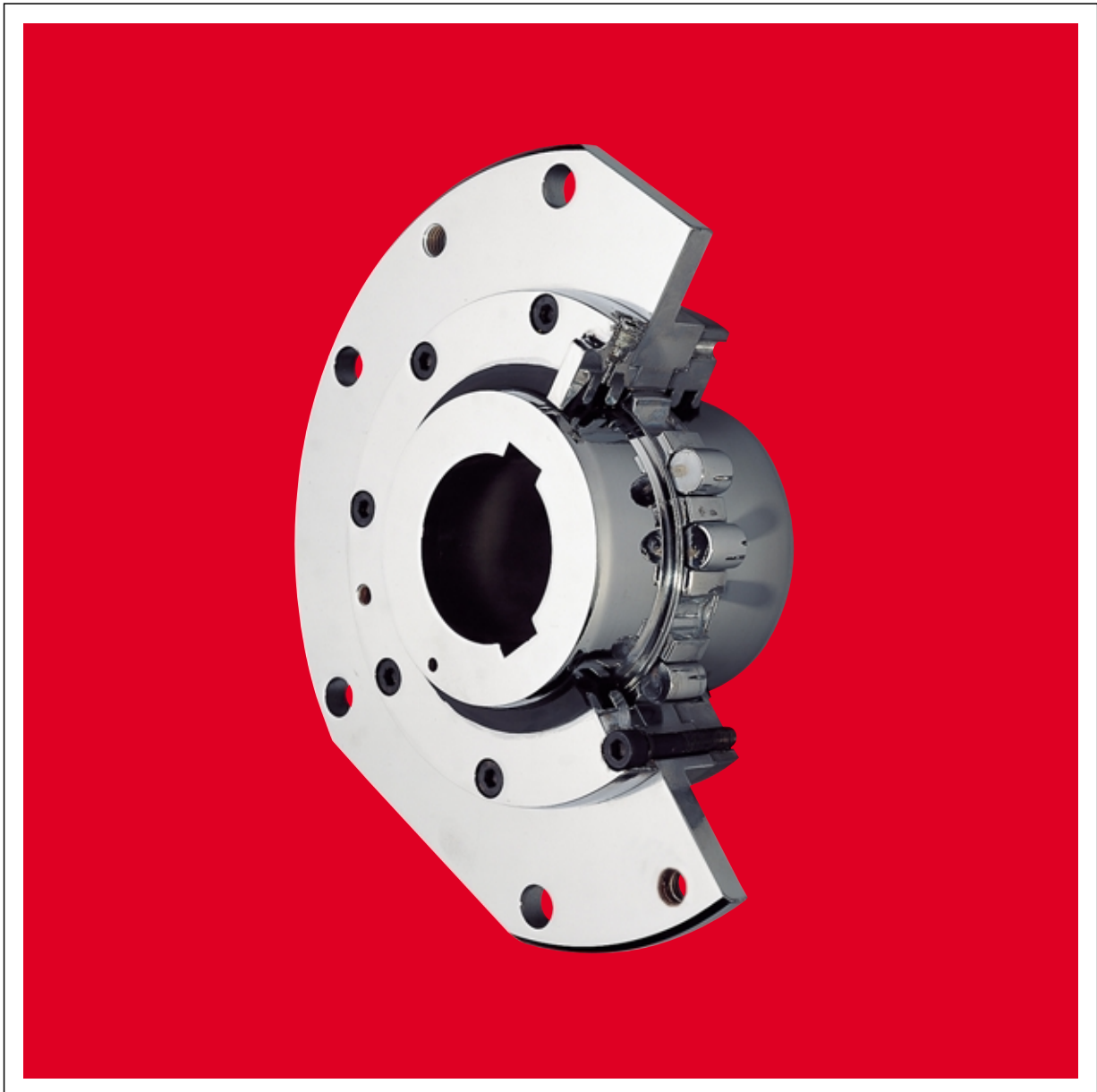




Couplings

Barrel coupling TCB type



Application



JAURE® TCB barrel couplings are recommended for installation in crane lifting mechanisms, to connect the cable drum with the gearbox output shaft, as well as in winch conveyors and platform hoists.

When the gearbox output shaft is rigidly connected to the drum in a lifting mechanism, supported between points (Fig. 1), this originates a statically indeterminate case.

This type of mounting requires special care in alignment and levelling, which is difficult to achieve in practice.

Mounting inaccuracies, as well as deformation in structures and wear in moving parts, lead to enormous additional forces, above all in the gearbox output shaft, which as a result of alternative bending loads can lead to breakage due to fatigue and faults in bearings and gear wheels.

In the recommended mounting (Fig. 2) the barrel coupling, which is installed between the gearbox and cable drum, performs the function of an articulated joint, thus making the connection statically determinate and avoiding the occurrence of high bending moments.

Figure 4 shows the mounting of the barrel coupling in a lifting mechanism. Considering the fact that this coupling allows axial displacement, a self-adjusting bearing must be mounted, fixed laterally, at the opposite end of the drum shaft in order to withstand the axial forces that may be generated.

As a special application, the TCB barrel coupling can be designed as an articulated joint that withstands axial forces by itself (type TCBA, see page 15).

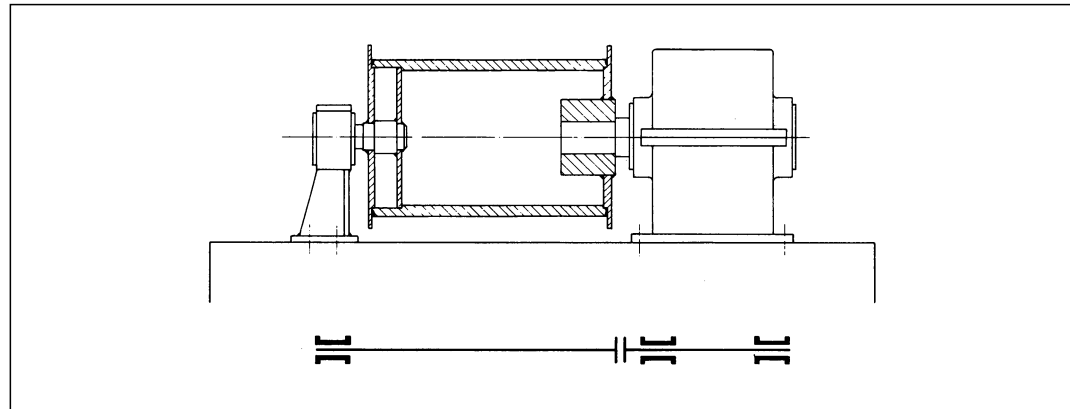


Fig. 1
Rigid mounting of gearbox-drum connection
Support at three points.

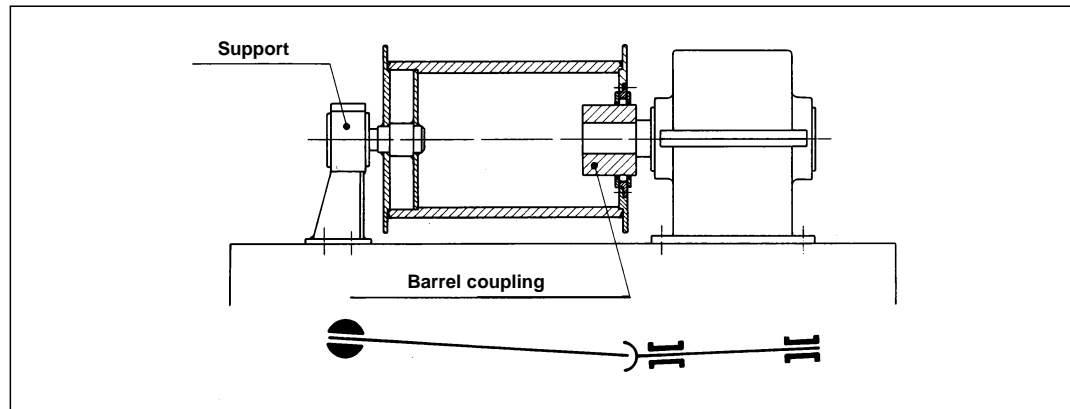


Fig. 2
Mounting with barrel coupling.

