

TRANSFLUID



TRANSFLUID

trasmissioni industriali



drive with us

K - CK - CCK
FLUID COUPLINGS

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1. DESCRIPTION

The TRANSFLUID coupling (K series) is a constant fill type, comprising of three main elements:

- 1 - driving impeller (pump) mounted on the input shaft.
- 2 - driven impeller (turbine) mounted on the output shaft.
- 3 - cover, flanged to the outer impeller, with an oil-tight seal.

The first two elements can work both as pump or turbine.

The slip is essential for the correct operation of the coupling - there could not be torque transmission without slip! The formula for slip, from which the power loss can be deduced is as follows:

$$\text{slip \%} = \frac{\text{input speed} - \text{output speed}}{\text{input speed}} \times 100$$

2. OPERATING CONDITIONS

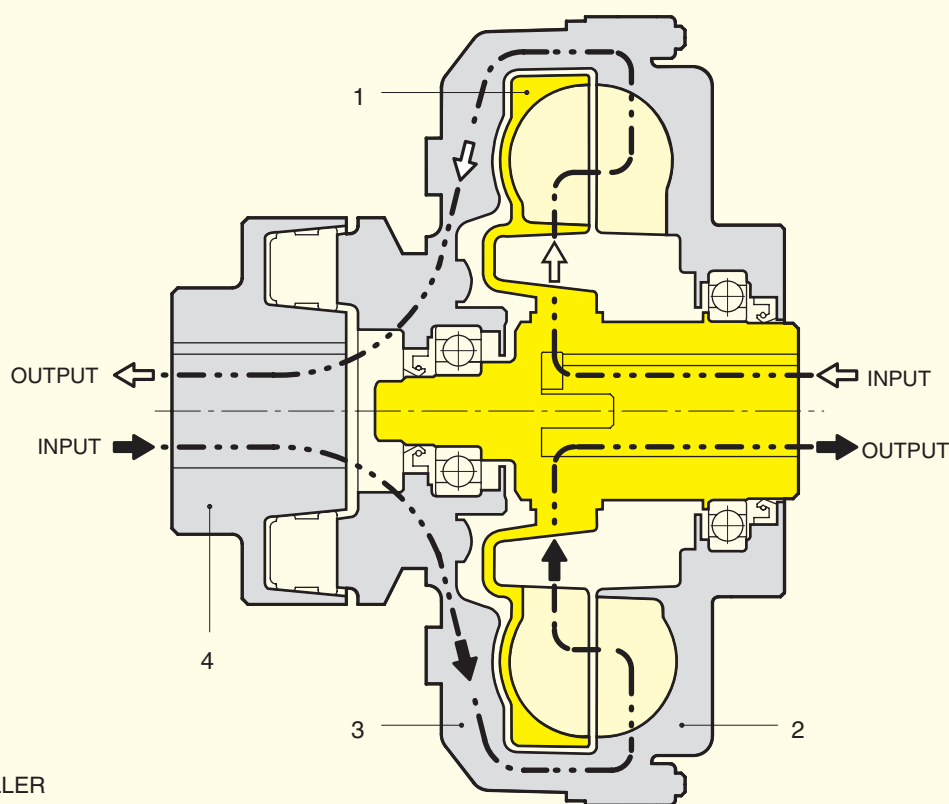
The TRANSFLUID coupling is a hydrodynamic transmission. The impellers perform like a centrifugal pump and a hydraulic turbine. With an input drive to the pump (e.g. electric motor or Diesel engine) kinetic energy is transferred to the oil in the coupling. The oil is forced, by centrifugal force, across the blades of the pump towards the outside of the coupling.

The turbine absorbs kinetic energy and generates a torque always equal to input torque, thus causing rotation of the output shaft. Since there are no mechanical connections, the wear is practically zero.

The efficiency is influenced only by the speed difference (slip) between pump and turbine.

In normal conditions (standard duty), slip can vary from 1,5% (large power applications) to 6% (small power applications). TRANSFLUID couplings follow the laws of all centrifugal machines:

- 1 - transmitted torque is proportional to the square of input speed;
- 2 - transmitted power is proportional to the third power of input speed;
- 3 - transmitted power is proportional to the fifth power of circuit outside diameter.



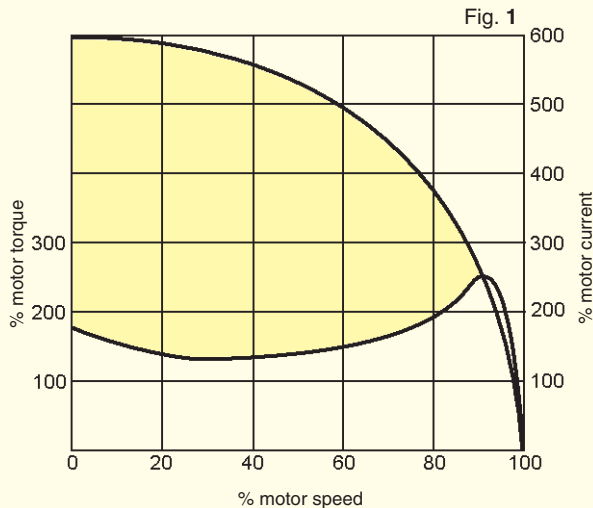
- 1 - INTERNAL IMPELLER
- 2 - EXTERNAL IMPELLER
- 3 - COVER
- 4 - FLEX COUPLING

PERFORMANCE CURVES

2.1 Transfluid coupling fitted on electric motors

Three phase synchronous squirrel cage motors are able to supply maximum torque only, near synchronous speed. Direct starting is the system utilized the most. Figure 1 illustrates the relationship between torque and current. It can be seen that the absorbed current is proportional to the torque only between 85% and 100% of the synchronous speed. With a motor connected directly to the load there are the following disadvantages:

- The difference between available torque and the torque required by the load is very low until the rotor has accelerated to between 80-85% of the synchronous speed.
- The absorbed current is high (up to 6 times the nominal current) throughout the starting phase causing overheating of the windings, overloads in the electrical lines and, in cases of frequent starts, major production costs.
- Over-dimensioned motors caused by the limitations indicated above.



Any drive system using a Transfluid fluid coupling has the advantage of the motor starting essentially without load. Figure 2 compares the current demands of an electric motor when the load is directly attached versus the demand when a fluid coupling is mounted between the motor and load. The coloured area shows the energy that is lost, as heat, during start-up when a fluid coupling is not used. A Transfluid fluid coupling reduces the motor's current draw during start-up thus reducing peak current demands. This not only reduces power costs but also reduces brown outs in the power grid and extends the life of the motor. Also at start-up, a fluid coupling allows more torque to pass to the load for acceleration than in drive systems without a fluid coupling.

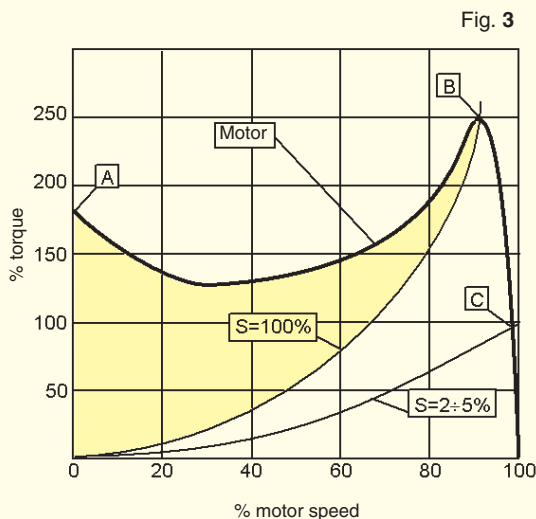
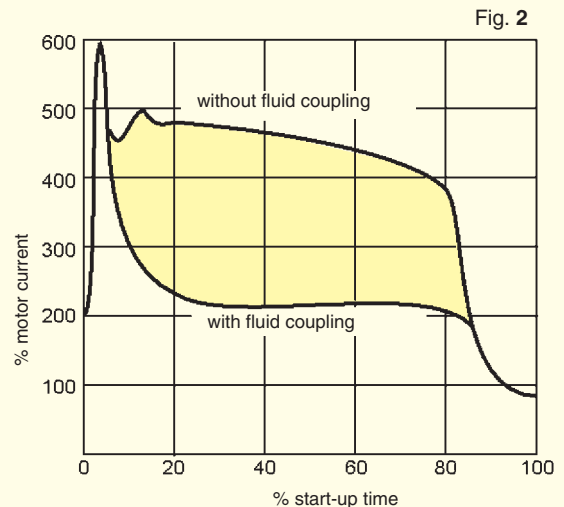


Figure 3 shows two curves for a single fluid coupling and a characteristic curve of an electric motor. It is obvious from the stall curve of the fluid coupling ($s = 100\%$) and the available motor torque, how much torque is available to accelerate the rotor of the motor (colored area). In about 1 second, the rotor of the motor accelerates passing from point A to point B. The acceleration of the load, however, is made gradually by the fluid coupling, utilizing the motor in optimal conditions, along the part of the curve between point B, 100% and point C, 2-5%. Point C is the typical point of operation during normal running.

2.2 TRANSFLUID FLUID COUPLINGS WITH A DELAYED FILL CHAMBER

A **low starting torque** is achieved, with the standard circuit in a maximum oil fill condition because fluid couplings limit **to less than 200%** of the nominal motor torque. It is possible to limit further the starting torque **down to 160%** of the nominal torque, by decreasing oil fill: this, contrarily creates slip and working temperature increase in the fluid coupling.

The most convenient technical solution is to use fluid couplings with a **delayed fill chamber**, connected to the main circuit by **calibrated bleed orifices**. These **externally adjustable** valves, available from size **15CK** (Fig. 4b), can be simply adjusted to vary starting time.

In a standstill position, the **delayed fill chamber** contains part of the filling oil, thus reducing the effective quantity in the working circuit (Fig. 4a) and a **torque reduction** is obtained, allowing the motor to quickly reach the steady running speed **as if started without load**.

During start-up, oil flows from the **delayed fill chamber** to the main circuit (Fig. 4b) in a quantity proportional to the rotating speed.

As soon as the fluid coupling reaches the nominal speed, all oil flows into the main circuit (Fig. 4c) and torque is transmitted with a **minimum slip**.

With a **simple delayed fill chamber**, the ratio between starting and nominal torque may reach **150 %**. This ratio may be further reduced down to **120 %** with a **double delayed fill chamber**, which contains a higher oil quantity, to be progressively transferred into the main circuit during the starting phase.

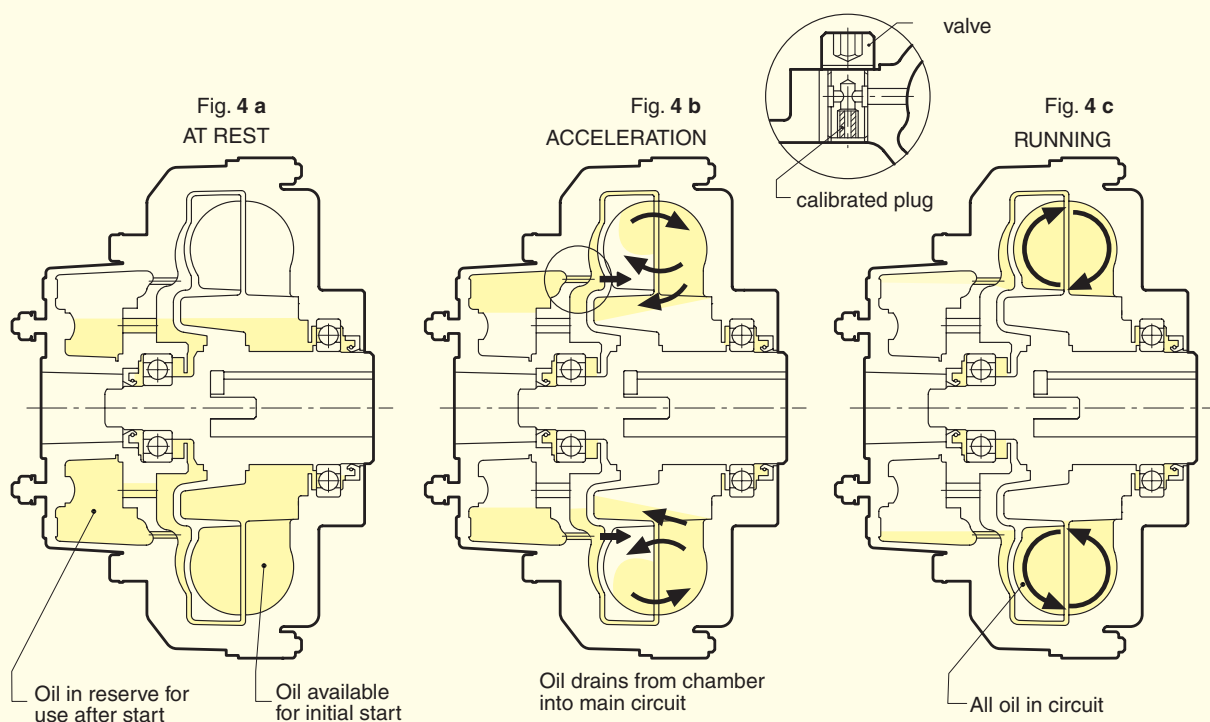
This is ideal for very smooth start-ups with low torque absorptions, as typically required for machinery with large inertia values and for belt conveyors.

The advantages of the **delayed fill chamber** become more and more evident when the power to be transmitted increases.

The **simple chamber** is available from size **11CK**, while the **double chamber** from size **15CCK**.

3. SUMMARY OF THE ADVANTAGES GIVEN BY FLUID COUPLINGS

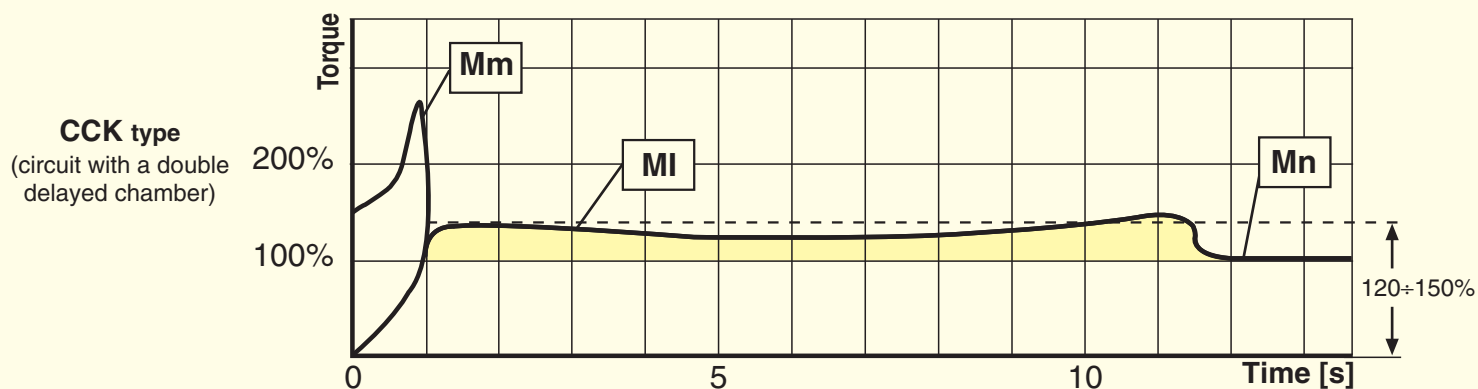
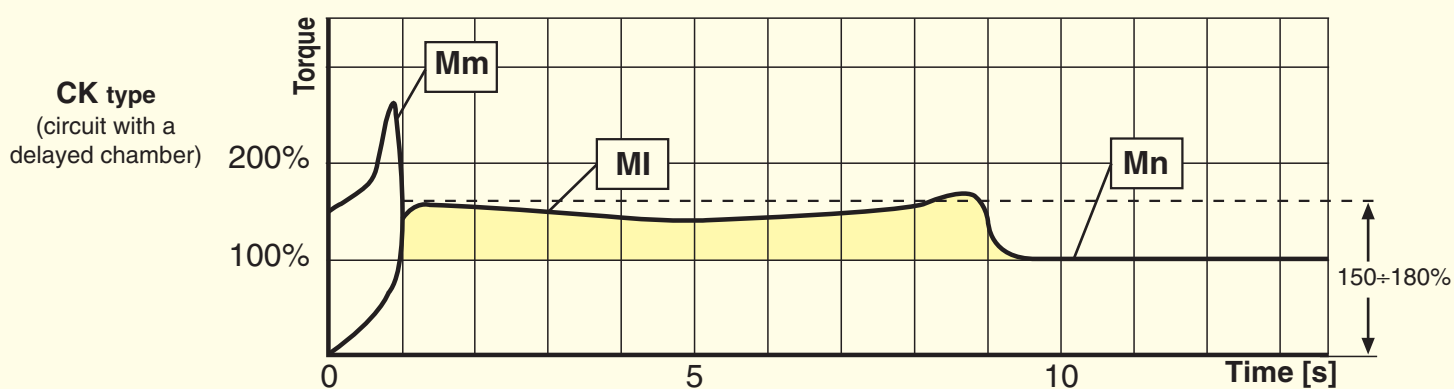
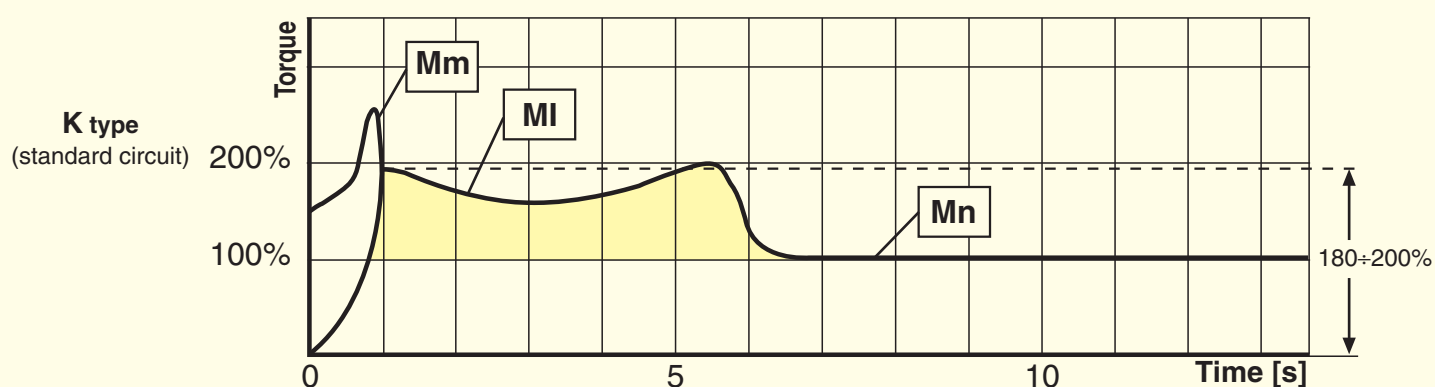
- very smooth start-ups
- reduction of current absorptions during the starting phase: the motor starts with very low load
- protection of the motor and the driven machine from jams and overloads
- utilization of asynchronous squirrel cage motors instead of special motors with soft starter devices
- higher duration and operating convenience of the whole drive train, thanks to the protection function achieved by the fluid coupling
- higher energy saving, thanks to current peak reduction
- limited starting torque down to 120% in the versions with a double delayed fill chamber
- same torque at input and output: the motor can supply the maximum torque even when load is jammed
- torsional vibration absorption for internal combustion engines, thanks to the presence of a fluid as a power transmission element
- possibility to achieve a high number of start-ups, also with an inversion of the rotation direction
- load balancing in case of a double motor drive: fluid couplings automatically adjust load speed to the motors speed
- high efficiency
- minimum maintenance
- Viton rotating seals
- cast iron and steel material with anticorrosion treatment



