

Made for Motion



Fluid couplings

Hydrodynamic power transmission
according to the Föttinger principle



Those who value KTR as a manufacturer will love us as a partner.

It goes without saying that KTR supplies sophisticated products. It may be less obvious that we already supply quality when the product does not yet exist: that is to say as a competent consulting partner and/or sparring partner. On request KTR is there for the customers already during the design stage reverting to the know-how and experience gained from thousands of applications in the field. No matter which question our customers may have: We also advise on site and support you with designing.



We do not conceive ourselves as suppliers, but as solution providers.

Standstill in an industry dealing with motion? That is definitely a no-go for KTR. Although our product portfolio comprises more than 20,000 different couplings and other drive components including brakes and coolers, it only shows part of the options. Specifically with the development of individual solutions KTR makes full use of its strengths. On behalf of the customer KTR realizes more than 20,000 new developments and product variants some of which become industrial standard every year. Be assured: Together with our sales engineers and the sales team you will always find a tailor-made, cost-effective solution for your application.

Working on the future: the new Power Transmission Center

To make sure that today's drive technology will not be outdated already tomorrow, it must be continuously developed: This is done in the Power Transmission Center. It was opened in Rheine, the location of KTR's headquarters, in April 2015, combining the fields of innovation management, measuring technology, mechatronics and quality management.

An up-to-date R & D center along with a multifunctional assembly hall was built on a total surface of approx. 8,800 square metres. Drive components such as mechanical couplings, torque limiters and torque measuring shafts are developed, assembled and continuously tested here as well as hydraulic components like bellhousings, oil tanks and damping elements.

„We provide for strong connections. In particular with our customers.“

Martin Platt, Sales Manager

To ensure a smooth operation, the products are tested and further developed by KTR. For this purpose more than 25 hydraulic and electric test benches are available to the engineers in the PTC. And since nothing is harder than reality, KTR is testing its products under realistic conditions, i. e. conditions similar to operation. Anyway, KTR's products meet with special demands with external testing, too. One proof for that are the numerous certifications and standards our products were conferred in many different fields.

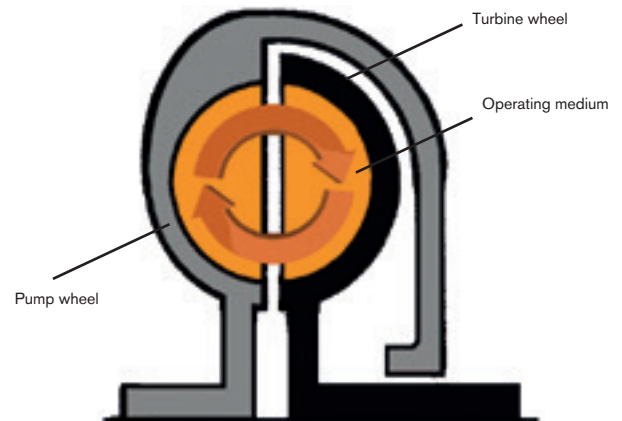
That is how we see ourselves: You can rely on KTR. We disapprove standstill – with us and our customers.

Fluid couplings

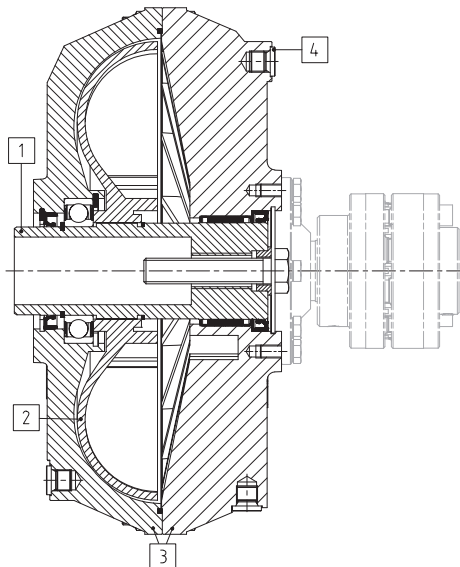
Structure and description of operation

Föttinger principle – the Föttinger coupling

Originally the operating principle of the fluid coupling is based on the hydrodynamic torque converter patented by Hermann Föttinger (1877 - 1945): The mass forces are transmitted via a flowing fluid (e. g. oil) while driving and driven side are mechanically separated from each other. With this operating principle the mechanically driven pump wheel (light grey) accelerates the fluid (orange) located in the operating area via radially arranged internal blades. The rotation energy of the rotating fluid absorbed by the turbine wheel blades (dark grey) accelerates the wheel while the resulting mechanical power is dissipated on the driven side.



General structure



The fluid coupling is composed of few components only. Its solid structure makes it extremely sturdy towards external environmental influences:

- 1 – Hollow shaft
- 2 – Impeller
- 3 – Two-part outer shell made of aluminium with impeller included
- 4 – Fusible safety plug

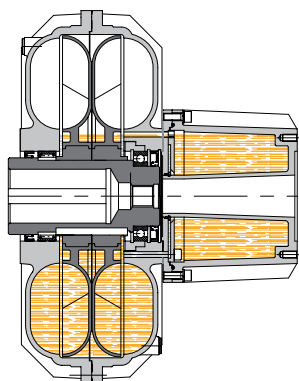
Gaskets, bearings, an oil filler screw and a retaining screw complete the coupling.

Optionally further accessories are available (e. g. delay chamber, safety systems, sight glass,...).

A (flexible) coupling (e.g. POLY-NORM® ADR) compensating for displacements are part of the scope of delivery, too.

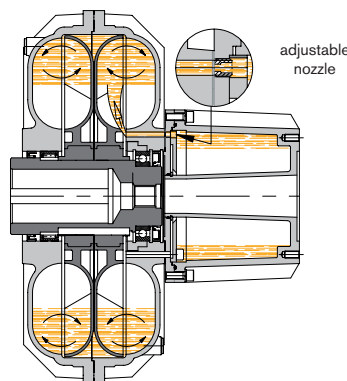
Operating principle

Standstill



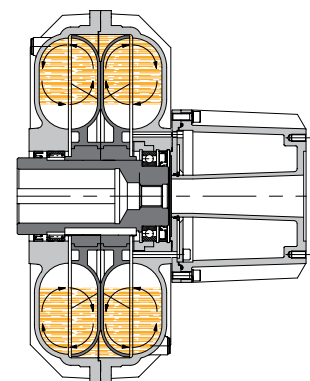
There is oil (orange) in the working and delay chamber of the coupling

Start-up



The motor accelerates the pump wheel (dark grey). In this way an oil circuit is generated in the working chamber of the coupling. The oil is sucked out of the delay chamber flowing into the working chamber. The rotation energy slowly accelerates the turbine wheel (light grey).

Nominal operation



As soon as the machine has reached the rated torque, the coupling operates with nominal operation, i. e. it only transmits the torque required by the driven machine. A closed working circuit (orange) is formed. Depending on size and oil filling capacity, the slip with nominal operation is between 2 and 5 %.

Product features

Applications and benefits

The fluid coupling is applied in sturdy environments where big masses need to be accelerated smoothly:

- Conveyor belts
- Mills
- Shredders
- Crushers
- Agitators

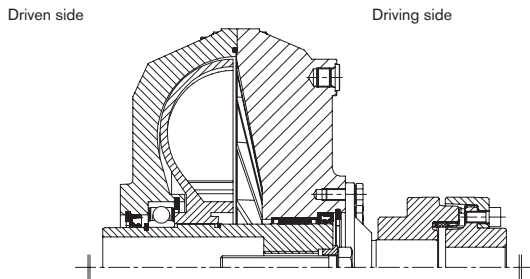
Due to its structure and properties the coupling is characterized by the following benefits:

- Soft start-up of the machine
- Released motor run-up, no oversizing of motors
- Preserving the power supply
- Preserving the system components
- Protecting the overall drive train
- Power transmission free from wear
- Damping vibrations in the drive train
- Easy torque control
- Tough characteristics towards external environmental influences

Types of drives (RM/MS)

Basically we distinguish between two types of drives in the range of fluid couplings: the inner wheel drive defined as a standard by KTR and the outer wheel drive.

