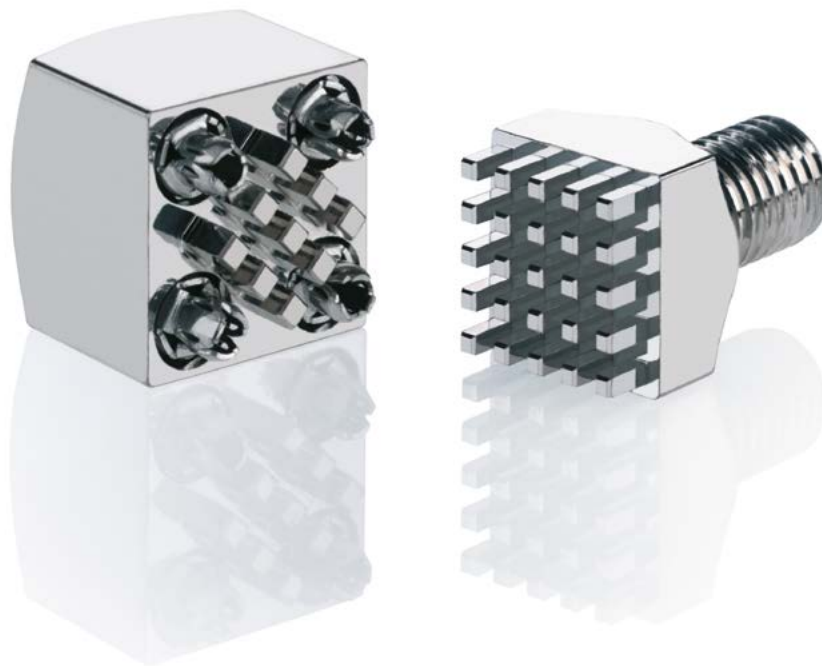


PowerElements

powered by BLUEcontact Solutions™



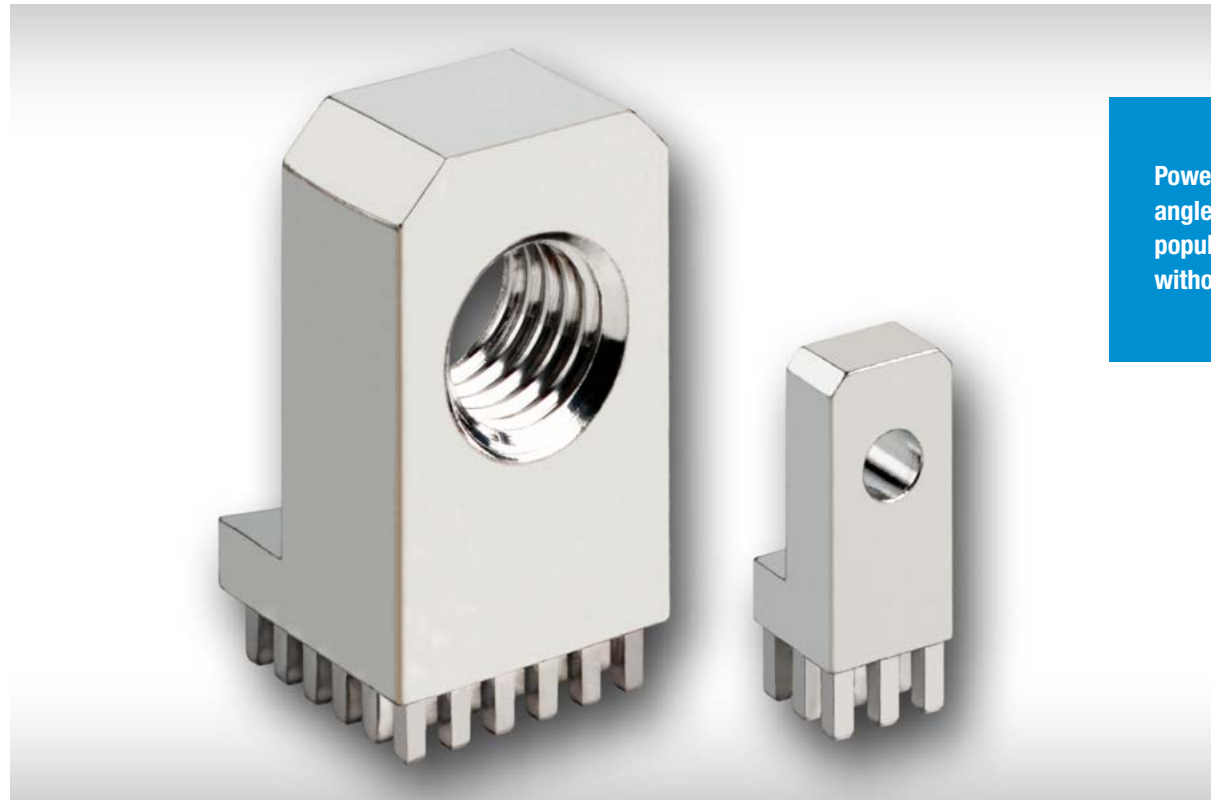
Original size PowerElement male thread M5

ED. 01 | 02.2014

Catalog E 074634



GENERAL



PowerElements angled, full pin population, with and without threads

As stated in its name, PowerElements can be used anywhere where you are dealing with “power” sourcing capabilities, namely high current on the PCB.

Be it “wire-to-board” sourcing and distribution in PCB based high current applications, or assembly, component connection and fixation such as screw locking (e.g. midi or mega fuses), relays with screw connection, conductor rail etc. on the PCBs.

For this we also provide additional insulation bodies e.g. twist protection, to avoid shorts and contact on the cable side of the connections such as cable lugs. Also mechanical challenges, such as the PCB connection inside a housing, in the interior or even with



GENERAL

a second PCB can be realised using PowerElements. The two piece PowerElement offers a special feature – it is press fitted from both sides of the PCB. The bearing surface on either side provide protection to the PCB against mechanical stress during assembly in the installation space.

