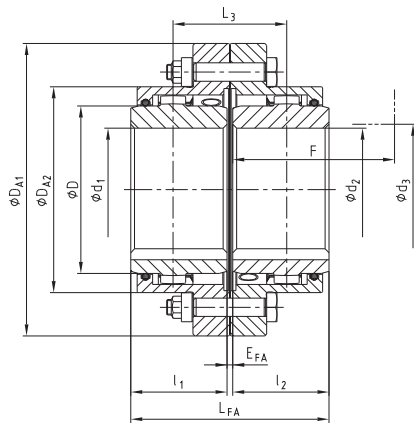


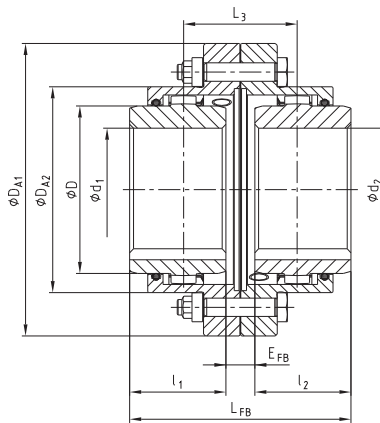
**Type FA, type FB and type FAB**



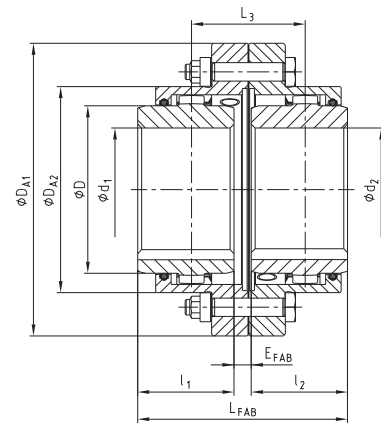
- Double-cardanic crowned gear coupling
- To be used on all applications in general engineering
- Compensating for shaft misalignment axial – radial – angular
- Available with finish bore to ISO, feather key according to DIN 6885 sheet 1, taper and inch bores
- For horizontal assembly
- Higher torques to be realized by special materials
- Approved according to EC Standard 94/9/EC (Explosion Certificate ATEX 95)



**Type FA**



**Type FB**



**Type FAB**

| Dimensions |                                 |                                 |                 |                 |                  |                 |                 |                  |                |     |                 |                 |                 |                              |                                    |
|------------|---------------------------------|---------------------------------|-----------------|-----------------|------------------|-----------------|-----------------|------------------|----------------|-----|-----------------|-----------------|-----------------|------------------------------|------------------------------------|
| Size       | Max. finish bore                | Dimensions [mm]                 |                 |                 |                  |                 |                 |                  |                |     |                 |                 |                 |                              | Grease <sup>2)</sup> feeding [dm³] |
|            | d <sub>1</sub> ; d <sub>2</sub> | l <sub>1</sub> ; l <sub>2</sub> | E <sub>FA</sub> | E <sub>FB</sub> | E <sub>FAB</sub> | L <sub>FA</sub> | L <sub>FB</sub> | L <sub>FAB</sub> | L <sub>3</sub> | D   | D <sub>A1</sub> | D <sub>A2</sub> | F <sup>1)</sup> | d <sub>3</sub> <sup>1)</sup> |                                    |
| 10         | 50                              | 43                              | 3               | 21              | 12               | 89              | 107             | 98               | 55             | 67  | 111             | 84              | 74              | 52                           | 0,02                               |
| 15         | 64                              | 50                              | 3               | 15              | 9                | 103             | 115             | 109              | 59             | 87  | 152             | 107             | 84              | 68                           | 0,04                               |
| 20         | 80                              | 62                              | 3               | 31              | 17               | 127             | 155             | 141              | 79             | 108 | 178             | 130             | 104             | 85                           | 0,08                               |
| 25         | 98                              | 76                              | 5               | 29              | 17               | 157             | 181             | 169              | 93             | 130 | 213             | 158             | 123             | 110                          | 0,12                               |
| 30         | 112                             | 90                              | 5               | 33              | 19               | 185             | 213             | 199              | 109            | 153 | 240             | 182             | 148             | 130                          | 0,18                               |
| 35         | 133                             | 105                             | 6               | 40              | 21,5             | 216             | 250             | 233              | 128            | 180 | 280             | 214             | 172             | 150                          | 0,22                               |
| 40         | 158                             | 120                             | 6               | 42              | 24               | 246             | 282             | 264              | 144            | 214 | 318             | 250             | 192             | 175                          | 0,35                               |
| 45         | 172                             | 135                             | 8               | 50              | 29               | 278             | 320             | 299              | 164            | 233 | 347             | 274             | 216             | 190                          | 0,45                               |
| 50         | 192                             | 150                             | 8               | 56              | 32               | 308             | 356             | 332              | 182            | 260 | 390             | 309             | 241             | 220                          | 0,70                               |
| 55         | 210                             | 175                             | 8               | 70              | 39               | 358             | 420             | 389              | 214            | 283 | 425,5           | 334             | 275             | 250                          | 0,90                               |
| 60         | 232                             | 190                             | 8               | 84              | 46               | 388             | 464             | 426              | 236            | 312 | 457             | 365,5           | 316             | 265                          | 1,15                               |
| 70         | 276                             | 220                             | 10              | 76              | 43               | 450             | 516             | 483              | 263            | 371 | 527             | 425             | 360             | 300                          | 1,50                               |