Inner wheel drive (type ALFA K, KLM-S and BETA J)

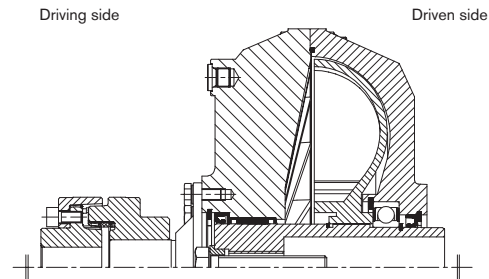


Example: ALFA K-S-ADR

The fluid coupling with inner wheel drive is driven via the hollow shaft and the internal impeller. The outer shell of the coupling is linked with the driven side.

Further details available from page 14

Outer wheel drive (type ALFA K-RM, KLM-S-RM, K-CA and K-MS)



Example: ALFA K-RM-S-ADR

The fluid coupling with outer wheel drive is driven via the outer shell of the coupling. The hollow shaft with integrated impeller is linked with the driven side.

Basically we distinguish between the following three types with outer wheel drives:

- Type ALFA K-RM: By implementing respective modifications all sizes of type K(LM-S) are available as type K(LM-S)-RM with outer wheel drive, too. The outer dimensions are identical. Further details available on page 15
- Type ALFA K-CA: This is a special design which is able to limit the starting factor to 1. Subject to its design this type is suitable for the outer wheel drive only. Further details available on page 18
- Type ALFA K-MS: This is a special design with a coupling flange fitted on the outer shell of the coupling. This type was specifically designed for the outer wheel drive.
- Further details available on page 16

The two different types of drives provide for sophisticated benefits:

- Standardisation of hollow shaft bores
- Smaller mass moment of inertia with start-up of the motor
- Slower start-up with the use of a delay chamber
- No axial extension of the coupling with the use of a brake disk or drum
- Preservation of the flexible coupling
- Low-cost variant
- Good heat dissipation, particularly during the starting period
- Easy filling/adjustment of oil
- Temperature monitoring system (ET + FTP) releasing with a respective temperature in every case
- Special feature of type ALFA K-MS:
 - Weight of the complete fluid coupling bears on the motor shaft
 - Combined with a fan on the driven side, the coupling has only few influence on the fan

Fluid couplings

Technical details

Balancing

The outer shell of the fluid coupling and the impellers are statically balanced in accordance with DIN ISO 1940 at G6.3 with 1800 rpm. Balancing for higher speeds and/or with oil filling and minutes is available upon consultation with us. The connection coupling supplied as well (e. g. POLY-NORM® ADR) is not balanced as a standard.

Tightness test

Every fluid coupling is subject to tightness testing before supply. Testing is performed with 4 bar

Temperature range

The fluid coupling operates in an optimum range with ambient temperatures between - 20 °C to + 40 °C. For higher or lower temperatures please consult with KTR/Engineered Business.

Operating medium oil

Only thin-fluid mineral oil may be used as operating medium. For a selection of permissible oils and oil filling capacities please refer to page 23. Oil filling has to be performed by the customer. Filling by KTR is available on request.

ATEX

On request of the customer, an ATEX certificate following directive 94/9/CEE can be issued for the customer (e. g. Ex II 2 GD ... T4/120°C).

Mounting position

The fluid couplings are horizontally mounted in the machines as a standard. If vertical mounting is required, this can be done with the respective modifications. Please consult with KTR/Engineered Business.

Painting and preservation


The couplings are provided with a short-term corrosion protection. If a long-term corrosion protection is necessary, please communicate in your order. Painting by KTR is not provided as a standard. The housing of the fluid coupling is made of aluminium diecast. Connection couplings and steel components can be painted, if necessary.

Shaft ends in accordance with DIN 748-2 and bore tolerances

d [mm]	6 - 7	8 - 9	10 - 11	12 - 14	16 - 19	20 - 24	25 - 28	30 - 32	33 - 38	40 - 50	55	60 - 75	80 - 95	100 - 120
Tolerance fields	k6									m6				
l [mm]	16	20	23	30	40	50	60	80	80	110	110	140	170	210
Bore tolerances of fluid coupling / connection coupling														
ALFA K / K-RM / K-CA / BETA J	H7									G7				
ALFA K-MS / KLM-S	H7													
POLY-NORM AR / ADR / ROTEX 001	H7													
All finish bores are provided with feather keyways according to DIN 6885/1 as a standard														

Fusible safety plug with pin (FTP)


The fusible safety plug with pin (FTP) is available on request as additional protection. It prevents discharge of oil and serves for protecting the environment. It has to be selected one temperature class lower than the standard fusible safety plug. The fusible line (orange) integrated in the screw prevents the spring from ejecting the pin. Once the melting temperature (e. g. 120 °C) is reached, the fusible link melts and the pin protrudes by 5 to 6 mm. The machine can be switched off in combination with the mechanical switch ET. Discharge of oil is prevented. The FTP has to be replaced by a new FTP with the same temperature class after releasing. The following fusible safety plugs with pin are available:

	Coupling size	Thread size	Temperature classes [°C]			
			96 (blue)	120 (white)	145 (red)	180 (green)
	10 - 40P	¼"	○	○	●	○
	50 - 85P	½"	○	○	●	○
	90P - 95P	¾"	○	○	●	○

Fusible safety plug with pin (FTP)

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	Coupling size	Thread size	Temperature classes [°C]		
			96 (blue)	120 (white)	145 (red)
	10 - 40P	¼"	○	○	○
	50 - 85P	½"	○	○	○
	90P - 95P	¾"	○	○	○

Further details about FTP with ET are available on page 7/8. ● ~ Standard | ○ ~ on request | - not available

Technical details

Safety plug with temperature sensor (PM)

The safety plug with temperature sensor (PM) is available on request as additional protection. It prevents discharge of oil and serves for protecting the environment. It has to be selected one temperature class lower than the standard fusible safety plug. The temperature sensor operates as an impulse transmitter. As long as it is locked, i. e. as long as the temperature (e. g. 120 °C) is not exceeded, it permanently sends an alarm that is monitored by the electronic evaluating unit (T09). If the temperature exceeds the requested release temperature, the switch opens and sending of impulses is interrupted. The evaluation unit indicates an error and the unit is switched off. Discharge of oil is prevented. After elimination of the failure and a cooling phase, the coupling is ready for use again without replacing the fusible safety plug.

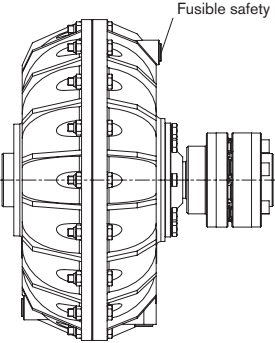
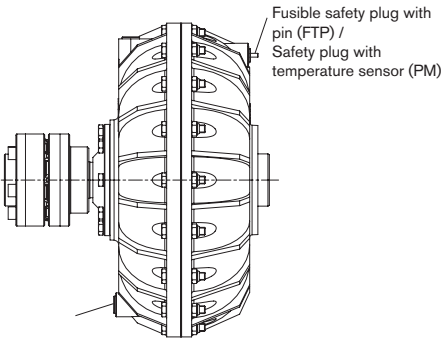
The following safety plugs with temperature sensor are available:

Coupling size	Thread size	Temperature class [°C]			
		100 (blue)	120 (white)	145 (red)	160 (yellow)
10 - 40P	1/4"	—	—	—	—
50 - 85P	1/2"	○	○	○	○
90P - 95P	3/4"	○	○	○	○

Further details about PM with T09 are available on page 8/9. ● ~ Standard | ○ ~ on request | - not available

