



WESTCAR s.r.l.

ROTOFLUID

Fluid Couplings

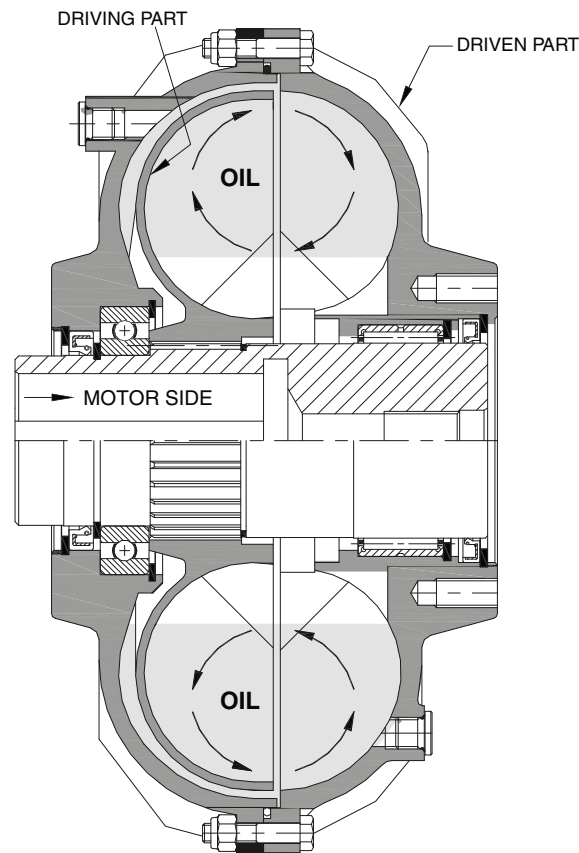




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ROTOFLUID fluid coupling is designed to provide your plant with optimum reliability and durability. It is fitted between the motor (drive) and machine (driven component).

ROTOFLUID fluid coupling comprises basically two impellers, with radial blades, opposed to each other, one connected to the motor shaft and the other to the input shaft of the Driven Equipment or Machine. ROTOFLUID fluid coupling acts like a centrifugal clutch, by driving an impeller, the oil passing from the blades to the driven part, which acts as a driven impeller, transmits the power to the Equipment or Machine.

The oil, which fills the fluid coupling, transfers the torque and also lubricates moving parts.

Fluid couplings are the easiest and cheapest way of creating a perfectly Flexible Drive Train, because no mechanical parts are necessary between the motor and the Equipment or Machine being driven. Without mechanical parts, there is practically no wear. Losses in the fluid coupling become power losses according to the following formula:

$$S\% = \frac{n_m - n_u}{n_m} \times 100$$

where:

n_m = motor speed (rpm)

n_u = output speed from the fluid coupling (rpm)

The elasticity of the fluid coupling solves problems of power peaks between electric motors and driven machines.

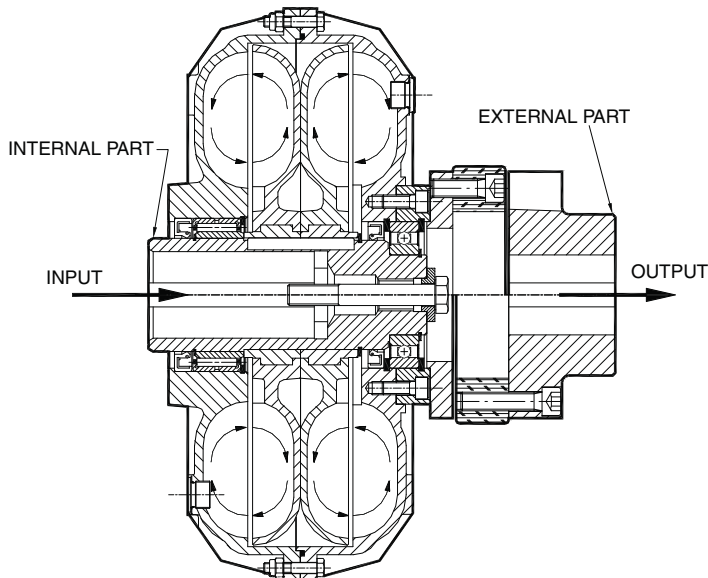
ADVANTAGES OF USING FLUID COUPLINGS

- easy start-up with gradual acceleration of the driven component
- automatic load speed adjustment on the basis of the synchronous speed of two or more motors
- the drive train is protected against overloads
- torsional vibrations are dampened
- the torque transmitted complies with pre-set values
- direct on-line start electric motors can be used, without star-delta starters or slip-ring motors with rheostat

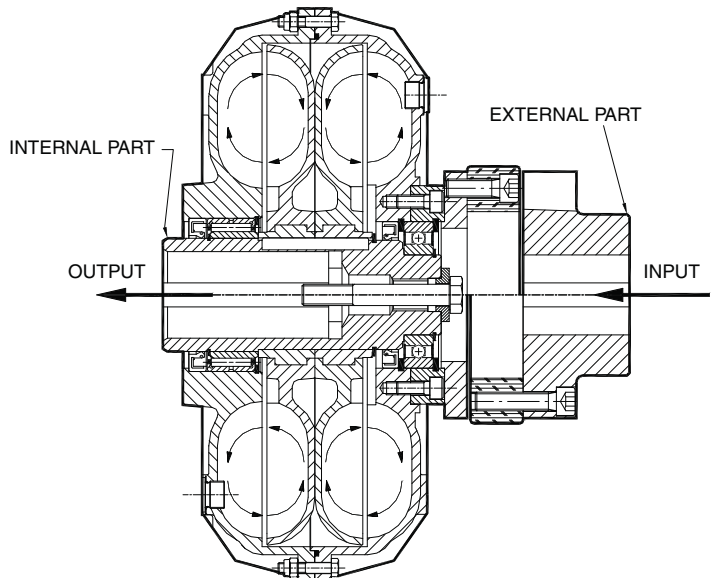
ADVANTAGES OF USING ROTOFLUID FLUID COUPLINGS

- a large range of accessories
- interchangeable accessories on the basic cell
- the dimensions of the shaft-pulley system are perfectly suited to the needs of the drive train
- all fluid couplings that utilise a belt drive are fitted with ball bearings to guarantee above-standard radial loads
- all the fluid couplings used for horizontal applications are fitted with a elastic flexible coupling, which gives the advantage to the user of being able to replace the flexible element, by removing it radially from the coupling, without either disturbing the Motor or the Driven Equipment or Machine.

STANDARD MOUNTING



REVERSE MOUNTING



ADVANTAGES OF STANDARD MOUNTING

In **STANDARD** assemblies, the fluid coupling is mounted with the inner part connected to the motor shaft.

This is common for couplings with pulleys and in line application, providing the following benefits:

- standardisation of bores in compliance with UNEL MEC motors
- during start-up motor is less loaded due the low inertia of the inner part, operating speed is reach with reduced current peak
- in inline applications, where a brake is required, disc/drum is mounted directly on the reduction gear shaft without increasing the axial length of the coupling
- in couplings with delay fill chambers, start-up is smoother because the oil pass from the delay fill chamber into the circuit due to centrifugal force reducing the pick torque
- flexible element mounted on the fluid coupling is less stressed, because the torque is transmitted by the fluid and not with a direct connection to the motor.

ADVANTAGES OF REVERSE MOUNTING

In a **REVERSE** assembly, the fluid coupling is mounted with the outer part connected to the motor shaft.

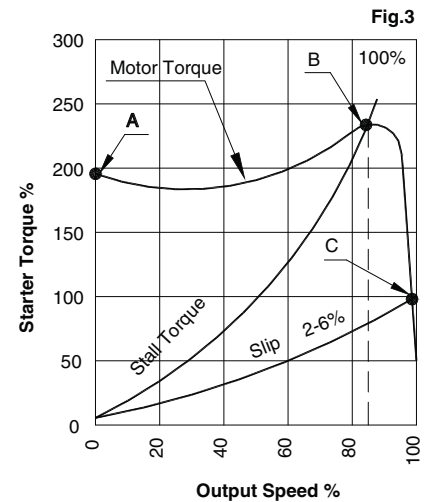
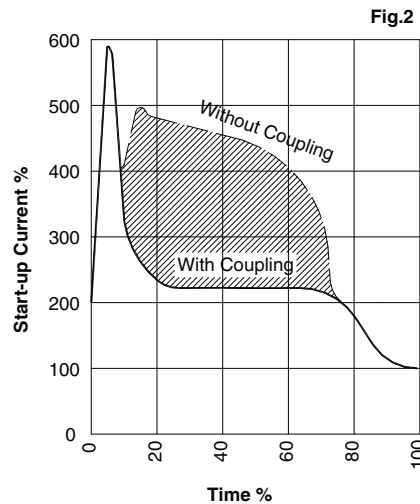
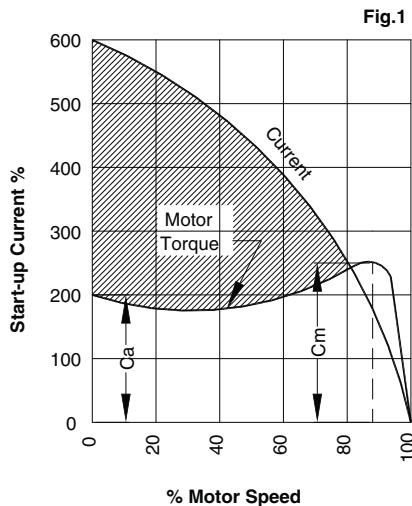
This type of assembly is possible whenever the fluid coupling is mounted between motor and gear box.

For couplings with a V Pulley, the unit must be fitted to the driving shaft, pay attention between the driving and driven pulley ratio. In case of need consult WESTCAR srl.

This type of assembly has the following important advantages:

- higher heat dissipation, recommended in case of extended and frequent motor start-ups
- easier regulation and filling of the oil level in the coupling, since the external part can be rotated without moving the driven machine
- **IMPORTANT!** When the coupling is mounted with THERMAL SWITCHING PIN, even in case of stop of the driven side the function of the safety device is guarantee.

In the absence of special needs or requests, the coupling will be supplied in its STANDARD configuration.



START-UP WITHOUT FLUID COUPLING

Figure 1 represents the typical start-up of an electric motor directly connected to the load. The dotted line represents the energy lost bringing the motor and load up to operating speed.

As can be seen, direct start-up has the following disadvantages:

- the difference between start-up torque (C_a) and the load requirement (C_m) is very low; the maximum torque is between 80%-85% of the operating speed
- the current absorbed during start-up may be up to 6 times the rated current, causing electrical overloads and higher costs, an increase in motor temperature and fewer possible start-ups.
- difficulty of application when a high starting torque is required.

START-UP WITH ROTOFLUID FLUID COUPLING

Figure 2 compares the current absorbed by the electric motor starter with and without hydrodynamic coupling.

The first curve "Without coupling" is a start-up with direct connection in short-circuit. The second curve "With coupling" is the same start-up interposed with the hydrodynamic coupling. The crossed-out part represents the difference in energy used for the same start-up with and without hydrodynamic coupling.

In the first curve "Without coupling" the current reaches a peak of about six times the nominal and persists with high values up to the rated engine speed.

In the second curve "With coupling" the peak current remains high for only a few seconds (energy required to accelerate the motor rotor only) and goes down to acceptable values for the time necessary to bring the machine to scheme.

When the hydrodynamic coupling ROTOFLUID is interposed between the electric motor and the driven machine, the motor can start-up in short circuit.

CHARACTERISTIC CURVES FOR START-UP WITH FLUID COUPLING

Figure 3 shows a characteristic torque curve for an electric motor, the stall curve of the fluid coupling and the slip curve at operating speed. The fluid coupling allows the motor to reach 80-85% speed in a few seconds (shift from point A to point B) where it meets the stall curve of the fluid coupling (slip=100%), the point of maximum motor torque.

Point C is the point of functioning of the fluid coupling after the motor has reached operating speed.

The use of a fluid coupling with a delay fill chamber limits maximum torque during start-up, without prejudicing slipping in normal functioning. This allows the motor to quickly increase speed [revs] without hitting the resistant torque (as if it started unloaded).

A fluid coupling with a delay fill feature is fitted with additional chamber in order to reduce the quantity of oil in the working circuit (see Fig.1). The chamber is in contact with the circuit via calibrated nozzles, which can be set as required (see Fig.2). The variation in the calibrated nozzle holes changes the time it takes for the oil in the chamber to reach the working circuit, thereby, increasing or decreasing start-up time for the driven machine.

When all the oil has flowed from the chamber into the circuit, the fluid coupling reaches the rated speed, transmitting the required torque with minimum slippage (see Fig.3).

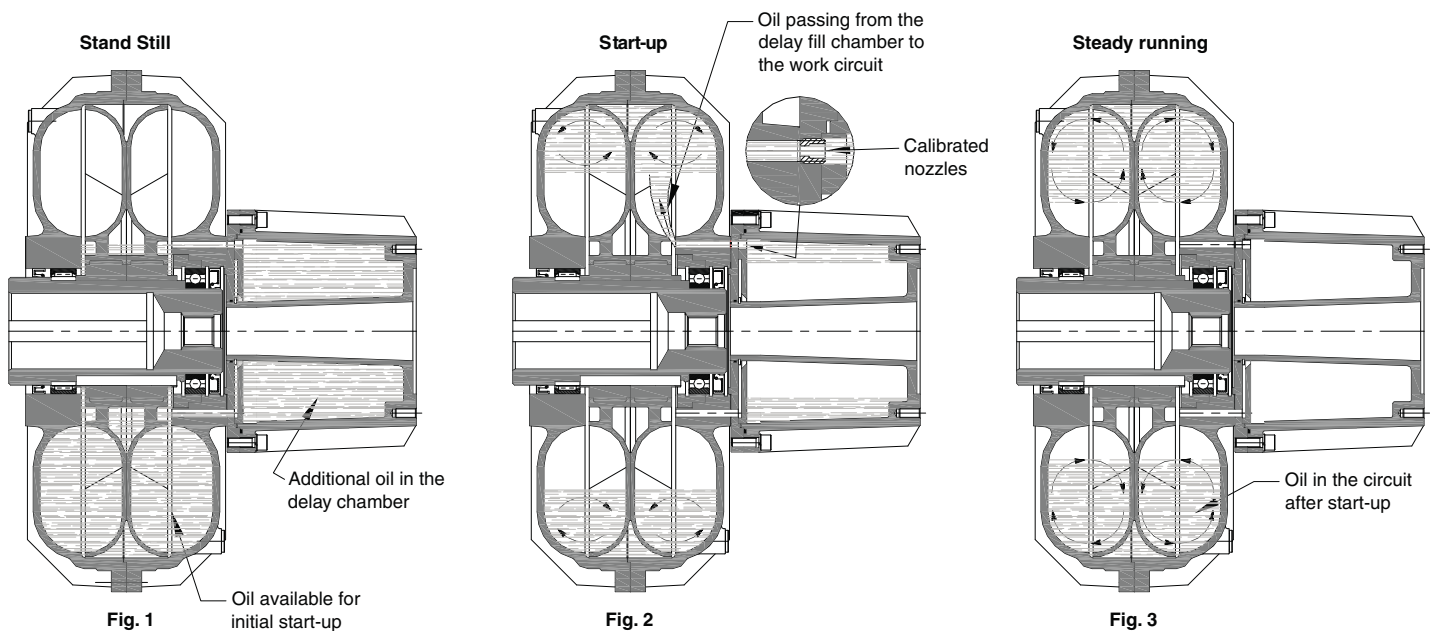
Fluid couplings may be fitted with either a single or double delay fill chamber.

With a single delay fill chamber, Ca/Cn torque limitation varies from 180% to 150%, adjusting the quantity of oil.

With a double delay fill chamber, Ca/Cn torque limitation varies from 150% to 120%, adjusting the quantity of oil.

The advantages of delay fill chambers are enhanced as the power requirement rises.

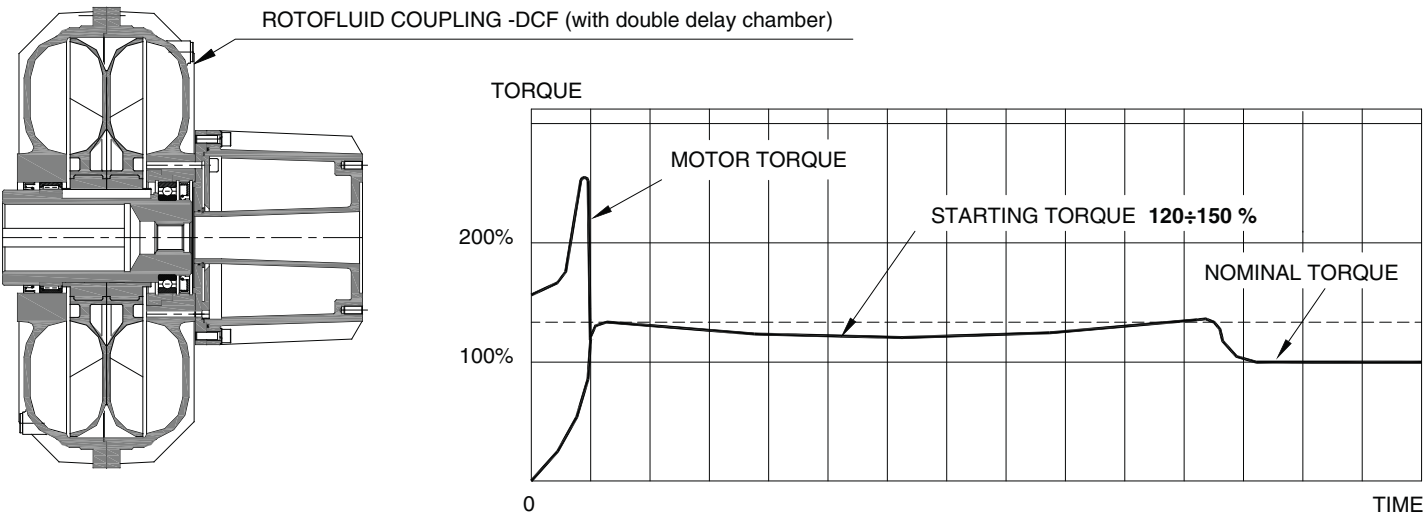
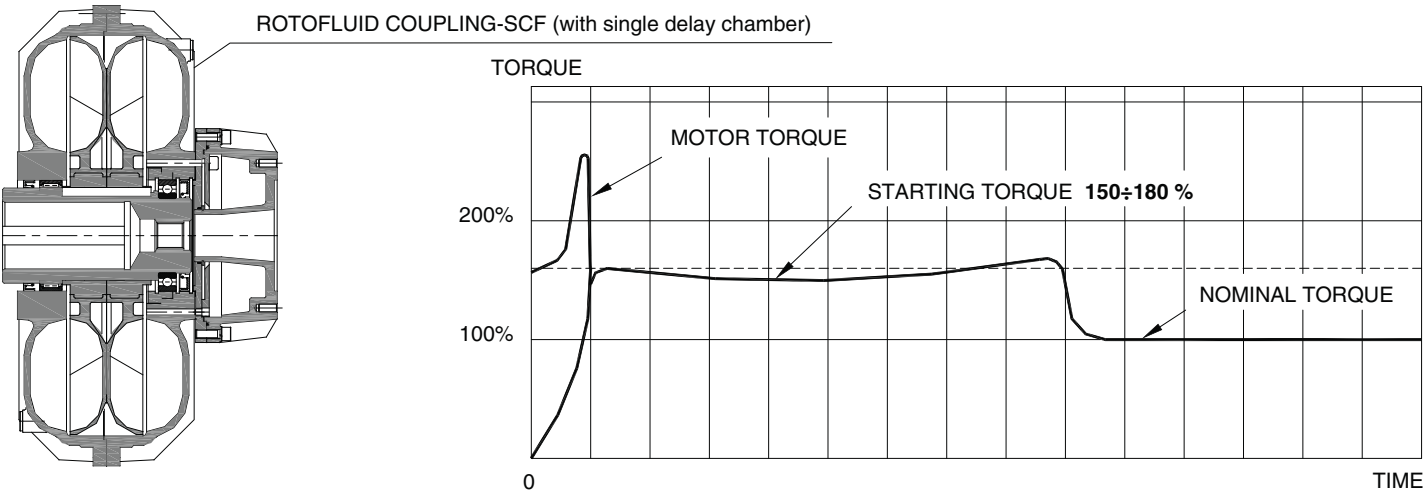
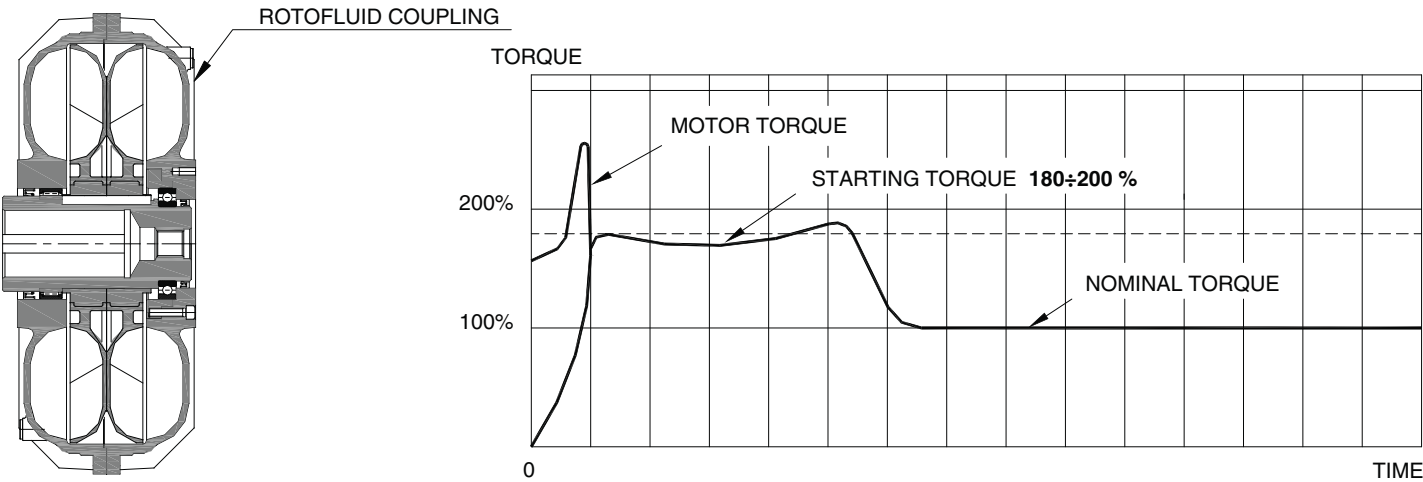
SCF and DCF delay fill chambers are available from size 30 to size 95P.