Despiece

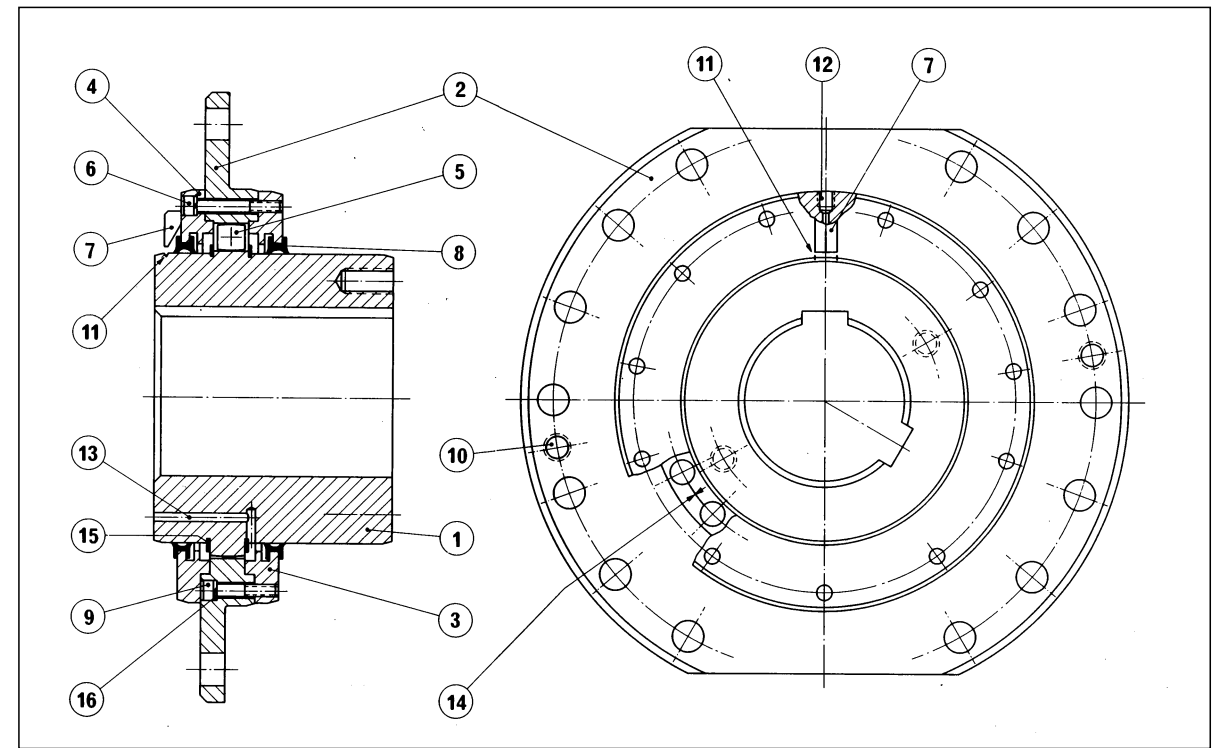
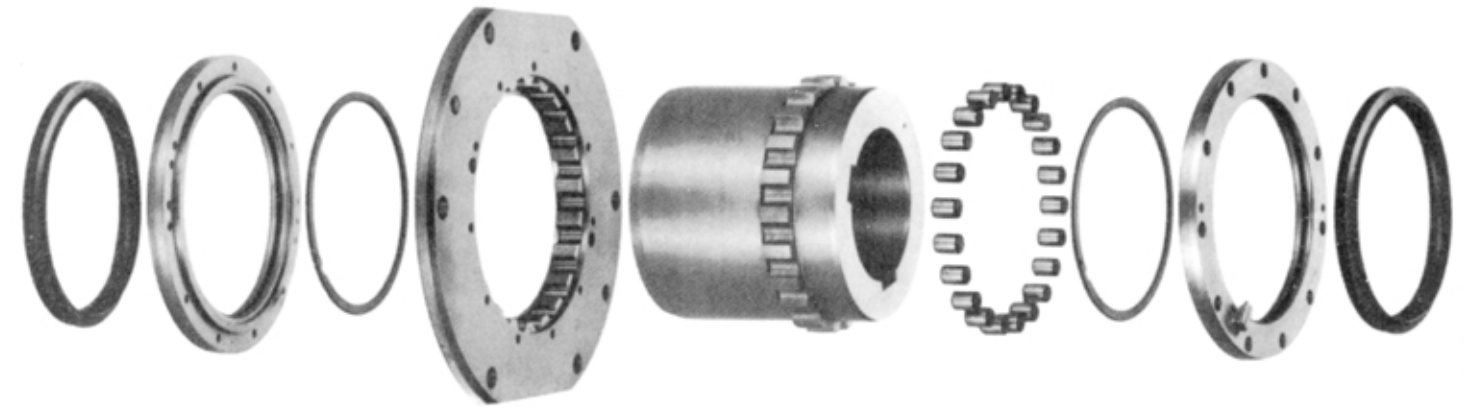


Fig. 3

- | | |
|--|------------------------------------|
| 1. Hub | 9. Allen screw |
| 2. Sleeve | 10. Threaded holes for disassembly |
| 3. Inner cover | 11. Wear limit grooves |
| 4. Outer cover | 12. Grease connection |
| 5. Barrel | 13. Grease overflow |
| 6. Allen screw | 14. Assembly reference |
| 7. Wear and axial adjustment indicator | 15. Barrel guide rings |
| 8. Special seal | 16. Grower washer |

The barrel coupling consists of a sleeve provided with semicircular tothing around its internal diameter and a hub that is externally toothed in a similar way. A series of cylindrical barrels, of hardened steel, are inserted in the holes formed by this tothing to act as power transmission elements.

Covers with their corresponding special seals serve to assure the perfect tightness of the inner zone, preventing the penetration of dust and guaranteeing the continuity of the necessary lubrication. Two double-lamina elastic rings mounted on the hub, one on each side of the tothing, limit the axial displacement of the barrels.

The convex shape of the barrels and the internal spaces of the tothing allows the oscillation of the hub relative to the sleeve, compensating angular misalignments of $\pm 1^\circ 30'$ and an axial displacement that varies between ± 3 mm and ± 8 mm (see Table 4, page 8).

Torque is transmitted to the drum's receiving flange, generally by two diametrically opposed flat driving surfaces, located at the periphery of the coupling flange, and also by means of a series of bolts which, at the same time, serve as connection with the drum.

Other connection systems, such as adjusted spring pins or similar, can also be used following the adequate preparation of the flanges (see TCB with special flange on page 15).

The described design is appropriate for bearing large radial loads, as these are distributed over large barrel support surfaces. In the same way, this design also minimises the effect of alternative bending of the torque on the tothing, the latter being robust thanks to its low height and large bottom section. In addition to this, due to the effect of a "crush polishing" of the hardened barrel on the tooth profile, its wear resistance is appreciably improved.

An indicator located on the outer cover (Pos. 7, Fig. 3), which moves relative to the marks provided on the hub as a function of wear, permits control of internal wear of the tothing without the need to disassemble any part of the coupling. The same indicator also serves to control the axial position of the sleeve relative to the hub.