Standard position of fusible safety plugs

The positions of the fusible safety plugs are defined as a standard. If a different position is preferred for reason of space or accessibility, this can be realized. In this case please consult with KTR/Engineered Business

Fusible safety plug (FP)	Fusible safety plug with pin (FTP) / Safety plug with temperature sensor (PM)
	

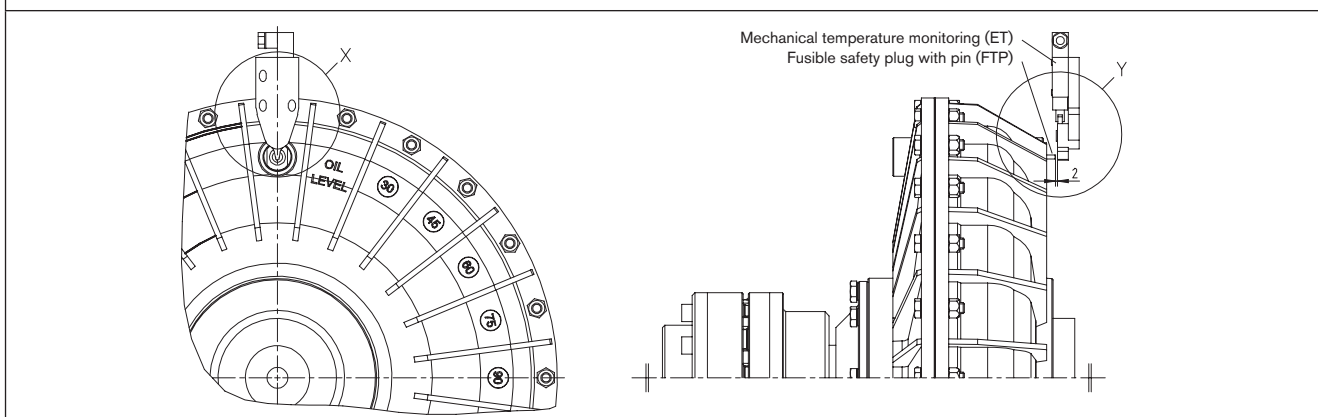
Temperature and speed monitoring systems

In order to prevent discharge of oil on the coupling, the following monitoring systems are available:

- Mechanical temperature monitoring (ET)
- Electronic temperature monitoring (T09)
- Electronic speed monitoring (SCD)

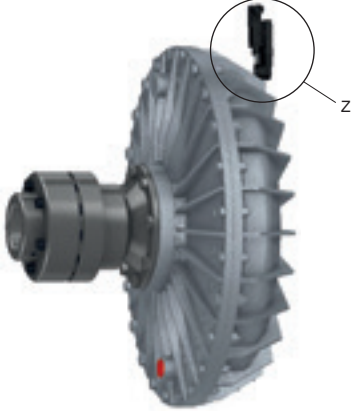





Mechanical temperature monitoring (ET)

The mechanical temperature monitoring is to be used in combination with the fusible safety plug with pin (FTP). In order to assure releasing of the unit with each failure, we recommend using this system with the type of drive „outer wheel drive“. If the driven side locks, it is assured in every case that the pin screwed in the outer shell activates the fixed switch with releasing. The switch has to be fitted with a distance of 2 mm towards the front surface of the pin not released.



Fluid couplings

Technical details

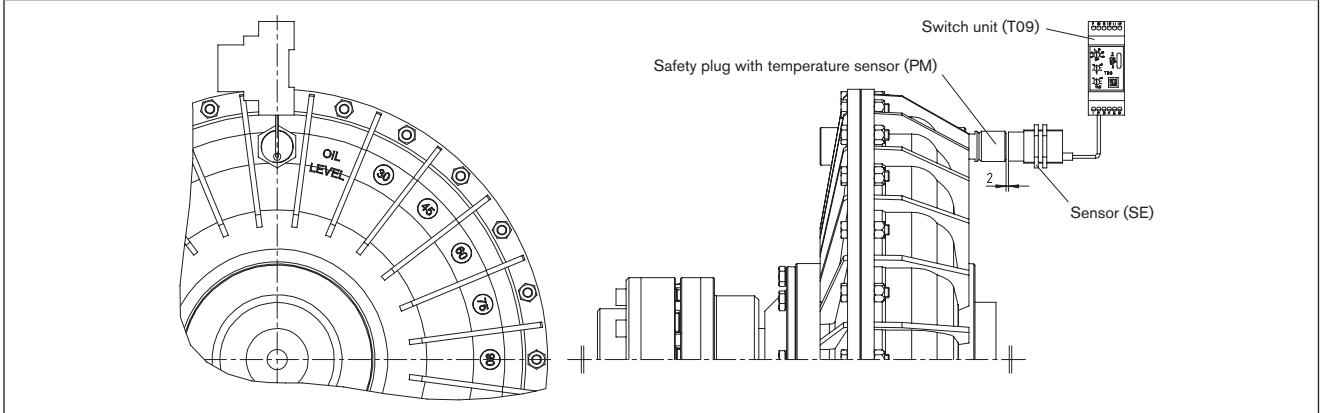
			
<p>Oil temperature < release temperature of FTP: Switch and pin not activated</p>		<p>Oil temperature > release temperature of FTP: Switch and pin activated</p>	
			
Detail X	Detail Y	Detail X	Detail Y

Operation

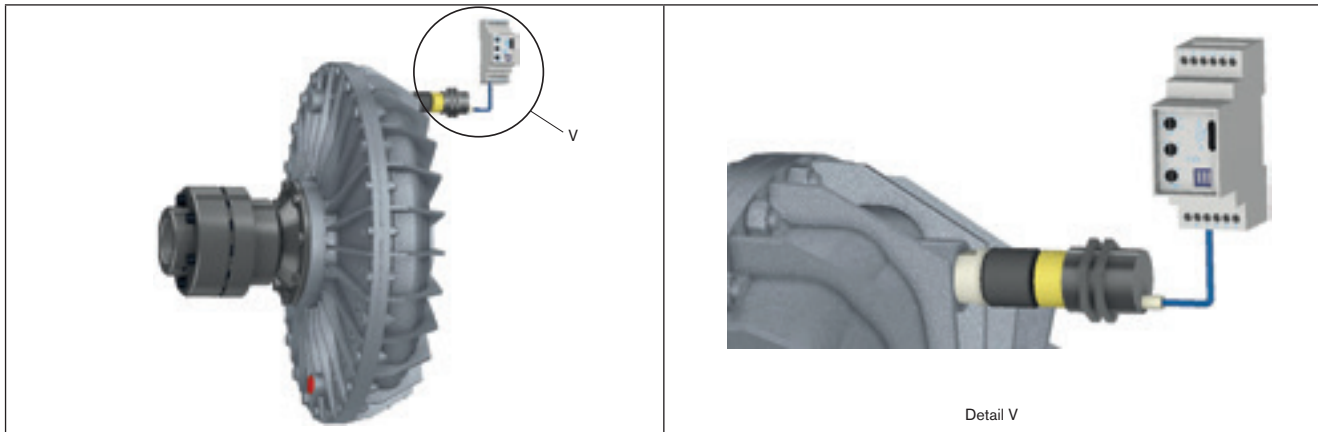
When the oil temperature exceeds the release temperature of the fusible safety plug with pin (FTP), the latter is released. The pin ejects activating the switch with the next revolution. The drive stops without any discharge of oil of the coupling. Having eliminated the failure, the FTP has to be replaced.

Electronic temperature monitoring (T09)

The electronic temperature monitoring system is to be used in combination with a temperature sensor (PM) and a sensor (SE). As with mechanical monitoring (ET), the type of drive „outer wheel drive“ is recommended here for the aforementioned reasons. The sensor has to be fitted with a distance of 2 mm towards the front surface of the temperature sensor/impulse transmitter (PM).



