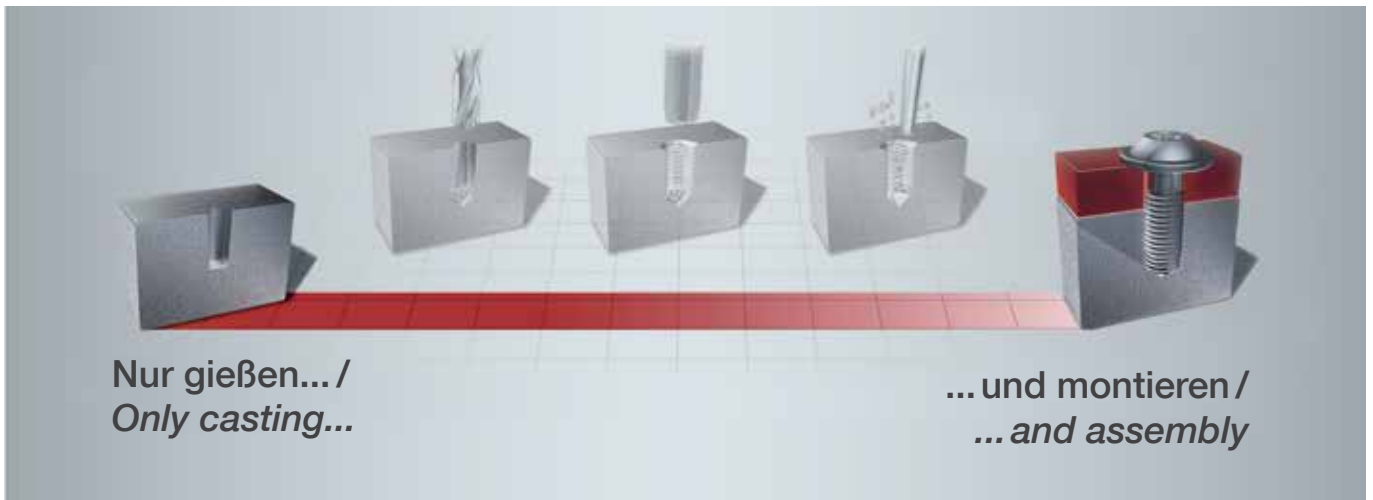


EJOT ALtracs® Plus

The self-tapping screw for light metal



Characteristics

- 33° flank angle
- Circular cross section
- Metric compatibility
- Conical thread forming zone
- Clamp load and relaxation comparable with metric 10.9 screws
- Thread design suitable for cast holes
- High self-locking of thread
- The ALtra CALC® prognosis programme for pre-dimensioning of joints saves time and effort for individual component testing.

Material:

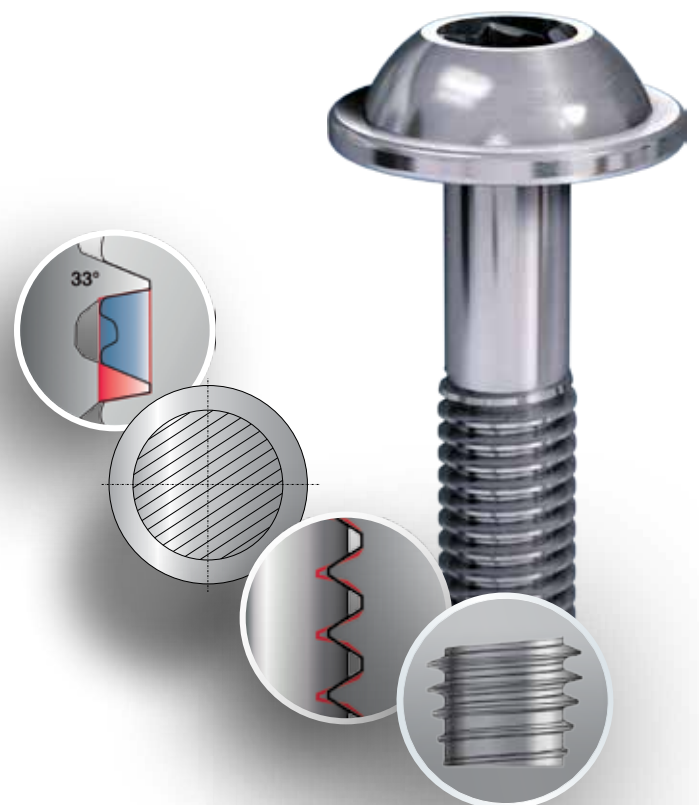
- through hardened steel analog metric, steel grade 10.9
- stainless steel grade A2 / A4