1) Required space to align the coupling or replace the sealing ring, respectively.

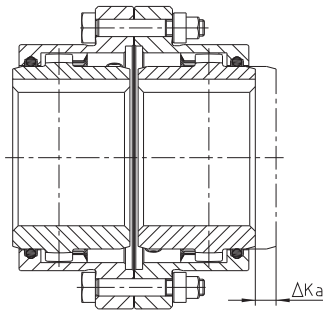
2) Grease feeding for each coupling half

| Technical Data |                 |                   |                  |                              |        |        |                                                 |                     |     |                     |
|----------------|-----------------|-------------------|------------------|------------------------------|--------|--------|-------------------------------------------------|---------------------|-----|---------------------|
| Size           | Torque [Nm]     |                   | Max. speed [rpm] | Weight with max. bore-Ø [kg] |        |        | Massmoment of inertia J with max. bore-Ø [kgm²] | Dowel screws (10.9) |     |                     |
|                | T <sub>KN</sub> | T <sub>Kmax</sub> |                  | Sleeve                       | Hub    | Total  |                                                 | z                   | M   | T <sub>A</sub> [Nm] |
| 10             | 930             | 1860              | 8500             | 0,748                        | 0,553  | 2,73   | 0,00436                                         | 6                   | M6  | 15                  |
| 15             | 2000            | 4000              | 7700             | 1,878                        | 1,119  | 6,38   | 0,01894                                         | 8                   | M8  | 36                  |
| 20             | 3500            | 7000              | 6900             | 2,602                        | 2,089  | 9,94   | 0,04000                                         | 6                   | M10 | 72                  |
| 25             | 6500            | 13000             | 6200             | 4,432                        | 3,564  | 16,83  | 0,09749                                         | 6                   | M12 | 125                 |
| 30             | 10000           | 20000             | 5800             | 5,829                        | 6,184  | 25,21  | 0,18080                                         | 8                   | M12 | 125                 |
| 35             | 17000           | 34000             | 5100             | 9,705                        | 9,868  | 41,25  | 0,41419                                         | 8                   | M14 | 200                 |
| 40             | 28500           | 57000             | 4500             | 11,883                       | 16,065 | 58,14  | 0,75535                                         | 8                   | M14 | 200                 |
| 45             | 37000           | 74000             | 4000             | 15,724                       | 21,419 | 77,08  | 1,17590                                         | 10                  | M14 | 200                 |
| 50             | 51000           | 102000            | 3750             | 25,661                       | 29,594 | 114,40 | 2,24991                                         | 8                   | M18 | 430                 |
| 55             | 65000           | 130000            | 3550             | 31,522                       | 40,304 | 150,41 | 3,45102                                         | 14                  | M18 | 430                 |
| 60             | 85000           | 170000            | 3400             | 32,822                       | 52,960 | 177,44 | 4,16734                                         | 14                  | M18 | 430                 |
| 70             | 135000          | 270000            | 3200             | 43,521                       | 85,768 | 268,20 | 9,32429                                         | 16                  | M20 | 610                 |

