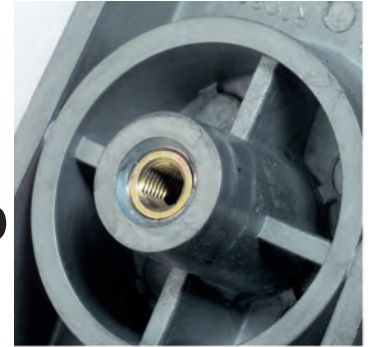




# The Ensats® – pull-out resistance due to flange cover ...



Connections using threaded insert Ensats® permit substantially smaller dimensions and consequently material and weight-saving designs.

The illustration below (Fig. 2) shows a screw connection with different screw cross-sections. Despite the smaller

screw cross-section, a screw joint with an Ensats® is capable of withstanding higher axial forces than the screw joint with larger screw cross-section; because the force – both under static and dynamic load – in the Ensats® male thread is distributed evenly over the individual thread turns of the Ensats® male thread.

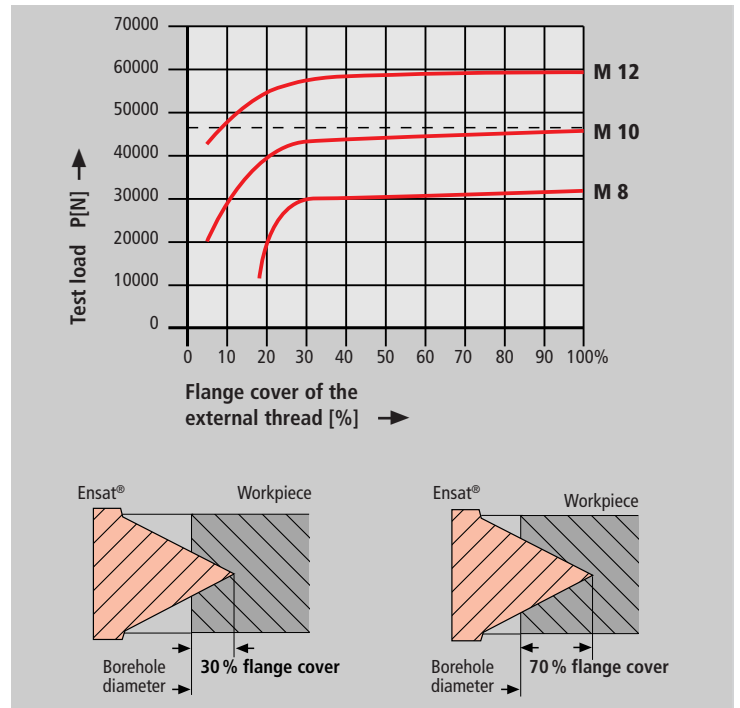


Fig. 3

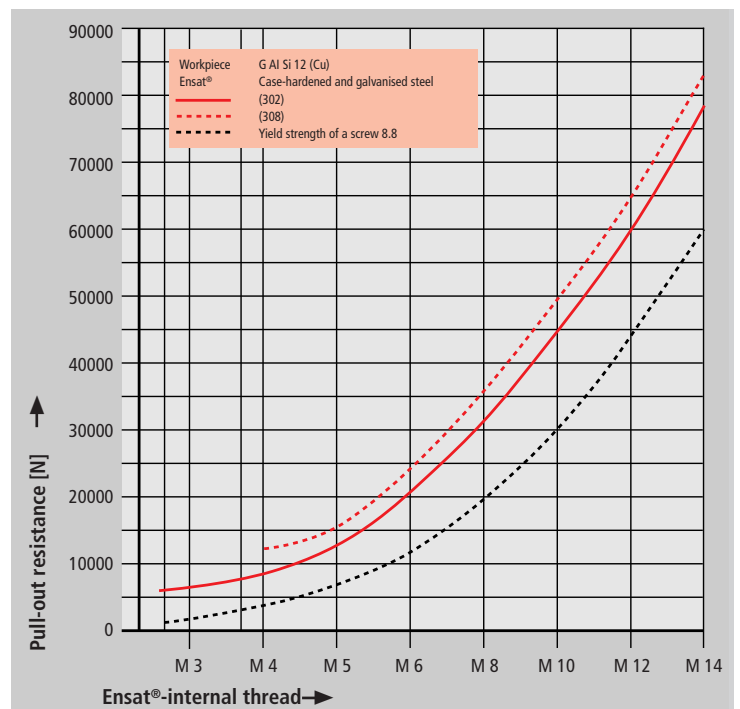
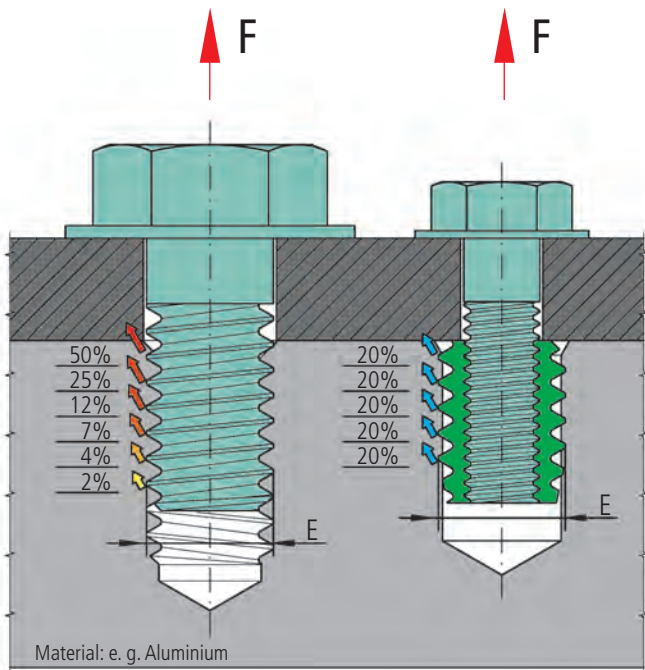