Chrome VI Free Platings:

- Zinc clear / blue passivated*
- Zinc / thick film passivation*
- ZnFe or ZnNi / transparent passivated*
- ZnFe or ZnNi / black passivated*
- Zinc flake coatings

* Additional sealing possible

EJOT ALtracs® Plus screws are thread-forming fasteners developed for maximum strength in light alloy assemblies and other non-ferrous metals such as zinc, copper, brass etc., up to 140 HB.



Design Recommendations:

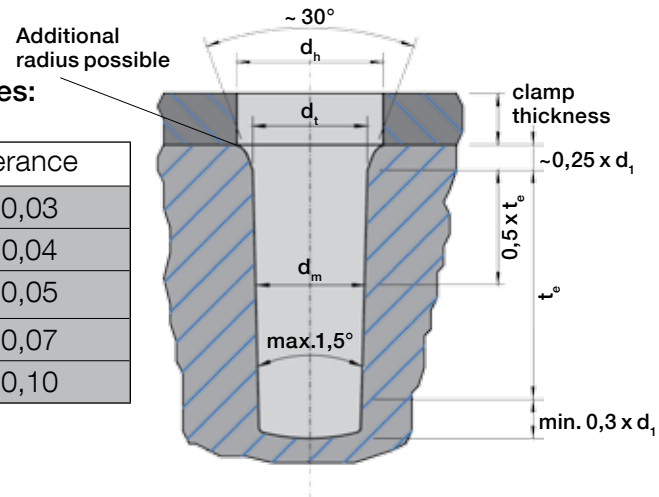
Insertion Depth t_e :

- safe assembly process min. $0,5 \times d_1$ (excl. forming point screw)
- vibration safe screw joint min. $1,5 \times d_1$ (incl. forming point)
- high-strength screw-joint min. $2,0 \times d_1$ (incl. forming point)

Insertion depth $> 2,5 \times d_1$ is not recommended

Pre-hole Tolerances:

| d_1 | tolerance |
|------------|------------|
| 1,6 - 2,0 | $\pm 0,03$ |
| 2,2 - 3,5 | $\pm 0,04$ |
| 4,0 - 5,0 | $\pm 0,05$ |
| 6,0 - 7,0 | $\pm 0,07$ |
| 8,0 - 10,0 | $\pm 0,10$ |



Pre-hole recommendation for aluminum, magnesium, zinc, copper, brass, bronze up to hardness of 140 HB