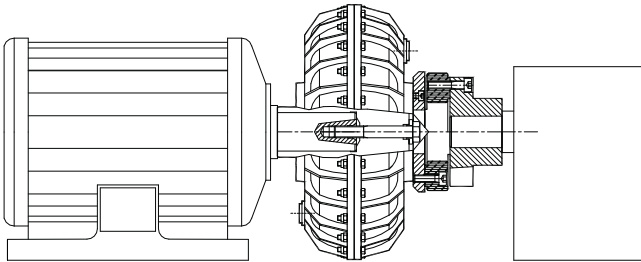
ADVANTAGES

- Low energy loss even where inertia is high
- Start-up time can be adjusted
- Start-up torque is limited to pre-set values without affecting slip
- Limitation of start-up current prolongs the life of the motor
- For controls with several drives the coupling automatically adjusts the load speed on the basis of synchronous speed
- More start-ups per hour

The ROTOFLUID SCF/DCF peculiarities are more evident comparing the curve of the ROTOFLUID coupling without delay chamber.



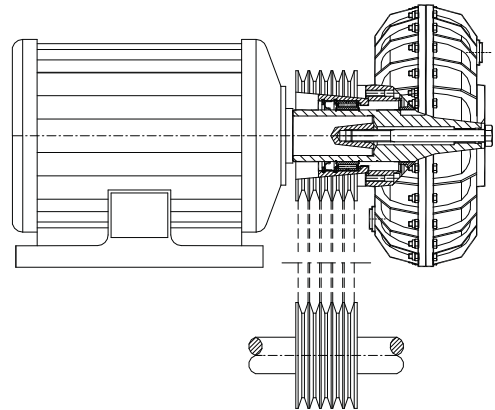
ROTOFLUID COUPLING ALFA



ROTOFLUID COUPLINGS **ALFA** are used for in-line transmission between equipment.

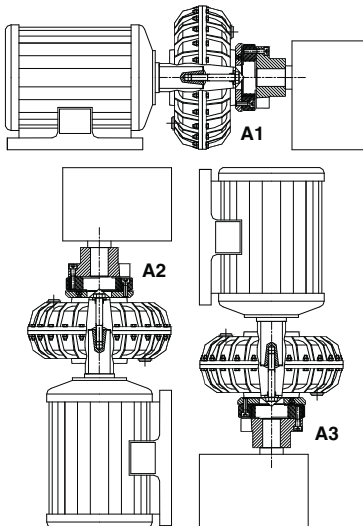
ALFA couplings can be supplied with several accessories that allow easy installations and maintenance.

ROTOFLUID COUPLING BETA



ROTOFLUID COUPLINGS **BETA** are used for pulleys transmission equipment between parallel shafts.

These couplings are available also with Delay Fill Chambers.

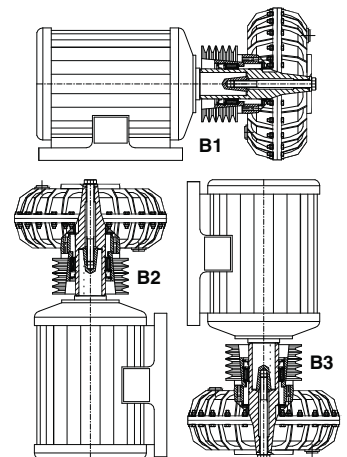


INSTALLATION OPTIONS

ROTOFLUID couplings **ALFA** and **BETA** can be horizontally or vertically mounted, as per examples showed for installation A2 – A3 – B2 – B3.

For more details or specific request, please contact WESTCAR srl.

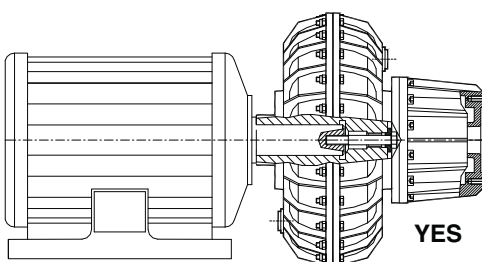
ALFA and **BETA** couplings are supplied with fixing screw.



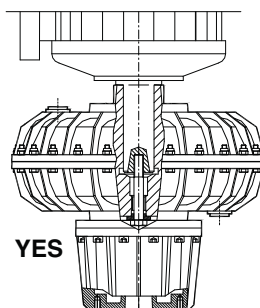
IMPORTANT

COUPLING WITH DELAY CHAMBER CORRECT INSTALLATION

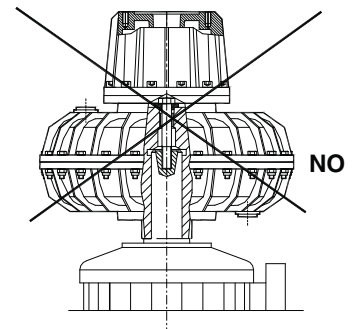
HORIZONTAL SHAFT



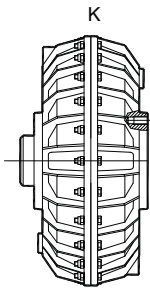
VERTICAL SHAFT WITH
DOWNWARD DELAY CHAMBER



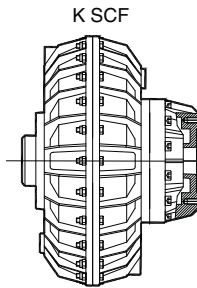
VERTICAL SHAFT WITH UPWARD
DELAY CHAMBER



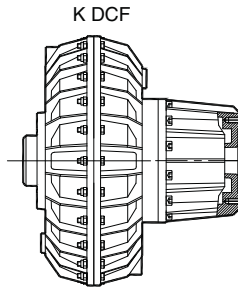
ROTOFLUID ALFA without accessories



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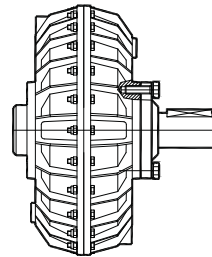


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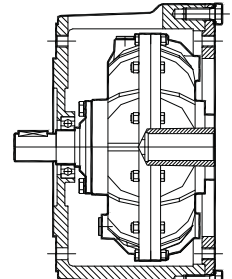
PAG. 14

ROTOFLUID ALFA K-S



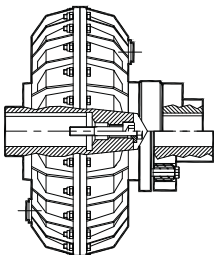
PAG. 16

ROTOFLUID ALFA CKS



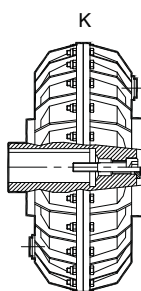
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ROTOFLUID ALFA K
with elastic coupling
K-RNV
K-AB

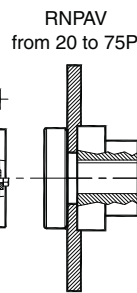


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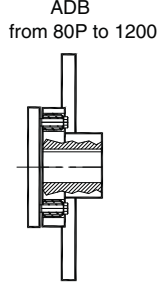
ROTOFLUID ALFA K
with elastic coupling and Brake Disc



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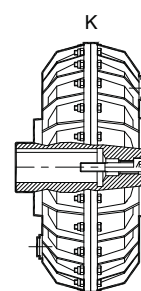


RNPV
from 20 to 75P

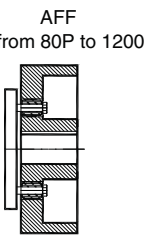


ADB
from 80P to 1200

ROTOFLUID ALFA K
with elastic coupling and Brake Drum



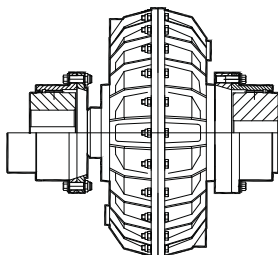
RND
from 20 to 75P



AFF
from 80P to 1200

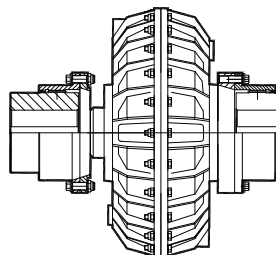
PAG. 19

ALFA WAG-G



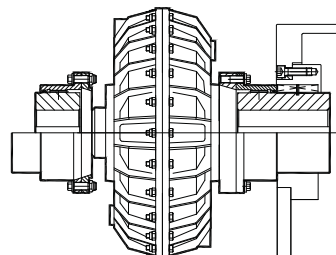
PAG. 20

ALFA WAG-GU

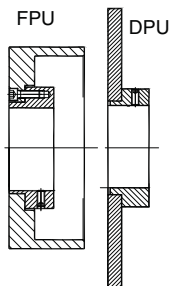


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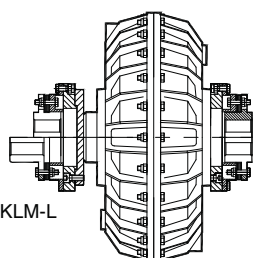
ALFA WAG-GPU



ALFA WAG-GPUU
PAG. 21

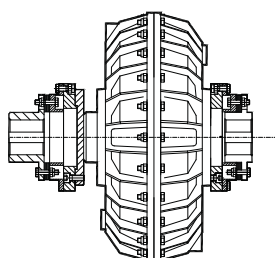


ALFA KLM-RH



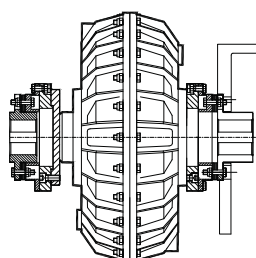
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ALFA KLM-L



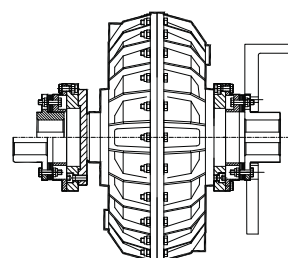
PAG. 22

ALFA KLM-LF

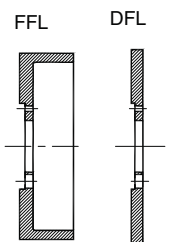


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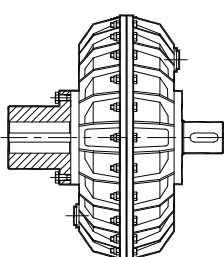
ALFA KLM-LLF



PAG. 23

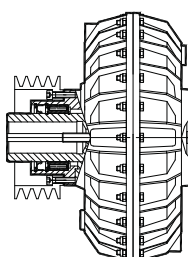


ALFA NY-FB



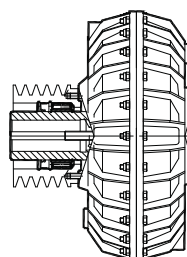
PAG. 24

BETA J



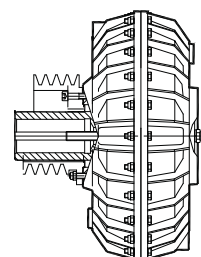
PAG. 26

BETA X

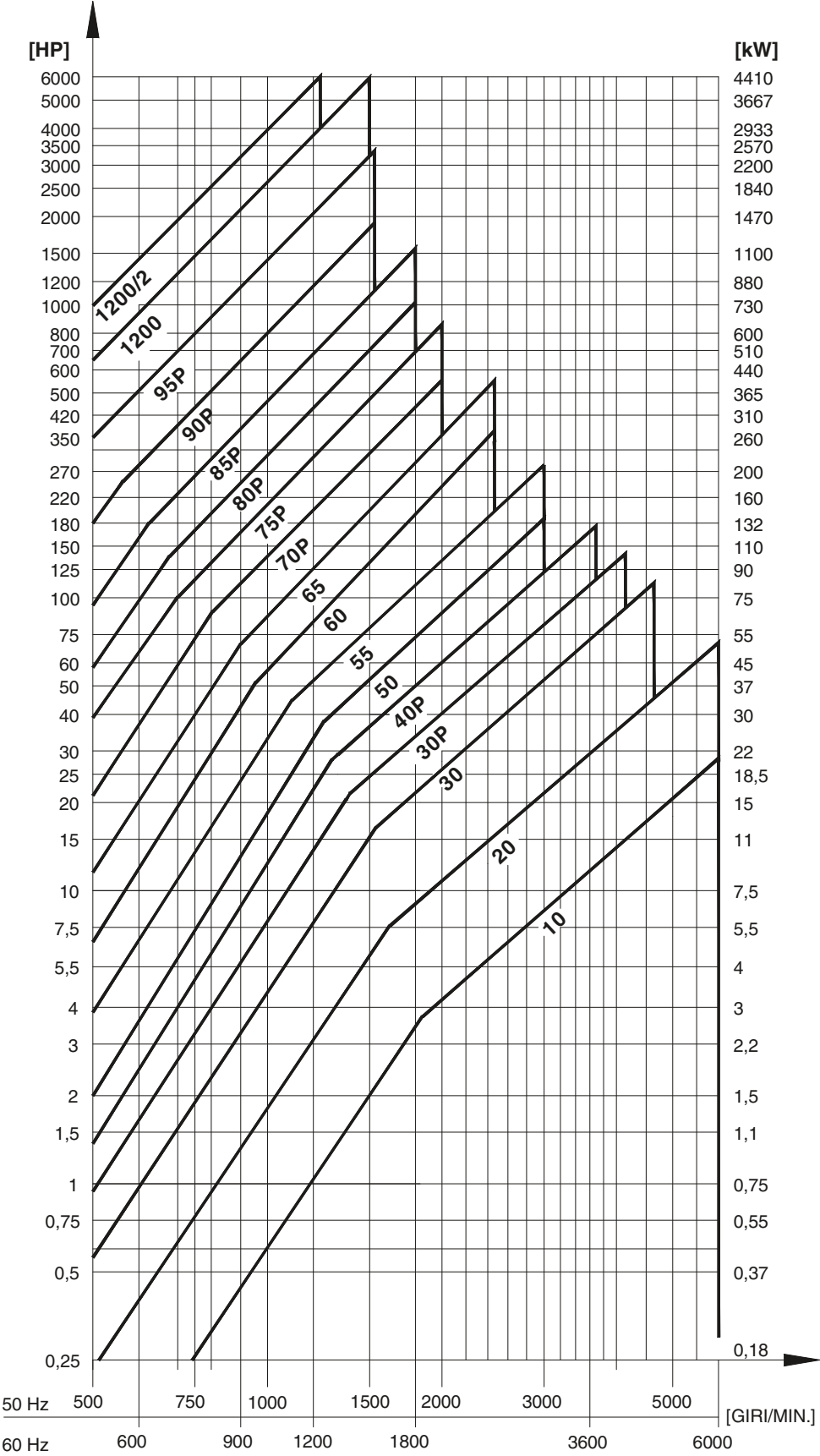


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BETA Z



PAG. 26



Select coupling size on input power and speed

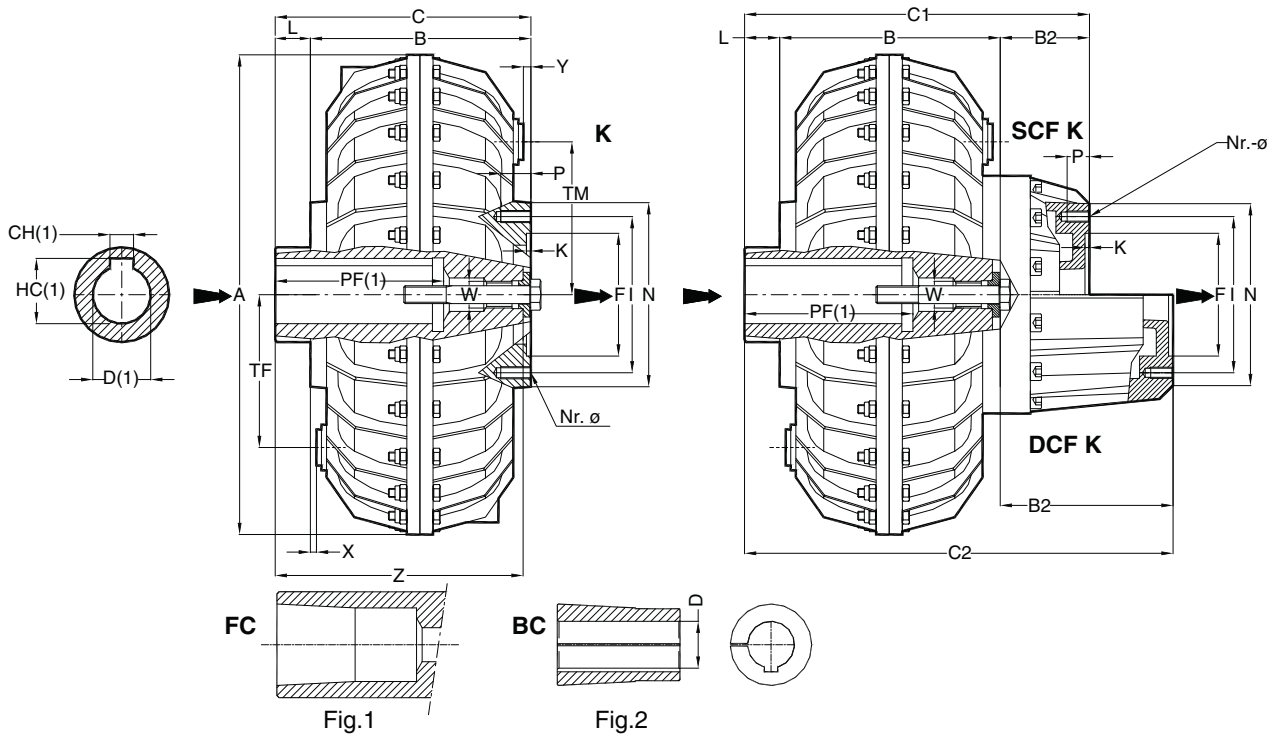
The curves show limit capacity of couplings

If the selection point falls on or close to the max capacity limit line of a given coupling size, please contact WESTCAR