STARTING TORQUE CHARACTERISTICS

4. CHARACTERISTIC CURVES

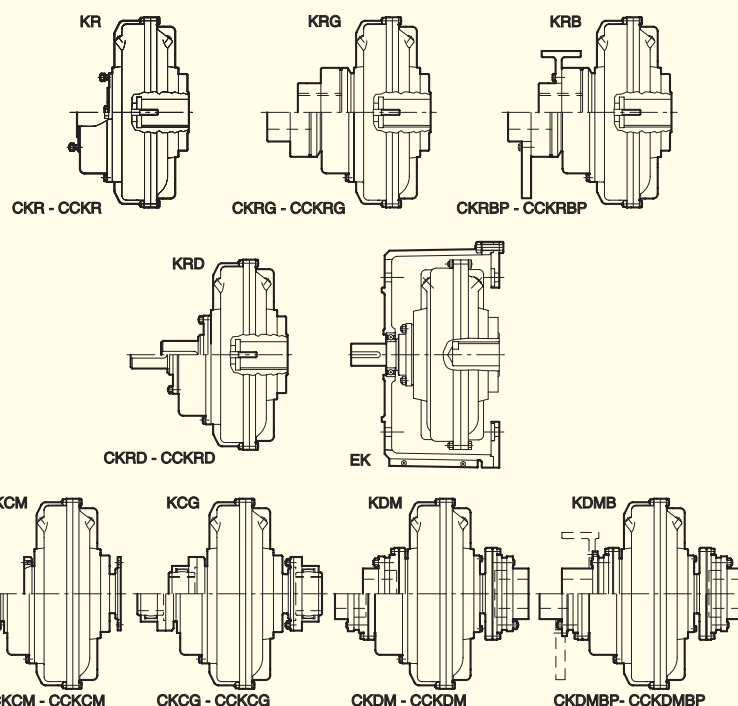
- MI : transmitted torque from fluid coupling
- Mm : starting torque of the electric motor
- Mn : nominal torque at full load
- : accelerating torque



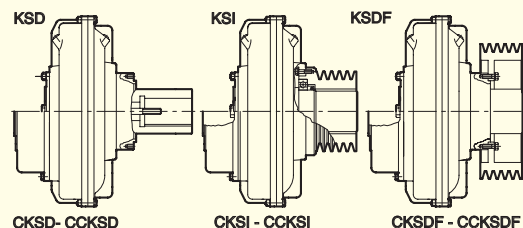
5 VERSIONS

5.1 IN LINE

- KR-CKR-CCKR** : basic coupling (KR), with a simple (CKR) or double (CCKR) delayed fill chamber.
- KRG-CKRG-CCKRG** : basic coupling with elastic coupling (KRM-CKRM-CCKRM (clamp type), or superelastic.
- KRB-CKRB-CCKRB** : like ..KRG, but with brake drum or brake disc.
- ...KRBP**
- KRD-CKRD-CCKRD** : basic coupling ..KR with output shaft. It allows the utilization of other flex couplings; it is possible to place it (with a convenient housing) between the motor and a hollow shaft gearbox.
- EK** : fluid coupling fitted with a bell housing, to be placed between a flanged electric motor and a hollow shaft gearbox.
- KCM-CKCM-CCKCM** : basic coupling for half gear couplings.
- KCG-CKCG-CCKCG** : basic ..KCM with half gear couplings. On request, layout with brake drum or brake disc.
- KDM-CKDM-CCKDM** : fluid coupling with disc couplings.
- ...KDMB** : like ..KDM, but with brake drum or brake disc.
- ...KDMBP**



N.B.: The ..KCG - ..KDM versions allow a radial disassembly without moving the motor or the driven machine.

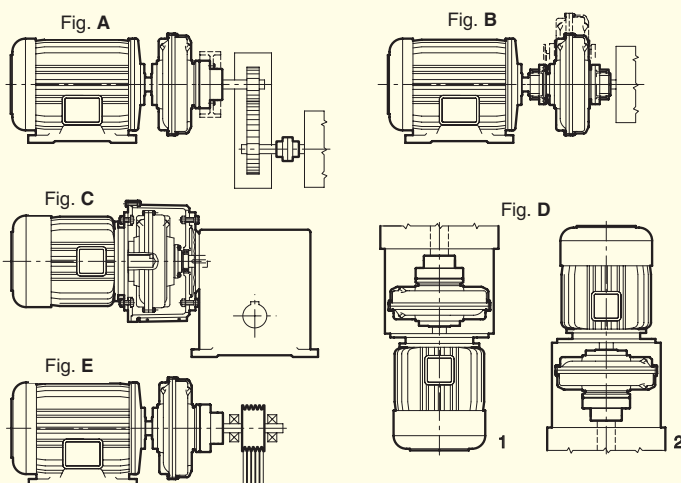
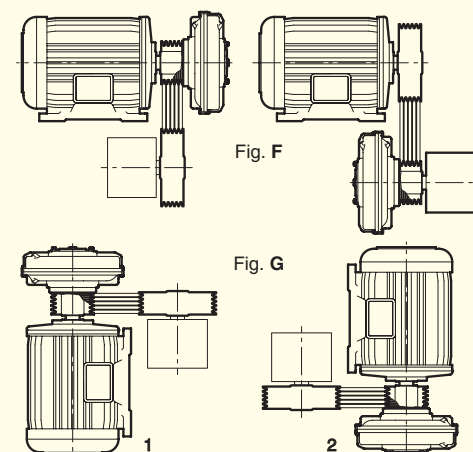


5.2 PULLEY

- KSD-CKSD-CCKSD** : basic coupling foreseen for a flanged pulley, with simple (CK..) or double (CCK..) delayed fill chamber.
- KSI-CKSI-CCKSI** : fluid coupling with an incorporated pulley, which is fitted from inside.
- KSDF-CKSDF-CCKS..** : basic ..KSD coupling with flanged pulley, externally mounted and therefore to be easily disassembled.

6.1 IN LINE VERSIONS MOUNTING EXAMPLES

- Fig. A Horizontal axis between the motor and the driven machine (KR-CKR-CCKR and similar).
- Fig. B It allows a radial disassembly without moving the motor and the driven machine (KCG-KDM and similar).
- Fig. C Between a flanged electric motor and a hollow shaft gearbox by means of a bell housing (..KRD and EK).
- Fig. D Vertical axis mounting between the electric motor and a gearbox or driven machine. **In case of order, please specify mounting type 1 or 2.**
- Fig. E Between the motor and a supported pulley for high powers and heavy radial loads.



6.2 PULLEY VERSIONS MOUNTING EXAMPLES

- Fig. F Horizontal axis.
- Fig. G Vertical axis. **When ordering, please specify mounting type 1 or 2.**

SELECTION

7. SELECTION

7.1 SELECTION CHART

The chart below may be used to select a unit size from the horsepower and input speed. If the selection point falls on a size limit line dividing one size from the other, it is advisable to select the larger size with a proportionally reduced oil fill.

Tab. A



7.2 SELECTION TABLE

Fluid couplings for standard electric motors.

Tab. B

MOTOR		3000 rpm			(○) 1800 rpm			1500 rpm			(○) 1200 rpm			1000 rpm		
TYPE	SHAFT DIA.	kW	HP	COUPLING	kW	HP	COUPLING	kW	HP	COUPLING	kW	HP	COUPLING	kW	HP	COUPLING
71	14	0.37	0.5	—	0.25	0.35	—	0.25	0.35	6 K	0.25	0.33	—	0.25	0.33	—
		0.55	0.75		0.37	0.5		0.37	0.5		0.37	0.5		0.37	0.5	
80	19	0.75	1		0.55	0.75		0.55	0.75		0.55	0.75		0.55	0.75	
		1.1	1.5	6 K	0.75	1	6 K	0.75	1	7 K	0.75	1	7 K	0.75	1	8 K
90S	24	1.5	2		1.1	1.5		1.1	1.5		1.1	1.5		1.1	1.5	
		2.2	3		1.5	2	7 K	1.5	2		1.5	2	8 K	1.5	2	9 K
90L	24	3	4	7 K (1)	2.2	3		2.2	3	8 K	2.2	3		2.2	3	
		4	5.5		3	4		3	4		3	4		3	4	
100L	28	5.5	7.5		4	5.5	8 K	4	5.5	9 K	4	5.5	11 K	4	5.5	11 K
112M	28	7.5	10	—	5.5	7.5		5.5	7.5		7.5	10		7.5	10	
132	38	—	—		7.5	10		7.5	10		—	—		—	—	
132M	38	11	15	9 K (1)	11	15	9 K	11	15	11 K	4	5.5	12 K	4	5.5	12 K
		15	20		15	20	11 K	15	20		5.5	7.5		5.5	7.5	
160M	42	18.5	25		18.5	25	12 K (11 K)	18.5	25		7.5	10		7.5	10	
160L	42	22	30	—	22	30	12 K	22	30	12 K	11	15	13 K	11	15	13 K
180M	48	—	—		—	—	—	—	—		—	—		—	—	
180L	48	30	40		30	40	13 K (12 K)	30	40		15	20	15 K	15	20	15 K
200L	55	37	50	11 K (1)	37	50	13 K	37	50	13 K	18.5	25		18.5	25	
225S	60	—	—	—	—	—	—	—	—		22	30		22	30	
225M	55 (3000) 60	45	60	11 K (1)	45	60	13 K	45	60		—	—	15 K	—	—	—
250M	60 (3000) 65	55	75	13 K (1)	55	75	15 K	55	75	15 K	30	40		30	40	
280S	65 (3000) 75	75	100	13 K (2)	75	100	17 K (15 K)	75	100		37	50		37	50	19 K
280M	65 (3000) 75	90	125		90	125	17 K	90	125	17 K	45	60	17 K	45	60	
315S	65 (3000) 80	110	150		110	150	19 K	110	150		55	75		55	75	21 K
315M	65 (3000) 80	132	180	—	132	180	19 K	132	180	19 K	75	100	19 K	75	100	
355S	80 (3000) 100	160	220		160	220	21 K	160	220		90	125	21 K	90	125	24 K
		200	270		200	270	21 K	200	270		110	150		110	150	
355M	80 (3000) 100	250	340	—	250	340	24 K	250	340	24 K	132	180		132	180	
		—	—	—	—	—	—	—	—		160	220	24 K	160	220	27 K
		—	—	—	—	—	—	—	—		200	270		200	270	
		—	—	—	—	—	—	—	—	—	250	340		250	340	

NO - STANDARD MOTORS	max.			max.			max.					
	700	952	27 K	510	700	27 K	440	598	29 K	370	500	29 K
	1000	1360	29 K	810	1100	29 K	800	1088	34 K	600	800	34 K
				1300	1740	34 K	1350	1836	D 34 K	950	1300	D 34 K
				2300	3100	D 34 K						

(○) POWERS REFER TO MOTORS CONNECTED AT 380 V. 60 HZ

(1) SPECIAL VERSION, 24 HOURS SERVICE

(2) ONLY FOR KR

NB: THE FLUID COUPLING SIZE IS TIED TO THE MOTOR SHAFT DIMENSIONS

SELECTION

7.3 PERFORMANCE CALCULATIONS

For frequent starts or high inertia acceleration, it is necessary to first carry out the following calculations. For this purpose it is necessary to know:

P _m - input power	kW
n _m - input speed	rpm
P _L - power absorbed by the load at rated speed	kW
n _L - speed of driven machine	rpm
J - inertia of driven machine	Kgm ²
T - ambient temperature	°C

The preliminary selection will be made from the selection graph Tab. **A** depending upon input power and speed.

Then check:

- A) acceleration time.
- B) max allowable temperature.
- C) max working cycles per hour

A) Acceleration time t_a:

$$t_a = \frac{n_u \cdot J_r}{9.55 \cdot M_a} \text{ (sec) where:}$$

n_u = coupling output speed (rpm)
 J_r = inertia of driven machine referred to coupling shaft (Kgm²)
 M_a = acceleration torque (Nm)

$$n_u = n_m \cdot \left(\frac{100 - S}{100} \right)$$

where S is the percent slip derived from the characteristic curves of the coupling with respect to the absorbed torque M_L.

If S is not known accurately, the following assumptions may be made for initial calculations:

- 4 up to size 13"
- 3 from size 15" up to size 19"
- 2 for all larger sizes.

$$J_r = J \cdot \left(\frac{n_L}{n_u} \right)^2$$

Note: $J = \frac{PD^2}{4} \text{ o } \frac{GD^2}{4}$

$$M_a = 1.65 M_m - M_L$$

where: $M_m = \frac{9550 \cdot P_m}{n_m}$ (Nominal Torque)

$$M_L = \frac{9550 \cdot P_L}{n_u}$$
 (Absorbed Torque)

B) Max allowable temperature.

For simplicity of calculation, ignore the heat dissipated during acceleration.

Coupling temperature rise during start-up is given by:

$$T_a = \frac{Q}{C} \text{ (°C)}$$

where: Q = heat generated during acceleration (kcal)
 C = total thermal capacity (metal and oil) of coupling selected from Tab. **C** (kcal/°C).

$$Q = \frac{n_u}{10^4} \cdot \left(\frac{J_r \cdot n_u}{76.5} + \frac{M_L \cdot t_a}{8} \right) \text{ (kcal)}$$

The final coupling temperature reached at the end of the acceleration cycle will be:

$$T_f = T + T_a + T_L \text{ (°C)}$$

where: T_f = final temperature (°C)
 T = ambient temperature (°C)
 T_a = temperature rise during acceleration (°C)
 T_L = temperature during steady running (°C)

$$T_L = 2.4 \cdot \frac{P_L \cdot S}{K} \text{ (°C)}$$

where: K = factor from Tab. **D**

T_f = must not exceed 110°C for couplings with standard gaskets

T_f = must not exceed 150°C for couplings with Viton gaskets

C) Max working cycles per hour H

In addition to the heat generated in the coupling by slip during steady running, heat is also generated (as calculated above) during the acceleration period. To allow time for this heat to be dissipated, one must not exceed the max allowable number of acceleration cycles per hour.

$$H_{\max} = \frac{3600}{t_a + t_L}$$

where t_L = minimum working time

$$t_L = 10^3 \cdot \frac{Q}{\left(\frac{T_a}{2} + T_L \right) \cdot K} \text{ (sec)}$$

SELECTION

7.4 CALCULATION EXAMPLE

Assuming: $P_m = 20 \text{ kW}$ $n_m = 1450 \text{ giri/min}$
 $P_L = 12 \text{ kW}$ $n_L = 700 \text{ giri/min}$
 $J = 350 \text{ kgm}^2$
 $T = 25^\circ\text{C}$

Transmission via belts.

From selection graph on Tab. A, selected size is 12K.

