

Technical Background (KC ID 776, Question)

Calculation of the rudder body moment M_R , CSR-BC, CH10, Sec1 [5.1.4]

The cross section under consideration is the lower end (A-B) of the cut out for the pintle.

Two bending moments act simultaneously in this section:

1. Partial rudder force C_{R2} of the partial rudder area A_2 below the cross section under consideration (see figure 1) with the lever f_1
2. Horizontal bearing force B_1 with the lever $f_2/2$.

$$M_R = \underbrace{C_{R2} f_1}_1 + \underbrace{B_1 \frac{f_2}{2}}_2 \text{ in N.m}$$

Figure 1 – Forces on ruder body

