

**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 self-tapping insertion QUICKSERT®**

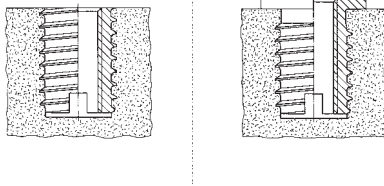


**The advantages**

- For brittle and ductile plastics such as unsaturated polyester resins (SMC, ZMC), polyurethane and glass-fibre reinforced thermoplastics
- Universal use
- High-strength and torsion-proof threads
- Optimum assembly characteristics

Material: 1.0718 11 SMnPb 30 zinc coated, chromated or Cu Zn 38 Pb 2 (EU 2000/53 compliant)

**Principle**

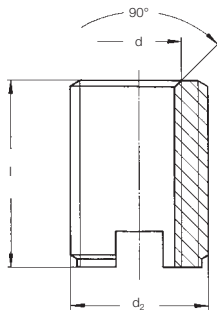


**QUICKSERT®** consists of a cylindrical basic body with internal thread and a special external thread. The profile of the external thread has an extremely small flank angle and expands asymmetrically towards the thread root. This way, installation at low driving torques is optimised.

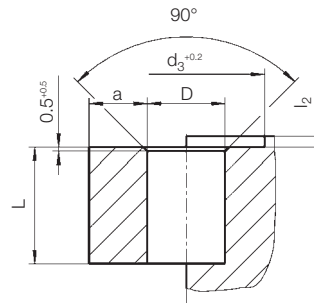
Very good tight-fit is achieved with an ideal distribution of load. The bottom part of the bush is provided with a cutting slot. For special requirements, we offer a version with flange. The threaded bush is screwed in with a rotating spindle.

**Technical data**

**Type 1434**



**Mounting hole®**



For installation tools and machines, see pages 27 – 29

d	Steel, unhardened Order No	Brass Order No	l	d <sub>2</sub>	D* <sup>Ⓢ</sup>	L <sub>min.</sub>	a <sub>min.</sub>
M 3	1434 103 0006	1434 503 0006	6.0	6.0	4.6–5.4	7.0	2.0
M 4	1434 104 0008	1434 504 0008	8.0	7.0	5.6–6.6	9.0	3.0
M 5	1434 105 0010	1434 505 0010	10.0	8.0	6.6–7.6	11.0	4.0
M 6	1434 106 0014	1434 506 0014	14.0	10.0	8.1–9.4	15.0	4.0
M 8	1434 108 0015	1434 508 0015	15.0	12.0	10.1–11.4	16.0	5.0
M 10 <sup>Ⓢ</sup>	1434 110 0018	1434 510 0018	18.0	14.0	12.1–13.4	19.0	5.0

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

Ⓢ Guide values: depend on moulding material, may have to be changed after setting trials.  
Ⓢ Minimum quantity on request.  
\* See table on page 20.

Other sizes and special designs on request.

International patents applied for and granted.

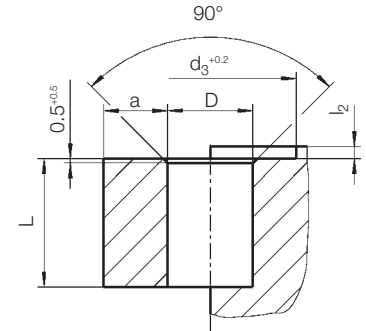
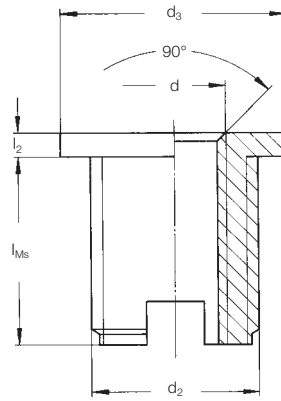
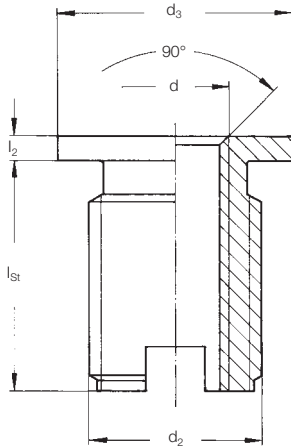
The versions – thread inserts for self-tapping insertion **QUICKSERT®**

**Technical data**

Type 1433<sup>Ⓢ</sup>  
Steel

Brass

Mounting hole<sup>Ⓢ</sup>



Recommended mounting holes -D- for **QUICKSERT®** in different materials<sup>Ⓢ</sup>