Technical details

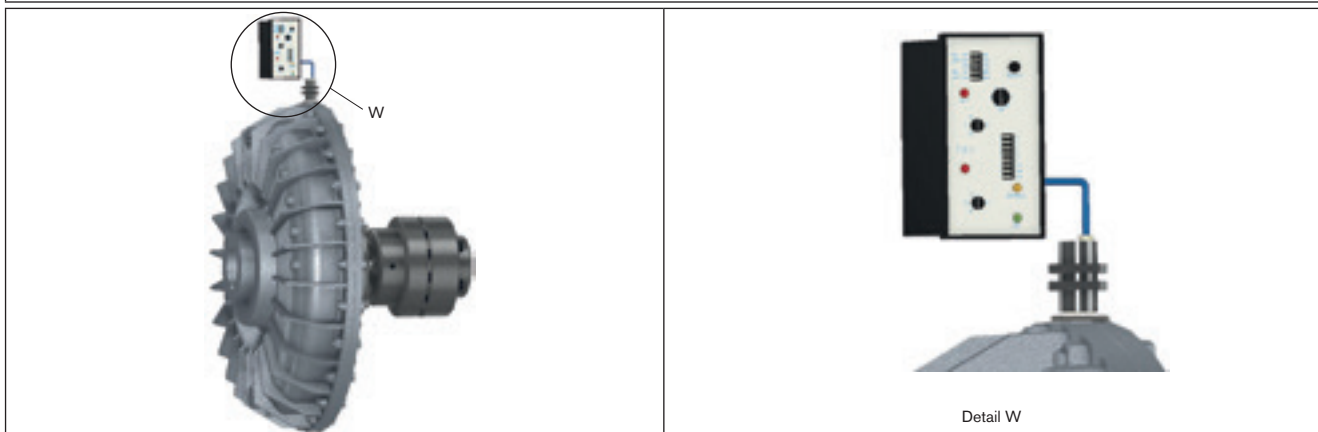
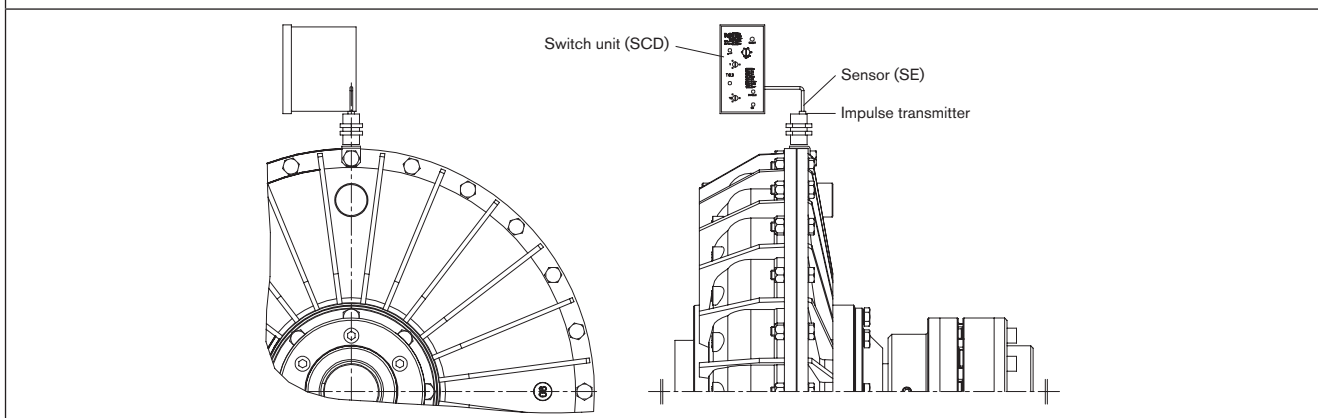


Operation

The temperature sensor (PM) operates as an impulse transmitter in the coupling. A sensor (SE) records the data transmitted inductively transferring the impulses on to the shift unit. When the release temperature of the sensor is exceeded, the latter is opened. Transmission of impulses to the sensor is interrupted. The information is transmitted to the switch unit. The unit switches off or an acoustic signal sounds with no oil dissipation of the coupling. Having eliminated the failure, the coupling including the overall monitoring system can be started up again. In addition to temperature monitoring this unit allows monitoring of the speed. The signal given by the impulse transmitter is recorded per revolution by the sensor. The evaluation unit compares the actual speed to the target speed set. If the difference specified is exceeded, the machine switches off. Speed monitoring is available with the type of drive „inner wheel drive“ only

Electronic speed monitoring (SCD)

Electronic speed monitoring can be mounted as additional monitoring system. The system can be used with the type of drive „inner wheel drive“ only. The sensor has to be fitted with a distance of 2 mm towards the surface of the impulse transmitter.



Operation

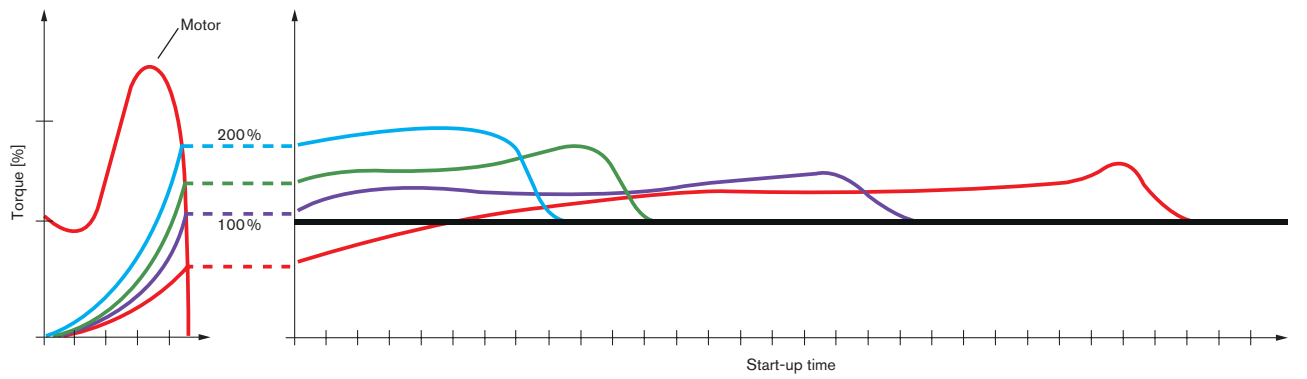
Two impulse transmitters (sheet metals) are mounted to the outer shell of the coupling offset by 180°. The sensor mounted in a distance of 2 mm records the transmitter sheet metals during operation. An evaluation unit compares the actual speed calculated to the target speed set. If the difference between driving and driven speed is too big, the machine switches off. This allows recognizing excessive heating and discharge of oil early and prevent accordingly. Having eliminated the failure, the machine can be started up again with no further maintenance operations. A delay time of a maximum of 120 s can be set during the start-up phase preventing releasing during start-up. False alarm (triggered by very short torque fluctuations) can be absorbed by setting an additional delay.

