

## 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
<b>Suitability for different constr. materials</b>									
- Thermoplastics	++	++	++	++	+	+	0	exception	type 1/withret. flange+
- Thermosets	--	-	--	--	++	+	+	--	type 2/withret. 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 %
<b>Special requirements:</b>									
- 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
<b>Others</b>	by taper (8°) - self-centring - low-tension	seal insert, variable installation		chipless embedding		also suitable for light metals	easy installation		cost-effective
<b>This catalogue, on page</b>	<b>6</b>	<b>8</b>	<b>11</b>	<b>19</b>	<b>23</b>	<b>24</b>	<b>30</b>	<b>32</b>	<b>33</b>



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

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

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**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	--	++	++	<ul style="list-style-type: none"> <li>– low-tension</li> <li>– multiple installation possible</li> <li>– well suitable for threaded bolts</li> <li>– easily convertible to other thread insert dimensions</li> </ul>		
					~ 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	++	++		++	<ul style="list-style-type: none"> <li>– low-tension</li> <li>– multiple installation possible</li> <li>– especially for inserts &lt; M 2 as well as inserts with sealing rings</li> <li>– single-phase or two-phase process can be selected</li> </ul>
						~ 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	++	<ul style="list-style-type: none"> <li>– high noise emission upon installation of metal inserts</li> <li>– considerable abrasion upon installation of metal inserts</li> <li>– unsuitable for threaded bolts</li> <li>– easily convertible to other thread insert dimensions</li> </ul>	
						~ 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.

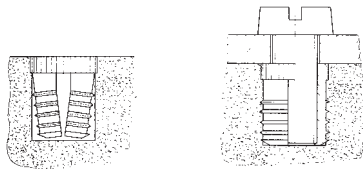
**The versions – thread inserts for expansion anchoring SPREDSERT® 1**



**The advantages**

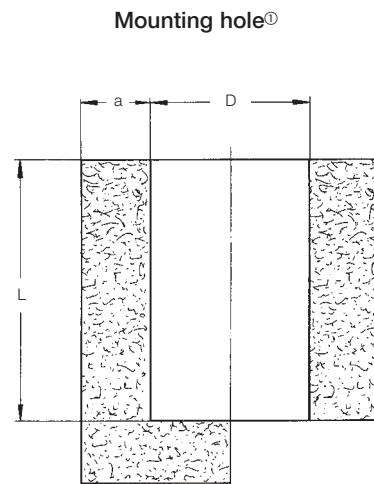
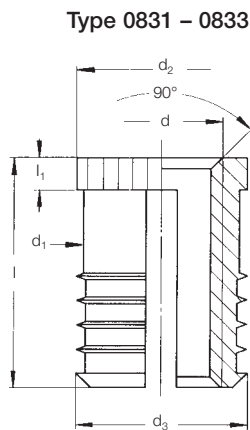
- For thermoplastic parts
  - Knurled flange and anchor rings ensure high degree of security against twisting and tensile load
  - Screw locking
- Material: Cu Zn 38 Pb 2 (EU 2000/53 compliant)

**Principle**



The **SPREDSERT® 1** 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® 1** is expanded by the screw so that the anchor rings penetrate the plastic material and ensure 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**



For installation tools and machines, see pages 39 – 40

d	Order No	Number of anchor rings	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	l <sup>Ⓢ</sup>	l <sub>1</sub>	D <sup>+0.1Ⓢ</sup>	L <sub>min.</sub>	a <sub>min.</sub>
M 2	0832 102 0004	3	3.15	3.7	3.6	4.0	0.6	3.2	4.5	2.0
M 2.5	0832 125 0005	3	3.9	4.5	4.4	5.0	0.75	4.0	5.5	2.5
M 3	0832 103 0005	3	3.9	4.5	4.4	5.0	0.75	4.0	5.5	3.0
M 3.5	0832 135 0065	3	4.7	5.3	5.2	6.5	1.0	4.8	7.1	3.2
M 4	0833 104 0008	4	5.35	6.0	5.9	8.0	1.3	5.5	8.7	3.5
M 5	0833 105 0095	5	6.35	7.0	6.9	9.5	1.3	6.5	10.3	4.0
M 6	0831 106 0011	5	7.85	8.5	8.4	11.0	2.0	8.0	12.0	5.0
M 8	0831 108 0013	5	9.5	9.95	9.9	13.0	2.0	9.6	14.0	7.0

Metric ISO thread according to DIN 13-6H.  
 Technical modifications reserved.  
 Minimum quantity on request.  
 All dimensions in mm.

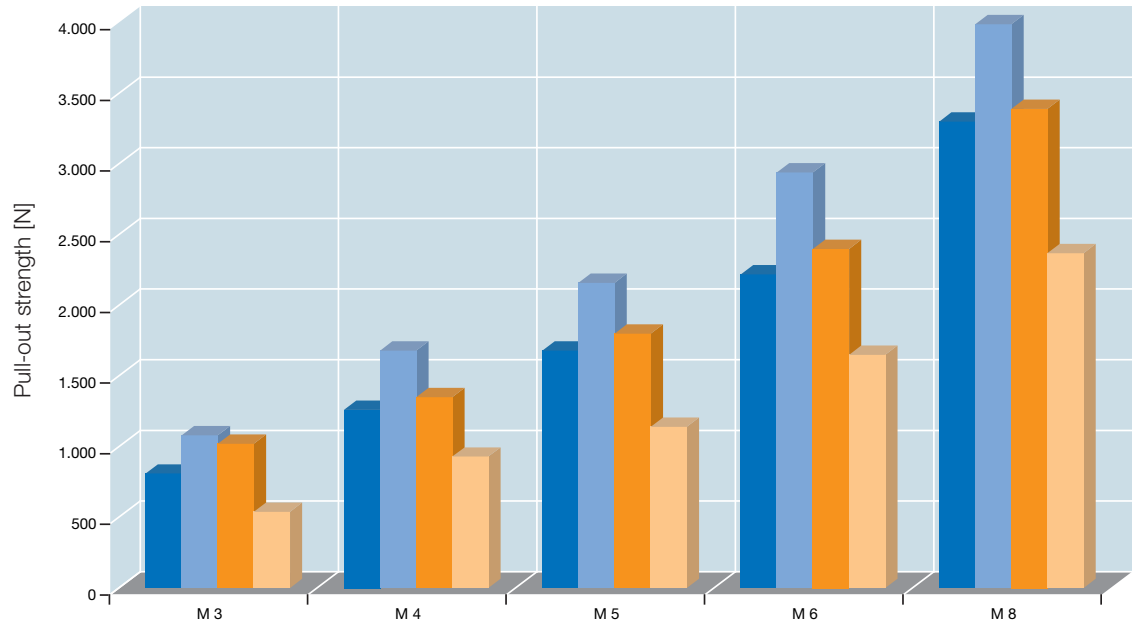
Ⓢ Guide values: depend on moulding material, may have to be changed after setting trials.  
 Ⓢ Screw contact length = min. insert length (l) + 1p (pitch)

Other sizes and special designs on request.

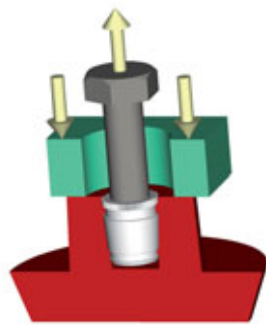
*The versions – thread inserts for expansion anchoring* **SPREDSERT® 1 + 2**

**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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