

TORSIONALLY RIGID COUPLING

up to 130 KNm and 205 mm bore diameters





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GTR

GTR - torsionally rigid coupling: introduction



Designed to suit applications where high reliability, precision and an optimum weight/power ratio is required; ideally suited for applications with high speeds and power, also offering low overhung loads when using the spacer version.

This coupling is composed of three main items: the two fully turned hubs, made in steel UNI EN ISO 683-1:2018 and the disc pack, in stainless steel AISI 301 C with connection screws in steel class 10.9. In the "double" version, GTR/D, there is also a spacer made to length, also built in steel UNI EN ISO 683-1:2018, fixed between the hubs and the two disc packs.

All the components of GTR couplings, except the spacer of GTR/D, are made and statically balanced in class DIN ISO 1940-1:2003 Q 6.3, before the machining of the keyway.

In accordance to the specific need of the application, it is possible to make static or dynamic balancing on each separate component or on the coupling, fully assembled to customer requirements.

DESCRIPTION OF DISCS

The fundamental elements of this torsionally rigid coupling are the disc packs, built from a series of stainless steel discs type AISI 304-C, connected by steel bushes. This disc pack is connected in an alternate way to the hub flange or the eventual spacer, by using screws in steel class 10.9 and the relevant self-locking nuts.

With reference to the configuration, the disc packs can be:

- A) Continuous ring disc pack for 6 screws (coupling sizes 1-7)
- B) Sectional disc pack for 6 screws (coupling sizes 8-11)
- C) Sectional disc pack for 8 screws (coupling sizes 12-15)





GTR - torsionally rigid coupling: introduction

MANUFACTURING

Version with personalized spacer for a specific D.B.S.E. (page 12).

Manufacturing with internal hubs in order to reduce the axial dimensions.

Manufacturing in addition to the /SG torque limiters range, with simple and/or double disc pack.

Solution with adaptors both in simple and double version, for easy substitution of disc packs without moving the hubs (in accordance with directive API610).













Solution for vertical mounting, where the spacer (GTR/D or GTR/DBSE) has to be supported to avoid the weight by pre-loading the disc pack.

GTR - torsionally rigid coupling: technical data







DATA CONSULT THE DEDICATED BROCHURE

DIMENSIONS

10

| | Cino | ٨ | D | E H7 | E4 | H7 | N | D | 0 | 2 | P | D1 | тэ | | V |
|----------|------|-----|-----|------|-----|------|-----|-----|------|-----|------|-----|-----|------|-----|
| | Size | A | D | max | min | max | IN | P | ▲min | std | к | KI | 13 | U | v |
| | 0 | 78 | 45 | 32 | 10 | 25 | 29 | 7,5 | 36 | 50 | 65,5 | 123 | 38 | 8,5 | M5 |
| | 1 | 80 | 45 | 32 | 10 | 25 | 36 | 8 | 36 | 50 | 80 | 138 | 38 | 8,5 | M5 |
| • | 2 | 92 | 53 | 38 | 12 | 30 | 42 | 8 | 36 | 50 | 92 | 150 | 45 | 10 | M5 |
| | 3 | 112 | 64 | 45 | 15 | 35 | 46 | 10 | 47 | 59 | 102 | 171 | 55 | 12,5 | M8 |
| | 4 | 136 | 76 | 52 | 19 | 45 | 56 | 12 | 51 | 75 | 124 | 211 | 65 | 15,5 | M8 |
| | 5 | 162 | 92 | 65 | 20 | 55 | 66 | 13 | 60 | 95 | 145 | 253 | 75 | 20 | M8 |
| | 6 | 182 | 112 | 80 | 25 | ▲ 70 | 80 | 14 | 61 | 102 | 174 | 290 | 88 | 20 | M8 |
| | 7 | 206 | 128 | 90 | 35 | 80 | 92 | 15 | 64 | 101 | 199 | 315 | 105 | 25 | M10 |
| | 8 | 226 | 133 | 95 | 35 | 80 | 100 | 22 | 86 | 136 | 222 | 380 | 106 | 25 | M10 |
| | 9 | 252 | 155 | 110 | - | - | 110 | 25 | 88 | 130 | 245 | 400 | 128 | 25 | M12 |
| | 10 | 296 | 170 | 120 | - | - | 120 | 32 | 124 | 144 | 272 | 448 | 134 | 25 | M12 |
| • | 11 | 318 | 195 | 138 | - | - | 140 | 32 | - | 136 | 312 | 480 | 156 | 30 | M16 |
| ^ | 12 | 352 | 220 | 155 | - | - | 155 | 32 | - | 172 | 342 | 546 | 156 | 40 | M20 |
| • | 13 | 386 | 245 | 175 | - | - | 175 | 37 | - | 226 | 387 | 650 | - | 40 | M20 |
| • | 14 | 426 | 270 | 190 | - | - | 190 | 37 | - | 236 | 417 | 690 | - | 45 | M24 |
| • | 15 | 456 | 290 | 205 | - | - | 205 | 42 | - | 246 | 452 | 740 | - | 45 | M24 |