A) Acceleration time

From curve TF 5078-X (supplied on request) slip $S = 4\%$

$$n_u = 1450 \cdot \left(\frac{100 - 4}{100} \right) = 1392 \text{ rpm}$$

$$J_r = 350 \cdot \left(\frac{700}{1392} \right)^2 = 88.5 \text{ Kg m}^2$$

$$M_m = \frac{9550 \cdot 20}{1450} = 131 \text{ Nm}$$

$$M_L = \frac{9550 \cdot 12}{1392} = 82 \text{ Nm}$$

$$M_a = 1.65 \cdot 131 - 82 = 134 \text{ Nm}$$

$$t_a = \frac{1392 \cdot 88.5}{9.55 \cdot 134} = 96 \text{ sec}$$

B) Max allowable temperature

$$Q = \frac{1392}{10^4} \cdot \left(\frac{88.5 \cdot 1392}{76.5} + \frac{82 \cdot 96}{8} \right) = 361 \text{ kcal}$$

$$C = 4.2 \text{ kcal/}^\circ\text{C (Tab. C)}$$

$$T_a = \frac{361}{4.2} = 86^\circ\text{C}$$

$$K = 8.9 \text{ (Tab. D)}$$

$$T_L = 2.4 \cdot \frac{12 \cdot 4}{8.9} = 13^\circ\text{C}$$

$$T_f = 25 + 86 + 13 = 124^\circ\text{C}$$

Viton gaskets needed

C) Max working cycles per hour

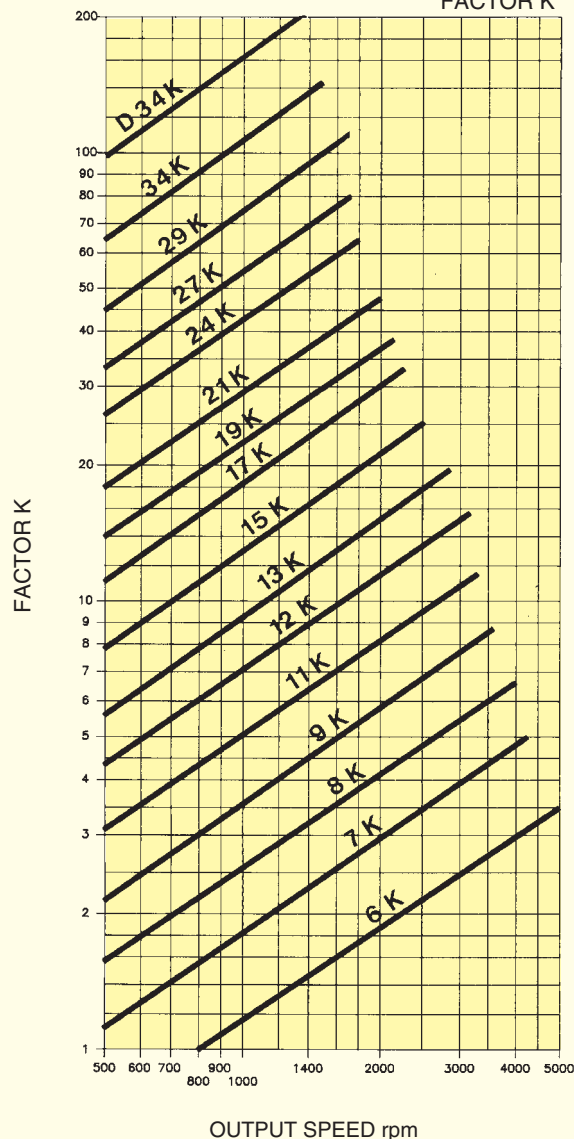
$$t_L = 10^3 \cdot \frac{361}{\left(\frac{86}{2} + 13 \right) \cdot 8.9} = 724 \text{ sec}$$

$$H = \frac{3600}{96 + 724} = 4 \text{ starts per hour}$$

Tab. C
THERMAL CAPACITY

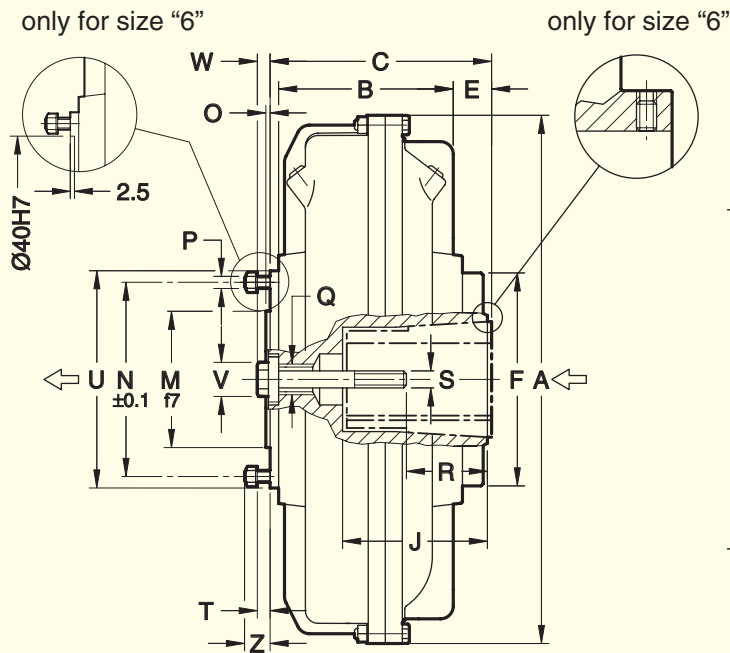
Size	K	CK	CCK
	kcal/°C	kcal/°C	kcal/°C
6	0.6	-	-
7	1.2		
8	1.5		
9	2.5		
11	3.2	3.7	-
12	4.2	5	
13	6	6.8	
15	9	10	10.3
17	12.8	14.6	15.8
19	15.4	17.3	19.4
21	21.8	25.4	27.5
24	29	32	33.8
27	43	50	53.9
29	56	63	66.6
34	92	99	101
D34	138	-	-

Tab. D
FACTOR K

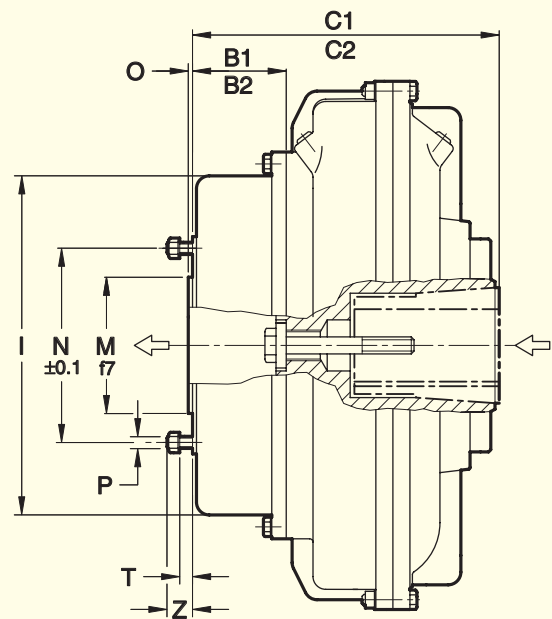


SERIES 6 ÷ 19 KR-CKR-CCKR

8. DIMENSIONS



KR



CKR - CCKR

taper bush

In case of installation on shafts without shoulders, please contact Transfluid

The diagram shows a cross-section of a taper bush. It is a cylindrical component with a central bore. The outer diameter is labeled 'D' with a vertical double-headed arrow. The length of the bush is labeled 'J 1' with a horizontal double-headed arrow. The bush has a central hole with a diameter of 10 mm. The ends of the bush are chamfered. A note indicates that for installation on shafts without shoulders, contact should be made with Transfluid.

cylindrical bore

1.00

DG7

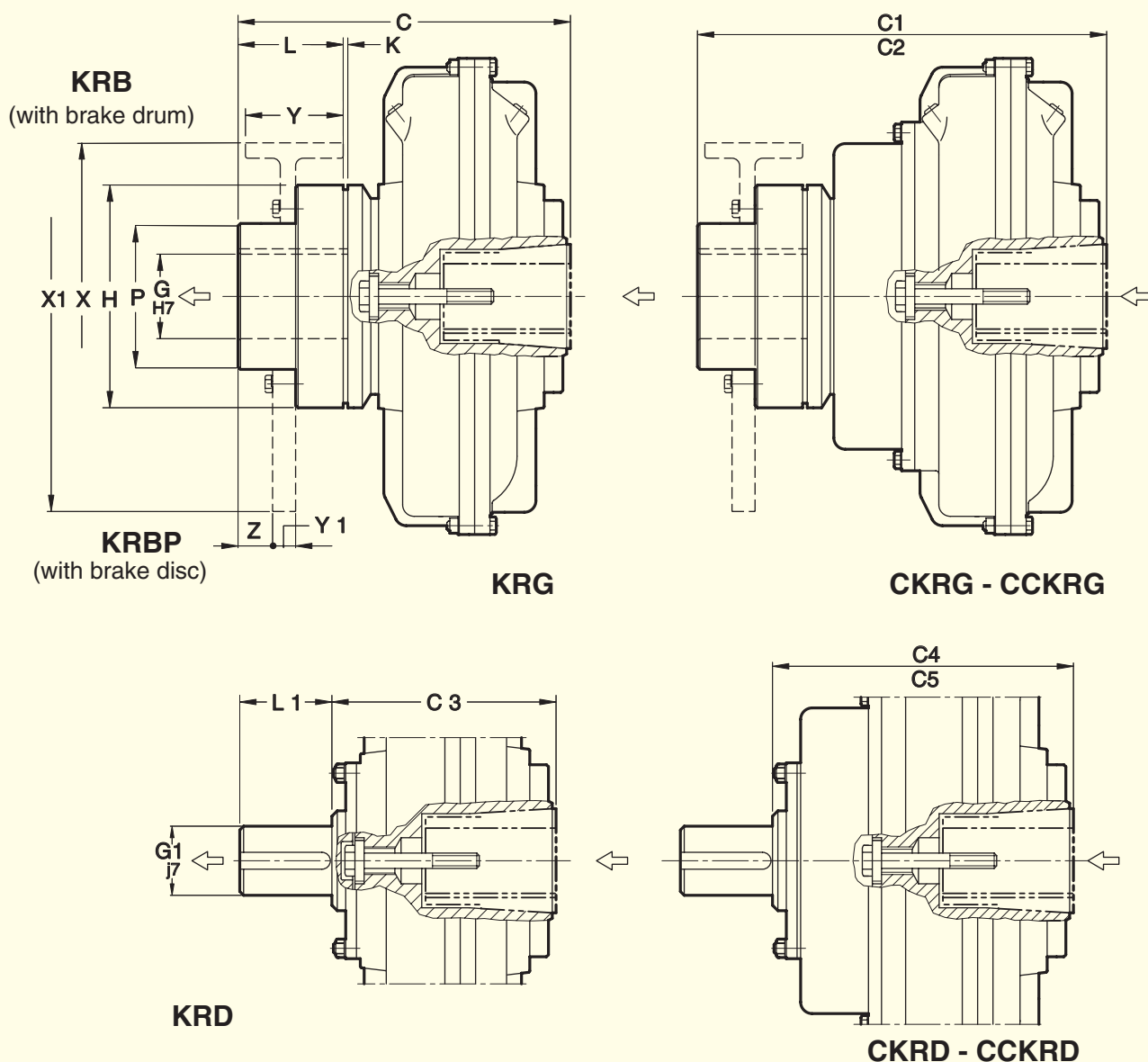
 Dimensions

NB: The arrows indicate input and output in the standard version.

Size	D		J	J ₁		A	B	B ₁	B ₂	C	C ₁	C ₂	E	F	I	M	N	O	P	Q	R	S	T	U	V	W	Z	Weight Kg (without oil)			Oil max it																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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6	19•	24•	—	45	55	195	60	—	—	90.5	—	—	29	88	—	•	53	•	4	M7	—	—	—	—	68	—	—	16.5	2.7	—	—	0.50	—	—																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
7	19	24	69	40	50	228	77			112			22	114		40	73	3	6		M12	27	35	M6	M8	88	21	12	14			5.1			—	—	—	—	—	—	—	—																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	28	60		256	91	117	18			31			128									42	54	M10	M12							5.5											1.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
8	24	28	60	256	91	145	200			154			221	27		195	60	88.9	8		M8	M20	43	54	M10	M12	79	M16	42			56			M10	M12	83	M16	42	56	M10	M12	83	M16	107	27	19	15	12	14.5	2.75	3.35																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
9	28	38	60	80	295	96	68.5	75	180	240	28	179	80	122.2	5	8	M10	M27	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20	103	132	80	M16	M20</

- **D** BORES RELATIVE TO TAPER BUSHES WITH A KEYWAY ACCORDING TO ISO 773 - DIN 6885/1
PARTICULAR CASES:
- CYLINDRICAL BORE WITHOUT TAPER BUSH WITH A KEYWAY ISO 773 - DIN 6885/1
 - CYLINDRICAL BORE WITHOUT TAPER BUSH, WITH A REDUCED KEYWAY (DIN 6885/2)
 - TAPER BUSH WITHOUT KEYWAY
- WHEN ORDERING, SPECIFY: SIZE, MODEL, **D** DIAMETER
EXAMPLE: 11CKR - D 42
- * SEE DRAWING

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE



NB: The arrows indicate input and output in the standard version.

Dimensions

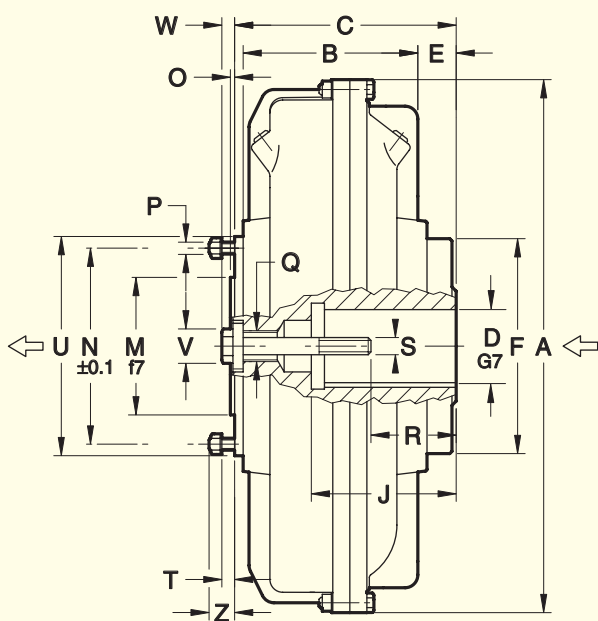
Size	C		C ₁		C ₂		C ₃		C ₄		C ₅		G	G ₁	H	K	L	L ₁	P	Flex coupling (7)	Brake drum X - Y	Brake disc X ₁ - Y ₁	Z	Weight Kg (without oil)					
	KRG	CKRG	CCKRG	KRD	CKRD	CCKRD	max																	KRG	CKRG	CCKRG	KRD	CKRD	CCKRD
6	149			107			28	19	73				40	30	45	BT 02	on request							3.9			3		
7	189			133			42	28	110				60	40	70	BT 10	160 - 60							8.3			5.7		
8	194			138																				8.7			6.1		
9	246			176				38	132															16			11.6		
11	255	301		185	231		55	42					80	50	85	BT 20	160 - 60 200 - 75							18	20.5		13	15.5	
12		322			252																			21.5	24.5		16.7	19.7	
13	285	345		212	272		70	48	170					60	100	BT 30	200 - 75 250 - 95	400 - 30 450 - 30					5	34	37		26.3	29.3	
15	343	411	459	230	298	346	80	60					110	80	120	BT 40	250 - 95 315 - 118	400 - 30 450 - 30					35	50.3	54.3	62	40.4	44.4	52.1
17																								77	83	92	58.1	64.1	73.1
19	362	442	522	263	343	423	90	75	250				110	100	135	BT 50	315 - 118 400 - 150	445 - 30 450 - 30					15	84	90	99	65.1	71.1	80.1

(7) BT ELASTIC COUPLING WITH REPLACING RUBBER ELEMENTS WITHOUT MOVING THE MACHINES ARE UPON REQUEST. (DIMENSIONS AS PER TF 6412)

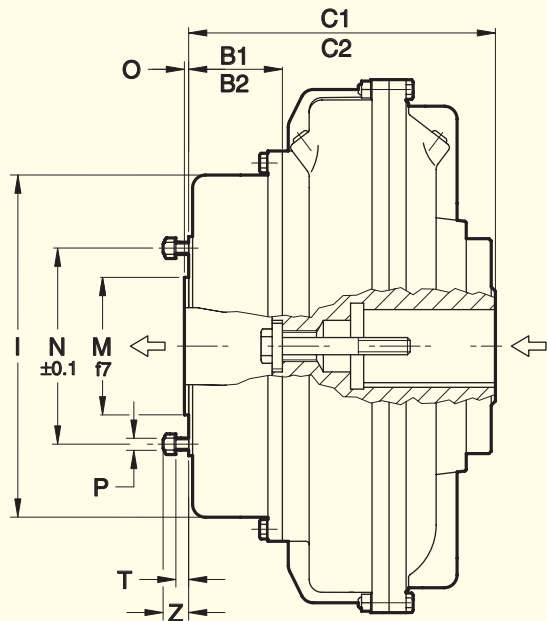
- G1 SHAFT BORE WITH A KEYWAY ACCORDING TO ISO 773 - DIN 6885/1
- WHEN ORDERING, SPECIFY: SIZE - MODEL - D DIAMETER
- UPON REQUEST: BORE G₁ MACHINED; G SPECIAL SHAFT
- FOR ...KRB - KRBP SERIES SPECIFY X AND Y OR X₁ AND Y₁ DIAMETER
- EXAMPLE: 9KRB - D38 - BRAKE DRUM = 160x60

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

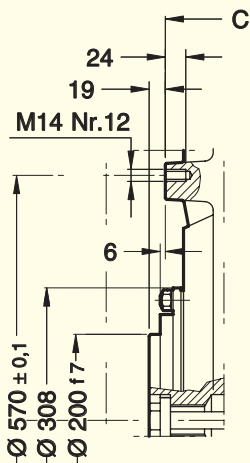
SERIES 21 ÷ 34 KR-CKR-CCKR



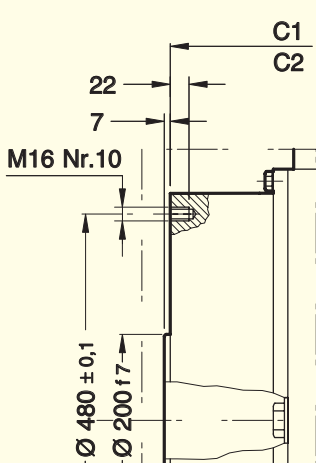
KR



CKR - CCKR



34KR



34CKR - 34CCKR

Size	Weight Kg (without oil)			Oil max lt		
	KR	CKR	CCKR	KR	CKR	CCKR
21	87	97	105	19	23	31
24	105	115	123	28.4	31.2	39
27	158	176	195	42	50	61
29	211	229	239	55	63	73
34	337	352	362	82.5	92.5	101