Fig. 4



E = Diameter cut thread = Outside diameter of the Ensats®

Fig. 2

### Flange cover

In a workpiece made of a light alloy, the Ensats® 302 achieves almost maximum pull-out strength with only 30% flange cover (Fig. 3).

### Pull-out strength

The Ensats® is capable of withstanding high loads. When used in light alloys, for example, a degree of pull-out strength is achieved which far exceeds the yield strength of the mating screw 8.8 (Fig. 4).



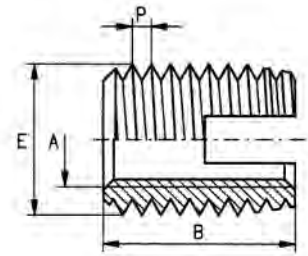


**Threaded insert**  
self-tapping  
metric inner thread

**Ensat®-S**  
Works Standard  
302 0

**Application**

The threaded insert Ensat®-S with cutting slot is a self-tapping fastener for the creation of wear-free, vibration resistant screw joints with high loading capacity in materials with low shearing strength.



Dimensions in mm

Article number	Internal thread	External thread		Length	Guideline values for receiving hole diameter	Minimum borehole depth for blind holes
	A	E	P	B	L	T
302 000 020 ...	M 2	4,5	0,5	6	4,2 to 4,3	8
302 000 025 ...	M 2,5	4,5	0,5	6	4,2 to 4,3	8
302 000 030 ...	M 3	5	0,5	6	4,7 to 4,8	8
302 000 035 ...	M 3,5	6	0,75	8	5,6 to 5,7	10
302 000 040 ...	M 4	6,5	0,75	8	6,1 to 6,2	10
302 000 050 ...	M 5	8	1	10	7,5 to 7,6	13
302 000 061 ...	M 6 (a)	9	1	12	8,5 to 8,6	15
302 000 060 ...	M 6	10	1,5	14	9,2 to 9,4	17
302 000 080 ...	M 8	12	1,5	15	11,2 to 11,4	18
302 000 100 ...	M 10	14	1,5	18	13,2 to 13,4	22
302 000 120 ...	M 12	16	1,5	22	15,2 to 15,4	26
302 000 140 ...	M 14	18	1,5	24	17,2 to 17,4	28
302 000 160 ...	M 16	20	1,5	22	19,2 to 19,4	26
302 000 180 ...	M 18	22	1,5	24	21,2 to 21,4	29
302 000 200 ...	M 20	26	1,5	27	25,2 to 25,4	32
302 000 220 ...	M 22	26	1,5	30	25,2 to 25,4	36
302 000 240 ...	M 24	30	1,5	30	29,2 to 29,4	36
302 000 270 ...	M 27	34	1,5	30	33,2 to 33,4	36
302 000 300 ...	M 30	36	1,5	40	35,2 to 35,4	46

**Example for finding the article number**

Self-tapping threaded insert Ensat®-S to Works Standard 302 0 with internal thread A = M5 made of case-hardened, zinc plated and blue passivated steel: Ensat®-S 302 000 050.110

**Materials**

Case-hardened steel, zinc plated, blue passivated	Article no. ( <b>fourth</b> group of digits) ... .. 110
Case-hardened steel, zinc-nickel plated, transparent passivated	Article no. ( <b>fourth</b> group of digits) ... .. 143
Stainless steel 1.4305	Article no. ( <b>fourth</b> group of digits) ... .. 500
Brass	Article no. ( <b>fourth</b> group of digits) ... .. 800

**Other materials, designs (e. g. fine thread) and finishes on request.**

**Tolerance**

ISO 2768-m

**Thread**

Internal thread A: as per ISO 6H  
External thread E: as per KKV standard  
Internal thread UNC, UNF, Whitworth see page 8

Animation

