

Number of contacts

**96, 64, 32**

Male connectors

Identification	Number of contacts	Contact arrangement	Part No. Performance levels according to DIN 41 612, explanations page 10			
			3	2	1	VG
Male connector with angled solder pins	96		09 03 196 7921	09 03 196 6921	09 03 196 2921*	09 03 196 4921*
	64		09 03 164 7921	09 03 164 6921	09 03 164 2921*	09 03 164 4921*
	32		09 03 132 7921	09 03 132 6921	09 03 132 2921*	09 03 132 4921*
	32		09 03 132 7931	09 03 132 6931	09 03 132 2931*	
	94 + 2▲		09 03 196 7951	09 03 196 6951	09 03 196 2951*	
	62 + 2▲		09 03 164 7951	09 03 164 6951	09 03 164 2951*	
Male connector with straight solder pins	96		09 03 196 7922	09 03 196 6922	09 03 196 2922*	
	64		09 03 164 7922	09 03 164 6922	09 03 164 2922*	
	32		09 03 132 7922	09 03 132 6922	09 03 132 2922*	
	32		09 03 132 7932	09 03 132 6932	09 03 132 2932*	
	94 + 2▲		09 03 196 7952	09 03 196 6952	09 03 196 2952*	
	62 + 2▲		09 03 164 7952	09 03 164 6952	09 03 164 2952*	
Male connector with angled wrap posts	96		09 03 196 7928	09 03 196 6928	09 03 196 2928*	
	64		09 03 164 7928	09 03 164 6928	09 03 164 2928*	
	32		09 03 132 7928	09 03 132 6928	09 03 132 2928*	
	32		09 03 132 7938	09 03 132 6938	09 03 132 2938*	
Male connector with angled press-in terminations		Part Nos. and versions see "har·press" catalogue				

▲ Male connectors with 2 first mating contacts [(0.8 mm) pos. a1 and a32]\*  
Male connectors with contacts in other positions/other rows on request

\* Not normally kept in stock

## Economic and Reliable Connections

The Gds connector system for use in 19" racks to DIN 41 494

Gds A series according to

DIN	41 612
VG	95 324 <sup>1)</sup>
IEC	603-2
MIL-C-	55 302
BT	222
BS	9525
HE	12
NFC	93-420
UL-gelistet	
CSA	018753
CECC	75 100

Developed for economical assembly of electronic plant and equipment

HARTING offer the most comprehensive range of highly versatile connectors complemented by many styles of shell housings making a complete interconnection and interface system.

<sup>1)</sup>Connectors can be manufactured to VG 95 324 the standard of the German Federal Agency for Defence Engineering and Procurement (BWB) also with the VDE electronic symbol of approval.



The division Printed Board Connectors Gds A is certified according to DIN EN ISO 9001

### The advantages

- Indirect mating (male/female)
- Automated production techniques
- Continuous quality assurance
- 15-96 contacts
- Complete interconnection system
- Numerous interface connectors
- A wide variety of hoods
- Many termination techniques provide for the lowest installed cost
- Contacts selectively gold-plated
- Tinned terminations for increased solderability

### The terminations

- Wrap post for automated wiring
- Straight and angled solder pins for printed circuits
- Solder lugs for discrete wiring
- Press-in technique for back planes
- Crimp contacts for selective loading
- Insulation displacement contacts for mass termination
- Faston blades for higher power discrete wiring
- Cage-clamp contacts provide low cost connection for solid or stranded wires

For "non standard applications" we can manufacture designs to match your requirements. Please discuss requirements with us.

HARTING printed board connectors incorporate the latest design features and provide the assurance of high quality and reliability with economy.

Sales Department  
HARTING-Components

### General information

It is the user's responsibility to check whether the components illustrated in this catalogue comply with different regulations from those stated in special fields of application which we are unable to foresee.

We reserve the right to modify designs in order to improve quality, keep pace with technological advancement or meet particular requirements in production.

This catalogue must not be used in any form or manner without our prior approval in writing (Copyright Law, Fair Trading Law, Civil Code). We are bound by the German version on

**Performance level 3 as per DIN 41 612, part 5**

50 mating cycles.  
Then visual inspection no gas test.  
No functional impairment.

Part-number-explanation 09 . . . . . 7 . . .

**Performance level 2 as per DIN 41 612, part 5**

400 mating cycles.  
200 mating cycles 4 days gas test using 10 ppm SO<sub>2</sub>.  
Measurement of contact resistance.  
200 mating cycles then visual inspection. No abrasion of the contact finish through to the base material.  
No functional impairment.

Part-number-explanation 09 . . . . . 6 . . .

