

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/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 %
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



KEL BULGARIA LTD
 PLOT III/252,
 Quarter 35BG-9136
 PADINA (DEVNYA)BULGARIA
 info@kelbulgaria.com
 www.kelbulgaria.com
 Telephone: +359 877008832
 Fax: +359 24922552

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"> – 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	++	++		++	<ul style="list-style-type: none"> – 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	++	<ul style="list-style-type: none"> – 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 **Expansionsert 1**

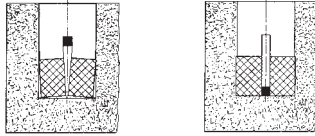
Installation method thermal installation



The advantages

- Universal thread insert for thermoset and thermoplastic components
 - High-strength threads by expansion anchoring
 - Quick, cost-effective installation
- Material: Cu Zn 38 Pb 2 (EU 2000/53 compliant)

Principle



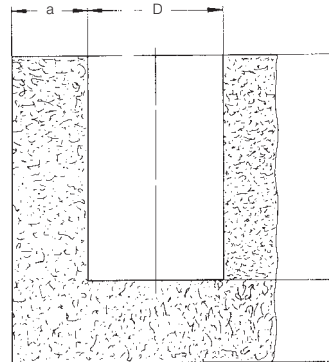
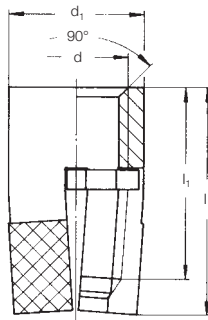
The **EXPANSIONSERT 1** thread insert consists of a cross-slotted basic body with internal thread, which has an external diamond knurl, and an spreader plate. When the thread insert is installed in the mounting hole, the diamond knurl part is expanded by the spreader plate which is pressed down. As a result, it is anchored in the wall of the hole.

Installation method self-tapping insertion

Technical data

Type 0230
EXPANSIONSERT 1 standard

Mounting hole[®]



For installation tools and machines, see pages 39 – 40

d	Order No	d ₁	l	l _{1 min.}	D ^{+0.1} ®	L	a _{min.}	b _{min.}
M 2.5	0230 025 0065	4.0	6.5	4.0	4.0	6.5	2.4	3.2
M 3	0230 903 0001	4.0	6.5	4.0	4.0	6.5	2.4	3.2
	0230 003 0065	4.8	6.5	4.0	4.8	6.5	2.9	3.2
M 3.5	0230 035 0008	4.8	8.0	5.0	4.8	8.0	2.9	4.0
M 4	0230 004 0095	5.5	9.5	6.5	5.5	9.5	3.3	4.7
	0230 004 0008	5.5	8.0	5.0	5.5	8.0	3.3	4.0
M 5	0230 005 0011	6.5	11.0	7.5	6.5	11.0	3.9	5.5
	0230 005 0008	6.5	8.0	4.5	6.5	8.0	3.9	4.0
M 6	0230 006 0125	8.0	12.5	8.5	8.0	12.5	4.8	6.2
M 8	0230 008 0016	11.0	16.0	11.0	11.0	16.0	6.6	8.0

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.

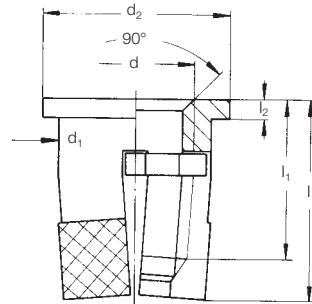
Other sizes and special designs on request.

Installation method expansion anchoring

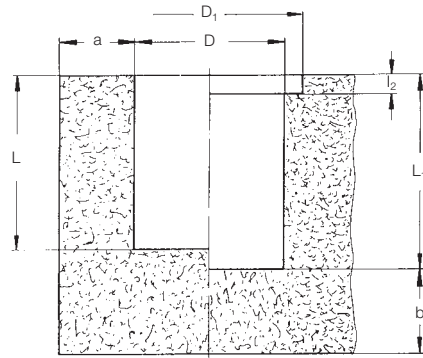
The versions – thread inserts for expansion anchoring **Expansionsert 1**

