The calculation of the values given in the catalogue is based on the following assumptions and simplifications:

Axial stresses are disregarded – two-dimensional problem.

Surface contact pressure is distributed evenly over the length of the inner ring.

For ungreased surfaces 0.15 is taken as the coefficient of friction between shaft and hub.

Maximum play in the fit is allowed for.

The peak-to-valley surface finish may be a maximum of 16 μm.

The tapers of the Shrink Discs are greased ($\mu = 0.05$).

Bolt threads and heat seats are likewise coated with a grease containing MoS2 ($\mu_{total} = 0.1$).

Modulus of elasticity is assumed to be 210 000 N/mm^2.

Subject to these assumptions, the maximum torque is arrived at as follows (static operation):

$$M_t = \frac{\pi \cdot \mu_w \cdot 10^{-3} \cdot p_w \cdot d_w^2 \cdot l}{2} \quad [Nm]$$

$$d_w \text{ and } l \text{ in mm}$$

The transmissible torque can be varied by changing the coefficient of friction μ_w.

The maximum axial force:
$$F_{ax} = M_t \cdot \frac{2}{d_w} \qquad d_w \text{ in mm} \quad \text{and } F_{ax} \text{ in kN}$$

With the simultaneous transmission torque and axial force, the torque is reduced according to the following formula:

$$M_{red} = \sqrt{M_t^2 - (F_{ax} \cdot \frac{d_w}{2})^2}$$

The calculations are based on the following maximum clearances

d_w from to	Tolerance	max. Clearance mm
9 – 18		0.020
18 – 30	H 7 / h 6	0.034
30 – 50	H 7 / h 6	0.041
50 – 80	H 7 / h 6	0.049
80 – 120	H 7 / h 6	0.057
120 – 150	H 7 / h 6	0.065
150 – 180	H 7 / g 6	0.079
180 – 250	H 7 / g 6	0.090
250 – 315	H 7 / g 6	0.101
315 – 400	H 7 / g 6	0.111
400 – 500	H 7 / g 6	0.123