

LF POWERPLUS 2.0

Powerelements



LET IT BE
LEAD-FREE



LF PowerPlus 2.0 is the new generation of the successful LF PowerPlus High Current Contacts from the inventor of Powerelements, Würth Elektronik ICS. As all LF Powerelements, they do not contain lead. They consist of a brass base body and a stainless steel screw element. Therefore, they are a lightweight solution offering maximum torque. The special design of the base body allows the Powerelements to be fitted in the same position on both sides. Depending on the layout, currents of up to 360 amperes are possible.

LF PowerPlus 2.0 Powerelements are characterised by the following features:

- The pin or nut is firmly attached to the element, which increases stability and further facilitates automatic screwing
- The new screw tip facilitates easier insertion and positioning of the nut, making automatic screwing effortless
- An improved pin design reduces the required press-in forces

Application possibilities

- Contacting/ fastening of switches, fuses, etc. (especially with high torques)
- Wire-to-board for screwing ring terminals
- Board-to-board
- Electromechanics such as housing mounting and spacers

Processing

LF PowerPlus 2.0 Powerelements are pressed-in into the PCB. Therefore, the PCBs are not exposed to temperature stress. This processing step easily fits in to the processing chain and is highly cost efficient. With the aid of the corresponding press-fit tools, several Powerelements can be pressed-in simultaneously. As an alternative, LF PowerPlus 2.0 Powerelements can also be contacted to the PCB by THT soldering using selective or wave soldering.

Processing instructions

- For assembling prototypes, no special equipment is needed for pressing-in, a simple toggle press is sufficient.
- The printed circuit board must be supported during the press-fit process. The pressing force must be executed in a 90° angle to the PCB.
- Plated through holes of the PCB must be executed according to the specifications of Würth Elektronik ICS.
- The LF PowerPlus 2.0 High Current Contacts are designed for press-fitting, but soldering is also possible.
- In case of double-sided application, the smallest Powerelement must be pressed-in first.
- Use only with suitable press-fit tool and fixing materials (see processing instructions).

Technical data

Current carrying capacity	see table on the back
Material	base body: CuZn37 screw/nut: stainless steel V2A
Surfaces	base body: tin-plated (standard) screw/nut: slide coating

Dimensions (Standard)

Length x width	from 10.2 x 10.2 to 15.4 x 15.4 mm
Height above PCB	9 to 32 mm
Pin length	5.0 mm
Pin diagonal	1.9 to 2.0 mm

PCB

Base material	FR4 (EP-GC-)		
PCB thickness	from 1.5 mm		
	M5	M6	M8
Drilling diameter	1.90 mm	1.90 mm	2.0 mm
Final diameter			
■ HAL surface	1.775 mm	1.775 mm	1.875 mm
■ chemical surface	1.750 mm	1.750 mm	1.850 mm

Processing parameters

Press-in force	min. 60 N per pin max. 300 N per pin
Retention force	60 – 80 % of the press-in force
Press-in speed	100 – 250 mm/min



With comprehensive engineering expertise and as a pioneer for Powerelements, we will meet your requirements and find the best technical and economical solution.



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PCB design

For the massive press-fit technology the PCBs are to be finished according to the Würth Elektronik ICS Press-Fit Specification. Particular attention should be paid to the drill diameter and the copper thickness. Due to the different layer thicknesses of Hot Air Levelling compared to chemical surfaces, the final diameters vary.

Würth Elektronik ICS – Press-Fit-Spezification 5.1 (Example for 1.9 mm pin)

Drill Ø	drill tool drill hole	1.90 mm 1.90 - 0.025 mm
Cu	Cu - in Hole Annular Ring	Average 30 – 60 µm min. 25 µm, max. 80 µm* min. 125 µm
End Ø	depends on surface HAL chem. surfaces	(1.75 +/- 0.05 mm) (1.775 +/- 0.05 mm)

Note: For press-fit technology, drill Ø and copper thickness are fix.
End Ø for reference only.

*single measurement points in microsection

Torques

The torques indicated in the table are based on DIN 267 part 25. Different material combinations or different thread lengths of the connectors are not regarded here.

Torques for stainless steel

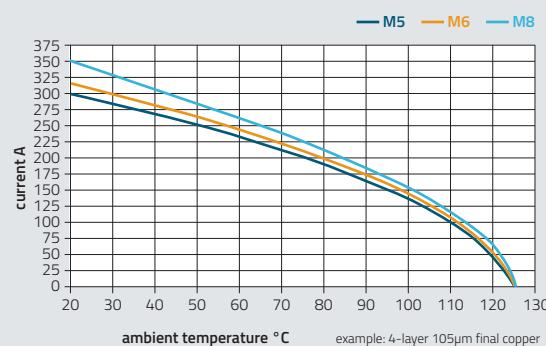
Thread	M5	M6	M8
(Nm)	3.9	5.9	16.0

Current carrying capacity

The current carrying capacity of a press-fit connection needs to be seen in the context of the overall system. The press-fit zone has a very low electrical contact resistance of 100 – 200 µOhm. The limiting factor therefore usually lies in the circuit board layout or in the connection of a feed line.

Depending on the system structure, the values of the derating curve shown may vary.

Derating curve LF PowerPlus 2.0



Overview of LF PowerPlus 2.0 standard products



Diameter / thread	M5	M6	M8
Pins circumferential number / grid	8	12	16
Part number (Bolt)	S900551	S900554	S900557
Part number (Bush)	S900552	S900555	S900558
Current carrying capacity at 20 °C*	~ 190 A	~ 270 A	~ 360 A
Current carrying capacity at 85 °C*	~ 110 A	~ 155 A	~ 200 A

* Recommended value for system design based on PCB limiting temperature of 125°C

Supplies

In the product category PowerCover, we offer a choice of twist and contact protection elements. Press-fit tools and die plates are available on demand.

For more information visit us at:
www.powerelement.com
or call: +49 7940 9810-4444

We reserve the right to make technical changes and changes to the product range.
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