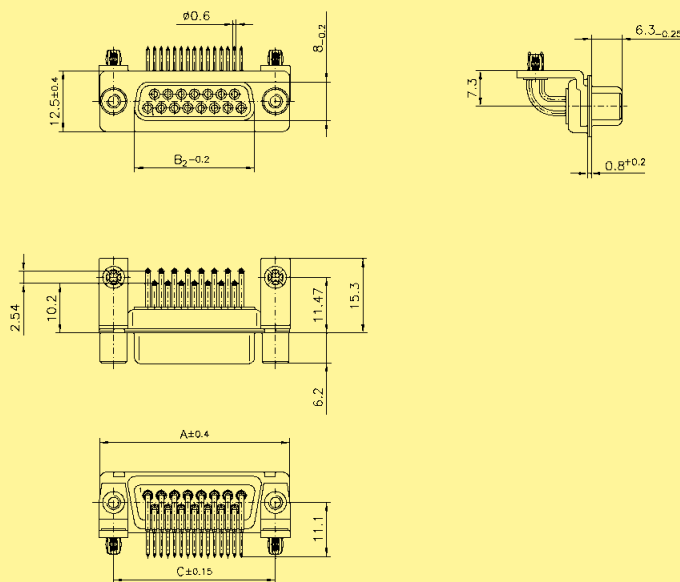
Dimensions in mm

Male connector

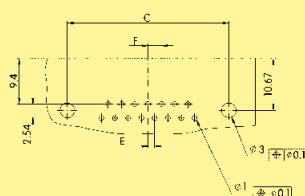


No. of contacts	A	B ₁	B ₂	C	E	F
9	30.8	16.9	16.4	25.00	1.37	2.74
15	39.1	25.2	24.7	33.30	1.37	2.74
25	53.0	38.9	38.5	47.04	1.40	2.77
37	69.3	55.3	54.9	63.50	1.40	2.77

Female connector



Board drillings



Number of contacts

9–37



Turned solder pins, right angled, bracket and female screw

Identification		No. of contacts	Part No.	
D-Sub			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			
	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			
	Connectors with 3900 pF C filter			
		9	09 64 124 724 .	09 64 114 724 .
		15	09 64 224 724 .	09 64 214 724 .
		25	09 64 324 724 .	09 64 314 724 .
		37	09 64 424 724 .	09 64 414 724 .
	Please insert digit for flange thread			
	4-40 UNC ▶	8		
	M3 ▶	9		

4-40 UNC ▶ 8
M3 ▶ 9

D-Sub

Number of contacts

9–37



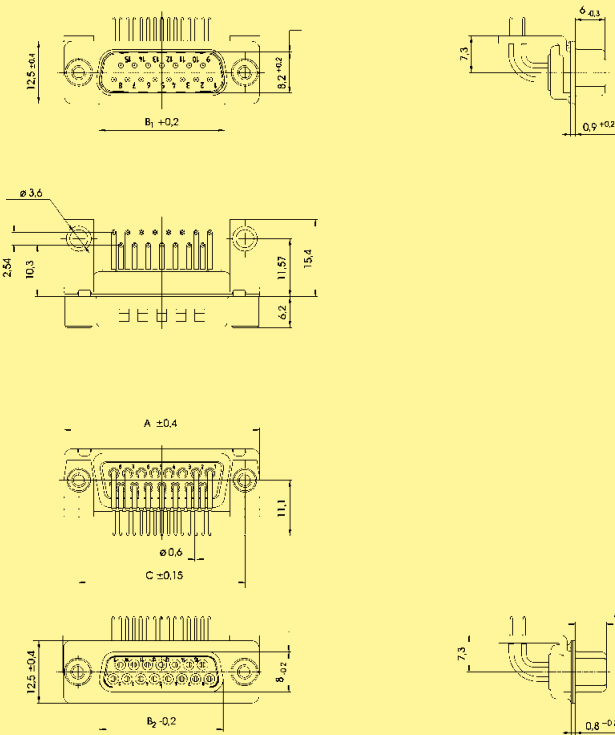
Turned solder pins, right angled, bracket and female screw

Identification

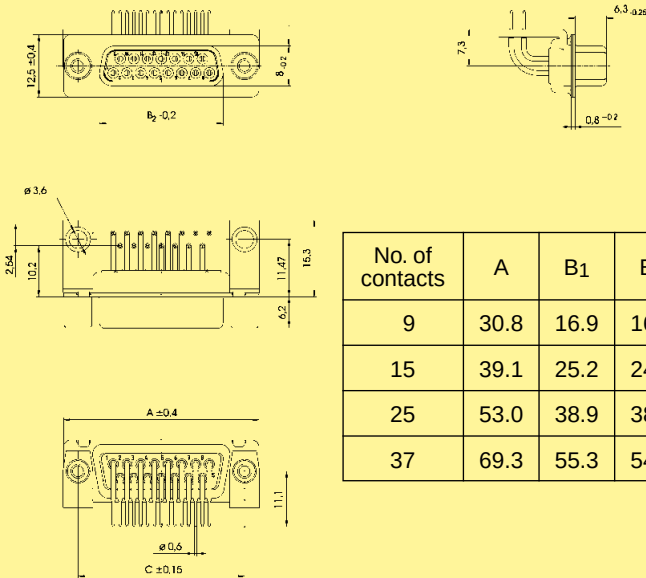
Drawing

Dimensions in mm

Male connector

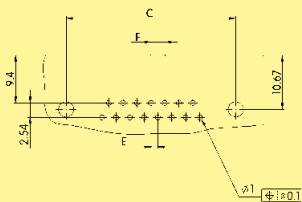


Female connector



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

Board drillings



Number of contacts

9–37



Solder buckets, through hole

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

Number of contacts

9–37



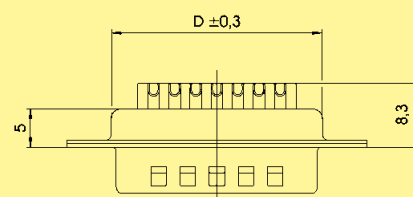
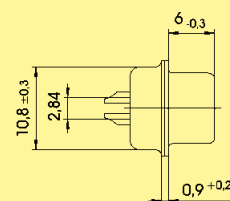
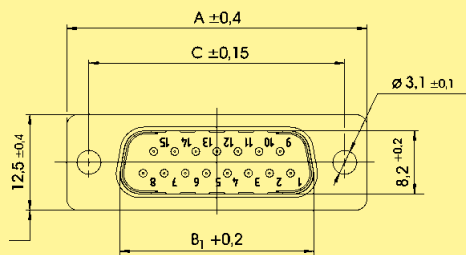
Solder buckets, through hole

Identification

Drawing

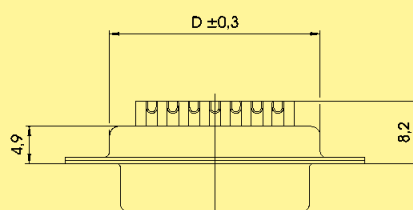
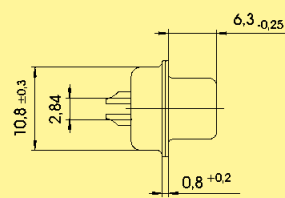
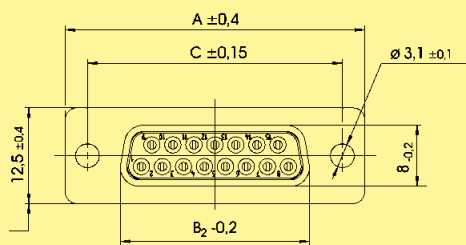
Dimensions in mm

Male connector



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

Female connector



Number of contacts

9–37



Solder buckets, clinch nut

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

D-Sub

Number of contacts

9–37



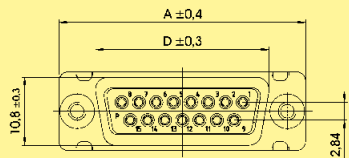
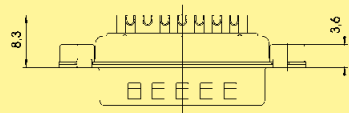
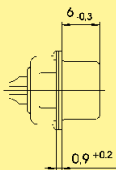
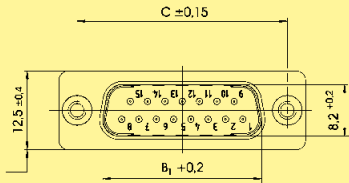
Solder buckets, clinch nut

Identification

Drawing

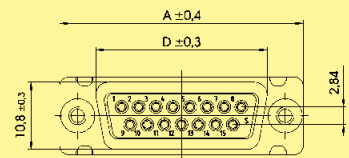
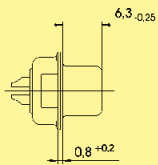
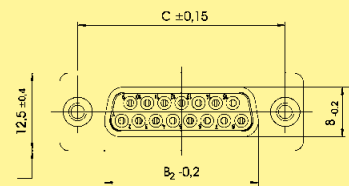
Dimensions in mm

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

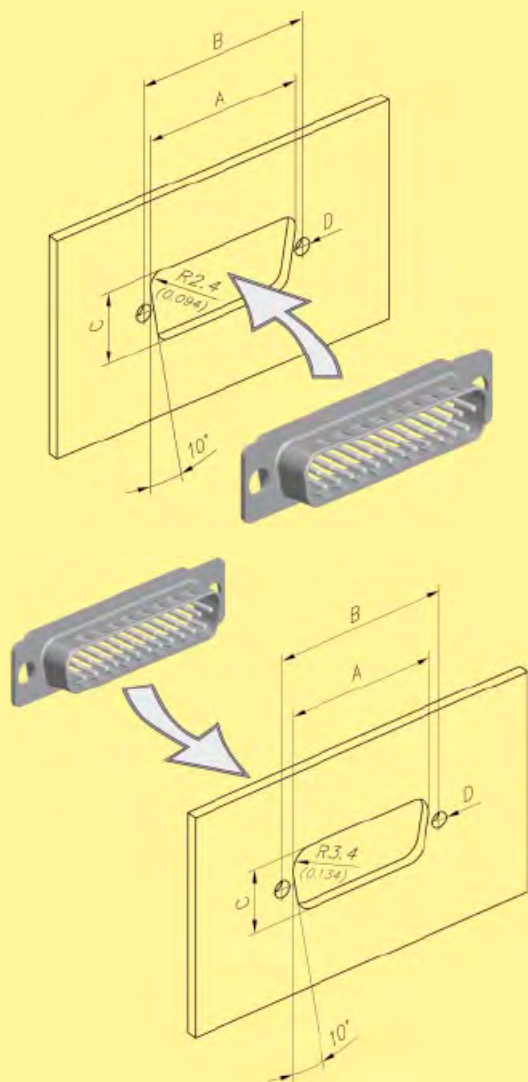
Female connector



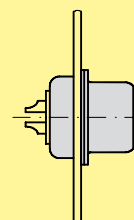
D-Sub

Panel cut outs / panel mountings

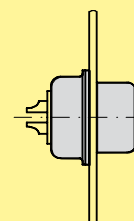
Panel cut outs



Front mounting

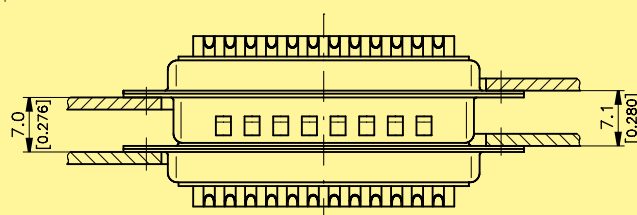
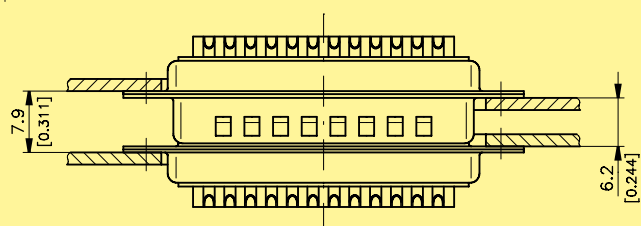


Rear mounting



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

Panel mountings



For float mounting option please contact your local HARTING representative.

Dimensions in mm

General information

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

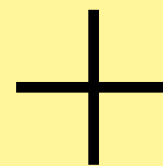
The biggest advantage of the HARTING technology is that multiple filter assemblies can be configured to create different filter designs: C, Pi, L and T types. Since any value of capacitor can be placed on any contact, a wide range of configurations can be built, it is even possible to have an individual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

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

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



or



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



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

General information

Filter possibilities

C filter:

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

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

Pi filter:

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

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

General information

Other protection possibilities

ESD protection

(Electro Static Discharge protection)

For equipment to comply with:

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

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

EMP protection

(Electro Magnetic Pulse protection)

For equipment to comply with:

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

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

Lightening protection

For equipment to comply with:

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

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

HARTING customer request form

Our innovative technology offers all the possibilities you may need.

For customer solutions, please contact your local HARTING representative.

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

Connector

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

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

Flange thread and board locking options

Right angled version

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

Straight version

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

HARTING customer request from

Filter

What working voltage is used? _____

What is the maximum dielectric withstanding voltage needed? _____

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

Capacitance _____

Are there other protections needed?

☐ No

☐ Yes

☐ ESD

☐ Transient

☐ EMP

☐ Lightening

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

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

Name: _____

Drawing: ☐ no ☐ yes

Company: _____

Samples: ☐ no ☐ yes, quantity

Address: _____

Volume (pcs./year): _____

Phone: _____

Special requirements: _____

Fax: _____

E-Mail: _____

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

Working current 5 A

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

Clearance and creepage ≥ 1.0 mm

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

Insulation resistance
between contacts ≥ 5000 M Ω

Dielectric strength 50 kV/mm

Temperature range -25 °C ... +70 °C

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

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

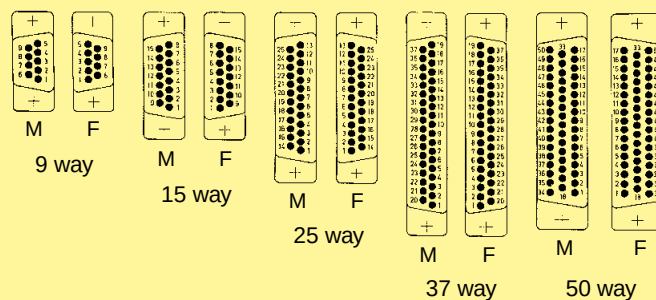
Material
Shell Brass, tin plated
Insulator and plastic watertight frame Thermoplastic, glass-fibre filled, UL 94-V0
Metal watertight frame Nickel plated zinc die cast
Contact material Machined copper alloy

Contact surface
Contact zone S4 = 0.76 μ m (30 μ inch) Au or PdNi equivalent

Waterproofing element Silicone

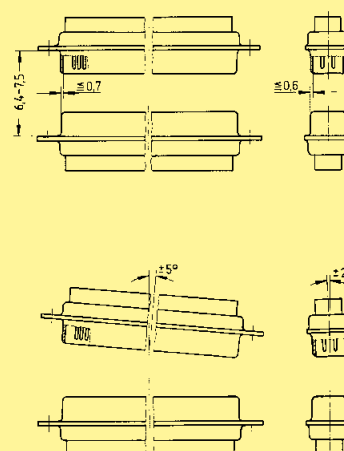
Mechanical
Mating cycles ≥ 500
Mating force per signal contact ≤ 3.4 N
Unmating force per signal contact ≥ 0.2 N

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 41 652



Number of contacts

9–50



IP 67, turned solder cups

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

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

Number of contacts

9–50



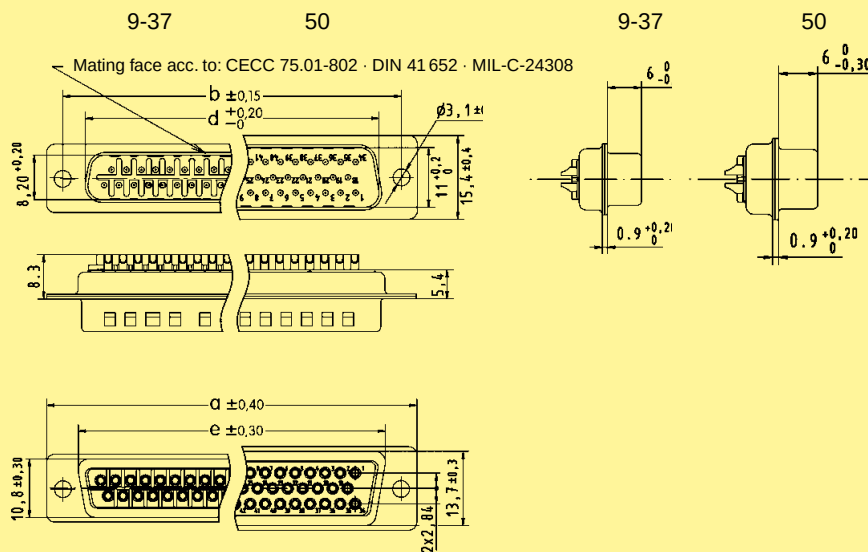
IP 67, turned solder cups

Identification

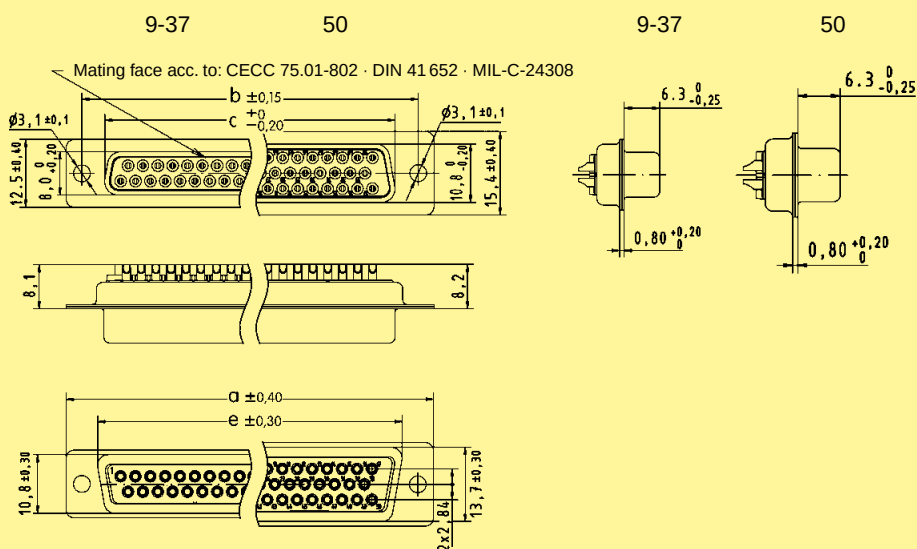
Drawing

Dimensions in mm

Male connector
9 – 50 contacts



Female connector
9 – 50 contacts

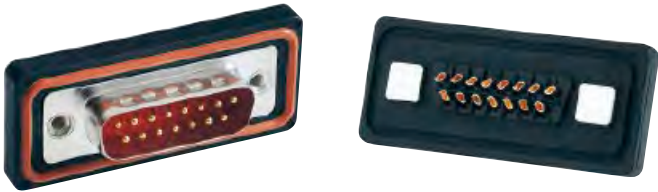


	a	b	c	d	e
9	30.8	25.00	16.4	16.9	19.3
15	39.1	33.30	24.7	25.2	27.5
25	53.0	47.04	38.5	38.9	41.3
37	69.3	63.50	54.9	55.3	57.7
50	66.9	61.10	52.5	52.8	55.3

D-Sub

Number of contacts

9–25



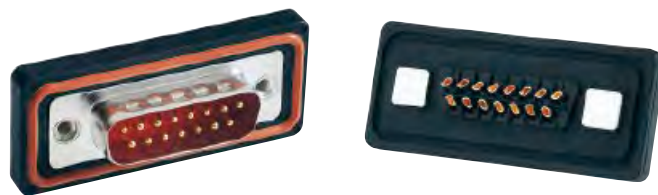
IP 67, turned solder cups, with rear plastic mounting plate

