

LF POWERPLUS 2.0

High Current Contacts with Maximum Torque



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 and are therefore RoHS compliant, even without the exemption 6c of the RoHS Directive. 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 400 amperes are possible.

Advantages

- Pin or nut are now fixed in the element, thus enabling automatic screwing.
- The new screw head allows easier insertion and positioning of the nut.
- An improved pin design reduces the necessary press-in forces.
- Special press-in tools are no longer required.

Application Possibilities

- Board-to-Board connections
- Wire-to-Board for screw connection of ring cable lugs
- Holder/fastening of switches, fuses
- For fastening with high torques

Processing

LF PowerPlus 2.0 Powerelements are pressed-in into the PCB. Soldering is not necessary. 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.

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 our specifications
- Only for use with suitable press-fit tools
- In case of double-sided application, the smallest Powerelement must be pressed-in first

Technical Data	
Current carrying capacity per pin at 20 °C	see table on the back
Current carrying capacity per pin at 85 °C	see table on the back
Material	base body: CuZn37 screw/nut: stainless steel V2A
Surfaces	base body: tin-plated (standard) screw/nut: w/o

Dimensions	
Length x width	from 10.2 x 10.2 to 15.4 x 15.4 mm
Height	14 to 36 mm
Height above PCB	9 to 32 mm
Pin length	5 mm
Pin diagonal	1.9 to 2.0 mm

Circuit Board	
Base material	FR4 (EP-GC-)
PCB thickness	from 1.5 mm
Drilling diameter	see table on the back
Final diameter	see table on the back
Copperin hole thickness	see table on the back

Processing Parameters	
Press-in force	min. 60 N per pin max. 350 N per pin
Retention force	60 – 80 % of the press-in force
Press-in speed	100 – 250 mm/min



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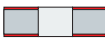
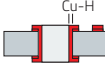
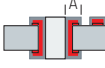
RoHS
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Circuit Board Design

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 Specification		
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* 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 diameter and copper thickness are fix. End Ø for reference only.		

Torques

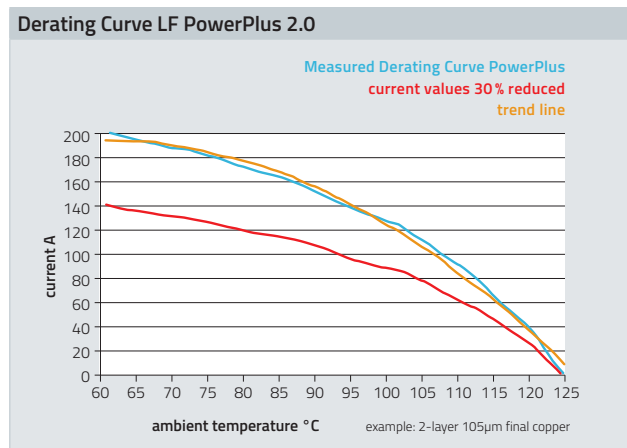
The torques indicated in the table are based on DIN 267 part 25. Different material combinations or different thread lengths of the connectors are not regarded here.

Torques for Stainless Steel			
Thread	M5	M6	M8
(Nm)	3.9	5.9	16

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.

Reference values for a pre-dimensioning can be found in the table below.



Overview of Standard Products

	M5	M6	M8
Part number (Bolt)	S900551	S900554	S900557
Part number (Bush)	S900552	S900555	S900558
Current carrying capacity at 20 °C	~ 190	~ 270	~ 360
Current carrying capacity at 85 °C	~ 130	~ 190	~ 260
Drill Ø (in mm)	1.900	1.900	2.000
End Ø (in mm) HAL	1.750	1.750	1.850
End Ø (in mm) chemical	1.775	1.775	1.875
Pins circumferential number/grid	8	12	16

Supplies

Under the product category PowerCover, we offer a large 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

Würth Elektronik ICS GmbH & Co. KG
 Intelligent Power & Control Systems
 Gewerbepark Waldzimmern · Würthstraße 1
 74676 Niedernhall · Germany
 +49 7940 9810-0 · Fax +49 7940 9810-1099
 ics@we-online.com · www.we-online.com/ics