ROTOFLUID COUPLING SELECTION TABLE FOR 50 Hz AND 60 Hz UNEL MEC ELECTRIC MOTORS

STANDARD ELECTRIC MOTORS		Motor speed 50 Hz												Motor speed 60 Hz					
		8 poles 750 rpm			6 poles 1000 rpm			4 poles 1500 rpm			2 poles 3000 rpm			6 poles 1200 rpm			4 poles 1800 rpm		
Type	Ø Shaft	kW	HP	Coupling	kW	HP	Coupling	kW	HP	Coupling	kW	HP	Coupling	kW	HP	Coupling	kW	HP	Coupling
71	14	-	-	-	0,25	0,33	10	0,25	0,33	10	0,37	0,5	10	0,25	0,33	10	0,25	0,35	10
80	19	-	-	-	0,37	0,5		0,37	0,5		0,55	0,75		0,37	0,5		0,37	0,5	
90S	24	-	-	-	0,55	0,75		0,55	0,75		0,75	1		0,55	0,75		0,55	0,75	
90L	24	0,55	0,75	20	1,1	1,5	20	0,75	1	20	1,1	1,5	20	0,75	1	20	1,1	1,5	20
100L	28	1,1	1,5	30	1,5	2		1,5	2		2,2	3		1,5	2		1,5	2	
112M	28	1,5	2	30P	2,2	3	30	2,2	3	30	3	4	30	2,2	3	30	3	4	30
132	38	-	-		3	4		3	4		4	5,5		3	4		4	5,5	
132M	38	3	4		4	5,5		4	5,5		5,5	7,5		4	5,5		5,5	7,5	
160M	42	4	5,5	50	7,5	10	40P	11	15	40P	11	15	40P	7,5	10	40P	11	15	40P
160L	42	7,5	10	55	11	15		15	20		15	20		15	20		15	20	
180M	48	-	-		-	-	50	18,5	25	50	18,5	25	50	18,5	25	50	18,5	25	50
180L	48	11	15		15	20		22	30		22	30		22	30		22	30	
200L	55	15	20	60	18,5	25	55	30	40	55	30	40	55	18,5	25	55	30	40	55
225S	60	18,5	25		22	30		37	50		37	50		22	30		37	50	
225M	55 60	- 22	- 30	65	- 30	- 40	60	- 45	- 60	60	- 55	- 75	60	- 45	- 60	60	- 45	- 60	60
250M	60 65	- 30	- 40		- 37	- 50		- 55	- 75		- 75	- 100		- 55	- 75		- 55	- 75	
280S	65 75	- 37	- 50		- 45	- 60	70P	- 75	- 100	70P	- 90	- 125	70P	- 75	- 100	70P	- 75	- 100	70P
280M	65 75	- 45	- 60		- 55	- 75	75P	- 90	- 125		- 110	- 150	75P	- 90	- 125		- 90	- 125	75P
315S	65 80	- 55	- 75	75P	- 75	- 100		- 110	- 150		- 110	- 150		- 75	- 100		- 75	- 100	
315M	65	-	-		-	-	75P	-	-	75P	-	-	75P	-	-	75P	-	-	75P
	75	100			90	125		132	180		132	180		132	180		132	180	
	80	125			110	150		160	220		160	220		160	220		160	220	
355S	80	-	-	80P	-	-	80P	-	-	80P	-	-	80P	-	-	80P	-	-	80P
355M	100	132	180		160	220		250	340		250	340		250	340		250	340	
	80	-	-		-	-		-	-		-	-		-	-		-	-	
	100	160	220	85P	200	270	85P	315	430	85P	-	-	85P	-	-	85P	-	-	85P
	200	270			250	340													
NON STANDARD ELECTRIC MOTORS For max. power transmitted		330	450	90P	370	500	85P	510	700	80P				310	420	80P	440	600	75P
		600	800	95P	600	800	90P	810	1100	85P				440	600	85P	700	950	80P
		800	1100	1200	1000	1360	95P	1300	1740	90P				800	1100	90P	1000	1360	85P
		1000	1360	1200D	2000	2720	1200	2300	3100	95P				1380	1880	95P			
					3300	4500	1200D	3850	5250	1200				2580	3500	1200			
														4200	5710	1200D			

• For couplings at 3000 rpm, ask for balancing required



NOTES: (1) for bore and keyway dimensions see sheet 10-019E / (2) the arrows ➡ indicate input and output

ROTOFLUID SIZE	Dimensions in mm														K				SCF K				DCF K														
															mm		kg*	mm		kg*	mm		kg*														
	Bore D	A	B	K	I	L	N	Nr.ø	P	TF TM	W	X	Y	Z	Type	C	F ^{H7}	W.	Type	B2	C1	F ^{H7}	W.	Type	B2	C2	F ^{H7}	W.									
10	19-24	193	88	4	60	10	75	6-M6	12	66	M10	0,5	0	94	K1	98	47	4	--	--	--	--	--	--	--	--	--	--	--								
20	24-28	230	115		78		94	6-M8	16	80	M14	2	7	120	K1	125	62	6	--	--	--	--	--	--	--	--	--	--	--	--							
30	□FC	290	150		100		12	114		8-M8	110	M24	9	9	157,5	K2	162	72	13,2	K2	55	217	72	15,6	K2	95	257	72	16,2								
30P	□FC	327											21	K2		23,4			K2	24																	
40P	□FC	338	183	125	15	145	8-M10	22		130	29		16	194	K2	198	90	22	K2	58				256	90				25,7	K2	130	328	90	27,2			
50	□FC	430	154	140	25	165			150		M30		20	176,5	K2	179	110	30	K2	80				259	110				35,8	K2	155	334	90	38			
55	□FC		196		15	165						6	208,5	K2	211	40		K2	291	110	45,8	K2	366	110	48												
60	□FC 75	520	172	4,5	160	20						185	205	M30	20	192	K2	192	125	46	K2	90	282	125	54,4	K2	170	362	125	58							
65	□FC 75-80		220				6	240		K2					240	66	K2	330		74,4	K2		410		78												
70P	80-90 100	640	190				4	195	20	225	8-M16				24	265	15	234 274	K2N K3N	240 280	150		86	K2N K3N	110	350 390		150	99	K2N K3N	225	465 505	150	106			
•75P	80-90 100		245														0	254 269	K2N K3N	265 280			117	K2N K3N		375 390			135	K2N K3N		490 505		147			
80P	Max.110 Max.125**	810	226	230	44 60	270						8-M18	28	325			M36	15	264 280	K2N K3N	270 286	160	180	K2N K3N		118	388 404	160	196	K2N K3N		218	488 504	160	208		
•85P	Max.125 Max.130		300															0	334	K2N K3N	340		252	K2N K3N			458		280	K2N K3N			558		300		
90P	Max.130 Max.140** Max.160***	1000	344				5	506	20 120 160	550	16-M20				32	416		0	35	343 443 483	K2 K3 K5	364 464 504	445	350 390 410	K2 K3 K5		120	424 524 564	445	302 342 362	K2 K3 K5		200	504 604 644	445	317 357 377	
95P	Max.130 Max.140** Max.160***		466																	420 520 560	K2 K3 K5	479 586 626		505 555 575	K2 K3 K5			599 706 746		545 595 615	K2 K3 K5			679 786 826		560 610 630	
1200	Max.190	1300	449	7	310	7						570		36			430				30	419	K2	456	220	1800		--	--	--	220	--		--	--	220	--

* Weight with oil - ** Bore depth PF=210 - *** Bore depth PF=250

DIMENSIONS ARE NOT BINDING

• Supplied with OVERSIZED CHAMBER SCFM or DCFM

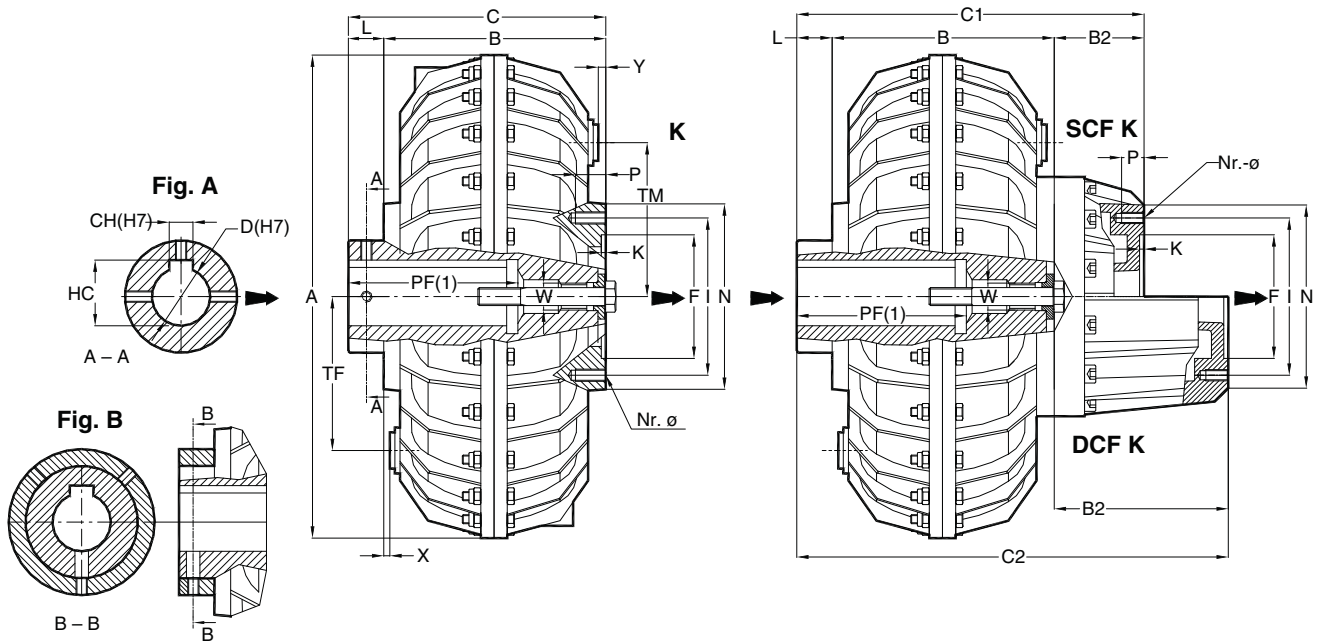
□ Couplings with conical bore FC are supplied with Taper Bush BC and fixing screw (Fig. 1 and 2)

In case of mounting on shafts without shoulder contact WESTCAR

Example of order of a coupling with taper bush: ALFA 55 K2 FC + 55BC L15 D=60

TAPER BUSH BC WITH FIXING SCREW							
COUPLING SIZE	Type	Standard D Bore					
30/30P	3BC	38	42	48	-	-	48
40P	4BC	38	42	48	50	-	50
50 - 55	5BC	-	42	48	55	60	65
60 - 65	6BC	-	-	48	55	60	70

■ Taper Bushes are supplied without keyway

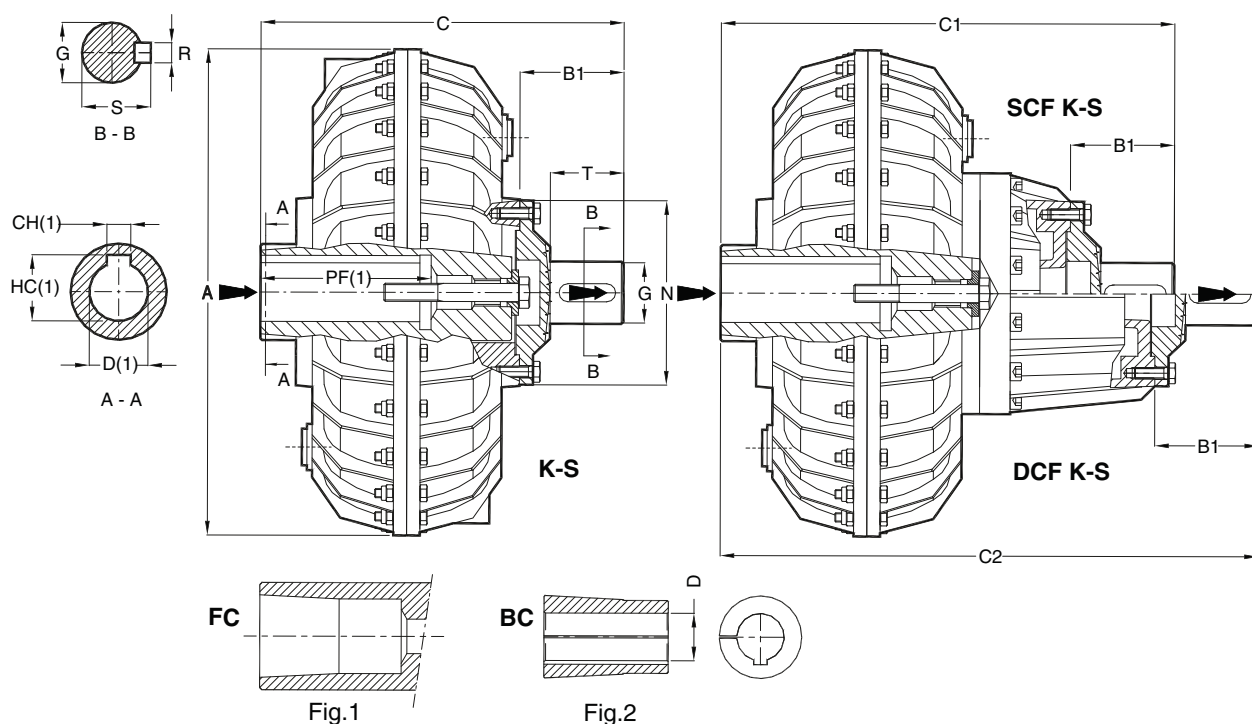


NOTES: (1) the arrows ➡ indicate input and output

ROTOFLUID SIZE	inches	Dimensions in mm															K			SCF K			DCF K							
	Cyl. bore D	Fig.	A	B	F ^{H7}	K	I	L	N	Nr.ø	P	TF TM	W	X	Y	PF	Type	mm	kg*	Type	mm		kg*	Type	mm		kg*			
																		C	W.		B2	C1	W.		B2	C2	W.			
10 KA	0,875 1,125	A B	193	88	47	4	60	10 25,4	75	6-M6	12	66	M10	0,5	0	57,15 69,85	KA	98 113,4	4	--	--	--	--	--	--	--	--	--		
20 KA	1,125 ■1,375	A B	230	115	52		78	10 25,4	94		80	M14	2	7	69,85 85,72	KA	125 140,4	6	--	--	--	--	--	--	--	--	--	--		
30 KA	1,625 ■1,875	A B	290	150	72		100	12 40	114	8-M8	16	110	M24	9	9	101,6 117,47	KA	162 190	13,2	KA	55	217 245	15,6	KA	95	257 285	16,2			
30P KA	1,625 ■1,875	A B	327				100	12 40			6	6		85,72	162 190		21	KA	217 245	23,4		KA	257 285	24						
40P KA	1,625 1,875 2,125	A	338	183	90	125	15	145	8-M10	22	130	29		16	101,6 117,47 133,35	KA	198	22	KA	58	256	25,7	KA	130	328	27,2				
50 KA	1,875 2,125 2,375	A A B	430	154	110	140	25 25 32	165			150	20		117,47 133,35 149,22	KA	179 179 186	30	KA	80	259 259 266	35,8	KA	155	334 334 341	38					
55 KA	2,125 2,375 ■2,875	A B B		196		140	15 20 54				6	6	133,35 149,22 184,15	KA	211 216 250	40	KA	291 296 330		45,8	KA	366 371 405		48						
60 KA	2,375 2,875 ■3,375	A A B	520	172	125	4,5	160	20 57 108			185	205	M30	6	20	149,22 184,15 215,9	KA	192 229 280	46,5 46,5 50,5	KA	90	282 319 370	54,4 56 66	KA	170	362 399 450	57,5 58,5 68,5			
65 KA	2,375 2,875 ■3,375	A A B		220			160	20 20 61	6	6					149,22 184,15 215,9	KA	240 240 281	66	KA	330 330 371		74,4	KA	410 410 451		78				
70P KA	2,875 3,375 ■3,875	A	640	190	150		4	195	50 90 126	225					8-M16	24	265	15	184,15 215,9 250,82	KA	240 280 316	86	KA	110	350 390 426	99	KA	225	465 505 541	106
•75P KA	3,375 ■3,875	A B		245				195	40 76							0	0	215,9 250,82	KA	285 321	117	KA	395 431		135	KA	510 546		147	
80P KA	3,375 3,875 4,750	A	810	226	160	5	230	44 44 76	270	8-M18	28	325	M36	0	15	215,9 250,82 250,82	KA	270 270 302	180	KA	118	388 388 420	196	KA	218	488 488 520	208			
•85P KA	3,875 4,750	A		300			230	40			35	416			0	0	250,82	KA	340	252		KA	458	280		KA	558	300		
90P KA	3,875 4,750 5,250	A	1000	344	445		506				550	16-M20			32	416	35	250,82	KA	384	350	KA	120	504	302	KA	200	584	317	
95P KA	3,875 4,750 5,250	A		466			35	250,82							KA	506	505	KA	626	545	KA	706		560						

* Weight with oil • Supplied with OVERSIZED CHAMBER SCFM or DCFM ■ Reduced Dimension HC

DIMENSIONS ARE NOT BINDING



NOTES: (1) for bore and keyway dimensions see sheet 10-019E / (2) the arrows ➡ indicate input and output

ROTOFLUID SIZE	Dimensions in mm								K-S		SCF K-S		DCF K-S	
	Foro D	A	B1	G h7	N	R	S	T	Type	mm C	kg* Weight	Type	mm C1	kg* Weight
10	19-24	193	35	19	75	6	21,5	25	K1-S1	133	4,3	--	--	--
20	24-28	230	44	24	94	8	27	32	K1-S2	169	6,6	--	--	--
30	FC	290	63	38	114	10	41	45	K2-S3	225	14,3	K2-S3	280	16,7
30P	FC	327							K2-S3	225	22,1	K2-S3		24,5
40P	FC	338	76	48	145	14	51,5	55	K2-S4	274	24,2	K2-S4	332	27,9
50	FC	430	92	55	165	16	59	65	K2-S5	271	33,2	K2-S5	351	39
55	FC								K2-S5	303	43,2	K2-S5	383	49
60	FC 75	520	110	60	185	18	64	80	K2-S6	302	50,6	K2-S5	392	59
65	FC 75-80								K2-S6	350	70,6	K2-S6	440	79
70P	80-90 100	640	122	70	225	20	74,5	90	K2N-S7	362	95	K2N-S6	472	108
75P	80-90 100								K3N-S7	402	126	K3N-S7	512	144
80P	Max.110 Max.125**	810	145	80	270	22	85	110	K2N-S8	415	198	K2N-S8	533	214
85P	Max.125 Max.130								K3N-S8	431	270	K3N-S8	549	298
90P	Max.130 Max.140** Max.160***	1000	220	110	550	28	116	180	K2-S9	584	416	K2-S9	644	368
95P	Max.130 Max.140** Max.160***			160		40	169		K3-S9	684	456	K3-S9	744	408
1200	Max.190	1300	290	180		45	190	250	K5-S9	724	476	K5-S9	784	428
									K2-S9	669	586	K2-S9	819	626
									K3-S9	806	636	K3-S9	926	676
									K5-S9	846	656	K5-S9	966	696
									K2-S12	746	1900	--	--	--

* Weight with oil - ** Bore depth PF=210 - *** Bore depth PF=250

DIMENSIONS ARE NOT BINDING

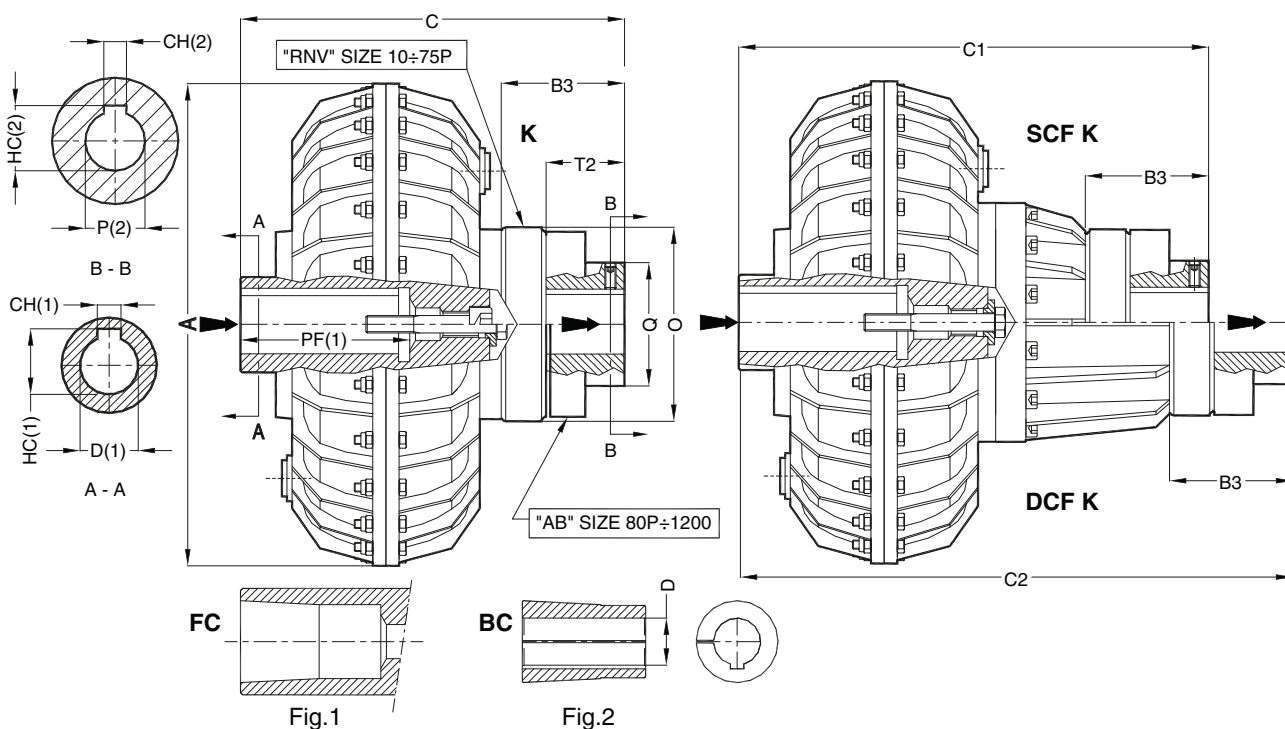
• Supplied with OVERSIZED CHAMBER SCFM or DCFM