	M 3	M 4	M 5	M 6	M 8	M 10
PE (soft)	4.6	5.6	6.6	8.1	10.1	12.1
PP						
PA 6						
PA 6.6						
PBT						
PE (hard)	4.8	5.8	6.8	8.3	10.3	12.3
PET						
POM						
ASA						
SAN	5.0	6.0	7.0	8.5	10.5	12.5
ABS						
PA 6 GF 30%						
PBT GF 30%						
PET GF 30%	5.2	6.2	7.2	8.7	10.7	12.7
PS						
PVC (hard)						
PA 6.6 GF 30%						
PC a. PC+GF 30%	5.4	6.4	7.4	9.0	11.0	13.0
PPO/PPS GF 30%						
SMC						
ZMC		6.6	7.6	9.4	11.4	13.4
BMT						

Hexagonal flange version on request

For installation tools and machines, see pages 27 – 29

d	Steel, unhardened Order No	Brass Order No	l <sub>St</sub>	l <sub>Ms</sub>	l <sub>2</sub>	d <sub>2</sub>	d <sub>3</sub>	D <sup>Ⓢ</sup> *	L <sub>min. St</sub>	L <sub>min. Ms</sub>	a <sub>min.</sub>
M 4	1433 104 0105	1433 504 0009	9.5	8.0	1.0	7.0	10.0	5.6–6.6	10.5	9.0	3.0
M 5	1433 105 0127	1433 505 0112	11.5	10.0	1.2	8.0	11.0	6.6–7.6	12.5	11.0	4.0
M 6	1433 106 0174	1433 506 0154	16.0	14.0	1.4	10.0	13.0	8.1–9.4	17.0	15.0	4.0
M 8	1433 108 0184	1433 508 0164	17.0	15.0	1.4	12.0	15.0	10.1–11.4	18.0	16.0	5.0

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

Ⓢ Guide values: depend on moulding material, may have to be changed after setting trials.  
Ⓢ The flange has a large contact surface and thus reduces surface pressure.  
Ⓢ Hardened on request, no stock type.  
\* See table above.

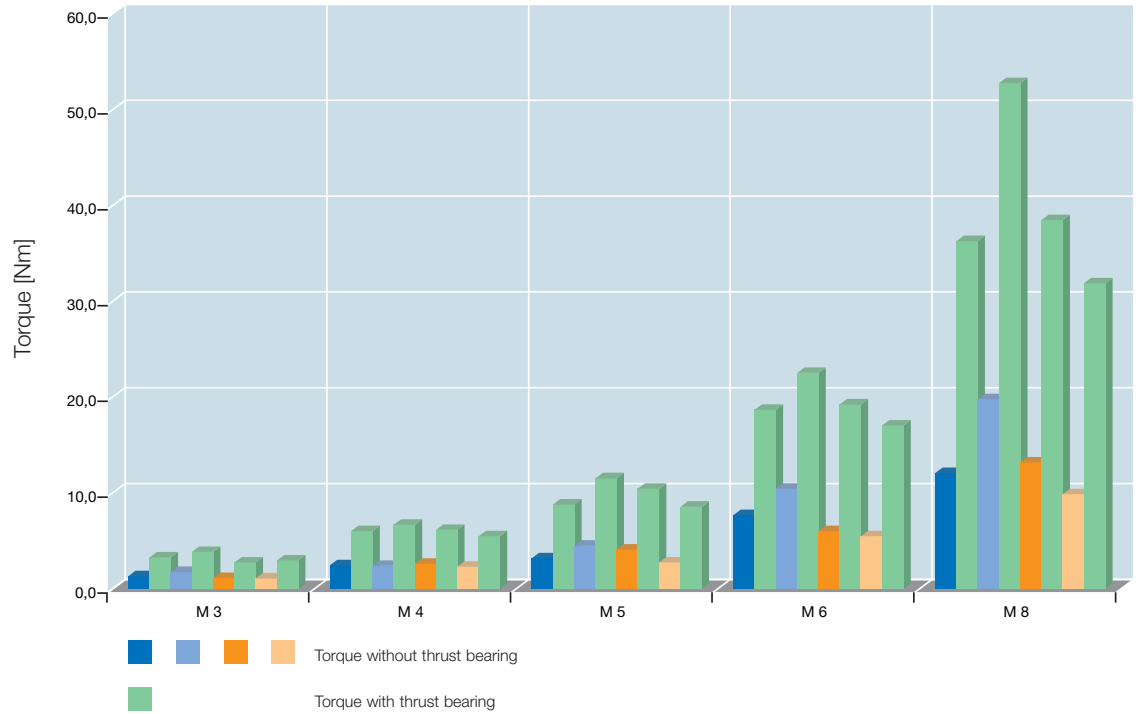
**Other sizes and special designs on request.**  
Minimum quantity on request.

International patents applied for and granted.