🔺 On request



TORQUE PERMISSIBLE WITH CLAMP LOCKING TYPE B (GTR/S; GTR/D; GTR/DBSE)

| | | | | | | | | | То | rqu | e tra | nsm | nitte | d [Nm | rele | vant | to the | e ø fir | nished | l bore | [<i>mm</i>] | | | | | | | |
|------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-------|-----|-------|-------|------|------|--------|---------|--------|--------|---------------|------|------|------|------|------|------|------|
| Size | 10 | 11 | 12 | 14 | 15 | 16 | 18 | 19 | 20 | 22 | 24 | 25 | 28 | 30 | 32 | 35 | 38 | 40 | 42 | 45 | 48 | 50 | 55 | 60 | 65 | 70 | 75 | 80 |
| 0 | 48 | 49 | 50 | 53 | 54 | 55 | 58 | 59 | 60 | 63 | 65 | 67 | | | | | | | | | | | | | | | | |
| 1 | 48 | 49 | 50 | 53 | 54 | 55 | 58 | 59 | 60 | 63 | 65 | 67 | | | | | | | | | | | | | | | | |
| 2 | | | 89 | 92 | 94 | 95 | 98 | 100 | 102 | 105 | 108 | 110 | 115 | 118 | | | | | | | | | | | | | | |
| 3 | | | | 188 | 190 | 193 | 200 | 203 | 206 | 212 | 218 | 221 | 230 | 236 | 242 | 251 | | | | | | | | | | | | |
| 4 | | | | | | | | 233 | 236 | 242 | 248 | 251 | 260 | 266 | 272 | 281 | 290 | 296 | 302 | 311 | | | | | | | | |
| 5 | | | | | | | | | 471 | 481 | 491 | 496 | 512 | 522 | 532 | 547 | 563 | 573 | 583 | 599 | 614 | 624 | 650 | | | | | |
| 6 | | | | | | | | | | | | 874 | 897 | 912 | 927 | 949 | 971 | 986 | 1001 | 1024 | 1046 | 1061 | 1098 | 1136 | 1173 | 1211 | | |
| 7 | | | | | | | | | | | | | | | | 1329 | 1358 | 1378 | 1397 | 1427 | 1456 | 1476 | 1524 | 1573 | 1622 | 1671 | 1720 | 1769 |
| 8 | | | | | | | | | | | | | | | | 1388 | 1417 | 1436 | 1456 | 1485 | 1515 | 1534 | 1583 | 1632 | 1681 | 1730 | 1778 | 1827 |