Here, there are no limits to the variety of BLUEcontact PowerElements connection options.

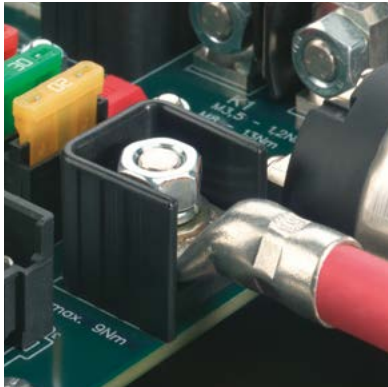
Whether it's the headless screw, the thread nut as well as through holes or blind holes, whether perpendicular or angled, even the installation height, connection surface and thread or drill dimension can be selected and combined without restriction.



PowerElements with flexible and massive pressfit zone



APPLICATION EXAMPLES

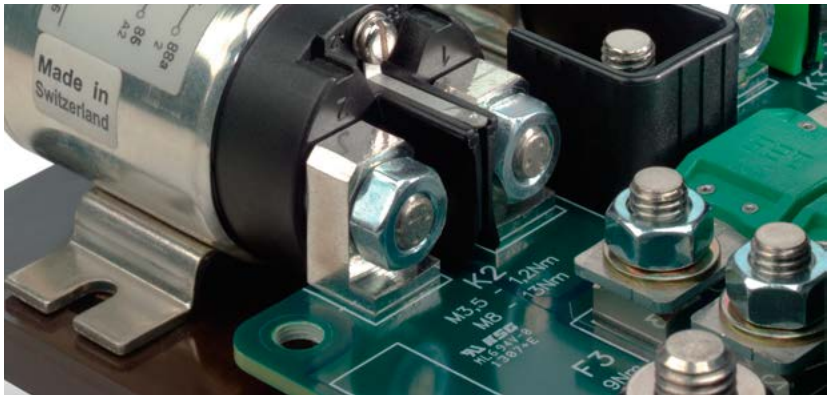


Attaching a cable to a M8 male thread PowerElement with twist protection (top left)

Attaching a megafuse on two M8 male thread PowerElements (top right)

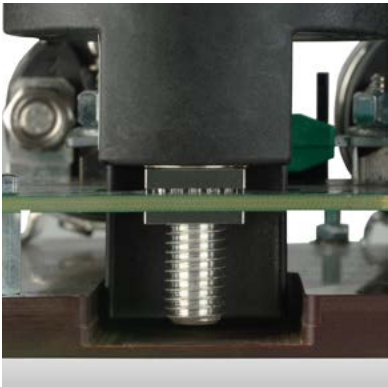


Attaching a high-current relay onto an angled PowerElement (centre)



Attaching a battery disconnecting switch on two piece PowerElements (bottom centre)

Attaching a midifuse onto two M5 male thread PowerElements (below right)



FITTING INSTRUCTIONS

The BLUEcontact PowerElements are REACH conform and with a lead content under 4 percentage by weight, they are also RoHS conform. The PowerElements can be press fitted from a PCB thickness of 1.6 mm upwards. Immersion tin and HAL lead free are the most preferable PCB surfaces here. It is preferable that the BLUEcontact PowerElements are press fitted. Soldering the PowerElements is

also possible, however this should be evaluated individually.

- Retention force according to IEC 60352-5
- Press fit force: max. 250 N per pin
- Temperature range: -40°C to + 135°C

TECHNICAL DATA

Material base body	CuZn39Pb3
Material flexible pressfit zone	CuNiSi
Surface	tin plated
Retention force	according to IEC 352-5
Press fit force	Max. 250 N per pin Min. 40 N per pin
Press out force	Min. 30 N per pin
PCB thickness	Min. 1.6 mm



WITH FLEXIBLE AND MASSIVE PRESSFIT ZONE / CHARACTERISTICS

GENERAL TECHNICAL DATA

Current carrying capacity per PowerElement

290 A at 20°C (and more – depending on design)

Tightening torque M5/M6/M8/M10

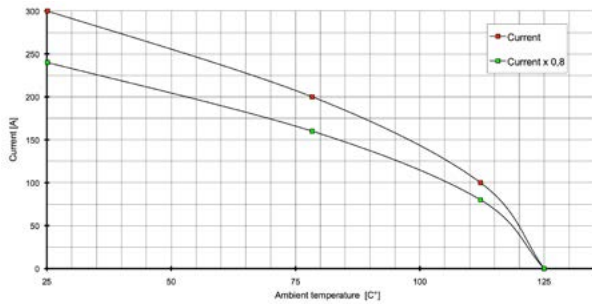
2.2 Nm / 3.9 Nm / 9.0 Nm / 17.0 Nm

Operating temperature

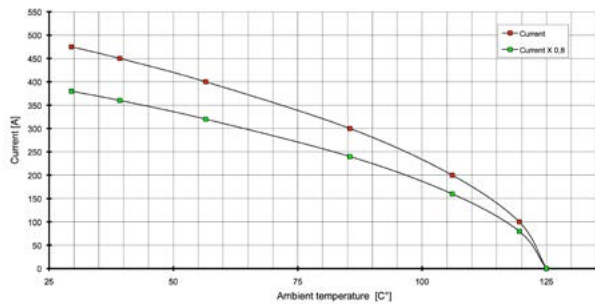
-40°C to +135°C

DERATING CURVE

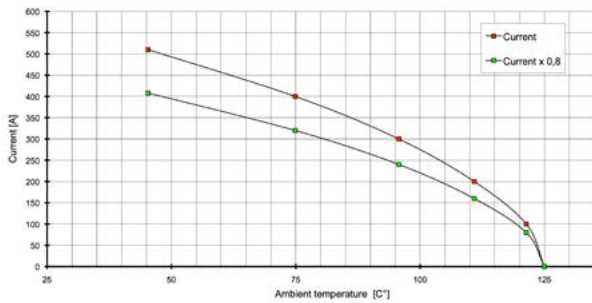
Current carrying capability PowerElement M5 - Product no. 225414