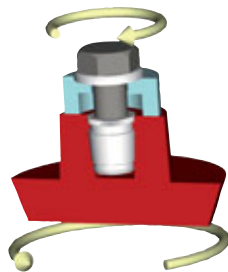
The versions – thread inserts for self-tapping insertion **QUICKSERT®**

**Technical data**

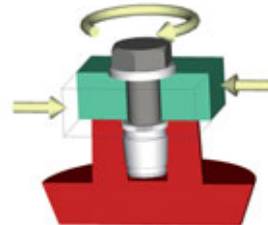
**Torque values QUICKSERT® M 3 to M 8**



		M 3	M 4	M 5	M 6	M 8
■ ABS	MA [Nm]	1.3	2.5	3.2	7.7	12.1
■ ABS	MR [Nm]	3.3	6.1	8.8	18.7	36.3
■ PC	MA [Nm]	1.8	2.4	4.5	10.5	19.8
■ PC	MR [Nm]	3.9	6.7	11.6	22.6	52.8
■ PA	MA [Nm]	1.2	2.6	4.1	6.1	13.2
■ PA	MR [Nm]	2.8	6.2	10.5	19.3	38.5
■ PE/PP	MA [Nm]	1.1	2.3	2.8	5.5	9.9
■ PE/PP	MR [Nm]	3.0	5.5	8.6	17.1	31.9



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



Torque with thrust bearing (MR[Nm])

Installation method thermal installation

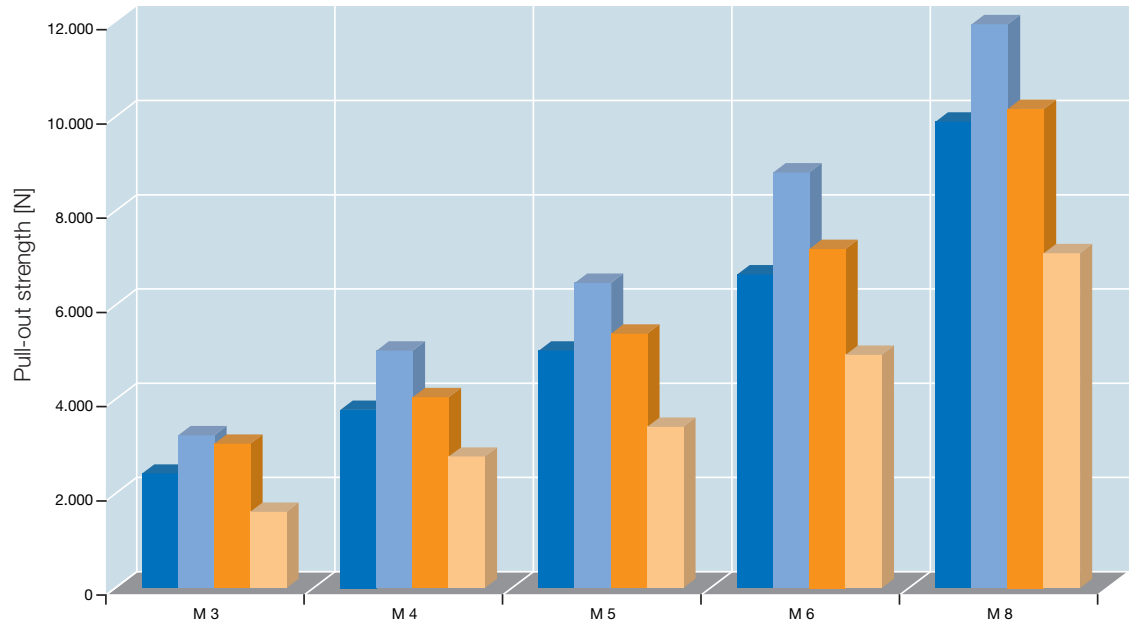
Installation method self-tapping insertion

Installation method expansion anchoring

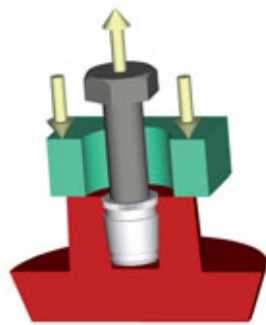
The versions – thread inserts for self-tapping insertion **QUICKSERT®**

**Technical data**

**Pull-out values QUICKSERT® M 3 to M 8**



	M 3	M 4	M 5	M 6	M 8
■ ABS FA [N]	2,430	3,780	5,040	6,660	9,900
■ PC FA [N]	3,240	5,040	6,480	8,820	11,970
■ PA FA [N]	3,060	4,050	5,400	7,200	10,170
■ PE/PP FA [N]	1,620	2,790	3,420	4,950	7,110



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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