| Hardness | Al, Zn, Cu up to 55 HB Mg (up tp 90 HB) | | | Al, Zn, Cu 55-115 HB | | | | Al, Zn, Cu 115-140 HB | | |
|---------------|---|--------------------------|--------------------------------|--------------------------|--------------------------|--------------------------|--------------------------------|--------------------------|--------------------------|--------------------------|
| | $1,0 \times d_1$ [mm] | $1,5 \times d_1$ [mm] | $2,0 \times d_1$ [mm] | $0,5 \times d_1$ [mm] | $1,0 \times d_1$ [mm] | $1,5 \times d_1$ [mm] | $2,0 \times d_1$ [mm] | $0,5 \times d_1$ [mm] | $1,0 \times d_1$ [mm] | $1,5 \times d_1$ [mm] |
| t_e [mm] | | | | | | | | | | |
| d_1 | d_m | d_m [d_1]* | d_m [d_1]* | d_m | d_m | d_m [d_1]* | d_m [d_1]* | d_m | d_m | d_m [d_1]* |
| 1,6 | 1,46 | 1,48 [1,51] | $t_{e_{max}} = 1,5 \times d_1$ | 1,46 | 1,48 | 1,49 [1,52] | $t_{e_{max}} = 1,5 \times d_1$ | 1,48 | 1,49 | 1,51 [1,54] |
| 1,8 | 1,63 | 1,65 [1,69] | $t_{e_{max}} = 1,5 \times d_1$ | 1,63 | 1,65 | 1,67 [1,71] | $t_{e_{max}} = 1,5 \times d_1$ | 1,65 | 1,67 | 1,68 [1,72] |
| 2,0 | 1,83 | 1,85 [1,89] | $t_{e_{max}} = 1,5 \times d_1$ | 1,83 | 1,85 | 1,87 [1,91] | $t_{e_{max}} = 1,5 \times d_1$ | 1,85 | 1,87 | 1,89 [1,93] |
| 2,2 | 1,98 | 2,00 [2,04] | $t_{e_{max}} = 1,5 \times d_1$ | 1,98 | 2,00 | 2,03 [2,07] | $t_{e_{max}} = 1,5 \times d_1$ | 2,00 | 2,03 | 2,05 [2,09] |
| 2,5 | 2,20 | 2,25 [2,30] | $t_{e_{max}} = 1,5 \times d_1$ | 2,20 | 2,25 | 2,30 [2,35] | $t_{e_{max}} = 1,5 \times d_1$ | 2,25 | 2,30 | 2,35 [2,40] |
| 3,0 | 2,65 | 2,70 [2,76] | $t_{e_{max}} = 1,5 \times d_1$ | 2,65 | 2,70 | 2,75 [2,81] | $t_{e_{max}} = 1,5 \times d_1$ | 2,70 | 2,75 | 2,80 [2,86] |
| 3,5 | 3,10 | 3,15 [3,22] | $t_{e_{max}} = 1,5 \times d_1$ | 3,10 | 3,15 | 3,20 [3,27] | $t_{e_{max}} = 1,5 \times d_1$ | 3,15 | 3,20 | 3,25 [3,32] |
| 4,0 | 3,55 | 3,60 [3,68] | $t_{e_{max}} = 1,5 \times d_1$ | 3,55 | 3,60 | 3,65 [3,73] | $t_{e_{max}} = 1,5 \times d_1$ | 3,60 | 3,65 | 3,70 [3,78] |
| 5,0 | 4,40 | 4,50 [4,60] | $t_{e_{max}} = 1,5 \times d_1$ | 4,40 | 4,50 | 4,60 [4,70] | $t_{e_{max}} = 1,5 \times d_1$ | 4,50 | 4,60 | 4,70 [4,80] |
| 6,0 | 5,30 | 5,40 [5,52] | $t_{e_{max}} = 1,5 \times d_1$ | 5,30 | 5,40 | 5,50 [5,62] | $t_{e_{max}} = 1,5 \times d_1$ | 5,40 | 5,50 | 5,60 [5,72] |
| 8,0 | 7,00 | 7,20 [7,36] | $t_{e_{max}} = 1,5 \times d_1$ | 7,00 | 7,20 | 7,40 [7,56] | $t_{e_{max}} = 1,5 \times d_1$ | 7,20 | 7,40 | 7,50 [7,66] |
| 10,0 | 8,80 | 9,00 [9,20] | $t_{e_{max}} = 1,5 \times d_1$ | 8,80 | 9,00 | 9,20 [9,40] | $t_{e_{max}} = 1,5 \times d_1$ | 9,00 | 9,20 | 9,40 [9,60] |

d_1 = nominal diameter of screw d_m = hole diameter middle d_t = hole diameter top t_e = insertion depth
 d_h = hole diameter through hole (ca. $1,1 \times d_1$) Min. external diameter boss: ca. $2 \times d_1$ * d_t calculated with $1,5^\circ$

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