Fluid couplings

Technical details

Start-up factors

The start-up torque of the motor can be reduced via a fluid coupling. The standard coupling (type K) limits the torque to 1.8 to 2.0 times the rated torque of the motor. Fitting so-called delay chambers allows reduction of the start-up torque. The result is a smoother start-up with a longer start-up phase. The oil in the chamber reaches the working chamber only slowly. This results in a delayed start-up and a low start-up torque. The following diagramme shows the start-up curves of the fluid coupling along with the different delay chambers:



Torque of motor/coupling	Coupling torque via start-up time		
Without delay chamber	With small delay chamber	With large delay chamber	With large delay chamber and extra chamber



Product type / Properties	ALFA K-S	BETA J	ALFA KLM-S	ALFA K-MS	ALFA K-CA-S
Antriebsart					
Inner wheel drive	●	●	●	-	-
Outer wheel drive	○	-	○	●	●
Fusible safety plug (FP)					
96 °C (blue)	○	○	○	○	○
120 °C (white)	○	○	○	○	○
145 °C (red)	●	●	●	●	●
180 °C (green)	○	○	○	○	○
Max. performance data					
Max. motor power [kW]*	430	430	430	430	510
Max. speed [rpm]	6000	6000	6000	6000	2600
Start-up factors					
1.8 – 2.0 (without delay chamber)	●	●	●	●	-
1.5 – 1.8 (with small delay chamber (+SCF))	○	○	○	○	-
1.2 – 1.5 (with large delay chamber (+DCF))	○	○	○	○	-
1.0 – 1.2 (with large delay chamber and extra chamber)	-	-	-	-	●
Coupling combinations					
with POLY-NORM® AR / ADR	●	-	●	●	●
with ROTEX® Bauart 001	○	-	○	○	○
with RADEX® -N NENE spec.	○	-	○	-	-
Type examination tests					
ATEX	○	○	○	○	○
Mounting position					
Horizontal	●	●	●	●	●
Vertical	○	○	○	○	○

● ≈ standard | ○ ≈ on request | - ≈ not available | * ≈ coupling with higher performance on request

Fluid couplings

Coupling types

Coupling combinations					
	ALFA				BETA
					
Accessories / type	K / K-RM	K-MS	KLM-S / KLM-S-RM	K-CA	J
 SCF* (small delay chamber)	○	○	○	-	○
 DCF* (large delay chamber)	○	○	○	-	○
 S (adapter flange)	●	-	-	●	-
 POLY-NORM® AR**	●	●	-	●	-
 POLY-NORM® ADR**	○	○	-	○	-
 ROTEX® 001**	○	○	-	○	-
 RADEX® NENE spec.	-	-	●	-	-
 Belt pulley	-	-	-	-	●
Example of designation					
	ALFA [60] K-S-[SCF]-[RM]-AR	ALFA [60] K-MS-[SCF]-ADR	ALFA [60] KLM-S-[DCF]-NENE	ALFA [65S] K-CA-S-AR	BETA [60] J

● ≈ standard | ○ ≈ on request | - ≈ not available | * ≈ coupling with higher performance on request

*only SCF ODER DCF available

**To connect the fluid coupling type ALFA K / K-RM respectively K-CA with POLY-NORM® A(D)R or ROTEX® 001, an adapter shaft (S) is always necessary

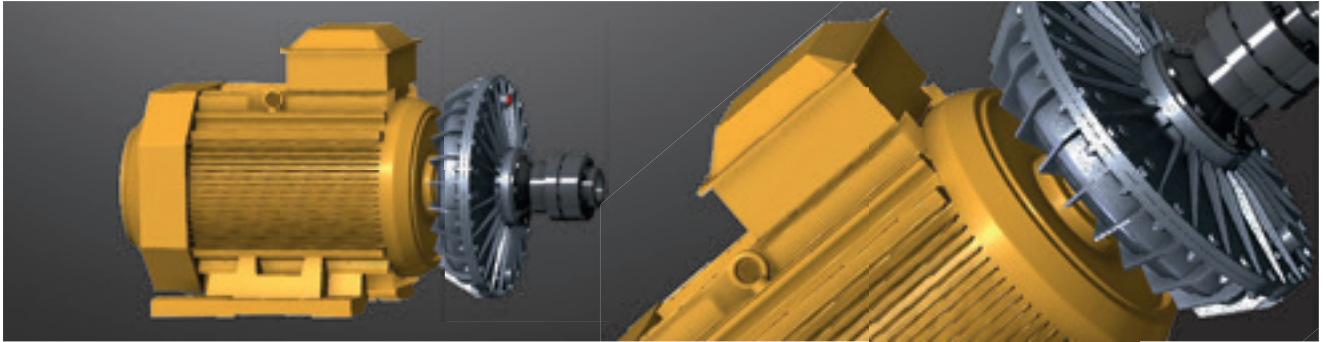
[60] Example for designation of size

[SCF] Example for delay chamber

[RM] Specification for outer wheel drive (only available with ALFA K respectively ALFA KLM-S)