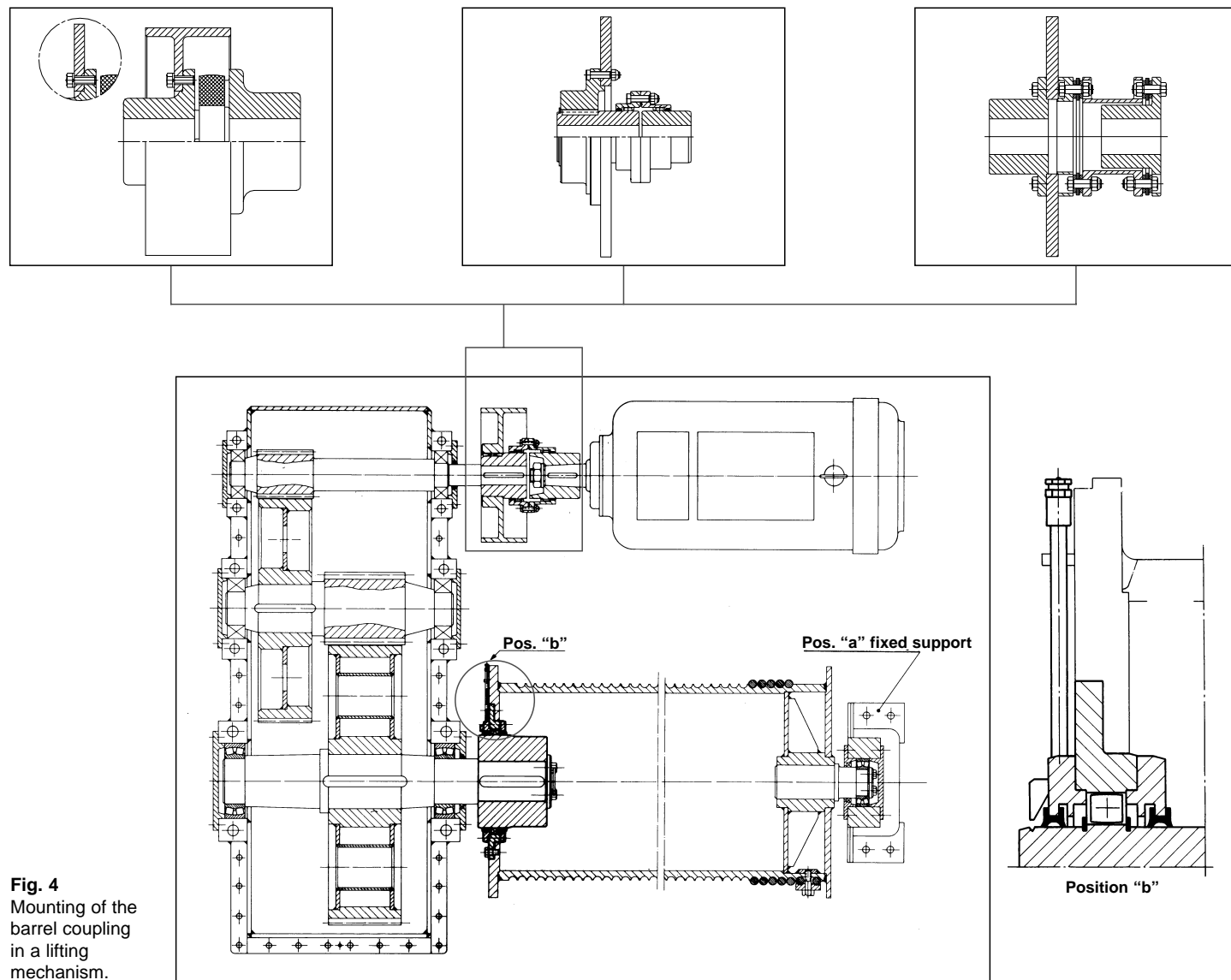


Fig. 4
Mounting of the barrel coupling in a lifting mechanism.

The required coupling size depends on:

1. Nominal transmission torque T.
2. Radial load F to be withstood by the coupling.
3. Geometric check of the gearbox shaft.

1. Nominal transmission torque T (Nm)

a) Based on installed power P_i (Kw)

$$T = 9550 \cdot \frac{P_i}{n} \cdot K_1 \quad (\text{Eq. 1})$$

where:
 P_i (Kw) = max. installed power of the motor
 n (rpm) = drum turning speed
 K_1 = operating factor (see Table 1)

Table 1. Operating factor K_1 , according to cable transmission group.

Group DIN 15020	1B m	1A m	2 m	3 m	4 m	5 m
Group FEM (1970)	IB	IA	II	III	IV	V
Group FEM (1987)						
Group BS 466 (1984)	M1,M2,M3	M4	M5	M6	M7	M8
Operating factor K_1	1,12	1,25	1,40	1,60	1,80	2

b) Based on consumed power P_c (Kw)

$$P_c = \frac{F_p \cdot V_r}{60.000} \quad \text{Eq. (2)}$$

$$T = \frac{P_c \cdot 9550}{n} \cdot K_1 \quad \text{Eq. (3) or } T = F_p \cdot \frac{D}{2} \cdot K_1 \quad \text{Eq. (4)}$$

where:
 P_c (Kw) = max. power consumed by the motor
 F_p (N) = drum static pull, including cable and pulley efficiency in Newtons (see Equation 6)
 V_r (m/min) = drum cable lifting rate
 n (rpm) = drum turning speed
 D (m) = drum pitch diameter
 K_1 = operating factor (see Table 1)

Having obtained the transmission torque T (Nm) to be withstood by the coupling, by means of the installed or consumed power, this must be less than the coupling's nominal torque T_N (Nm), shown in Table 4.

After this it is necessary to confirm the selection on the basis of the radial load to be withstood.

2. Radial load F to be withstood by the coupling

Radial load is understood to be the fraction of the load that must be withstood by the coupling due to the pull of the load and the hoisting tackle. As the coupling constitutes one of the drum's two supports, it must withstand a fraction of the total load.

Prior to calculating the radial load F, it is necessary to obtain the static pull in the drum F_p :

Determination of static pull in the drum F_p :

The static pull in the drum is given by:

$$F_p = \frac{Q+G}{i_r} \quad \text{Eq (5)}$$

This static pull is modified if cable and pulley efficiency is taken into account according to Table 2.

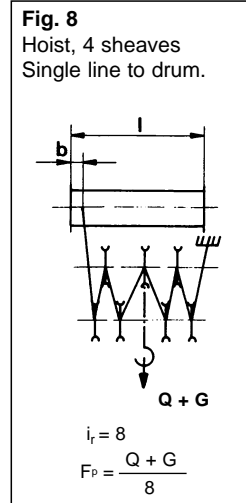
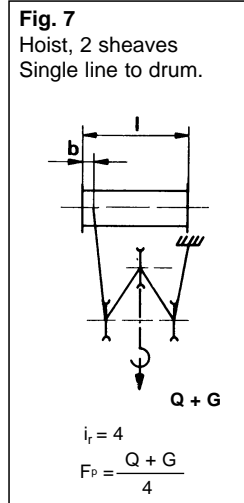
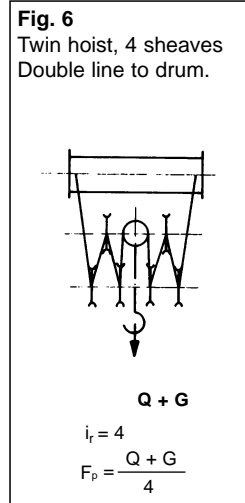
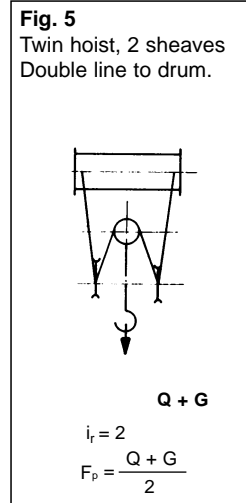
$$F_p = \frac{Q+G}{i_r \cdot K_2} \quad \text{Eq (6)}$$

where:
 Q (N) = max. load on hook
 G (N) = weight of hoist tackle and cables
 K_2 = operating factor of drum and hoist tackle efficiency (see Table 2)
 i_r = transmission ratio = $\frac{\text{Total number of lines}}{\text{Number of lines leaving the drum}}$

Table 2. Operating factor K_2 according to drum and tackle efficiency

Hoist tackle reduction i	2	3	4	5	6	7	8
K_2 with bronze bearings	0,92	0,90	0,88	0,86	0,84	0,83	0,81
K_2 with ball bearings	0,97	0,96	0,95	0,94	0,93	0,92	0,91

Figures 5 to 8 (on next page) show different examples of hoist tackle configurations.



Calculation of radial load

Having obtained the static pull, it is necessary to calculate the radial load F (N) by means of the following equation:

For examples corresponding to Fig. 5 and Fig. 6 (systems with double line to drum):

For examples corresponding to Fig. 7 and Fig. 8 (systems with single line to drum):

$$F = \frac{F_p}{2} + \frac{W}{2} \quad \text{Eq. (7)}$$

$$F = \left[F_p \left(1 - \frac{b}{l} \right) \right] + \frac{W}{2} \quad \text{Eq. (8)}$$

where:

F_p (N) = Static pull of drum, including cable and pulley efficiency

l (mm) = Distance between drum supports

b (mm) = Shortest possible distance from cable in drum to the geometric centre axis of barrels in the coupling.

W (N) = Own weight of drum with cables and parts of the coupling connected to it.

Having obtained the radial load F, it is necessary to check that the admissible radial load F_r of the selected coupling (see Table 4) is greater than F.

Option of corrected radial load F_A .

In the event that the transmission torque T is lower than the nominal torque of the preselected coupling T_N , but the radial load F to be withstood by the coupling is greater than the admissible catalogue load F_r for this size of coupling, it is then possible to make a final verification, to check whether the coupling can withstand a radial load F_A which is higher than the coupling's admissible load F_r indicated in the catalogue:

$$F_A = F + \left[(T_N - T) \cdot C \right] \quad C = \text{Compensation factor, variable according to coupling size (see Table 3).}$$

Table 3. Value of C according to coupling size.

Coupling size	25	50	75	100	130	160	200	300	400	500	600	1.000	1.500	2.600	3.400	4.200	6.200
C Factor	10,3	9	8	7,2	6,4	5,8	5,2	4,8	4,1	3,7	3,4	3,0	2,6	2,4	2,2	2,0	1,8

Compensation is only applicable to the radial load, not to the turn torque.

3. Geometric check of gearbox shaft

A check must also be made that the diameter of the gearbox shaft is smaller than the maximum admissible diameter (d_{max}) for each coupling size, according to Table 4. These values are valid for shafts with keyways according to DIN 6885/1. Additionally, a check must be made of the pressure in the keyways.

For other types of fixing, such as spline shafts according to DIN 5480, mounting with interference, etc., please consult our Technical Department.