Identification		No. of contacts	Part No.	
D-Sub			S4 ¹⁾	
	Male connector metal shell with dimples	9 15 25	09 67 509 09 67 515 09 67 525	615 615 615
	Please insert digit for flange thread	4-40 UNC ▶ 7 M3 ▶ 9		
	Female connector metal shell	9 15 25	09 67 509 09 67 515 09 67 525	715 715 715
	Please insert digit for flange thread	4-40 UNC ▶ 6 M3 ▶ 8		

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

Number of contacts

9–25



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

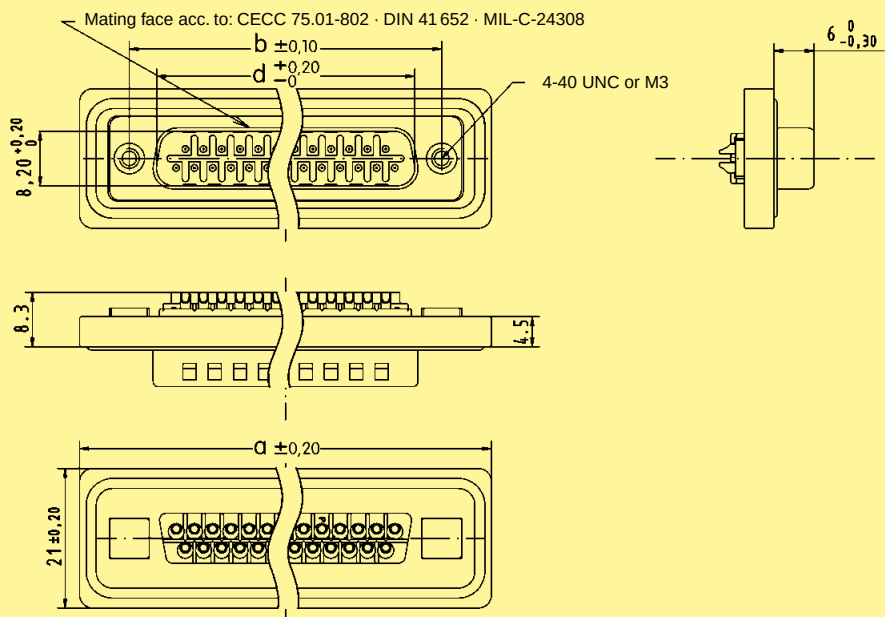
Identification

Drawing

Dimensions in mm

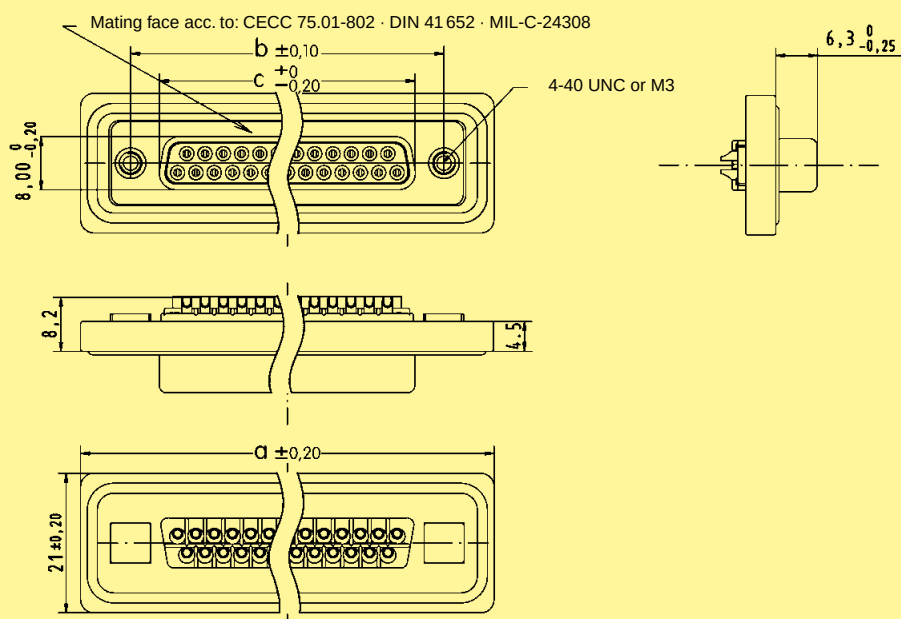
Male connector

9 – 25 contacts



Female connector

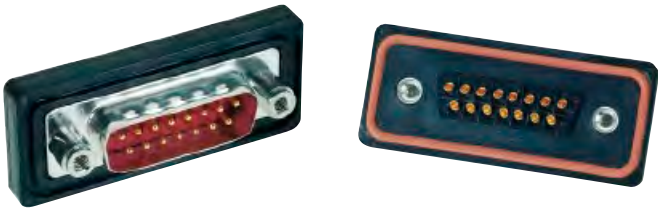
9 – 25 contacts



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

Number of contacts

9–25



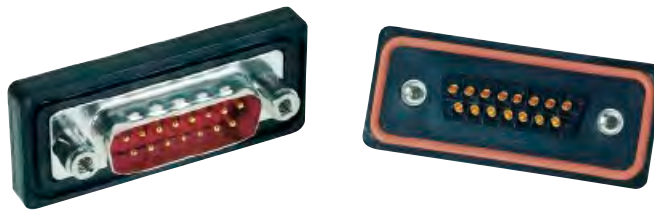
IP 67, turned solder cups, with front plastic mounting plate

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

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

Number of contacts

9–25



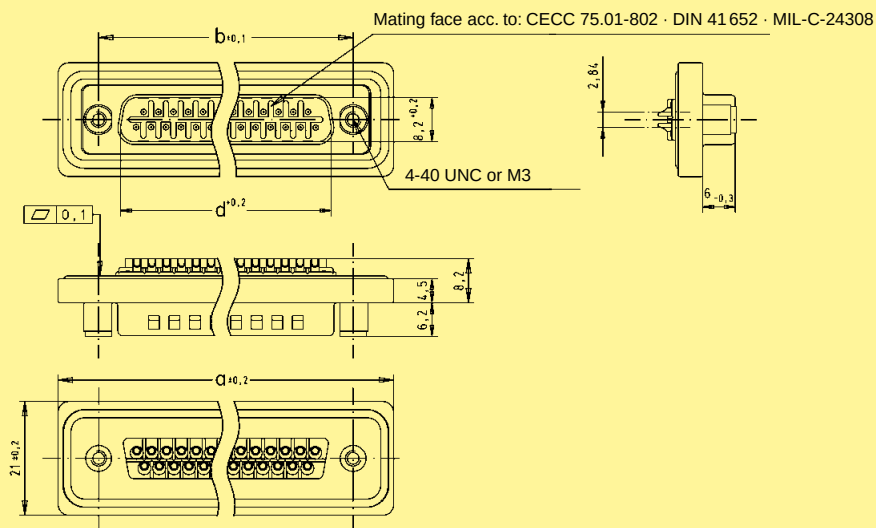
IP 67, turned solder cups, with front plastic mounting plate

Identification

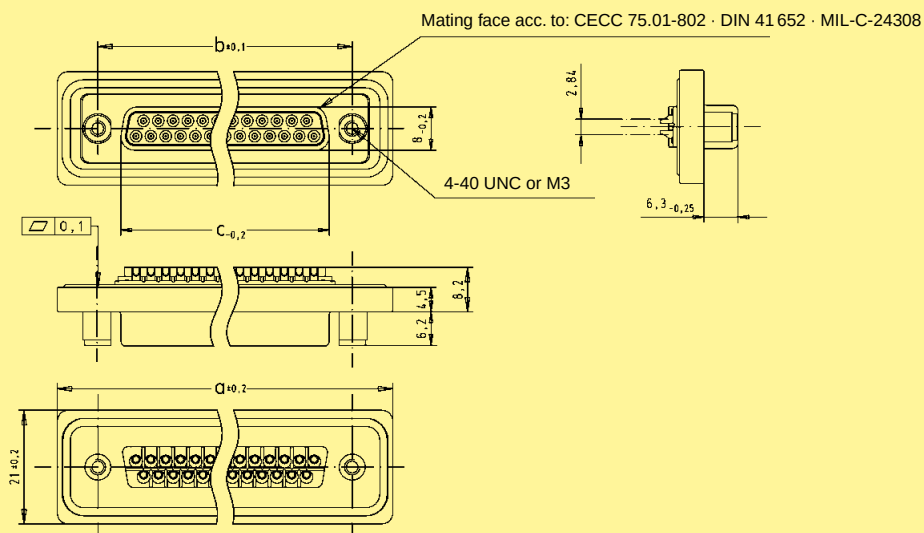
Drawing

Dimensions in mm

Male connector
9 – 25 contacts



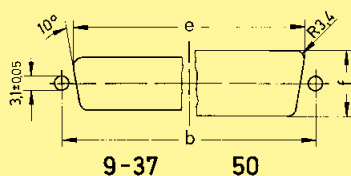
Female connector
9 – 25 contacts



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

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802



Front mount

	b ± 0.13	e ± 0.2	f ± 0.2
9	25.0	22.2	12.3
15	33.3	30.5	12.3
25	47.0	44.3	12.3

Rear mount

	b ± 0.13	e ± 0.2	f ± 0.2
9	25.0	20.5	11.4
15	33.3	28.8	11.4
25	47.0	42.5	11.4

Number of contacts

9–50



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

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

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

Number of contacts

9–50



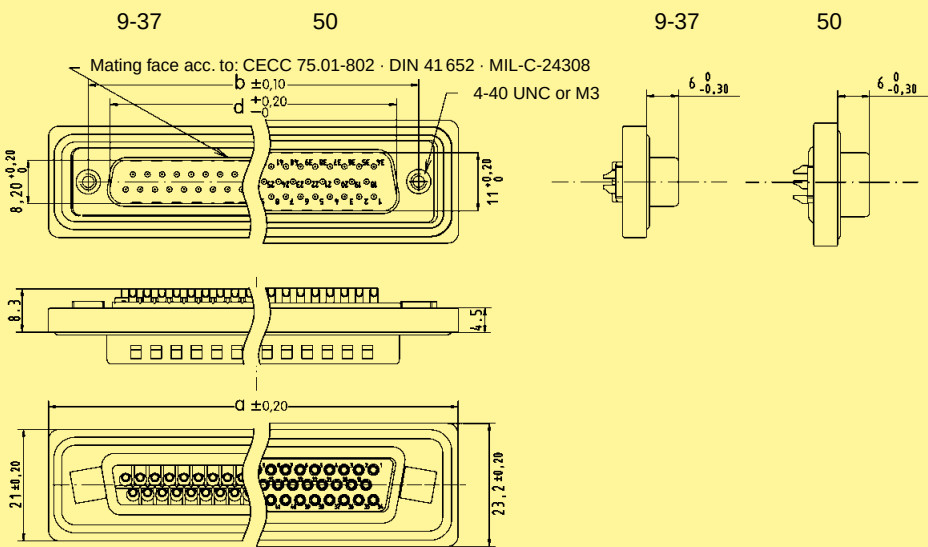
IP 67, turned solder cups, with rear metal mounting plate

Identification

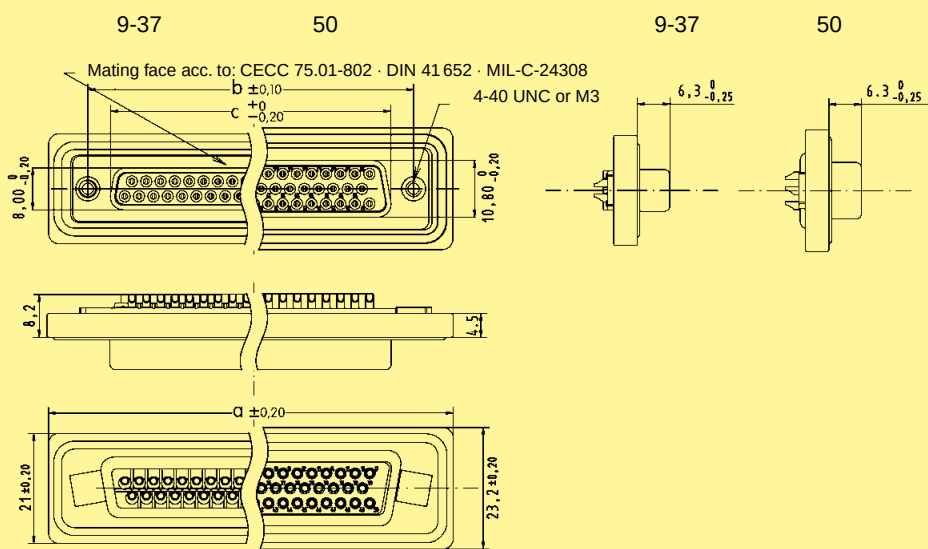
Drawing

Dimensions in mm

Male connector
9 – 50 contacts



Female connector
9 – 50 contacts



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

D-Sub

Number of contacts

9–50



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

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

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

Number of contacts

9–50



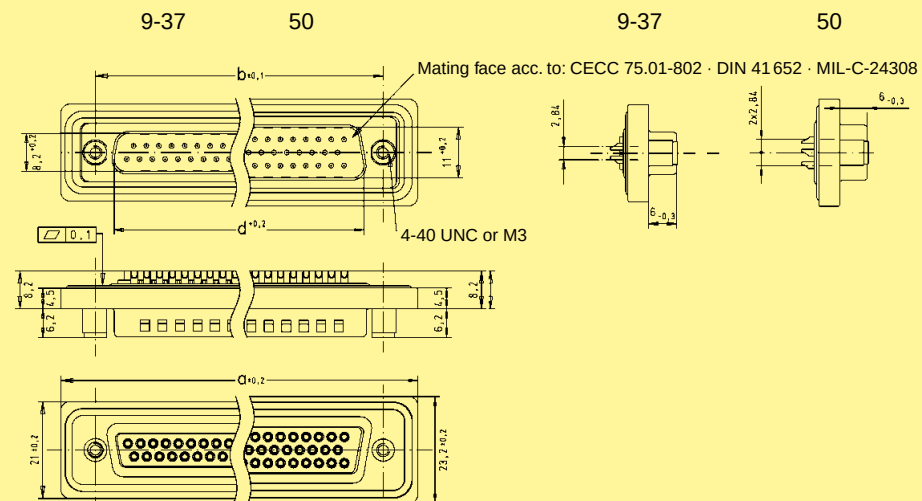
IP 67, turned solder cups, with front metal mounting plate

Identification

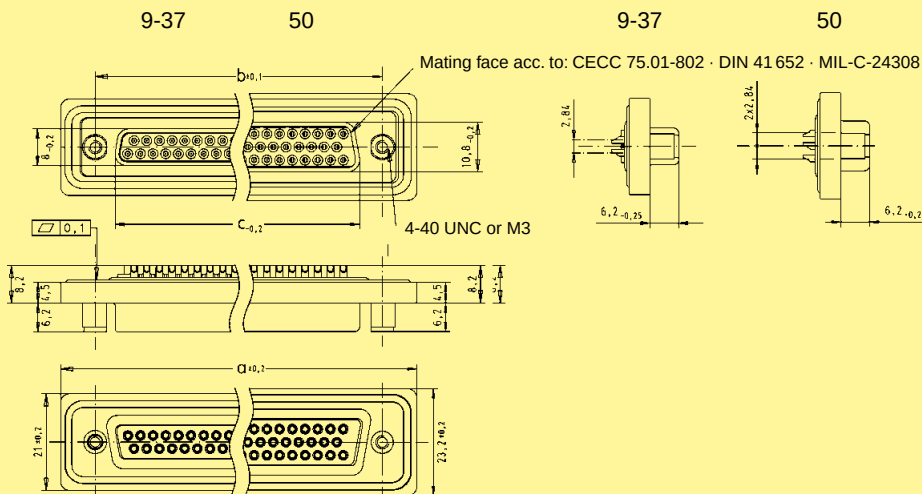
Drawing

Dimensions in mm

Male connector
9 – 50 contacts



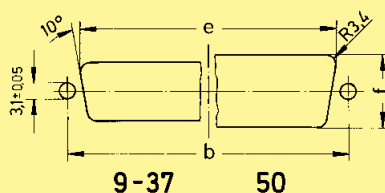
Female connector
9 – 50 contacts



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

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802



Front mount

	b _{±0.13}	e _{±0.2}	f _{±0.2}
9	25.0	22.2	12.3
15	33.3	30.5	12.3
25	47.0	44.3	12.3
37	63.5	60.7	12.3
50	61.1	58.3	15.1

Rear mount

	b _{±0.13}	e _{±0.2}	f _{±0.2}
9	25.0	20.5	11.4
15	33.3	28.8	11.4
25	47.0	42.5	11.4
37	63.5	59.1	11.4
50	61.1	56.3	14.1

D-Sub

Number of contacts

9–25



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

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

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

Number of contacts

9–25



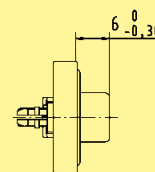
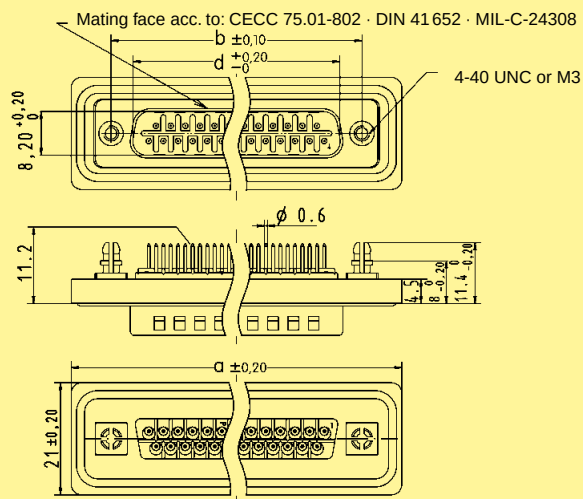
IP 67, straight turned solder pins,
with rear plastic mounting plate, spacer and board lock

Identification

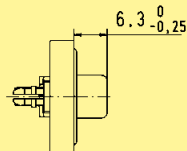
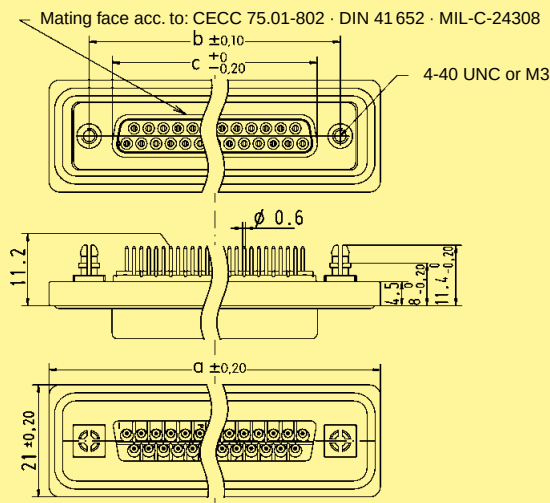
Drawing