🔺 On request

GTR - torsionally rigid coupling: technical data

E TECHNICAL CHARACTERISTICS GTR/S

| Sizo | | Torque [Nm] | · | Weight | Inertia | Max speed *2 | Axial load | Tightenir screw | ng torque /s [Nm] | r | Visalignmen | t | Rigidity R _T s |
|------|-------|----------------|-----------------------|--------|---------|-----------------|---------------|--------------------|----------------------|-----------------|-----------------|------------------|------------------------------|
| 5120 | Nom | Max | Alternating motion | [Kg] | [Kgm²] | [Rpm] | [Kg] | S1 | S2 | Angular α[°] | Axial × [mm] | Radial k [mm] | [10³ Nm/rad] |
| 0 | 60 | 120 | 20 | 1,6 | 0,00058 | 14500 | 10 | 10,5 | 12 | 1° | 0,7 | - | 80 |
| 1 | 100 | 200 | 33 | 1,3 | 0,00067 | 14200 | 14 | 10,5 | 12 | 0° 45′ | 0,8 | - | 117 |
| 2 | 150 | 300 | 50 | 2,4 | 0,00193 | 12500 | 19 | 17 | 13 | 0° 45′ | 0,9 | - | 156 |
| 3 | 300 | 600 | 100 | 3,9 | 0,00386 | 10200 | 26 | 43 | 22 | 0° 45′ | 1,2 | - | 415 |
| 4 | 700 | 1400 | 233 | 6,3 | 0,00869 | 8500 | 34 | 43 | 39 | 0° 45′ | 1,4 | - | 970 |
| 5 | 1100 | 2200 | 366 | 10,4 | 0,01009 | 7000 | 53 | 84 | 85 | 0° 45′ | 1,6 | - | 1846 |
| 6 | 1700 | 3400 | 566 | 15,6 | 0,03648 | 6300 | 70 | 145 | 95 | 0° 45′ | 2,0 | - | 2242 |
| 7 | 2600 | 5200 | 866 | 24,8 | 0,07735 | 5500 | 79 | 220 | 127 | 0° 45′ | 2,2 | - | 3511 |
| 8 | 4000 | 8000 | 1333 | 33,0 | 0,13403 | 5000 | 104 | 220 | 260 | 0° 45′ | 2,4 | - | 8991 |
| 9 | 7000 | 14000 | 2333 | 42,0 | 0,25445 | 4500 | 115 | - | 480 | 0° 45′ | 2,5 | - | 11941 |
| 10 | 10000 | 20000 | 3333 | 67,0 | 0,45019 | 3800 | 138 | - | 760 | 0° 45′ | 2,6 | - | 15720 |
| 11 | 12000 | 24000 | 4000 | 94,0 | 0,71654 | 3600 | 279 | - | 780 | 0° 45′ | 2,9 | - | 15521 |
| 12 | 25000 | 50000 | 8333 | 130,0 | 1,22340 | 3200 | 484 | - | 800 | 0° 30′ | 2,9 | - | 37700 |
| 13 | 35000 | 70000 | 11666 | 160,0 | 1,94410 | 3000 | 638 | - | 1100 | 0° 30′ | 3,1 | - | 51500 |
| 14 | 50000 | 100000 | 16666 | 210,0 | 3,10950 | 2700 | 683 | - | 1500 | 0° 30′ | 3,4 | - | 64300 |
| 15 | 65000 | 130000 | 21666 | 270,0 | 4,37920 | 2500 | 744 | - | 2600 | 0° 30′ | 3,8 | - | 69800 |

