

5 SCREW TIGHTENING STRUCTURE, SCREW AND SCREW TIGHTENING TOOL

ABSTRACT

Outer peripheral ends of torque transmitting section (20) of fitting projections
10 (16) are made to contact with the side wall surfaces of torque transmitting sections
(18) of recesses (12), and tightening torque is transmitted to a screw (10) through force
application points (Q) which are the portions of the contact. In this process, in an end
surface shape perpendicular to the center line (O1) of a recess (12) including a force
application point (Q), the driving angle (θ) of a force (F) perpendicular to the surface
15 is 0° or less. Therefore, the force (F) perpendicular to the surface is applied to the
side wall of the recess (12) in a tangential direction about the center axis (O1) or in an
inward direction. In comparison with a conventional case in which the force (F)
perpendicular to the surface acts outwardly ($0^\circ < \theta$), a cam-out effect causing a screw
tightening tool (14) to be dislodged from the recess (12) is less likely to occur. As a
20 result, deformation of the recesses (12) and damage to or wear of the fitting
projections (16) are suppressed, and the screw (10) can be considerably easily
tightened with large tightening torque.

Fig. 1