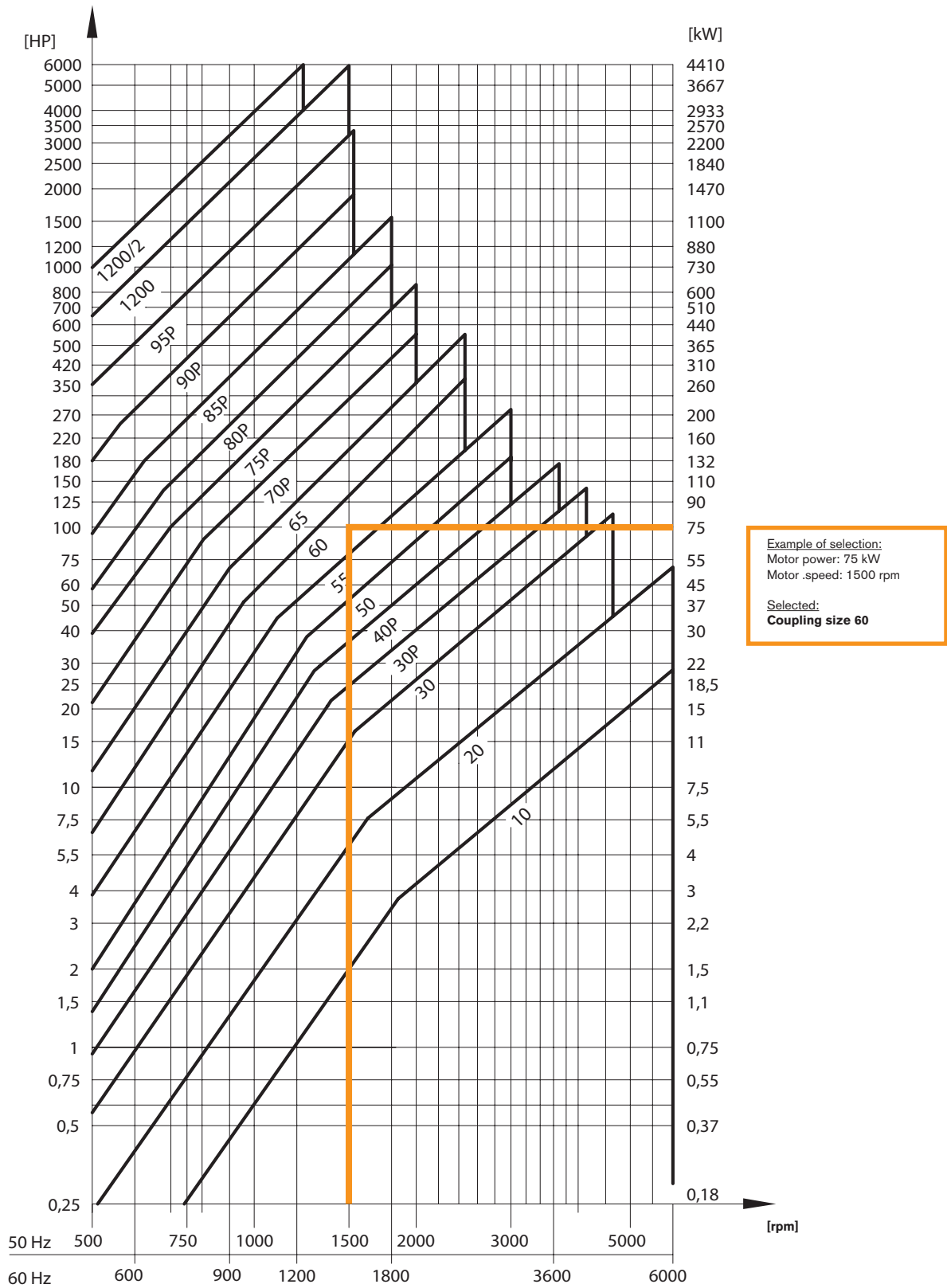
Fluid couplings

IEC standard motor – Assignment via selection table



Fluid couplings for IEC standard motors																			
Motor		Motor speed 50 Hz												Motor speed 60 Hz					
		8-poles			6-poles			4-poles			2-poles			6-poles			4-poles		
		750 rpm		1000 rpm		1500 rpm		3000 rpm		1200 rpm		1800 rpm							
Type	Ø	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		0,37	0,5		0,25	0,33		0,25	0,35	
					0,37	0,5		0,37	0,5	10	0,55	0,75		0,37	0,5	10	0,37	0,5	
80	19				0,55	0,75		0,75	1	10	1,1	1,5	10	0,55	0,75		0,75	1	10
90S	24				0,75	1	20	1,1	1,5		1,5	2		0,75	1		1,1	1,5	
90L		0,55	0,75	20	1,1	1,5		1,5	2		2,2	3		1,1	1,5		1,5	2	
100L	28	1,1	1,5	30	1,5	2	30	2,2	3		3	4		1,5	2	20	2,2	3	
					3	4		3	4	20	3	4		3	4		3	4	
112M		1,5			2,2	3		4	5,5		4	5,5		2,2	3		4	5,5	20
132		2,2	2	30P	3	4	30P	5,5	7,5		5,5	7,5		3	4	30	5,5	7,5	
132M	38	3	4	40P	4	5,5		7,5	10	30	7,5	10	20	4	5,5		7,5	10	
					5,5	7,5					5,5	7,5		5,5	7,5				
160M	42	4	5,5	50	7,5	10	40P	11	15	30P	11	15		7,5	10	30P	11	15	30
160L		7,5	10	55	11	15	50	15	20		18,5	25		11	15		15	20	
180M	48				20			18,5	25	40P	22	30	30	15	20	40P	18,5	25	30P
180L		11	15		15			22	30					22	30		22	30	
200L	55	15	20	60	18,5	25	55	30	40	50	30	40		18,5	25	50	30	40	40P
225S	60	18,5	25		22	30		37	50		37	50	30P	22	30		37	50	50
225M	55	22	30		30	40	60	45	60		45	60		30	40	55	45	60	
250M	60	30	40		37	50		55	75		55	75	40P	37	50		55	75	55
	65				65			65			65			65			65		
280S	75	37	50		45	60		75	100		75	100		45	60	60	75	100	
280M	65	45	60	70P	55	75		90	125		90	125	50	55	75		90	125	
	75																		
315S	65	55	75		75	100	70P				110	150							60
	80																		
	65	75	100							65	132	180		75	100	65	110	150	
											160	220	55						
315M					90	125		132	180					90	125		132	180	65
	80	90	125		110	150	75P	160	220	70P				110	150	70P	160	220	
					132	180		200	270					132	180		200	270	
					160	220	80P	250	340					16	220		250	340	70P
355S	100	132	180													75P			
	80																		
355M		160	220		200	270								200	270		315	430	75P
	100	200	270	90P	250	340								250	340	80P			

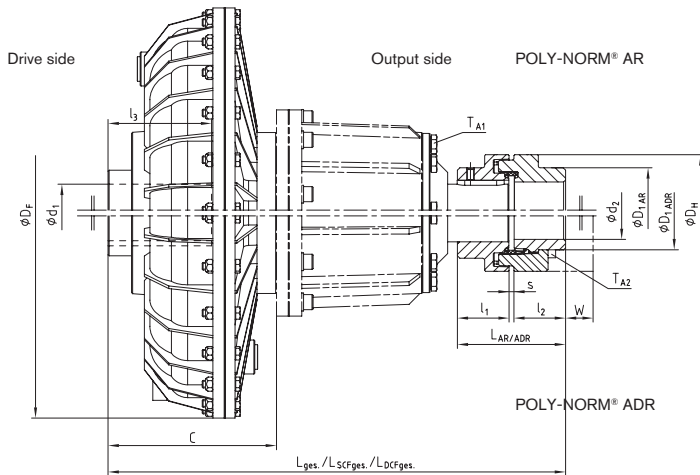
IEC standard motor – Assignment via selection diagramme



- Selection of coupling via input power and speed
- Curves show the maximum capacity of the respective couplings
- For the selection please consult with KTR/Engineered Business, if necessary (see questionnaire on page 24/25)

Fluid couplings ALFA

with POLY-NORM® AR/ADR (inner wheel drive) – STANDARD



— • • • — optionally: with small or large delay chamber (SCF / DCF)

Dimensions of adapter shaft S [mm]			
Size	d_s	L_s	T
10	19	35	25
20	24	44	32
30/30P	38	63	45
40P	48	76	55
50/55	55	92	65
60/65	60	110	80
70P/75P	70	122	90
80P/85P	80	145	110

Selection criteria:
IEC standard motor: 4 poles 1500 rpm (50 Hz)
Shock factor: 1.5 (moderate shocks)
Ambient temperature: - 20 to + 40 °C
Start-up frequency: < 10/h

Fluid coupling ALFA K-S-[SCF/DCF]-AR/ADR

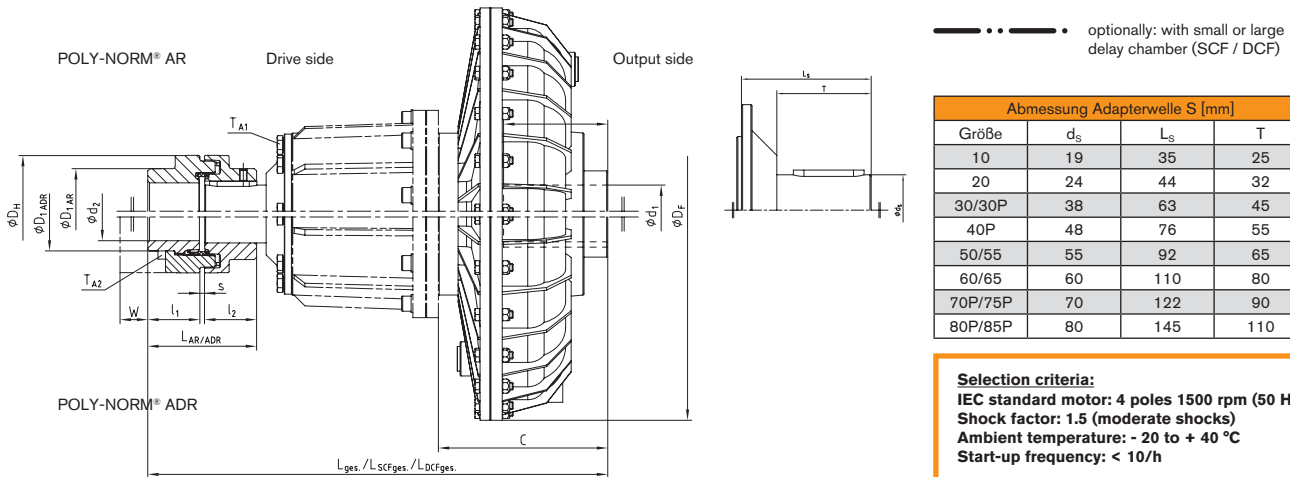
Size		Dimensions [mm]															T [Nm]					
FLK	POLY-NORM®	d_1	d_2 max		D_F	D_1		D_H	l_1/l_2	l_3	S	L		C	L			W		T_{A1}	T_{A2}	
			AR	ADR		AR	ADR					AR	ADR		t	SCF _t	DCF _t	AR	ADR		AR	ADR
10	32	14	35	-	193	53	-	78	32	30	4	68	-	98	176	-	-	-	-	10,5	-	-
		40																				
		50																				
20	32	24	35	-	230	53	-	78	32	50	4	68	-	125	205	-	-	-	-	25,0	-	-
		60																				
		60																				
30	38	38	40	34	290	62	48	87	38	80	4	80	80	162	267	322	362	-	12	25,0	-	10
		110																				
		110																				
30P	42	38	45	38	327	69	54	96	42	80	4	88	88	162	271	326	366	-	16	25,0	-	25
		110																				
		110																				
40P	48	42	50	44	338	78	62	106	48	110	5	101	101	198	327	385	457	-	16	50,5	-	25
		110																				
		110																				
50	60	55	75	56	430	97	80	118	60	110	5	125	125	179	337	417	492	-	14	50,5	-	25
		140																				
		140																				
55	65	55	70	60	430	105	86	129	65	110	5	135	135	211	374	454	529	-	11	50,5	-	49
		140																				
		140																				
60	75	60	80	68	520	123	98	158	75	140	5	155	155	192	382	472	552	-	16	50,5	-	49
		140																				
		140																				
65	85	65	90	78	520	139	112	182	85	140	5	175	175	240	445	535	615	-	18	50,5	-	86
		140																				
		170																				
70P	90	80	95	85	640	148	122	200	90	170	5	185	185	240	457	567	682	-	26	212,0	-	210
		170																				
		170																				
75P	100	80	110	95	640	165	136	224	100	170	6	206	206	265	503	613	225	-	28	212,0	-	210
		170																				
		170																				
80P	125	110	140	115	810	210	168	280	125	210	6	256	256	270	561	679	779	-	35	291,0	-	210
		170																				
		170																				

