

## Calculation of mounting bolts

Ref. Assembly no. 706-81637-002

$$P_o = 3000 \cdot \text{psi}$$

**P<sub>o</sub>**=operating pressure of hyd. cylinders

$$S = 85000 \cdot \text{psi}$$

**S**=tensile strength of head material

$$D_b = 1.000 \cdot \text{in}$$

**D<sub>b</sub>**=mounting bolt diameter

$$D_{bm} = .910 \cdot \text{in}$$

**D<sub>bm</sub>**=min. pitch diameter of mounting bolts

$$R = 4$$

**R**=no. of mounting bolts

$$D_g = 6.288 \cdot \text{in}$$

**D<sub>g</sub>**=gasket diameter under pressure

$$L_e = 2.25 \cdot \text{in}$$

**L<sub>e</sub>**=length of engagement of mounting bolts

$$S_s = 0.5 \cdot S$$

**S<sub>s</sub>**=shear stress of head material

$$S_s = 42500 \cdot \text{psi}$$

$$A_p = .7854 \cdot D_g^2$$

**A<sub>p</sub>**=area subject to operating pressure

$$A_p = 31.054 \cdot \text{in}^2$$

$$A_{sn} = 3.1415 \cdot D_{bm} \cdot .75 \cdot L_e$$

**A<sub>sn</sub>**=shear area of internal thread

$$A_{sn} = 4.824 \cdot \text{in}^2$$

$$P_s = \frac{R \cdot S_s \cdot A_{sn}}{A_p}$$

**P<sub>s</sub>**=allowable shear stress of bolts

$$P_s = 26409 \cdot \text{psi}$$

$$SF = \frac{P_s}{P_o}$$

**SF**=factor of safety of mounting bolts in shear

$$SF = 8.803$$