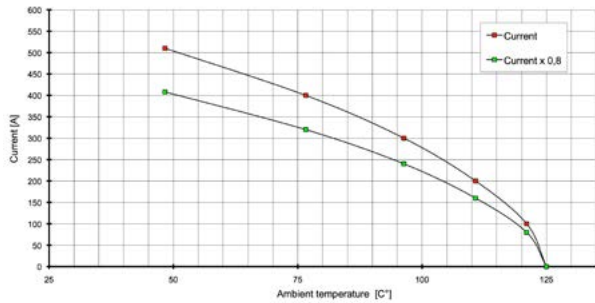
Current carrying capability PowerElement M6 - Product no. 225415



Current carrying capability PowerElement M8 - Product no. 225416

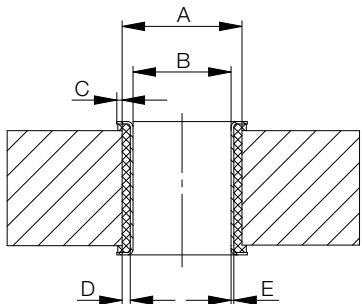


Current carrying capability PowerElement M10 - Product no. 225417

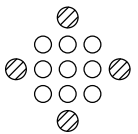


WITH FLEXIBLE AND MASSIVE PRESSFIT ZONE / CHARACTERISTICS

DRILL HOLE SPECIFICATIONS



Drill hole arrangement in the PCB



Flexible pressfit zone
Massive pressfit zone

	Surface	A	B	C	D	E
Flexible pressfit zone M5 / M6 / M8 / M10	Immersion tin	ø 3.2 -0.03	ø 3.1 +0.04 -0.06	0.1 min.	Cu 25 µm min. Cu 60 µm max.	Sn chem. typ. 1 µm
Flexible pressfit zone M5 / M6 / M8 / M10	HAL lead free	ø 3.2 -0.03	ø 3.1 +0.04 -0.06	0.1 min.	Cu 25 µm min. Cu 60 µm max.	Sn 20 µm max.
Massive pressfit zone M5 / M6	Immersion tin	ø 2.3 -0.03	ø 2.175 ±0.05	0.1 min.	Cu 25 µm min. Cu 60 µm max.	Sn 15 µm max.
Massive pressfit zone M5 / M6	HAL lead free	ø 2.3 -0.03	ø 2,15 ±0,05	0.1 min.	Cu 25 µm min. Cu 60 µm max.	Sn 15 µm max.
Massive pressfit zone M8 / M10	Immersion tin	ø 3.0 -0.03	ø 2.875 ±0,05	0.1 min.	Cu 25 µm min. Cu 60 µm max.	Sn 15 µm max.
Massive pressfit zone M8 / M10	HAL lead free	ø 3.0 -0.03	ø 2.875 ±0,05	0.1 min.	Cu 25 µm min. Cu 60 µm max.	Sn 15 µm max.

CAUTION:

It is essential that both the drill diameter and final diameter are complied with in order to guarantee the specified characteristics.

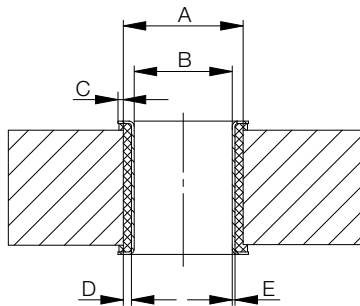


MASSIVE PRESSFIT ZONE ONLY / CHARACTERISTICS

GENERAL TECHNICAL DATA

Current carrying capability per PowerElement	Approx. 10 A per pin
Tightening torque M3/M4/M5/M6/M8/M10	0.5 Nm / 1.2 Nm / 2.2 Nm / 3.9 Nm / 9.0 Nm / 17.0 Nm
Operating temperature	-40°C to +135°C

DRILL HOLE SPECIFICATIONS



	Surface	A	B	C	D	E
Massive pressfit zone	Immersion tin	ø 1.6 -0.03	ø 1.475 ±0.05	0.1 min.	Cu 25 µm min. Cu 60 µm max.	Sn 15 µm max.
	HAL lead free	ø 1.6 -0.03	ø 1.45 ±0.05	0.1 min.	Cu 25 µm min. Cu 60 µm max.	Sn 15 µm max.

CAUTION:
It is essential that both the drill diameter and final diameter are complied with in order to guarantee the specified characteristics.



OVERVIEW

PRODUCT MATRIX

	Number of pins	4 pins with flexible pressfit zone, 9 pins with massive pressfit zone								
	Female thread, with flexible and massive Pressfit zone	M5, M6, M8, M10								
	Number of pins	6	8	9	10	12	16	20	25	36
	Male thread, full pin population			M3 M4 M5			M4 M5		M6 M8	M10
	Female thread, full pin population			M3			M4 M5 M6		M8	M10
	Female thread, two rows pin population	M3	M4 M5 M6		M8	M10				
	Female thread, circular pin population		M2,5			M4 M5	M6 M8	M10		
	Angled, full pin population			M3 ø3.2			M4, M5 ø4.2 ø5.2		M6, M8 ø6.2 ø8.2	M10 ø10.2
	Angled, two rows pin population	M3 ø3.2	M4, M5 ø4.2 ø5.2		M6, M8 ø6.2 ø8.2	M10 ø10.2				
	Protection for PowerElements with male thread	Suitable for M3, M4, M5, M6, M8, M10								