Ordering example

ALFA	50	K	S	SCF	ADR	Ø55	Ø55	145 °C	SCD
Type	Coupling size	Design	Adapter shaft	Optionally: e. g. small delay chamber	Attachment coupling: e. g. POLY-NORM®	Bore d_1	Bore d_2	FP	Other options: e. g. electronic speed monitoring

Fluid couplings ALFA

with POLY-NORM® AR/ADR (outer wheel drive)

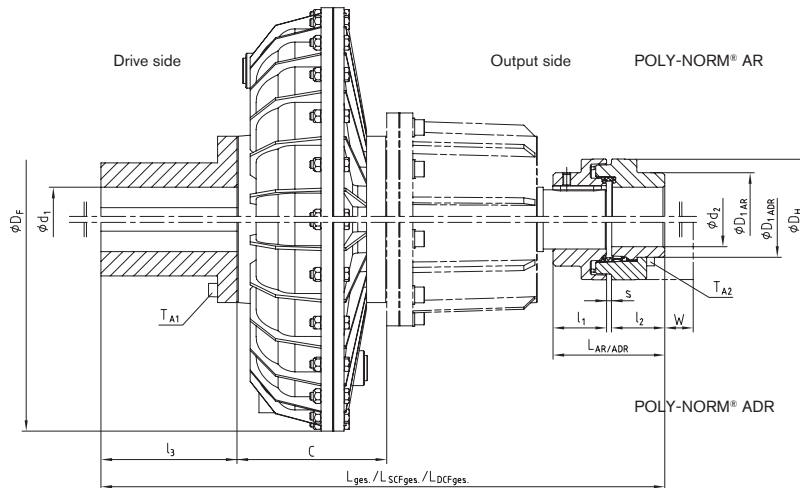


Fluid coupling ALFA K-RM-S-[SCF/DCF]-AR/ADR																							
Size		Dimensions [mm]															T [Nm]						
FLK	POLY-NORM®	d ₁	d ₂ max		D _F	D ₁		D _H	l ₁ /l ₂	l ₃	S	L		C	L			W	T _{A1}	T _{A2}			
			AR	ADR		AR	ADR					AR	ADR		t	SCF ₁	DCF ₁	AR	ADR		AR	ADR	
10	32	14	35	-	193	53	-	78	32	30	4	68	-	98	176	-	-	-	-	10,5	-	-	
		19																					40
		24																					50
20	32	19	35	-	230	53	-	78	32	40	4	68	-	125	205	-	-	-	-	25,0	-	-	
		28																					60
		28																					60
30	38	38	40	34	290	62	48	87	38	80	4	80	80	162	267	322	362	-	12	25,0	-	10	
		42																					110
		28																					60
30P	42	38	45	38	327	69	54	96	42	80	4	88	88	162	271	326	366	-	16	25,0	-	25	
		42																					110
		38																					80
40P	48	42	50	44	338	78	62	106	48	110	5	101	101	198	327	385	457	-	16	50,5	-	25	
		48																					110
		55																					110
50	60	42	75	56	430	97	80	118	60	110	5	125	125	179	337	417	492	-	14	50,5	-	25	
		60																					140
		65																					140
55	65	42	70	60	430	105	86	129	65	110	5	135	135	211	374	454	529	-	11	50,5	-	49	
		60																					140
		65																					140
60	75	48	80	68	520	123	98	158	75	140	5	155	155	192	382	472	552	-	16	50,5	-	49	
		65																					140
		75																					140
65	85	55	90	78	520	139	112	182	85	140	5	175	175	240	445	535	615	-	18	50,5	-	86	
		60																					140
		75																					140
70P	90	65	95	85	640	148	122	200	90	170	5	185	185	240	457	567	682	-	26	212,0	-	210	
		80																					170
		90																					170
75P	100	80	110	95	640	165	136	224	100	170	6	206	206	265	503	613	225	-	28	212,0	-	210	
		90																					170
		90																					170
80P	125	80	140	115	810	210	168	280	125	210	6	256	256	270	561	679	779	-	35	291,0	-	210	
		90																					170
		110																					170

Ordering example	ALFA	50	K-RM	S	SCF	ADR	Ø55	Ø55	145 °C	ET-FTP 120 °C
	Type	Coupling size	Design	Adapter shaft	Optionally: e. g. small delay chamber	Attachment coupling: e. g. POLY-NORM®	Bore d ₁	Bore d ₂	FP	Other options: e. g. mechanical switch

Fluid couplings ALFA

with POLY-NORM® AR/ADR (outer wheel drive)



— • • • — optionally: with small or large delay chamber (SCF / DCF)

Selection criteria:
IEC standard motor: 4 poles 1500 rpm (50 Hz)
Shock factor: 1.5 (moderate shocks)
Ambient temperature: - 20 to + 40 °C
Start-up frequency: < 10/h

Fluid coupling ALFA K-MS-[SCF/DCF]-AR/ADR

Size		Dimensions [mm]														T [Nm]						
FLK	POLY-NORM®	d ₁	d ₂ max		D _f	D ₁		D _H	l ₁ /l ₂	l ₃	S	L		C	L			W		T _{A1}	T _{A2}	
			AR	ADR		AR	ADR					AR	ADR		t	SCF _t	DCF _t	AR	ADR		AR	ADR
30	38	28	40	34	290	62	48	87	38	60	4	80	80	162	303	358	398	-	12	25,0	-	25
		80								323					378	418						
		110								353					408	448						
30P	42	28	45	38	327	69	54	96	42	60	4	88	88	162	308	363	403	-	16	25,0	-	25
		80								328					383	478						
		110								358					413	453						
40P	48	38	50	44	338	78	62	106	48	80	5	101	101	198	377	435	507	-	16	50,5	-	25
		110								407					465	537						
		140								441					507	581						
50	60	42	75	56	430	97	80	118	60	110	5	125	125	179	401	481	511	-	14	50,5	-	25
		140								401					481	511						
		170								431					511	541						
55	65	38	70	60	430	105	86	129	65	80	5	135	135	211	418	498	573	-	11	50,5	-	49
		110								448					528	603						
		140								478					558	633						
60	75	55	80	68	520	123	98	158	75	110	5	155	155	192	449	539	619	-	16	50,5	-	49
		140								479					569	649						
		170								509					599	679						
65	85	55	90	78	520	139	112	182	85	110	5	175	175	240	511	601	681	-	18	50,5	-	86
		140								541					631	711						
		170								571					661	741						
70P	90	55	95	85	640	148	122	200	90	110	5	185	185	240	492	602	717	-	26	212,0	-	210
		140								522					632	747						
		170								552					662	777						
75P	100	55	110	95	640	165	136	224	100	110	6	206	206	265	567	677	792	-	28	212,0	-	210
		140								597					707	822						
		170								627					737	852						
		110								210					667	777	892					