□ Couplings with conical bore FC are supplied with Taper Bush BC and fixing screw (Fig. 1 and 2)
In case of mounting on shafts without shoulder contact WESTCAR

Example of order of a coupling with taper bush: ALFA 55 K2 FC + 55BC L15 D=60 + S5

TAPER BUSH BC WITH FIXING SCREW								
COUPLING SIZE	Type	Standard D Bore						Max D Bore
30/30P	3BC	38	42	48	-	-	-	48
40P	4BC	38	42	48	50	-	-	50
50 - 55	5BC	-	42	48	55	60	65	65
60 - 65	6BC	-	-	48	55	60	65	70

■ Taper Bushes are supplied without keyway



NOTES: (1) for bore and keyway dimensions see sheet 10-019E / (2) upon request: bore P finished / (3) the arrows ➡ indicate input and output

ROTOFLUID SIZE	Dimensions in mm							K with EL. Coupling			SCF K with EL. Coupling			DCF K with EL. Coupling			ELASTIC COUPLING
									mm	kg*		mm	kg*		mm	kg*	
	Bore D	A	B3	O	P Max.	Q	T2	Type	C	Weight	Type	C1	Weight	Type	C2	Weight	
10	19-24	193	48	88	28	45	30	K1	146	4,7	--	--	--	--	--	--	RNV-1
20	24-28	230	67	110	38	56	45	K1	192	7,6	--	--	--	--	--	--	RNV-2
30	□FC	290	85	140	48	68	55	K02	247	16,2	K02	302	18,6	K02	342	19,2	RNV-3
30P	□FC	327						K02		24	K02		26,4	K02		27	
40P	□FC	338	94	176	60	91	60	K02	292	26,6	K02	350	30,3	K02	422	31,8	RNV-4
50	□FC	430	108	194	70	106	70	K02	287	37	K02	367	42,8	K02	442	45	RNV-5
55	□FC							K02	319	47	K02	399	52,8	K02	474	55	
60	□FC 75	520	122	216	80	121	80	K02	314	56,3	K02	404	64,7	K02	484	68,3	RNV-6
65	□FC 75-80							K02	362	76,3	K02	452	84,7	K02	532	88,3	
70P	80-90 100	640	138	266	100	146	90	K2N K3N	378 418	101,5	K2N K3N	488 528	114,5	K2N K3N	603 643	121,5	RNV-7
•75P	80-90 100	640	194	309	110	156	110	K2N K3N	459 474	154	--	--	--	--	--	--	FRNV-8
	80-90 100		166					--	--	--	K2M K3M	541 556	163,7	K2M K3M	656 671	175,7	RNV-8
80P	Max.110 Max.125**	810	196	330	110	170	140	K2N K3N	466 482	238,5	K2N K3N	584 600	254,5	K2N K3N	684 700	266,5	AB-8
•85P	Max.125 Max.130		226	400	155	236	170	K2N K3N	566	363	K2N K3N	684	391	K2N K3N	784	411	AB-8M
90P	Max.130 Max.140** Max.160***	1000	318	550	180	290	250	K2 K3 K5	682 782 822	604 644 664	K2 K3 K5	742 842 882	556 596 616	K2 K3 K5	882 982 1022	571 611 631	AB-9
95P	Max.130 Max.140** Max.160***							K2 K3 K5	797 904 944	759 809 829	K2 K3 K5	917 1024 1064	799 849 869	K2 K3 K5	997 1104 1144	814 864 884	AB-9
1200	Max. 190	1300	318	550	180	290	250	K2	774	2050	--	--	--	--	--	--	AB-9/12

* Weight with oil - ** Bore depth PF=210 - *** Bore depth PF=250

DIMENSIONS ARE NOT BINDING

• Supplied with OVERSIZED CHAMBER SCFM or DCFM

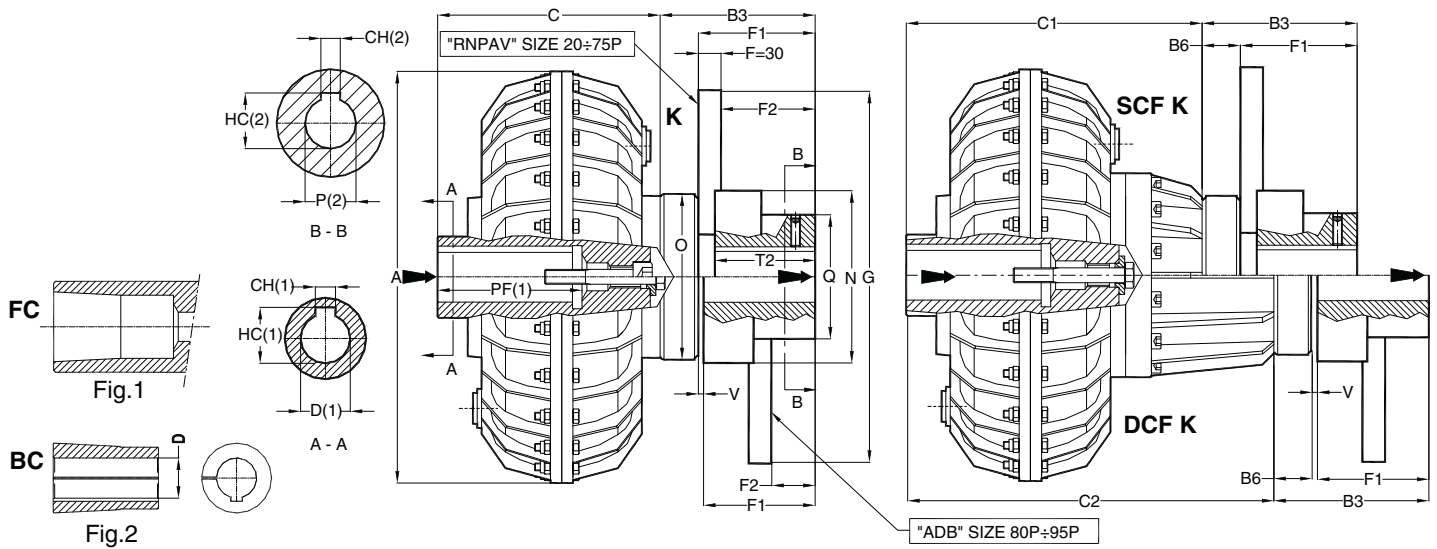
□ Couplings with conical bore FC are supplied with Taper Bush BC and fixing screw (Fig. 1 and 2)

In case of mounting on shafts without shoulder contact WESTCAR

Example of order of a coupling with taper bush: ALFA 55 K02 FC + 55BC L15 D=60 + RNV5 P=48

TAPER BUSH BC WITH FIXING SCREW								
COUPLING SIZE	Type	Standard D Bore						Max D Bore
30/30P	3BC	38	42	48	-	-	-	48
40P	4BC	38	42	48	50	-	-	50
50 - 55	5BC	-	42	48	55	60	65	65
60 - 65	6BC	-	-	48	55	60	65	70

• Taper Bushes are supplied without keyway



NOTES: (1) for bore and keyway dimensions see sheet 10-019E / (2) upon request: bore P finished / (3) the arrows ➡ indicate input and output

ROTOFLUID SIZE	Dimensions in mm									K			SCF K			DCF K			ELASTIC ELEMENT WITH BRAKE DISC
										Type	mm	kg*	Type	mm	kg*	Type	mm	kg*	
	Foro D	A	B3	B6	O	P Max	Q	N	V		C	Weight		C1	Weight		C2	Weight	
20	24-28	230	93	22	110	38	56	94	--	K1	125	6	--	--	--	--	--	--	RNPAV2
30	□FC	290	111	30	140	48	68	118	--	K02	162	13,2	K02	217	15,6	K02	257	16,2	RNPAV3
30P	□FC	327								K02		21	K02		23,4	K02		24	
40P	□FC	338	120	34	176	60	91	147	--	K02	198	22	K02	256	25,7	K02	328	27,2	RNPAV4
50	□FC	430	134	38	194	70	106	165	--	K02	179	30	K02	259	35,8	K02	334	38	RNPAV5
55	□FC									K02	211	40	K02	291	45,8	K02	366	48	
60	□FC 75	520	148	42	216	80	121	185	--	K02	192	46	K02	282	54,4	K02	362	58	RNPAV6
65	□FC 75-80									K02	240	66	K02	330	74,4	K02	410	78	
70P	80-90 100	640	164	48	266	100	146	226	--	K2N K3N	240 280	86	K2N K3N	350 390	99	K2N K3N	465 505	106	RNPAV7
•75P	80-90 100	640	220	84	309	110	156	270	--	K2N K3N	265 280	117	--	--	--	--	--	--	FRNPAV8
	80-90 100		--							--	--	K2M K3M	347 362	135	K2M K3M	462 477	147	RNPAV8	
80P	Max.110 Max.125**	810	196	50	330	110	170	330	6	K2N K3N	270 286	180	K2N K3N	388 404	196	K2N K3N	488 504	208	ADB8
•85P	Max.125 Max.130		226		400	155	236	400	6	K2N K3N	340	252	K2N K3N	458	280	K2N K3N	558	300	ADB8M
90P	Max.130 Max.140** Max.160***	1000	318	62	550	180	290	550	6	K2 K3 K5	364 464 504	350 390 410	K2 K3 K5	424 524 564	302 342 362	K2 K3 K5	504 604 644	317 357 377	ADB9 ADB9
95P	Max.130 Max.140** Max.160***									K2 K3 K5	479 586 626	505 555 575	K2 K3 K5	599 706 746	545 595 615	K2 K3 K5	679 786 826	560 610 630	

* Weight with oil and without Brake Disc RNPV o ADB - ** Bore depth PF=210 - *** Bore depth PF=250

DIMENSIONS ARE NOT BINDING

• Supplied with OVERSIZED CHAMBER SCFM or DCFM

□ Couplings with conical bore FC are supplied with Taper Bush BC and fixing screw (Fig. 1 and 2) - see page 14

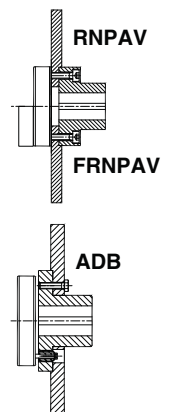
BRAKE DISC RNPV / FRNPV with elastic coupling

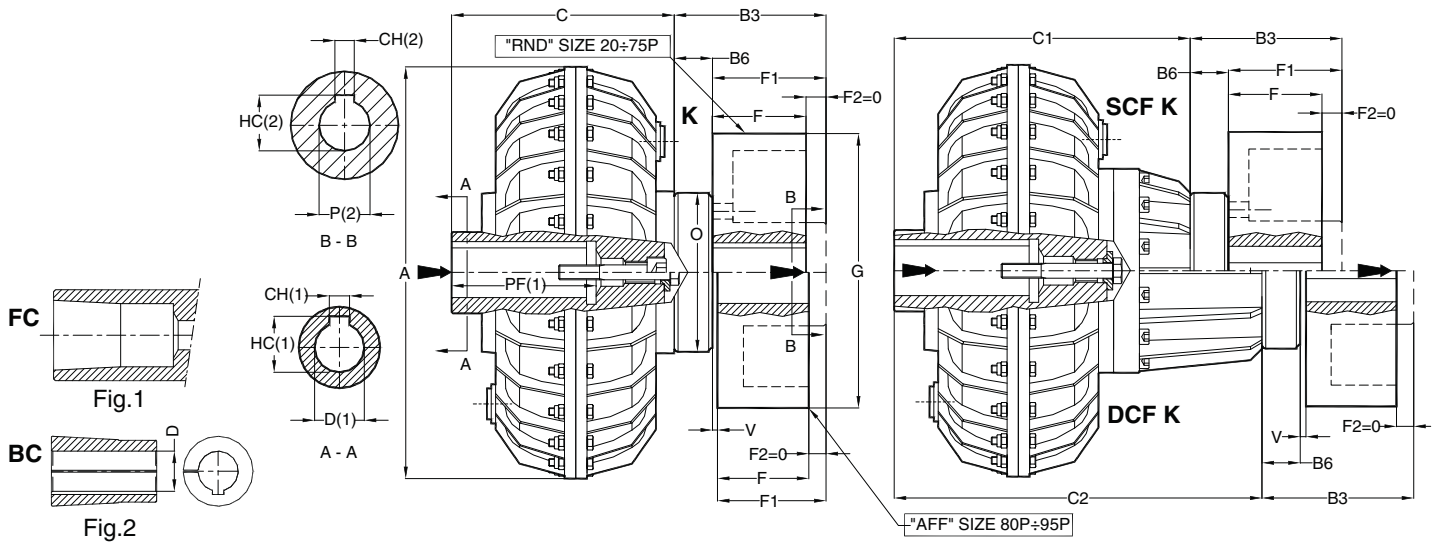
ROTOFLUID	20	30/30P	40P	50/55	60/65	70P	75P
Brake Disc	RNPV2	RNPV3	RNPV4	RNPV5	RNPV6	RNPV7	FRNPV8
øG	200	200	250 315	250 315 355	315 355 400 450	400 450 500 450 500	560 630 710 800
F1	71	81	86	96	106	116	136
F2	41	51	56	66	76	86	106
T2	45	55	60	70	80	90	110
Weight kg	7,3	8,6	13,7 21,1	16,1 22,6 27,6	25,2 30,1 36,3 43,6	40,5 48,4 57,2 68,6 76,4	88,2 103,5 121,5 146,5

BRAKE DISC ADB with elastic coupling

ROTOFLUID	80P	85P	90P/95P
Brake Disc	ADB8	ADB8M	ADB9
øG	560 630 710 800 900	630 710 800 900 1000	710 800 900 1000 1250
F1	140	170	250
F2	50	80	143
Weight kg	107 122 142 167 234	172 192 215 248 283	325 350 382 417 520

Example of order of a coupling with taper bush: ALFA 55 K02 FC + 55BC L15 D=60 + RNPV5 315x30 P=48





NOTES: (1) for bore and keyway dimensions see sheet 10-019E / (2) upon request: bore P finished / (3) the arrows ► indicate input and output

ROTOFLUID SIZE	Dimensions in mm				K				SCF K				DCF K				ELASTIC ELEMENT WITH BRAKE DRUM
					Type	mm		kg*	Type	mm		kg*	Type	mm		kg*	
	Bore D	A	O	V		B6	C	Weight		B6	C1	Weight		B6	C2	Weight	
30	□FC	290	140	--	K02	30	162	13,2	K02	30	217	15,6	K02	30	257	16,2	RND3
30P	□FC	327			K02			21	K02			23,4	K02			24	
40P	□FC	338	176	--	K02	34	198	22	K02	34	256	25,7	K02	34	328	27,2	
50	□FC	430	194	--	K02	38	179	30	K02	38	259	35,8	K02	38	334	38	RND5
55	□FC				K02			211	40			K02	291			45,8	
60	□FC 75	520	216	--	K02	42	192	46	K02	42	282	54,4	K02	42	362	58	
65	□FC 75-80				K02			240	66			K02	330			74,4	K02
70P	80-90 100	640	266	--	K2N K3N	48	240 280	86	K2N K3N	48	350 390	99	K2N K3N	48	465 505	106	RND7
• 75P	80-90 100	640	309	--	K2N K3N	84	265 280	117	--	--	--	--	--	--	--	--	FRND8
	80-90 100				--	--	--	--	K2M K3M	56	375 390	135	K2M K3M	56	490 505	147	RND8
80P	Max.110 Max.125**	810	330	6	K2N	50	270	180	K2N	50	388	196	K2N	50	488	208	AFF8
• 85P	Max.125 Max.130		400	6	K2N K3N		340	252	K2N K3N		458 458	280	K2N K3N		558 558	300	AFF8M
90P	Max.130 Max.140** Max.160***	1000	550	6	K2 K3 K5	62	364 464 504	350 390 410	K2 K3 K5	62	424 524 564	302 342 362	K2 K3 K5	62	504 604 664	317 357 377	AFF9
95P	Max.130 Max.140** Max.160***				K2 K3 K5		479 586 626	505 555 575	K2 K3 K5		599 706 746	545 595 615	K2 K3 K5		679 786 826	560 610 630	

* Weight with oil and without Brake Drum - ** Bore depth PF=210 - *** Bore depth PF=250

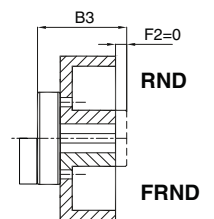
DIMENSIONS ARE NOT BINDING

• Supplied with OVERSIZED CHAMBER SCFM or DCFM

□ Couplings with conical bore FC are supplied with Taper Bush BC and fixing screw (Fig. 1 and 2) - see page 14

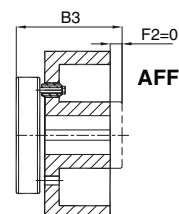
BRAKE DRUM RND with elastic coupling

ROTOFLUID	30/30P	40P	50/55	60/65	70P	75P-K	75P SCF K/DCF K
Brake Drum	RND3	RND4	RND5	RND6	RND7	FRND8	RND8
øG	160	200	250	315	400	500	500
F=F1	60	75	95	118	150	190	190
B3	90	105	125	140	160	190	206
P max	48	48	60	70	80	100	110
Weight kg	4,4	6,6	14	5	7,8	14,6	25,8

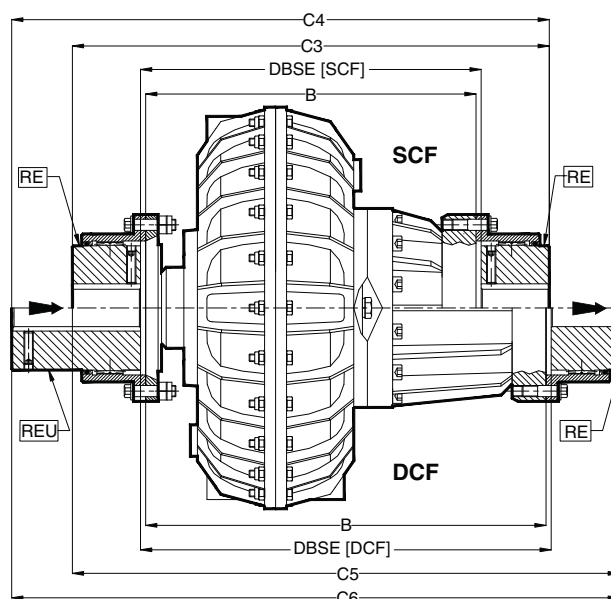
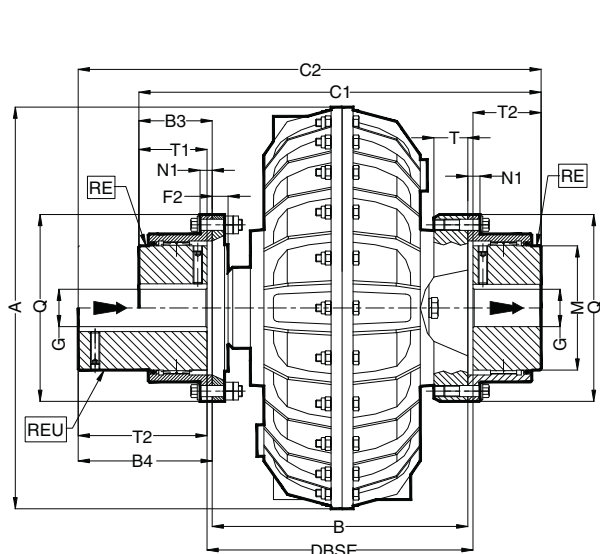


BRAKE DRUM AFF with elastic coupling

ROTOFLUID	80P	85P	90P/95P
Brake Drum	AFF8	AFF8M	AFF9
øG	400	500	630
F=F1	150	190	236
B3	206	246	292
P max	110	110	160
Weight kg	105	161	208



Example of order of a coupling with taper bush: ALFA 55 K02 FC + 55BC L15 D=60 + RND5 315x118 P=48



NOTES: (1) upon request: bore G finished / (2) the arrows ► indicate input and output / (3) reverse mounting is possible upon request