TECHNICAL CHARACTERISTICS GTR/D

| | | Torque [Nm] | 5 | Weight | Inertia | Max | Axial | Tightenir screw | ng torque /S [Nm] | Ν | Rigidity R ₋ s | | |
|-----|-------|----------------|--------------------|--------|---------|-------|-------|--------------------|----------------------|---------------------------------|------------------------------|------------------|--------------|
| 512 | Nom | Max | Alternating motion | [Kg] | [Kgm²] | [Rpm] | [Kg] | S1 | S2 | * ³ Angular α [°] | Axial × [mm] | Radial K [mm] | [10³ Nm/rad] |
| 0 | 60 | 120 | 20 | 1,7 | 0,00083 | 14500 | 10 | 10,5 | 12 | 1° | 1,4 | 0,70 | 42 |
| 1 | 100 | 200 | 33 | 1,8 | 0,00092 | 14200 | 14 | 10,5 | 12 | 0° 45′ | 1,6 | 0,80 | 51 |
| 2 | 150 | 300 | 50 | 3,5 | 0,00286 | 12500 | 19 | 17 | 13 | 0° 45′ | 1,8 | 0,80 | 71 |
| 3 | 300 | 600 | 100 | 5,8 | 0,00740 | 10200 | 26 | 43 | 22 | 0° 45′ | 2,4 | 0,95 | 184 |
| 4 | 700 | 1400 | 233 | 9,4 | 0,01660 | 8500 | 34 | 43 | 39 | 0° 45′ | 2,8 | 1,20 | 422 |
| 5 | 1100 | 2200 | 366 | 15,2 | 0,02850 | 7000 | 53 | 84 | 85 | 0° 45′ | 3,2 | 1,45 | 803 |
| 6 | 1700 | 3400 | 566 | 23,0 | 0,06358 | 6300 | 70 | 145 | 95 | 0° 45′ | 4,0 | 1,55 | 1019 |
| 7 | 2600 | 5200 | 866 | 34,0 | 0,12816 | 5500 | 79 | 220 | 127 | 0° 45′ | 4,4 | 1,55 | 1596 |
| 8 | 4000 | 8000 | 1333 | 47,0 | 0,22927 | 5000 | 104 | 220 | 260 | 0° 45′ | 4,8 | 2,15 | 3996 |
| 9 | 7000 | 14000 | 2333 | 61,0 | 0,44598 | 4500 | 115 | - | 480 | 0° 45′ | 5,0 | 2,15 | 5192 |
| 10 | 10000 | 20000 | 3333 | 96,0 | 0,79995 | 3800 | 138 | - | 760 | 0° 45′ | 5,2 | 2,40 | 6690 |
| 11 | 12000 | 24000 | 4000 | 132,0 | 1,22823 | 3600 | 279 | - | 780 | 0° 45′ | 5,8 | 2,40 | 6748 |
| 12 | 25000 | 50000 | 8333 | 173,0 | 1,97120 | 3200 | 484 | - | 800 | 0° 30′ | 5,8 | 1,30 | 15900 |
| 13 | 35000 | 70000 | 11666 | 208,0 | 3,06240 | 3000 | 638 | - | 1100 | 0° 30′ | 6,2 | 1,70 | 21800 |
| 14 | 50000 | 100000 | 16666 | 280,0 | 4,89420 | 2700 | 683 | - | 1500 | 0° 30′ | 6,8 | 1,80 | 27000 |
| 15 | 65000 | 130000 | 21666 | 350,0 | 6,93250 | 2500 | 744 | - | 2600 | 0° 30′ | 7,7 | 1,90 | 32000 |

NOTES

- Qstd (*1) Different dimensions available on request.
- Max speed (*2) For higher speeds please contact our technical department.
- Angular misalignment " α " refers to a single disc pack.
- Weights refer to the coupling with pilot bore.
- Inertias refer to the coupling with maximum bore.
- Choice and availability of different hub connection type see pages 4 and 5.

<u>ComInTec</u>

GTR/DBSE - torsionally rigid coupling with spacer: introduction



This backlash free coupling with spacer , called the GTR/DBSE (Distance Between Shaft Ends), consists off a central spacer that is made to order depending on the application and two flexible disc packs and hubs allowing for the connection of two driver shafts located apart. This type of disc coupling is made of special steel with the disc packs manufactured in AISI 301 stainless steel, in order to obtain a wear and maintenance free flexible coupling. To promote a long life even in adverse conditions the coupling is supplied with an anti-corrosive surface treatment. All the parts of the coupling (with exception of the DBSE spacer version) are statically balanced in class DIN-ISO 1940:1:2003 Q 6.3 before machining of the key and its locking screw.