FLEXIBLE AND MASSIVE PRESSFIT ZONE

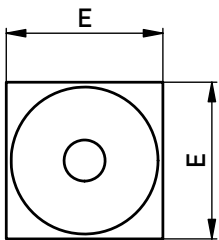
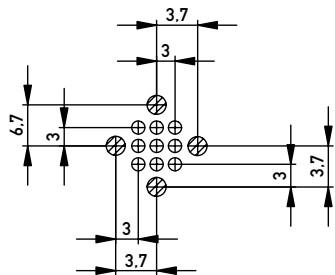
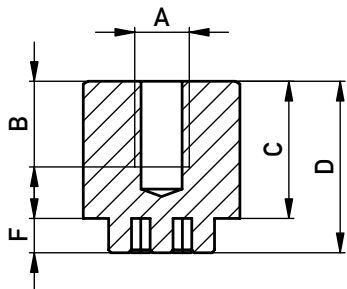
PRODUCT SPECIFICATION



- Specifically for applications in which massive pressfit technology is not permitted for sole power transmission.
- For especially high demands eg. for very high power coupling

DIMENSIONAL DRAWINGS

M5 / M6 PowerElements

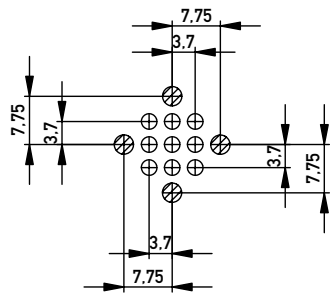
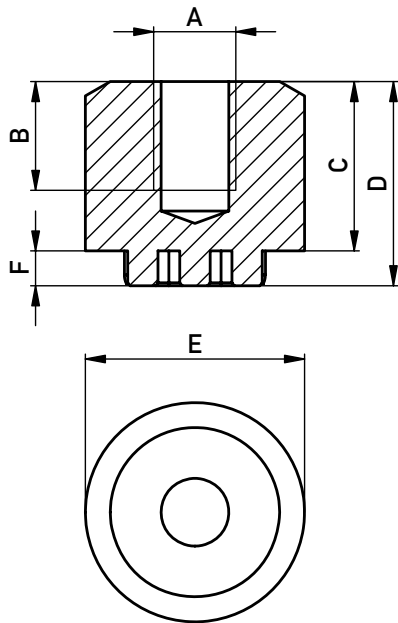


Flexible Pressfit Zone
Massive Pressfit Zone



FLEXIBLE AND MASSIVE PRESSFIT ZONE

M8 / M10 PowerElements



Flexible Pressfit Zone
Massive Pressfit Zone

ORDERING INFORMATION

A	B	C	D	E	F	Weight	Part Number
M5	6	14	17.5	16	3.5	25	225414
M6	6	14	17.5	16	3.5	24	225415
M8	11	17	20.5	22	3.5	46	225416
M10	11	17	20.5	22	3.5	43	225417



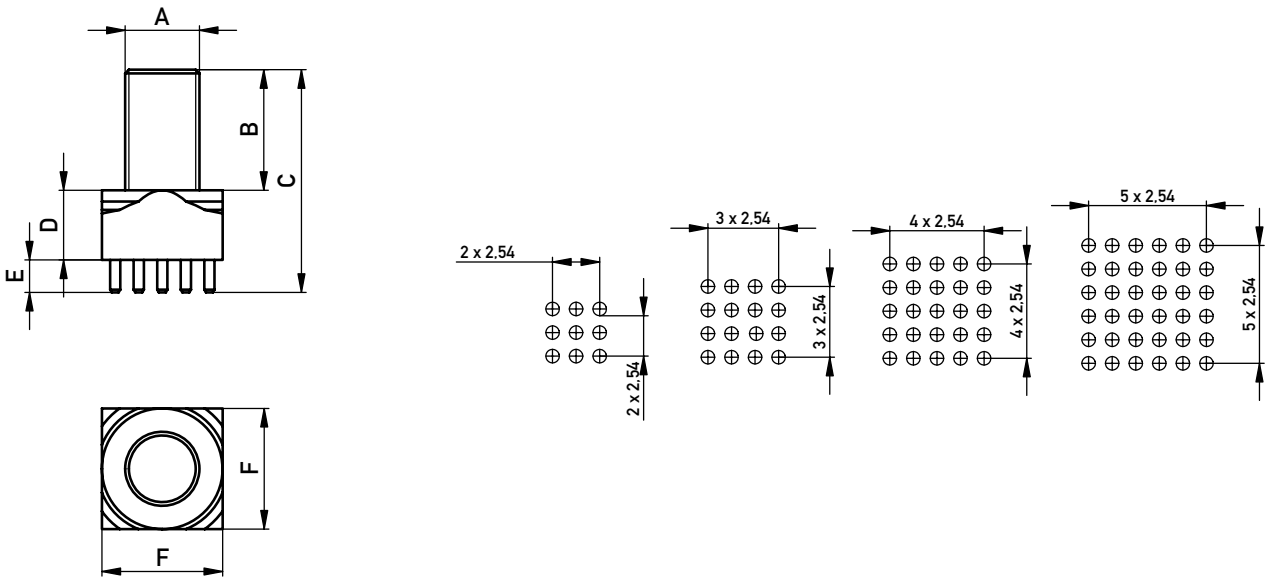
MASSIVE PRESSFIT ZONE, MALE THREAD AND FULL PIN POPULATION

PRODUCT SPECIFICATION



- PCB connection for fixing cable lugs
- Fixing midi or mega fuses on the PCB
- UNC thread or customer specific modifications on demand

DIMENSIONAL DRAWINGS



MASSIVE PRESSFIT ZONE, MALE THREAD AND FULL PIN POPULATION

ORDERING INFORMATION

A	B	C	D	E	F	No. of Pins	Weight	Part Number
M3	5	11	3	3.5	7	9	2.1	225675
M4	6	13	3.5	3.5	9	16	3.6	225676
M4	6	12.5	3	3.5	7	9	3.6	225804
M5	8	15.5	4	3.5	7	9	4.3	225777
M5	8	16	4.5	3.5	9	16	4.9	225677
M6	10	19	5.5	3.5	13	25	10.5	225678
M8	13	24	7.5	3.5	13	25	15.9	225679
M10	16	27.5	8	3.5	16	36	27.2	225680