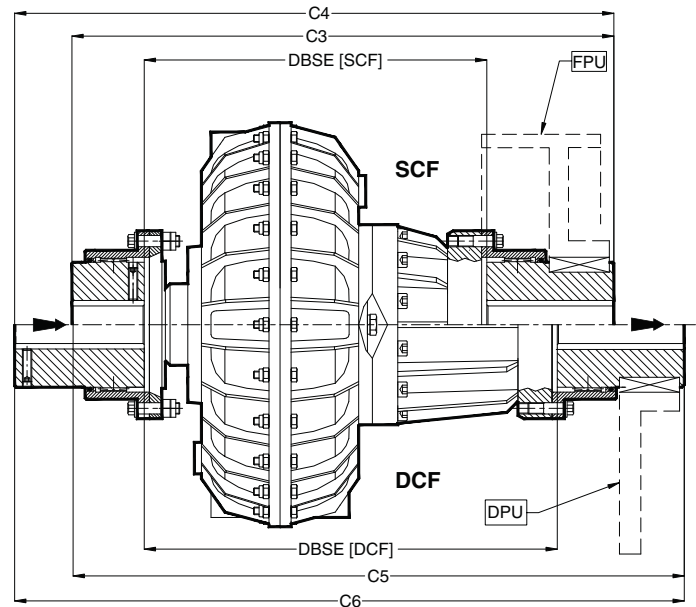
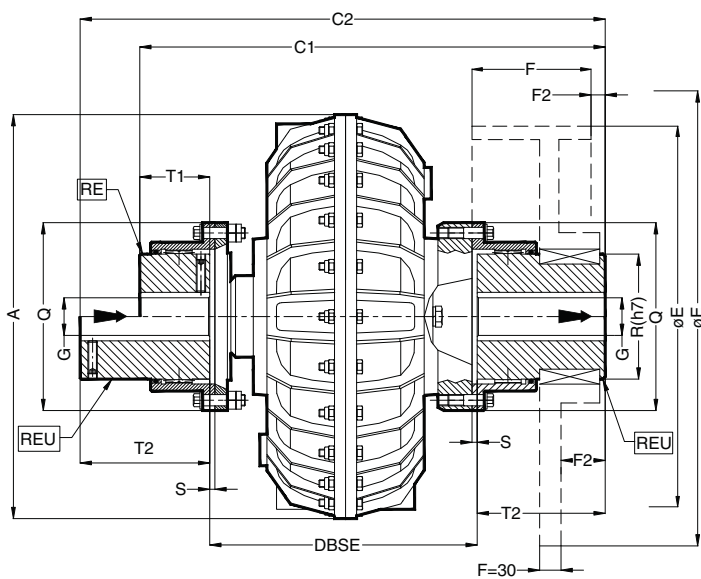
ROTOFLUID SIZE	Dimensions in mm								WAG-G							WAG-GU						
									GEAR COUPLING	Dimensions in mm					kg*	GEAR COUPLING	Dimensions in mm					kg*
	A	B	F2	M	N1	Q	T	DBSE		C1	G		B3	T1	Weight		C2	G		B4	T2	Weight
20	230	162	14	69	12	111	23	165	RE40	251	10	45	44,5	43	13	RE40U	313	10	45	106,5	105	15
30	290	197	12	85	10	142	23	200	RE55	300	18	60	51,5	50	26,5	RE55U	365	18	60	116,5	115	29,5
30P	327									34,5					401		37,5					
40P	338	233								36,2					382		39,5					
50	430	214								217					317		44,2					47,5
55	430	256,5	17,5	133	13	200	28	261,5	RE85	413,5	40	95	78,5	76	79,3	RE85U	487,5	40	95	152,2	150	85
60	520	265						270		422					86		496					92
65		313						318		470					107,2		544					113
70P	640	293,5	23	152	13	225	60,5	298,5	RE100	478,5	50	110	92,5	90	146,7	RE100U	558,5	50	110	172,5	170	156
75P		348,5						353,5		533,5					187,5		613,5					197
80P	810	370	28	178	22	265	72	376	RE120	586	60	130	108	105	262	RE120U	666	60	130	188	185	274
85P		440						446		656					736		324					736
90P	1000	440	34	254	24	370	42	448	RE180	748	95	190	154	150	550	RE180U	893	95	190	299	295	595
95P		555						563		863					710		1008					800
1200	1300	512	50	305	25	438	49	520	RE220	900	120	230	194	190	2200	RE220U	1015	120	230	309	305	2245
1200/2	UPON REQUEST								RE250	UPON REQUEST					RE250U	UPON REQUEST						

ROTOFLUID SIZE	Dimensions in mm		SCF								Dimensions in mm		DCF							
	B	DBSE	WAG-G				WAG-GU				B	DBSE	WAG-G				WAG-GU			
			GEAR COUPLING	mm	kg*	GEAR COUPLING	mm	kg*					GEAR COUPLING	mm	kg*	GEAR COUPLING	mm	kg*		
30	252	255	RE55	355	28,5	RE55U	420	31	115	292	295	RE55	395	29,5	RE55U	460	31,5	115	440	39,5
30P				355	36,5		420	39,5					395	37		460	39,5			
40P				394	40		459	43					466	41		531	44			
50	294	297	RE85	397	50	RE85U	462	53	170	369	372	RE85	472	52	RE85U	537	55	170	537	55
55	336,5	341,5		493,5	85		567,5	91					568,5	87		642,5	93			
60	355	360		512	76		586	100,5					592	98		666	104			
65	403	408	RE100	560	115,5	RE100U	634	121,5	185	483	488	RE100	640	119	RE100U	714	125	185	714	125
70P	403,5	408,5		588,5	160		668,5	169					703,5	166,5		783,5	179			
•75P	458,5	463,5		643,5	200,5		723,5	209,5					758,5	207,5		838,5	216,5			
80P	488	494	RE120	704	278	RE120U	784	280,5	295	588	594	RE120	804	290	RE120U	884	302,5	295	884	302,5
•85P	558	564		774	374		854	398					874	392		954	416			
90P	500	508		808	542		953	587					888	557		1033	602			
95P	675	683	RE180	983	750	RE180U	1128	840		755	763	RE180	1063	855	RE180U	1208	945			

* Weight with oil

• Supplied with OVERSIZED CHAMBER SCFM or DCFM

DIMENSIONS ARE NOT BINDING



NOTES: (1) upon request: bore G finished / (2) the arrows ► indicate input and output

ROTOFLUID SIZE	GEAR COUPLINGS		Dimensions in mm								SCF					DCF				
											WAG-GPU		WAG-GPUU		DBSE	WAG-GPU		WAG-GPUU		DBSE
	Standard Hub	Long Hub	A	G min	G max	Q	R (h7)	S	T1 RE	T2 RE U	mm	mm	kg*	mm	kg*	mm	mm	kg*	mm	mm
											DBSE	C1	W.	C2	W.	C3	W.	C4	W.	C5
30	RE55	RE55U	290	18	60	142	80	1,5	50	115	200	365	28,9	430	31,3	255	420	30,9	485	295
30P			327										36,9		39,3			38,9		41,3
40P			338								236	401	38,6	466	41	294	459	42,4	524	366
50			430								217	382	46,6	447	49	297	462	52	527	372
55	RE85	RE85U	430	40	95	200	125	2,5	76	150	261,5	487,5	85,3	561,5	91	341,5	567,5	91	641,5	416,5
60			520								270	496	92	570	98	360	586	101	660	440
65			520								318	544	113	618	119	408	634	122	708	488
70P			640								298,5	558,5	156	638,5	165	408,5	668,5	169	748,5	523,5
75P	RE100	RE100U	640	50	110	225	145	2,5	90	170	353,5	613,5	196	693,5	206	463,5	723,5	210	803,5	578,5
80P			810								376	666	275	746	287	494	784	291	864	594
85P			810								416	736	378	816	399	534	854	428	934	634
90P			1000								448	893	595	1038	640	508	953	587	1098	588
95P	RE180	RE180U	1000	95	190	370	245	4	150	295	563	1008	755	1153	800	683	1128	795	1273	763
1200			1300								520	900	2200	1015	2245	UPON REQUEST				

* Weight with oil • Supplied with OVERSIZED CHAMBER SCFM or DCFM

Example of order with standard hub: ALFA 80P SCF WAG-G RE120PU G(m)= 100 G(r)=90

Example of order with long hub: ALFA 80P SCF WAG-G RE120PUU G(m)= 100 G(r)=90

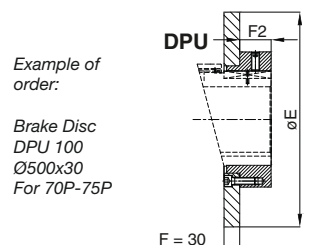
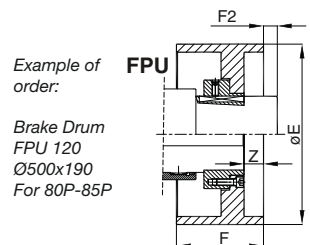
BRAKE DRUM FPU

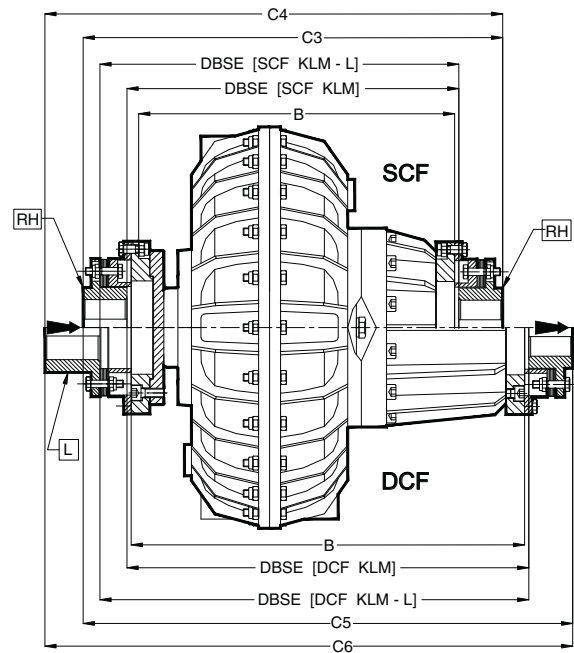
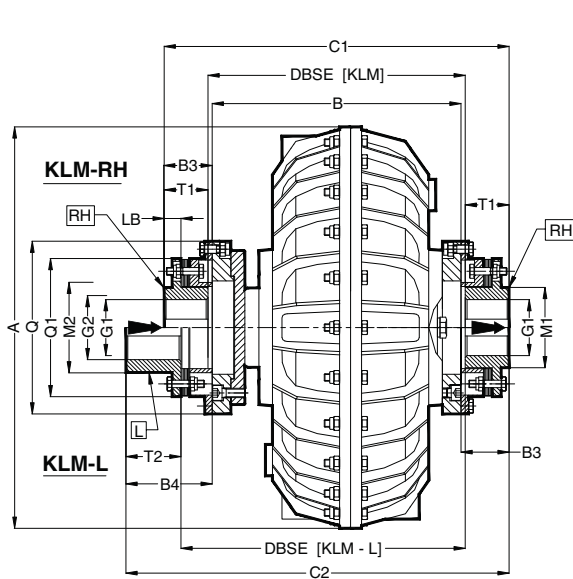
ROTOFLUID	30-30P-40P-50					55-60-65					70P-75P					80P-85P					90P-95P					1200				
Type FPU	FPU-55					FPU-85					FPU-100					FPU-120					FPU-180					FPU-220				
Ø E	160	200	250	315	400	250	315	400	315	400	500	400	500	630	500	630	710	630	710	800	500	630	710	630	710	800	500	630	710	800
F	60	75	95	118	150	95	118	150	118	150	190	150	190	236	190	236	265	236	265	300	190	236	265	236	265	300	190	236	265	300
F2	UPON REQUEST																													
Z	0	0	0	3	35	0	0	0	0	0	20	0	5	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weight kg	5,4	9,2	14,5	29	50,8	19,5	30,8	52,8	35,9	58,3	96,8	57	95,6	134	105	142	178	145	180	254	105	142	178	145	180	254	105	142	178	254

BRAKE DISC DPU

ROTOFLUID	30-30P-40P-50					55-60-65					70P-75P					80P-85P					90P-95P					1200				
Type DPU	DPU-55					DPU-85					DPU-100					DPU-120					DPU-180					DPU-220				
Ø E	250	315	355	400	355	400	450	500	500	560	630	710	500	560	630	710	800	1000	710	800	1000	1250	800	1000	1250	800	1000	1250	800	1000
F2	41	41	41	41	45	45	45	45	60	60	60	60	60	60	60	60	60	60	60	60	105	105	105	105	105	105	105	105	105	105
Weight kg	11,7	18,5	23,5	28,8	25,2	31,5	38,5	47,3	51	63	78	98	50	61,6	77	97	122	188	105	130	197	300	105	130	197	300	105	130	197	300

DIMENSIONS ARE NOT BINDING





NOTES: (1) upon request: bore G finished / (2) the arrows ► indicate input and output / (3) reverse mounting is possible upon request

ROTOFLUID SIZE	DISC COUPLING HBSX	KLM-RH												KLM-L							
		Dimensions in mm											kg*	Dimensions in mm					kg*		
		A	B	C1	G1 max	DBSE	B3	LB	M1	Q	Q1	T1	Weight	C2	G2 max	DBSE	B4	M2	T2	Weight	
30	170	290	214	303	48	217	44,5	16.3	64	155	119	43	26,4	346,7	55	243,7	88,2	75	60	27,2	
30P		327				243,7							35								
40P		338				250							339			253				37	382,7
50	330	430	234	337	65	237	51,5	18	86	185	148	50	51,6	389	65	269	103,5	92	70	52,9	
55			266	369		269							61,6	421		301				62,9	
60	650	520	256	383	85	259	63,5	25	120	260	214	62	94,5	468	95	296	148,5	135	110	101,5	
65			304	431		307							114,5	516		344				121,5	
70P	1260	640	276	433	100	281	78,5	28	138	295	246	76	161	525	110	329	170,5	155	120	169,4	
75P			331	488		336							192	580		384				200,4	
80P	2700 3160	810	360	576 606	105 125	366	108 123	35 41	150 175	330 365	275 308	105 120	322 357	666 710	120 135	436 445	198 227	165 190	125 145	328,9 366,7	
85P	3160		430	676		125	436	123	41	175	365	308	120	429	780	135	515	227	190	145	438,7
90P	3160	1000	461	707	125	467	123	41	175	365	308	120	530	811	135	546	227	190	145	545,3	
95P	4630		576	854	140	584	139	46	195	415	346	135	740	973	150	673	258	215	165	755,3	
1200	UPON REQUEST																				

UPON REQUEST

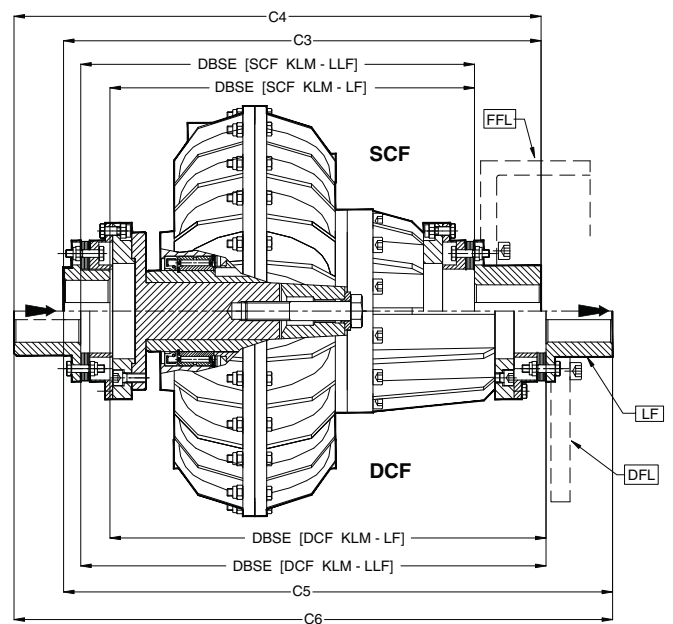
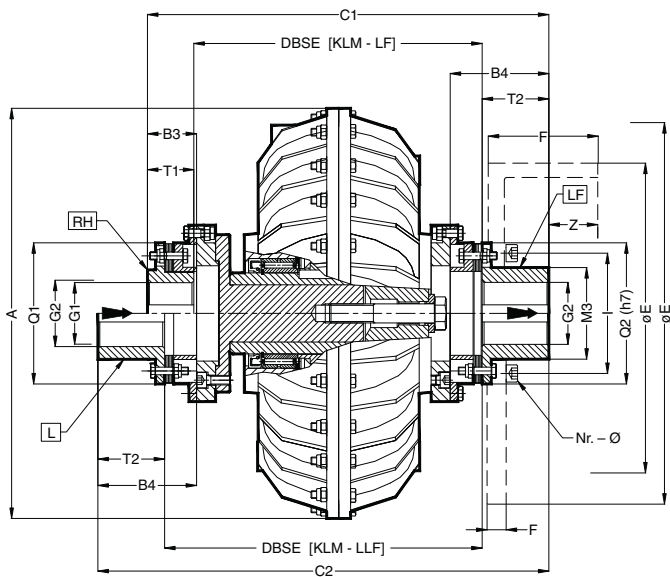
* Weight with oil

DIMENSIONS ARE NOT BINDING

ROTOFLUID SIZE	DISC COUPLING HBSX	SCF KLM-RH					SCF KLM-L					ROTOFLUID SIZE	DISC COUPLING HBSX	DCF KLM-RH					DCF KLM-L				
		mm				kg*	mm				kg*			mm				kg*	mm				kg*
		B	DBSE	C3	T1	Weight	DBSE	C4	T2	Weight	B			DBSE	C5	T1	Weight	DBSE	C6	T2	Weight		
30	170					28,8				29,6	30	170					29,4				30,2		
30P		269	272	358	43	36,6	298,7	401,7	60	37,4	30P		309	312	398	43	37,2	338,7	441,7	60	38,2		
40P		308	311	397		41,4	337,7	440,7		42,2	40P		380	383	469		42,2	409,7	512,7		43		
50	330	314	317	417	50	57,4	349	469	70	58,7	50	330	389	392	492	50	59,6	424	544	70	60,9		
55		346	349	449		67,4	381	501		68,7	55		421	424	524		69,6	456	576		70,9		
60	650	346	349	473	62	102,9	386	558	110	109,9	60	650	426	429	553	62	106,5	466	638	110	113,8		
65		394	397	521		122,9	434	606		129,9	65		474	477	601		126,5	514	686		133,5		
70P	1260	386	391	543	76	174	439	635	120	182,4	70P	1260	501	506	658	76	181	554	750	120	189,4		
•75P		441	446	598		205	494	690		213,4	•75P		556	561	713		212	609	805		220,4		
80P	2700 3160	478	484	694 724	105 120	338 373	554 563	784 828	125 145	344,9 382,7	80P	2700 3160	578	584	794 824	105 120	350 385	654 663	884 928	125 145	356,9 394,7		
•85P	3160	548	554	794	120	457	633	898	145	466,7	•85P	3160	648	654	894	120	477	733	998	145	486,7		
90P	3160	521	527	767	120	482	606	871	145	497,3	90P	4630	601	607	847	135	497	686	951	145	512,3		
95P	4630	696	704	974	135	780	793	1093	165	795,3	95P	4630	776	784	1054	135	795	873	1173	165	810,3		

• Supplied with OVERSIZED CHAMBER SCFM or DCFM

Example of order : ALFA 55KLM-L 330 RH (with 1 RH hub and 1 L hub)



NOTES: (1) upon request: bore G finished / (2) the arrows ➡ indicate input and output