In accordance with the specific requirements of the application, you can perform a static or dynamic balancing different on each separate component or the coupling fully assembled.

DESCRIPTION OF DISCS

The fundamental elements of this torsionally rigid coupling are the disc packs, built from a series of stainless steel discs type AISI 304-C, connected by steel bushes. This disc pack is connected in an alternate way to the hub flange or the eventual spacer, by using screws in steel class 10.9 and the relevant self-locking nuts.

With reference to the configuration, the disc packs can be:

- A) Continuous ring disc pack for 6 screws (coupling sizes 1-7)
- B) Sectional disc pack for 6 screws (coupling sizes 8-11)
- C) Sectional disc pack for 8 screws (coupling sizes 12-15)

APPLICATION EXAMPLE



GTR/DBSE - torsionally rigid coupling with spacer: technical data



DIMENSIONS

| | Cread | | 5 | E H7 | E4 | H7 | N | P | | V | DBSE | |
|---|--------|-----|-----|------|-----|-----|-----|-----|----|-----|------|------------------|
| | Grand. | А | U | max | min | max | N N | P | U | | min | L _{tot} |
| | 0 | 78 | 45 | 32 | 10 | 25 | 29 | 7,5 | 10 | M5 | 123 | |
| | 1 | 80 | 45 | 32 | 10 | 25 | 36 | 8 | 10 | M5 | 124 | |
| | 2 | 92 | 53 | 38 | 12 | 30 | 42 | 8 | 10 | M5 | 126 | |
| | 3 | 112 | 64 | 45 | 15 | 35 | 46 | 10 | 15 | M8 | 152 | |
| | 4 | 136 | 76 | 52 | 19 | 45 | 56 | 12 | 15 | M8 | 156 | |
| | 5 | 162 | 92 | 65 | 20 | 55 | 66 | 13 | 20 | M8 | 134 | |
| • | 6 | 182 | 112 | 80 | 25 | 70 | 80 | 14 | 20 | M8 | 158 | 2 4 |
| ▲ | 7 | 206 | 128 | 90 | 35 | 80 | 92 | 15 | 25 | M10 | 160 | + ய |
| • | 8 | 226 | 133 | 95 | 35 | 80 | 100 | 22 | 25 | M10 | 184 | B.S. |
| ▲ | 9 | 252 | 155 | 110 | - | - | 110 | 25 | 25 | M12 | - | |
| • | 10 | 296 | 170 | 120 | - | - | 120 | 32 | 25 | M12 | - | |
| ▲ | 11 | 318 | 195 | 138 | - | - | 140 | 32 | 30 | M16 | - | |
| • | 12 | 352 | 220 | 155 | - | - | 155 | 32 | 40 | M20 | - | |
| • | 13 | 386 | 245 | 175 | - | - | 175 | 37 | 40 | M20 | - | |
| • | 14 | 426 | 270 | 190 | - | - | 190 | 37 | 45 | M24 | - | |
| • | 15 | 456 | 290 | 205 | | - | 205 | 42 | 45 | M24 | - | |

