



# DIN power male connector - NFF



## General information

Design	IEC 60603-2	types: H male
No. of contacts	15	
Contact spacing	5,08 mm / 6,5 mm between the rows	
Test voltage	3100V	
Contact resistance	max. 8mOhm	
Insulation resistance	min. 10 <sup>10</sup> Ohm	
Working current	15A at 20°C (see derating diagram)	
Temperature range	-55°C ... +125°C	
Termination technology	solder pins	
Clearance	min. 4,5 mm	
Creepage	min. 8,0 mm	
Insertion and withdrawal force	15-pole max. 90N	
Mating cycles	- PL1 acc. to IEC 60603-2 =>	500 mating cycles
UL file	E102079	
RoHS - compliant	Yes	
Leadfree	Yes	
Hot plugging	No	

## Insulator material

Material	PA (thermoplastics, glass fiber reinforcement 25%)
Colour	RAL 7035 (light grey)
UL classification	UL 94-V0
Material group acc. to IEC 60664-1	II (400 ≤ CTI < 600)
NFF classification	I2, F1

## Contact material

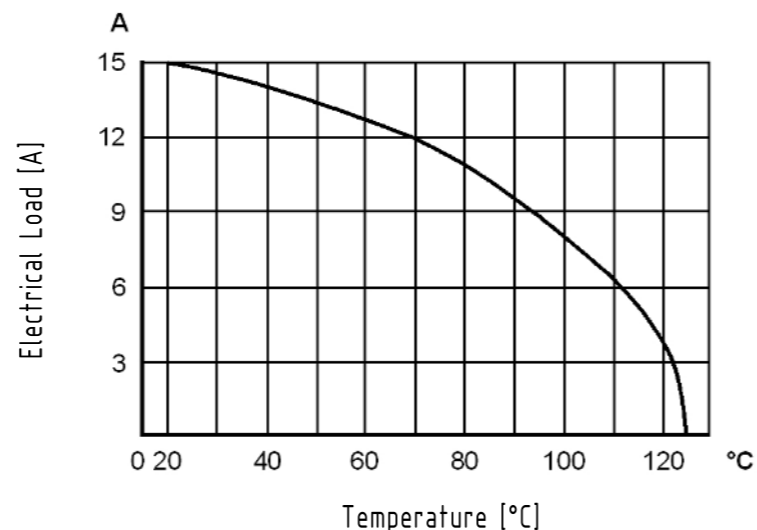
Contact material	Copper alloy
Plating termination zone	Ag or Au
Plating contact zone	Ag or Au

## Derating diagram acc. to IEC 60512-5 (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, non interrupted current loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

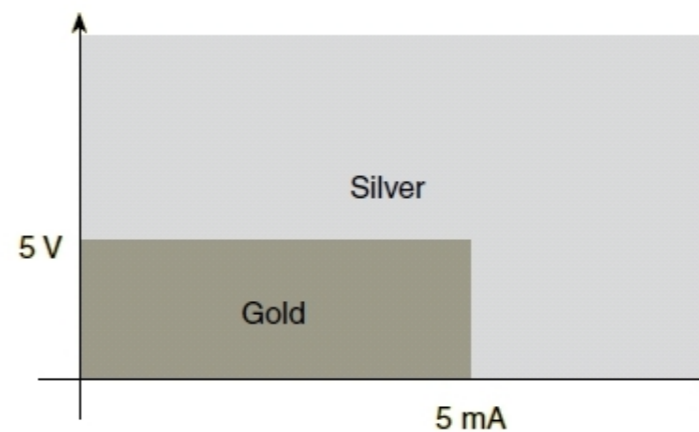
Control and test procedures according to DIN IEC 60512-5



## Low currents and voltages

Type H standard contacts have a silver plated surface. This precious metal has excellent conductive properties. In the course of a contact's lifetime, the silver surface generates a black oxide layer due to its affinity to sulphur. This layer is smooth and very thin and is partly interrupted when the contacts are mated and unmated, thus guaranteeing very low contact resistances. In the case of very low currents or voltages small changes to the transmitted signal may be encountered. In systems where such a change to the transmitted signal could lead to faulty functions and also in extremely aggressive environments, HARTING recommend the use of gold plated contacts.

Below is a table derived from actual experiences.



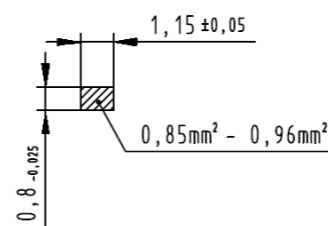
## Soldering instructions

The connectors should be protected when being soldered in a dip, flow or film soldering baths. Otherwise, they might become contaminated as a result of soldering operations or deformed as a result of overheating.

(1) For prototypes and short runs protect the connectors with an industrial adhesive tape, e.g. Tesaband 4331 (www.tesa.de). Cover the underside of the connector moulding and the adjacent parts of the pcb as well as the open sides of the connector. This will prevent heat and gases of the soldering apparatus from damaging the connector. About 140 + 5 mm of the tape should suffice.

(2) For large series a jig is recommended. Its protective cover with a fast action mechanical locking device shields the connectors from gas and heat generated by the soldering apparatus. As an additional protection a foil can be used for covering the parts that should not be soldered.

## Cross section of solder pins



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