Example:

$Q = 300,000$ N (useful load to be lifted)	Layout (Fig. 7)
$G = 10,000$ N (hoist weight)	$i_r = 4$ Hoist reduction
$w = 14,000$ N (weight of drum and cables)	$K_1 = 1.6$ (Group III)
$P_i = 30$ Kw (motor power)	$K_2 = 0.95$ (Drum and hoist efficiency)
$V_r = 5$ m/min (hook lifting rate)	$b = 400$ mm (distance between cable and coupling)
$n = 8$ rpm (drum turning rate)	$l = 1200$ mm (drum length)
$D = 800$ mm (drum diameter)	$d = 200$ mm (gearbox output shaft, with cotter)

1. Calculation of nominal transmission torque T (Nm)

a) Based on installed power P_i (Kw), according to Equation 1:

$$T = \frac{9550 \cdot P_i}{n} \cdot K_1 = \frac{9550 \cdot 30}{8} \cdot 1,60 = 57.300 \text{ Nm}$$

b) Based on consumed power P_c (Kw), according to Equation 6:

$$F_p = \frac{Q+G}{i_r \cdot K_2} = \frac{300.000 + 10.000}{4 \cdot 0,95} = 81.600 \text{ N}$$

The consumed power P_c is given by Equation 2:

$$P_c = \frac{F_p \cdot V_r}{60.000} = \frac{81600 \cdot 20}{60.000} = 27,2 \text{ Kw}$$

Thus, the transmission torque T is:

$$T = \frac{9550 \cdot P_c}{n} \cdot K_1 = \frac{27,2 \cdot 9550}{8} \cdot 1,6 = 51.950 \text{ Nm}$$

Preselected size: TCB – 600, $T_N = 70,000$ Nm.

Higher than the torque calculated by means of installed power: 57,300 Nm and higher than the torque calculated by means of consumed power: 51,950 Nm.

2. Calculation of radial load F to be withstood by the coupling:

Using Equation 8:

$$F = \left[F_p \left(1 - \frac{b}{l} \right) \right] + \frac{w}{2} = \left[81.600 \left(1 - \frac{400}{1.200} \right) \right] + \frac{14.000}{2} = 61.400 \text{ N}$$

The preselected size TCB – 600 withstands a radial load $F_r = 115,000$ N, (see Table 4) higher than that obtained of 61,400 N.

Option of corrected radial load F_A :

Let us suppose that the radial load F, turns out to be 130,000 N. In this case, in a preliminary selection, this load is greater than that featured in the catalogue for the TCB – 600. It is possible to make a second check by means of the corrected radial load F_A , prior to selecting a larger coupling size, according to Equation 9:

$$F_A = F_r + \left[(T_N - T) \cdot C \right] = 115.000 + \left[(70.000 - 51.950) \cdot 3,4 \right] = 176.370 \text{ N}$$

The coupling could withstand a radial load F_A of up to 176,370 N, for the transmission data considered. As 176,370 N > 130,000 N, the selection of TCB – 600 would be correct.

3. Geometric check of gearbox shaft

According to Table 4, $d_{max} = 205$ mm > 200 mm (existing shaft diameter).

Furthermore, a check should be made that the specific pressure in the keyway is acceptable.

CONVERSION TABLE	
1 mm	= 0,0394 inch
1 inch	= 25,4 mm
1 m	= 39,4 inch = 3.283 ft
1 Kg	= 2,2046 lbs (weight)
1 lb (wt)	= 0,4536 Kg
1 N	= 0,2248 lbs (force)
1 lb (f)	= 4,4482 N
1 Nm	= 0,7376 ib-ft
1 ib-ft	= 1,3558 Nm
1 Kgm	= 23,76 ib-ft
1ib-ft	= 0,1382 Kgm
1 KW	= 1,34 HP
1 HP	= 0,746 kw