TECHNICAL CHARACTERISTICS

| | | | Torque [Nm] | 2 | | Spac | cer | – Total | Axial | Tightenin | g torque screws [Nm] | Misalignment | | |
|------------|------|------------------------------|------------------------------|-----------------------|-------------------|---------------------|--|------------------|--------------|-----------|-------------------------|--------------------------------|-----------------|------------------|
| | Size | Nom | Max | Alternating motion | Weight [Kg/m] | Inertia [Kgm²/m] | Relative rigidity R _T rel [10 ³ Nm/rad•m] | Weight [Kg/m] | load [Kg] | S1 | S2 | * ³ Angular α[°] | Axial × [mm] | Radial k [mm] |
| | 0 | 60 | 120 | 20 | 5,0 | 0,00197 | 12 | | 10 | 10,5 | 12 | 1° | 1,4 | |
| | 1 | 100 | 200 | 33 | 5,0 | 0,00197 | 12 | | 14 | 10,5 | 12 | 0° 45′ | 1,6 | |
| | 2 | 150 | 300 | 50 | 5,5 | 0,00281 | 21 | 2P) | 19 | 17 | 13 | 0° 45′ | 1,8 | |
| | 3 | 300 | 600 | 100 | 5,5 | 0,00281 | 29 | SE - | 26 | 43 | 22 | 0° 45′ | 2,4 | |
| | 4 | 700 | 1400 | 233 | 33 8,0 0,00582 60 | | 60 | (DB | 34 | 43 | 39 | 0° 45′ | 2,8 | |
| | 5 | 1100 | 2200 366 | 13,5 | 0,01550 | 148 | t. | 53 | 84 | 85 | 0° 45′ | 3,2 | α/2 | |
| ▲ | 6 | 1700 | 3400 566 16,0 0,02718 269 | | /eigh | 70 | 145 | 95 | 0° 45′ | 4,0 | tg | | | |
| ▲ [| 7 | 2600 | 5200 | 866 | 16,5 | 0,03096 | 321 | erv | 79 | 220 | 127 | 0° 45′ | 4,4 | - G |
| ▲ | 8 | 4000 | 8000 | 1333 | 21,5 | 0,04907 | 640 | pac | 104 | 220 | 260 | 0° 45′ | 4,8 | ц |
| ▲ [| 9 | 7000 | 14000 | 2333 | 30,0 | 0,10648 | - | S + S | 115 | - | 480 | 0° 45′ | 5,0 | DBS |
| ▲ | 10 | 10000 | 20000 | 3333 | 38,0 | 0,15508 | - | TR/. | 138 | - | 760 | 0° 45′ | 5,2 | <u> </u> |
| ▲ [| 11 | 12000 | 24000 | 4000 | 44,0 | 0,23972 | - | nt G | 279 | - | 780 | 0° 45′ | 5,8 | |
| ▲ | 12 | 25000 | 50000 | 8333 | 62,0 | 0,41522 | - | /eigl | 484 | - | 800 | 0° 30′ | 5,8 | |
| ▲ [| 13 | 35000 | 0 70000 11666 67,0 0,53907 - | | > 11 | 638 | - | 1100 | 0° 30′ | 6,2 | | | | |
| ▲ [| 14 | 50000 | 100000 | 16666 | - | - | - | | 683 | - | 1500 | 0° 30′ | 6,8 | |
| ▲ [| 15 | 15 65000 130000 21666 | | | 744 | - | 2600 | 0° 30′ | 7,7 | | | | | |

NOTES

• Angular misalignment " α " referred to a single disc pack.

• For permitted speeds please check chart on page 14 and/or contact our technical department.

• Choice and availability of different hub connection type see pages 4 and 5.

🔺 On request

GTR/DBSE - torsionally rigid coupling with spacer: additional information

The model with spacer "GTR/DBSE", in addition to being essential for connecting elements of transmissions situated apart, it is able (unlike the classic model GTR/S) to recover, as needed, up to twice the angular misalignment (figure 2) and axial (figure 3) or a high radial misalignment (figure 1) according to the formula:





Where:

Κ

Ρ

- = Radial misalignment [mm]
- = Total length GTR/DBSE coupling [mm] $\mathsf{L}_{\mathrm{tot}}$
- = Useful length of an half-hub [mm] Ν
- = Useful part of elastic element [mm] α
 - = Angular misalignment GTR/S [°]







It is also possible to determine the positioning error through the torsion angle according to the formula:



R_rel

The total torsional rigidity of the GTR/ DBSE coupling is expressed by the formula:

The maximum speed of the coupling is influenced by several factors:

- Peripheral speed of the coupling;
- Weight of the coupling;
- Length of the spacer;
- Rigidity of the coupling;
- Quality of balance.

In general, for most applications that require the GTR/DBSE model, dynamic balancing is NOT required. In other cases there need to evaluate in reference to the graphic 4 in function of the speed and the length of the extension custom.