Dimensions in mm

Male connector
9 – 25 contacts

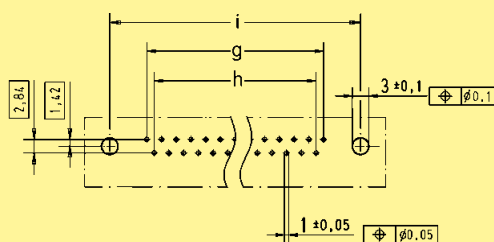


Female connector
9 – 25 contacts



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

Board drillings



Number of contacts

9–50



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

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

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

D-Sub

Number of contacts

9–50

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



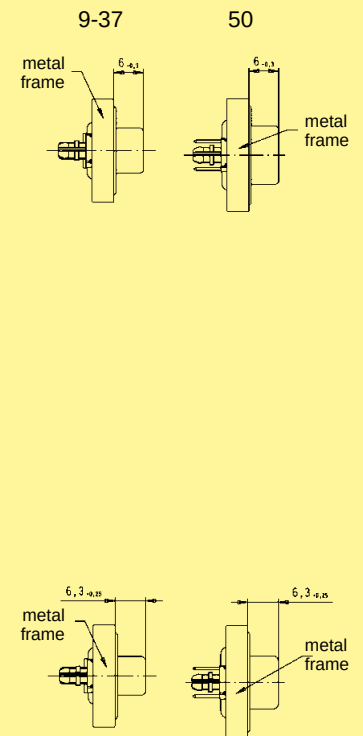
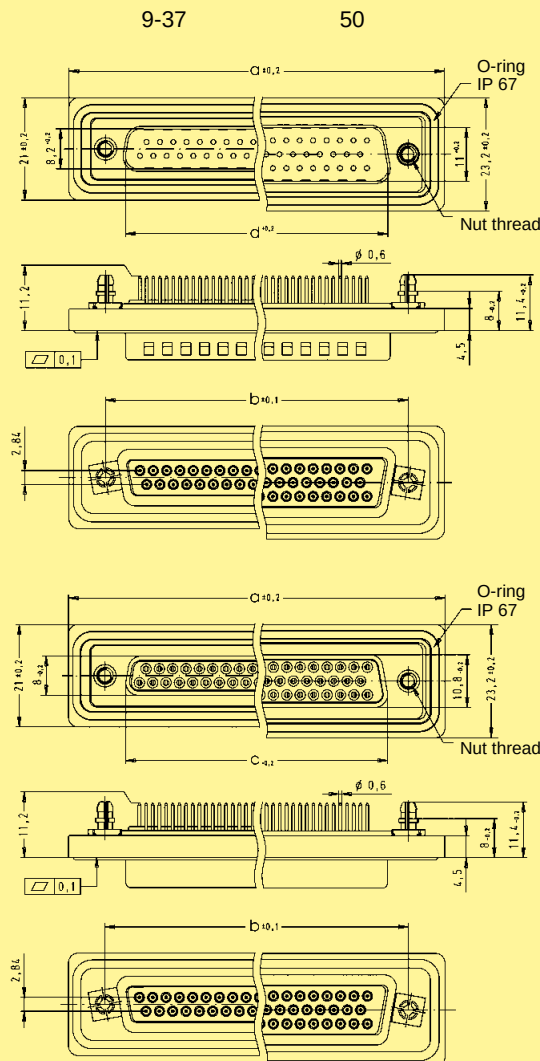
Identification

Male connector
9 – 50 contacts

Drawing

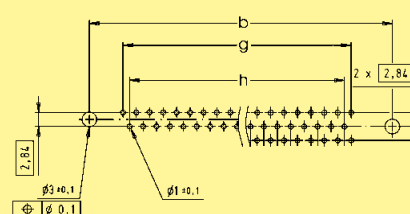
Dimensions in mm

Female connector
9 – 50 contacts



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

Board drillings



D-Sub

Number of contacts

9–25



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

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

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

D-Sub

Number of contacts

9–25

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

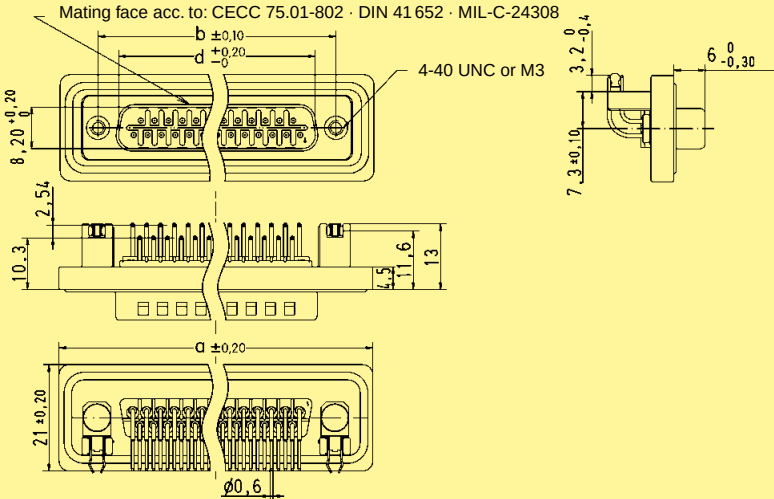


Identification

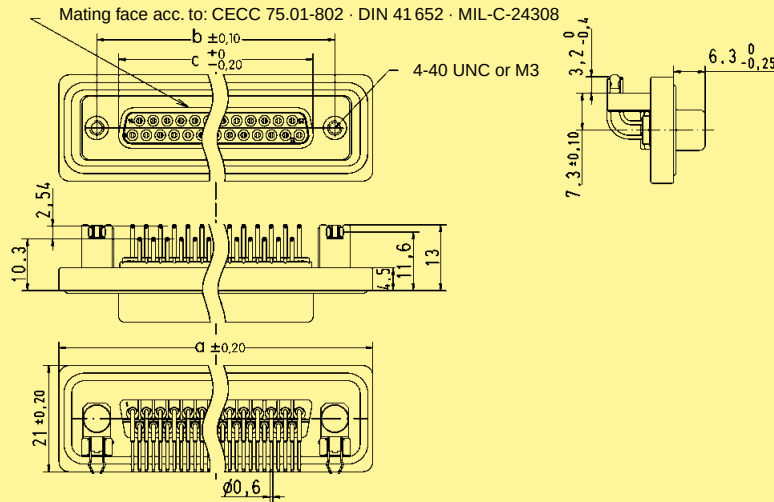
Male connector
9 – 25 contacts

Drawing

Dimensions in mm

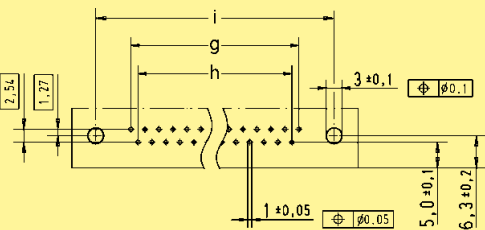


Female connector
9 – 25 contacts



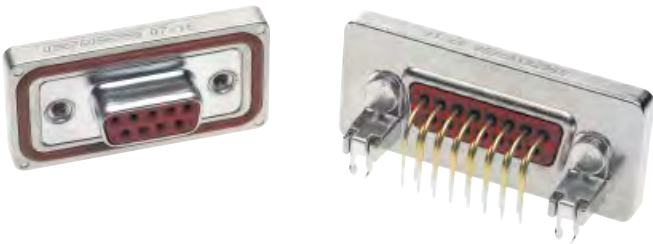
	a	b	c	d	g	h	i
9	40.0	25.00	16.4	16.9	4 x 2.74 = 10.96	3 x 2.74 = 8.22	25.0
15	48.3	33.30	24.7	25.2	7 x 2.74 = 19.18	6 x 2.74 = 16.44	33.3
25	62.0	47.04	38.5	38.9	12 x 2.76 = 33.12	11 x 2.76 = 30.36	47.0

Board drillings



Number of contacts

9–50



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

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

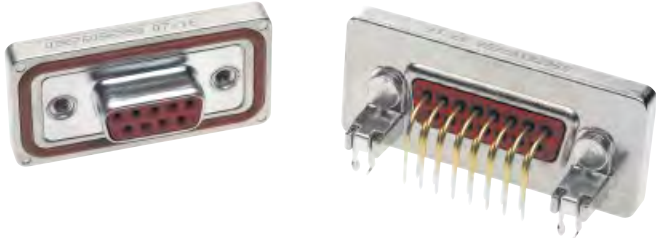
¹⁾ S4 = 0.76 µm (30 µinch) Au or PdNi equivalent

D-Sub

Number of contacts

9–50

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



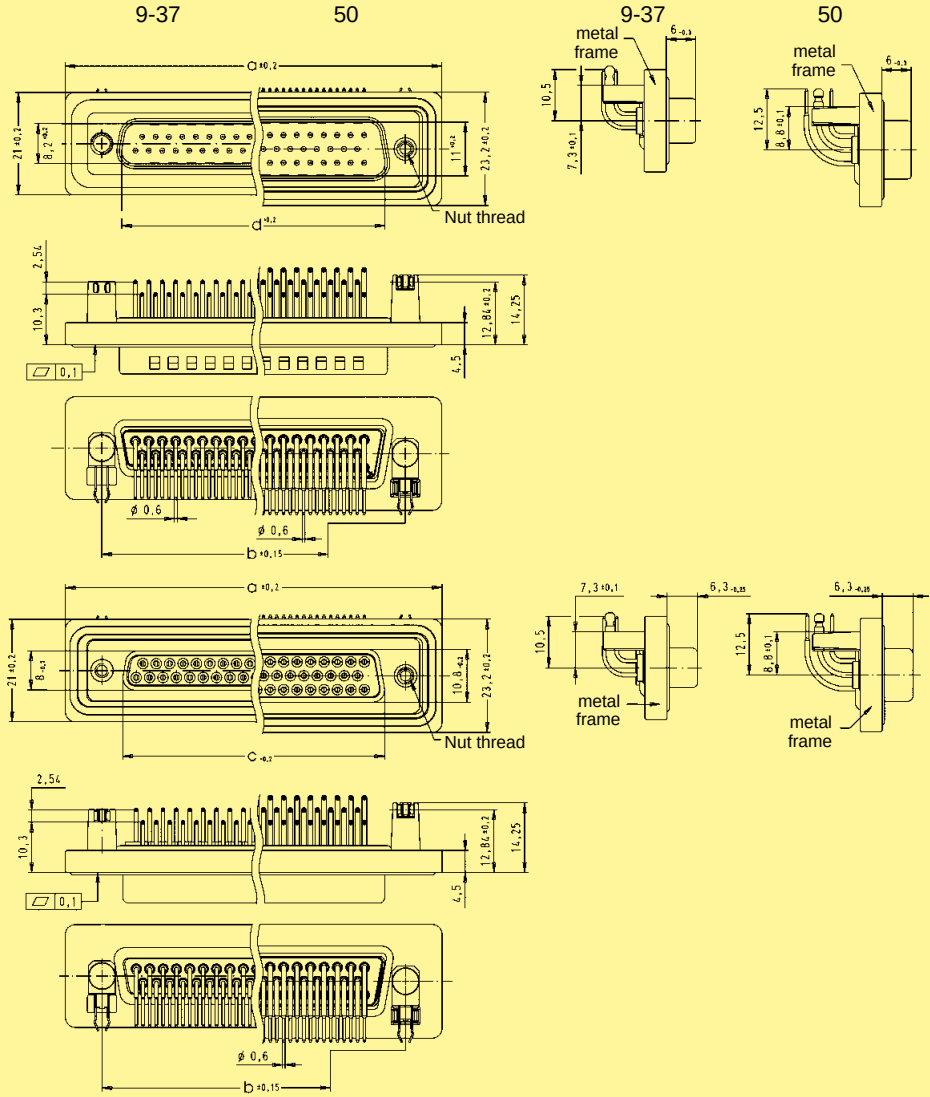
Identification

Male connector
9 – 50 contacts

Drawing

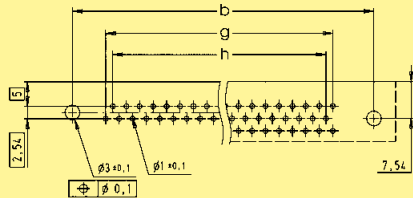
Dimensions in mm

Female connector
9 – 50 contacts

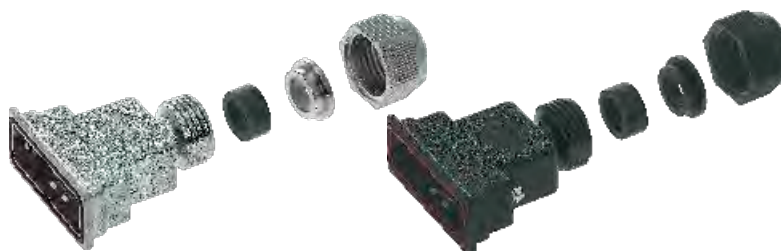


	a	b	c	d	g	h
9	40.0	25.00	16.4	16.9	4 x $2.74 = 10.96$	3 x $2.74 = 8.22$
15	48.3	33.30	24.7	25.2	7 x $2.74 = 19.18$	6 x $2.74 = 16.44$
25	62.0	47.04	38.5	38.9	12 x $2.76 = 33.12$	11 x $2.76 = 30.36$
37	78.5	63.50	54.9	55.3	18 x $2.76 = 49.68$	17 x $2.76 = 46.92$
50	76.1	61.10	52.5	52.8	16 x $2.76 = 44.16$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

Board drillings



D-Sub



IP 67 plastic hoods

IP 67 metallized plastic hoods

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

Hood¹⁾

Black thermoplastic

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

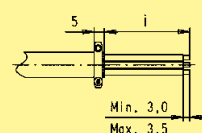
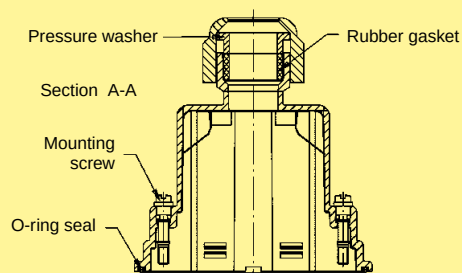
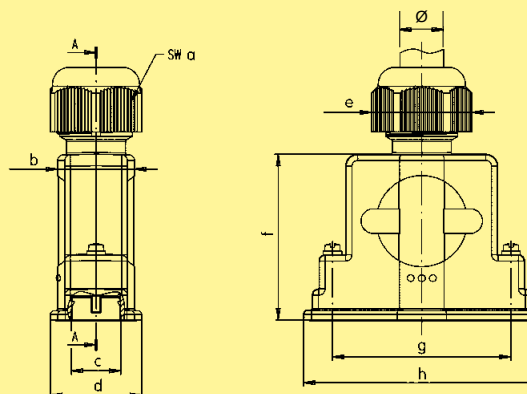
Metallized thermoplastic

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

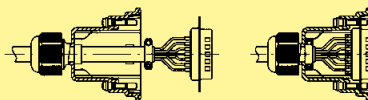
Please insert digit for screw option

Locking screw, thread 4-40 UNC ▶ 8

Locking screw, thread M3 ▶ 9



Stripping dimensions



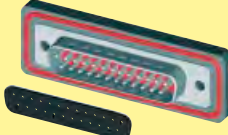
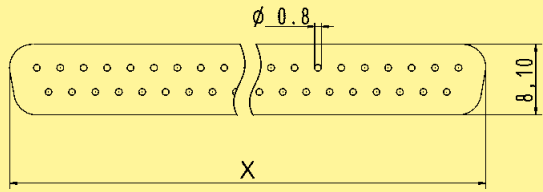
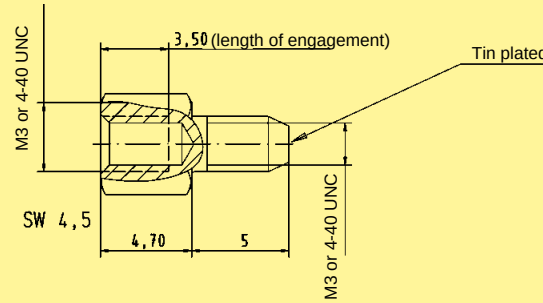
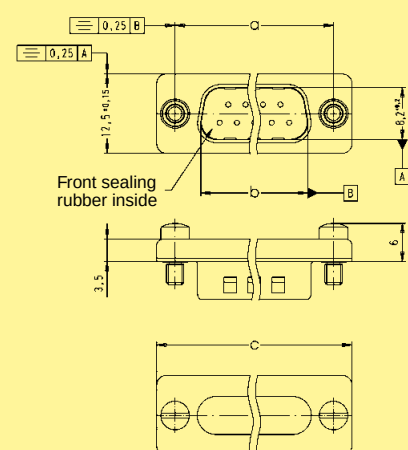
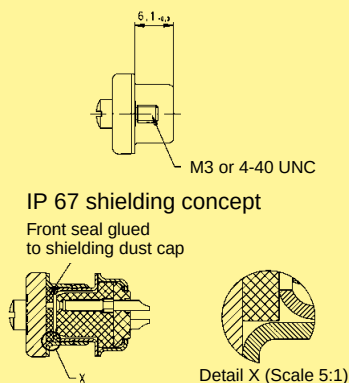
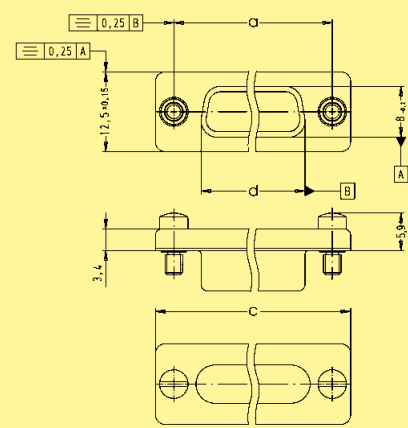
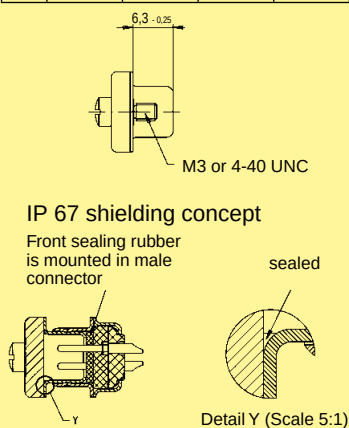
Mounting instructions:

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

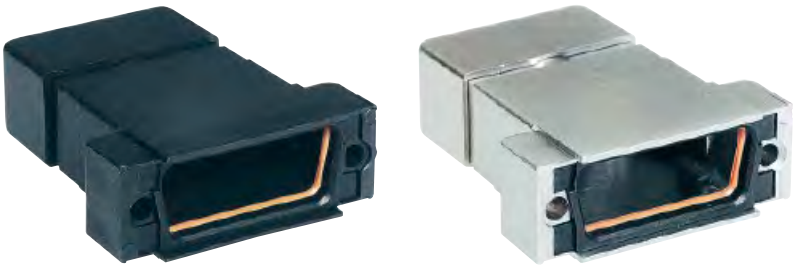
	a	b	c	d	e	f	g	h	i	Ø	
										min.	max.
9	20	16.5	13.0	20.2	22.1	36.4	25.0	39.8	18.0	6.0	8.0
15	24	16.5	13.0	20.2	26.6	36.4	33.3	48.5	18.0	6.0	10.5
25	24	20.3	13.0	24.0	26.6	43.6	47.0	62.3	45.0	8.0	12.0
37	24	20.3	13.0	24.0	26.6	52.1	63.5	78.6	60.0	8.0	12.0
50	29	22.0	16.0	27.6	32.1	52.1	61.1	75.7	60.0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

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

Accessories for IP 67 connectors

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																				
Front sealing rubber¹⁾ IP 67  Mounting example 	9 15 25	09 67 002 9001 09 67 002 9002 09 67 002 9003		<table><tr><th></th><th>X</th></tr><tr><td>9</td><td>16.7</td></tr><tr><td>15</td><td>24.8</td></tr><tr><td>25</td><td>38.8</td></tr></table>		X	9	16.7	15	24.8	25	38.8												
	X																							
9	16.7																							
15	24.8																							
25	38.8																							
Female screw lock and spacing washer²⁾ M3  4-40 UNC 2) Order 2 for each connector		09 67 002 9006 09 67 002 9007																						
Dust cap for female connectors³⁾ M3  4-40 UNC 3) With inside glued front sealing rubber	9 15 25 9 15 25	09 67 002 9055 09 67 002 9056 09 67 002 9057 09 67 002 9050 09 67 002 9051 09 67 002 9052		IP 67 shielding concept Front seal glued to shielding dust cap  Detail X (Scale 5:1) <table><tr><th></th><th>a</th><th>b</th><th>c</th><th>d</th></tr><tr><td>9</td><td>25.00</td><td>16.9</td><td>30.8</td><td>16.4</td></tr><tr><td>15</td><td>33.30</td><td>25.2</td><td>39.1</td><td>24.7</td></tr><tr><td>25</td><td>47.04</td><td>38.9</td><td>53.0</td><td>38.5</td></tr></table>		a	b	c	d	9	25.00	16.9	30.8	16.4	15	33.30	25.2	39.1	24.7	25	47.04	38.9	53.0	38.5
	a	b	c	d																				
9	25.00	16.9	30.8	16.4																				
15	33.30	25.2	39.1	24.7																				
25	47.04	38.9	53.0	38.5																				
Dust cap for male connectors⁴⁾ M3  4-40 UNC 4) Order separately the front sealing rubber for an IP 67 performance	9 15 25 9 15 25	09 67 002 9065 09 67 002 9066 09 67 002 9067 09 67 002 9060 09 67 002 9061 09 67 002 9062		IP 67 shielding concept Front sealing rubber is mounted in male connector  Detail Y (Scale 5:1)																				