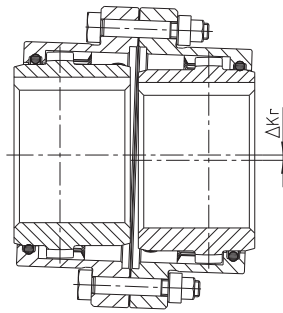
Order form:

| GEAREX® FA 10             | d <sub>1</sub> Ø 50                    | d <sub>2</sub> Ø 50                    |
|---------------------------|----------------------------------------|----------------------------------------|
| Size and type of coupling | Finish bore<br>keyway DIN 6885 sheet 1 | Finish bore<br>keyway DIN 6885 sheet 1 |

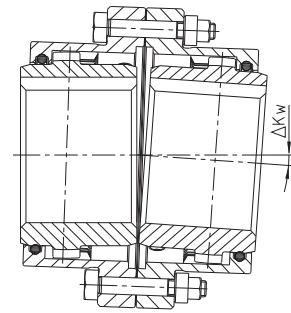
## Displacements



**Axial displacement**



**Radial displacement**



**Angular displacement**

| Displacements |                                              |                                              |                  |
|---------------|----------------------------------------------|----------------------------------------------|------------------|
| Size          | Max. axial displacement<br>$\Delta K_a$ [mm] | Max. permissible displacements <sup>1)</sup> |                  |
|               |                                              | $\Delta K_r$ [mm]                            | $\Delta K_w$ [°] |
| 10            |                                              | 0,4                                          |                  |
| 15            |                                              | 0,5                                          |                  |
| 20            |                                              | 0,6                                          |                  |
| 25            |                                              | 0,8                                          |                  |
| 30            |                                              | 1,0                                          |                  |
| 35            |                                              | 1,0                                          |                  |
| 40            |                                              | 1,2                                          |                  |
| 45            |                                              | 1,4                                          |                  |
| 50            |                                              | 1,6                                          |                  |
| 55            |                                              | 1,8                                          |                  |
| 60            |                                              | 2,0                                          |                  |
| 70            |                                              | 2,2                                          |                  |
| 80            |                                              | 2,5                                          |                  |
| 85            |                                              | 2,8                                          |                  |
| 90            |                                              | 3,0                                          |                  |
| 100           |                                              | 3,2                                          |                  |
|               |                                              |                                              | 0,5° each hub    |

1) The displacement figures are maximum figures which must not arise at the same time. If both radial and angular displacement arise at the same time, these figures have to be reduced (see examples of calculation and diagramme).

Example 1:

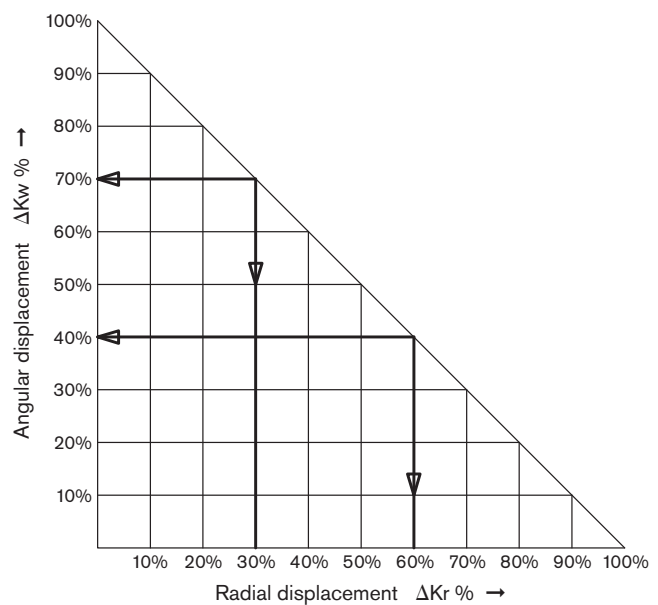
$$\Delta K_r = 30\%$$

$$\Delta K_w = 70\%$$

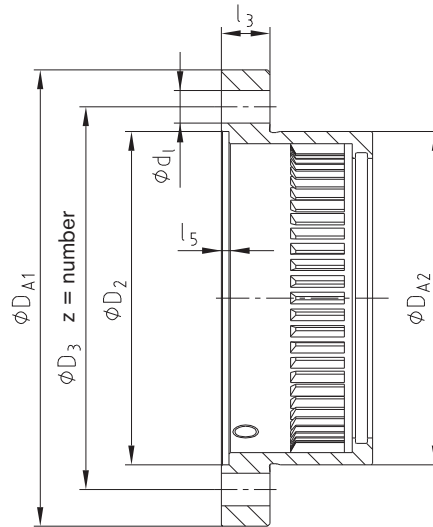
Example 2:

$$\Delta K_r = 60\%$$

$$\Delta K_w = 40\%$$

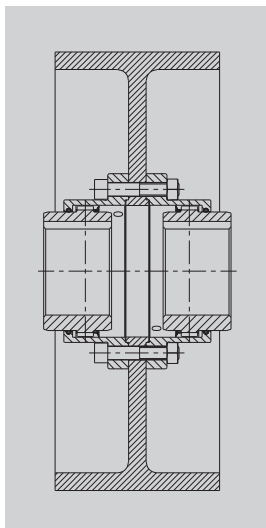


## Flange dimensions

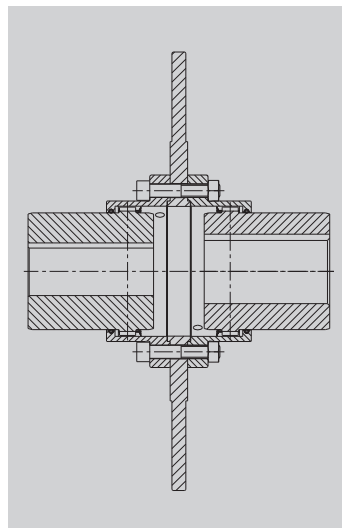


| Flange dimensions |                 |          |       |        |       |               |       |       |
|-------------------|-----------------|----------|-------|--------|-------|---------------|-------|-------|
| Size              | Dimensions [mm] |          |       |        |       |               |       |       |
|                   | $D_{A1}$        | $D_{A2}$ | $D_2$ | $D_3$  | $d_l$ | number<br>$z$ | $l_3$ | $l_5$ |
| 10                | 111             | 84       | 82    | 95,25  | 6,35  | 6             | 14    | 3     |
| 15                | 152             | 107      | 105   | 122,24 | 9,52  | 8             | 19    | 3     |
| 20                | 178             | 130      | 130   | 149,23 | 12,70 | 6             | 19    | 3     |
| 25                | 213             | 158      | 153   | 180,97 | 15,87 | 6             | 22    | 4     |
| 30                | 240             | 182      | 178   | 206,38 | 15,87 | 8             | 22    | 4     |
| 35                | 280             | 214      | 205   | 241,30 | 19,05 | 8             | 28,5  | 5     |
| 40                | 318             | 250      | 243   | 279,40 | 19,05 | 8             | 28,5  | 4     |
| 45                | 347             | 274      | 265   | 304,80 | 19,05 | 10            | 28,5  | 5,5   |
| 50                | 390             | 309      | 302   | 342,90 | 22,22 | 8             | 38    | 6     |
| 55                | 424,5           | 334      | 320   | 368,30 | 22,22 | 14            | 38    | 6     |
| 60                | 457             | 365,5    | 353   | 400,05 | 22,22 | 14            | 26    | 6     |
| 70                | 527             | 425      | 412   | 463,55 | 25,40 | 16            | 28,5  | 8     |

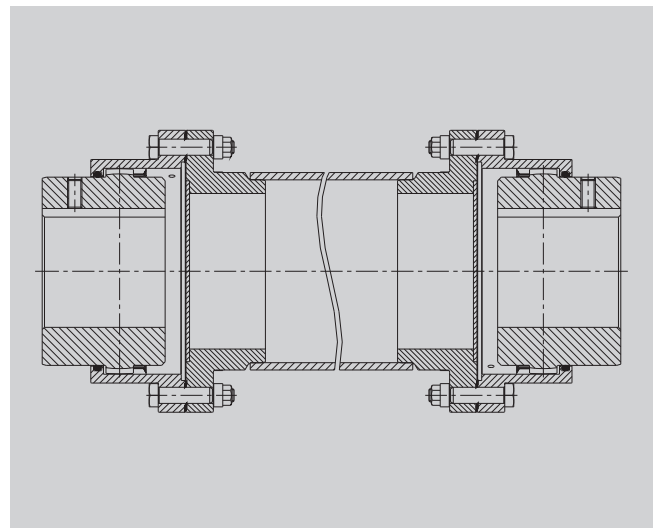
## Other types



Type with  
brake drum



Type with brake disc



Type FH with intermediate pipe

## Coupling selection

The coupling has to be dimensioned in a way that the permissible coupling load is not exceeded during any operating condition. For that purpose the loads that are produced have to be compared to the permissible characteristic figures of the coupling.