**Performance level 1 as per DIN 41 612, part 5**

500 mating cycles.  
250 mating cycles 21 days gas test using 10 ppm SO<sub>2</sub>.  
Measurement of contact resistance.  
250 mating cycles then visual inspection. No abrasion of the contact finish through to the base material.  
No functional impairment.

Part-number-explanation 09 . . . . . 2 . . .

**VG Version as per VG 95 324, part 1**

500 mating cycles – then 1 day gas test using 10.000 ppm SO<sub>2</sub> and 1 day gas test using 10.000 ppm H<sub>2</sub>S.  
Then visual inspection. No abrasion of the contact finish through to the base material. No functional impairment.

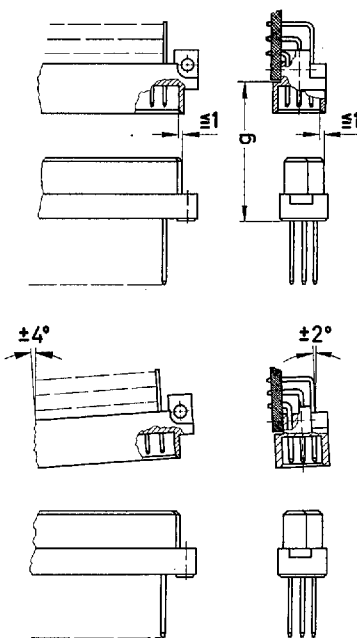
Part-number-explanation 09 . . . . . 4 . . .

Other plating finishes available on request.

**Mating conditions**

To ensure reliable connections and prevent unnecessary damage, please refer to the application data diagrams.

These recommendations are set out in DIN 41 612 P. 1. The connectors shall not be coupled and decoupled under electrical load.

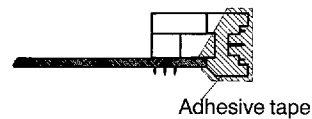


g = 12,4 - 14,2

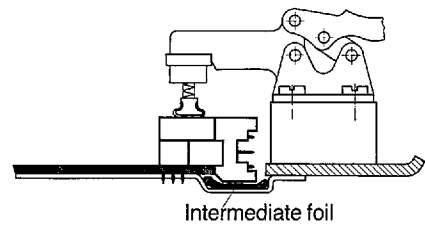
**Soldering the male connectors into P.C. Boards**

The male connectors of the Gds A series should be protected when soldering using dip, flow or film soldering baths, against contamination as a result of soldering operations or deformation of the connector bodies as a result of overheating.

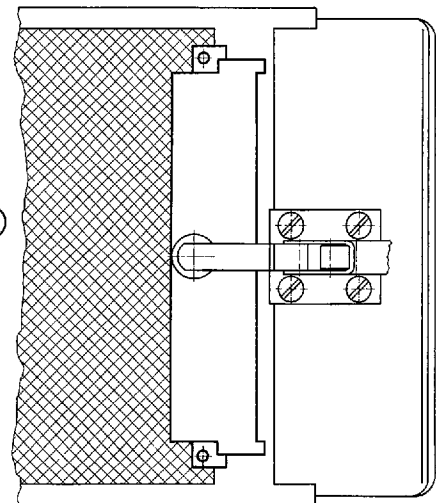
- ① For prototypes and short runs cover the connectors with an industrial adhesive tape, e.g. Tesaband 4657 grey. Tape the underside of the connector moulding and adjacent parts of the P.C. Board and tape up the open end of the connector. This will prevent heat and gases from the soldering apparatus damaging the connector. About 140 + 5 mm of tape should be sufficient.
- ② For large run production a jig is recommended. This has a protective cover with a fast action mechanical locking device that shields the connector from the gas and heat generated by the soldering apparatus. For additional protection a foil can be used covering parts not to be soldered.



①



②



# Summary Gds A



Type	B					2B			C					2C					
Part No.	09 02 .....					09 22 .....			09 03 .....					09 23 .....					
Working current	2					2			2					2					
Clearance (mm) Creepage (mm)	≧ 1.2 ≧ 1.2					≧ 1.2 ≧ 1.2			≧ 1.2 ≧ 1.2					≧ 1.2 ≧ 1.2					
Minimum assembly spacing	2 x 5.08 mm					2 x 5.08 mm			3 x 5.08 mm					3 x 5.08 mm					
Number of contacts	64	32	32			32	16		96	64	32	32		48	32	16			
Contact arrangement View from termination side				Page			Page					Page				Page			
Male connectors		1)	●	●	●	22	●	●	28	●	●	●	●	30	●	●	●	36	
		2)	●			22	●		28	●	●			30	●			36	
		< 4 <sup>1)</sup>	●	●	●	22	●	●	28	●	●	●	●	30	●	●	●	36	
		< 4 <sup>2)</sup>	●			22	●		28	●	●			30	●			36	
						22								30					
Female connectors			●	●	●	24	●	●	29	●	●	●	●	32	●	●	●	37	
		< 4	●	●	●	24	●	●	29	●	●	●	●	32	●	●	●	37	
		≧ 4	●	●	●	24	●	●	29	●	●	●	●	32	●	●	●	37	
			●	●	●	24				●	●	●	●	32					
			see Q →				see 2 Q →				see R →				see 2 R →				
			●	←	←	27				●	←	←	←	35					
			●			26					●			34					
Interface connectors	I																		
	U		0.6 <sup>□</sup>	●		23				←									