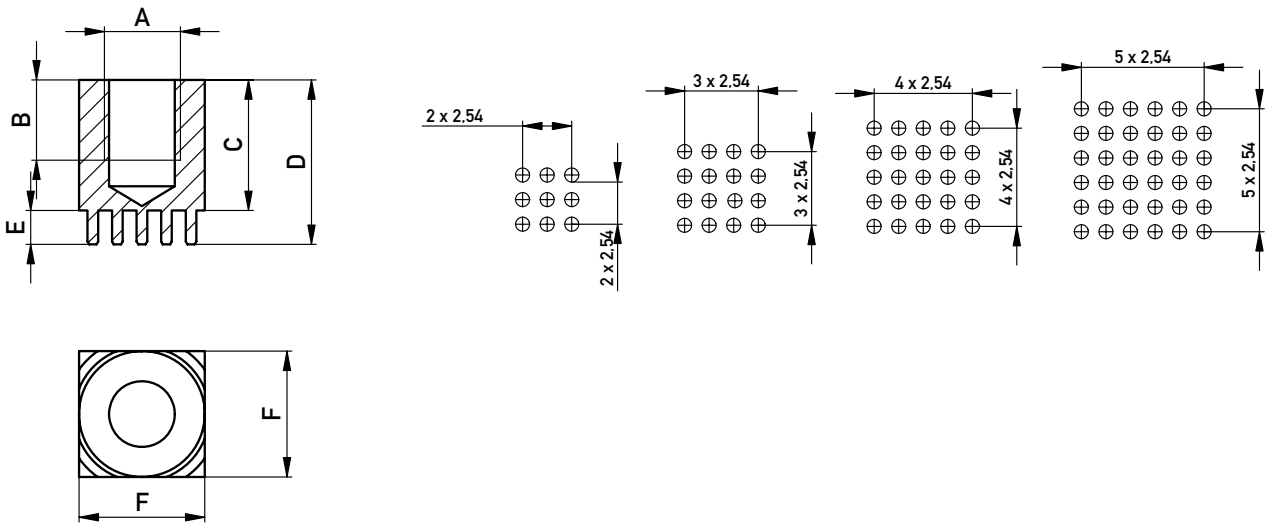
MASSIVE PRESSFIT ZONE, FEMALE THREAD AND FULL PIN POPULATION

PRODUCT SPECIFICATION



- PCB connection for fixing cable lugs
- Fixing midi or mega fuses on the PCB
- UNC thread or customer specific modifications on demand

DIMENSIONAL DRAWINGS



MASSIVE PRESSFIT ZONE, FEMALE THREAD AND FULL PIN POPULATION

ORDERING INFORMATION

A	B	C	D	E	F	No. of Pins	Weight	Part Number
M3	3.5	6	9.5	3.5	7	9	2.5	225681
M4	4	7	10.5	3.5	9	16	4.6	225682
M5	4	7	10.5	3.5	9	16	4.4	225683
M6	6.5	10.5	14	3.5	10	16	7	225684
M8	8	13.5	17	3.5	13	25	14.2	225685
M10	11	17.5	21	3.5	16	36	26.2	225686



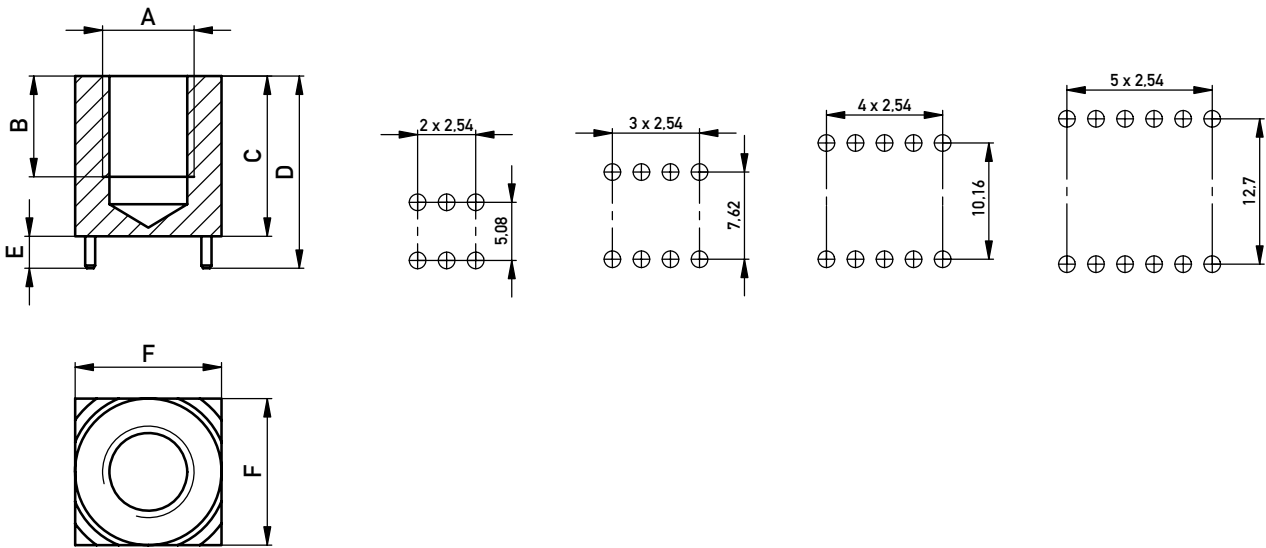
MASSIVE PRESSFIT ZONE, FEMALE THREAD AND TWO ROWS PIN POPULATION

