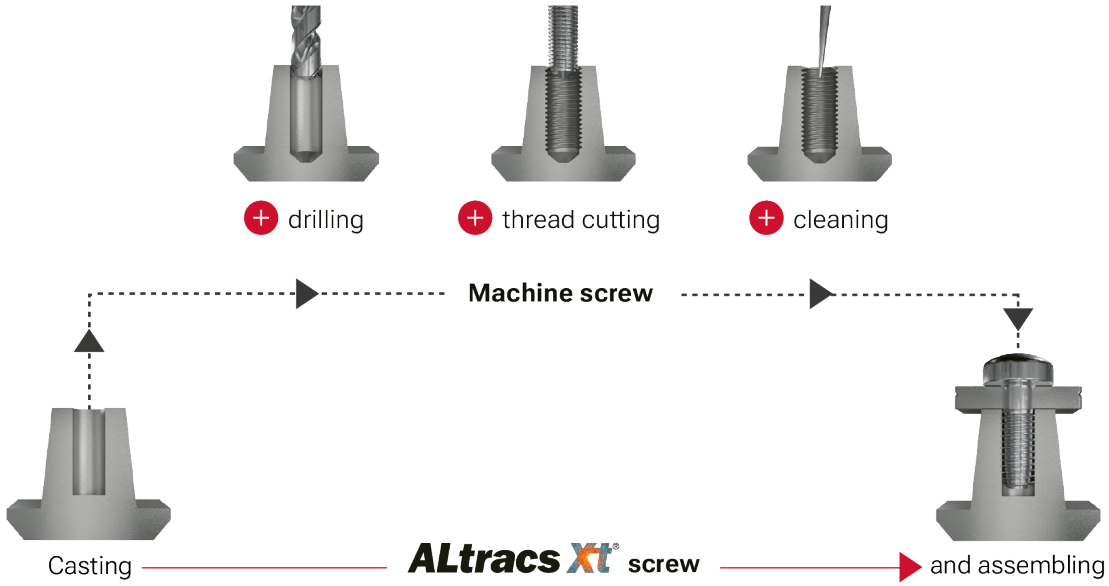
EJOT ALtracs® Xt

Thread forming in light alloys without tradeoffs

EJOT ALtracs® Xt screws are thread forming fasteners developed for the use in light alloys as well as other nonferrous metals with a hardness up to 140 HB. When using thread forming screws for light alloys there used to be a tradeoff between clamp load and torque performance. There were either designs that achieved top results with regards to clamp load (circular screws) or designs that achieved top results with regards to torque performance (non-circular screws). With ALtracs® Xt this compromise is no longer necessary, since it achieves top results in both categories.

Economic

Thanks to the omission of different process steps, the use of thread forming fasteners provides great potential for economic savings. With ALtracs® Xt it is possible to assemble a screw joint directly in a cast part without further machining steps (e.g. drilling, thread cutting). With its intelligent thread design ALtracs® Xt is able to cope with the tolerances of a casting process and provides a reliable process window even in challenging circumstances.



Smart

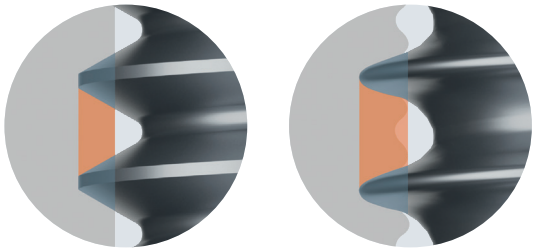
ALtracs® Xt comes with the opportunity of pre-designing a thread forming screw joint including all relevant process parameters (e.g. torques, load levels, failure mechanisms). By using the specifically developed Xt CALC® software during development stages valuable time and cost savings can be achieved.

XtCALC®

EJOT. Bringing it together.