Distributor																		
Pin shroud			→							●				118				
Shell housing		C	●			94				●				94				
Fixing brackets		c	●			96				●				99				

1) Without first mating contacts    2) With first mating contacts

Number of contacts	16–96
Contact spacing (mm)	2.54
Working current see current carrying capacity chart	2 A max. 1 A with insulation displacement. 40 A max. type M
Clearance	≧ 1.2 mm
Creepage	≧ 1.2 mm
Working voltage The working voltage also depends on the clearance and creepage dimensions of the P.C. Board itself, and the associated wiring	according to the safety regulations of the equipment. Explanations page 6
Test voltage $U_{r.m.s.}$	1 kV
Contact resistance	≧ 15 mΩ ≧ 20 mΩ including crimp connection
Insulation resistance	≧ $10^{12} \Omega$

Temperature range The higher temperature limit includes the local ambient and heating effect of the contacts under load	–65°C +125°C
Degree of protection for crimp terminal according to DIN 40050	IP 20
Electrical termination Male connector	Solder pins 0.6 x 0.6 mm for P.C.B. connections $\varnothing 0.8 + 0.3$ mm Wrap posts 0.6 x 0.6 mm diagonal 0.79–0.86 mm
Female connector	Wrap posts 0.6 x 0.6 mm diagonal 0.79–0.86 mm Solder pins 0.6 x 0.6 mm for P.C.B. connections $\varnothing 1 \pm 0.1$ mm according to IEC 326 for P.C.B. connections $\varnothing 0.8 + 0.3$ mm on request Solder lugs Crimp terminal 0.09–0.5 mm <sup>2</sup> Insulation displacement connection AWG 28/7 Connector for faston 6.3 x 2.5

Insertion and withdrawal force	16 way ≧ 15 N 32 way ≧ 30 N 48 way ≧ 45 N 64 way ≧ 60 N 96 way ≧ 90 N
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Materials Mouldings	Thermoplastic resin, glass-fibre filled
Contacts	Copper alloy
Contact surface	Contact zone: selectively gold-plated according to performance level <sup>1)</sup> Termination zone: tinned Wrap posts selectively gold plated on request

<sup>1)</sup> Explanations of performance levels page 10

You will find angled female connectors for

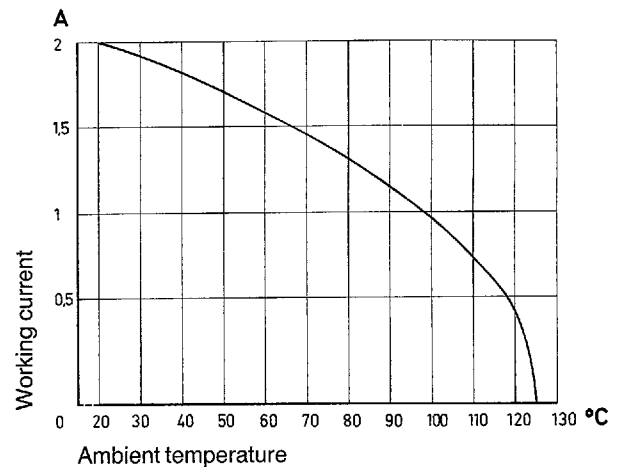
Series Gds A-B	on page 80	type Q
Series Gds A-2B	on page 82	type 2 Q
Series Gds A-C	on page 84	type R
Series Gds A-2C	on page 86	type 2 R

Mating conditions	page 10
Coding systems	page 88

## 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 41 640, part 3.



## Fitting the crimp contacts

After crimping the wires onto the contacts the crimp contacts are correctly orientated and inserted into cavities in the connector body in the required configuration. They snap into position and are firmly held in place. A light pull on the wire will check that they are correctly located. When using stranded wire having a gauge below 0.37 mm<sup>2</sup>, an insertion tool is required.

## Removing the crimp contacts

The removal tool is inserted into a slot on the side of the respective crimp cavity. This action compresses the contact retaining spring and the contact can then be easily withdrawn using a light pull on the wire. This action will cause no damage to the contact/wire which can be repositioned/refitted as necessary. The diagram demonstrates the crimp removal procedure (max. 5 x).