Technical data

Type 0231[Ⓞ]
EXPANSIONSERT 1 flange



Mounting hole[Ⓞ]



For installation tools, see pages 39 – 40

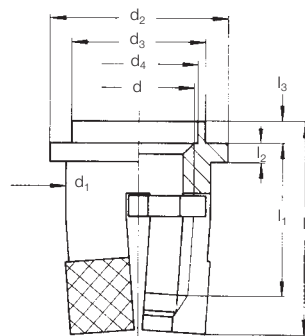
d	Order No	l	d ₁	d ₂	l _{1 min.}	l ₂	D ^{+0.1} Ⓞ	D ₁ ^{+0.2}	L	L ₁	a _{min.}	b _{min.}
M 2.5	0231 025 0006	6.0	4.0	5.5	3.6	0.8	4.0	5.5	5.2	6.0	2.4	3.2
M 3	0231 003 0006	6.0	4.8	6.3	3.5	0.8	4.8	6.3	5.2	6.0	2.9	3.2
M 3.5	0231 035 0075	7.5	4.8	6.3	4.7	0.8	4.8	6.3	6.7	7.5	2.9	4.0
M 4	0231 004 0075	7.5	5.5	7.0	4.4	0.8	5.5	7.0	6.7	7.5	3.3	4.7
M 5	0231 005 0085	8.5	6.5	8.0	5.0	0.8	6.5	8.0	7.7	8.5	3.9	5.5
M 6	0231 006 0011	11.0	8.0	10.0	7.0	0.8	8.0	10.0	10.2	11.0	4.8	6.2

Metric ISO thread according to DIN 13-6H.
Delivery conditions according to DIN 267.
Technical modifications reserved.
Minimum quantity on request.

Ⓞ 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.

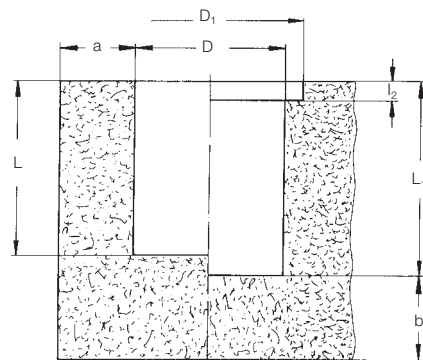
Other sizes and special designs on request.

Type 0232
EXPANSIONSERT 1 clinch



The clinched edge is designed to fasten contact components and cable eyes as well as to serve as a fixing aid for a cover part to be applied.

Mounting hole[Ⓞ]
(same dimensions as type 0231)



For installation tools, see pages 39 – 40

d	Order No	l	d ₁	d ₂	d _{3 max.}	d ₄	D ^{+0.1} Ⓞ	D ₁ ^{+0.2}	l _{1 min.}	l ₂	l ₃
M 2.5	0232 025 0007	7.0	4.0	5.5	3.6	2.8	4.0	5.5	3.6	0.8	1.0
M 3	0232 003 0007	7.0	4.8	6.3	4.1	3.3	4.8	6.3	3.5	0.8	1.0
M 3.5	0232 035 0085	8.5	4.8	6.3	4.6	3.8	4.8	6.3	4.7	0.8	1.0
M 4	0232 004 0085	8.5	5.5	7.0	5.1	4.3	5.5	7.0	4.4	0.8	1.0
M 5	0232 005 0095	9.5	6.5	8.0	6.1	5.3	6.5	8.0	5.0	0.8	1.0
M 6	0232 006 0012	12.0	8.0	10.0	7.1	6.3	8.0	10.0	7.0	0.8	1.0

Metric ISO thread according to DIN 13-6H. Ⓞ Guide values: depend on moulding material, may have to be changed after setting trials.
Technical modifications reserved.
Minimum quantity on request.
All dimensions in mm.

Other sizes and special designs on request.

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Kel BULGARIA

KEL BULGARIA LTD
PLOT III/252,
Quarter 35BG-9136
PADINA (DEVNYA)BULGARIA
info@kelbulgaria.com
www.kelbulgaria.com
Telephone: +359 877008832
Fax: +359 24922552

Böllhoff Group
Please find your local contact on www.boellhoff.com
or contact us under fasteningtechnology@boellhoff.com

