Selection guide for **AMTEC®** *thread inserts*

Requirements Specifications	**HITSERT® 2**	**HITSERT® 3**	**SONICSERT®**	**QUICKSERT® plus**	**QUICKSERT® QUICK-SERT® Hex** self-tapping	**QUICKSERT®** type 1230 expansion	**EXPANSION-SERT 1**	**EXPANSION-SERT 2**	**SPREDSERT®** type 1/type 2 **SPREDSERT®** with retaining flange
Suitability for different constr. materials									
– Thermoplastics	++	++	++	++	+	+	0	exception	type 1/with ret. flange+
– Thermosets	––	–	––	––	++	+	+	––	type 2/with ret. flange+
– Foams	––	––	––	–	0	–	––	+	––
– Elastomers	––	––	––	–	0	––	––	+	––
Minimum installation effort (machine technology)	Thermal installation machine (min. quantities with soldering gun)	"soldering gun" screwdriver toggle press	ultrasonic welding machine	manual installation tool screwdriver	manual installation tool screwdriver	spindle lifting tool (possibly press)	manual installation mandrel	manual installation mandrel	manual installation mandrel
Recommended wall thicknesses (comparable quality: 1 = low, 4 = high)	1	1	2	2	3	4	4	4	3
Fitting values in equal thermoplastics	100 %	100 % for thermal installation and tapping insertion, 70 % for pressing-in	80 %	110 %	120 %	100 %	60 %	–	50 %
Special requirements:									
– Tightness	with O-ring (implemented)	yes	with O-ring (possible)	no	no	–	no	no	no
– Bolt thread	yes		yes	no	no	–	no	no	no
– Through hole	yes	yes	yes	no	no		no	no	no
Others	by taper (8°) – self-centring – low-tension	seal insert, variable installation		chipless embedding		also suitable for light metals	easy installation		cost-effective
This catalogue, on page	**6**	**8**	**11**	**19**	**23**	**24**	**30**	**32**	**33**

! Remarks regarding "Fitting values in equal thermoplastics": Indicated values relate to HITSERT® 2 in PA GF.

–– unsuitable / – limited / 0 satisfactory / + good / ++ very good

Selection guide for installation methods

To meet the high general requirements to connection technology, fasteners and processing systems must be perfectly designed and match perfectly. That is why we, as a specialist in fastening and assembly technology, in the field of embedding thread inserts cooperate with KVT Bielefeld GmbH, Werkering 6, 33609 Bielefeld, Germany, phone + 49 (0)521-9320710, info@kvt-bielefeld.de, the welding specialist.

Installation methods	Possible sizes	Installation time	Materials	Size	Batch sizes	Installation accuracy			Special characteristics
						< 0.05	+/- 0.1	≥ 0.2	
HEW – heat element welding	M 2 – M 8	approx. 3 – 4 seconds (for size M 4)	thermo-plastics, thermo-plastic elastomers	≤ M 3	< 50,000	––	++	++	– low-tension – multiple installation possible – well suitable for threaded bolts – easily convertible to other thread insert dimensions
					~ 500,000	––	++	++	
					> 1 Mio.	––	++	++	
				M 4 – M 6	< 50,000	––	++	++	
					~ 500,000	––	++	++	
					> 1 Mio.	––	++	++	
				≥ M 8	< 50,000	––	+	+	
					~ 500,000	––	+	+	
					> 1 Mio.	––	+	+	
ERW – electromagnetic resistance welding	M 1,4 – M 40	approx. 3 seconds (for size M 5)	thermo-plastics, thermo-plastic elastomers	≤ M 3	< 50,000	++	++	++	– low-tension – multiple installation possible – especially for inserts < M 2 as well as inserts with sealing rings – single-phase or two-phase process can be selected
					~ 500,000	++	++	++	
					> 1 Mio.	++	++	++	
				M 4 – M 6	< 50,000	++	++	++	
					~ 500,000	++	++	++	
					> 1 Mio.	++	++	++	
				≥ M 8	< 50,000	++	++	++	
					~ 500,000	++	++	++	
					> 1 Mio.	++	++	++	
USW – ultrasonic welding	M 2 – M 6	approx. 3 seconds (for size M 5)	thermo-plastics,	≤ M 3	< 50,000	––	0	++	– high noise emission upon installation of metal inserts – considerable abrasion upon installation of metal inserts – unsuitable for threaded bolts – easily convertible to other thread insert dimensions
					~ 500,000	––	0	++	
					> 1 Mio.	––	0	++	
				M 4 – M 6	< 50,000	––	0	++	
					~ 500,000	––	0	++	
					> 1 Mio.	––	0	++	
				≥ M 8	< 50,000	––	––	––	
					~ 500,000	––	––	––	
					> 1 Mio.	––	––	––	

–– unsuitable / – limited / 0 satisfactory / + good / ++ very good

All dimensions in mm.