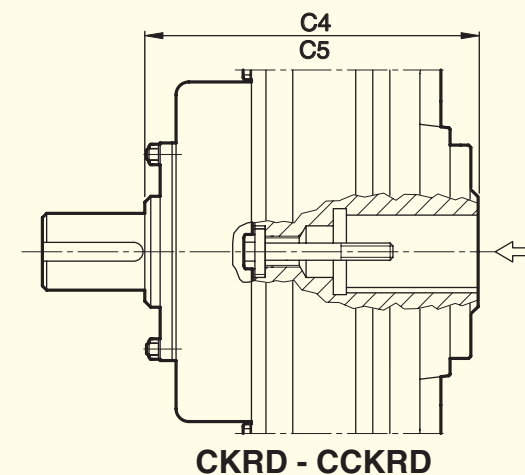
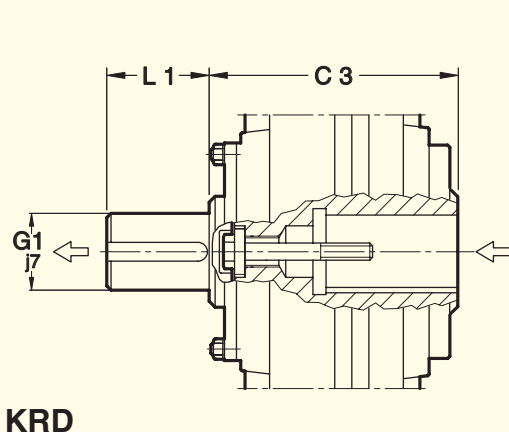
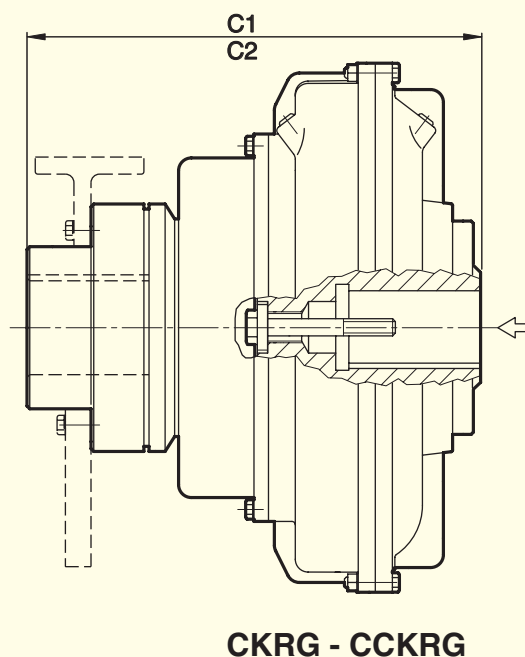
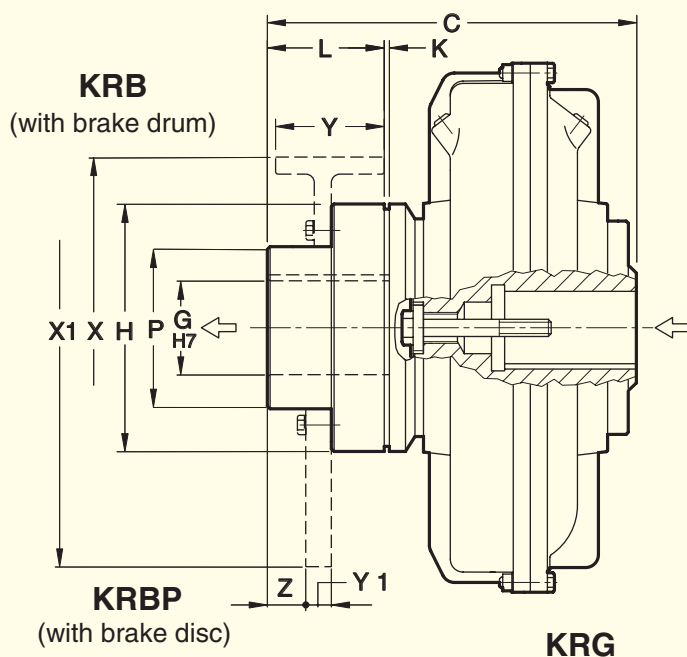
NB: The arrows ← indicate input and output in the standard version.

Dimensions

Size	D		J	A	B	B ₁	B ₂	C	C ₁	C ₂	E	F	I	M	N	O	P		Q	R	S		T	U	V	W	Z	
	•80	90			KR	CKR	CCKR	KR	CKR	CCKR							Nr.	Ø			M20	M24						
21	•80	90	170	620	205	110	200	260	360	450	45	250	400	160	228	5	8	M14	M36	130	M20	M24	14	255	40	15	30	
	••100	210	295					395	485	80	165									M24								
24	•80	90	170	714	229			260	360	450	21									130	M20	M24						
	••100	210	295					395	485	56	165									M24								
27	120 max	210	780	278	131	230	297	415	514	6	315	537	200	275	7	M16		M45	167	M24	(for max bore)	308		-	-	-	33	
29	135 max	240	860	295			326	444	543	18	350								167	M24								(for max bore)
34	150 max	265	1000	368			387	518	617	19	400								200	M36								

- D BORES WITH A KEYWAY ACCORDING TO ISO 773 - DIN 6885/1
- STANDARD DIMENSIONS WITH A KEYWAY ISO 773 - DIN 6885/1
- STANDARD DIMENSIONS WITH REDUCED KEYWAY (DIN 6885/2)
- SEE DRAWING
- WHEN ORDERING, SPECIFY: SIZE, MODEL, D DIAMETER
- EXAMPLE: 21CCKR - D 80

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE



NB: The arrows indicate input and output in the standard version.

Dimensions

	C	C ₁	C ₂	C ₃	C ₄	C ₅	G	G ₁	H	K	L	L ₁	P	Flex coupling (7)	Brake drum X - Y	Brake disc X ₁ - Y ₁	Z	Weight kg (without oil)					
	KRG	CKRG	CCKRG	KRD	CKRD	CCKRD	max											KRG	CKRG	CCKRG	KRD	CKRD	CCKRD
21 ⁽³⁾	433 ⁽³⁾	533 ⁽³⁾	623 ⁽³⁾	292 ⁽³⁾	392 ⁽³⁾	482 ⁽³⁾	110	90	290	3	140	120	170	BT60	400 - 150	560 - 30 630 - 30	45	129	139	147	99.5	109.5	117.5
24 ⁽³⁾															500 - 190	710 - 30 795 - 30		147	157	165	117.5	127.5	135.5
27	489	607	706	333	451	550	130	100	354	4	150	140	200	BT80	500 - 190	710 - 30 795 - 30	20	228	246	265	178	186	215
29	518	636	735	362	480	579												281	299	309	231	249	259
34	638	749	858	437	568	667	160	140	395	5	170	150	240	BT90	630 - 236	1000 - 30	18	496	472	482	358	373	383

(3) FOR BORES **D** 100 INCREASE DIMENSIONS BY 35 mm.

(7) **BT ELASTIC COUPLING WITH REPLACING RUBBER ELEMENTS WITHOUT MOVING THE MACHINES ARE UPON REQUEST. (DIMENSIONS AS PER TF 6412)**

– G₁ SHAFT WITH A KEYWAY ACCORDING TO ISO 773 - DIN 6885/1

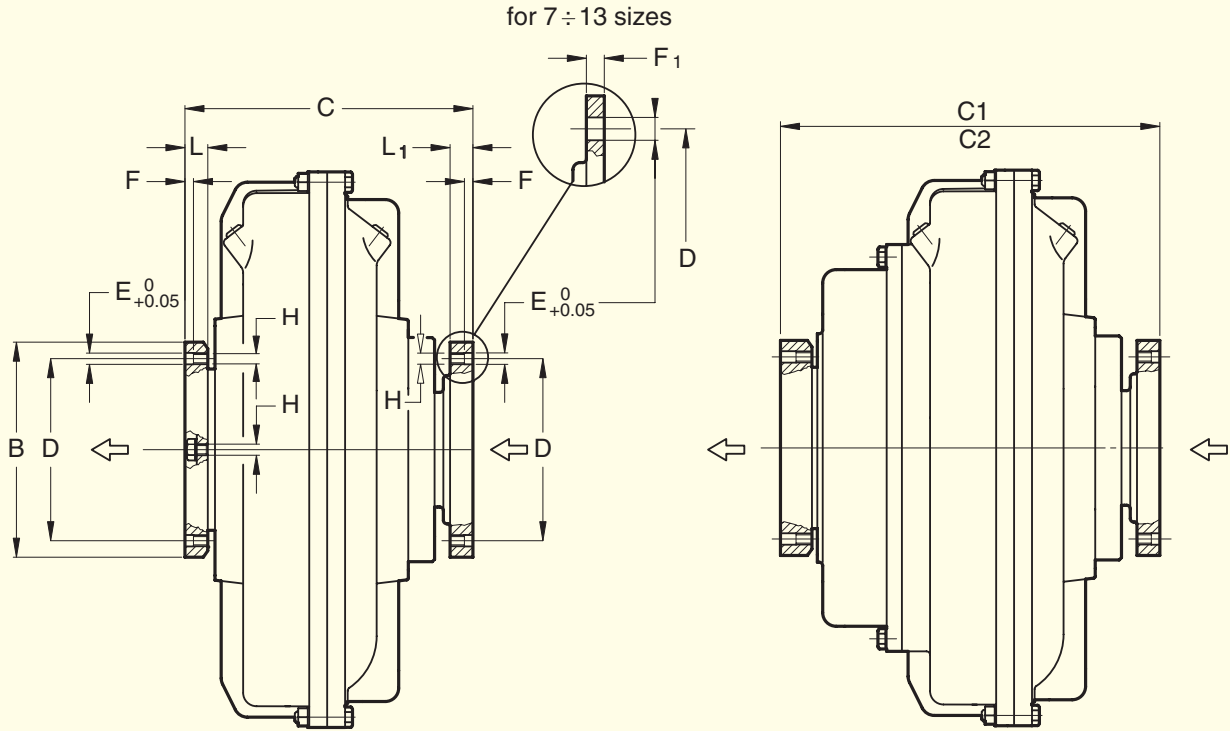
– UPON REQUEST, G FINISHED BORE AND G₁ SPECIAL SHAFT DIAMETER

– WHEN ORDERING, SPECIFY: SIZE - MODEL - **D** DIAMETER FOR ...KRB OR ...KRBP, SPECIFY **X** AND **Y** OR **X₁** AND **Y₁** DIMENSIONS BRAKE DRUM OR DISC

EXAMPLE: 19KRBP - D80 - BRAKE DISC 450 x 30

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

SERIES 7÷34 KCM – CKCM-CCKCM



KCM

CKCM - CCKCM

NB: The arrows indicate input and output in the standard version.

THIS FLUID COUPLING IS FORESEEN FOR THE ASSEMBLY OF HALF GEAR COUPLINGS

Dimensions

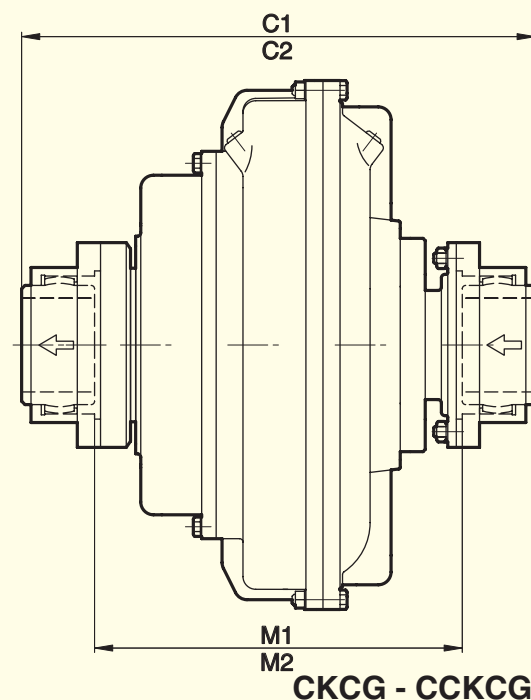
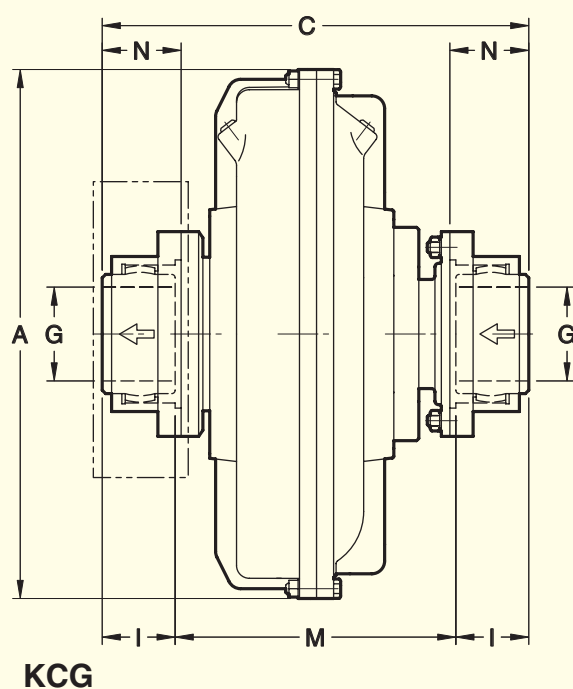
Size 	A	B	C	C ₁	C ₂	D	E		F	F ₁	H	L	L ₁	Weight kg (without oil)			Gear coupling size
			KCM	CKCM	CCKCM		Nr.	Ø						KCM	CKCM	CCKCM	
7	228	116	140	-	-	95.25	6	6.4	7	6.5	1/4 28 UNF	17	-	7.3	-	-	1" S
8	256		145											7.7			
9	295	152.5	189	-	-	122.22	8	9.57	7	6.5	3/8 24 UNF	18.5	-	14.9	16.9	19.4	1" 1/2 S
11	325		198											16.9			
12	370		198											20.5			
13	398		223.5	289.5								21		29.6	32.6		
15	460	213	251	319	367	180.975	6	15.87	6	-	5/8 11 UNC	23	22	50.5	54.5	62.2	2" 1/2 E (6)
17	520		275	355	435									65	71	80	
19	565													72	78	87	
21	620	240	316	416	506	206.375	8					31	25	104	114	122	3" E (6)
24	714													122	132	140	
27	780	280	408	526	625	241.3	8	19.05	22	-	3/4 10 UNC	51	51	194	213	232	3" 1/2 E
29	860		437	555	654									248	266	276	
34	1000	318	503	634	733	279.4						58	58	403	418	428	4" E

(6) GEAR COUPLING WITH SPECIAL CALIBRATED BOLTS

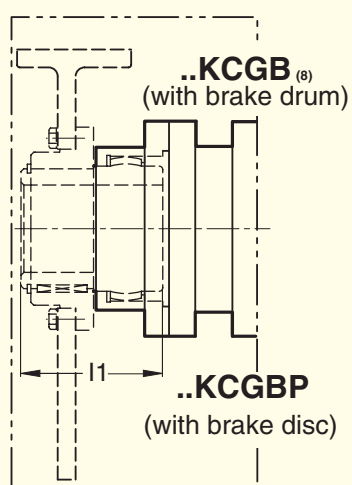
- WHEN ORDERING, SPECIFY: SIZE - MODEL

EXAMPLE: 34CCKCM

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE



NB: The arrows indicate input and output in the standard version.