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

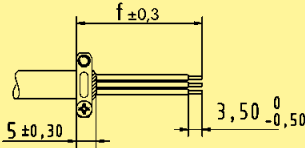
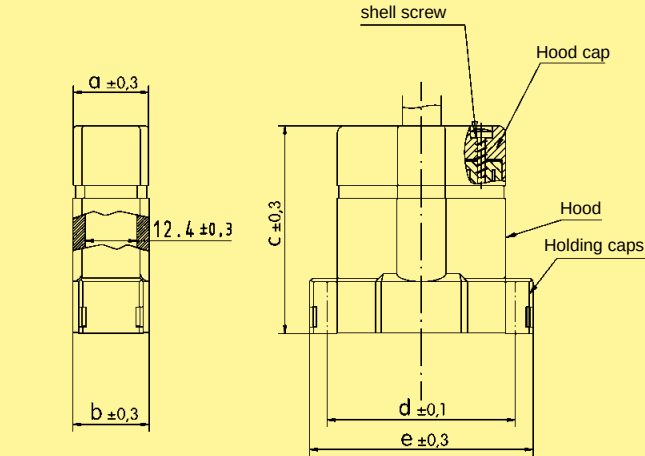


IP 67 plastic hoods
IP 67 metallized plastic hoods

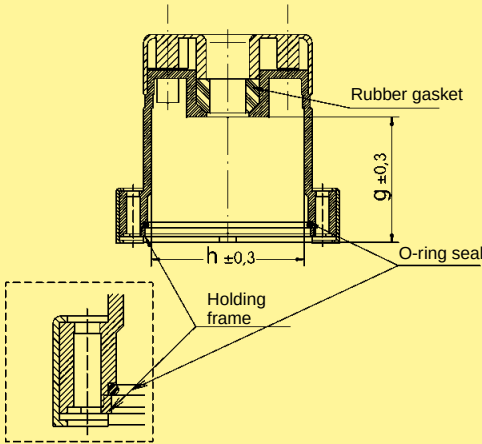
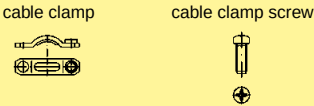
D-Sub

Identification	No. of contacts	Part No.
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

Dimensions in mm

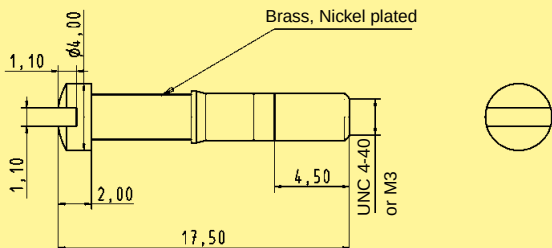
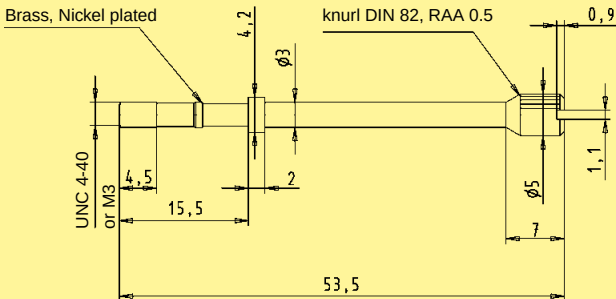
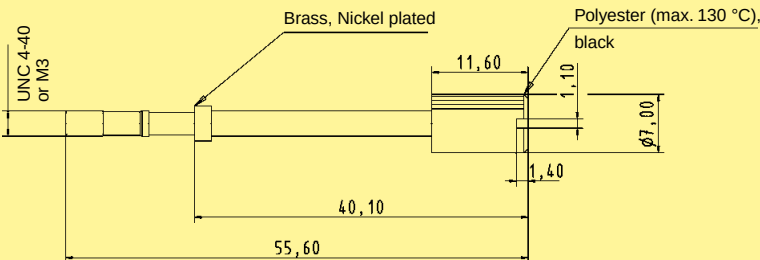


Mounting instructions
The stripped braid should not be fold back to avoid damaging the cable clamp and reducing its performance.



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

Accessories for IP 67 hoods

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

HARTING – Guarantee a secure connection

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

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

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

Only 2 examples are shown:

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

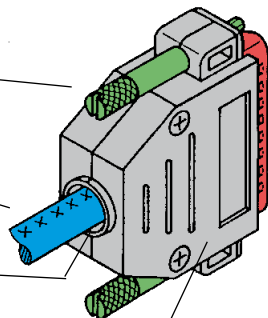
Male connector with dimples

Screw lock

Cable with protective screen

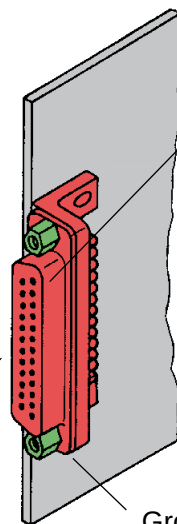
Strain relief

Metallized hood



Female connector with protective metal shell

Grounding contact between protective metal shell and PCB



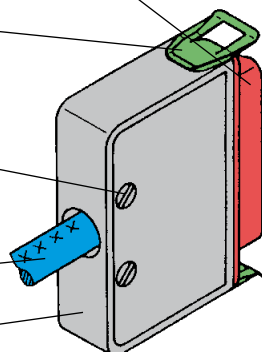
Female connector with protective metal shell

Spring latch

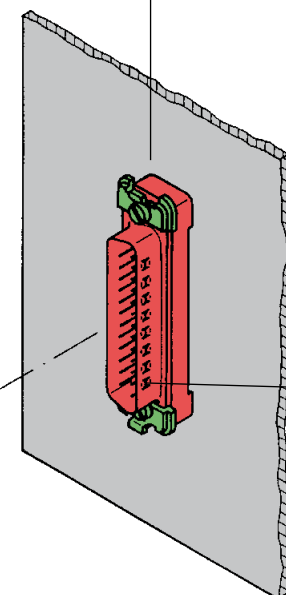
Strain relief

Cable with protective screen

Metallized hood



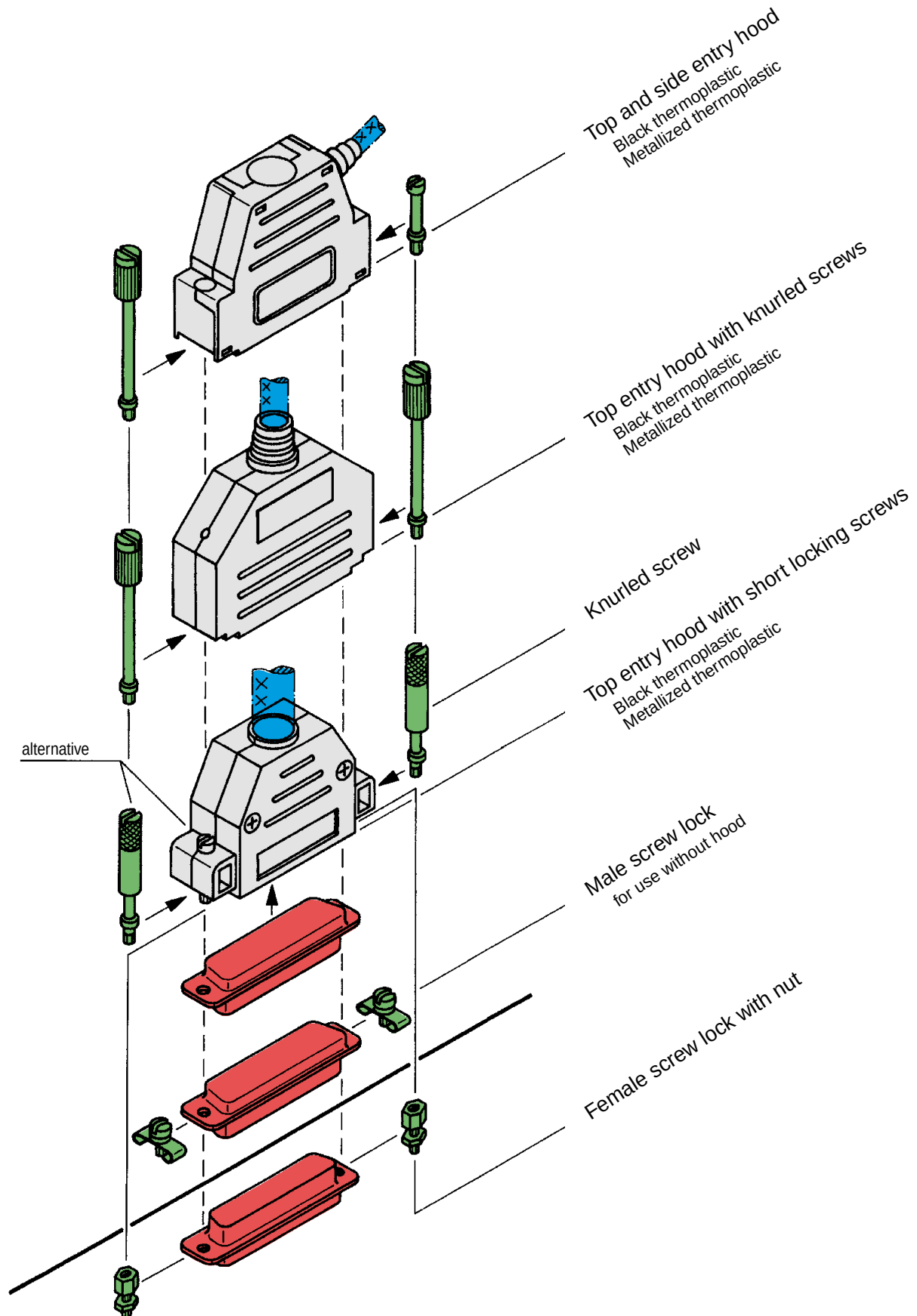
Male connector with dimples



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

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

Connector hoods for screw locking



Top and side entry hoods with knurled screws



D-Sub

Identification

No. of contacts

Part No.

Drawing

Dimensions in mm

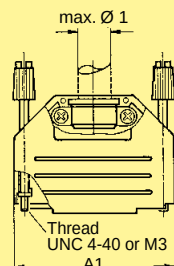
Top entry hood Black thermoplastic

Please insert digit for screw option

Knurled screw, thread 4-40 UNC ▶ 4
Knurled screw, thread M3 ▶ 6

9
15
25
37
50

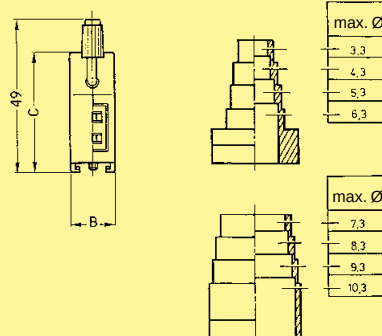
09 67 009 042
09 67 015 042
09 67 025 042
09 67 037 042
09 67 050 042



	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	

C1: non-metallized

C2: metallized



Cut appropriate cable entry to fit actual cable diameter

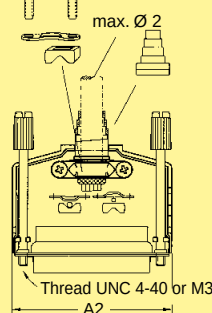
Top entry hood Metallized thermoplastic

Please insert digit for screw option

Knurled screw, thread 4-40 UNC ▶ 5
Knurled screw, thread M3 ▶ 7

9
15
25
37

09 67 009 042
09 67 015 042
09 67 025 042
09 67 037 042



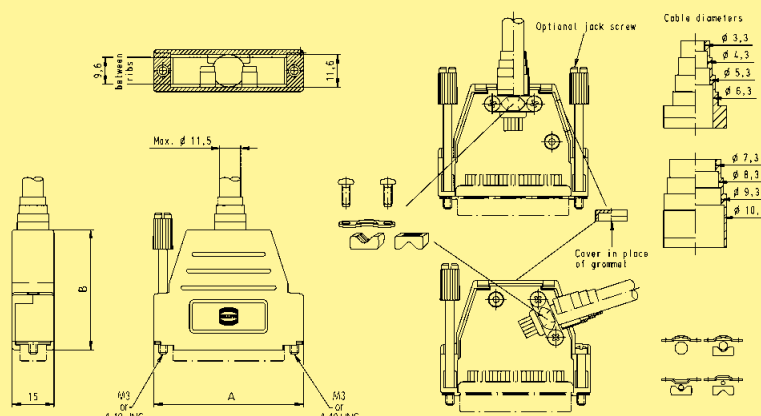
Top and side entry hood Black thermoplastic

Please insert digit for screw option

Knurled screw, thread 4-40 UNC ▶ 4
Knurled screw, thread M3 ▶ 0

9³⁾
15
25
37¹⁾

09 67 009 043
09 67 015 043
09 67 025 043
09 67 037 043



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

Top and side entry hood Metallized thermoplastic

Please insert digit for screw option

Knurled screw, thread 4-40 UNC ▶ 5
Knurled screw, thread M3 ▶ 1

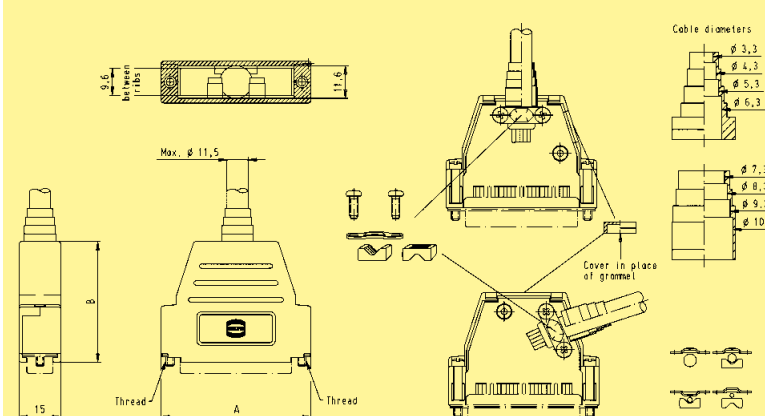
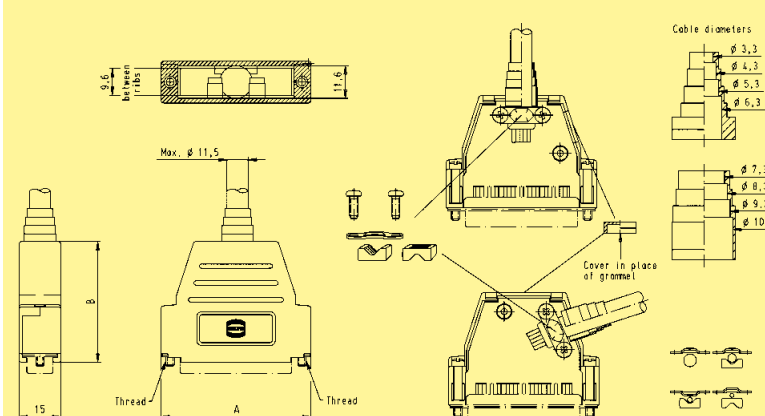
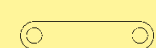
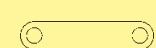
9³⁾
15
25²⁾
37¹⁾

09 67 009 043
09 67 015 043
09 67 025 043
09 67 037 043

- 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 No. 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 No.	Drawing	Dimensions in mm															
Top and side entry hood Black thermoplastic	9 ¹⁾ 15 25 37	09 67 009 046 . 09 67 015 046 . 09 67 025 046 . 09 67 037 046 .	 <table><tr><td></td><td>A</td><td>B</td></tr><tr><td>9</td><td>31.5</td><td>40</td></tr><tr><td>15</td><td>40.0</td><td>40</td></tr><tr><td>25</td><td>53.5</td><td>43</td></tr><tr><td>37</td><td>71.3</td><td>40</td></tr></table>		A	B	9	31.5	40	15	40.0	40	25	53.5	43	37	71.3	40	
	A	B																	
9	31.5	40																	
15	40.0	40																	
25	53.5	43																	
37	71.3	40																	
Please insert digit for screw option																			
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><tr><td></td><td>A</td><td>B</td></tr><tr><td>9</td><td>31.5</td><td>40</td></tr><tr><td>15</td><td>40.0</td><td>40</td></tr><tr><td>25</td><td>53.5</td><td>43</td></tr><tr><td>37</td><td>71.3</td><td>40</td></tr></table>		A	B	9	31.5	40	15	40.0	40	25	53.5	43	37	71.3	40	
	A	B																	
9	31.5	40																	
15	40.0	40																	
25	53.5	43																	
37	71.3	40																	
Please insert digit for screw option																			
Short screw, thread 4-40 UNC ▶ 5																			
Short screw, thread M3 ▶ 4																			
Spares																			
Knurled screw, thread 4-40 UNC	9-25	09 67 002 9081																	
Insert for metallized hoods	9-15 25-37	09 67 002 9103 09 67 002 9105																	
Cable clamp	9-15 25-37	09 67 002 9104 09 67 002 9106																	
Cable clamp screw	9-37	09 67 002 9102																	
Grommet for black thermoplastic hood		09 67 001 9968																	
for metallized hood		09 67 002 9075																	

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



Side entry hoods with knurled screws

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

D-Sub

Hood¹⁾grey thermoplastic
RAL 7032

No. of contacts	Part No.
9	09 67 009 0571
15	09 67 015 0571
25	09 67 025 0571
37	09 67 037 0571
50	09 67 050 0571

grey thermoplastic
with internal
tin-plate screening

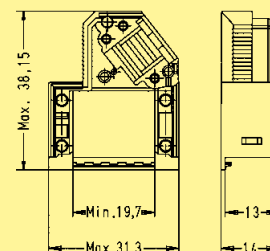
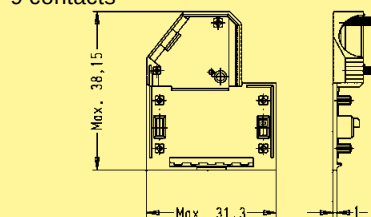
No. of contacts	Part No.
9	09 67 009 0573
15	09 67 015 0573
25	09 67 025 0573
37	09 67 037 0573
50	09 67 050 0573

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

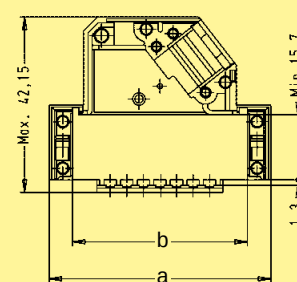
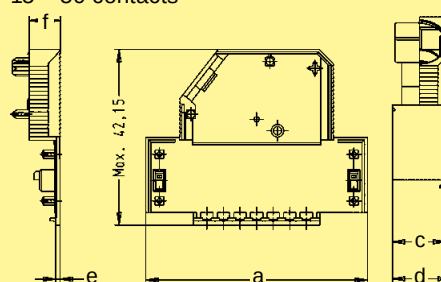
Upper hood part

Lower hood part

9 contacts



15 – 50 contacts



	a max.	b min.	c	d	e	f
15	39.62	28.40	13.00	14.00	1.00	7.50
25	53.52	42.20	13.00	14.00	1.00	7.50
37	69.80	58.65	13.00	14.00	1.00	7.50
50	67.41	56.18	16.00	17.50	1.50	9.50

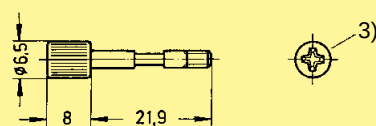
Knurled screw

Thread UNC
Thread M3

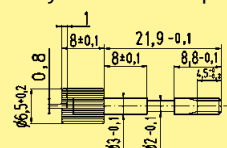
9-50

09 67 000 9971²⁾
09 67 001 9965*Thread UNC
Thread M3

9-50

09 67 001 9978
09 67 001 9977

Grey head / Nickel plated steel



Full metal part

Tooling

for assembly
of hoodsTop part
Bottom part09 99 000 0215*
09 99 000 0216*

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

* Not normally kept in stock

¹⁾ Order knurled screw separately²⁾ 9 way 1 per hood – 15-50 way 2 per hood



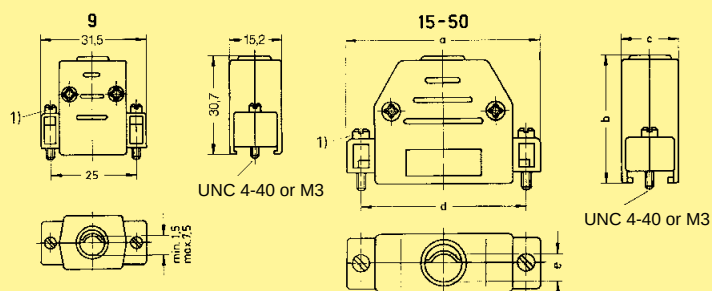
Top entry hoods with knurled or locking screws

