

## Screwdriving procedure DEPRAG Clamp Force Control – DEPRAG CFC

This adaptive screwdriving procedure ensures a constant clamp force when drive-in torque values are fluctuating. The whole screw assembly consists of the head contact recognition and a screw assembly to differential torque or to a specific angle.

### Area of application

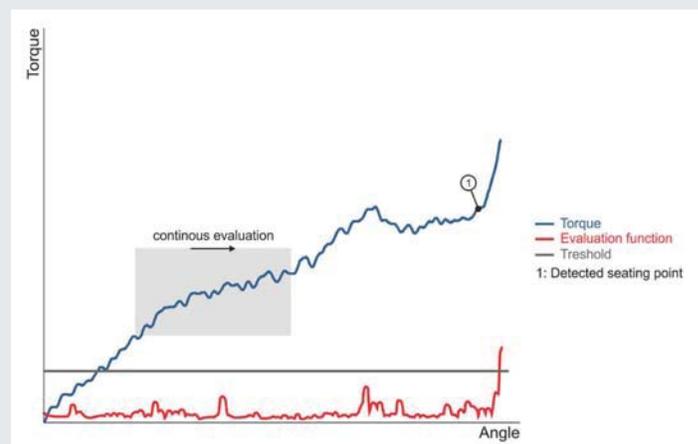
Typical area of application is direct screwdriving into plastic and/or metal. The new screwdriving procedure for DEPRAG EC servo screwdrivers in combination with the AST40 is used for greatly varying tightening torques. These fluctuations may result from alterations in the geometry of the screws and/or hole, the component's material structure, variations in surface quality of the screw thread, elasticity of elements or seating processes. The reliable recognition of head contact results in a consistent clamp force.

### Advantages:

- Minimal parameterization
- Calculation takes into account coincidental fluctuations in the torque during the process, which are not caused by head contact
- Procedure ensures consistent clamp force

### Method of calculation

The main element is the head contact recognition: based on the torque flow, a mathematical valuation function is continually generated. Head contact is deemed to be recognized as soon as this function exceeds a fixed limit value. Torque and angle are calculated backwards to the moment of head contact.



**Screwdriving procedure**

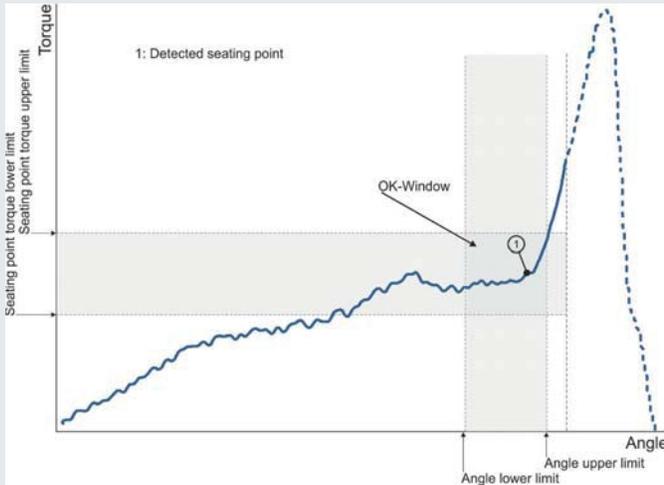


Illustration 1: Torque procedure example – parameter head contact recognition screw template

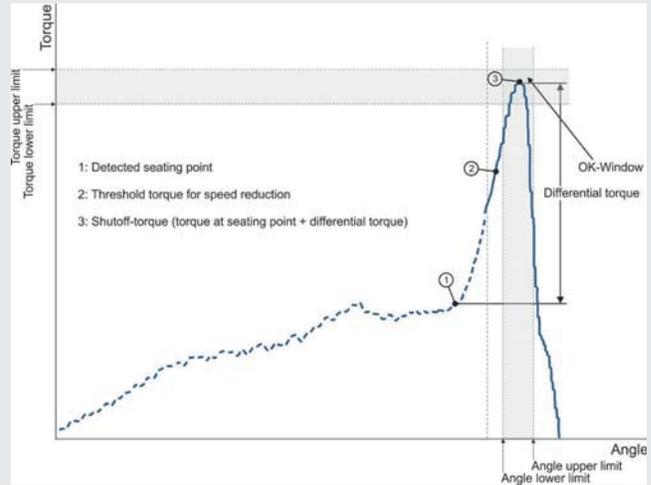


Illustration 2: Screw assembly to differential torque relating to head contact recognition

The torque upper limit serves as the stop condition for the screwdriving step. The OK window for the head contact recognition can optionally be monitored using head contact torque upper/lower limit and angle upper/lower limit (illustration 1). Either the torque values or the angle values at the time of head contact or at the end of the assembly step are determined. The end values of the head contact are used as references for further programming steps. In illustration 2 a subsequent screw assembly to differential torque is portrayed. Screw assembly to angle is available as well.

The screwdriving procedure DEPRAG Clamp Force Control does not replace the friction controlled screwdriving procedure. The most suitable screwdriving method can be determined by a screw joint analysis.

**Your DEPRAG contact**



- Screwdriving Technology
- Automation
- Air Motors
- Air Tools

www.depragusa.com  
sales@depragusa.com  
Toll Free 800 4DEPRAG  
Tel: 972-221-8731  
Fax 972-221-8163

DEPRAG, Inc.  
640 Hembry Street  
Lewisville, TX 75057-4777

Click here for the catalog of the AST40  
<http://www.depragusa.com/files/catalogs/D3161en.pdf>