Brake drum or disc upon request

⁽⁸⁾ For ..KCGB dimension
M - M1 - M2 may vary
(contact Transfluid)

FLUID COUPLING FITTED WITH HALF GEAR COUPLINGS, TO BE RADIALLY
DISASSEMBLED WITHOUT MOVING THE MACHINES

Dimensions

Size	Dimensions											Gear coupling	
	A	C	C ₁	C ₂	G	I	I ₁	M	M ₁	M ₂	N	Size	Weight Kg
	KCG	CKCG	CCKCG		max			KCG	CKCG	CCKCG			
7	228	229			50	43	101.6	143			44.5	1" S	4
8	256	234						148				(4)	
9	295	290.6						192					
11	325	299.6	345.6		65	49.3	114.3	201	247		50.8	1" 1/2 S	8
12	370	299.6	366.6					201	268				
13	398	325.1	385.1					226.5	286.5			(4)	
15	460	410	478	526				256	324	372			
17	520		514	594	95	77	149.4	280	360	440	79.5	2" 1/2 E	23.5
19	565	434										(5)(6)	
21	620	503	604	693	111	91	165.1	321	422	511	93.5	3" E	35.2
24	714											(5)(6)	
27	780	627	745	844	134	106.5	184.2	414	532	631	109.5	3" 1/2 E	56.6
29	860	656	774	873				443	561	660		(5)	
34	1000	750	881	980	160	120.5	203.2	509	640	739	123.5	4" E (5)	81.5

(4) S = SHROUDED SCREWS

(5) E = EXPOSED SCREWS

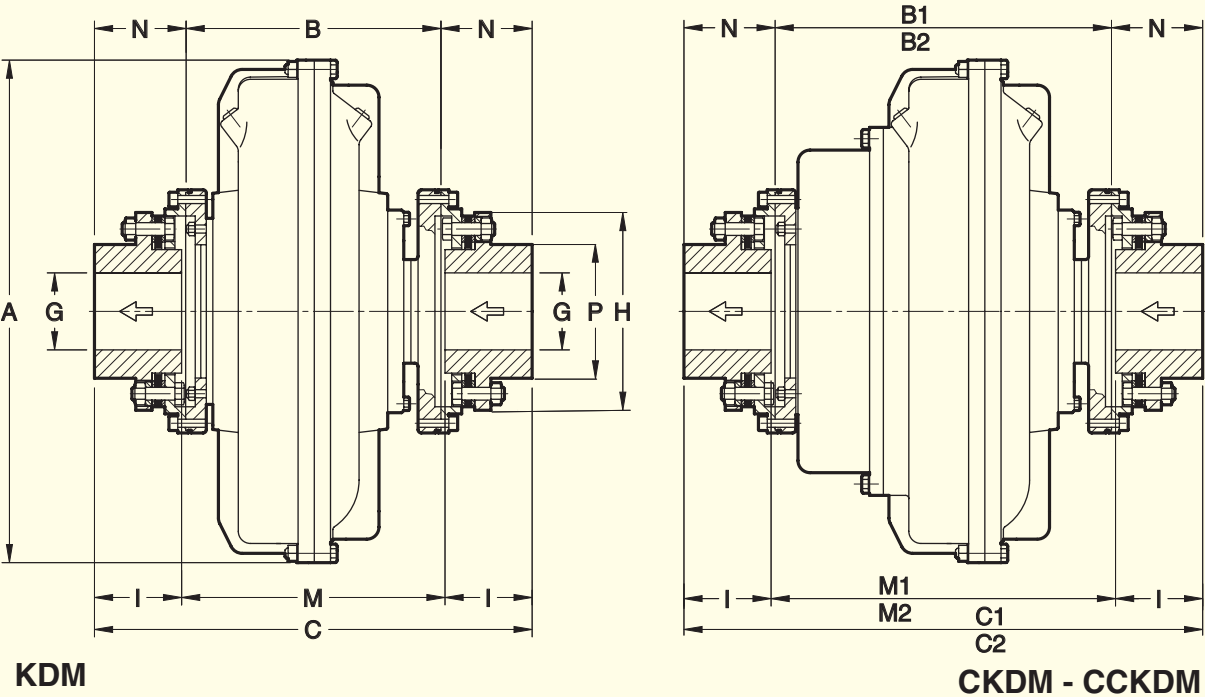
(6) GEAR COUPLING WITH SPECIAL CALIBRATED BOLTS

– WHEN ORDERING, SPECIFY: SIZE - MODEL

EXAMPLE: 21CKCG

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

SERIES 9÷34 KDM – CKDM - CCKDM



NB: The arrows indicate input and output in the standard version.

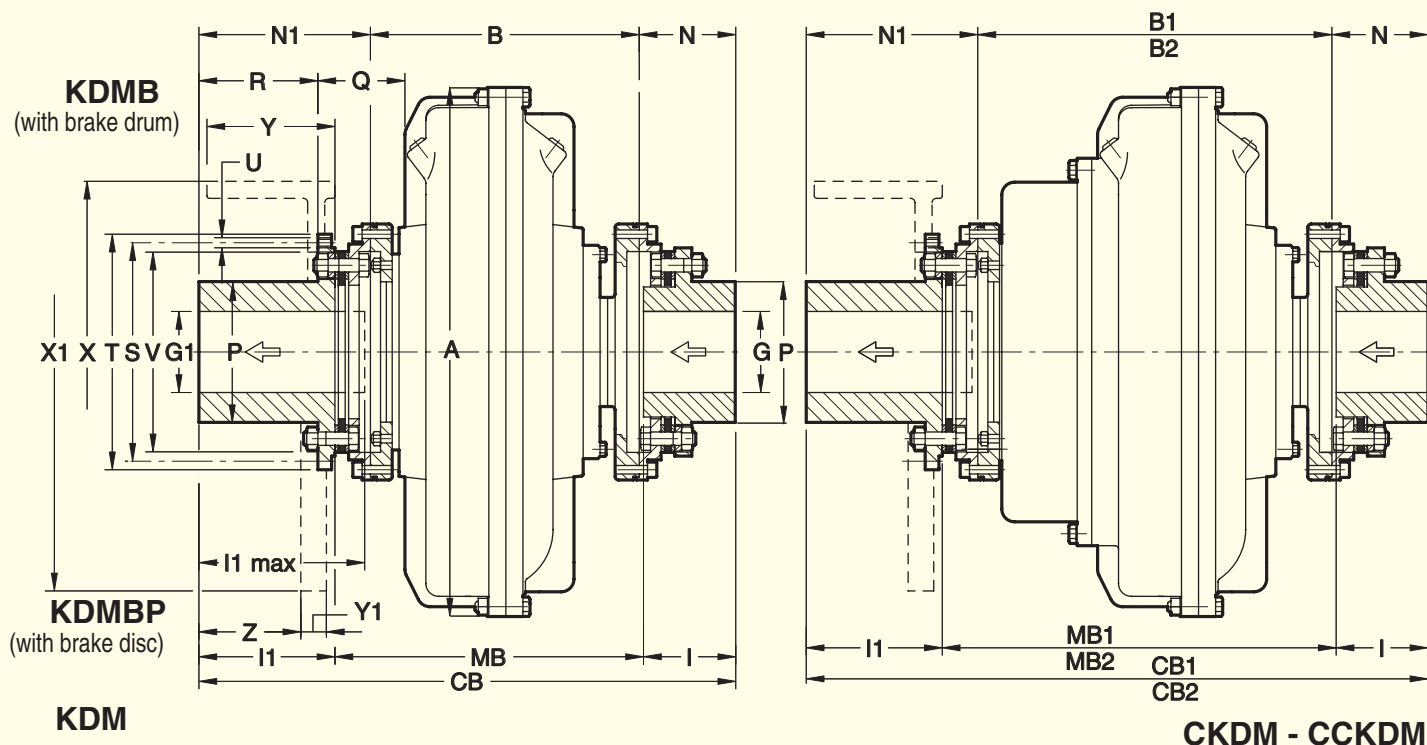
FLUID COUPLING FITTED WITH HALF DISC COUPLINGS, WITHOUT MAINTENANCE AND PRESCRIBED FOR PARTICULAR AMBIENT CONDITIONS. TO BE RADIALLY DISASSEMBLED WITHOUT MOVING THE MACHINES.

Dimensions

Size	A	B	B ₁	B ₂	C	C ₁	C ₂	G	H	I	M	M ₁	M ₂	N	P	Disc coupling size	Weight kg (without oil)		
		KDM	CKDM	CCKDM	KDM	CKDM	CCKDM	max			KDM	CKDM	CCKDM				KDM	CKDM	CCKDM
9	295	177	—	—	278	—	—	55	123	50	180	—	—	51.5	76	1055	20.5	—	—
11	325	186	232		289	335					189	235					22.5	25	
12	370		253			339						356	256				—		
13	398	216	276		339			399	65	147	60	219		279	61.5	88	1065	41.3	
15	460	246	314	362	391	459	507	75	166	70	251	319	367	72.5	104	1075	65	69	76.7
17	520	269	349	429	444	524	604	90	192	85	274	354	434	87.5	122	1085	89	95	104
19	565																96	102	111
21	620	315	415	505	540	640	730	115	244	110	320	420	510	112.5	154	1110	159	169	177
24	714																177	187	195
27	780	358	476	575	644	762	861	135	300	140	364	482	581	143	196	1140	289	307	326
29	860	387	505	604	673	790	890				393	511	610				342	360	370
34	1000	442	573	672	768	899	998	165	340	160	448	579	678	163	228	1160	556	555	565

- WHEN ORDERING, SPECIFY: SIZE - MODEL
 - FINISHED G BORE UPON REQUEST
- EXAMPLE: 27 CKDM

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE



NB: The arrows indicate input and output in the standard version.

LIKE KDM, BUT FORESEEN FOR A BRAKE DRUM OR DISC ASSEMBLY

Dimensions

Size	Brake drum X - Y	Brake disc X ₁ - Y ₁	Weight kg (without oil, brake drum and disc)		
			KDM	CKDM	CCKDM
12	200 - 75	on request	27	30	-
13			42.8	45.8	
15	250 - 95	450 - 30	69.3	73.3	81
17	315 - 118	500 - 30	99	105	114
19	400 - 150	560 - 30	105	112	125
21	400 - 150	630 - 30	179	189	197
24	500 - 190	710 - 30	197	207	215
27	500 - 190	800 - 30	317	335	354
29			370	388	398
34	on request	800 - 30 1000 - 30	599	587	597

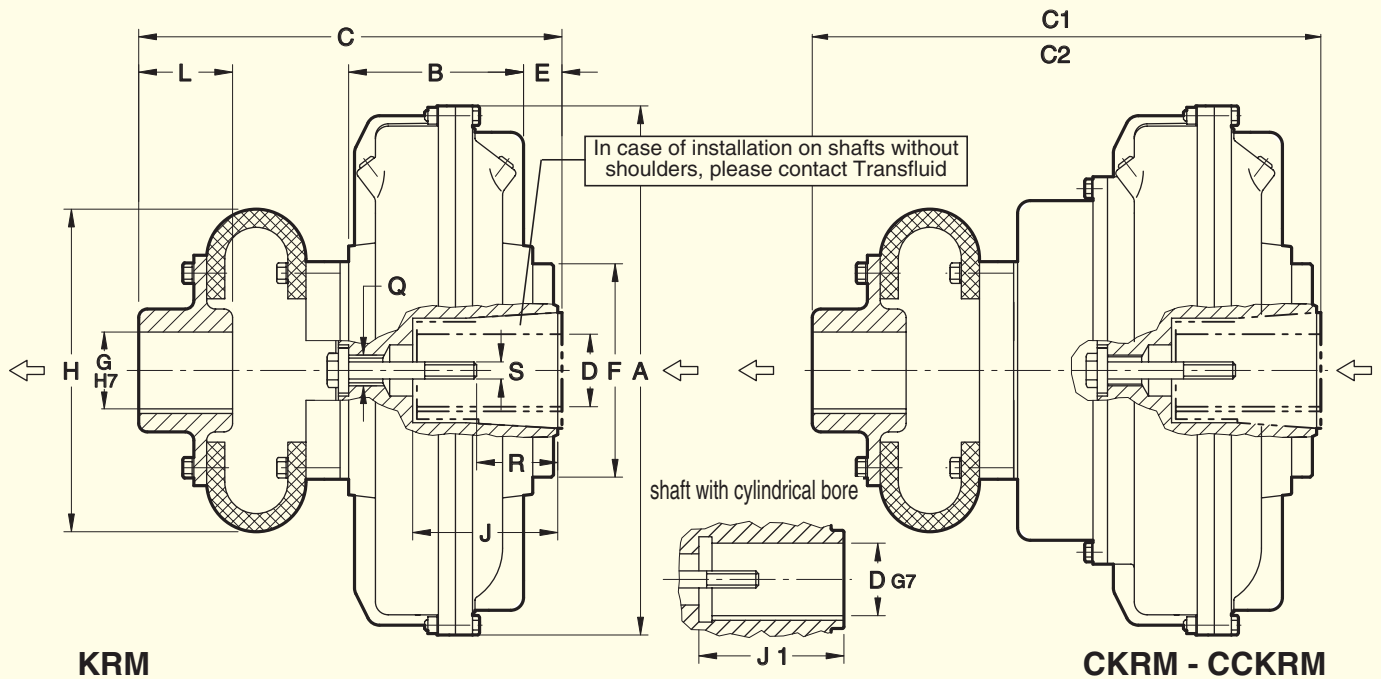
Dimensions

Size		A	B	B ₁	B ₂	CB	CB ₁	CB ₂	G	G ₁	I	I ₁		MB	MB ₁	MB ₂	N	N ₁	P	Q	R	S	T	U		V	Z	Disc coupling size		
		KDM	CKDM	CCKDM	KDM	CKDM	CCKDM	max	max		Std	max	KDM	CKDM	CCKDM		St					±0,1	f7	Nr.	Ø					
12	370	186	253	–	336.5	403.5	–	55	60	50	80		206.5	273.5	–	51.5	99	76	67	69	128	142	12	8	M8	114	–	1055		
13	398	216	276		440.5	500.5	–	65	70	60	140	170	240.5	300.5		61.5	163	88	78	129	155	170				140	1065			
15	460	246	314	362	495.5	563.5	611.5	75	80	70	150	275.5	343.5	391.5	72.5	177	104	98	134	175	192					157	109	1075		
17	520	269	349	429	548.5	628.5	708.5	90	95	85	160	210	303.5	383.5	463.5	87.5	192	122	107	143	204	224					185	118	1085	
19	565																		87											
21	620	315	415	505	628.5	728.5	818.5	115	120	110		240	358.5	458.5	548.5	112.5	201	154	133	137	256	276					M12	234	112	1110
24	714																		109											
27	780	358	476	575	731.5	849.5	948.5	135	145	140	180		411.5	529.5	628.5	143	230.5	196	107	155	315	338					M14	286	133	1140
29	860	387	505	604	760.5	878.5	977.5												109											
34	1000	442	573	672	845.5	976.5	1075.5	165	175	160			505.5	636.5	735.5	163	240.5	228	124	152	356	382					M16	325	130	1160

- WHEN ORDERING, SPECIFY: SIZE - MODEL
- G AND G₁ FINISHED BORES UPON REQUEST, AND SPECIAL I₁ DIMENSION
- FOR BRAKE DRUM OR DISC, SPECIFY DIMENSIONS X AND Y OR X₁ AND Y₁
EXAMPLE : 17KDMB - BRAKE DRUM 400 x 150

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

SERIES 9÷34 KRM – CKRM - CCKRM



NB: The arrows → indicate input and output in the standard version.

COUPLING ALLOWING HIGHER MISALIGNMENTS AND THE REPLACEMENT OF THE ELASTIC ELEMENTS WITHOUT MOVING THE MACHINES

→ Dimensions

TAPER BUSH VERSION

Size

	D		J	J ₁		A	B	C	C ₁	C ₂	E	F	G	H	L	Q	R		S		Elastic coupling	Weight kg (without oil)				
								KRM	CKRM	CCKRM			max									KRM	CKRM	CCKRM		
9	28	38	111	60	80	295	96	276	—	—	31	128	50	185	50	M 20	43	54	M 10	M 12	53 F	14.5	—	—		
	42***	—		80	—												79	M 16								
11	28	38		60	80	325	107	285	331		27	24		145	83		M 10	M 12	16.5	19						
	42***	48**		80	110												M 16									
12	38	42***		48**	80		370	122	352		28	177		65	228		72	42	56	M 12	83	M 16	55 F		20	23
	48**			80	110	84												M 16								
13	42	48	143	110		398	137	332	392	35	206	70	235	80	74	104	M 20	80	70	M 16	M 20	56 F	33	36		
	55***	60***		110	58.5										100	M 20										
15	48	55	145	110		460	151	367	435	483	37	225	75	288	90	M 27	80	70	M 16	M 20	58 F	48	52	59.7		
	60	65***		140													100	M 20								
17	48	55	145	110		520	170	380	460	540	37	225	75	288	90		80		M16	M20	58 F	67	73	82		
	60	65***		140													103	135	M20							
	75*	80*		—	140												170	105		135						
19	48	55	145	110		565	190	380	460	540	17	225	75	288	90		M 27	80		M16	M20	58 F	74	80	89	
	60	65***		140												103		135	M20							
	75*	80*		—	140											170		105		135	M20					

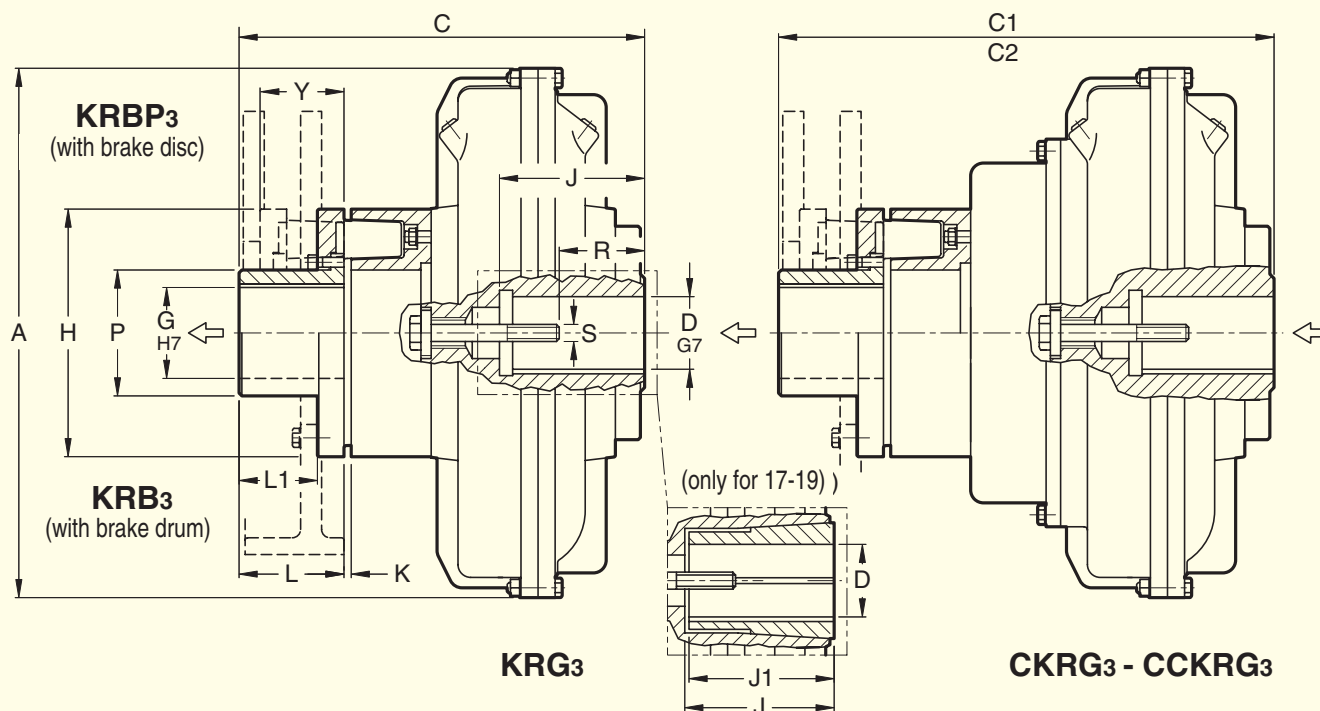
- D BORES RELATIVE TO TAPER BUSHES WITH A KEYWAY ACCORDING TO ISO 773 - DIN 6885/1
- CYLINDRICAL BORE WITHOUT TAPER BUSH WITH A KEYWAY ISO 773 - DIN 6885/1
- ** CYLINDRICAL BORE WITHOUT TAPER BUSH, WITH A REDUCED KEYWAY (DIN 6885/2)
- *** TAPER BUSH WITHOUT KEY WAY