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

Hood³⁾

Black thermoplastic
with short locking
screws

9	09 67 009 0442
15	09 67 015 0442
25	09 67 025 0442
37	09 67 037 0442
50	09 67 050 0442

Hood³⁾

Metallized thermo-
plastic with short
locking screws

9	09 67 009 04	3
15	09 67 015 04	3
25	09 67 025 04	3
37	09 67 037 04	3
50	09 67 050 04	3

Please insert digit for
screw option

Thread 4-40 UNC ▶ 4

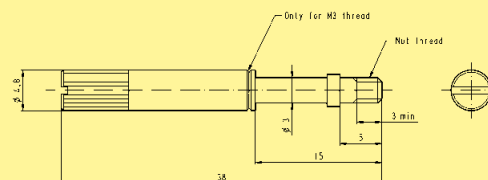
Thread M3 ▶ 2

	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	09 67 000 9925 ²⁾
9-50	09 67 000 9930 ²⁾



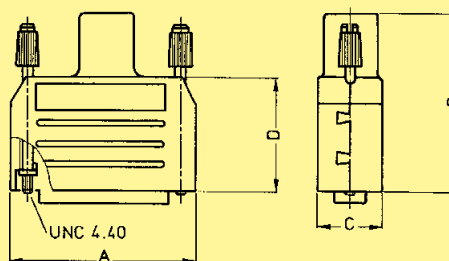
Screened hood

Order cover and
internal metal screen
separately

Cover⁴⁾

Black thermoplastic
with knurled screws

9	09 67 009 0422
15	09 67 015 0422
25	09 67 025 0422
37	09 67 037 0422

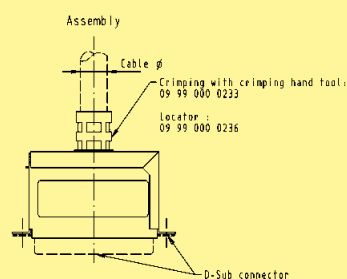


	A	B	C	D
9	35.0	54	19.1	34
15	43.0	54	19.1	34
25	57.5	54	19.1	34
37	74.0	54	19.1	34

Internal metal screen⁴⁾
metallized

9	09 67 009 0421
15	09 67 015 0421
25	09 67 025 0421
37	09 67 037 0421

(Crimp tool
see chapter 20)



	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



Full metal top and side entry hoods with knurled screws

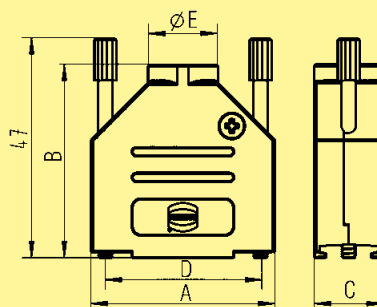
Identification No. of contacts Part No. Drawing Dimensions in mm

D-Sub

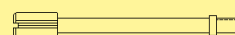
Top entry hood
incl. grommet set
halvesPlease insert digit for
screw optionKnurled screw,
thread
4-40 UNC ▶ 3Knurled screw,
thread M3 ▶ 8Spare knurled screw
thread 4-40 UNC
thread M3

No. of contacts Part No.

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

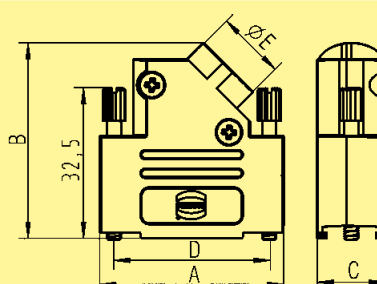


Poles	A	B	C	D	E
9	31.0	39.5	14.8	25.0	11.7
15	39.5	41.5	14.8	33.3	11.7
25	53.5	48.5	14.8	47.0	11.7
37	71.0	53.0	14.8	63.5	11.7
50	67.5	54.0	18.7	61.1	17.0

Side entry hood
incl. grommet set
halvesPlease insert digit for
screw optionKnurled screw,
thread
4-40 UNC ▶ 3Knurled screw,
thread M3 ▶ 6Spare knurled screw
thread 4-40 UNC
thread M3

No. of contacts Part No.

9 ¹⁾	09 67 009 033
15	09 67 015 033
25	09 67 025 033
37	09 67 037 033
50	09 67 050 033



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

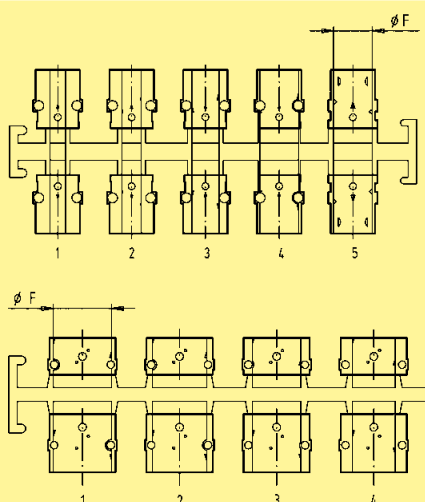
Spare grommet set
halves

9-37 poles

09 67 002 9092

50 poles

09 67 002 9094



Grommet dimensions		
Number	Diameter F	
	9-37 poles	50 poles
1	4.0	15.0
2	5.0	14.0
3	7.0	12.5
4	9.0	11.0
5	10.2	—

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



Full metal top and side entry hoods
with short screws

Identification

No. of
contacts

Part No.

Drawing

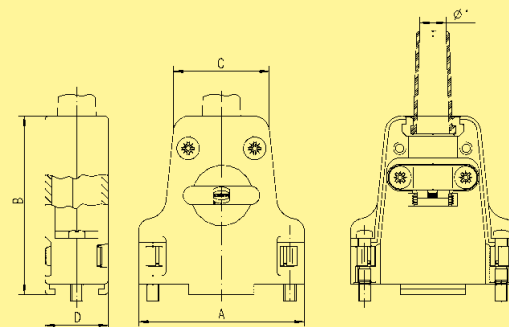
Dimensions in mm

Top entry hood

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

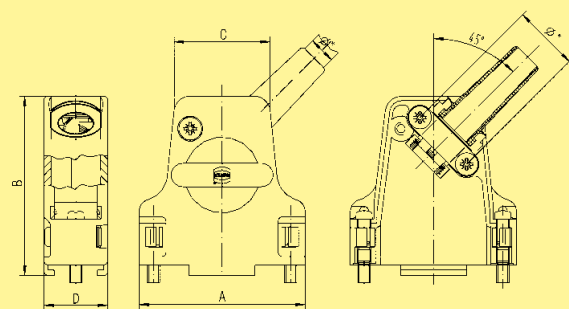
Please insert digit for screw option

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 entry hoods
with premounted threaded inserts

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

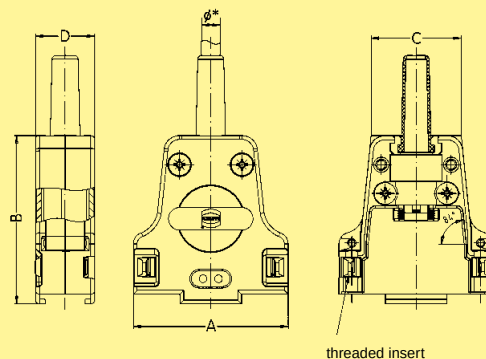
Top entry hood

Please insert digit
for premounted insert

thread 4-40 UNC ► 2

thread M3 ► 3

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



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

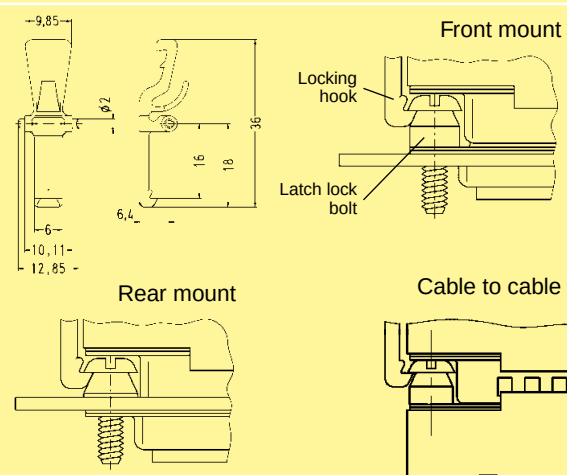
thread 4-40 UNC
thread M3

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⁾





Full metal top and side entry hoods
with different screw options

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

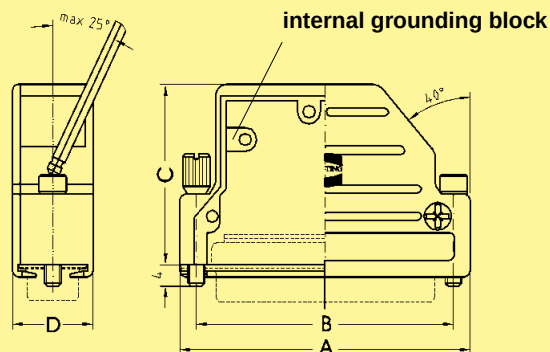
40° side entry hood

with internal grounding block

9	61 03 001	013
15	61 03 001	014
25	61 03 001	015

without internal grounding block

9	61 03 001	013 010
---	-----------	---------



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

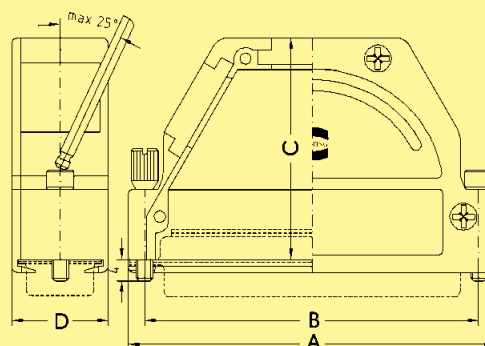
Top/side entry hood

with internal grounding block

9	61 03 001	010
15	61 03 001	016
25	61 03 001	017 ¹⁾
37	61 03 001	018 ¹⁾
50	61 03 001	019 ¹⁾

without internal grounding block

9	61 03 001	010 010
---	-----------	---------



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

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

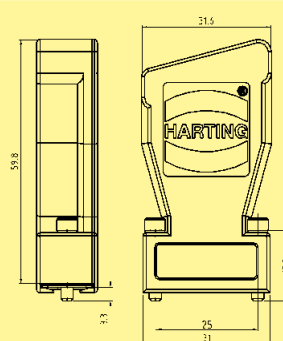
Top entry hood for InduCom 9

Hexagonal screw, thread 4-40 UNC

9	66 67 009 0346
---	----------------

Hexagonal screw, thread M3

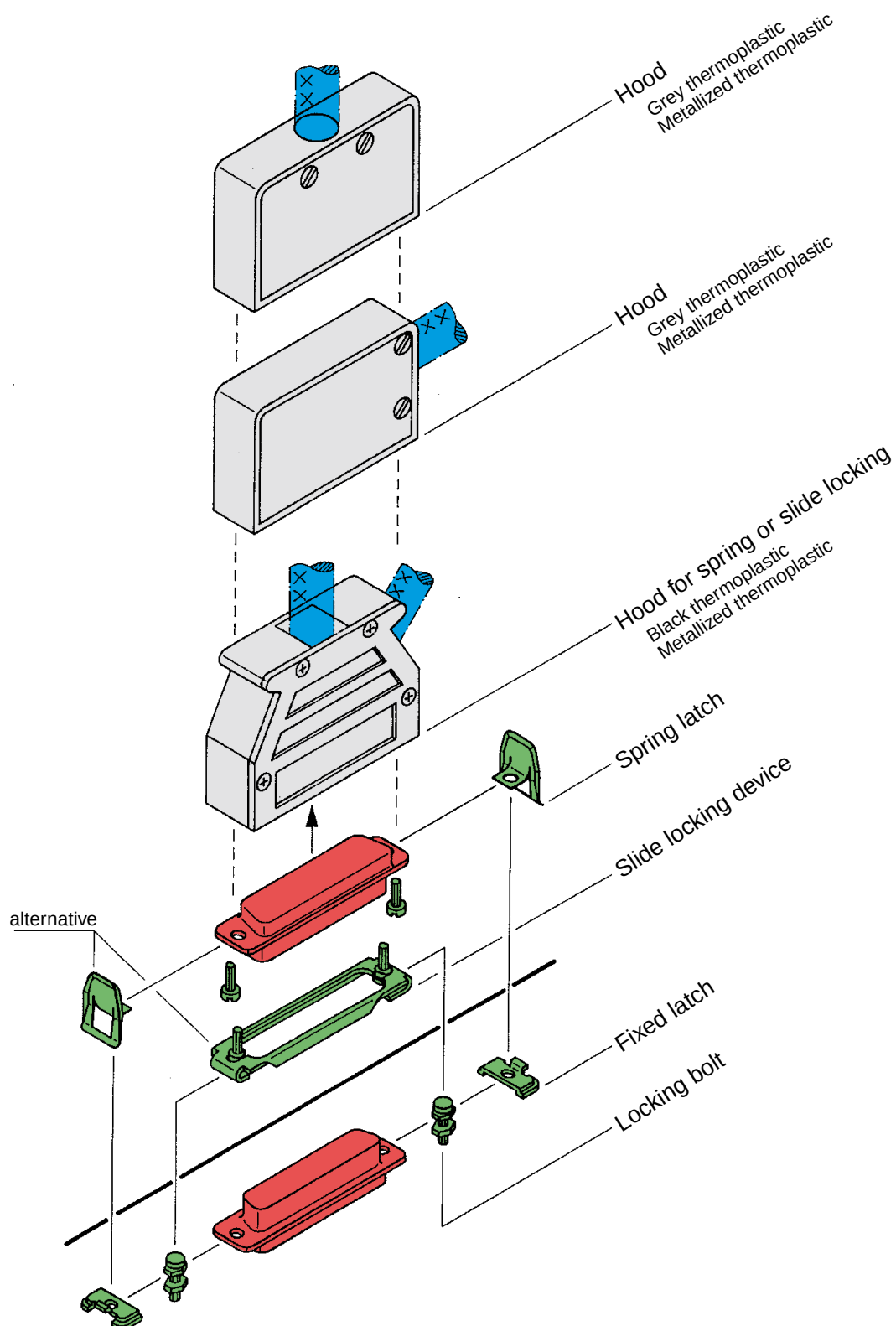
9	66 67 009 0347
---	----------------



2 cable entries

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

Connector hoods for spring or slide locking





Thermoplastic top
and side entry hoods
for spring or slide locking

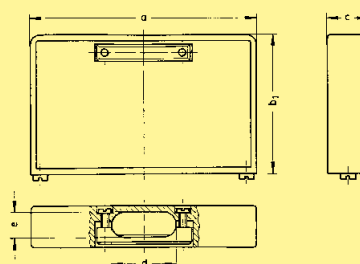
Identification No. of contacts Part No. Drawing Dimensions in mm

Top entry hood

9
15
25
37
50

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

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



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

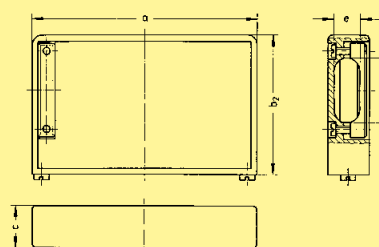
	a	b ₁	b ₂	c	d	e	
						min.	max.
9	31.0	23	28	12.8	10	5.75	9.0
15	39.4	28	28	12.8	10	5.75	9.0
25	53.3	34	34	12.8	14	5.75	9.0
37	69.7	43	43	12.8	20	5.75	9.0
50	67.1	41	41	15.8	20	5.75	11.6

Side entry hood

9
15
25
37
50

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

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



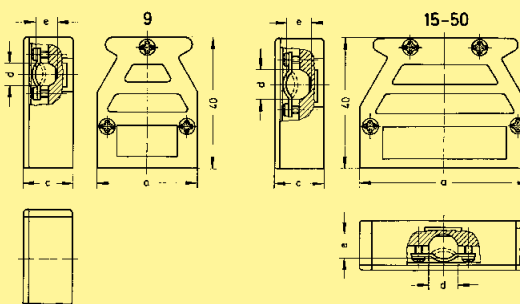
9-37 way
for packaging density
of 3 TE (15.24 mm)

Top and side entry hood¹⁾

9
15
25
37
50

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

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



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

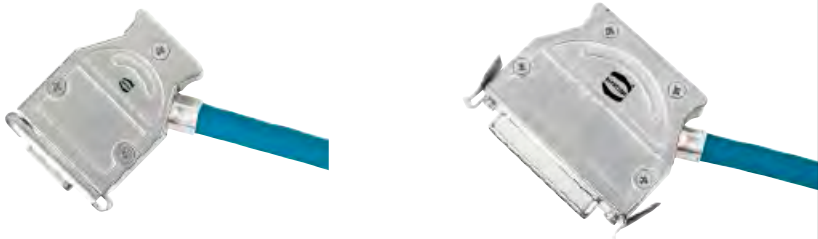
¹⁾ 9-poles is only side
entry

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

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

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

Accessories see page 05.163



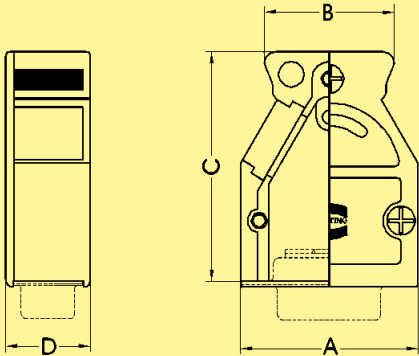
Full metal top and side entry hoods
for spring or slide locking

D-Sub

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

Top/side entry hood with
spring/slide locking

- 9 61 03 001 0022¹⁾
- 15 61 03 001 0011²⁾
- 25 61 03 001 0012²⁾
- 37 61 03 001 0021²⁾
- 50 61 03 001 0020²⁾



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

¹⁾ Part No. contains one blanking piece
²⁾ Part No. contains two blanking pieces

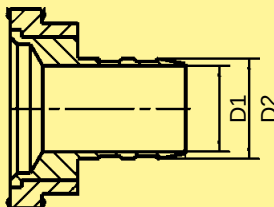
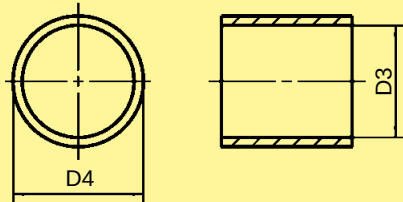
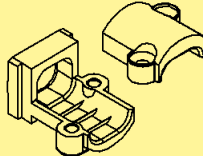
Accessories for spring or slide locking hoods

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

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

Accessories for full metal hoods

D-Sub

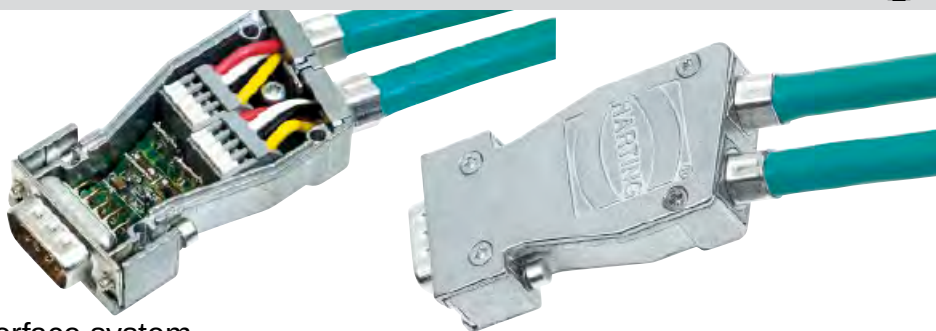
Identification	Part No.		Drawing	Dimensions in mm																																								
Crimp flange	Hoods for 9-37-pole D-Sub	Hoods for 50-pole D-Sub	<table><tr><td>D1</td><td>D2</td></tr><tr><td>3.0</td><td>4.0</td></tr><tr><td>3.5</td><td>4.5</td></tr><tr><td>4.0</td><td>5.0</td></tr><tr><td>4.5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

Crimp flange termination instruction

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

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





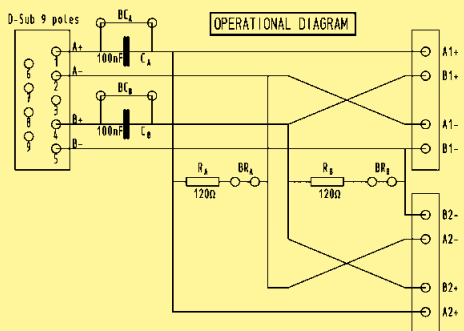
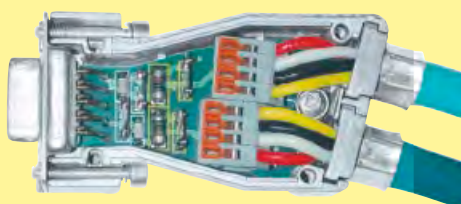
InduCom 9 – Industrial bus interface system

Identification

Part No.