Diameters and parameters

Standard TCB

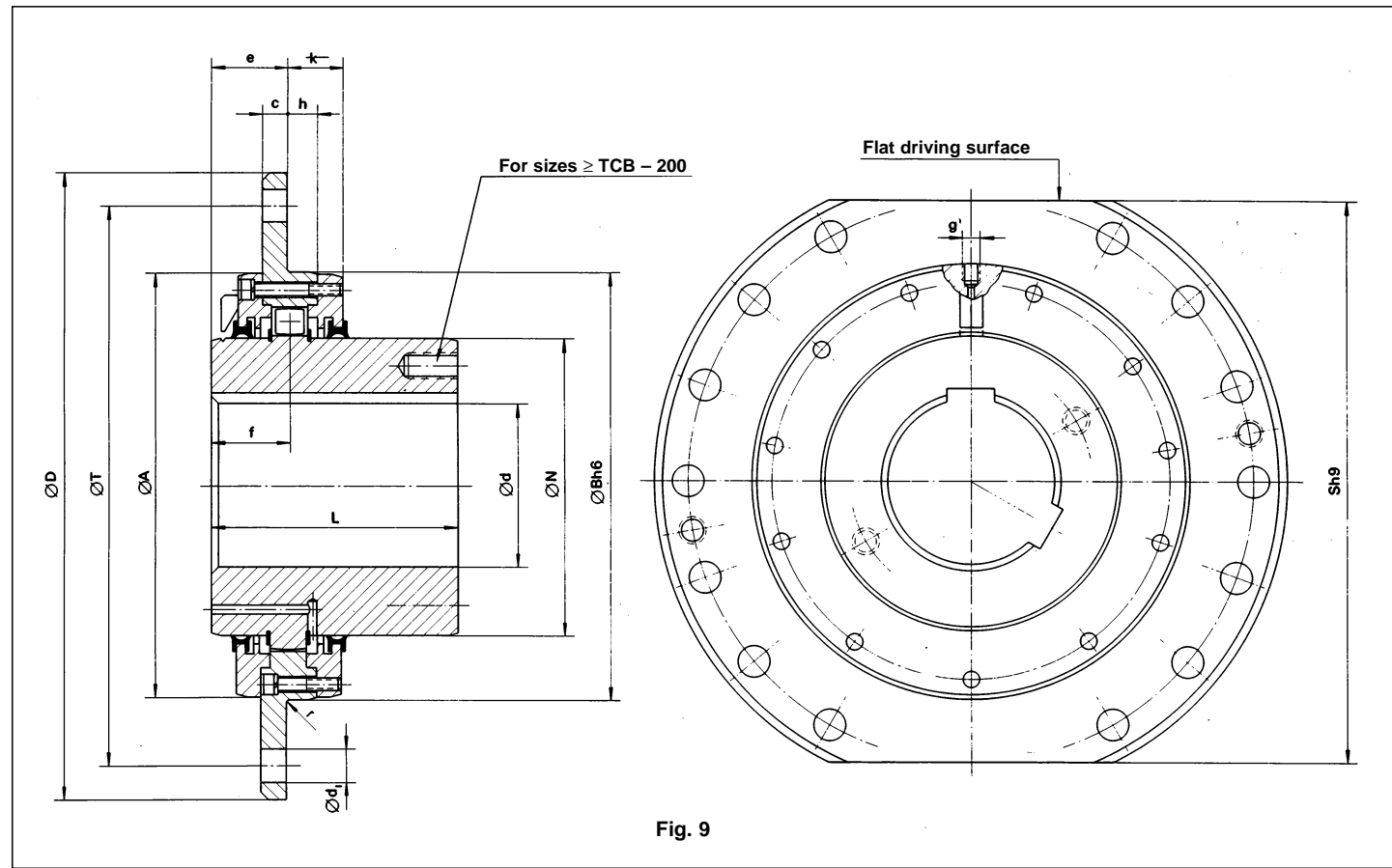


Fig. 9

Table 4. Technical data and general dimensions of the standard TCB

TCB type size	T _N ¹⁾ (Nm)	F _r adm. Radial load (N)	mm																	Max. axial disp. ± mm	Wt. Kg.	J Kg/m².
			d ²⁾ max.	d min.	D	L	L min.	N	A	B	S	e	f	c	r	h	k	T	d ₁			
25	4.500	14.500	65	38	250	95	85	95	159	160	220	42	44	12	2,5	16	31	220	15	3	12	0,06
50	6.000	16.500	75	48	280	100	85	110	179	180	250	42	44	12	2,5	16	31	250	15	3	19	0,13
75	7.500	18.500	85	58	320	110	95	125	199	200	280	45	46	15	2,5	17	32	280	19	4	23	0,17
100	9.000	20.000	95	58	340	125	95	140	219	220	300	45	46	15	2,5	17	32	300	19	4	27	0,28
130	15.500	31.000	105	78	360	130	95	160	239	240	320	45	47	15	2,5	19	34	320	19	4	33	0,36
160	19.500	35.000	120	78	380	145	95	180	259	250	340	45	47	15	2,5	19	34	340	19	4	42	0,48
200	24.000	38.500	135	98	400	170	95	200	279	280	360	45	47	15	2,5	19	34	360	19	4	54	0,66
300	28.000	42.000	145	98	420	175	95	220	309	310	380	45	47	15	2,5	19	34	380	19	4	70	0,93
400	38.000	49.000	175	98	450	185	120	260	339	340	400	60	61	20	2,5	22	40	400	24	4	95	1,45
500	61.400	92.000	195	98	510	220	125	290	399	400	460	60	61	20	2,5	22	42	460	24	6	146	2,86
600	70.000	115.000	205	118	550	240	125	310	419	420	500	60	61	20	2,5	22	42	500	24	6	162	3,93
1.000	120.000	125.000	230	138	580	260	130	350	449	450	530	60	61	20	2,5	22	42	530	24	6	195	5,63
1.500	180.000	150.000	280	158	650	315	140	415	529	530	580	65	66	25	2,5	27	47	600	24	6	305	11,0
2.600	310.000	250.000	300	168	680	350	145	445	559	560	600	65	70	25	4	34	54	630	24	9	360	16,0
3.400	400.000	300.000	315	198	710	380	165	475	599	600	640	81	85	35	4	34	56	660	28	8	408	20,0
4.200	500.000	340.000	355	228	780	410	165	535	669	670	700	81	85	35	4	34	56	730	28	8	580	34,5
6.200	685.000	380.000	400	258	850	450	165	600	729	730	760	81	85	35	4	34	59	800	28	8	715	52,0

1) During start-up, couplings can admit 200% of nominal torque capacity.

2) Max. holes for execution with keyways according to DIN 6885/1. For other types of joints consult our Technical Department.

Maximum angular displacement of axes: ± 1° 30'

g = lubrication point

Up to size 160: R. 1/8" Gas, after size 200: R. 1/4" Gas.

Flange holes

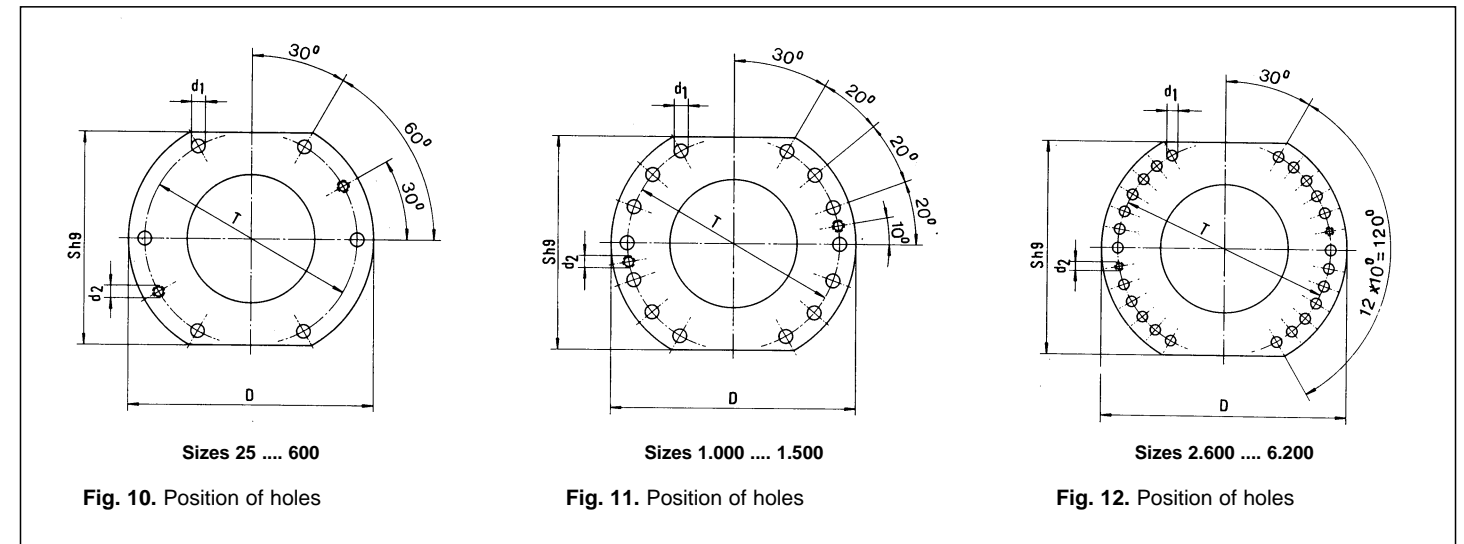


Fig. 10. Position of holes

Fig. 11. Position of holes

Fig. 12. Position of holes

Tabla nº 5.

TCB type	D	T	S F8	a min.	d ₁	d ₂ thread	d ₃ F8	p	n min.
25	250	220	220		15	M12	160		
50	280	250	250				180		
75	320	280	280				200		
100	340	300	300	25			220		
130	360	320	320				240		
160	380	340	340		19	M16	260		10
200	400	360	360				280	3	
300	420	380	380				310		
400	450	400	400				340		
500	510	460	460	30	24	M20	400	3	10
600	550	500	500				420		
1.100	580	530	530	40	24	M20	450		20
1.500	650	600	580	50			530		
2.600	680	630	600				560		25
3.400	710	660	640				600		
4.200	780	730	700	60	28	M24	670	5	35
6.200	850	800	760				730		

Cable drum flange, coupling side

The machining of the cable drum flange will be made according to Figs. 10, 11 or 12. The rest of dimensions according to Table 5.

The quality of the flange material will be St 52 - 3.