CYLINDRICAL BORE VERSION

21	80*	90	-	170	620	205	496	596	686	45	250	90	378	110	M 36	130	M 20	M 24	65 F	124	134	142
	100**			210			531	631	721	80						165		M 24				
24	80*	90		170	714	229	496	596	686	21	130	M 20	M 24	66 F	142	152	160					
	100**			210			531	631	721	56	165		M 24									
27	120 max			210	780	278	525	643	742	6	315	100	462	122	M 45	167	M 24		66 F	211	229	248
				(for max bore)																		
29	135 max			240	860	295	577	695	794	18	350	120	530	145		167	M 24					
				(for max bore)																		
34	150 max			265	1000	368	648	779	878	19	400	140	630	165	200	M 36		610 F	467	482	492	
				(for max bore)																		


- D BORES WITH A KEYWAY ACCORDING TO ISO 773 - DIN 6885/1
- STANDARD DIMENSIONS WITH A KEYWAY ISO 773 - DIN 6885/1
- ** STANDARD DIMENSIONS WITH REDUCED KEYWAY (DIN 6885/2)
- WHEN ORDERING, SPECIFY: SIZE - SERIE D DIAMETER - EXAMPLE: 13 CKRM-D 55

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE



The three pieces flexible coupling **B3T**, allows the removal of the elastic elements (rubber blocks), without removal of the electric motor; only with the **..KRB3** (with brake drum) coupling the electric motor must be removed by the value of 'Y'.
'Y' = axial displacement male part of the coupling **B3T** necessary for the removal of the elastic elements.

Dimensions

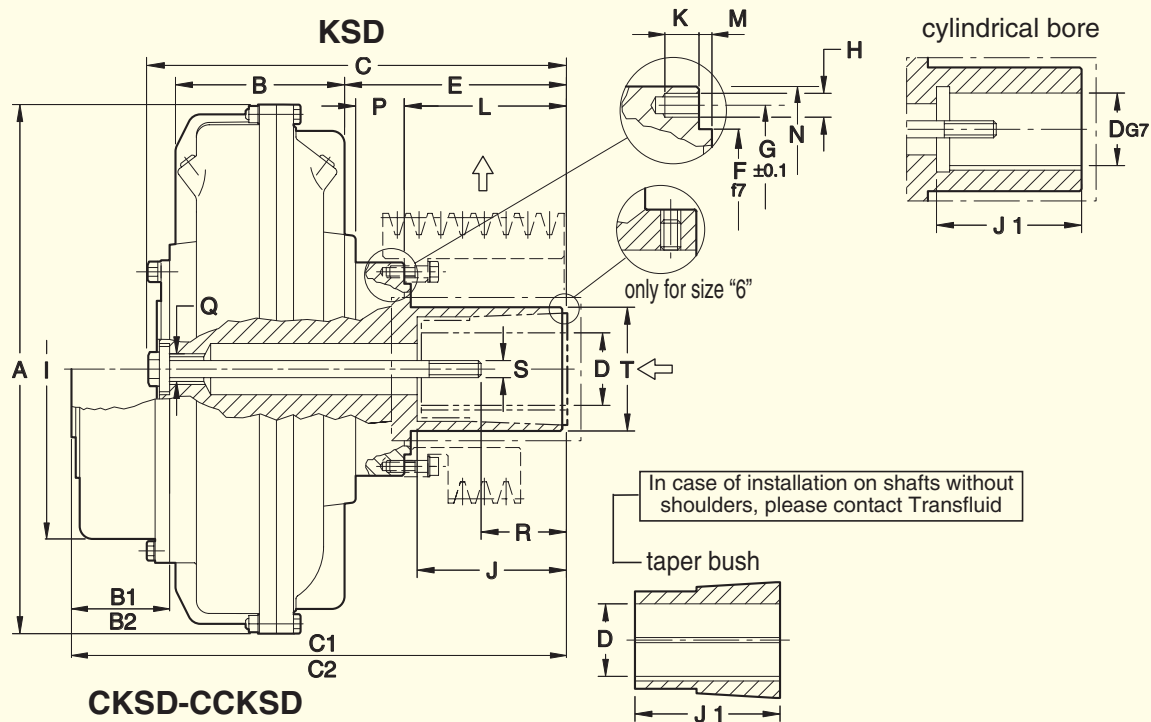
 Size	D		J	J ₁	A	C	C ₁	C ₂	G	H	K	L	L ₁	P	R		S		Y	Elastic coupling	Weight kg (without oil)		
									max												KRG ₃	CKRG ₃	CCKRG ₃
17	48	55	145	110	520	418	498	578	80	240	3	110	82	130	80		M16	M20	82	B3T-50	84	90	99
	60	65●●●		103											M20								
	75●	80●	—	140 - 170											103	132							
19	48	55	145	110	565	418	498	578	80	240	3	110	82	130	80		M16	M20	82	B3T-50	91	97	106
	60	65●●●		103											M20								
	75●	80●	—	140 - 170											103	132							

- D BORES RELEVANT TO TAPER BUSH WITH KEYWAY ACCORDING TO ISO773 - DIN6885/1
- STANDARD CYLINDRICAL BORES WITHOUT TAPER BUSH WITH KEYWAY ACCORDING TO ISO773 - DIN6885/1
- *** TAPER BUSH WITHOUT KEYWAY

21	80*	90	170	-	620	457	557	647	110	290	3	140	78	150	130		M20	M24	82	B3T-60	134	144	152
	100**		210			492	592	682							165		M24				152	162	170
24	80*	90	170		714	457	557	647	130	354	4	150	112	180	130		M20	M24	120	B3T-80	247	265	284
	100**		210			492	592	682							165		M24				300	318	328
27	120 max		210		780	566	684	783	130	395	5	170	119	205	167		M24		151	B3T- 90	505	481	491
29	135 max		240		860	595	713	812							for max hole						M36		505
34	150 max		265		1000	704	815	914	for max hole				M36										

- D CYLINDRICAL BORES WITHOUT TAPER BUSH WITH KEYWAY ACCORDING TO ISO773 - DIN6885/1
- STANDARD DIMENSIONS
- ** STANDARD DIMENSION WITH REDUCED HIGH KEYWAY (DIN 6885/2)
- ON ORDER FORM PLEASE SPECIFY: DIMENSION, MODEL, DIAMETER D - EXAMPLE: 21CCKRG3 - D80 DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

SERIES 6÷27 KSD - CKSD - CCKSD



NB: The arrows indicate input and output in the standard version.

TAPER BUSH VERSION

Size	D		J	J ₁		A	B	B ₁	B ₂	C	C ₁	C ₂	E	F	G	H		I	K	L	M	N	P	Q	R	S		T							
							KSD	CKSD	CKKSD	max	CKSD	CKKSD				Nr.	Ø											max							
6	•19		—	45		195	60	—	—	—	—	—	62	45	57	4	M 6	—	7	42	3	88	17	—	—	—	—	35							
7	19	24	69	40	50	228	77						159	75	90			—	—	—		—	—	—	—	—	35	114	14	M 12	29	38	M 6	M 8	50
	28			60		256	91						174	81	—			—	—	—		—	—	—	—	50	—	—	43		M 10				
8	24		111	50		295	96						—	250	116			96	114	8		195	13	85	5	128	20	M 20	33	M 8		69			
	28			60				274	327	125	112	130				98	7				145								22	54	83		M 12	M 16	
9	28	38	144	60	80	370	122	80	367	407	190	135	155	12	M 10	337	17	180	7	225	60	M 27	43	M 10		80									
	•••42			80																			259	289.5	113		—	—	—	—	—		—	—	—
11	28	38	113	60	80	325	107	73.5	274	327	125	112	130	8	M 8	224	13	98	7	145	22	M 20	38	59	M 10		M 12	100							
	•••42			80																			125	112	130		98		7	145	22	78	M 16		
12	38	42	144	80	110	370	122	80	367	407	125	112	130	8	M 8	224	13	98	7	145	22	M 20	54	83	M 12	M 16	132								
	•••48			110																			125	112	130	98			7	145	22	83	M 16		
13	42	48	145	110		460	151	92	140	390	438	486	195	150	178	12	M 10	259	17	159	7	206	28	M 27	76	M 16		88							
	•••55			•••60																					110	106			M 20						
15	48	55	145	110		520	170	101	181	455	516	596	180	200	12	M 10	337	17	180	7	225	60	M 27	76	106	M 20			100						
	60			•••65																				140	70	M 20									
17	48	55	145	110		520	170	101	181	455	516	596	180	200	12	M 10	337	17	180	7	225	60	M 27	100	M 20		132								
	60			•••65																				140	99	M 20									
19	•75	•80	—	140	170	565	190	101	181	455	516	596	180	200	12	M 10	337	17	180	7	225	60	M 27	99	139	M 20		132							
	60		•••65		140																			99	M 20										
21	•75	•80	—	140	170	565	190	101	181	455	516	596	180	200	12	M 10	337	17	180	7	225	60	M 27	99	139	M 20			132						
	60		•••65		140																			99	M 20										

- D BORES RELATIVE TO TAPER BUSHES WITH A KEYWAY ACCORDING TO ISO 773 - DIN 6885/1
- PARTICULAR CASES:
- CYLINDRICAL BORE WITHOUT TAPER BUSH ISO 773 - DIN 6885/1
- TAPER BUSH WITHOUT A KEYWAY

CYLINDRICAL BORE VERSION

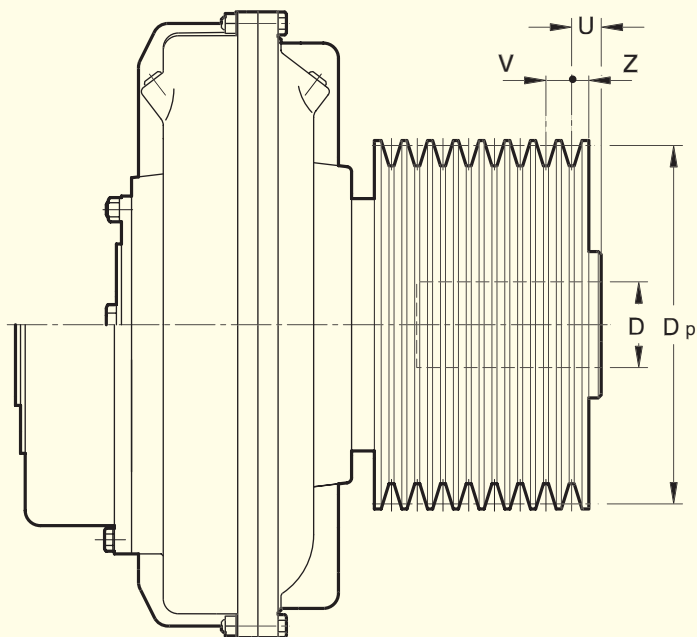
21	•80	-	170	620	205	115	205	505	580	670	260	200	228	8	M 14	400	20	190	7	250	57	M 36	135	M 20	145
	•100		210	545	620			710	300	230	165							M 24							
24	•80		170	714	229			505	580	670	236							190			135		M 20		
	•100		210					545	620	710	276							230			165		M 24		
27	120 max		210	780	278			138	CONSULT OUR ENGINEERS																

CONSULT OUR ENGINEERS

- STANDARD CYLINDRICAL BORES WITH KEYWAYS ACCORDING TO ISO 773 - DIN 6885/1
- WHEN ORDERING SPECIFY: SIZE - MODEL - D DIAMETER
- EXAMPLE: 12KSD - D 42

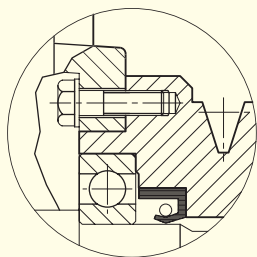
DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

KSI - KSDF

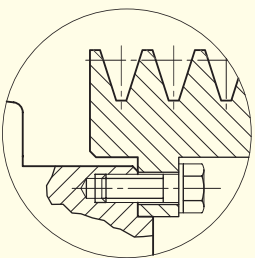


..CKSI - ..CKSDF

...KSI



..KSDF



Dimensions

Dimensions

Size	D	U	Integral pulley	
			Dp	N° type
6	19	24	63 80 100	2 - SPA/A
7	19 - 24	11.5	90	
			100	
	28	26.5	80 90 100	
8	19 - 24	26.5	90	3 - SPA/A
	28		100	
9	28 - 38	10	112	5 - SPA/A
11	42	15	125	4 - SPB/B
12	38 - 42	12	140	5 - SPB/B
	48			

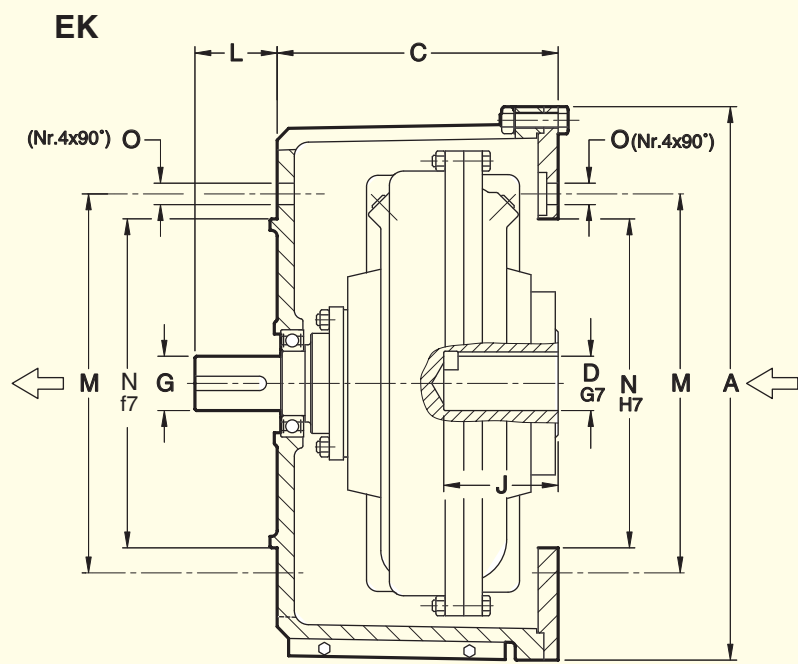
GROOVE	V	Z
SPZ-Z	12	8
SPA-A	15	10
SPB-B	19	12.5
SPC/C	25.5	17
D	37	24
3 V	10.3	8.7
5 V	17.5	12.7
8 V	28.6	19

Dimensions

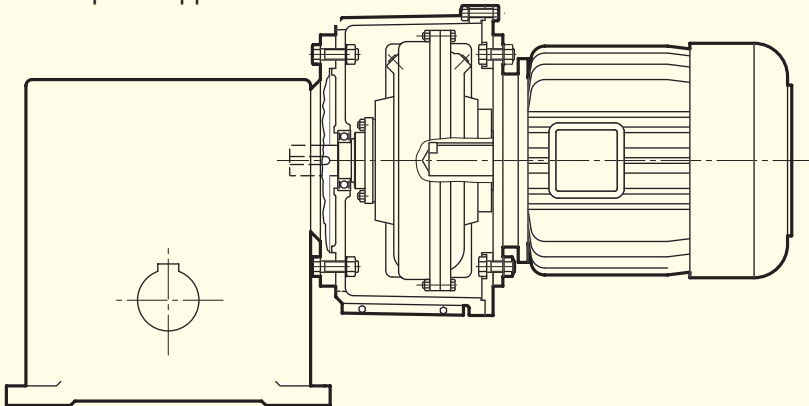
Size	D	U	Flanged pulley	
			Dp	N° type
7	19 - 24	6	125	2 - SPA/A
	28	21		
8	19 - 24	36	125	3 - SPA/A
	28	9	112	
9	28 - 38	34	160	4 - SPB/B
11	42	58	200	3 - SPB/B
12	38 - 42	50	180	4 - SPB/B
		51	200	3 - SPC/C
	48	26	200	4 - SPC/C
13	42 - 48	12.5	180	6 - SPB/B
		50	250	6 - SPB/B
	55 - 60	49	250	5 - SPC/C
15	48 - 55	12.5	200	6 - SPB/B
		17	250	5 - SPC/C
	60 - 65	69	280	5 - SPB/B
		72.5	280	6 - SPB/B
17	65 - 75	35.5	310	6 - SPC/C
		72	315	6 - SPB/B
	80	59	345	6 - SPC/C
		45		6 - SPC/C
21	80	20	400	8 - SPC/C
		45		6 - SPC/C
	100	20		8 - SPC/C
24				
27	120 max	15	400	12 - SPC/C

– WHEN ORDERING, SPECIFY: SIZE - MODEL - D DIAMETER - Dp - NUMBER AND TYPE OF GROOVES
EXAMPLE: 13 CKSDF - D55 - PULLEY Dp. 250 - 5 SPC/C


DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE



Example of application



NB: The arrows indicate input and output in the standard version.