General information

MVB Interface



66 63 009 5013

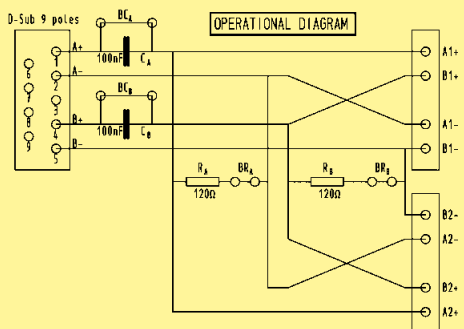
MVB backbone interface set

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

Components of the MVB interface set:

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

WTB Interface



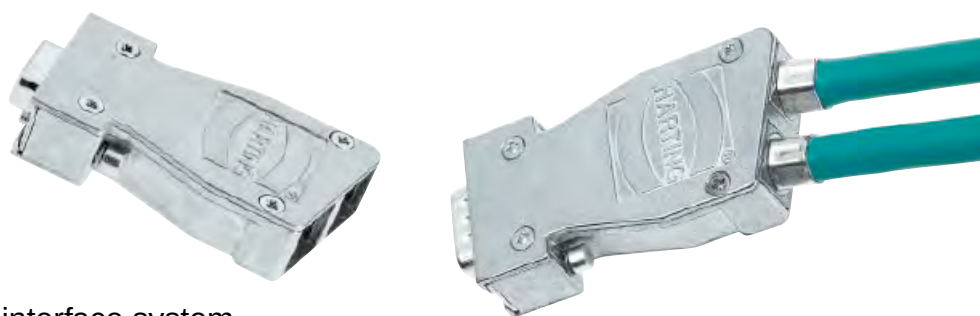
66 63 009 5014

WTB backbone interface set

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

Components of the MVB interface set:

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



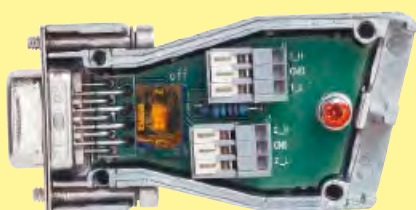
InduCom 9 – Industrial bus interface system

Identification

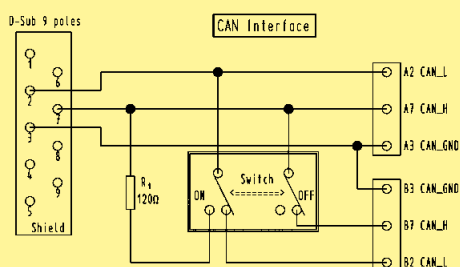
Part No.

General information

CAN Interface



66 63 009 6016

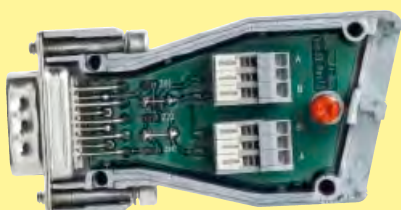


The Controller Area Network (CAN)-Interface is specially designed for usage in trains. With this interface it is possible to realise a T-bus structure with which you can disconnect the bus interface from the control unit without any interruption of the complete bus communication. On the PCB you will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

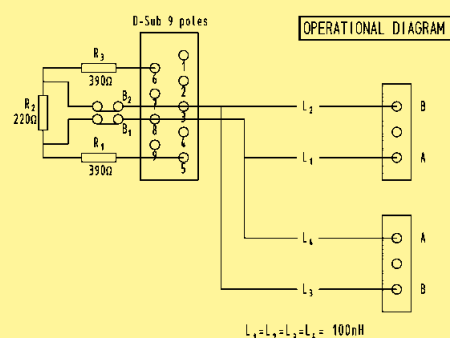
Components of the interface set:

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

Profibus Interface



66 63 009 6004



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

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

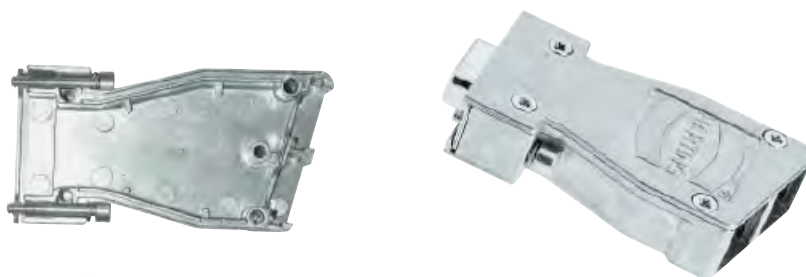
The wires are assembled with the proven vibration resistant cage clamp technology.*

Components of the interface set:

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

Further bus PCBs on request

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



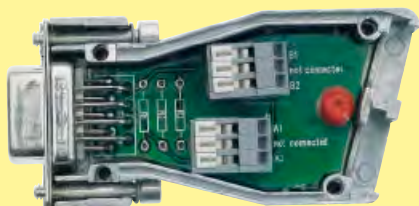
InduCom 9 – Industrial bus interface system

Identification

Part No.

General information

FIP Interface middle of the line



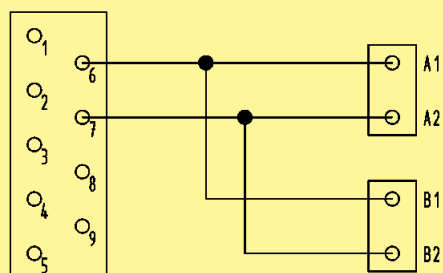
66 63 009 5017

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

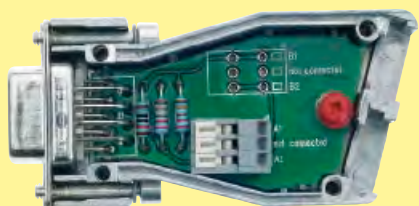
Components of the interface set:

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

FIP interface



FIP Interface end of the line



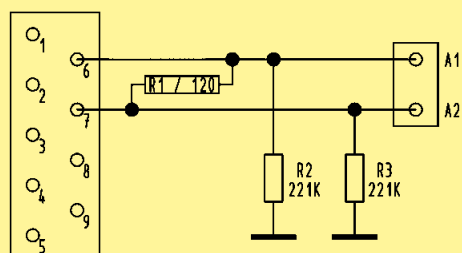
66 63 009 5018

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

Components of the interface set:

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

FIP interface



Further bus PCBs on request

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

Accessories

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
Female screw locks without nut				
	9-50	09 67 000 9972 ¹⁾		
	9-50	09 67 000 9974 ¹⁾		
Thread M3/UNC Thread M3/M3	9-50	09 67 001 9976 ¹⁾		
	9-50	09 67 001 9974 ¹⁾		
Thread UNC/UNC Thread UNC/M3	9-50	09 67 001 9941 ¹⁾		
	9-50	09 67 001 9954 ¹⁾		
for press-in connectors with grounding-pins or straight solder with grounding-clips.				
	9-50	09 66 000 9972 ¹⁾		
	9-50	09 66 000 9974 ¹⁾²⁾		
with captive washer Thread UNC/UNC	9-50	09 67 001 9957 ¹⁾		

¹⁾ Order 2 for each connector

²⁾ M3 inner thread available on request

Accessories

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

Accessories

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																														
Dust cap black thermoplastic																																		
for male connector	9 15 25 37	09 67 009 0611 09 67 015 0611 09 67 025 0611 09 67 037 0611		<table><tr><td></td><td>A</td><td>B</td></tr><tr><td>9</td><td>17.0</td><td>22.40</td></tr><tr><td>15</td><td>25.3</td><td>30.80</td></tr><tr><td>25</td><td>38.9</td><td>44.40</td></tr><tr><td>37</td><td>55.4</td><td>60.75</td></tr></table>		A	B	9	17.0	22.40	15	25.3	30.80	25	38.9	44.40	37	55.4	60.75															
	A	B																																
9	17.0	22.40																																
15	25.3	30.80																																
25	38.9	44.40																																
37	55.4	60.75																																
for female connector	9 15 25 37	09 67 009 0711 09 67 015 0711 09 67 025 0711 09 67 037 0711		<table><tr><td></td><td>A</td><td>B</td></tr><tr><td>9</td><td>16.0</td><td>22.5</td></tr><tr><td>15</td><td>24.4</td><td>31.0</td></tr><tr><td>25</td><td>37.8</td><td>44.3</td></tr><tr><td>37</td><td>54.3</td><td>60.8</td></tr></table>		A	B	9	16.0	22.5	15	24.4	31.0	25	37.8	44.3	37	54.3	60.8															
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9	16.0	22.5																																
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25	37.8	44.3																																
37	54.3	60.8																																
antistatic black thermoplastic																																		
for male connector	9 15 25 37 50	09 67 009 0612 09 67 015 0612 09 67 025 0612 09 67 037 0612 09 67 050 0612		<table><tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>9</td><td>17.7</td><td>21.8</td><td>13.2</td><td>9.1</td></tr><tr><td>15</td><td>26.0</td><td>30.0</td><td>13.2</td><td>9.1</td></tr><tr><td>25</td><td>40.0</td><td>44.2</td><td>13.2</td><td>9.1</td></tr><tr><td>37</td><td>56.4</td><td>59.8</td><td>13.2</td><td>9.1</td></tr><tr><td>50</td><td>53.9</td><td>57.8</td><td>15.9</td><td>11.7</td></tr></table>		A	B	C	D	9	17.7	21.8	13.2	9.1	15	26.0	30.0	13.2	9.1	25	40.0	44.2	13.2	9.1	37	56.4	59.8	13.2	9.1	50	53.9	57.8	15.9	11.7
	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 15 25 37 50	09 67 009 0712 09 67 015 0712 09 67 025 0712 09 67 037 0712 09 67 050 0712		<table><tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>9</td><td>15.9</td><td>20.0</td><td>11.8</td><td>7.8</td></tr><tr><td>15</td><td>24.4</td><td>28.5</td><td>11.8</td><td>7.8</td></tr><tr><td>25</td><td>38.3</td><td>42.3</td><td>11.8</td><td>7.8</td></tr><tr><td>37</td><td>54.7</td><td>58.8</td><td>11.8</td><td>7.8</td></tr><tr><td>50</td><td>52.6</td><td>56.2</td><td>14.5</td><td>10.5</td></tr></table>		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
	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																														
UL 94 V0 grey thermoplastic																																		
for male connector	9 15 25 37 50	09 67 009 0613 09 67 015 0613 09 67 025 0613 09 67 037 0613 09 67 050 0613		<table><tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>9</td><td>17.7</td><td>21.8</td><td>13.2</td><td>9.1</td></tr><tr><td>15</td><td>26.0</td><td>30.0</td><td>13.2</td><td>9.1</td></tr><tr><td>25</td><td>40.0</td><td>44.2</td><td>13.2</td><td>9.1</td></tr><tr><td>37</td><td>56.4</td><td>59.8</td><td>13.2</td><td>9.1</td></tr><tr><td>50</td><td>53.9</td><td>57.8</td><td>15.9</td><td>11.7</td></tr></table>		A	B	C	D	9	17.7	21.8	13.2	9.1	15	26.0	30.0	13.2	9.1	25	40.0	44.2	13.2	9.1	37	56.4	59.8	13.2	9.1	50	53.9	57.8	15.9	11.7
	A	B	C	D																														
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 15 25 37 50	09 67 009 0713 09 67 015 0713 09 67 025 0713 09 67 037 0713 09 67 050 0713		<table><tr><td></td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>9</td><td>15.9</td><td>20.0</td><td>11.8</td><td>7.8</td></tr><tr><td>15</td><td>24.4</td><td>28.5</td><td>11.8</td><td>7.8</td></tr><tr><td>25</td><td>38.3</td><td>42.3</td><td>11.8</td><td>7.8</td></tr><tr><td>37</td><td>54.7</td><td>58.8</td><td>11.8</td><td>7.8</td></tr><tr><td>50</td><td>52.6</td><td>56.2</td><td>14.5</td><td>10.5</td></tr></table>		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
	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																														

Accessories

Identification	No. of contacts	Part No.	Drawing	Dimensions in mm																														
Dust cap metallized thermoplastic																																		
for male connector	9 15 25 37 50	09 67 009 0614 09 67 015 0614 09 67 025 0614 09 67 037 0614 09 67 050 0614		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>9</td><td>17.7</td><td>21.8</td><td>13.2</td><td>9.1</td></tr><tr><td>15</td><td>26.0</td><td>30.0</td><td>13.2</td><td>9.1</td></tr><tr><td>25</td><td>40.0</td><td>44.2</td><td>13.2</td><td>9.1</td></tr><tr><td>37</td><td>56.4</td><td>59.8</td><td>13.2</td><td>9.1</td></tr><tr><td>50</td><td>53.9</td><td>57.8</td><td>15.9</td><td>11.7</td></tr></table>		A	B	C	D	9	17.7	21.8	13.2	9.1	15	26.0	30.0	13.2	9.1	25	40.0	44.2	13.2	9.1	37	56.4	59.8	13.2	9.1	50	53.9	57.8	15.9	11.7
	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 15 25 37 50	09 67 009 0714 09 67 015 0714 09 67 025 0714 09 67 037 0714 09 67 050 0714		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>9</td><td>15.9</td><td>20.0</td><td>11.8</td><td>7.8</td></tr><tr><td>15</td><td>24.4</td><td>28.5</td><td>11.8</td><td>7.8</td></tr><tr><td>25</td><td>38.3</td><td>42.3</td><td>11.8</td><td>7.8</td></tr><tr><td>37</td><td>54.7</td><td>58.8</td><td>11.8</td><td>7.8</td></tr><tr><td>50</td><td>52.6</td><td>56.2</td><td>14.5</td><td>10.5</td></tr></table>		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
	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 15 25 37 50	09 67 009 0615 09 67 015 0615 09 67 025 0615 09 67 037 0615 09 67 050 0615		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>9</td><td>17.5</td><td>19.6</td><td>11.1</td><td>9.2</td></tr><tr><td>15</td><td>25.7</td><td>27.8</td><td>11.1</td><td>9.2</td></tr><tr><td>25</td><td>39.6</td><td>41.8</td><td>11.1</td><td>9.2</td></tr><tr><td>37</td><td>55.7</td><td>57.4</td><td>11.1</td><td>9.2</td></tr><tr><td>50</td><td>53.4</td><td>55.3</td><td>13.8</td><td>11.9</td></tr></table>		A	B	C	D	9	17.5	19.6	11.1	9.2	15	25.7	27.8	11.1	9.2	25	39.6	41.8	11.1	9.2	37	55.7	57.4	11.1	9.2	50	53.4	55.3	13.8	11.9
	A	B	C	D																														
9	17.5	19.6	11.1	9.2																														
15	25.7	27.8	11.1	9.2																														
25	39.6	41.8	11.1	9.2																														
37	55.7	57.4	11.1	9.2																														
50	53.4	55.3	13.8	11.9																														
for female connector	9 15 25 37 50	09 67 009 0715 09 67 015 0715 09 67 025 0715 09 67 037 0715 09 67 050 0715		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th></tr><tr><td>9</td><td>16.2</td><td>18.0</td><td>9.6</td><td>7.8</td></tr><tr><td>15</td><td>24.6</td><td>26.4</td><td>9.6</td><td>7.8</td></tr><tr><td>25</td><td>38.4</td><td>40.2</td><td>9.6</td><td>7.8</td></tr><tr><td>37</td><td>54.4</td><td>56.2</td><td>9.6</td><td>7.8</td></tr><tr><td>50</td><td>52.0</td><td>53.7</td><td>12.2</td><td>10.4</td></tr></table>		A	B	C	D	9	16.2	18.0	9.6	7.8	15	24.6	26.4	9.6	7.8	25	38.4	40.2	9.6	7.8	37	54.4	56.2	9.6	7.8	50	52.0	53.7	12.2	10.4
	A	B	C	D																														
9	16.2	18.0	9.6	7.8																														
15	24.6	26.4	9.6	7.8																														
25	38.4	40.2	9.6	7.8																														
37	54.4	56.2	9.6	7.8																														
50	52.0	53.7	12.2	10.4																														

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

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

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

Clearance and creepage ≥ 1.0 mm

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

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

Terminations	Recommended PCB through holes		
		Signal pin	Grounding pin
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 level ¹⁾
Metal shell	Plated steel

Insertion and withdrawal force

Connector on P.C.B.

Press-in without grounding pins

– insertion max. per contact: 120 N

– withdrawal min. per contact: 20 N

Press-in with grounding pins

– insertion max. per grounding pin: 250 N

– withdrawal min. per grounding pin: 30 N

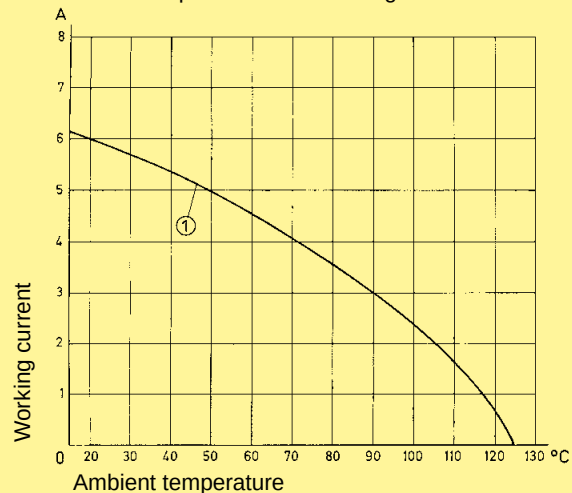
Mating force	9 way	≤ 30 N
	15 way	≤ 50 N
	25 way	≤ 83 N
	37 way	≤ 123 N
	50 way	≤ 167 N

Current carrying capacity

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

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

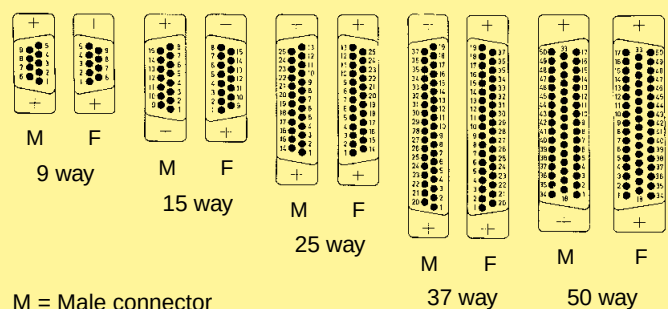
Control and test procedures according to DIN IEC 60 512.