### 1 Coupling selection

The coupling is selected according to the rated torque ( $T_{KN}$ ). For that purpose the corresponding operating factors of the driving machine have to be taken into account, see starting factor  $S_Z$  and operating factor  $S_B$ .

### 2 Load of the coupling

$$T_{KN} \geq T_{NS}$$

$$T_{NS} = T_N \cdot S_Z \cdot S_B$$

$$T_N [\text{Nm}] = 9550 \cdot \frac{P_{AN/LN} [\text{kW}]}{n [\text{rpm}]}$$

$T_{KN}$  = rated torque of the coupling

$T_N$  = driving torque

$T_{NS}$  = driving torque including operating factors

$S_Z$  = starting factor

$S_B$  = operating factor

### 3 Starting torque

The permissible starting torque of the machine should not exceed two times the rated torque of the coupling.

### 4 Permissible load on the feather key of the coupling

The shaft-hub-connection should be verified by the customer. Permissible surface pressure according to DIN 6892 (method C).

### 5 Permissible temperature range

The coupling can be used in a temperature range from -20 °C to +80 °C.

### 6 Example of selection

Electric motor: 30 kW  
Application: textile machine  
Shaft-Ø: 70/65 mm  
Speed: 250 rpm  
Starts: < 10/h  
Starting torque:  $2,5 \cdot T_{KN}$

**Result:**

$$T_N = 9550 \cdot \frac{30 \text{ kW}}{250 \text{ rpm}}$$

$$T_N = 1146 \text{ Nm}$$

$$T_{NS} = 1146 \text{ Nm} \cdot 1 \cdot 1,25$$

$$T_{NS} = 1432,5 \text{ Nm}$$

**Coupling selected:**

GEAREX® 15 ( $T_{KN} = 2000 \text{ Nm}$ )

The starting torque of the machine is 2,5 times the starting torque (3581 Nm).

(permissible  $2 \cdot T_{KN} = 4000 \text{ Nm}$ )

**Service factor  $S_Z$  for starting frequency**

| starting frequency/h | 10  | 25  | 50  |
|----------------------|-----|-----|-----|
| $S_Z$                | 1,0 | 1,2 | 1,4 |

**Operating factor  $S_B$**

| Kind of load    | Operating features                                                                            | Machines                                                                                                                                                                                                                                                                                                                                                                                             | Operating factor |
|-----------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Smooth/smoothly | Permanent operation without overload or shock load. Low connecting frequency.                 | <ul style="list-style-type: none"> <li>Electric generators</li> <li>Radial pumps</li> <li>Light-weight fans</li> </ul>                                                                                                                                                                                                                                                                               | 1,00             |
| Light-weight    | Permanent operation with small overload and short-term and rare shock load.                   | <ul style="list-style-type: none"> <li>Multistage radial compressors</li> <li>Piston pumps</li> <li>Large fans (heavy load operation)</li> <li>Mixers for liquids</li> <li>Mixers for solid matters</li> <li>Textile machines</li> <li>Machine tools</li> <li>Belt conveyor</li> <li>Elevators</li> </ul>                                                                                            | 1,25             |
| Average         | Interrupted operation with low shock load and short-term average overload.                    | <ul style="list-style-type: none"> <li>Piston compressor, cranes (running or drawing operation)</li> <li>Winding engine, calenders for rubber and nylon</li> <li>Calenders</li> <li>Rolling mill drives</li> <li>Non-reversing cold rolling mills</li> </ul>                                                                                                                                         | 1,50             |
| Heavy           | Operation with heavy and frequent shock load. Frequent load reversion. High degree of safety. | <ul style="list-style-type: none"> <li>Bridge cranes for steel industry</li> <li>Mixers for rubber and nylon</li> <li>Cranes (heavy load operation)</li> <li>Wood grinders, marine drives</li> <li>Equipment for transport of persons</li> <li>Mine fans</li> <li>Roller tables</li> <li>Non-reversing cold rolling mills</li> <li>Reversing cold rolling mills</li> <li>Hot-rolling mill</li> </ul> | 2,00             |
| Very heavy      | Extreme and overload with frequent and sudden load revolution.                                | <ul style="list-style-type: none"> <li>Reversing rolling mill drives</li> <li>Heavy load operation in steel industry</li> <li>Slitting machines</li> <li>Grinding machines</li> <li>Scissors and cutters</li> <li>Crushers</li> </ul>                                                                                                                                                                | 2,50             |