Size

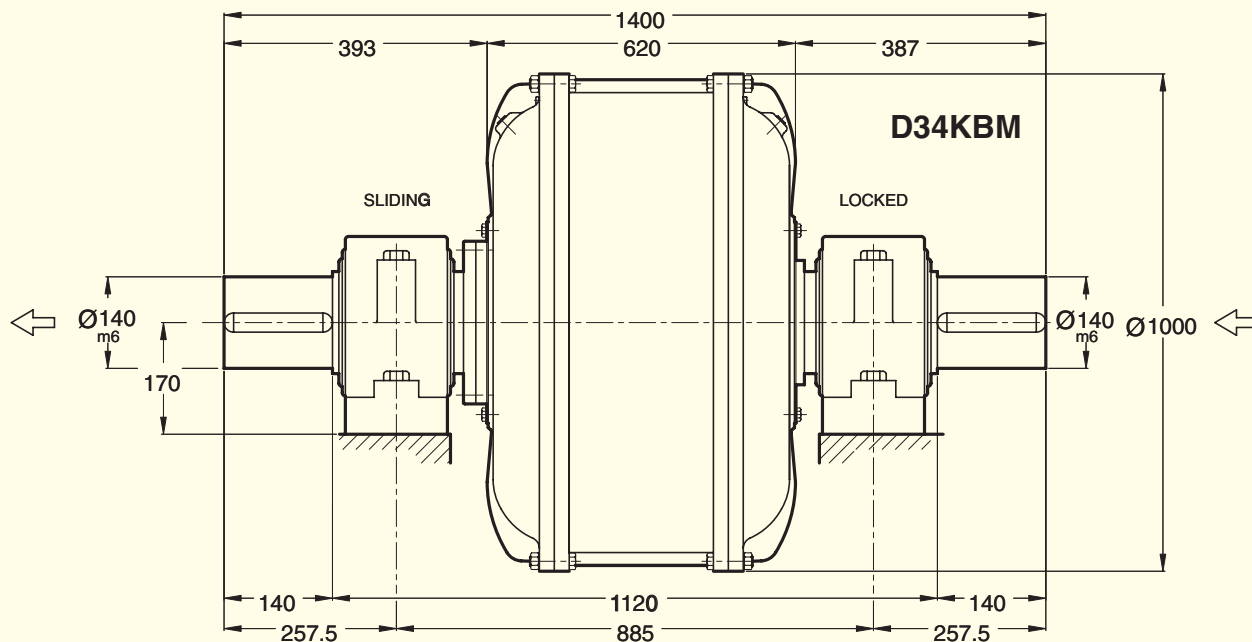
Dimensions

	D	J	G	L	A	C	M	N	O	Weight Kg (without oil)	OIL max lt	Electric Motors	
												TYPE	kW 1500 r.p.m.
6	14	35	14	28	248	110	130	110	9	5.3	0.50	71	0.37
	• 19	45	19	33			165	130	11			80	0.55 - 0.75
	24	55	24	38								90 S	1.1
7	• 24	52	24	38	269	132	165	130	11	11.4	0.92	90S - 90L ** 90LL	1.1 - 1.5 1.8
8	• 28	62	28	44	299	142	215	180	13	12.2	1.5	100 L 112 M	2.2 - 3 4
9	• 38	82	38	57	399	187	265	230	13	26.9	1.95	132S - 132 M ** 132L	5.5 - 7.5 9.2
11	• 42	112	42	63	399	187	300	250	17	28.3	2.75	160M - 160 L	11 - 15
12	•• 48	112	48	65	485	214	300	250	17	66	4.1	180 M 180 L	18.5 22
13	• 55	112	55	80			350	300		76	5.2	200 L	30

- CYLINDRICAL BORE WITH A KEYWAY ISO 773 - DIN 6885/1
 - CYLINDRICAL BORE WITH A REDUCED KEYWAY (DIN 6885/2)
 - ** NOT STANDARD
- WHEN ORDERING SPECIFY: SIZE - MODEL **D** - DIAMETER
EXAMPLE: 8 EK-D28 – G 28

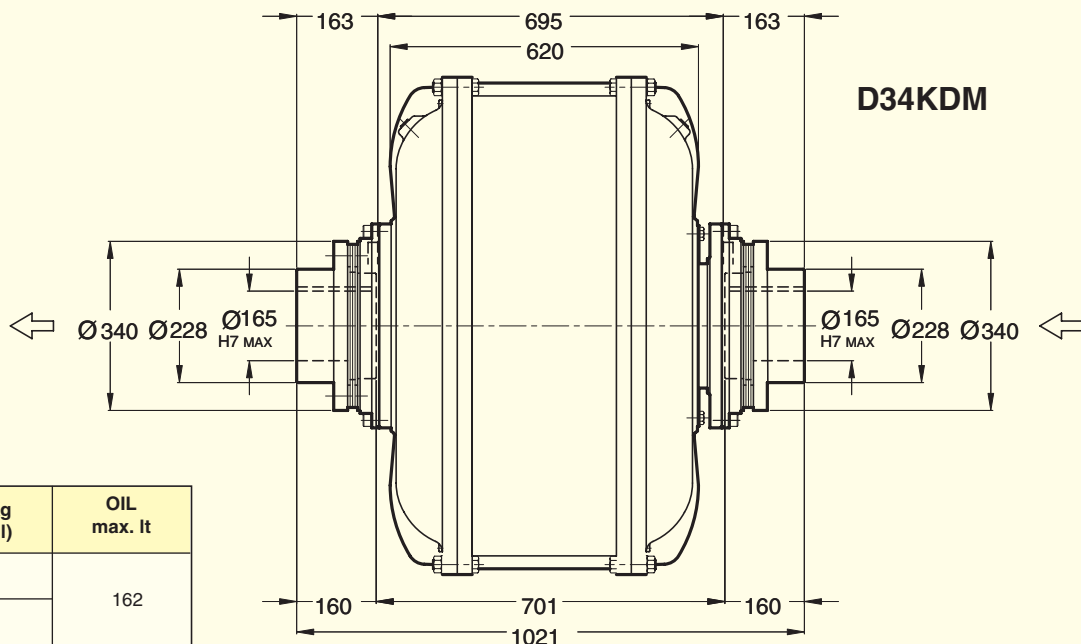
DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

FLUID COUPLING WITH DOUBLE CIRCUIT, FITTED WITH MAIN JOURNALS AND INPUT AND OUTPUT SHAFTS



KEYWAYS ACCORDING TO ISO 773 - DIN 6885/1

FLUID COUPLING FITTED WITH DOUBLE CIRCUIT, WITH HALF DISC COUPLINGS, WITHOUT MAINTENANCE AND PRESCRIBED FOR PARTICULAR AMBIENT CONDITIONS. TO BE RADIALY DISASSEMBLED WITHOUT MOVING THE MACHINES.



SERIES	WEIGHT Kg (without oil)	OIL max. lt
D34KBM	810	162
D34KDM	880	

NB: The arrows ← indicate input and output in the standard version.

9. FILLING

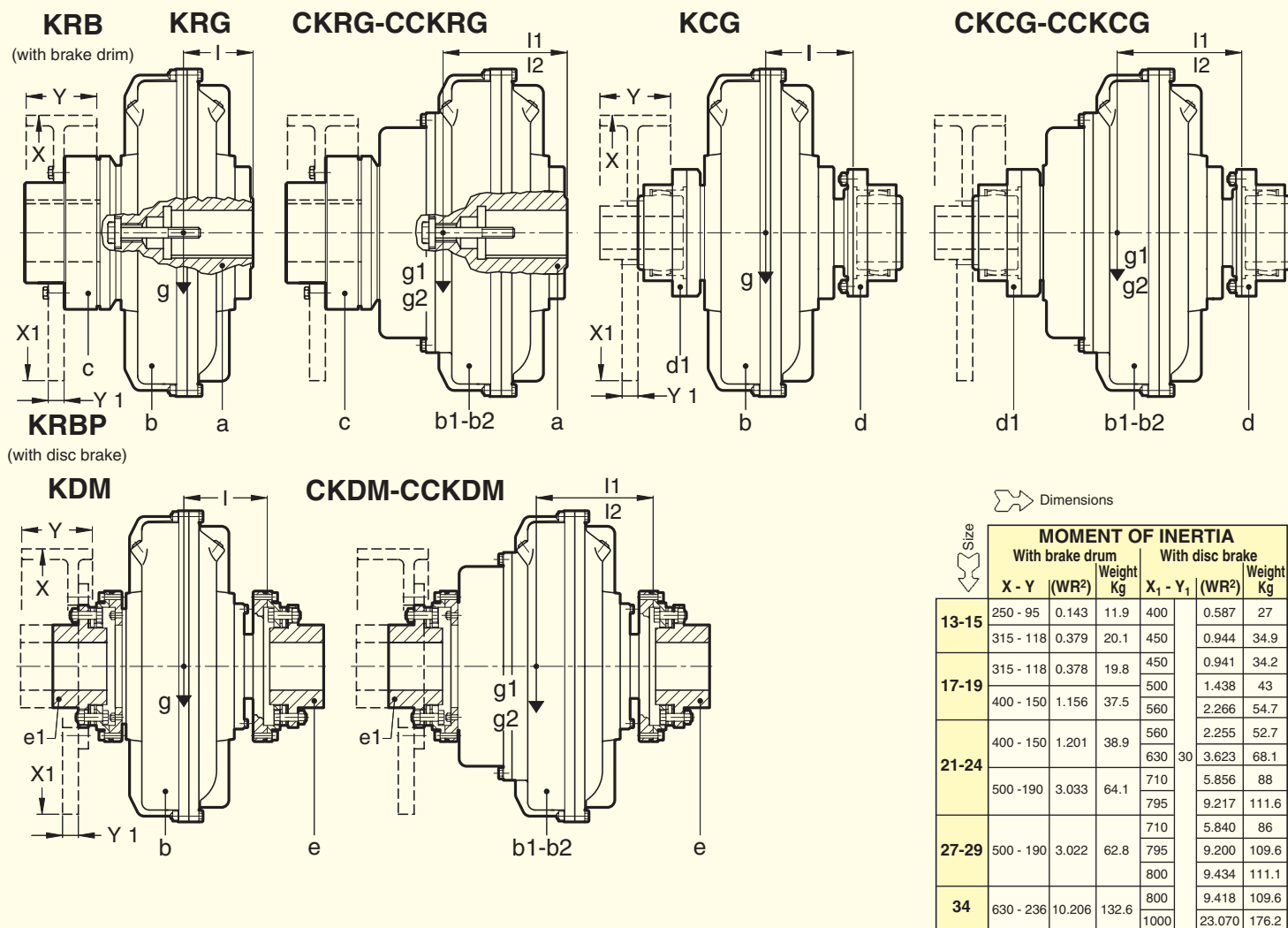
Transfluid hydraulic couplings are supplied without oil.
Standard filling: X for K series, 2 for CK series, and 3 for CCK series.

The quantities are indicated on page 11 and 13 of this catalog.
Follow the procedure indicated on Installation and Maintenance manuals 150 GB and 155 GB delivered with each coupling.

Suggested oil: **ISO32 HM** for normal operating temperatures.
For temperatures near zero, **ISO FD 10 (SAE 5W)** and for temperatures - 10° contact Transfluid.

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

CENTER OF GRAVITY MOMENT OF INERTIA



Dimensions: Dimensions

Size: Size

	KRG		CKRG		CCKRG		KCG		CKCG		CCKCG		KDM		CKDM		CCKDM	
	g Kg	l mm	g ₁ Kg	l ₁ mm	g ₂ Kg	l ₂ mm	g Kg	l mm	g ₁ Kg	l ₁ mm	g ₂ Kg	l ₂ mm	g Kg	l mm	g ₁ Kg	l ₁ mm	g ₂ Kg	l ₂ mm
6	4.3	8.4																
7	9.1	107					12.1	70										
8	10	108					13	73										
9	17.7	134					24.6	86					22.2	81				
11	20.4	136	23.4	151			27.3	93	30.2	107			24.9	85	27.9	98		
12	25.1	142	28.7	154			32.1	98	35.6	113			29.6	92	33.2	104		
13	38.5	157	42	176			42.2	104	45.7	115			45.8	101	49.3	109		
15	57	174	61.8	195	70.2	216	80.7	124	85.5	135	93.8	147	71.7	121.5	76.5	130	85.7	145
17	87.2	205	94.8	225	106.5	238	88.7	138	106.5	152	130	185	99.2	135	106.9	145	118.3	163
19	96.4	201	104.4	221	116	227	108	157	116	152	139.4	182	108.4	156	116.4	145	127.4	161
21	145.6	233	159	265	169.3	288	156	157	169.3	174	205	211	175.6	156	189	168	201	182
24	172	227	184	255	195.5	280	182	157	195	170	230	201	202	156	214.3	166	226	178
27	265	262	290	298	313	338	287	185	313	210	370	248	326	164	351	174	378	195
29	329	277	354	305	368	321	353	198	368	218	424	251	383	176	411	188	432	200
34	521	333	549	364	580	376	557	235	580	243	591	250	628	209	636	214	650	222

g-g₁-g₂ = TOTAL WEIGHT, INCLUDING OIL (MAX FILL)

MOMENT OF INERTIA J (WR ²)								
a	b	b ₁	b ₂	c	d	e	d ₁	e ₁
0.003	0.008	-	-	0.001	-	-	-	-
0.006	0.019			0.004	0.004	0.0004	0.004	-
0.012	0.034							
0.020	0.068							
0.039	0.109	0.217	-	0.011	0.017	0.016	0.014	0.016
0.072	0.189							
0.122	0.307							
0.236	0.591							
0.465	1.025	1.281	1.372	0.192	0.091	0.101	0.121	0.125
0.770	1.533	1.788	1.879					
1.244	2.407	2.997	3.181					
2.546	4.646	5.236	5.420					
3.278	7.353	9.410	10.037	1.350	0.500	0.486	0.934	0.887
4.750	11.070	13.126	13.754					
11.950	27.299	29.356	29.983					
				3.185	0.798	1.649	1.565	2.773

a = INTERNAL ELEMENT - b = EXTERNAL ELEMENT + COVER
b₁ = b + DELAY CHAMBER - b₂ = b + DOUBLE DELAY CHAMBER
c FLEXIBLE COUPLING
d-e = HALF FLEXIBLE COUPLING (INTERNAL ELEMENT)
d₁-e₁ = HALF FLEXIBLE COUPLING (EXTERNAL ELEMENT)

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

10. SAFETY DEVICES

FUSIBLE PLUG

In case of overloads, or when slip reaches very high values, oil temperature increases excessively, damaging oil seals and consequently allowing leakage.

To avoid damage when used in severe applications, it is advisable to fit a fusible plug. Fluid couplings are supplied with a fusible plug at 140°C (120°C or 198°C upon request).

SWITCHING PIN

Oil venting from fusible plug may be avoided with the installation of a switching pin. When the temperature reaches the melting point of the fusible ring element, a pin releases that intercepts a relay cam that can be used for an alarm or stopping the main motor.

As for the fusible plug, 2 different fusible rings are available (see page 26).

10.1 SWITCHING PIN DEVICE

This device includes a percussion fusible plug installed on the taper plug pos. 13 (Fig. 6).

The percussion fusible plug is made of a threaded plug and a pin held by a fusible ring coming out due to the centrifugal force when the foreseen melting temperature is reached.

Such increase of temperature can be due to overload, machinery blockage or insufficient oil filling. The pin, moving by approx. 16 mm, intercepts the cam of the switch to operate an alarm or motor trip signal.

After a possible intervention and removal of the producing reason, this device can be easily restored with the replacement of the percussion plug or even the fusible ring following the specific instructions included in the instruction manual.

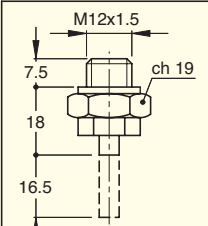
With external wheel as driver, as indicated in Fig. 6, the percussion plug operates in any condition, while in case of driven external wheel it can operate correctly only in case of increase of the slip due to overload or excessive absorption.

It is possible to install this system on all fluid couplings starting from size 13K even in case it has not been included as initial supply, asking for a kit including percussion fusible plug, gasket, taper plug, counterweight for balancing, glue, installation instructions.

In order to increase the safety of the fluid coupling a standard fusible plug is always installed, set at a temperature greater than that of the percussion fusible plug.

For a correct operation, please refer to the instructions relevant to the standard or reverse installation described at page 29.

Switching pin

	MELTING TEMPERATURE $+10^{\circ}\text{C}$ 0		
	120°C	SPEC.	1004-A
	140°C	SPEC.	1004-B

ELECTRONIC OVERLOAD CONTROLLER

This device consists of a proximity sensors measuring the speed variation between the input and output of the fluid coupling and giving an alarm signal or stopping the motor in case the set threshold is overcome.

