

EJOT FDS® Direct assembly without pre-hole



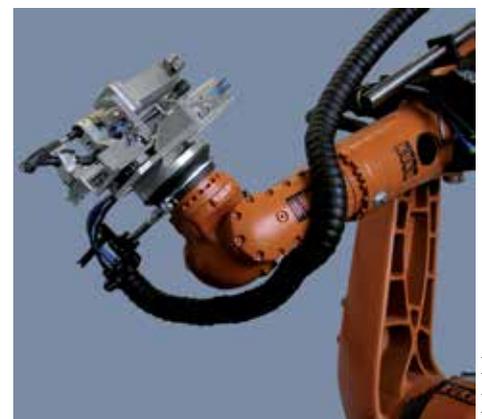
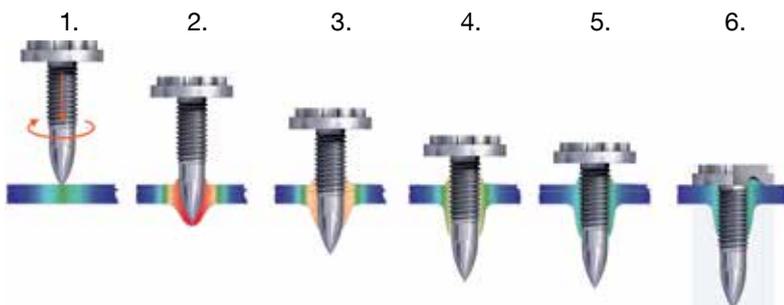
Modern space frame structures have rigid demands often according to the joining technology in the body shell because of the composite construction and regular one-sided access. While the captured components on the Audi TT were still pre-punched, this step has been partially omitted for the Audi A8.

To fasten the FDS® screw it is fed automatically into the nozzle of the robot guided fastening equipment. Prior to the actual fastening a retainer, which is positioned in front of the nozzle, pushes on the joint in order to minimize cracking between the two components during the fastening process. The spindle speed is increased simultaneously with the application of the axial load.

The screw point pierces both components and forms a female metric thread without any debris. When the screw head connects to the surface the displaced material is taken up by the screw head. As the tightening torque is reached, the screw clamps the components and ensures a higher strength joint due to the large thread engagement. The material configuration when fastening without pilot hole should be „thin on thick“ or „soft on hard“ respectively, since higher tightening torques can be reached and gaps between the two components can be minimized. The screw can be removed without damage, which is an advantage for repairs or recycling. In the series production of the Audi A8 body shell approx. 640 EJOT FDS® screws are fastened fully automated.

Process steps of the FDS® assembly

1. Heating
2. Penetrating
3. Extrusion formation
4. Thread forming
5. Engagement of full threads
6. Tightening



Robot supported fastening system from the company Weber Schraubautomaten