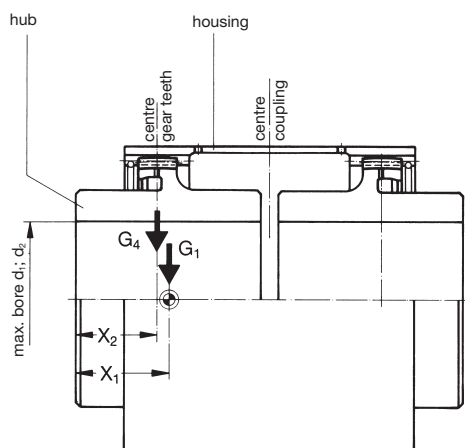




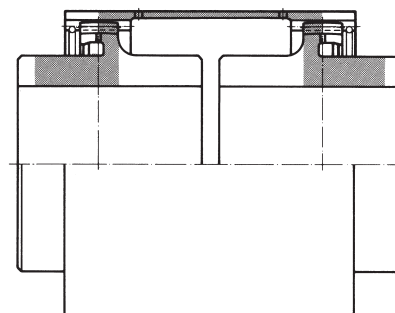
# Centres of Gravity, Torsional Spring Rates



## Determination of the centres of gravity

Details for determining the centres of gravity

- $X_1$  = Distance to centre of gravity,  $G_1$
- $X_2$  = Distance to weight take-up,  $G_4$
- $G_1$  = Weight of hub
- $G_2$  = Weight of sleeve, if  $H = H_{norm}$
- $G_3$  = Extra weight of the sleeve per 1 mm length, if  $H > H_{norm}$



## Determination of the torsional spring rates

Details for determining the torsional spring rates

- $C_{T1}$  = torsional spring rate of the complete coupling, if  $H = H_{norm}$
- $C_{T2}$  = torsional spring rate per 1 mm sleeve length, if  $H > H_{norm}$
- $C_{T3}$  = torsional spring rate of the complete coupling, if  $H > H_{norm}$

2) Details based on  $H_{norm}$  and bore  $d_1$ ;  $d_2$  max

$$G_4 = \frac{1}{2} \cdot G_2 \quad \text{if } H = H_{norm}$$

or

$$G_4 = \frac{1}{2} \cdot G_2 + \frac{1}{2} \cdot (H - H_{norm}) \cdot G_3 \quad \text{if } H > H_{norm}$$

$$C_{T3} = \frac{1}{\frac{1}{C_{T1}} + \frac{H - H_{norm}}{C_{T2}}}$$

| Coupling Type |      | Weights and Centre of Gravity Distances <sup>2)</sup> |       |       |       |       |       |       |        |       | Torsional Spring Rates <sup>2)</sup> |            |          |
|---------------|------|---|-------|-------|-------|-------|-------|-------|--------|-------|--------------------------------------|------------|----------|
| ZTN + ZTK     |      | bore  | $X_1$ | $X_1$ | $X_2$ | $G_1$ | $G_1$ | $G_2$ | $G_3$  | $G_4$ | $C_{T1}$                             | $C_{T2}$   | $C_{T3}$ |
| Size          | Size | $d_1; d_2$  | ZTN   | ZTK   | kg    | ZTN   | ZTK   | kg    | kg/mm  | kg    | MNm/rad                              | MNm-mm/rad | MNm/rad  |
| new           | old  | mm  | mm    | mm    | kg    | kg    | kg    | kg    | kg/mm  | kg    |                                      |            |          |
| 35            | -    | 35  | 22,2  | 18,8  | 20,5  | 0,47  | 0,40  | 0,55  | 0,0058 |       | 0,61                                 | 92         |          |
| 40            | -    | 40  | 24,3  | 20,4  | 21,0  | 0,61  | 0,53  | 0,69  | 0,0063 |       | 0,78                                 | 115        |          |
| 45            | 10   | 45  | 23,8  | 19,7  | 8,5   | 0,89  | 0,81  | 1,41  | 0,0075 |       | 1,30                                 | 193        |          |
| 55            | 20   | 55  | 29,1  | 24,8  | 14,5  | 1,46  | 1,29  | 1,85  | 0,0087 |       | 1,70                                 | 300        |          |
| 63            | 30   | 63  | 34,2  | 29,9  | 20,0  | 2,17  | 1,93  | 2,42  | 0,0114 |       | 2,50                                 | 497        |          |
| 73            | 40   | 73  | 41,5  | 35,2  | 33,5  | 3,50  | 3,03  | 3     | 0,0131 |       | 3,40                                 | 760        |          |
| 85            | 50   | 85  | 50,6  | 44,4  | 45,5  | 5,40  | 4,86  | 4     | 0,0147 |       | 4,70                                 | 1083       |          |
| 100           | 60   | 100   | 58,8  | 52,6  | 51,0  | 8,46  | 7,60  | 5     | 0,0191 |       | 7,2                                  | 1823       |          |
| 115           | 70   | 115   | 67,2  | 60,9  | 63,0  | 12,33 | 11,3  | 7,7   | 0,0244 |       | 10,2                                 | 2971       |          |
| 130           | 80   | 130   | 76    | 67,8  | 68,0  | 18,83 | 16,9  | 11,9  | 0,0310 |       | 14,9                                 | 4936       |          |
| 150           | 90   | 150   | 88,4  | 78,1  | 84,5  | 29,00 | 25,8  | 16,0  | 0,0417 |       | 21,7                                 | 8401       |          |
| 175           | 100  | 175   | 102,7 | 90,1  | 99,0  | 45,40 | 40,2  | 23,8  | 0,0558 |       | 32,2                                 | 14728      |          |
| 205           | 110  | 205   | 122,1 | 107,7 | 117,0 | 75,30 | 66,0  | 34,4  | 0,0661 |       | 52,1                                 | 24552      |          |

Subject to change due to technical improvement.