PRODUCT SPECIFICATION



- PCB connection for fixing cable lugs
- Available with continuous thread
- Fixing midi or mega fuses on the PCB
- When smaller pressfit forces are required
- When the layout does not permit full pin population
- UNC thread or customer specific modifications on demand

DIMENSIONAL DRAWINGS



MASSIVE PRESSFIT ZONE, FEMALE THREAD AND TWO ROWS PIN POPULATION

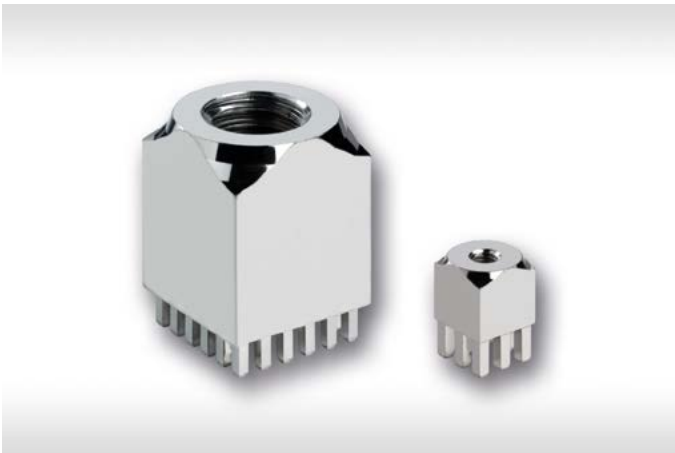
ORDERING INFORMATION

A	B	C	D	E	F	No. of Pins	Weight	Part Number
M3	5	6	9.5	3.5	7	6	2.3	225693
M4	6	7	10.5	3.5	9	8	4.2	225694
M5	6	7	10.5	3.5	9	8	3.8	225695
M6	9	13.5	17	3.5	10	8	8.2	225696
M8	10	13.5	17	3.5	13	10	12.2	225697
M10	11	17.5	21	3.5	16	12	25.3	225698



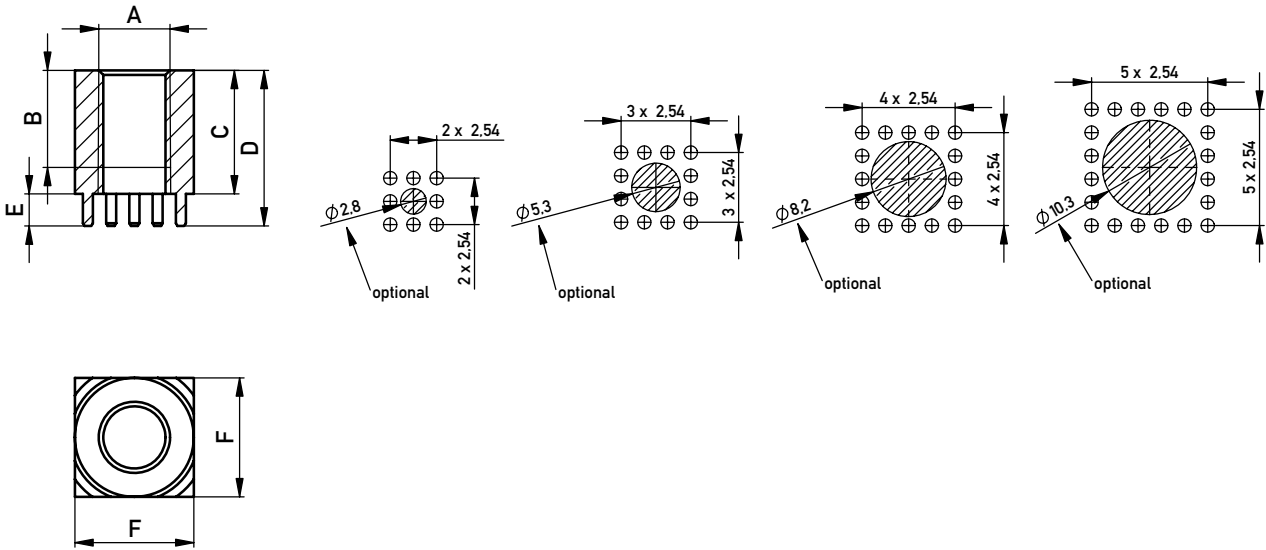
MASSIVE PRESSFIT ZONE, FEMALE THREAD AND CIRCULAR PIN POPULATION

PRODUCT SPECIFICATION



- PCB connection for fixing cable lugs
- Available with continuous thread
- Fixing midi or mega fuses on the PCB
- When smaller pressfit forces are required
- When the layout does not permit full pin population
- UNC thread or customer specific modifications on demand

DIMENSIONAL DRAWINGS



MASSIVE PRESSFIT ZONE, FEMALE THREAD AND CIRCULAR PIN POPULATION

ORDERING INFORMATION

A	B	C	D	E	F	No. of Pins	Weight	Part Number
M2.5	5	6	9.5	3.5	7	8	2.5	225687
M4	5.2	6	9.5	3.5	9	12	3.8	225688
M5	–	6	9.5	3.5	9	12	3.6	225689
M6	–	13.5	17	3.5	13	16	14.6	225690
M8	–	13.5	17	3.5	13	16	12.4	225691
M10	–	17.5	21	3.5	16	20	22.6	225692



