

**A6.5212**      **Shear stress on threads:  $\tau_f^N$** 

- For bolt and tapping threads:  $\tau_f^N = 2N/(\pi \cdot d_f \cdot L'_e)$  with  $L'_e \leq L_e$ .

**A6.5213**      **Shear stress on the screw head:  $\tau_t^N$** 

- $\tau_t^N = N/(\pi \cdot d_1 \cdot H)$

**A6.5214**      **Contact pressure:  $p^N$** 

- between engaged threads:  $p_f^N = 4N \cdot p / [\pi \cdot (d^2 - D^2) \cdot L_e]$
- under the head or nut if there is no washer:  $p_t^N = 4N / [\pi \cdot (a^2 - D_p^2)]$
- on assembled parts if there is a washer:  $p_t^N = 4N / [\pi \cdot (a'^2 - D'_p{}^2)]$

with :

$a'$              $a' = a + 2 C$   
 $D'_p$          the greater of the two values ( $D_p$  ; B)

**A6.5220**      **STRESSES INDUCED BY A BENDING MOMENT: M****A6.5221**      **Bending stress:  $\sigma^M$** 

- on the thread root section:  $\sigma_n^M = \pm 32M / (\pi \cdot d_n^3)$
- on the smooth shank section:  $\sigma_l^M = \pm 32M / (\pi \cdot d_1^3)$

**A6.5222**      **Shear stresses on the threads:  $\tau_f^M$** 

- For bolt and tapping threads:  $\tau_f^M = 8M/(\pi \cdot d_f^2 \cdot L'_e)$  avec  $L'_e \leq L_e$ .

**A6.5223**      **Shear stress on the screw head:  $\tau_t^M$** 

- $\tau_t^M = M/(\pi \cdot d_1^2 \cdot H)$

**A6.5224**      **Contact pressure:  $p^M$** 

- Between the engaged threads:
- under the head if there is no washer:
- on the assembled part if there is a washer:

$$p_f^M = \frac{16 M \cdot p}{\pi \cdot L_e \cdot (d - D) [(d + D)^2 + 2 d^2]}$$

$$p_t^M = \frac{16 M}{\pi (a - D_p) [(a + D_p)^2 + 2 a^2]}$$

$$p_t^M = \frac{16 M}{\pi (a' - D'_p) [(a' + D'_p)^2 + 2 a'^2]}$$

with

$a'$             equals the smaller of two values ( $a + 2C$ ; A)  
 $D'_p$          equals the greater of two values ( $D_p$  ; B)

**A6.5230**      **STRESSES INDUCED BY RESIDUAL TWISTING TORQUES  $C_r$  AND  $C_t$** **A6.5231**      **Thread root shear stress**

- $\tau_n^{Cr} = 16 C_r / (\pi \cdot d_n^3)$

**A6.5232**      **Smooth shank shear stress**

- $\tau_l^{Cr} = 16 C_r / (\pi \cdot d_1^3)$

**A6.5233**      **Head shear stress**

- $\tau_t^{Cr} = 16 C_t / (\pi \cdot d_1^3)$