Example: 25 way connector

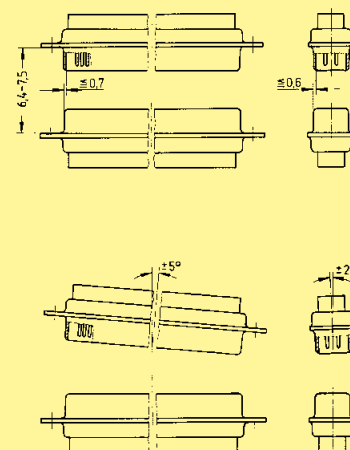
① Stamped contacts

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 41 652



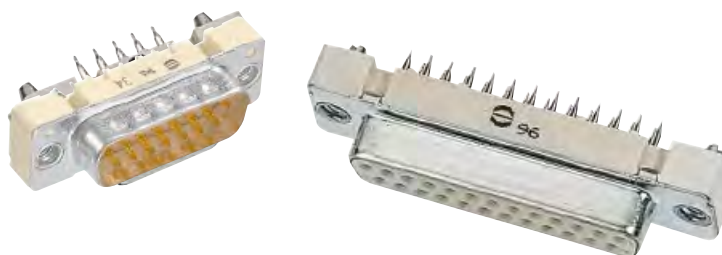
¹⁾ Performance level 3, 50 mating cycles, no gas test

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

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

Number of contacts

9–50



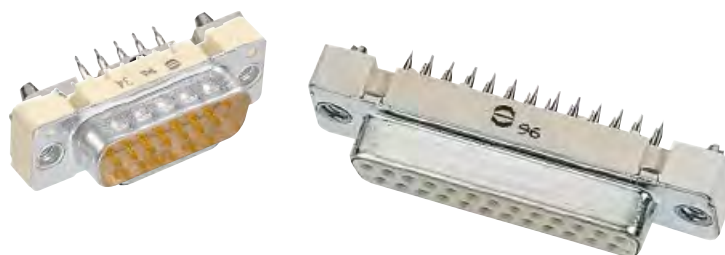
Press-in, straight with grounding press-in board locks

Identification		No. of contacts	Part No.	
D-Sub	Performance levels Explanations see page 05.173 Other performance levels on request		Performance level 3	Performance level 2
	Male connector Flange height x = 5.7 mm			
	metal shell with dimples	9 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 .
	Please insert digit for flange thread or fitted female screw locks M3 ▶ 5 4-40 UNC ▶ 6 fitted screw locks 4-40 UNC ▶ 7 ¹⁾			
	Female connector Flange height x = 5.7 mm			
	metal shell	9 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 .
	Please insert digit for flange thread or fitted female screw locks M3 ▶ 5 4-40 UNC ▶ 6 fitted screw locks 4-40 UNC ▶ 7 ¹⁾			
	Female connector Flange height x = 6 mm			
	metal shell	9 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 .
	Please insert digit for flange thread or fitted female screw locks M3 ▶ 1 4-40 UNC ▶ 2 fitted screw locks 4-40 UNC ▶ 3 ¹⁾			

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

Number of contacts

9–50

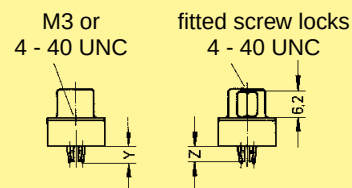
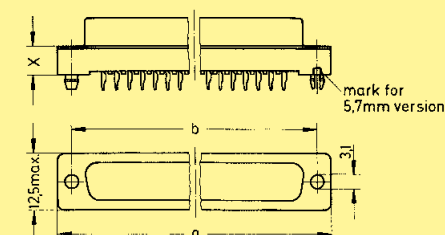


Press-in, straight with grounding press-in board locks

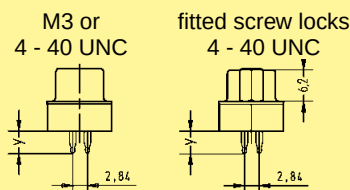
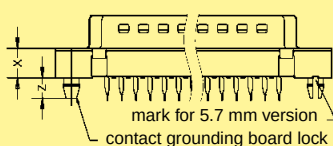
Identification

Drawing

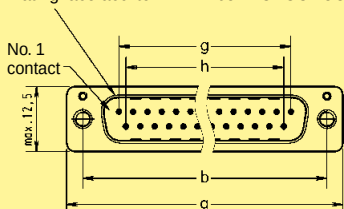
Dimensions in mm

Male connector
9 – 25 contacts


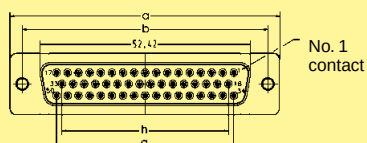
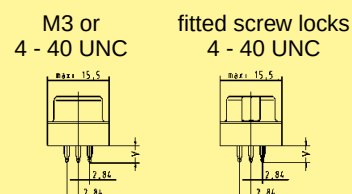
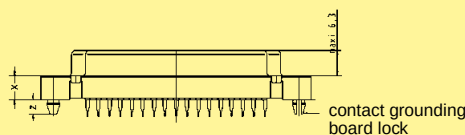
X	Y	Z
6.0 ± 0.2	4.20 ± 0.2	3.5 max.
5.7 ± 0.2	4.35 ± 0.2	3.9 max.

Female connector
9 – 37 contacts


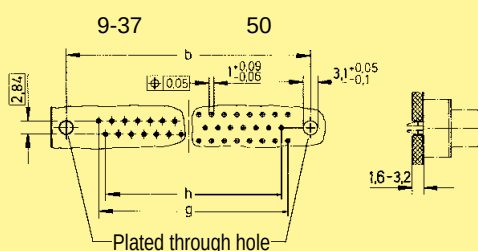
Mating face acc. to: DIN 41 652 · CECC 75 301-802 · IEC 60 807



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

Female connector
50 contacts


Board drillings



D-Sub

Number of contacts

9–50



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

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

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

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

Number of contacts

9–50

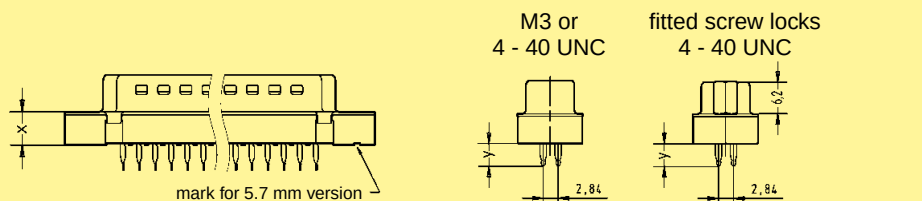


Press-in, straight without grounding press-in board locks

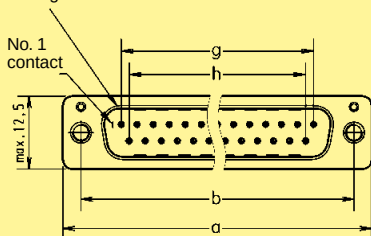
Identification

Drawing

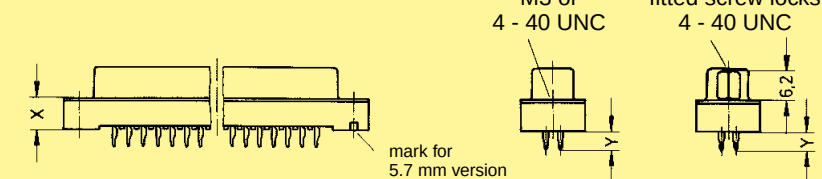
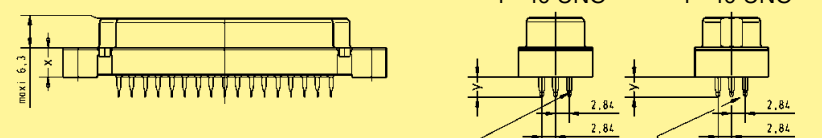
Dimensions in mm

Male connector
9 – 25 contacts


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

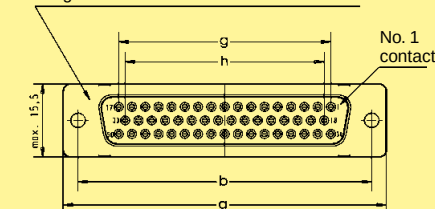


X	Y
6.0 ± 0.2	4.20 ± 0.2
5.7 ± 0.2	4.35 ± 0.2

Female connector
9 – 37 contacts

Female connector
50 contacts


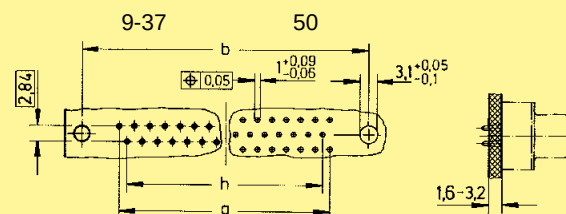
Press-in pins from position 34 to 50 are reversed 180 degrees

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



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

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 plated according to performance level¹⁾

Metal shell Plated steel

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

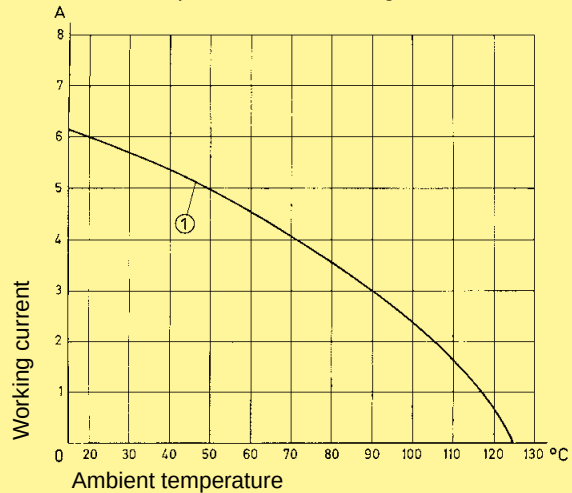
Mating force
9 way ≤ 30 N
15 way ≤ 50 N
25 way ≤ 83 N
37 way ≤ 123 N

Current carrying capacity

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

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

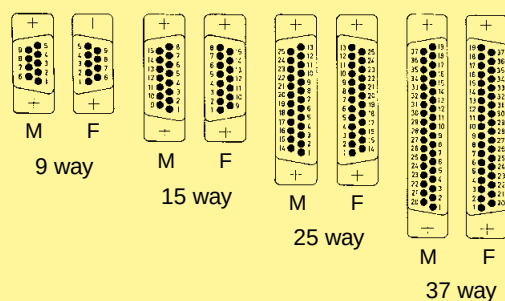
Control and test procedures according to DIN IEC 60 512.



Example: 25 way connector

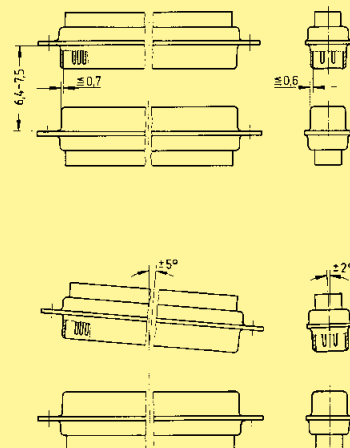
① Stamped contacts

Contact arrangement View from termination side



M = Male connector
F = Female connector

Mating conditions as per DIN 41 652



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

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

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

Identification

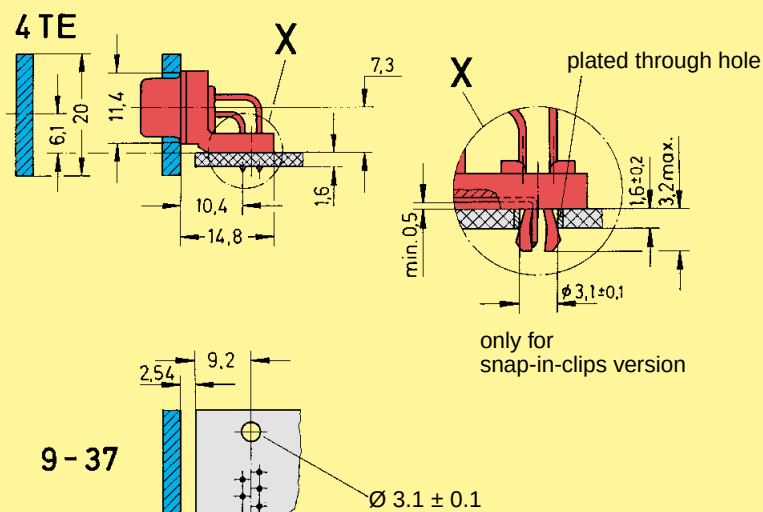
Drawing

Dimensions in mm

Standard Versions

Mounting height 7.3 mm

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

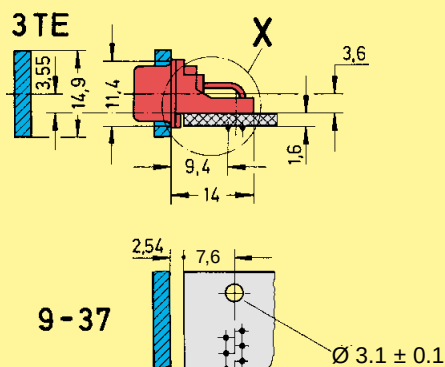


for connectors see pages 05.182 – 05.183

Low-Profile Versions

Mounting height 3.6 mm

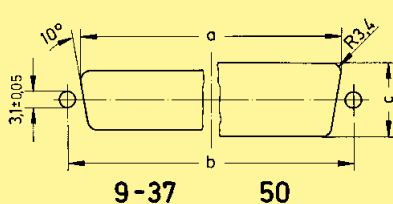
9-37 way
for front panel
3 units of width (TE)



for connectors see pages 05.184 – 05.185

Panel cut out
for front/rear mount

Values are taken from the
CECC 75 301-802



Front mount

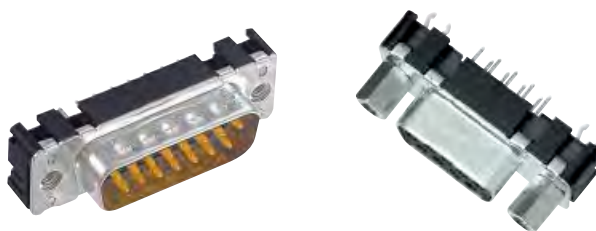
	a _{±0.2}	b _{±0.13}	c _{±0.2}
9	22.2	25.0	12.3
15	30.5	33.3	12.3
25	44.3	47.0	12.3
37	60.7	63.5	12.3
50	58.3	61.1	15.1

Rear mount

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

Number of contacts

9–37



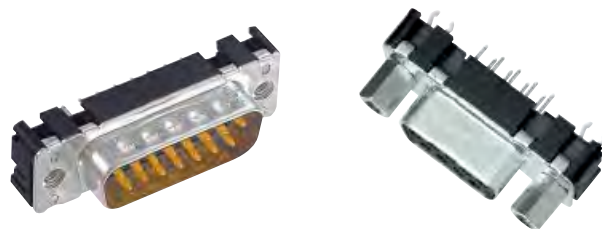
SMC stamped solder pins, straight with/without grounding board locks

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

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

Number of contacts

9–37



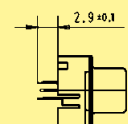
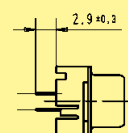
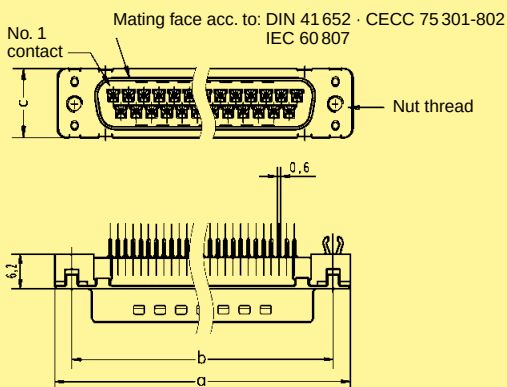
SMC stamped solder pins, straight with/without grounding board locks

Identification

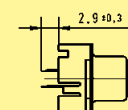
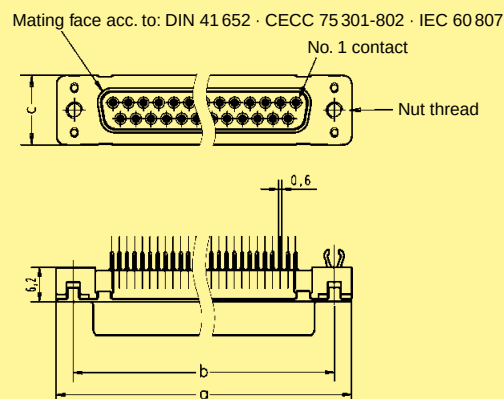
Drawing

Dimensions in mm

Male connector

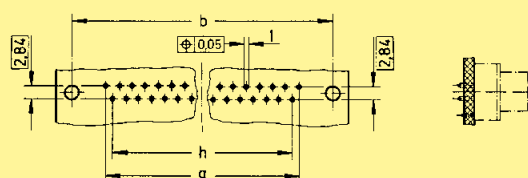


Female connector



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

Board drillings



Number of contacts

9–37

Mounting height



Standard Versions

SMC stamped solder pins, angled with grounding board locks

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

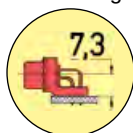
¹⁾ Not normally kept in stock

Standard Versions

Number of contacts

Mounting height

9–37



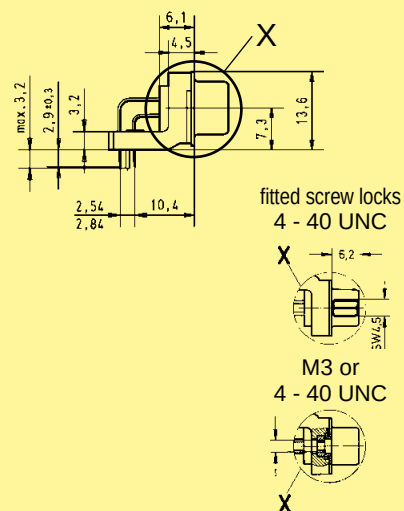
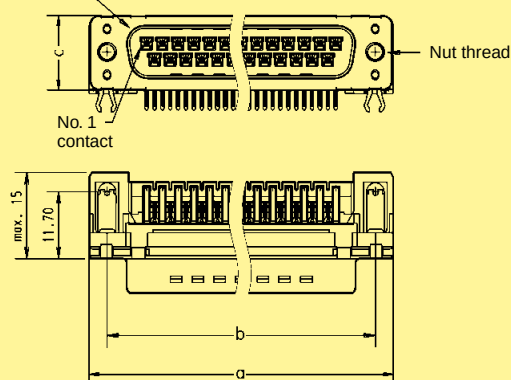
SMC stamped solder pins, angled with grounding board locks

Identification

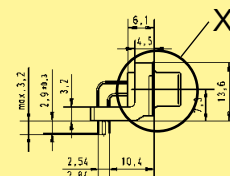
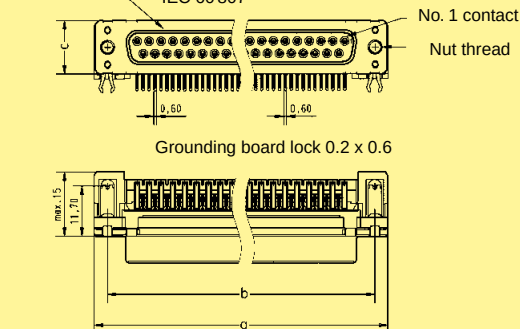
Drawing

Dimensions in mm

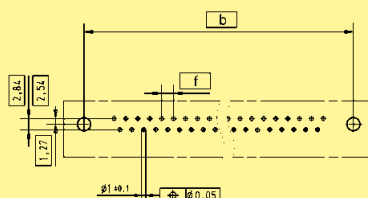
Male connector

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


Female connector

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


Board drillings



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

Number of contacts

9–37

Mounting height



Low-Profile Versions



SMC stamped solder pins, angled with grounding board locks

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

05

184

Low-Profile Versions

Number of contacts

Mounting height

9–37



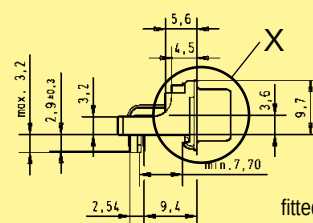
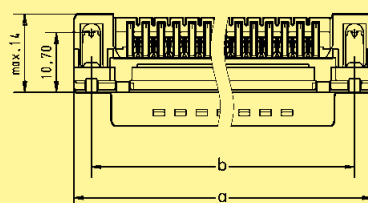
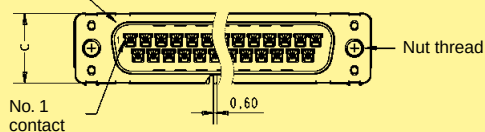
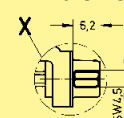
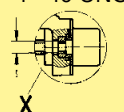
SMC stamped solder pins, angled with grounding board locks