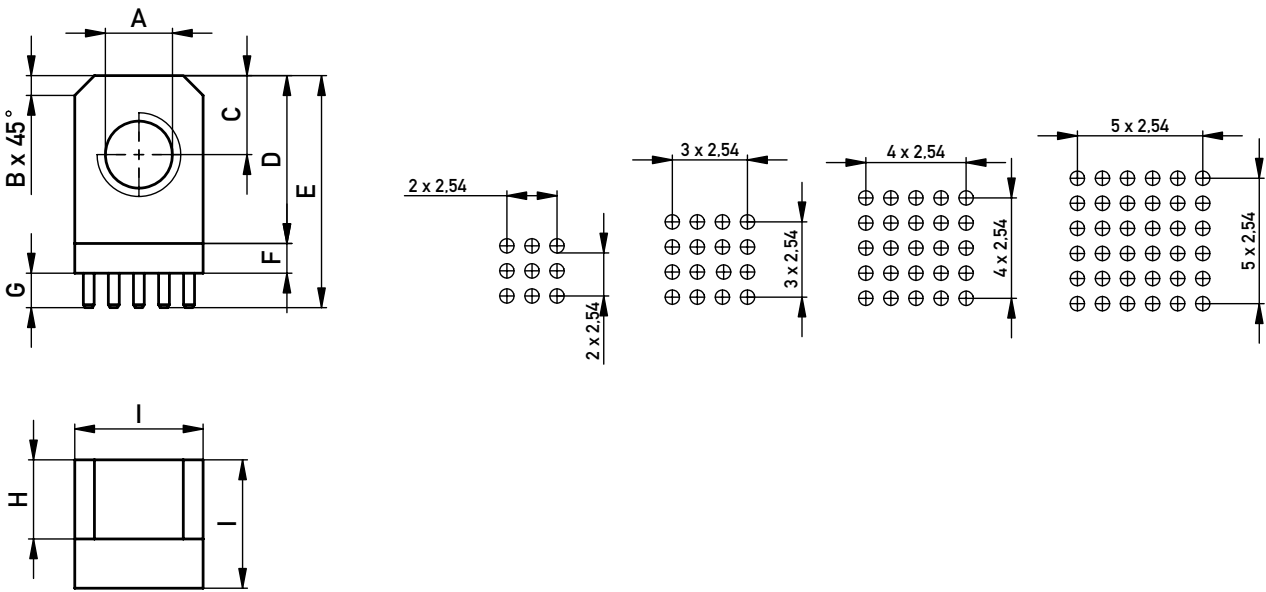
MASSIVE PRESSFIT ZONE, ANGLED, FULL PIN POPULATION

PRODUCT SPECIFICATION



- PCB connection for fixing cable lugs
- Connection 90°
- Available with thread or through hole
- UNC thread or customer specific modifications on demand
- As a fixing element for assembly onto housing etc.
- E.g. for the connection of high current relays

DIMENSIONAL DRAWINGS



MASSIVE PRESSFIT ZONE, ANGLED, FULL PIN POPULATION

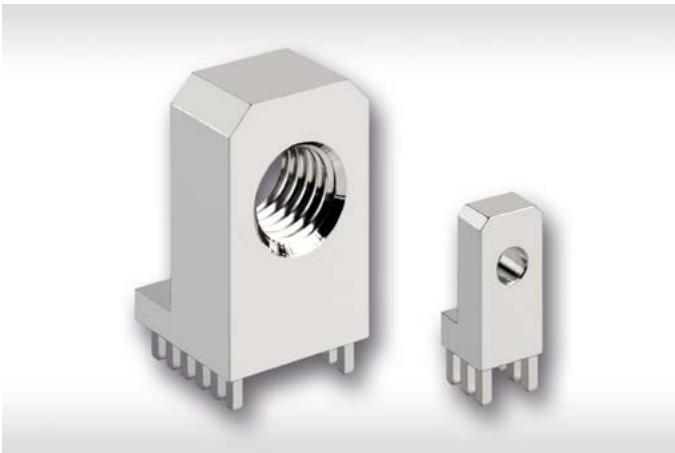
ORDERING INFORMATION

A	B	C	D	E	F	G	H	I	No. of Pins	Weight	Part Number
M3	1	5	11	17.5	3	3.5	4	7	9	4.2	225699
M4	1.5	5	11	17.5	3	3.5	5	9	16	6.6	225700
M5	1.5	5	11	17.5	3	3.5	5	9	16	6.4	225701
M6	2	8	17	23.5	3	3.5	8	13	25	19	225702
M8	2	8	17	23.5	3	3.5	8	13	25	17.7	225703
M10	2.5	10	22	28.5	3	3.5	10	16	36	22.6	225704
ø 3.2	1	5	11	17.5	3	3.5	4	7	9	4	225705
ø 4.2	1.5	5	11	17.5	3	3.5	5	9	16	6.3	225706
ø 5.2	1.5	5	11	17.5	3	3.5	5	9	16	6	225707
ø 6.2	2	8	17	23.5	3	3.5	8	13	25	18.3	225708
ø 8.2	2	8	17	23.5	3	3.5	8	13	25	16.7	225709
ø 10.2	2.5	10	22	28.5	3	3.5	10	16	36	30.9	225710
ø 10.2	2.5	10	22	28.5	3	3.5	5	16	36	30.9	225784