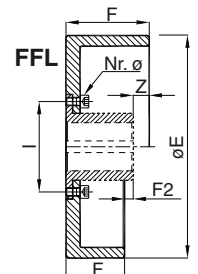
ROTOFLUID SIZE	DISC COUPLING HBSX	mm								KLM									SCF KLM						DCF KLM							
										LF					LLF				LF			LLF			LF			LLF				
		mm			kg*		mm			kg*		mm		kg*	mm		kg*	mm		kg*	mm		kg*	mm		kg*	mm		kg*			
		A	B3	B4	ØG1 max	ØG2 max	M3	Q1	Q2	DBSE	C1	T1	W.	DBSE	C2	T2	W.	DBSE	C3	W.	DBSE	C4	W.	DBSE	C5	W.	DBSE	C6	W.			
30	170	290														27,2			28													
30P		327	44,5	88,2	48	55	75	119	118,5	243,7	346,7	43	35	270,4	390,4	60	35,8	298,7	401,7	29,6	325,4	445,4	30,4	338,7	441,7	30,2	365,4	485,4	31			
40P		338																		37,4	325,4	445,4	38,2			38,2	365,4	485,4	39			
50	330	430																														
55		430	51,5	103,5	65	65	92	148	147,5	269	389		52,9	301	441		54,2	349	469	58,7	381	521	60	424	544	60,9	456	596	62,2			
60																																
65	650	520																														
70P		520	63,5	148,5	85	95	135	214	213	344	516	62	121,5	381	601	110	128,5	434	606	129,9	471	691	136,9	514	686	133,5	551	771	140,5			
• 75P		640	78,5	170,5	100	110	155	246	245	329	525	76	169,4	377	617	120	177,8	439	635	182,4	487	727	190,8	554	750	189,4	602	842	197,8			
80P	2700 3160	810	108	198	105	120	165	275	274	436	666	105	328,9	506	756	125	335,8	554	784	344,9	624	874	351,8	654	884	356,9	724	974	363,8			
• 85P		123	227	125	135	190	308	307		445	710	120	366,7	524	814	145	377,4	563	828	382,7	642	932	392,4	663	928	394,7	742	1032	404,4			
90P		1000	123	227	125	135	190	308	307	515	780	120	438,7	594	884	145	448,4	633	898	466,7	712	1002	476,4	733	998	486,7	812	1102	496,4			
95P	4630	1000	123	227	125	135	190	308	307	546	811	120	545,3	625	915	145	560,6	606	871	497,3	685	975	512,6	686	951	512,3	765	1055	527,6			
1200		1000	139	258	140	150	215	346	346	673	973	135	755,3	762	1092	165	770,6	793	1093	795,3	882	1212	810,6	873	1173	810,3	962	1292	825,6			
		UPON REQUEST																														

* Weight with oil

DIMENSIONS ARE NOT BINDING

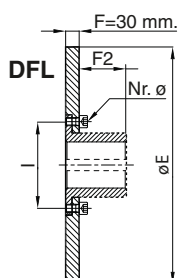
BRAKE DRUM FFL

ROTOFLUID	30-30P-40P				50-55				60-65				70P-75P				80P				85P-90P				95P			
FFL	FFL 170				FFL 330				FFL 650				FFL 1260				FFL 2700				FFL 3160				FFL 4630			
Ø E	160	200	250	315	200	250	315	400	250	315	400	315	400	500	400	500	400	500	500	630	500	630	630	710	630	710	710	710
F	60	75	95	118	75	95	118	150	95	118	150	118	150	190	150	190	150	190	190	236	190	236	236	265	236	265	265	265
F2	0	-	-	-	-	-	-	-	15	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Z	0	15	35	58	5	25	48	80	-	8	40	-	30	70	25	65	45	91	71	100	45	91	71	100	45	91	71	100
I	100				128				195				224				216				282				314			
Nr.-Ø	8 M10				8 M12				16 M12				16 M14				8 M20				16 M20				16 M20			
Weight kg	4	6,8	11,5	28	6,5	11,1	27,7	49,1	9,9	25	47,5	24	46	85	46,1	84,7	83,3	121	119	154,8	83,3	121	119	154,8	83,3	121	119	154,8



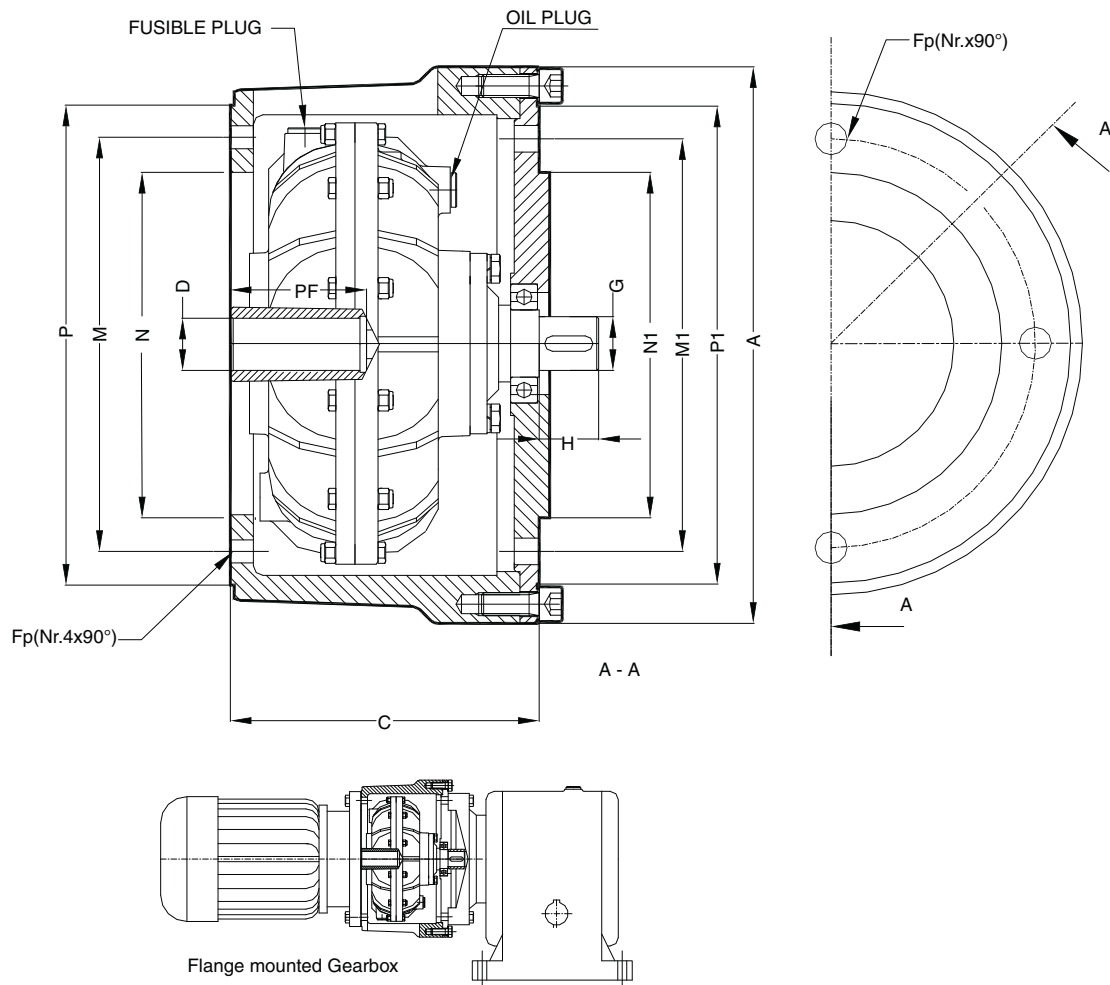
BRAKE DISC DFL

ROTOFLUID	30-30P-40P				50-55				60-65				70P-75P				80P				85P-90P				95P			
DFL	DFL 170				DFL 330				DFL 650				DFL 1260				DFL 2700				DFL 3160				DFL 4630			
Ø E	250	315	355	315	355	400	450	400	450	500	500	560	630	710	800	500	630	710	800	630	710	800	710	800	1000	1250	1250	1250
F	30				30				30				30				30				30				30			
F2	27,5				34,5				70				79				81				96				113			
I	100				128				195				224				216				282				314			
Nr.-Ø	8 M10				8 M12				16 M12				16 M14				8 M20				16 M20				16 M20			
Weight kg	10,5	17	22,3	16	21,8	28	35,9	26,2	34	42,8	41,7	53,5	70	88,8	114	41,2	53	68,4	88,2	66,7	86,5	112	84,7	109,8	176,3	280,3	280,3	280,3



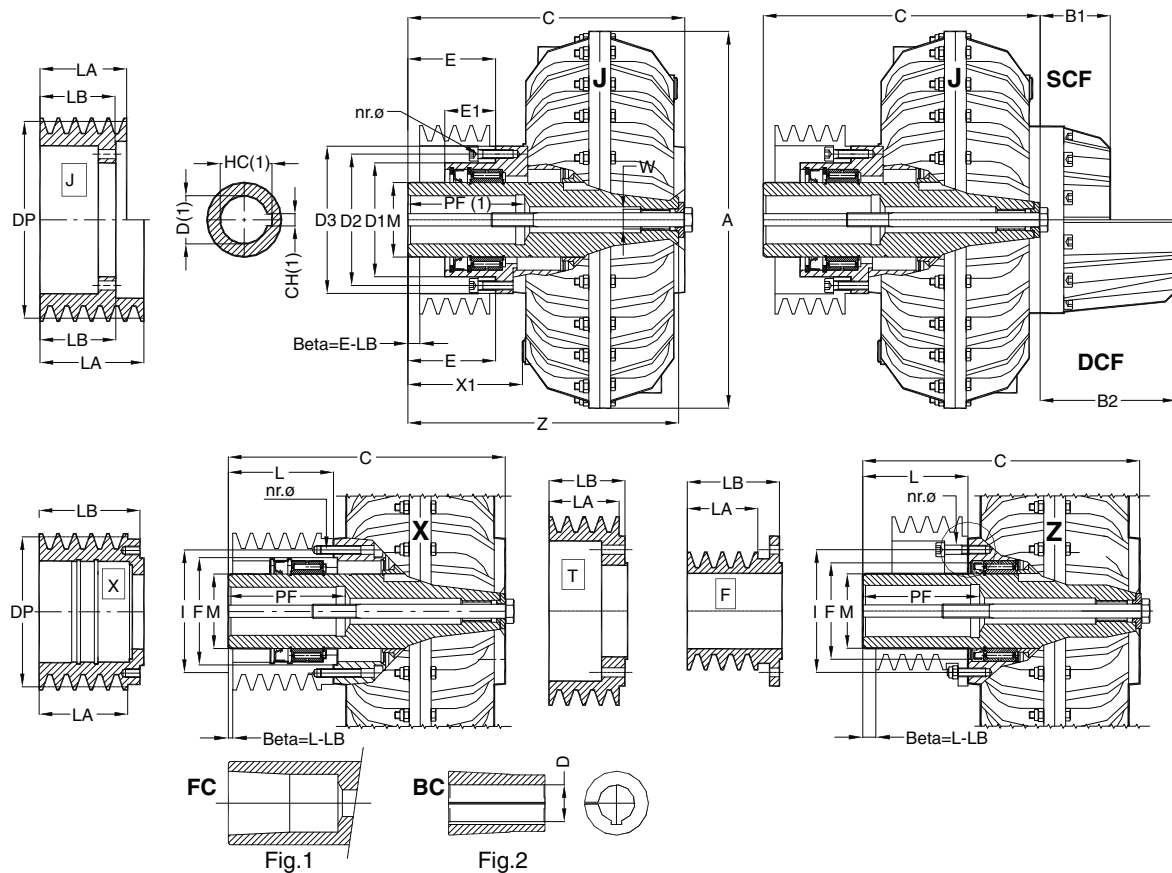
* Supplied with OVERSIZED CHAMBER SCFM or DCFM

Example of order: ALFA 55 SCF KLM 330 LF G(m)=60 G(r)=40 with Brake Drum FFL 330 ØE 315x118



COUPLING		MOTOR		Dimensions in mm													kg*											
Grand.	Tipo	Tipo	kW	A	C	D	Fp	G h7	H	M	M1	N F7	N1 h7	P	P1	PF	Weight											
10	CKS-19-19	80	0,55	240	128	19 G7	ø11	19	25	165	165	130	130	200	200	40	8,5											
			0,75			24 G7		24								50												
	CKS-24-24	90 S	1,1															ø13	28	32	215	215	180	180	250	250	60	24
		90 L	1,5																									
20	CKS-28-28	100	2,2	292	161		28 G7		ø13	38	45	265	265	230	230		300											
			3			ø17	42	300								300												
		112 M	4																									
30	CKS-38-38	132S 132M	5,5 7,5	350	210													38 F7	ø17	48	55	300	300	250	250	350	350	110
30P	CKS-42-42	160 M	11	42 F7					400	255	48 F7	40																
		160 L	15																									
40P	CKS-48-48	180 M	18,5	22	400	255	48 F7	ø17					48	55	300	300	250	250										
		180 L	22																									

* Weight with oil



NOTES: (1) for bore and keyway dimensions see sheet 10-019E / (2) for the choice of the assembly coupling-pulley, LA - LB quotes, see WESTCAR Pulley
(3) X couplings are supplied with X type pulleys for pitch diameters less than the minimum diameters of the J type pulleys

ROTOFLUID SIZE	Type	Dimensions in mm																J	X / Z	SCF		DCF	
		Bore D	A	C	D1 ^{H7}	D2	D3	E	E1	F ^{H7}	I	L	M	Nr.-Ø	X1	Z	W	Weight kg*	Weight kg*	B1	Weight kg*	B2	Weight kg*
10	Z 55	24	192	143	-	-	-	-	-	47	60	55	35	6-M6	57	140	M10	-	4,2	-	-	-	-
20	Z 70	28	229	185	-	-	-	-	-	62	78	70	45	6-M8	76	180	M14	-	6,5	-	-	-	-
30	J / X / Z 88	□FC	290	238	85	100	114	70	45	75	100	88	60	8-M8	97	233,5	M24	16,3	14,8	55	2,4	95	3
30P	J / X / Z 88	□FC	327												24,3			22,8					
40P	J / X / Z 90	□FC	338	273	112	130	145	89	60	100	125	90	70	8-M8	114	268	M24	28	25	58	4	130	5
		J / X / Z 118		□FC				301				117			118	142		296	29				
50	J / X 90	□FC	430	244	130	150	170	70	58	110	140	90	85	8-M10	95	241,5	M24	33	31	80	6	155	8
		J / X 120		□FC				274				100			120	125		271,5	35,5				
55	J / X 155	□FC		351				135				155			160	348,5		46	43				
60	J / X 130	□FC	520	302	150	170	184	110	88	125	160	130	110	8-M10	135	302	M30	60	55	90	8,4	170	12
		J / X 170		75-80				342				150			170	175		342	62				
65	J / X 130	□FC		350				110				130			135	350		74	69				
	J / X 170	75-80	390	150	170	175	390	77	72														
70P	J / X 170	80-90-100	640	380	188	210	230	140	100	150	195	170	120**	8-M12	169	369	M36	120,5	111	110	13	225	20
				J / X 210				420				180			210	409		123,5	114				
•75P	J / X 210	80-90-100	470	180				180				209			459	156,5	147						
80P	J / X 255A	80-90-100-110	810	481	214	240	270	225	130	190	230	255	140	8-M14	254	475	M36	222,5	207	118	16	218	28
•85P	J / X 255A	80-90-100-110		555				225							230	255		549	303,5				290

* Weight with oil

DIMENSIONS ARE NOT BINDING

• Supplied with OVERSIZED CHAMBER SCFM or DCFM

□ Couplings with conical bore FC are supplied with Taper Bush BC and fixing screw (Fig. 1 and 2)

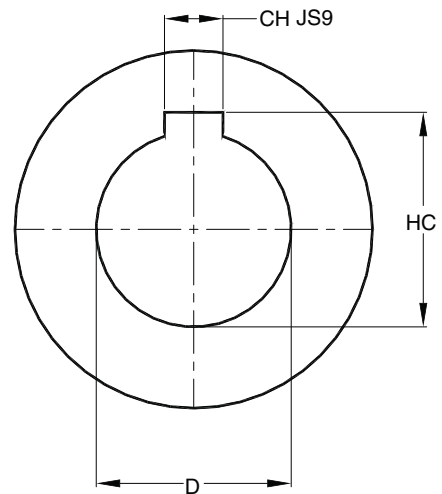
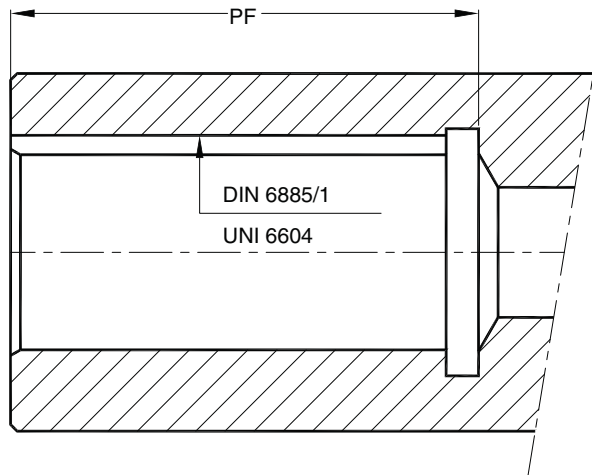
In case of mounting on shafts without shoulder contact WESTCAR

Example of order of a coupling for taper bush: BETA 55 J155 FC

Example of order of a coupling with taper bush: BETA 55 J155 FC + 55BC L155 D=60

TAPER BUSH BC WITH FIXING SCREW							
COUPLING SIZE	Type	Standard D Bore					Max D Bore
30/30P	3BC	38	42	48	-	-	48
40P	4BC	38	42	48	50	-	50
50 - 55	5BC	-	42	48	55	60	65
60 - 65	6BC	-	-	48	55	60	70

■ Taper Bushes are supplied without keyway



D	Tolerance	PF	CH	HC	Tolerance
10	H7	25	3	11,4	+ 0,1 0
11 *		25	4	12,8	
12		25	4	13,8	
13		30	5	15,3	
14 *			5	16,3	
15			5	17,3	
16		40	5	18,3	+0,2 0
17			5	19,3	
18			6	20,8	
19 *			6	21,8	
20		50	6	22,8	
21			6	23,8	
22			6	24,8	
23			8	26,3	
24 *		50	8	27,3	
25			8	28,3	
26			8	29,3	
27		60	8	30,3	
28 *			8	31,3	
30			8	33,3	
32	G7	80	10	35,3	
33			10	36,3	
34			10	37,3	
35		80	10	38,3	
38 *			10	41,3	

D	Tolerance	PF	CH	HC	Tolerance
40	G7	110	12	43,3	+0,2 0
42 *			12	45,3	
45			14	48,8	
48 *			14	51,8	
50			14	53,8	
55 *			16	59,3	
60 *		140	18	64,4	
65 *			18	69,4	
70 *			20	74,9	
75 *			20	79,9	
80 *		170	22	85,4	
85 *			22	90,4	
90 *			25	95,4	
95			25	100,4	
100 *		210	28	106,4	
105			28	111,4	
110 *			28	116,4	
115			32	122,4	
120		250	32	127,4	
125 *			32	132,4	
130			32	137,4	
135 *			36	143,4	
140			36	148,4	
160			40	169,4	
180			45	190,4	

* STANDARD BORES FOR UNEL MEC ELECTRIC MOTORS

FUSIBLE PLUG TF

In case of overheating, the fusible plug allows the oil out and thereby disconnects the power transmitted to the output shaft. Fusible plugs are available for four different melting temperatures: 96°C, 120°C, 145°C and 180°C.

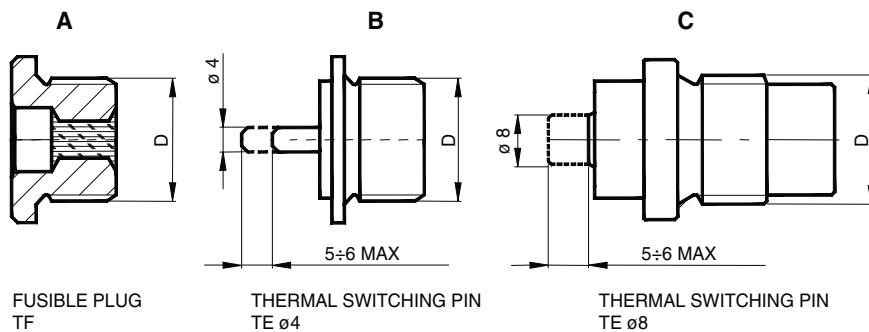
WESTCAR standard couplings are supplied with fusible plug at 145° C.

THERMAL SWITCHING PIN TE

In case of coupling overheating with a thermal switching pin, a pin is released and collide against a limit switch which activates an alarm or shuts off the electric motor. This method avoids the oil leakage from the coupling.

Fusible switching pins are available for four different temperatures: 96°C, 120°C, 145°C and 180°C.

In case of stall conditions, motor running and machine locked, the coupling housing must be driving to guarantee the signal survey.

