

## EJOT DELTA PT® ALU

Weight saving with an alternative fastener material

The EJOT DELTA PT® Screw enables reliable joints in the field of direct assembly of plastics.

Due to the increasing demands on lightweight design the commonly used steel can be replaced by modern, aviation industry accredited high strength aluminium material, which offers a considerable potential for weight savings. The excellent fastening characteristics of the plastic component are maintained.

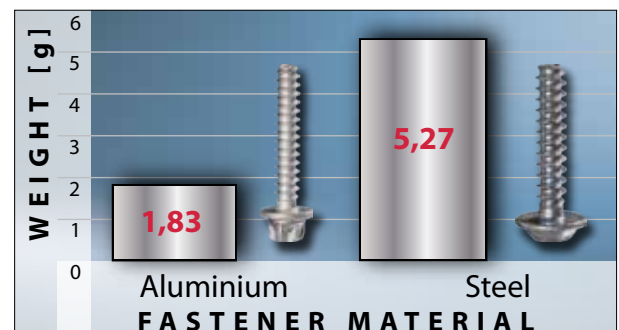
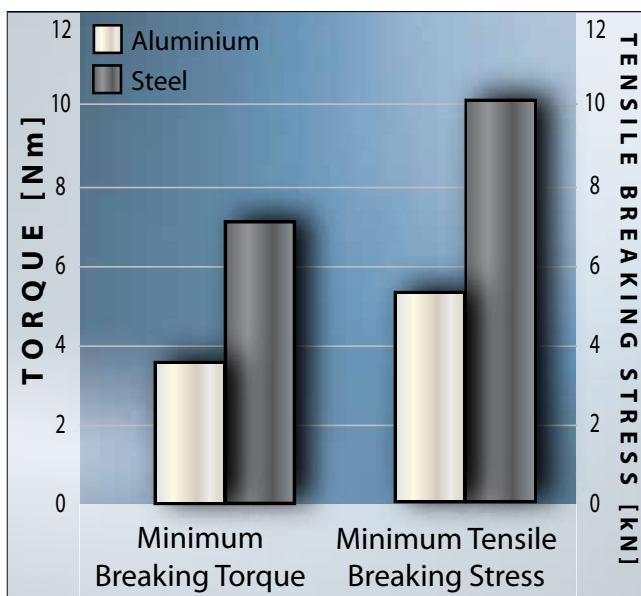
The alloy 7075, which has been established in the aviation industry since many years, offers a suitable combination of strength and forming properties for the production of self-tapping screws.

Due to a favourable expansion coefficient the aluminium material has a positive influence on clamp load retention especially under thermal stress.



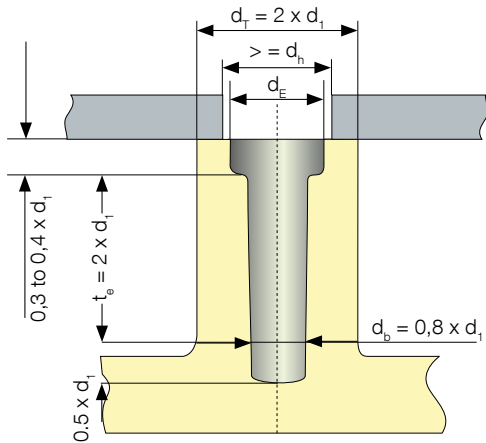
### Characteristics of the DELTA PT® made of Aluminium:

- Improved clamp load retention compared to steel screws
- Aviation industry accredited high strength aluminium material
- Non-magnetic
- Heat treatment optimised for strength properties and corrosion resistance
- Anodisation for different colours
- Weight reduction
- Coefficient of expansion similar to the mating material
- Operating temperature range in the fastened condition up to 150°C



Weight comparison DELTA PT® 50 x 30

Comparison of the minimum breaking torque and minimum tensile breaking stress for DELTA PT® 50



Design recommendations EJOT DELTA PT® ALU

## Boss design

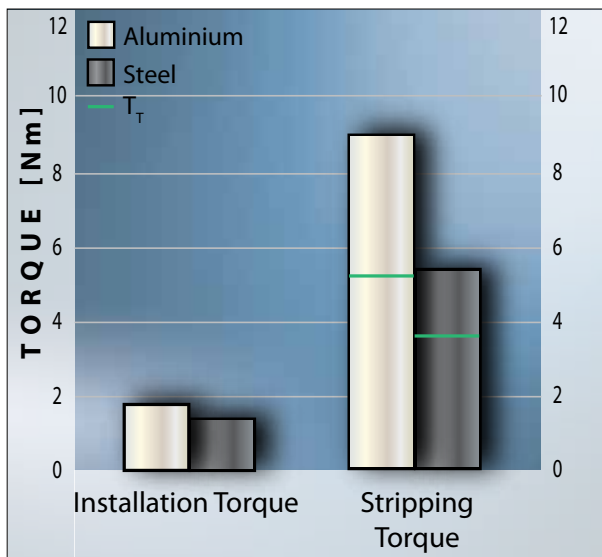
The maximum clamp load is the criterion for the optimal boss design. The favourable hole diameter is usually at the ratio:

$$d_b = 0,8 \times d_1 \pm \text{screw diameter tolerance}$$

(also see tolerances DELTA PT® brochure page 16)

For materials with high filler content or high internal strength we recommend a review of the fastening parameters by our engineers in the EJOT® Applitec.

## Comparison of different torque and clamp loads



## Parameters:

Fastening in PA6GF30  
 Screw size = DELTA PT® 50  
 Hole diameter = 4,0 mm  
 Installation depth = 10 mm  
 Temperature pattern (18h at 80°C)

$T_T$  DELTA PT®Aluminium = 5,4 Nm  
 $T_T$  DELTA PT®Steel = 3,64 Nm

