

## Torque and preload with friction scatter

Calculate tightening torque and preload for hex head and socket head screws.  
The calculation considers friction scatter, tool accuracy and scatter on preload.

*Based on VDI 2230:2014*

### Screw type

- ☐  Hex head
- ☒  Socket head
- ☒ ISO 4014/ISO 4017

### Clearance hole - ISO 273

- ☐ Fine ☒ Medium ☐ Coarse

### Mechanical properties of material, thread size and friction

- Property class of screw  ▼
- Thread size  ▼
- Utilization of yield strength %  ▼
- ☒ Friction range
- Thread friction value  ▼ Lower
- ▼ Upper
- Nut/bolt head friction value  ▼ Lower
- ▼ Upper

### Tool precision

- ☒  Include tool precision  ▼

### Data used in calculation

- Yield strength Rp02  N/mm<sup>2</sup>
- Thread pitch P  mm
- Pitch diameter d2  mm

Root diameter d3	<input type="text" value="4.019"/> mm
Clearance hole dh	<input type="text" value="5.5"/> mm
Head bearing diameter dw	<input type="text" value="8.03"/> mm
Stress area As	<input type="text" value="14.2"/> mm <sup>2</sup>

## Results

Maximum tightening torque MA	<input type="text" value="6.9"/> Nm
Maximum preload FM	<input type="text" value="5.3"/> kN
Minimum preload FM	<input type="text" value="3.1"/> kN
Difference	<input type="text" value="43"/> %

Verify your calculation, maximize potential of your product.



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