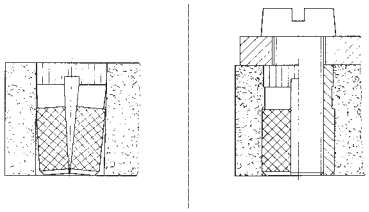
The versions – thread inserts for expansion anchoring **SPREDSERT® 2**

The advantages

- For thermoset parts
- Knurled flange and diamond knurl ensure high degree of security against twisting and tensile load
- Screw locking

  Material: Cu Zn 38 Pb 2 (EU 2000/53 compliant)

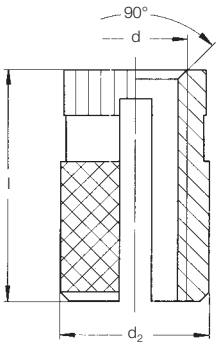
Principle



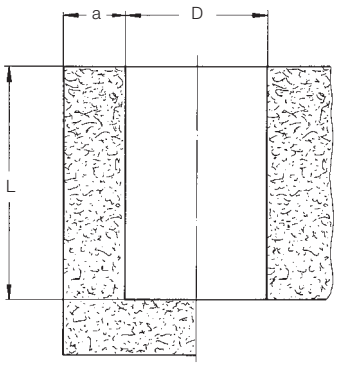
The **SPREDSERT® 2** is inserted into the mounting hole until the retaining flange is completely anchored in the plastic material. In that process, the slotted area is compressed. The radially secured **SPREDSERT® 2** is expanded by the screw so that the diamond knurling penetrates the plastic material and ensures the tight-fit of the thread insert. In this process, the screw is locked.
For the additional expansion force, the tightening torque must be increased by 10 %.

Technical data

Type 0837



Mounting hole①



For installation tools and machines, see pages 39 – 40

d	Order No②	l③	d_2	$D^{+0.1}$①	$L_{min.}$	$a_{min.}$
M 3	0837 103 0005	5.0	4.3	3.9	5.5	3.0
M 3.5	0837 135 0064	6.4	5.1	4.7	7.0	3.3
M 4	0837 104 0008	8.0	6.0	5.5	8.5	3.5
M 5	0837 105 0095	9.5	6.8	6.3	10.0	4.0
M 6	0837 106 0127	12.7	8.4	7.9	13.5	5.0

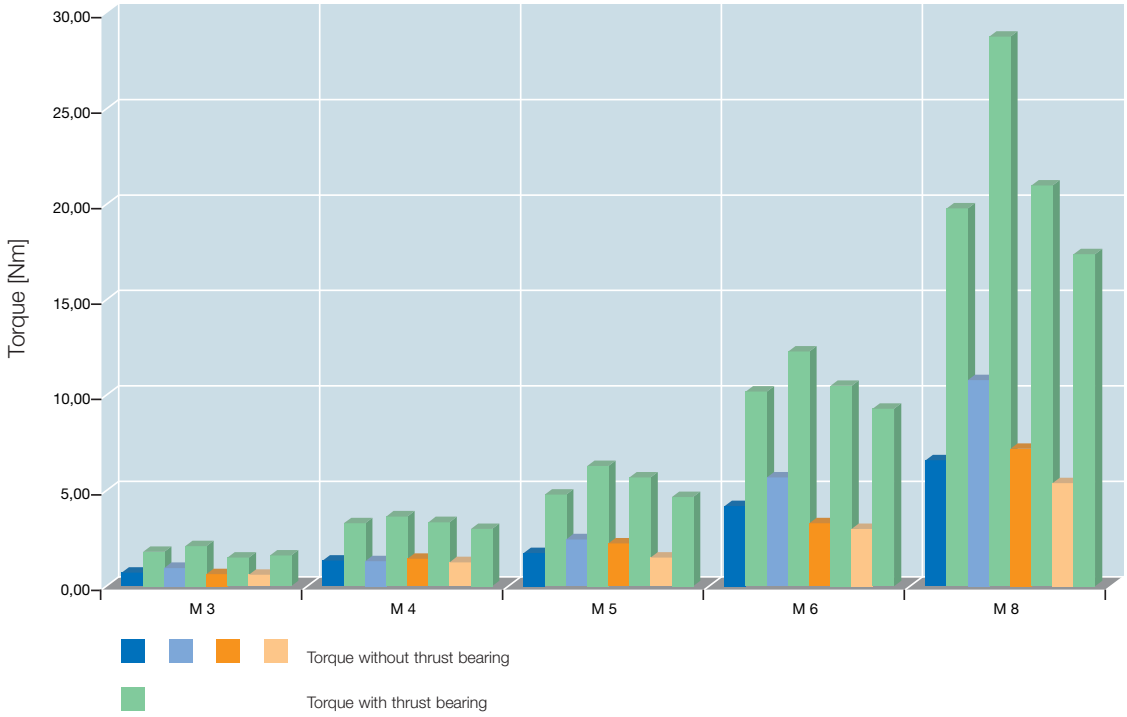
Metric ISO thread according to DIN 13-6H.
Technical modifications reserved.
All dimensions in mm.
Other sizes and special designs on request.