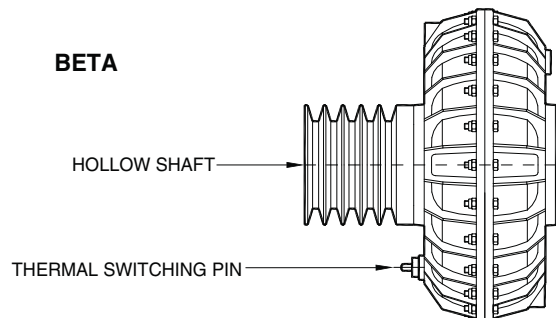
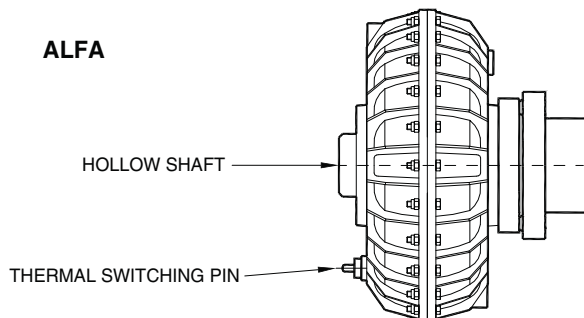


ROTOFLUID SIZE	DIMENSIONS				TEMPERATURE			
	D	A	B	C	96 °C BLUE	120 °C WHITE	145 °C RED	180 °C GREEN
10 20 30-30P 40P	1/4 GAS	X	X	-	●	●	●	●
50-55 60-65	1/2 GAS	X	X	-	●	●	●	●
70P-75P 80P-85P	1/2 GAS	X	-	X	●	●	●	●
90P-95P	3/4 GAS	X	-	X	●	●	●	●

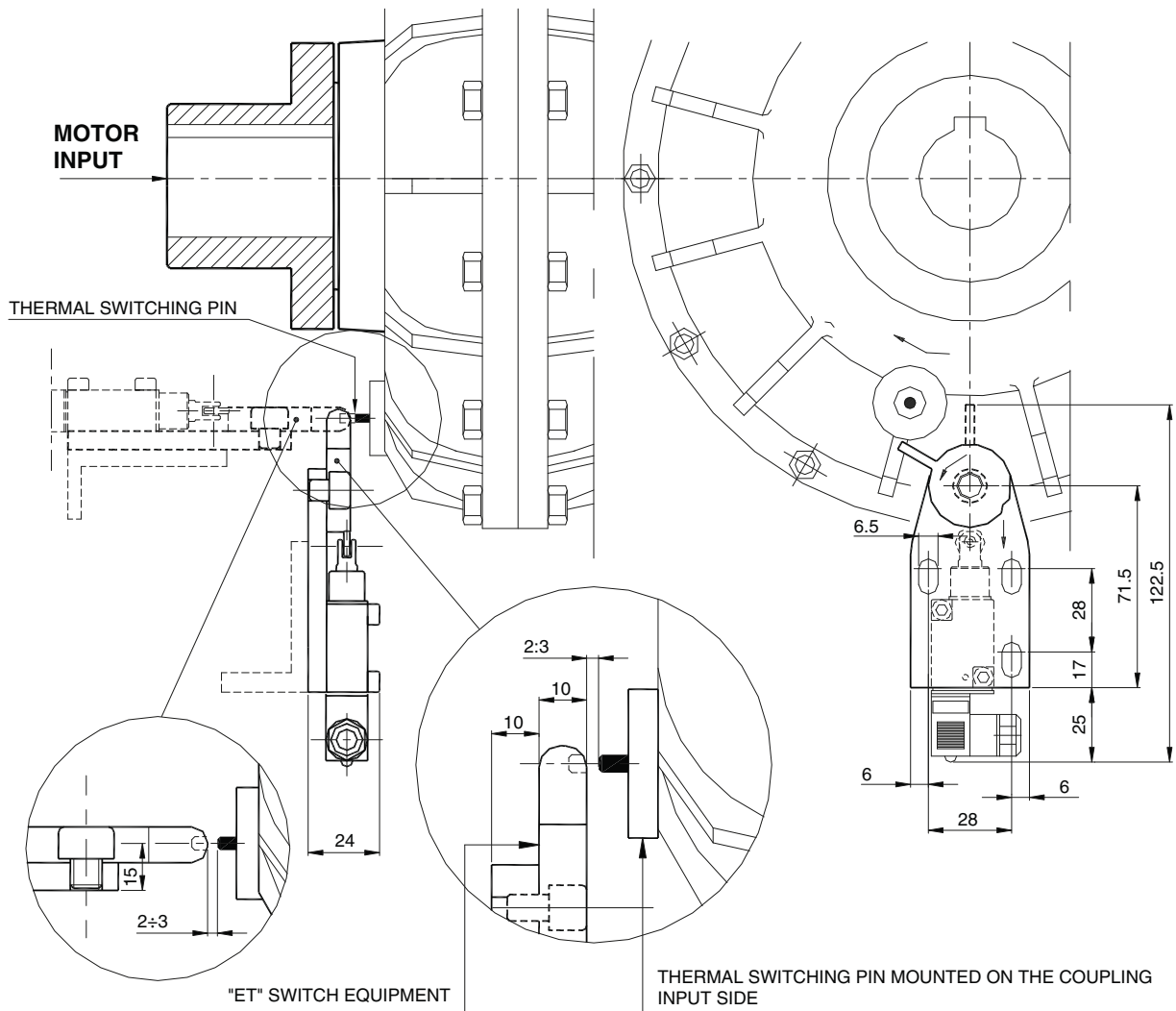
When ordering specify: dimension D, safety plug melting temperature and colour.

Example of order: **Thermal switching pin TE ¼ GAS 145°C RED.**

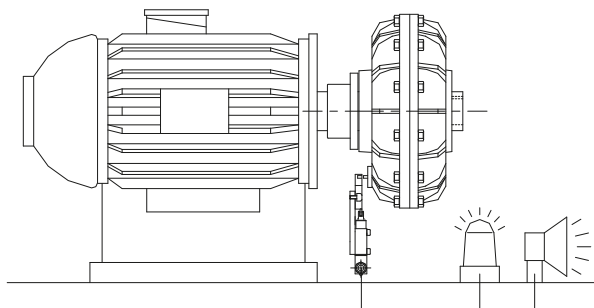
THERMAL SWITCHING PIN STANDARD POSITION



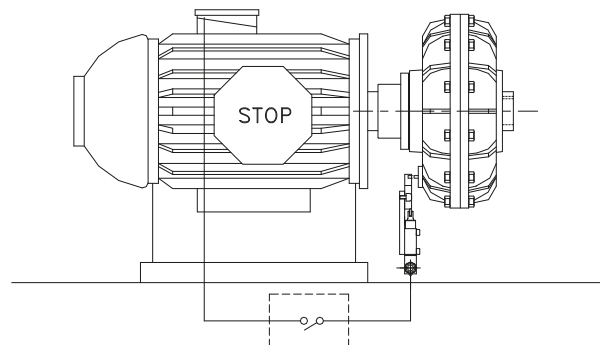
The thermal switching pin is normally mounted by the hollow shaft side but in case of need can be located in the opposite side.



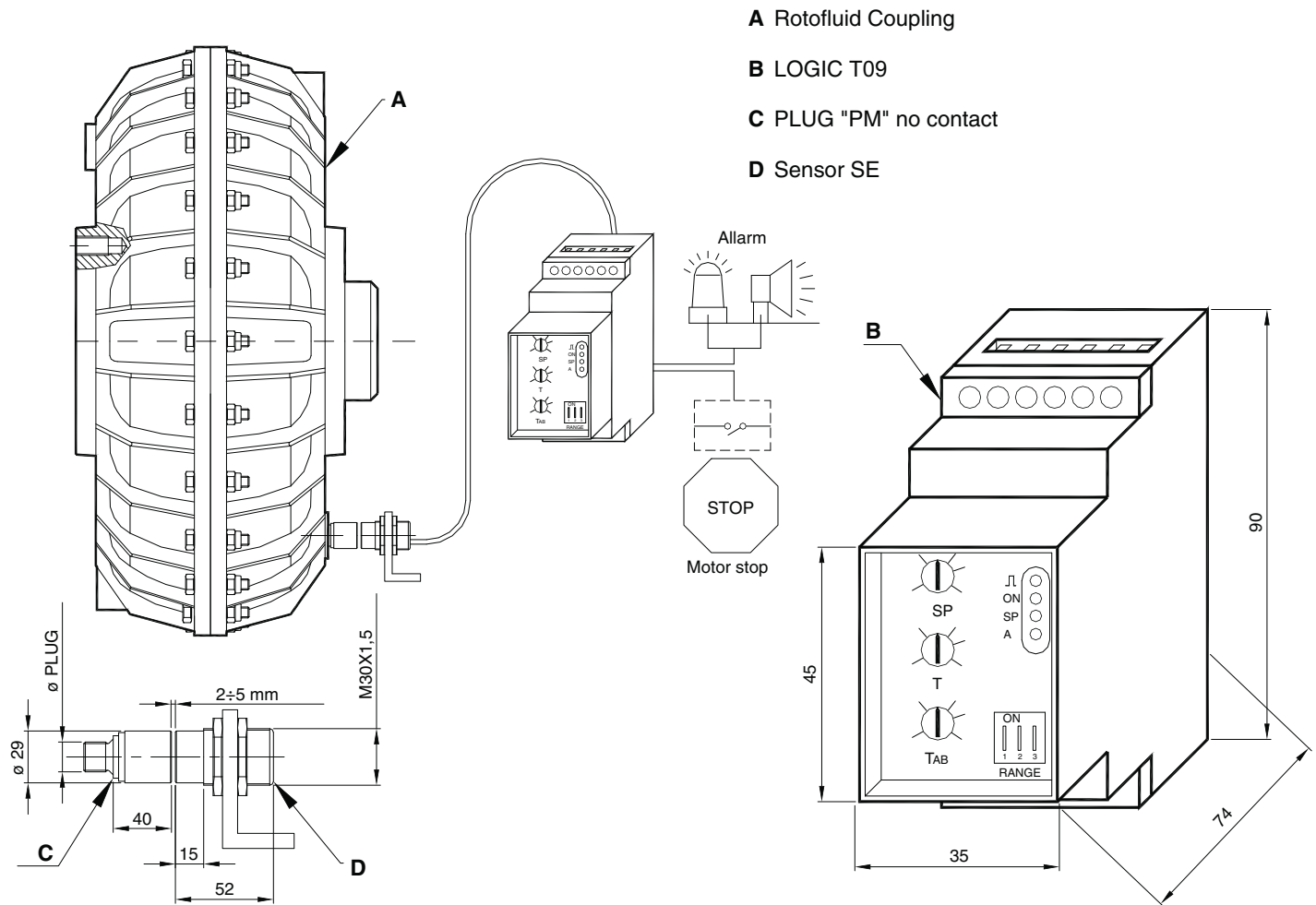
"ET" CONNECTED TO A LIGHT SOUND SIGNAL



"ET" CONNECTED TO SWITCH OFF THE DRIVE



The ET safety device consists of a microswitch and a cam mounted on a base and operates in combination with a thermal switching pin fitted on the fluid coupling housing. In case of coupling overheating due to overloads and machine jams or reduced oil filling, the oil temperature can exceed the melting temperature set for the thermal switching pin. The pin then extends and makes contact with the cam of the microswitch sounding an alarm or shutting down the drive.



DEVICE T09 WITH PM

The Plug PM is fitted on the outer impeller, in contact with the oil inside the coupling.

The outer wheel of the coupling (A) can be connected to the machine (driven side) or connected to the motor (drive side).

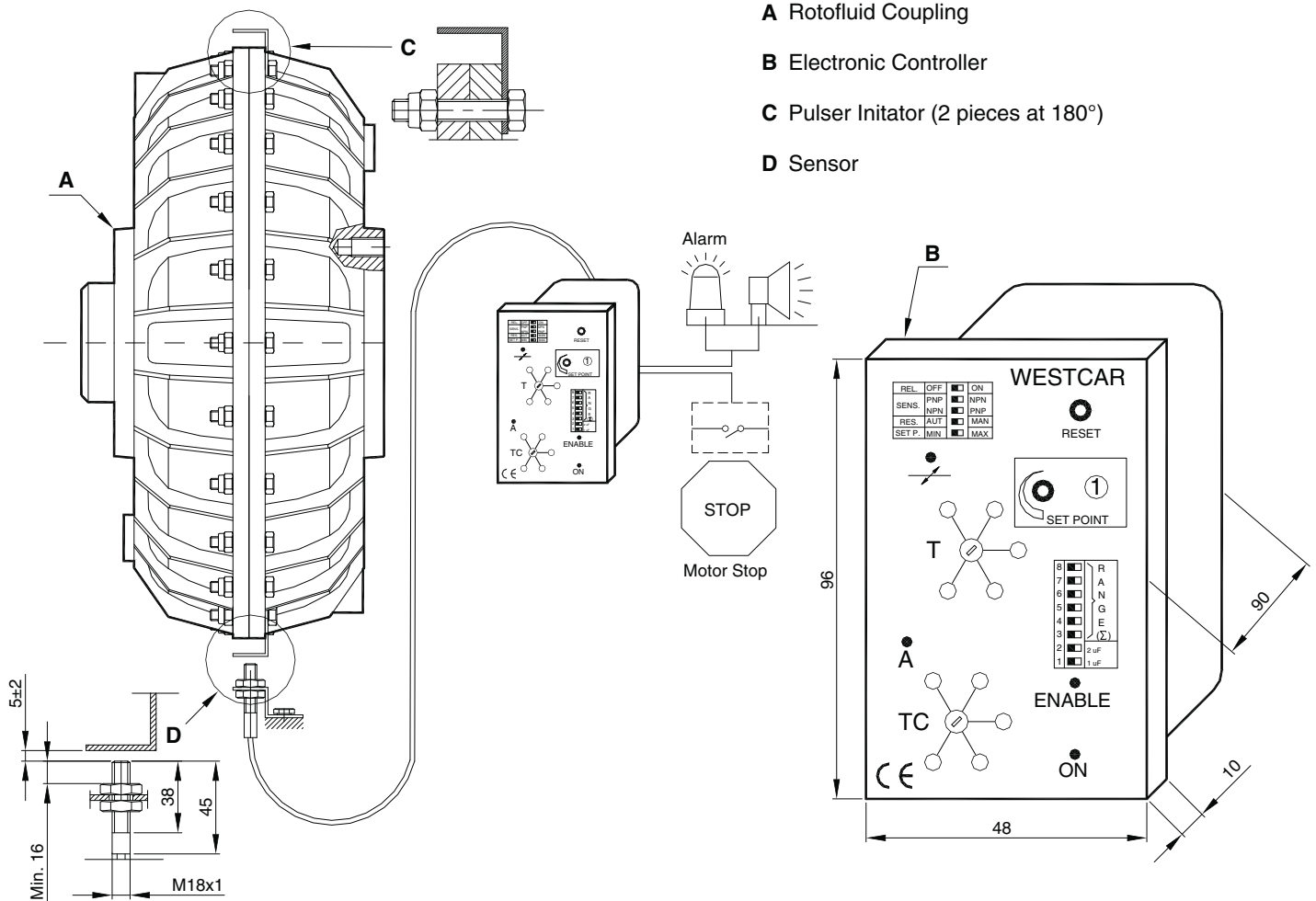
If the Plug PM is mounted on the driven side the system detects the variation of temperature and speed. If it is mounted on the drive side the system detects only the temperature.

WORKING PRINCIPLE

The Plug PM contains a thermal element that changes its status at the temperature of 120°C (or upon request: 80°C, 100°C, 140°C or 160°C). The plug PM, normally closed, crossing the SE sensor acts as a pulse generator, consequently the SE sensor sends impulses to the device LOGIC T09.

Once the temperature limit is reached the thermal element opens and the plug PM and the sensor SE no longer generate impulses. The device LOGIC T09 not receiving more signals, will switch the inner relay, providing an alarm signal or stopping the motor.

POWER SUPPLY: Standard tension 24Vac (upon request: 115 Vac, 230 Vac or 24Vdc).



DEVICE SCD

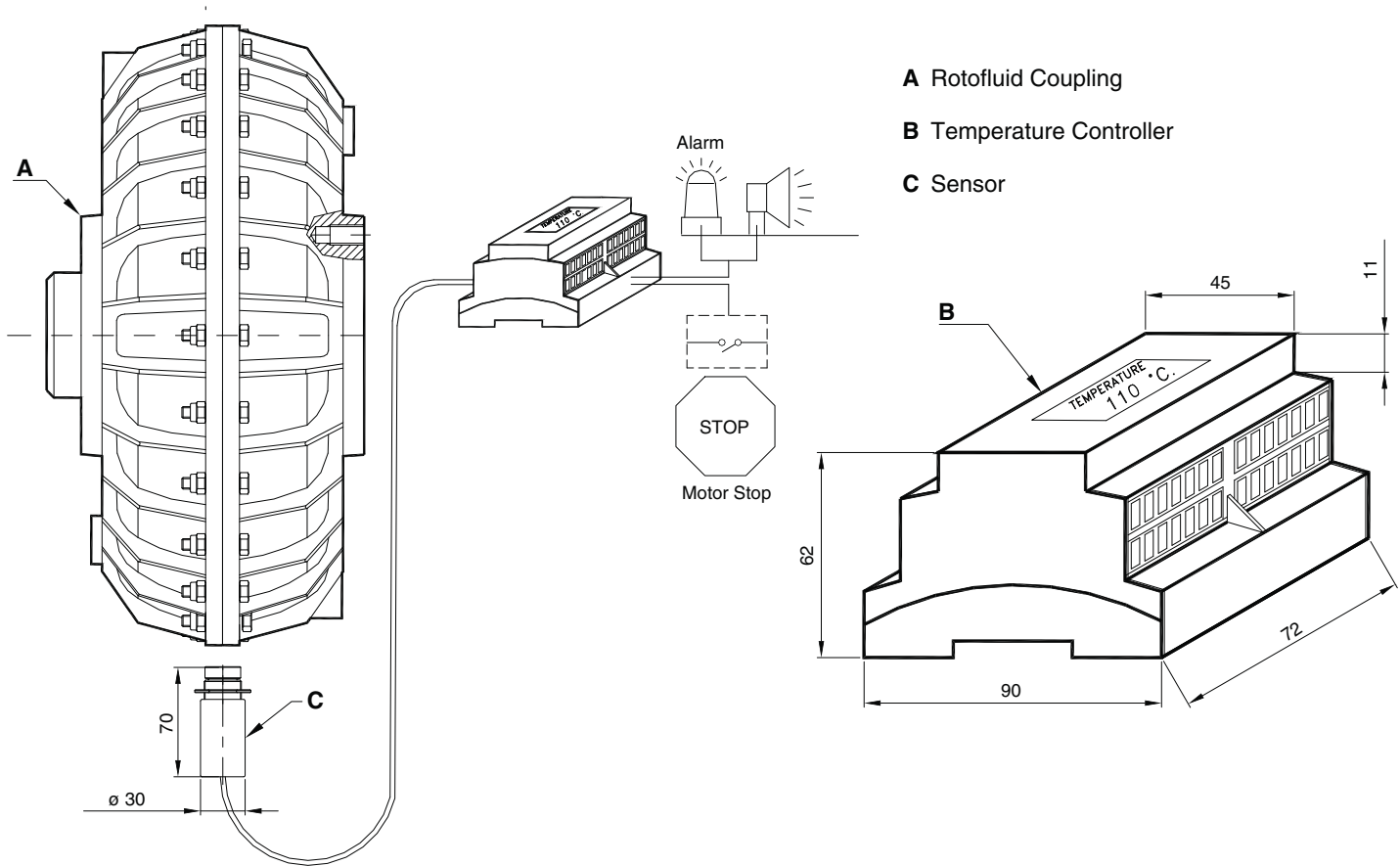
The **SCD** Device can be applied to guarantee the safety of coupling the machine and the product quality.

The **SCD** device is an electronic controller which receives a train of pulses by a sensor. The pulses are converted into a proportional voltage to the pulses frequency. This voltage is compared with a variable reference voltage (SET POINT). The internal relay changes over when the input speed is faster or lower than the fixed (SET POINT). It is used to control the shaft revolution speed. In case of speed decrease, the device gives a signal to the operator.

WORKING PRINCIPLE

As the transmitted torque is increased, this gives rise to an increased slip of the fluid coupling. Possible overload can be detected by measuring the resulting speed reduction in the driven half coupling by means of overload **SCD**. This with change-over contact at the output may either emit an alarm signal or switch off the main motor. A delaying action (max 120 sec) prevents the unnecessary triggering of the relay, when the motor is started. It only occurs once when the operating voltage is applied. False alarms are prevented arising from very short torque fluctuations, by the introduction of a preset time lag (max 30 seconds).

POWER SUPPLY: Standard tension 24 Vac (upon request: 115 Vac, 230 Vac or 24 Vdc).



The **continuous monitoring** of the components substantially contributes to preserve the performance of a system itself, while assuring, in the meantime, a considerable **increase in reliability**.