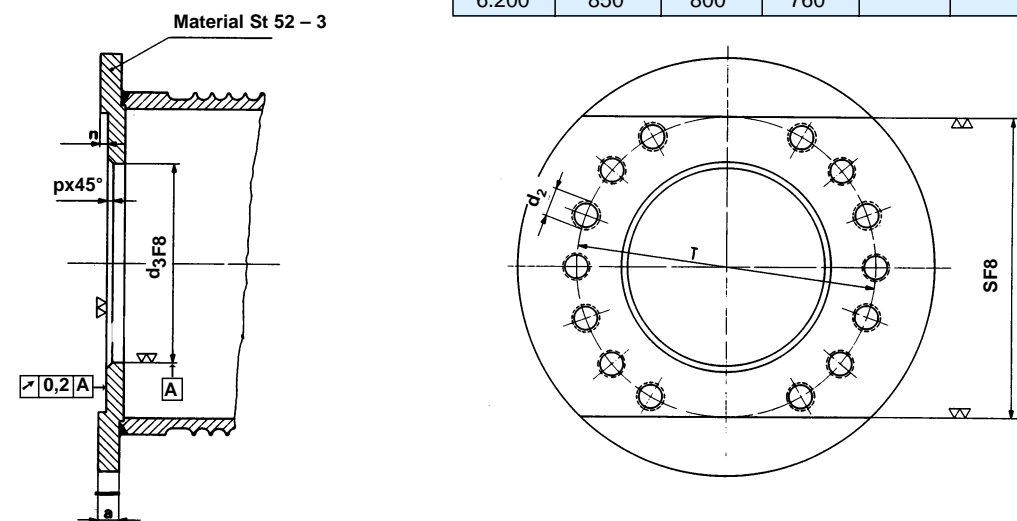


Fig. 13. Coupling side flange for cable drum

Dimensions and parameters



TCBN. Grooved shaft for quick mounting and dismounting

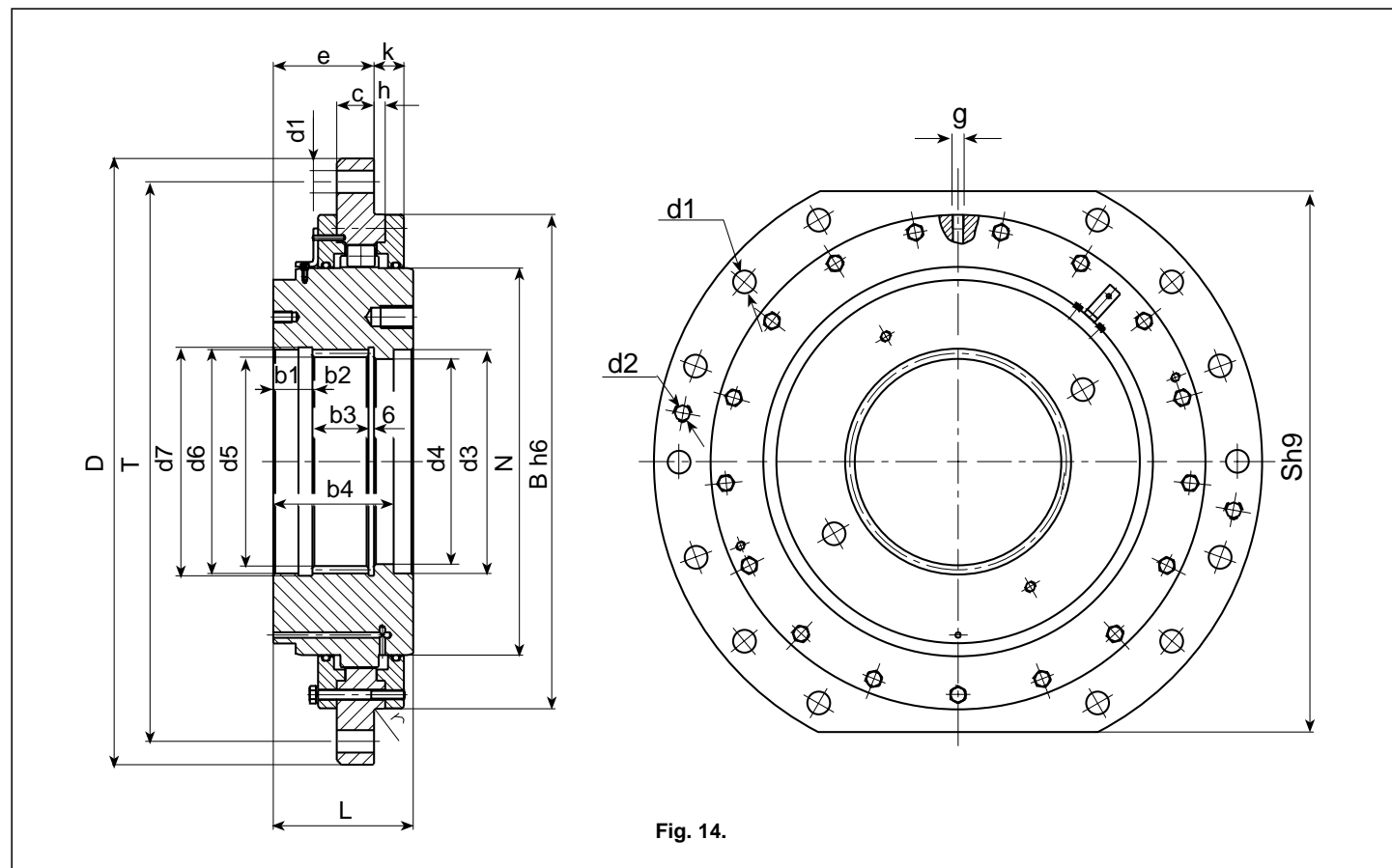


Fig. 14.

Table 6. Technical data and general dimensions of the TCBN

TCBN type size	mm												Toothing m x z DIN 5480	mm		Wt Kg	J Kgm ²
	L	e	c	h	k	b ₁	b ₂	b ₃	b ₄	d ₃	d ₄ H ₇	d ₅ H ₁₁		d ₆ K ₆	d ₇		
200	125	90	32	10	25	39	15	32	110	101	85	90	5 x 18	100	105	53	0,81
300	120	85	32	10	25	39	15	32	110	121	105	110	5 x 22	120	125	58	1,02
400	130	92	32	10	28	40	15	40	121	141	125	130	5 x 26	140	145	74	1,5
500	130	92	32	10	30	40	15	40	121	166	150	154	8 x 20	170	175	98	2,8
600	129	89	32	10	30	38	15	42	121	166	150	154	8 x 20	170	175	112	3,3
1.000	131	91	32	10	30	26	15	50	116	200	180	184	8 x 24	200	205	128	4,3
1.500	150	108	40	12	32	27	15	60	129	240	220	224	8 x 28	240	245	195	9
2.600	162	111	40	19	39	26	15	70	138	280	260	264	8 x 34	280	285	219	11
3.400	162	109	50	19	41	26	15	70	138	280	260	264	8 x 34	280	285	265	15
4.200	190	137	50	19	41	33	15	80	161	350	320	324	8 x 41	340	345	304	24
6.200	190	137	50	19	41	33	15	80	161	350	320	324	8 x 41	340	345	480	38

The measures and values not indicated in this table are equal to those given for the standard TCB coupling (Page 8). Consult Jaure's Technical Department for the machining of the shaft.

TCB Assembly and maintenance instructions



- The TCB barrel coupling is supplied fully assembled. The lubricant with which the coupling is supplied serves to facilitate the assembly of the different components, but a suitable lubricant is necessary for the correct functioning of the coupling.
- Axial forces, as a consequence of the component resulting from the inclination of cables, must be absorbed by the drum support bearing on the side opposite the coupling (Pos. a, Fig. 4) and the cart structure. The deformations that may exist during operation at full load must not be greater than the maximum axial displacement indicated in Table 4.
- If the coupling is supplied without machining, it will be necessary to dismount it in order to carry out the corresponding machining. Once machined, during mounting the hub and sleeve must be connected lining up the mark on the hub with that on the sleeve (see mounting reference Pos. 14, Fig. 3 on page 3).
- The screws for fixing the coupling to the drum and those for the covers must be at least of quality 8.8. For the corresponding grip torque values, see Table 7.

Table 7. Tightening torques

Thread	M8	M10	M12	M16	M20	M24
Max. tightening torque (Nm)	26	51	89	215	420	725

1. Assembly of coupling on gearbox shaft

a) By means of keyways:

- Both the shaft and the interior of the hub must be free from soiling.
- To facilitate assembly and to avoid damage to seals, the complete coupling may be heated in an oil bath to a maximum temperature of 80° C.
- Set the hub on the shaft, with care.
- The sleeve must allow axial displacement.

b) Joint by means of interference, without keyway:

- It is necessary to previously disassemble the outer cover, sleeve, guide ring and barrels.
- Prior to the assembly of the coupling, its component parts must be carefully cleaned.
- Position the outer cover, with its seal, previously on the shaft.
- If it is envisaged that there will not be space to mount the fixing screws, these may be previously introduced in their housings. Check the distance Y (Fig. 15); for this purpose, see Table 8.

Table 8. Y distance

Coupling size	25-50	75-300	400-1.000	1.500	2.600-6.200
Min. Y (mm)	50	55	70	80	90

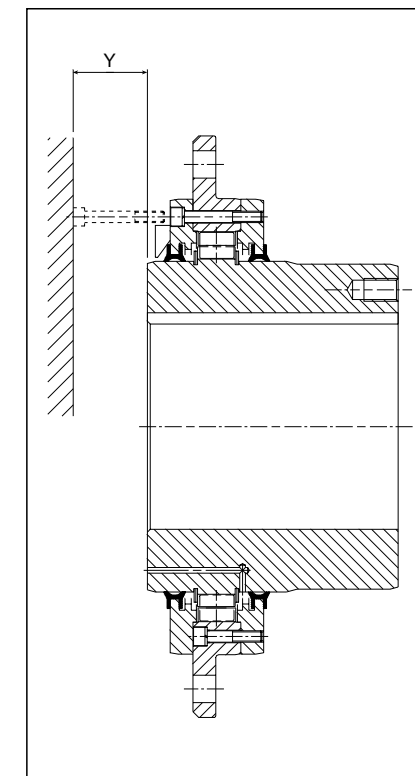


Fig. 15. Distance necessary screw removal.

b) Connection by means of interference, without keyway (contd.):

- Heat the coupling hub progressively to the required temperature (depending on the interference). By way of guidance, a temperature of 200 – 250 °C is usually sufficient. This temperature should not be exceeded, even locally, taking care to prevent contact between the cover seals and the hot hub, as the seals may be damaged by the high temperature.
- Set the hub on the shaft until it reaches its designated position. The hub must not come into contact with any seal as this could be damaged due to the high temperature. Continue with the assembly after allowing the hub to cool.
- Mount the sleeve on the hub respecting the mounting mark Pos. 14, according to Fig. 3.
- Introduce the barrels, fixing them by means of the guide ring.
- Mount the cover, lining the indicator up with the respective mark on the hub.
- The sleeve must allow axial displacement.

In the case of dismantling by oil injection, consult our Technical Department.

2. Axial trimming of coupling. Angular alignment of drum

Prior to drilling the holes for the fastening of support Pos. a, Fig. 4, axially fix the position of the drum with respect to the coupling's hub. To this end, axially line up the indicator fixed on the cover with the groove on the hub, according to Fig. 16. **During assembly, axial displacement must not exceed 10% of the maximum nominal value admitted by the coupling, according to Table 4.**

After this, the alignment of the rolling drum with respect to the gearbox output shaft will be made, checking the distance "X" by measurement with a ruler, positioning it at four pour points at 90°, according to Fig. 17. The difference between the maximum and minimum values of "X" must be less than the value shown in Table 9.