Compact

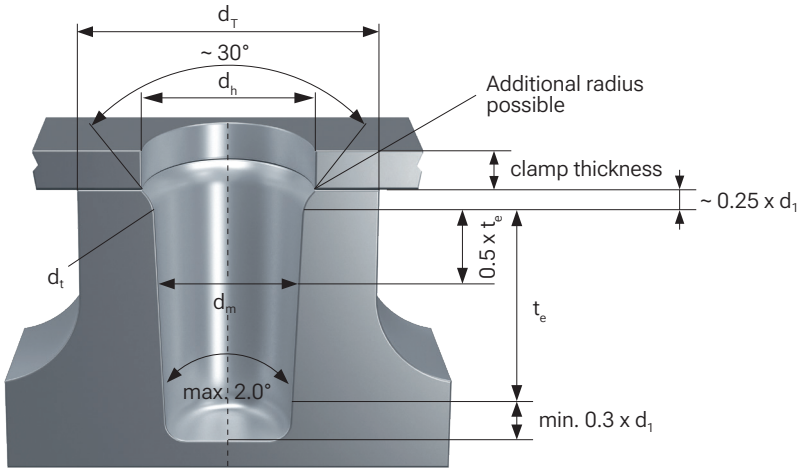
The thread of the ALtracs® Xt is specifically designed for use in light alloy. The circular thread cross-section ensures maximum flank engagement in every thread pitch. In addition, the reduced flank angle of 33° geometrically strengthens the female thread. Thus, when using the ALtracs® Xt, high joint strengths can be achieved with minimal space requirements regarding outer diameter and length of the boss.



Machine screw ALtracs® Xt

Inspired by nature: Comparison of thread engagement between a machine screw with sharp-edged 60° flank and an ALtracs® Xt with 33° flank

Design recommendations



d_1 [mm]	Pre-hole tolerance [mm]
2.5 - 3.5	± 0.05
4.0	± 0.06
5.0	± 0.07
6.0 - 7.0	± 0.10
8.0 - 10.0	± 0.14

Hole recommendations for cast or drilled holes with alloys of aluminium, magnesium, zinc and copper

Hardness	up to 55 HB			55 - 115 HB				115 - 140 HB		
t_e	1.0 x d_1	1.5 x d_1	2.0 x d_1	0.5 x d_1	1.0 x d_1	1.5 x d_1	2.0 x d_1	0.5 x d_1	1.0 x d_1	1.5 x d_1
d_1	d_m	d_m [d_t]*	d_m [d_t]*	d_m	d_m	d_m [d_t]*	d_m [d_t]*	d_m	d_m	d_m [d_t]*
2.5	2.20	2.25 [2.32]	2.30 [2.39]	2.20	2.25	2.30 [2.37]	2.35 [2.44]	2.25	2.30	2.35 [2.42]
3.0	2.65	2.70 [2.78]	2.75 [2.85]	2.65	2.70	2.75 [2.83]	2.80 [2.90]	2.70	2.75	2.80 [2.88]
3.5	3.10	3.15 [3.24]	3.20 [3.32]	3.10	3.15	3.20 [3.29]	3.25 [3.37]	3.15	3.20	3.25 [3.34]
4.0	3.55	3.60 [3.70]	3.65 [3.79]	3.55	3.60	3.65 [3.75]	3.70 [3.84]	3.60	3.65	3.70 [3.80]
5.0	4.40	4.50 [4.63]	4.60 [4.77]	4.40	4.50	4.60 [4.73]	4.70 [4.87]	4.50	4.60	4.70 [4.83]
6.0	5.30	5.40 [5.56]	5.50 [5.71]	5.30	5.40	5.50 [5.66]	5.60 [5.81]	5.40	5.50	5.60 [5.76]
8.0	7.00	7.20 [7.41]	7.40 [7.68]	7.00	7.20	7.40 [7.61]	7.50 [7.78]	7.20	7.40	7.50 [7.71]

ALtracs® Xt 100 upon request.

d_1 = nominal screw diameter **d_m** = hole diameter centre **d_t** = hole diameter top **t_e** = installation depth

d_h = diameter through hole (approx. 1.1 x d_1) **d_T** = minimum boss diameter (approx. 2 x d_1) ***d_t** calculated with 2.0°

For further information, especially regarding bigger tolerances, please contact EJOT.

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