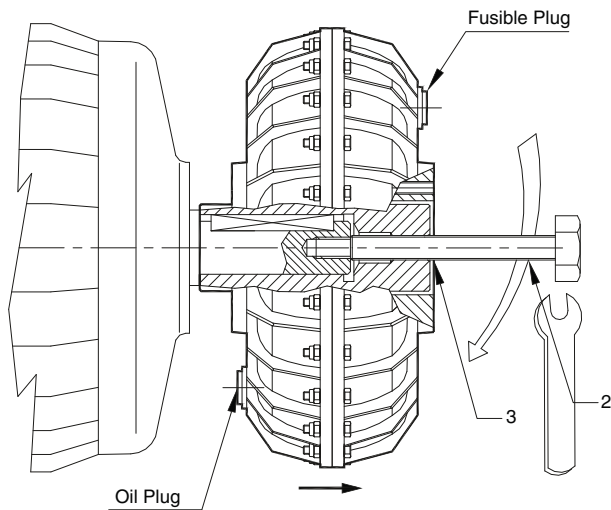
The **ITC (Infrared Temperature Controller)** infrared device allows the monitoring of the fluid coupling temperature, contactless, in real time and in a temperature range between -20° C and +250° C, thus providing the ability to regulate workloads or possible intervention. This is an advantage which increases the effectiveness of the whole system and reduces downtime.

Moreover, through the **sensor control interface**, integrated in the DIN rail mounted control system, it is possible to **set two limit temperatures** (Low and High level) to get a signal when such temperatures are reached.

Finally, **if the integration of the device in existing control systems is desired**, ITC is able to provide the current temperature value through a 0-10 V analog output, which can be useful for data transmission to other equipment or for automatic setup of the monitored system parameters.

ITC Device Characteristics
Continuous monitoring
Real time temperature acquisition
Current temperature visualization on the LCD display
2 programmable digital output – limit temperatures
Evaluation of temperature gradient
Easy and quick installation with standard DIN rail mounting
Wide spectrum of application
0-10 V analog output

SCREW PULLER “VE” TYPE

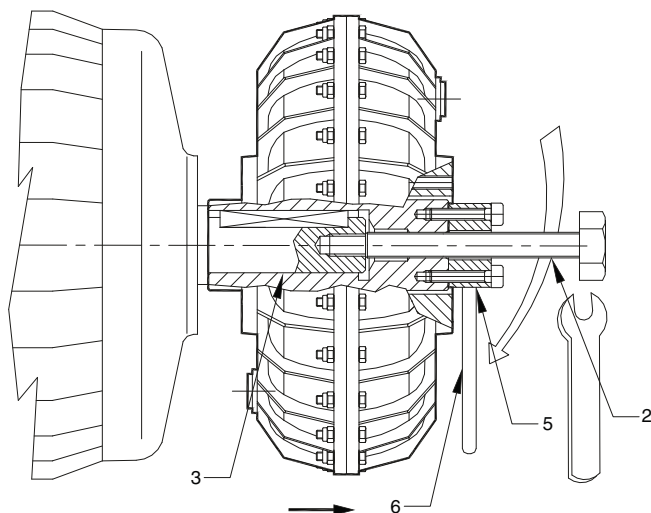


VE SYSTEM	ROTOFLUID COUPLING					
	SIZE	VERSIONS				
Type		K	Z	J	H	X
VE M14	20	K1	Z70	J70	H55	XN70
VE M16		K3	Z69	-	-	-
VE M20				J103	H85	X103
VE M24	30	ALL VERSIONS				
	30P					
	40P					
	50					
VE M30	55	UP TO Ø 65				
	55	FOR Ø75 Ø 80				
	60	ALL VERSIONS				
VE M36	65					
	70P					
	75P					
	80P					
	85P					
	90P					
	95P					

To pull off the ROTOFLUID coupling proceed as follows:

- 1) Remove tightening screw
- 2) Tighten the screw (2) into the threaded hole of the coupling shaft (3), taking care to lock the rotation of the drive shaft.

PULLING OFF SYSTEM “SE” TYPE



SE SYSTEM	ROTOFLUID COUPLING					
	SIZE	VERSIONS				
Type		K	Z	J	H	X
SE M20	20	-	-	J 103	H 85	X 103
SE M24/35	30	ALL VERSIONS				
SE M24/40	30P					
	40P					
	50					
SE M30	55	UP TO Ø 65				
	55	FOR Ø75 Ø 80				
	60	ALL VERSIONS				
SE M36	65					
	70P					
	75P					
	80P					
	85P					
	90P					
	95P					

To pull off the ROTOFLUID coupling proceed as follows:

- 1) Remove tightening screw
- 2) Lock the bush (5) to the shaft end (3) with 2 securing screws. Tight the screw puller (2) in the shaft threaded hole keeping locked the rod (6) to avoid the motor shaft rotation.

The mass moment of inertia values listed in the table below are referred to inner part, outer part and oil where:

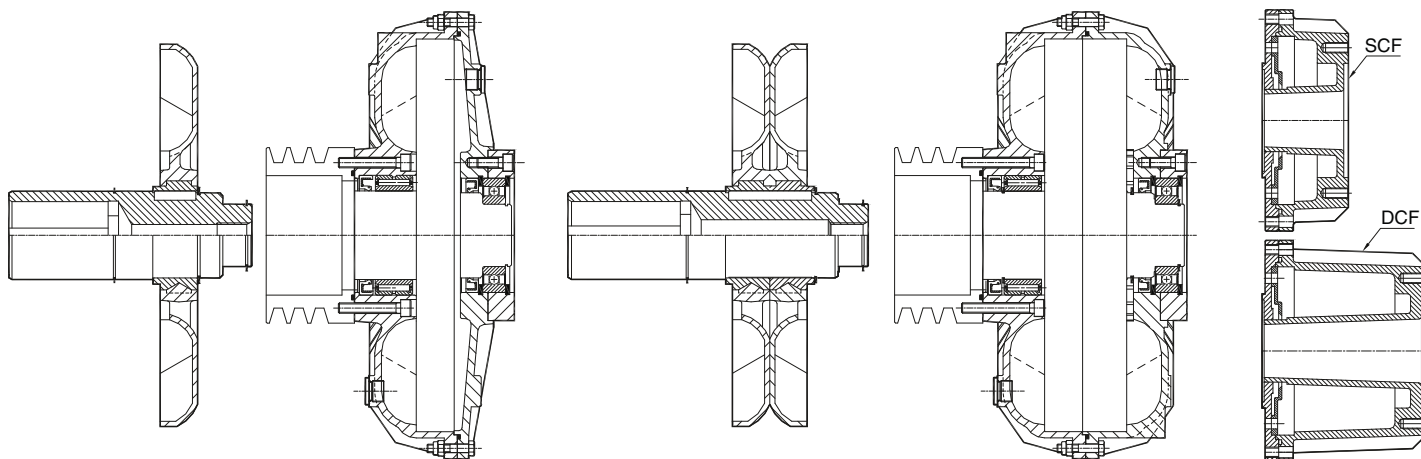
- **INNER PART** = hollow shaft, impeller pump, half oil

- **OUTER PART** = turbine and cover housing, half oil

Values valid for ROTOFLUID couplings with oil level at 45° off center pulleys, flexible couplings and other accessories are not included.

For couplings with delay fill chamber SCF/DCF, add their values to the correspondent of the outer part of the couplings.

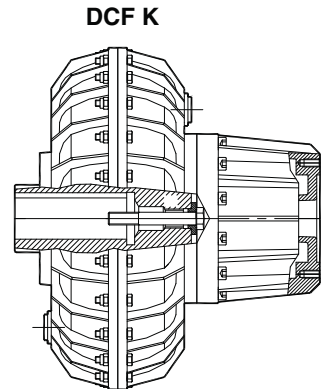
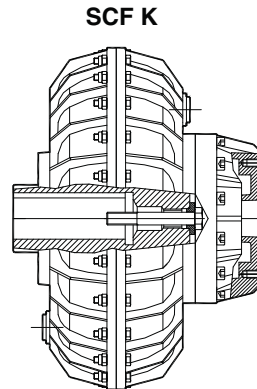
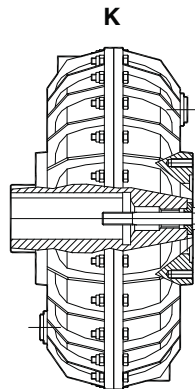
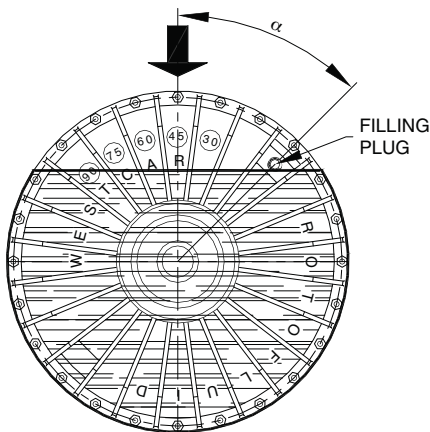
INNER PART		OUTER PART		DELAY CHAMBER
SIZES: 10, 20, 30, 30P, 40P, 50, 60, 70P, 80P, 90P		SIZES: 55, 65, 75P, 85P, 95P		



$$\text{MOMENT OF INERTIA } J = \frac{m \times R^2}{2} \text{ (Kgm}^2\text{)}$$

ROTOFLUID COUPLING SIZE	ALFA VERSION		BETA VERSION						DELAY CHAMBER	
	Tipo K		Tipo Z, X		Tipo J		Tipo H		SCF	DCF
	J INNER kgm ²	J OUTER kgm ²	J INNER kgm ²	J OUTER kgm ²	J INNER kgm ²	J OUTER kgm ²	J INNER kgm ²	J OUTER kgm ²	J kgm ²	J kgm ²
10	0,003	0,011	0,003	0,011	--	--	0,003	0,012	--	--
20	0,006	0,024	0,006	0,024	0,006	0,026	0,006	0,027	--	--
30	0,021	0,081	0,022	0,081	0,022	0,084	0,022	0,086	0,006	0,007
30P	0,040	0,140	0,045	0,140	0,045	0,144	0,045	0,147	0,006	0,007
40P	0,060	0,179	0,065	0,179	0,065	0,190	0,065	0,197	0,013	0,016
50	0,105	0,363	0,109	0,363	0,109	0,376	0,109	0,385	0,026	0,032
55	0,208	0,474	0,214	0,474	0,214	0,487	0,214	0,496	0,026	0,032
60	0,311	0,795	0,326	0,795	0,326	0,823	0,326	0,842	0,053	0,062
65	0,564	1,040	0,583	1,040	0,583	1,068	0,583	1,087	0,053	0,062
70P	0,678	2,386	0,740	2,386	0,740	2,473	0,740	2,551	0,160	0,200
75P	1,236	2,782	1,260	2,782	1,260	2,869	1,260	2,947	• 0,350	• 0,550
80P	2,389	7,276	2,499	7,276	2,499	7,393	--	--	0,350	0,550
85P	4,668	9,977	4,792	9,977	4,792	10,094	--	--	• 0,900	• 1,400
90P	8,372	23,200	--	--	--	--	--	--	1,200	1,600
95P	15,613	28,855	--	--	--	--	--	--	1,200	1,600
1200	54,000	260,000	--	--	--	--	--	--	--	--
1200D	104,000	320,000	--	--	--	--	--	--	--	--

• OVERSIZED CHAMBER SCFM / DCFM



OIL REPLACEMENT

The oil in the coupling must be changed for the first time after 2000 working hours and subsequently after each 4000 working hours. To change the oil, proceed as follows:

- 1) Rotate the coupling to bring the filling plug to its highest position
- 2) Unscrew and remove the filling plug
- 3) Determine the correct filling level by rotating the coupling until the filling hole corresponds to the current oil level
- 4) Completely drain the oil in the coupling by bringing the filling hole to its lowest point
- 5) Rotate the coupling again to bring the filling hole to correspond to the filling level determined at point 3
- 6) Pour in the new oil until the oil filling level is reached.

The quantity and type of oil recommended is listed in Table 1.

Results achieved by **decreasing the oil quantity**:

- Slower and more gradual startings
- Less absorption of startings current
- Better protection to the transmission elements in the event of overload
- Higher slip value at running.

IMPORTANT:

An excessive decrease in the oil quantity can cause the following problems:

- The impossibility of rapidly accelerating the machine due to insufficient torque.
- The overheating of the coupling, with consequent damage to the oil seals.

Results achieved by **increasing the oil quantity**:

- Faster startings
- Lower slip value at running
- Higher absorption of starting current during acceleration phases
- Greater strain on transmission elements.

IMPORTANT:

An excessive oil quantity can cause the following problems:

- The overloading of the electric motor
- The cracking of the coupling housing due to the internal overpressure caused by the lack of internal space for sufficient oil expansion

TYPES OF OIL RECOMMENDED FOR STANDARD WORKING TEMPERATURE Working Temperature from -20°C to +180°C

- BP ENERGOL HPL 22÷32
- CASTROL HYPIN AWS 22÷32
- ESSO SPINASSO 22÷32
- MOBIL VELOCITE OIL D
- Q8 VERDI 22÷32
- SHELL MORLINA 22÷32

Tab. 1

COUPLING SIZE	OIL QUANTITY FOR STANDARD FILLING					
	K		SCF K		DCF K	
	α	Liter	α	Liter	α	Liter
10	45°	0,55	--	--	--	--
20	45°	1,20	--	--	--	--
30	45°	2,39	55°	2,43	65°	2,42
30P	45°	4,05	55°	3,94	65°	3,78
40P	45°	4,07	55°	4,06	70°	4,09
50	45°	4,39	65°	4,37	75°	4,59
55	45°	7,19	60°	7,04	70°	7,17
60	45°	8,61	65°	8,23	75°	8,41
65	45°	13,48	60°	12,80	70°	12,77
70P	45°	18,05	65°	16,89	75°	17,64
•75P	45°	30,14	65°	29,36	75°	29,68
80P	45°	35,53	65°	35,21	75°	35,27
•85P	45°	60,64	65°	57,79	75°	56,28
90P	45°	91,92	60°	81,70	70°	90,62
95P	45°	153,3	60°	154,9	70°	146,7
1200	45°	200	--	--	--	--
1200D	45°	400	--	--	--	--

• OVERSIZED CHAMBERS SCFM, DCFM

For more information, consult WESTCAR.

Do not exceed Quantity of oil indicated in Table 1.

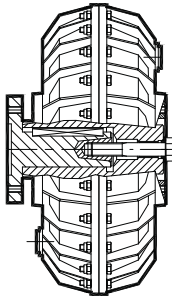


Fig. 1

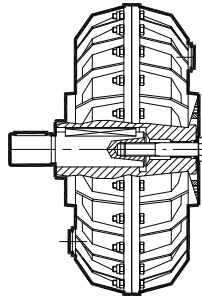


Fig. 2

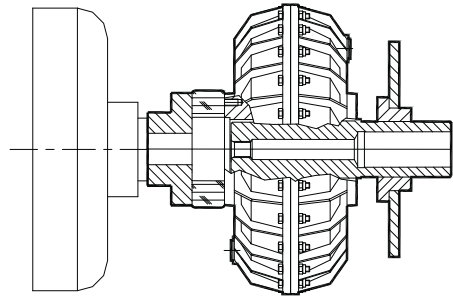


Fig. 3

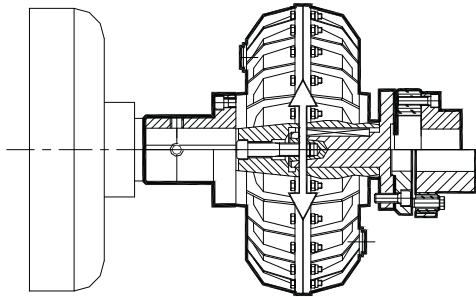


Fig. 4

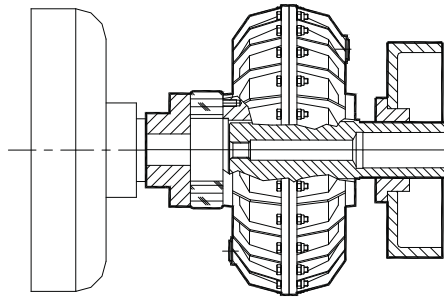


Fig. 5

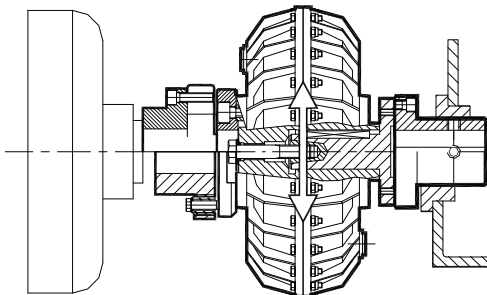


Fig. 6

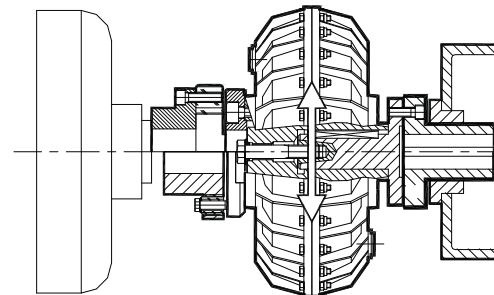


Fig. 7

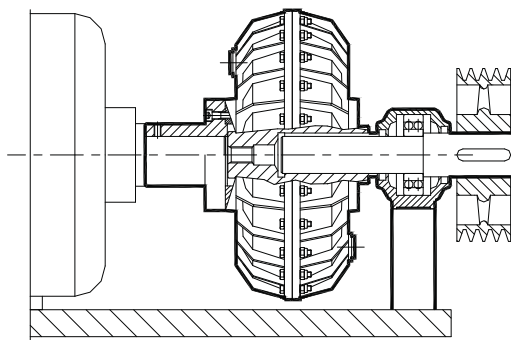


Fig. 8

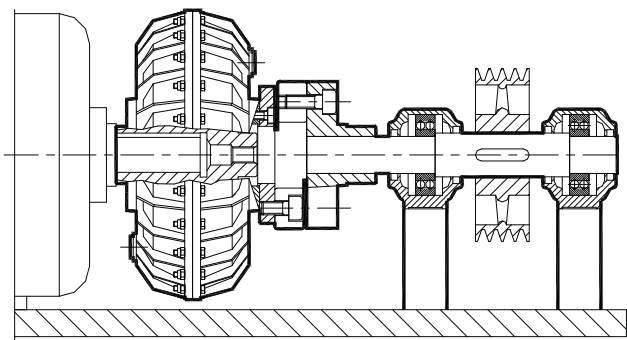


Fig. 9

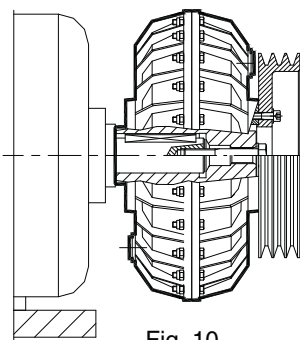


Fig. 10

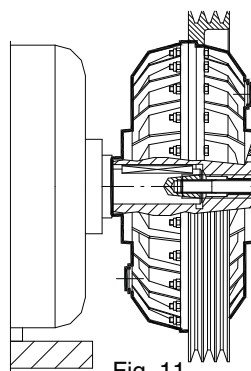


Fig. 11

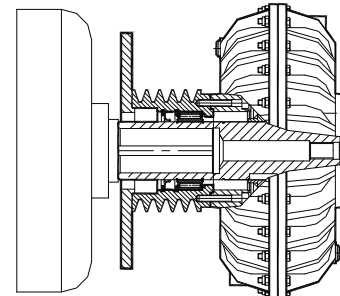


Fig. 12

BUILDING - CONSTRUCTION - MINING - BRICKS

- Tower Cranes
- Belt Conveyors
- Rotary kilns
- Crushers
- Rolling Mills
- Bucket elevators
- Rotating screens
- Rotary arrow
- Brick Moulders
- Kiln cars

TEXTILE

- Drum Tumblers
- Centrifuges
- Carding machines
- Industrial Washing machines
- Dryers

CHEMICAL - FOOD - CANNING

- Stirrers
- Dryers
- Decanters
- Rotating filters
- Soap cutters
- Calanders and gum mixers
- Palletizers
- Labelling Machine
- Bottling Plants
- Centrifugal separators

MECHANICAL ENGINEERING

- Twisting machines for rope and wire
- Rod iron straighteners
- Presses
- Profiling machines
- Drawbenches
- Cutters

AUTOMOTIVE INDUSTRY

- Balancing machines
- Gates open/closing drive

PAPER PROCESSING

- Winders
- Pulpers
- Mixers

TIMBER PROCESSING

- Drum barkers
- Hardboard presses
- Shredders

MARBLE PROCESSING

- Gantry cranes
- Multi-blade frames

ECOLOGY

- Blenders
- Sludge purification plant

CERAMICS

- Continuous and intermittent ball mills
- Mixers
- Presses

OTHERS

- Winches
- Windlasses
- Centrifugal and alternative compressors
- Suction and centrifugal fans
- Centrifugal pumps
- Fire pumps
- Elevators
- Cable cars
- Amusements park rides
- Haulage wagons in steelworks and mines
- Stack-up coating plants
- Sprayers
- Refineries
- Ski lift
- Sand mixers
- Fan & Blowers
- Refiners



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