Identification

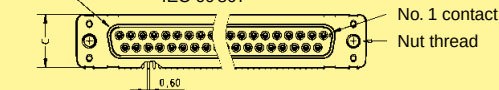
Drawing

Dimensions in mm

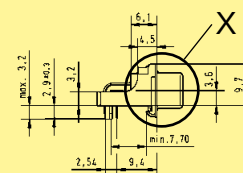
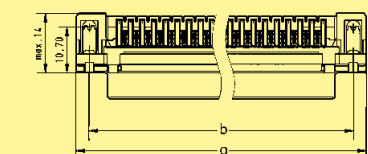
Male connector

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

fitted screw locks
4 - 40 UNC

M3 or
4 - 40 UNC


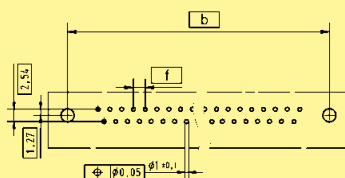
Female connector

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


Grounding board lock 0.2 x 0.6



Board drillings



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

Number of contacts 9, 15, 25, 37

Working current 5 A

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

Clearance and creepage ≥ 1.0 mm

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

Temperature range as per profile JEDEC 020 D

Terminations Solder pins for P.C.B. pads

Materials

Mouldings LCP black
UL 94-V0

Contacts Phosphorus bronze

Grounding die Zamac

Shell Steel

Contact surface

Contact zone selectively plated
acc. to performance level¹⁾

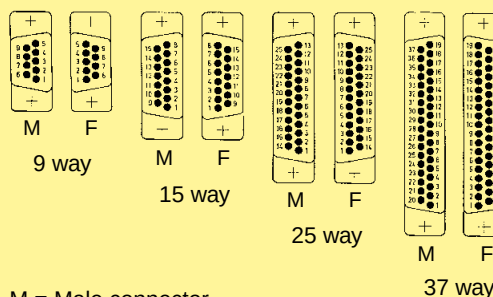
Grounding die Pure tin

Shell Nickel plated

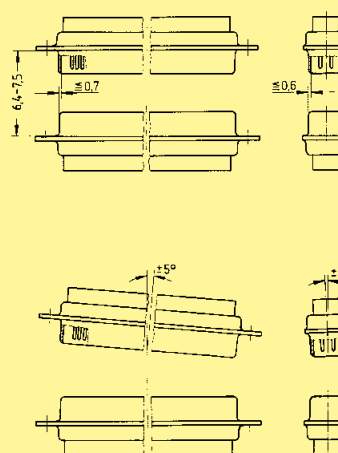
Mating force

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

Contact arrangement View from termination side



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

Number of contacts

9–37



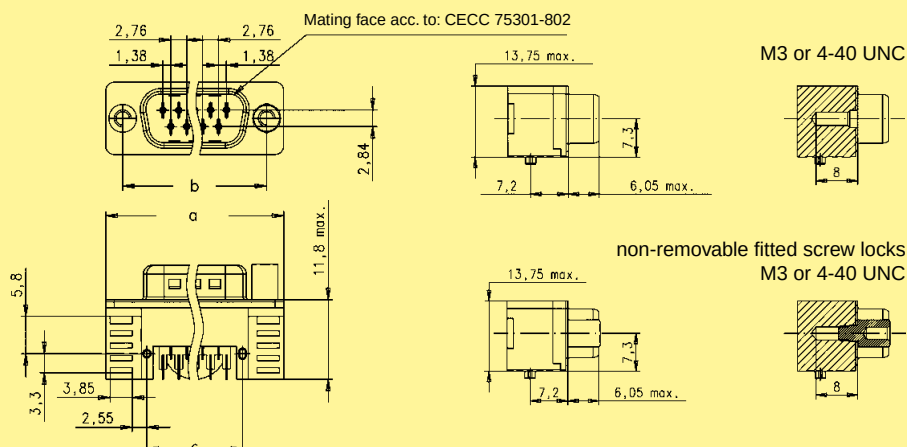
SMT stamped solder pins, angled with grounding board locks

Identification		No. of contacts	Part No.			
Performance levels Explanations see page 05.186 Other performance levels on request			Performance level 3		Performance level 2	
Male connector metal shell with dimples						
		9	09 55 166 78 .. 741		09 55 166 68 .. 741	
		15	09 55 266 78 .. 741		09 55 266 68 .. 741	
		25	09 55 366 78 .. 741		09 55 366 68 .. 741	
		37	09 55 466 78 .. 741		09 55 466 68 .. 741	

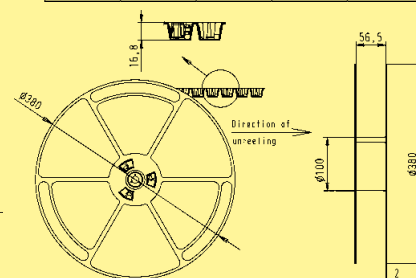
9-37



Qns-0



	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



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

Number of contacts

9–37



SMT stamped solder pins, angled with grounding board locks

Identification	No. of contacts	Part No.	
Performance levels Explanations see page 05.186 Other performance levels on request		Performance level 3	Performance level 2
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
Please insert digit for flange thread or fitted female screw locks			
M3 ► 15 4-40 UNC ► 16 non-removable			
fitted screw locks M3 ► 19 non-removable			
fitted screw locks 4-40 UNC ► 20			

Number of contacts

9–37



SMT stamped solder pins, angled with grounding board locks

Identification

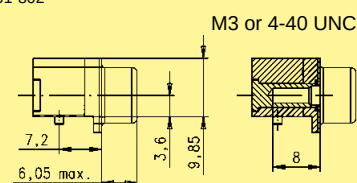
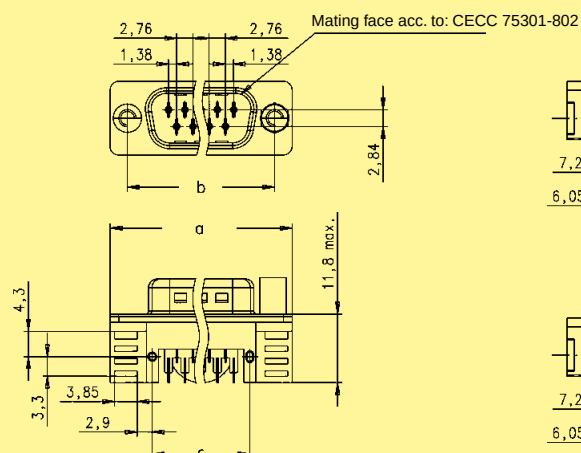
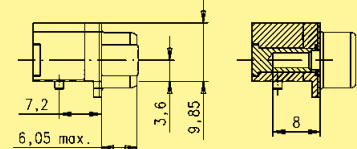
Drawing

Dimensions in mm

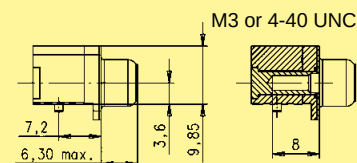
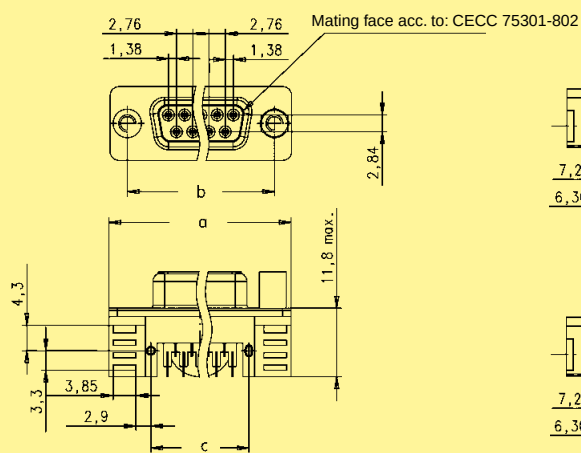
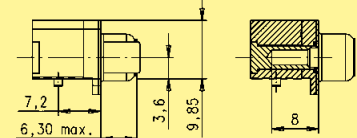
Male connector

M3 or 4-40 UNC

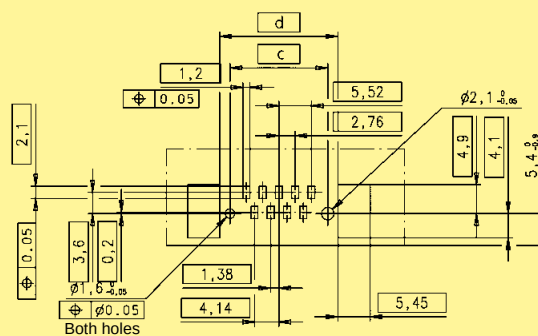
non-removable fitted screw locks M3 or 4-40 UNC

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

Female connector

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

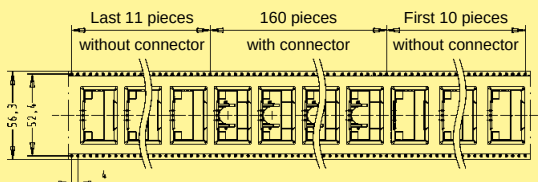
pcb layout



	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 No.			
Performance levels Explanations see page 05.186 Other performance levels on request			Performance level 3		Performance level 2	
Male connector metal shell with dimples						
		9	09 55 129 78 ..	741	09 55 129 68 ..	741
		15	09 55 229 78 ..	741	09 55 229 68 ..	741
		25	09 55 329 78 ..	741	09 55 329 68 ..	741
		37	09 55 429 78 ..	741	09 55 429 68 ..	741
Female connector metal shell						
		9	09 55 115 76 ..	741	09 55 115 66 ..	741
		15	09 55 215 76 ..	741	09 55 215 66 ..	741
		25	09 55 315 76 ..	741	09 55 315 66 ..	741
		37	09 55 415 76 ..	741	09 55 415 66 ..	741
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						

Number of contacts

9–37



SMT stamped solder pins, straight without grounding pins

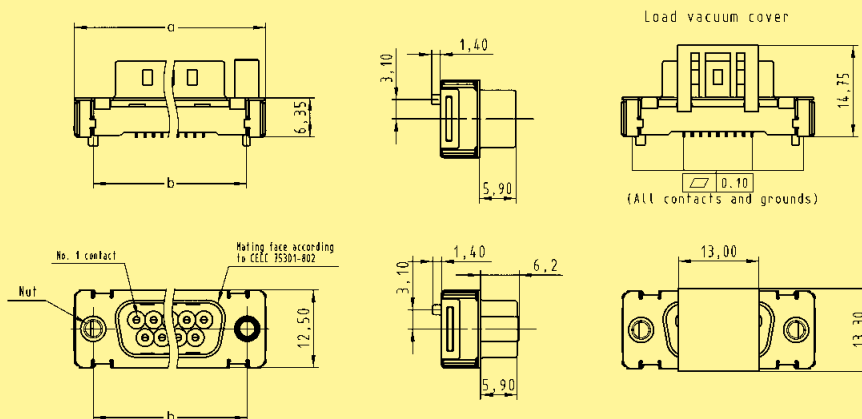
Identification

Drawing

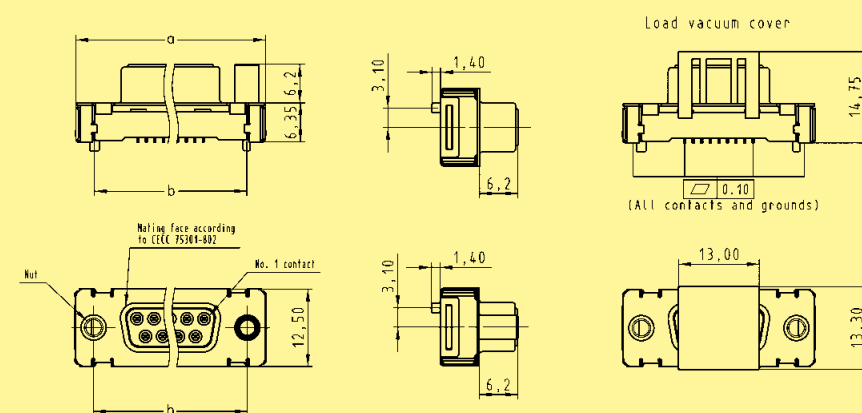
Dimensions in mm

Male connector

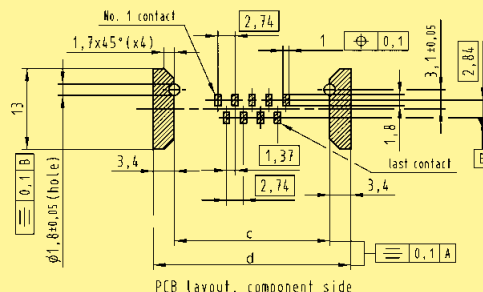
M3 or 4-40 UNC non-removable fitted screw
locks M3 or 4-40 UNC



Female connector



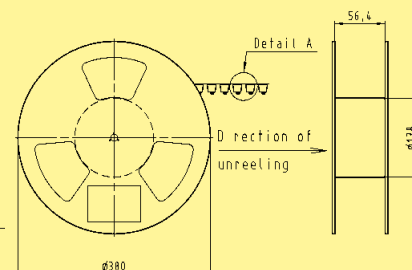
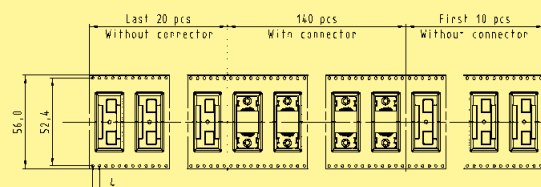
pcb layout



	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



D-Sub

Number of contacts

9–37



SMT stamped solder pins, straight with grounding pins

D-Sub

Identification

No. of
contacts

Part No.

Performance levels

 Explanations see page 05.186
 Other performance levels on request
Performance level
3Performance level
2

Male connector

metal shell with dimples

9	09 55 169 78 .. 741
15	09 55 269 78 .. 741
25	09 55 369 78 .. 741
37	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	09 55 155 76 .. 741
15	09 55 255 76 .. 741
25	09 55 355 76 .. 741
37	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

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

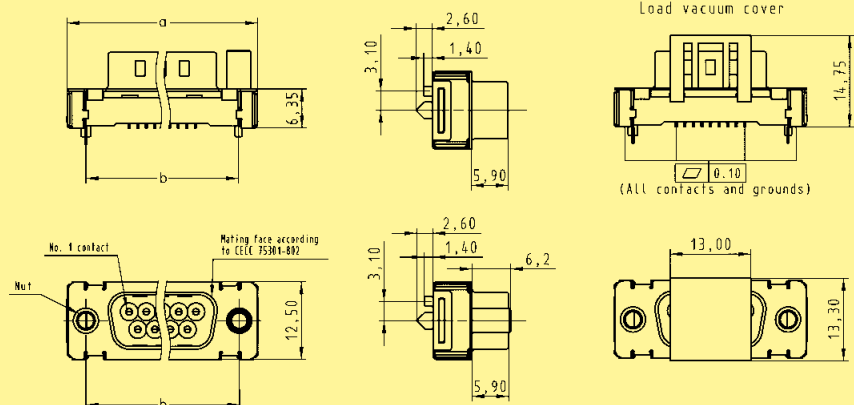
9-37



SMT stamped solder pins, straight with grounding pins

Dimensions in mm

Load vacuum cover



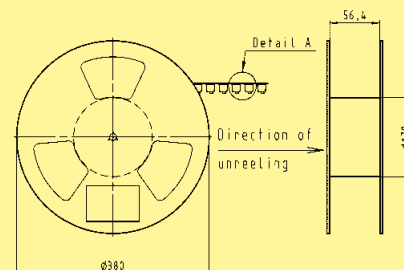
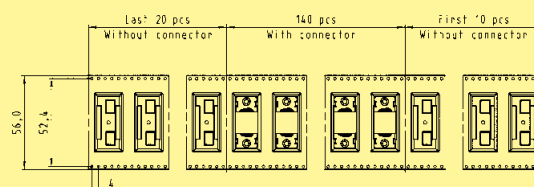
Technical drawings of the 35391-202 connector showing top, side, and front views with dimensions:

- Top View (Left):** Shows overall dimensions a and b . A detail shows a width of $6,35$ and a height of $6,2$.
- Side View (Top Middle):** Shows a height of $3,10$, a top width of $2,6$, a top offset of $1,40$, and a base width of $6,2$.
- Front View (Right):** Shows a height of $14,75$. A detail shows a width of $0,10$. Below the drawing is the text: (All contacts and grounds).
- Top View (Bottom Left):** Shows a height of $12,50$. It includes labels: "Mating face according to CECC 35391-202" and "No. 1 contact". A "Nut" is indicated on the left side.
- Side View (Bottom Middle):** Shows a height of $3,10$, a top width of $1,40$, and a base width of $6,2$.
- Front View (Bottom Right):** Shows a width of $13,00$ and a height of $13,30$.

[illegible]

	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

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





Cable assemblies

D-Sub

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



Cable assemblies

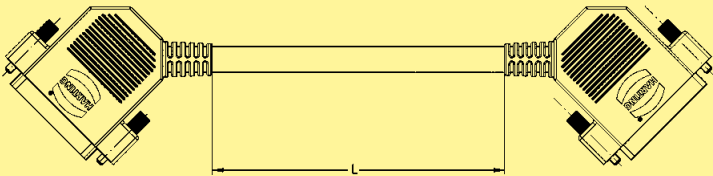
Identification	Part No.	Drawing	Dimensions in mm
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Cable assembly D-Sub HD 44-pole			
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Hood: overmoulded with side entry			
Cable: 24 twisted pairs, solid wires, AWG 26, shielded, halogen free			
Wiring: 1:1			

Length: L = 0.5 m			
L = 1.0 m			
L = 2.0 m			
L = 5.0 m			

33 56 224 5000 001			
33 56 221 0010 001			
33 56 221 0020 001			
33 56 221 0050 001			

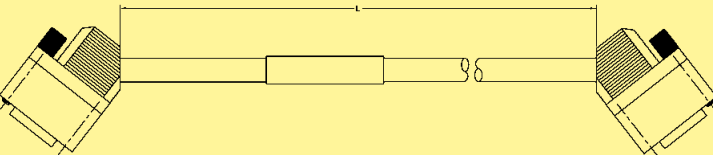


Cable assembly D-Sub 9-pole			
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Hood: shielded plastic hood with side entry, screw 4-40 UNC			
Cable: 5 twisted pairs, stranded, AWG 24, shielded, PVC			
Wiring: 1:1			

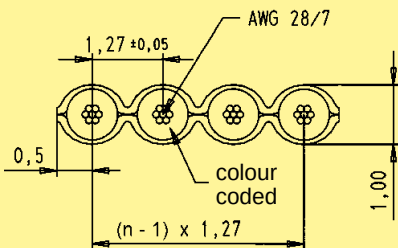
Length: L = 0.5 m			
L = 1.0 m			
L = 1.5 m			
L = 2.0 m			
L = 5.0 m			

33 66 214 5000 058			
33 66 213 1000 059			
33 66 213 1500 060			
33 66 213 2000 061			
33 66 213 5000 062			



Identification	No. of contacts	Part No.	Drawing	Dimensions in mm
Flat cable grey UL AWM-style 2651 CSA	9 15 25 37	09 18 009 700 09 18 015 700 09 18 025 700 09 18 037 700		Conductor material _____ Copper tinned Gauge _____ AWG 28/7 0.089 mm² Voltage rating _____ 300 V_{r.m.s.} Current rating at 25 °C _____ 2.1 A max. Capacity unbalanced _____ 45.9 pF/m Impedance unbalanced _____ 105 Ω Propagation delay _____ 4.9 ns/m nominal Insulation material _____ PVC Temperature rating (operating) _____ -20 °C ... +105 °C Temperature rating (static) _____ -30 °C ... +105 °C Flammability rating _____ UL: VW-1 Insulation resistance _____ > 100 MΩ/km
Length per reel 30.48 m (100 feet)	1			
100 m (328 feet)	4			

D-Sub

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

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

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

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