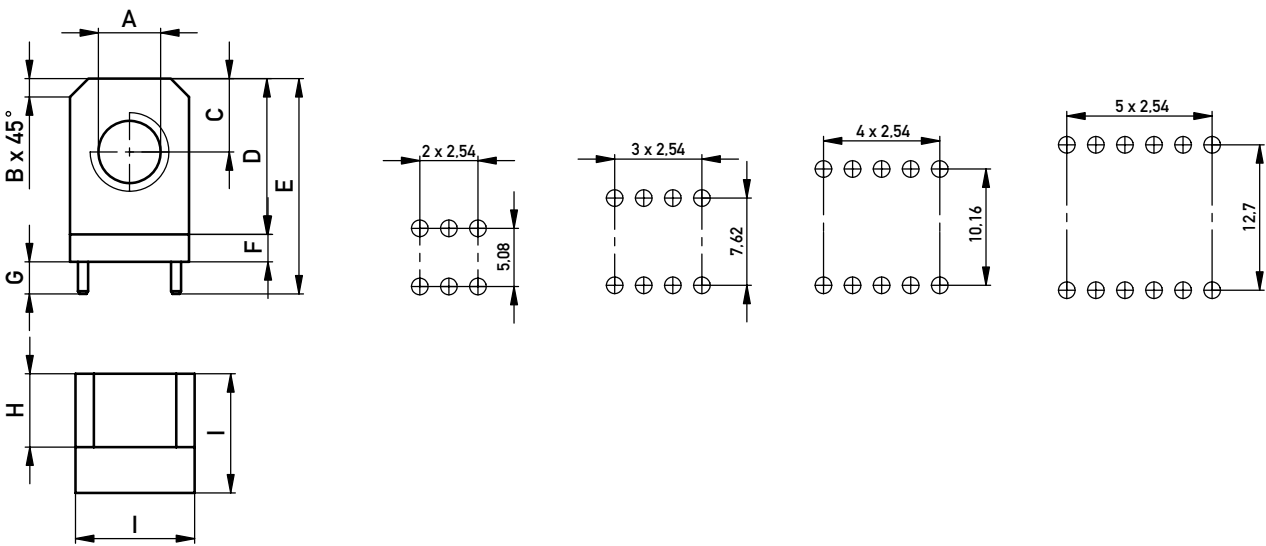
MASSIVE PRESSFIT ZONE, ANGLED, TWO ROW PIN POPULATION

PRODUCT SPECIFICATION



- PCB connection for fixing cable lugs
- Connection 90°
- Available with thread or through hole
- UNC thread or customer specific modifications on demand
- When smaller pressfit forces are required
- When the layout does not permit full pin population
- E.g. for the connection of high current relays

DIMENSIONAL DRAWINGS



MASSIVE PRESSFIT ZONE, ANGLED, TWO ROW PIN POPULATION

ORDERING INFORMATION

A	B	C	D	E	F	G	H	I	No. of Pins	Weight	Part Number
M3	1	5	11	17.5	3	3.5	4	7	6	4	225711
M4	1.5	5	11	17.5	3	3.5	5	9	8	6.3	225712
M5	1.5	5	11	17.5	3	3.5	5	9	8	6.1	225713
M6	2	8	17	23.5	3	3.5	8	13	10	18.4	225714
M8	2	8	17	23.5	3	3.5	8	13	10	17.2	225715
M10	2.5	10	22	28.5	3	3.5	10	16	12	31.5	225716
ø 3.2	1	5	11	17.5	3	3.5	4	7	6	3.9	225717
ø 4.2	1.5	5	11	17.5	3	3.5	5	9	8	6	225718
ø 5.2	1.5	5	11	17.5	3	3.5	5	9	8	5.7	225719
ø 6.2	2	8	17	23.5	3	3.5	8	13	10	17.7	225720
ø 8.2	2	8	17	23.5	3	3.5	8	13	10	16.2	225721
ø 10.2	2.5	10	22	28.5	3	3.5	10	16	12	30	225722



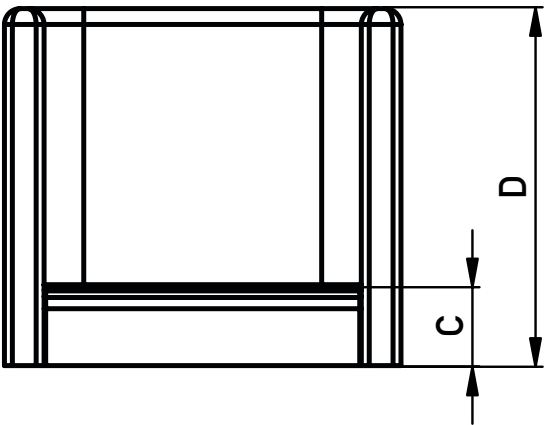
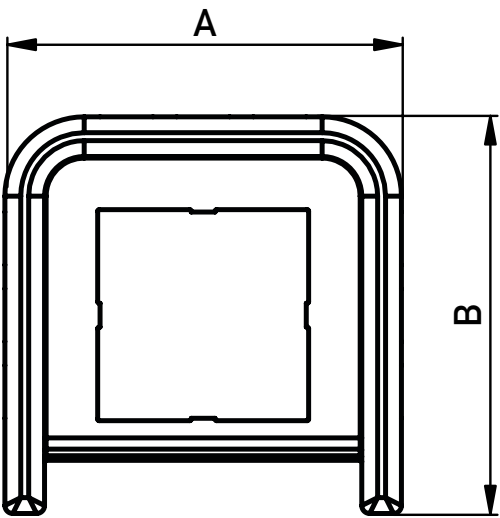
— TWISTED AND CONTACT PROTECTION FOR MALE POWER ELEMENTS

PRODUCT SPECIFICATION



- For placement particularly on the PowerElement pins
- To prevent short circuits to nearby components
- As protection against contact
- Smaller distances between two power elements in layout is feasible

DIMENSIONAL DRAWINGS



— TWISTED AND CONTACT PROTECTION FOR MALE POWER ELEMENTS

ORDERING INFORMATION

A	B	C	D	Usage	Part Number
16	16	2	9.5	with Power Element 225675	225794
18	18	2.5	14.5	with Power Element 225676 and 225677	225795
25	25	5	22.5	with Power Element 225678 and 225679	225796
30	30	7	26	with Power Element 225680	225797



BESTELNUMMERNVERZEICHNIS

Part Number	Page
225414	3
225415	3
225416	3
225417	3
225675	5
225676	5
225677	5
225678	5
225679	5
225680	5
225681	7
225682	7
225683	7
225684	7
225685	7
225686	7
225687	11
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225691	11
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Part Number	Page
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225719	15
225720	15
225721	15
225722	15



BESTELNUMMERNVERZEICHNIS

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Part Number	Page
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225796	17
225797	17
225804	5

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