In the case of a long DBSE combined with high speed, it may be necessary to use an intermediate shaft with bearing support. Please consult our Technical Department.



1. Radial misalignment



2. Angular misalignment



Where:

- = Torsion angle [°]
- = Max torque motor side [Nm] C_{mot}
- $\mathsf{R}_{_{\rm TOT}}$ = Total torsional rigidity of coupling [Nm/rad]

Dove:

β

- R_{TOT} = Total torsional rigidity of coupling GTR/DBSE [Nm/rad]
- R_rs = Torsional rigidity of coupling GTR/S [*Nm/rad*]
- R_rrel = Relative rigidity of spacer [Nm/rad]
- = Spacer length (=DBSE-2P) [m] L,



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GTR & GTR/DBSE - torsionally rigid coupling: additional information

DIMENSIONING

For pre-selection of the coupling's size you can use the generic formula indicated on page 6. The GTR coupling will accomodate momentary peak torque "C.C." of 2,5 times than nominal torque. If the C.C. is higher than 2,5 times than the nominal torque, it is necessary to choose the coupling using the following formula:



The nominal torque indicated on the catalogue for GTR coupling refers to the static torque 2 times lower than the nominal torque, with service factor f=1.5. On the contrary, if the static torque of the motor is two times higher than the nominal one, it is possible using the following formula:



Having calculated the theoretical nominal torque (C'nom), so that the coupling can be sized correctly it is necessary, to compare the effective technical characteristics of GTR (pages 8-9) and to choose the size able to transmit an effective nominal torque (Cnom) higher or equal to the one found by the described formulae above.

Having established the size of the coupling to be used, it is possible to make other checks considering further parameters:



Once the torque to be transmitted has been calculated and verified, it is necessary to consider flexibility offered by the chosen coupling with actual misalignments present between the shafts to be connected.

It is important to note that the axial and radial misalignments permitted are inversely proportional (where one increases the other must decrease). If all types of misalignment are present in the assembly it is important the total sum as a percentage to not exceed 100% as shown in graphic 2.



GTR & GTR/DBSE - torsionally rigid coupling: additional information

The rated outputs on the catalogue refer to normal use without shocks and with shafts well-aligned with the environmental temperature The value of axial thrust (+- 20%) is relevant to the axial movement (graphic 7).



The maximum speed of the coupling is influenced by several factors:

- Peripheral speed of the coupling;
- Weight of the coupling;
- Length of the spacer (pages 12-14);
- Rigidity of the coupling;
- Quality of balance.

In general, for most applications dynamic balancing is NOT required; in other cases there is need to evaluate in reference to the graphic 8.

FITTING

- 1) Achieve radial and axial alignment as precisely as possible to permit the maximum absorption of possible misalignments and life of the coupling (picture 5 and 6).
- 2) Make sure that the shafts are assembled so that its extremity is square with the surface of the half-coupling (the length of the spacer including two disc packs should be equal to the distance between the two shafts) (picture 9).
- 3) Tightening the screws with a torque wrench in a cross sequence, continuously until you obtain the tightening torque indicated in the catalogue. It is recommended that only the nut/bolt not in contact with the disk pack is rotated to prevent twisting of the laminations.
- 4) Finally it is necessary to check and ensure the disc packs are perfectly perpendicular to the shaft axis. It may be necessary to release and tighten some screws again.

In the coupling with spacer (GTR/D and GTR/DBSE), the central part of the couplings (spacing bar) can be considered as a weight suspended between two springs (lamellar pack). It will have a natural frequency which, if excited, can produce some oscillations of the spacer causing damage to packs. It is recommended to increase the distance between the flanges of

the hubs compared to the nominal dimentions "DBSE" (picture 9) by 1,5-2 mm to decrease the natural axial frequency. In this way the lamellar packs are kept under tension and the possibility of spacer oscillation reduces.

Note: about installation in vertical position please see execution proposal at page 9.





8. Balance ratio in relation to the size of the coupling (GTR/S – GTR/D)