① Guide values: depend on moulding material, may have to be changed after setting trials.
② Minimum quantity on request.
③ Screw contact length = min. insert length (l) + 1p (pitch)

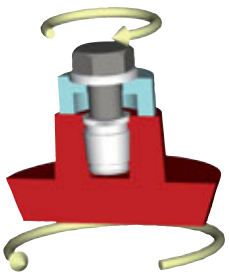
The versions – thread inserts for expansion anchoring **SPREDSERT® 1 + 2**

Technical data

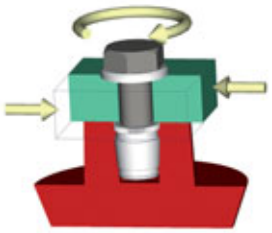
Torque values SPREDSERT® 1 + 2 / M 3 to M 8



		M 3	M 4	M 5	M 6	M 8
ABS	MA [Nm]	0.72	1.35	1.74	4.20	6.60
ABS	MR [Nm]	1.80	3.30	4.80	10.20	19.80
PC	MA [Nm]	0.96	1.32	2.46	5.70	10.80
PC	MR [Nm]	2.10	3.66	6.30	12.30	28.80
PA	MA [Nm]	0.63	1.44	2.25	3.30	7.20
PA	MR [Nm]	1.50	3.36	5.70	10.50	21.00
PE/PP	MA [Nm]	0.60	1.26	1.50	3.00	5.40
PE/PP	MR [Nm]	1.62	3.00	4.68	9.30	17.40



Torque without thrust bearing (MA[Nm]) (jack out)

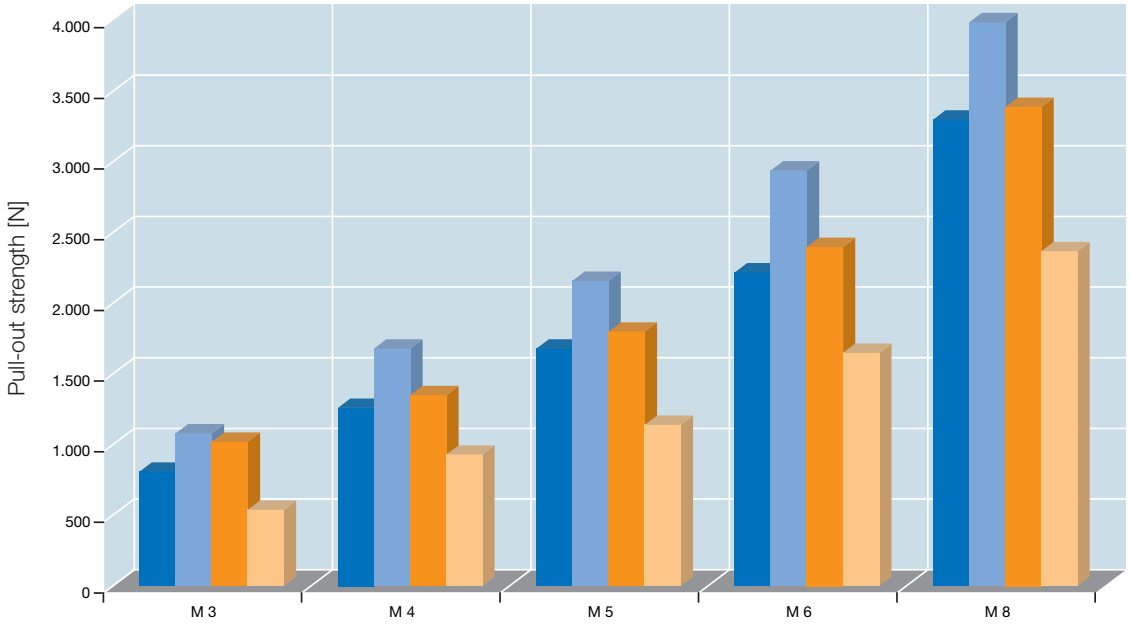


Torque with thrust bearing (MR[Nm])

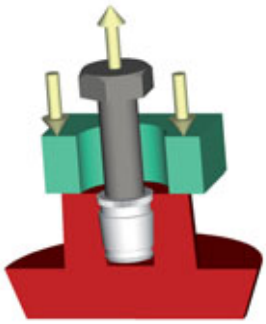
The versions – thread inserts for expansion anchoring **SPREDSERT® 1 + 2**

Technical data

Pull-out values SPREDSERT® 1 + 2 / M 3 to M 8



	M 3	M 4	M 5	M 6	M 8
ABS FA [N]	810	1,260	1,680	2,220	3,300
PC FA [N]	1,080	1,680	2,160	2,940	3,990
PA FA [N]	1,020	1,350	1,800	2,400	3,390
PE/PP FA [N]	540	930	1,140	1,650	2,370



Pull-out strength (FA[N])

Technical notes

Indicated values are guide values. We recommend an installation test for the respective application.
To be on the safe side, for fibre-reinforced plastics, the strengths of the non-reinforced material should be assumed. If you use brass thread inserts in plastics susceptible to stress cracks (e.g. polycarbonate), we recommend additional surface treatment of the thread inserts (nickel plating or surface coating as required).
Strength values for other thread inserts on request.

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