Table 9. Difference in distance X (mm)

Drum size	Distance between max. and min. X
< 1 metre	< 0,5 mm
> 1 metre	> 0,8 mm

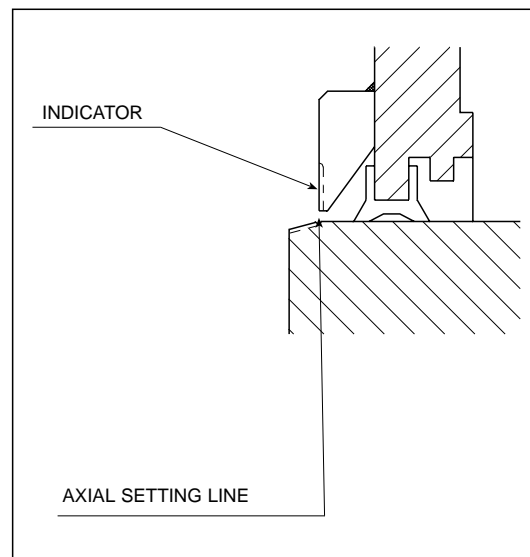


Fig. 16. Axial positioning.

3. Greasing

Once the assembly is finished, ensure that the coupling is greased before coming into service. Use must be made of a lubricant of the following characteristics (for temperatures between -20 °C and +80 °C, consult Jaure for temperatures outside this range):

Reference	Manufacturer
VERKOL Atlanta	VERKOL
KRAFFT Molykote Longterm-2 Plus	KRAFFT
SHELL Albida Grease HDX2	SHELL
TRIBOL Molub Alloy 777	TRIBOL-CASTROL
KLUBER Costrac GL 1501 MG	KLUBER
KLUBERLUB BE 41-1501	KLUBER

If the aforementioned greases are not available, the grease to be used must comply with the following properties:

- Consistency according to NLGI: 2
- Viscosity of base oil: Greater than 350 Cst at 40 °C, greater than 35 Cst at 100 °C.
- Heavy additives (molybdenum disulphide): MoS2 between 5 – 8%.
- Drop point: Higher than 150 °C.
- EP additives: Required.
- Oxidation inhibitors: Required.

Lubrication will be carried out using a prolongation of the greasing tube inserted in the corresponding orifice of the outer cover. Grease must be inserted until it comes out of the overflow aperture, situated at the opposite end of the hub, Pos. 13, Fig. 3.

For the quantities of grease to be used in each size, see Table 10:

Table 10. Quantity of grease per coupling.

Size of coupling	25	50	75	100	130	160	200	300	400
Quantity Kg	0,08	0,10	0,12	0,14	0,15	0,17	0,19	0,23	0,45
Size of coupling	500	600	1000	1500	2600	3400	4200	6200	
Quantity Kg	0,54	0,57	0,65	0,72	0,9	1,0	1,3	2,0	

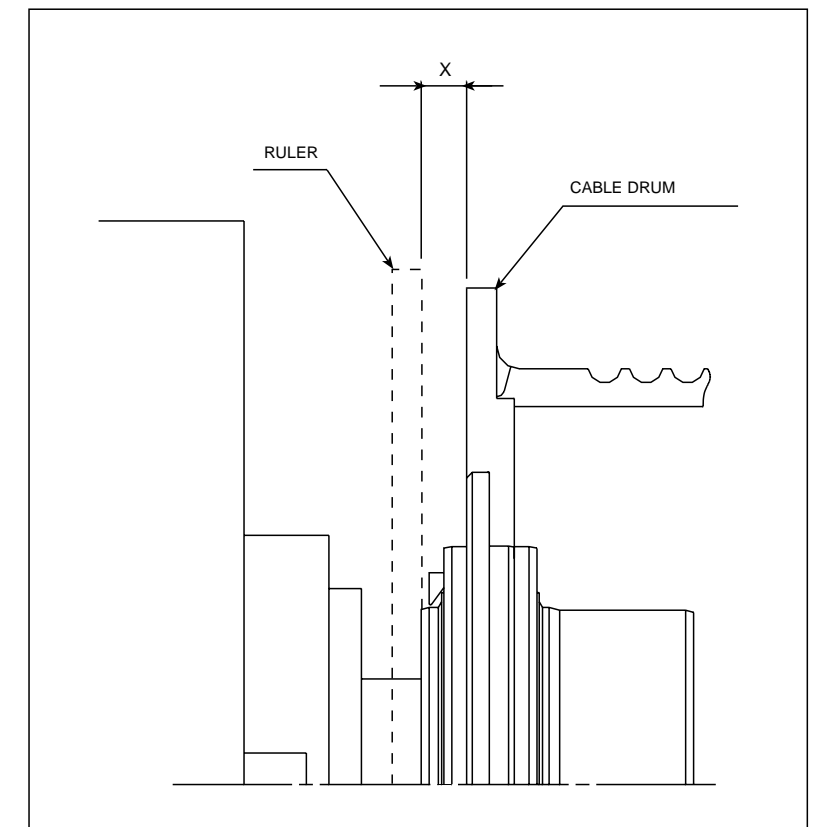


Fig. 17. Coupling alignment.

4. Maintenance

Greasing: The grease will be completely renewed each 2000 or 3000 hours of operation, depending on service conditions, or at least once a year. To this end, introduce new grease through the input orifice, expelling the used grease through the overflow outlet.

Periodic inspections, check the following at least once a year:

- a) The tightening torque of screws must be as indicated. If any screw is observed to be in a bad state, it is recommended to replace all the screws.
- b) Internal wear of the tooting. Wear may be checked by means of the position of the indicator mark over the marks on the hub (Fig. 18). The relative position of the two marks reveals the wear of the flanks. The coupling is originally supplied with the indicator centred on the hub marks (Pos. a). When the limit is reached (Pos. b) it is necessary to replace the complete coupling.

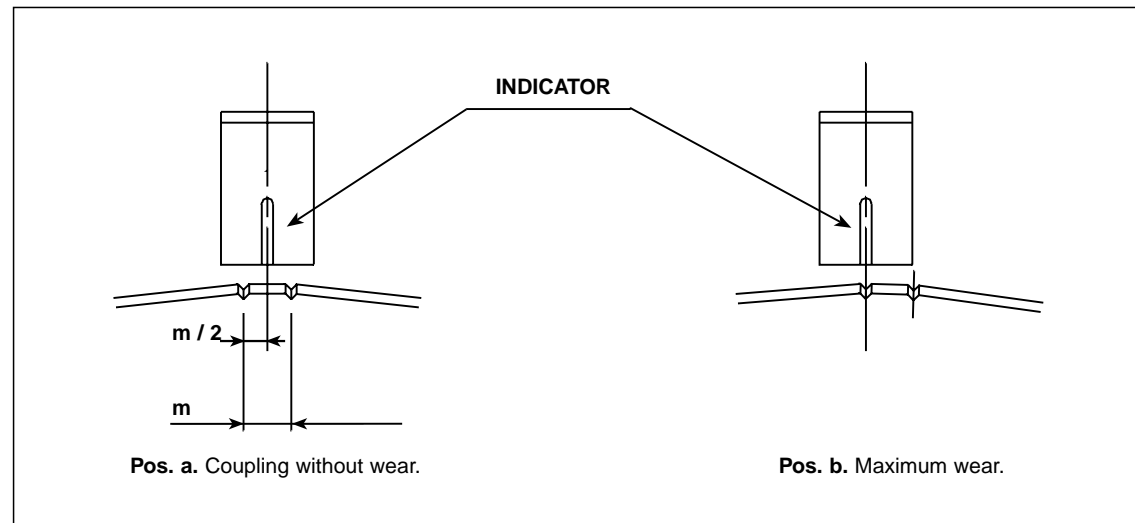


Fig. 18. Wear of the coupling.

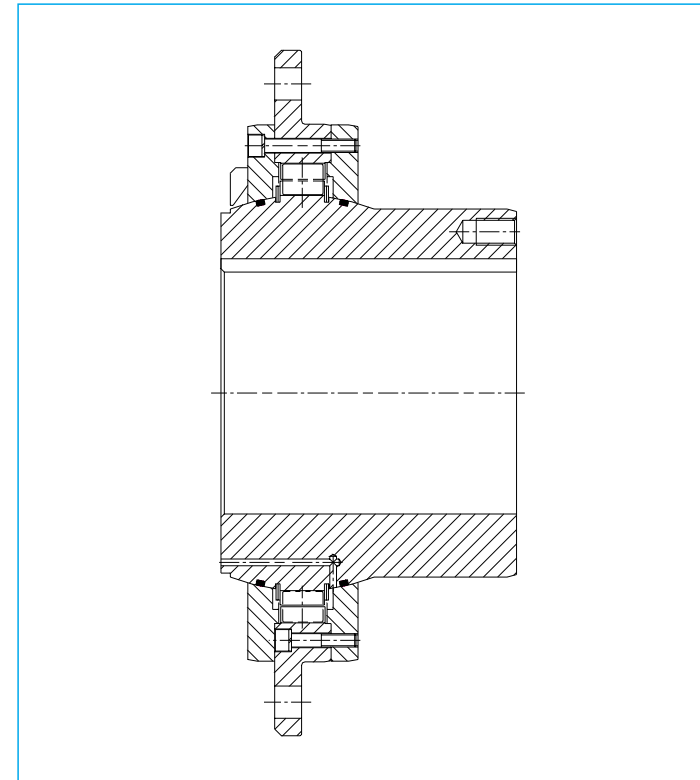
Table 11 shows the maximum wear values permissible for reversible load applications typical in the translation of a container crane. For single load direction applications, the amplitude between marks must be multiplied by two. Except where expressly requested, the marks supplied are those to be used in reversible applications.