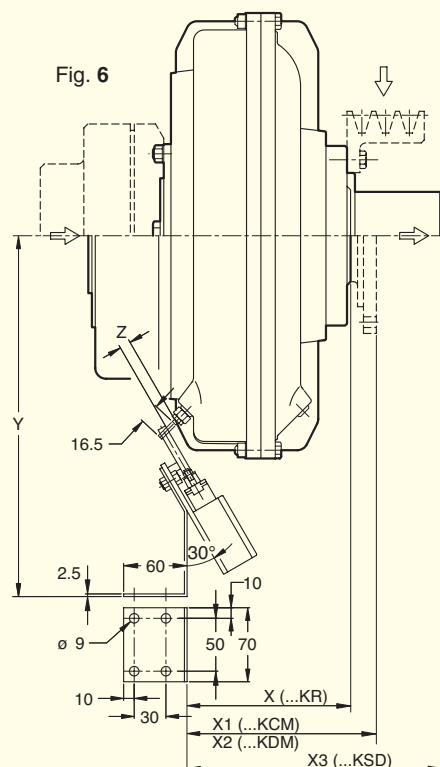
With such a device, as well as with the infrared temperature controller, no further maintenance or repair intervention is necessary after the overload occurrence, because the machinery can operate normally, once the cause of the inconvenience has been removed (see page 27).

INFRARED TEMPERATURE CONTROLLER

To measure the operating temperature, a device fitted with an infrared sensor is available. After conveniently positioning it by the fluid coupling, it allows a very precise non-contact temperature measurement.

Temperature values are reported on a display that also allows the setting of 2 alarm thresholds, that can be used by the customer (see page 28).

Fig. 6



DIM.	X	X ₁	X ₂	X ₃	Ø	Y	Z
7	95	108	—	128 143	24 28	262	—
8	104	117	—	167	—	272	—
9	123	146.5	136	210	—	287.5	—
11	130	153.5	143	216	—	300.5	—
12	140	163.5	153	241	—	323	15
13	154	177.5	170	316	—	335	16
15	177	200	199	337	—	358	16
17	197	220	218	405	—	382	12
19	189	212	210	397	—	400.5	9
21	•236	261	260	••451	—	423	8
24	•237	262	261	••452	—	460	4
27	251	311	277	—	—	491	9
29	276	336	302	—	—	524	8
34	326	393	353	—	—	584	4

- For Dia. 100 + 35 mm
 - For Dia. 100 + 40 mm
- REFERENCE DIMENSIONS

DIMENSIONS ARE SUBJECT TO ALTERATION WITHOUT NOTICE

SAFETY DEVICES OPERATION

10.2 OVERLOAD CONTROLLER (Fig. 7)

When load torque increases, slip also increases and output speed consequently decreases.

The said speed variation can be measured by means of a sensor sending a pulse train to the speed controller. If the rotating speed goes lower than the set threshold (see diagram) on the controller, a signal is given through the intervention of the inner relay.

The device has a "TC" timer with a blind time before starting (1 - 120 s) avoiding the alarm intervention during the starting phase, and another "T" timer (1 - 30 s) preventing from undesired relay intervention during sudden changes of torque.

The device also provides a speed proportional analogic output signal (0 - 10 V), that can be forwarded to a display or a signal transducer (4 - 20 mA).

Standard supply is 230 V ac, other supplies are available upon request: 115 V ac, 24 V ac or 24 V dc, to be specified with the order.

CONTROLLER PANEL (Fig. 8)

(TC) Blind time for starting

Set screw regulation up to 120 s.

(DS) Speed range regulation

Programmable DIP-SWITCH (5 positions), selecting relay status, proximity type, reset system, acceleration or deceleration. Programming speed Dip-Switch with 8 positions allows to choose the most suitable speed range, according to the application being performed.

(SV) Speed level (set point)

Set screw regulation with digits from 0 to 10. The value 10 corresponds to full range set with Dip-Switch.

(R) Reset

Local manual reset is possible through R button, or remote reset by connecting a N.O. contact at pins 2-13.

(SS) Threshold overtaking

(RED LED) It lights up every time that the set threshold (set point) is overtaken.

(A) Alarm led

(RED LED) It lights up when alarm is ON and the inner relay is closed.

(E) Enable

(YELLOW LED) It lights up when the device is enabled.

(T) Delay time

Set screw regulation up to 30 s.

(ON) Supply

(GREEN LED) It shows that the device is electrically supplied.

FOR FURTHER DETAILS, ASK FOR TF 5800-A.

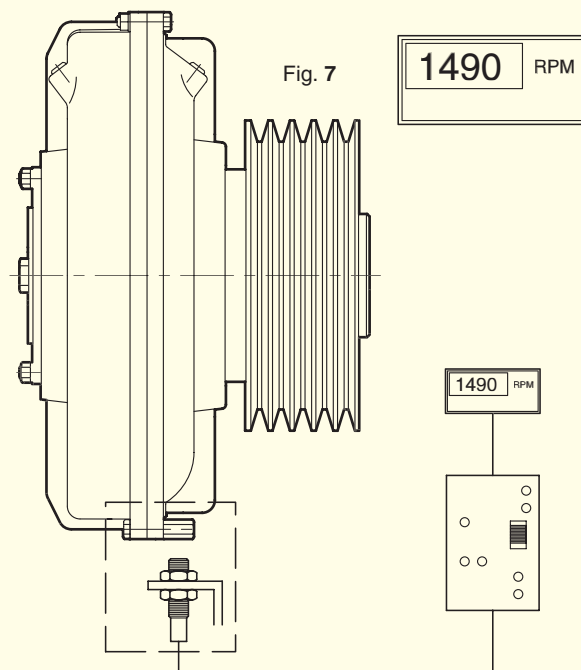


Fig. 7

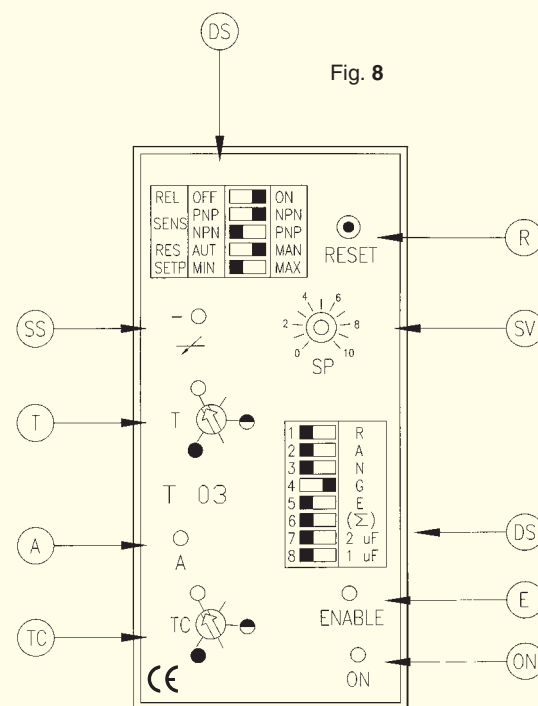
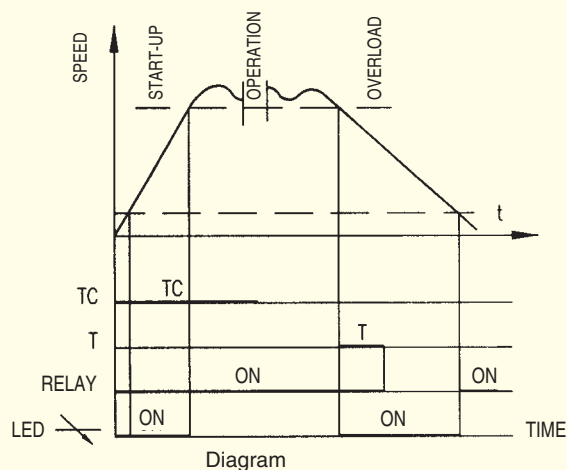


Fig. 8



Diagram

10.3 INFRARED TEMPERATURE CONTROLLER

This is a non contact system used to check fluid coupling temperature. It is reliable and easily mounted. It has 2 adjustable thresholds with one logical alarm and one relay alarm.

The proximity sensor must be positioned near the fluid coupling outer impeller or cover, according to one of the layouts shown in Fig. 9.

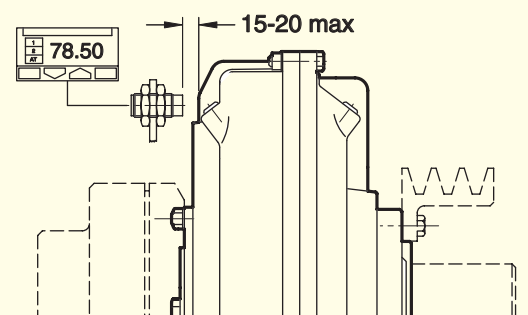
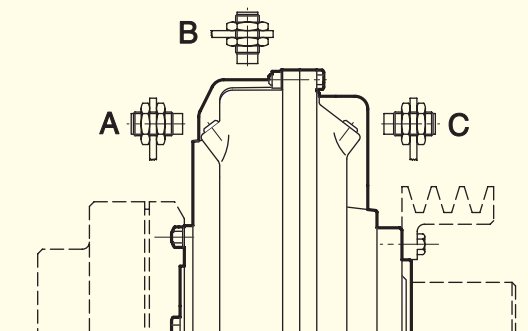
It is advised to place it in the **A** or **C** positions, as the air flow generated by the fluid coupling, during rotation, helps removal dirt particles that may lay on the sensor lens.

The distance between the sensor and the fluid coupling must be about 15-20 mm (cooling fins do not disturb the correct operation of the sensor).

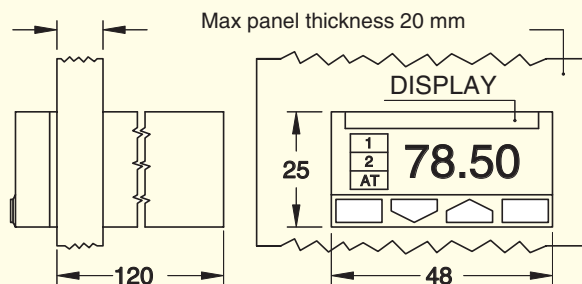
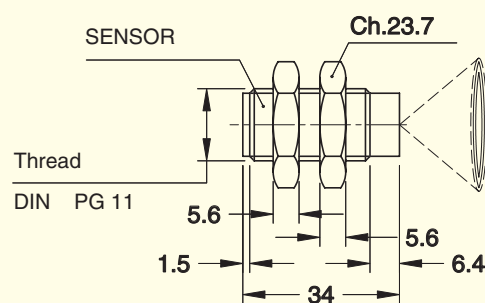
To avoid that the bright surface of the fluid coupling reflects light, and thus compromises a correct temperature reading, it is necessary to paint the surface, directly facing the sensor with a flat black colour (a stripe of 6-7 cm is sufficient).

The sensor cable has a standard length of 90 cm. If required, a longer one may be used only if plaited and shielded as per type "K" thermocouples.

Fig. 9



SENSOR	
Temperature range	0 ÷ 200 °C
Ambient temperature	-18 ÷ 70 °C
Accuracy	0.0001 °C
Dimensions	32.5 x 20 mm
Standard wire length •	0.9 m
Body	ABS
Protection	IP 65
CONTROLLER	
Power supply	85...264 Vac / 48...63 Hz
Relay output OP1	NO (2A – 250V)
Logical output OP2	Not insulated
(5Vdc, ±10%, 30 mA max)	
AL1 alarm (display)	Logic (OP2)
AL2 alarm (display)	Relay (OP1) (NO, 2A / 250Vac)
Pins protection	IP 20
Body protection	IP 30
Display protection	IP 65
Dimensions	1/32 DIN – 48x24x120 mm
Weight	100 gr



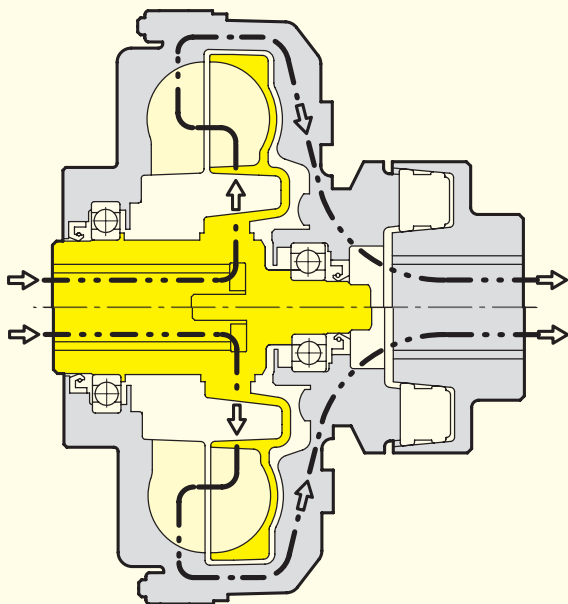
• TO BE MADE LONGER WITH TWISTED AND SHIELDED WIRES FOR TYPE K THERMOCOUPLES (NOT SUPPLIED)

STANDARD OR REVERSE MOUNTING

11. INSTALLATION

11.1 STANDARD MOUNTING

Driver **inner** impeller



Minimum possible inertia is added to the motor, and therefore free to accelerate more quickly.

During the starting phase, the outer impeller gradually reaches the steady running condition. **For very long starting times, heat dissipation capacity is lower.**

If a braking system is required, it is **convenient and easy to install a brake drum or disc** on the flex coupling.

In some cases, where the driven machine cannot be rotated by hand, **maintenance procedures of oil checking and refilling, as well as alignment, become more difficult.**

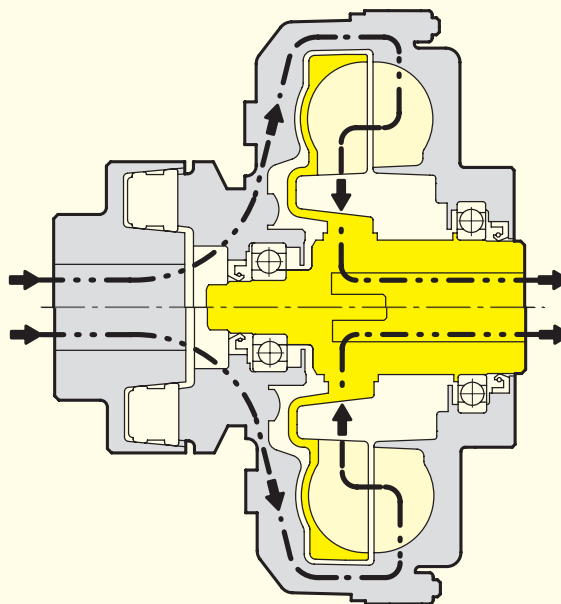
The delayed fill chamber, when present, is fitted on the driven side. The rotating speed of the said chamber gradually increases during start-up, thus **leading to a longer starting time**, assuming the bleed orifices diameters are not changed. **If oil quantity is excessively reduced**, the transmissible torque may be lower than the starting torque of the driven machine. In such a case, part of the oil remains inside the delayed chamber. This lack of oil in the fluid coupling may cause stalling.

The “switching pin” device **might not work correctly** on machines where, owing to irregular operating conditions, the driven side may suddenly stop or jam during the starting phase.

Flex coupling is protected by the placement of the fluid coupling before it, and therefore this **configuration is fit for** applications with **frequent start-ups or inversions** of the rotating sense.

11.2 REVERSE MOUNTING

Driver **outer** impeller



Higher inertia directly connected to the motor.

The outer impeller, being directly connected to the motor, reaches synchronous speed instantly. **Ventilation is therefore maximum** from the beginning.

The **assembly of a brake disc or drum** on KR fluid couplings is **more difficult, expensive** and leads to a longer axial length of the whole machine group.

The outer impeller and cover are connected to the motor, **it is therefore possible to manually rotate the coupling** to check alignment and oil level, and for refilling.

The delayed fill chamber is fitted on the driver side, and reaches the synchronous speed in a few seconds. Oil is therefore centrifuged into the main circuit gradually and completely. Starting time is adjustable by replacing the calibrated bleed orifices.

The starting phase, however is performed in a shorter time than in the configuration with an inner driver impeller.

The **switching pin operation is always assured**, where fitted, as the outer impeller, always rotates because it is mounted on the driver shaft.

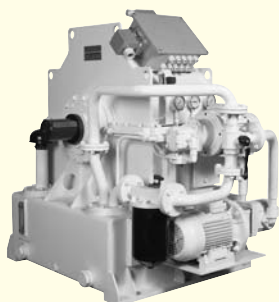
In case of frequent start-ups or inversions of the rotating direction, the **flex coupling is much more stressed.**

If not expressly required by the customer or needed for the application being performed, the fluid coupling is supplied according to our “**standard**” mounting. **Do specify** in your request for quotation **whether you need a “reverse” mounting.**

NOTE: Starting from size **13** included, a baffle ring is always fitted on the driver impeller, and therefore it is not recommended to “**reverse**” mount a fluid coupling equipped with a “**standard**” mounting, or viceversa. In these cases **contact Transfluid** for more detailed information.

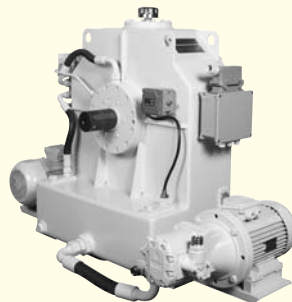
FLUID COUPLING KSL SERIES

Start up and variable
speed drive up to 3300 kW



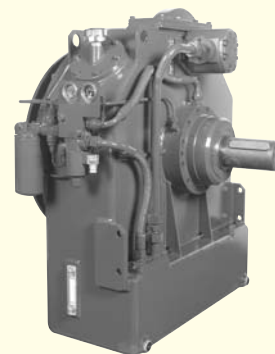
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Up to 1000 kW



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Up to 1300 kW



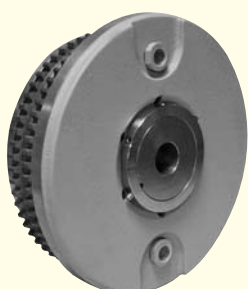
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