EVO PT® for 3D-printed parts

Process-reliable direct fastening for additively manufactured plastics

Additively manufactured plastic components place specific demands on fastening technology. Material anisotropy, layer structure construction and varying strength characteristics require a robust joining concept. The EJOT EVO PT® screw provides a reliable solution for these applications.

Your key benefits at a glance

High assembly reliability
Process-reliable direct fastening for additively manufactured plastic components.

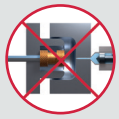
Reduced radial stresses
Optimised thread geometry minimizes stress on the component structure.

Ideal for prototypes and small series
Perfect for rapid development and flexible manufacturing.

Removable and service-friendly
Easy to maintain and repair.



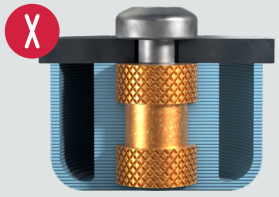
No inserts. No adhesive locking
Reduced costs



No additional insert installation
Reduced cycle time



No inserts integrated into the component
Reduced weight



Standard screw with Insert

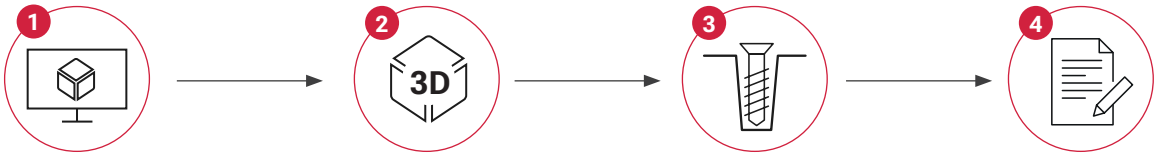


EVO PT®

Would you like to fasten your 3D-printed application?
We support you in design, testing and selection of the appropriate EVO PT® size for your application.

EJOT. Bringing it together.

Typical process



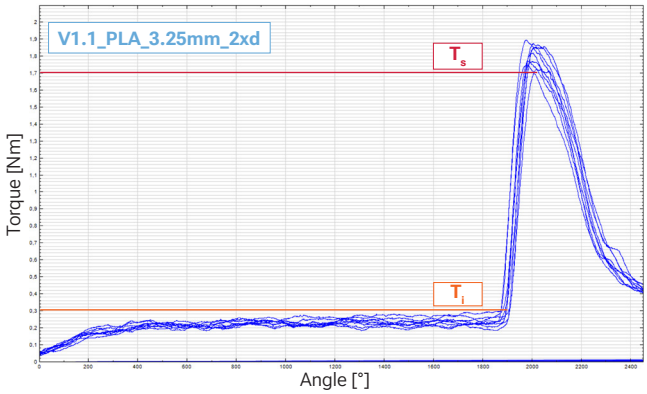
Design of the component
Incorporate the recommended screw boss geometry

3D-print of the component
According the selected material and parameters

Direct fastening
Install the EVO PT® directly into the pilot hole

Benefit from our service
Verification of function and load capacity

Examples

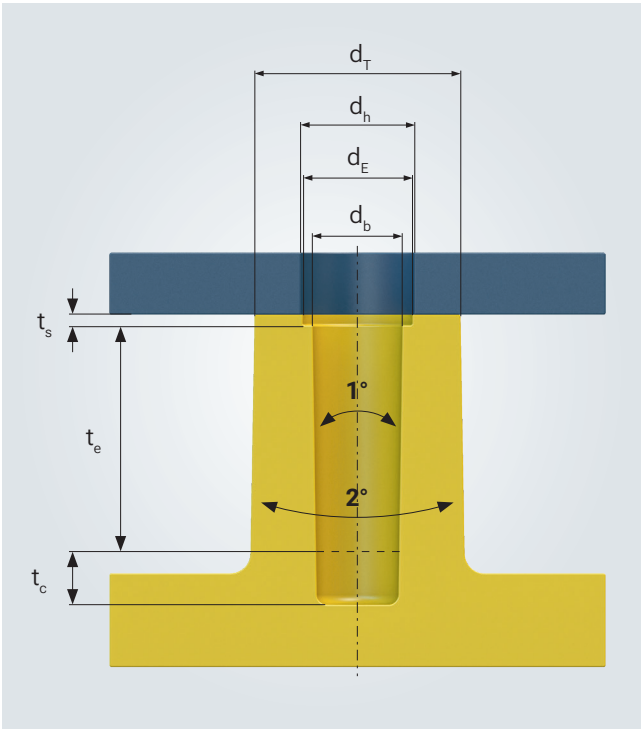


Determination of torque values up to joint failure

Installation safety
Ratio of minimum failure torque (T_s) to maximum installation torque (T_i):
Target value ≥ 3 : 1
Achieved value > 7 : 1

Test parameters
Fastener: EVO PT® 40
Component material: PLA
Installation depth: 2 × d_1
Pilot hole diameter: 0.82 × d_1
Pull-out force: 1.5 kN ≈ 150 kg
Examples of additional evaluated materials:
PA12 CF · PETG · PP · PP CF · PA GF · PA HT CF

Design recommendation



Nominal diameter of the screw in mm: d_1

External boss Ø: $d_T = 2 \times d_1$

Counterbore diameter: $d_E = d_1 \times 1.05$

Clearance hole Ø: $d_h = 1.05$ to $1.1 \times d_1$

Hole diameter: $d_b = 0.85 \times d_1 \pm 0.05$ mm

Counterbore depth: $t_s = 0.1 \times d_1$

Installation depth: $t_e = 2 \times d_1$ or deeper

Hole depth allowance: $t_c = 0.5 \times d_1$

Digital service for optimised components

The EVO CALC® digital calculation service enables you to pre-calculate torques and clamp load forces, as well as clamp load relaxation under temperature and time.

EVOCALC®

Further information at www.ejot.com/industry or please contact our EJOT Hotline: phone: +49 2751 529 123, e-mail: hotline@ejot.com

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