Tabla nº 11. Control of coupling wear.

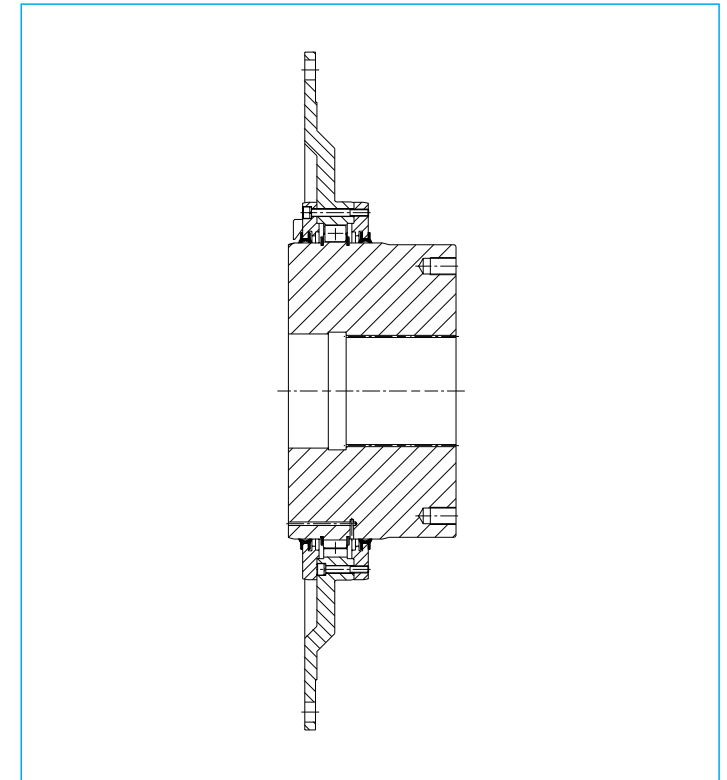
Coupling size	25	50	75	100	130	160	200	300	400	500	600	1.000	1.500	2.600	3.400	4.200	6.200
Max. wear m/2 (mm)	4	4	4	4	6	6	6	6	6	8	8	8	8	8	8	8	8

- c) Axial setting: Check the distance "X" according to Fig. 13. If this distance is greater than 10% of that shown in Table 4, the position of seating of the support-bearing must be reset.
- d) Control of seals: Replace the seals if any deterioration is observed in their lips.

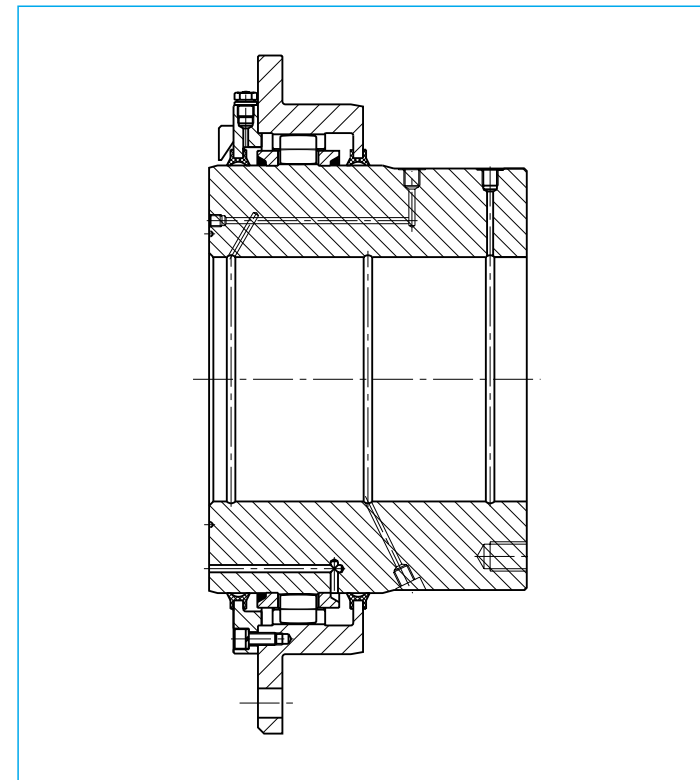
Alternative constructions



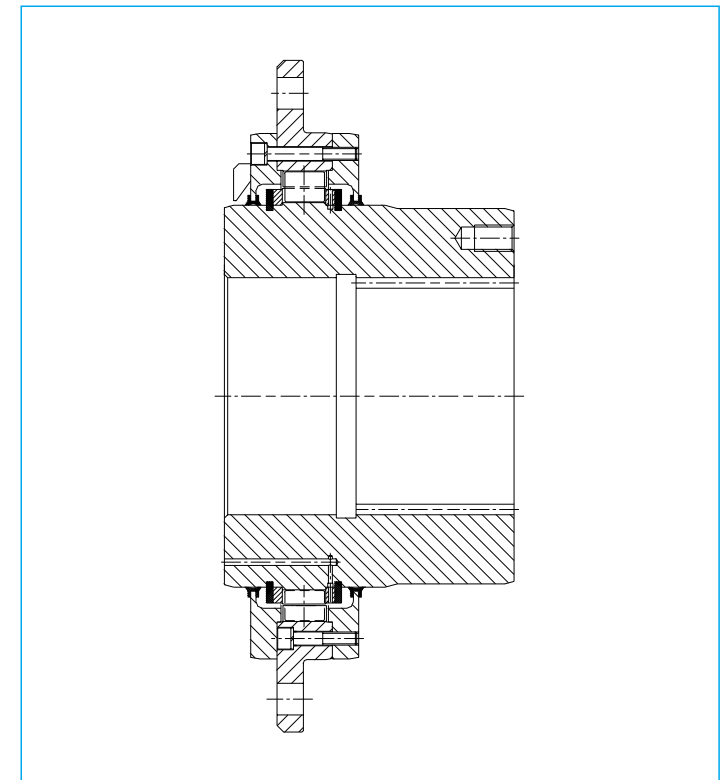
Type TCBA
with axial limitation



TCB
with special flange



Type TCB - SIDMAR
(standard SIDMAR BR3, 01-10-89 Rev. D)



Type TCB - SEB
(standard SEB 666212 January 91)

JAURE, S.A. Couplings and transmission elements.



■ MT crowned tooth gear coupling.



■ LAMIDISC® all steel disc coupling.



■ Barrel coupling TCB®.



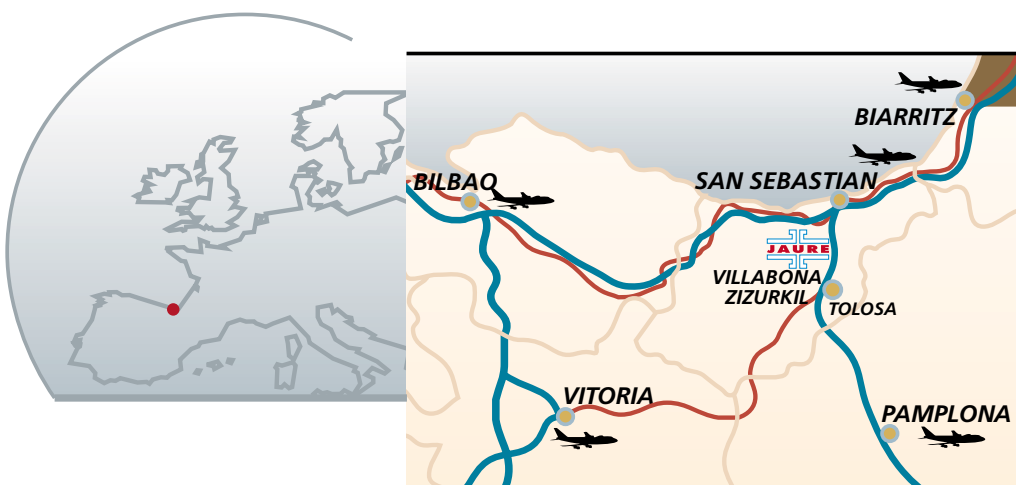
■ RECORD Flexible Spring Coupling.



■ JAUFLEX® Flexible elastic coupling.



■ Gear spindles for rolling mills.



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