Product details

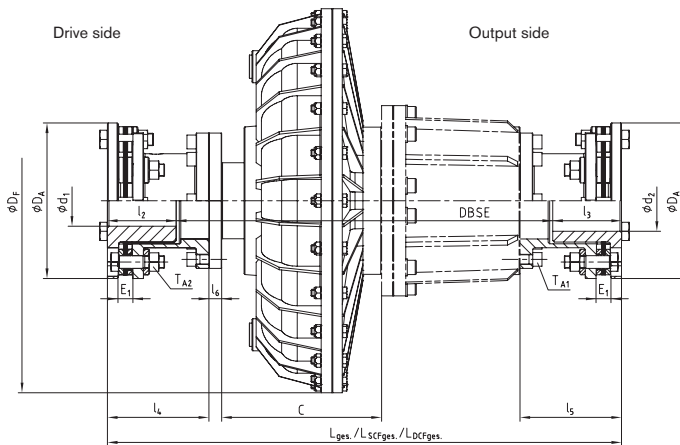
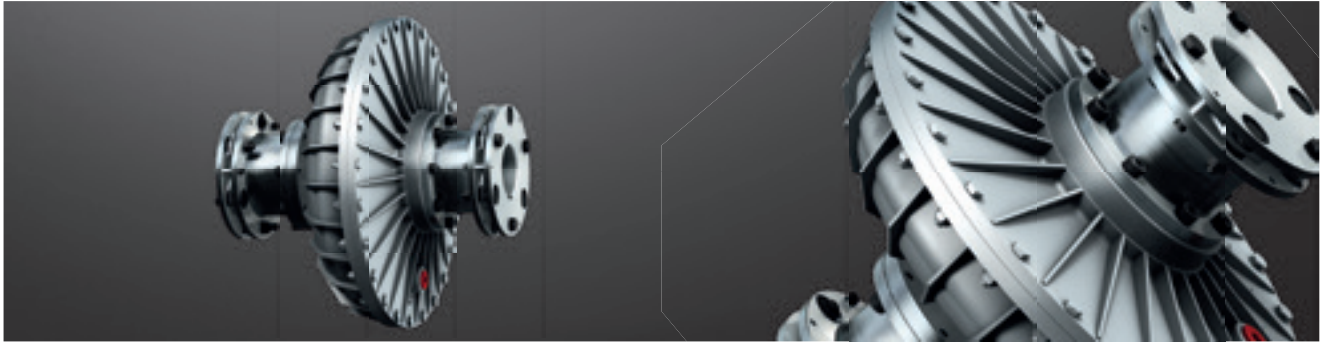
The fluid coupling ALFA K-MS is available as the type of drive „outer wheel drive“ only. The flange type on the driving side makes the entire weight of the fluid coupling bear on the driving shaft. The driven shaft that is mostly smaller has to bear the weight of the attachment coupling only (e. g. POLY-NORM® ADR). In combination with a POLY-NORM® ADR (or e. g. ROTEX® AFN) the fluid coupling can be radially disassembled considering the displacement dimension (W). As a result bearings or gaskets can easily be replaced in the drive train. The design of ALFA K-MS allows for very good heat dissipation, on the one hand by rotating the coupling's outer shell, on the other hand by the axial displacement towards the drive. The body of the fluid coupling is shifted by the coupling flange so that the heat of the coupling only has small influence on the fan fitted on the driving side. The mechanical temperature monitoring system (ET) shifts reliably in combination with ALFA K-MS even if the drive locks.

Ordering example

ALFA	50	K-MS	SCF	ADR	Ø55	Ø50	145 °C	ET-FTP 120 °C
Type	Coupling size	Design	Optionally: e. g. small delay chamber	Attachment coupling: e. g. POLY-NORM®	Bore d ₁	Bore d ₂	FP	Other options: e. g. mechanical switch

Fluid couplings ALFA

with RADEX-N®



— • • • — optionally: with small or large delay chamber (SCF / DCF)

Selection criteria;
IEC standard motor: 4 poles 1500 rpm (50 Hz)
Ambient temperature: - 20 to + 40 °C
Start-up frequency: < 10/h

Fluid coupling ALFA KLM-S-[SCF/DCF]-NENE

Size		Dimensions [mm]													T [Nm]	
FLK	RADEX®-N	d _{1max}	d _{2max}	D _f	D _A	l ₂ /l ₃	l _f /l _b	l _b	E ₁	C	DBSE	L ₁	L _{SCF}	L _{DCR}	T _{A1}	T _{A2}
30P	60	50	50	327	138	54,5	79,5	12	11	162	224	333	388	428	25,0	33
40P	70	65	65	338	156	64,5	89,5	15	11	198	263	392	450	522	50,5	65
50	80	70	70	430	179	74,4	102,4	15	14	179	250	399	479	554	50,5	65
55	80	70	70	430	179	74,4	102,4	15	14	211	282	431	511	586	50,5	65
60	85	80	80	520	191	79,4	111,4	15	15	192	271	430	520	600	50,5	115
65	85	80	80	520	191	79,4	111,4	15	15	240	319	478	568	648	50,5	115
70P	105	90	90	640	225	89,3	152,3	22	23	240	388	567	677	792	212,0	280
75P	105	90	90	640	225	89,3	152,3	22	23	265	413	592	702	817	212,0	280

Product details

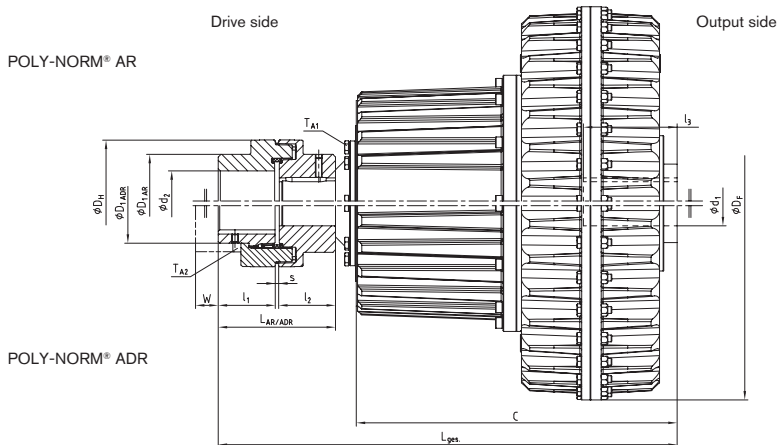
The fluid coupling ALFA KLM-S is supplied with the type of drive „inner wheel drive“ as a standard. A version as outer wheel drive (KLM-S-RM) is available, too. If you request so, please specify in your order, with the external dimensions remaining identical. With ALFA KLM-S the weight bears on the fluid coupling equally on the driving and driven shaft. The two reduced hubs fitted (RADEX®-N NENE) allow for easy assembly of the coupling. The design allows for radial assembly and disassembly as well. The steel lamina coupling is maintenance-free and suitable for rough environments difficult to access. The design of ALFA KLM-S with reduced RADEX®-N hubs prevents the body of the fluid coupling from scattering even in case if the lamina break. The safety gear makes sure that the body remains inside the coupling. If the outer wheel drive (KLM-S-RM) is used in combination with the mechanical temperature monitoring system (ET), it shifts reliably even if the drive locks.

Ordering example

ALFA	50	KLM-S	SCF	NENE	Ø60	Ø60	145 °C	–
Type	Coupling size	Design	Optionally: e. g. small delay chamber	Attachment coupling: RADEX®-N	Bore d ₁	Bore d ₂	FP	Other options

Fluid couplings ALFA

with POLY-NORM® AR / ADR (outer wheel drive)



••••• optionally: with small or large delay chamber (SCF / DCF)

Dimensions of adapter shaft S [mm]			
Size	d _s	L _s	T
10	19	35	25
20	24	44	32
30/30P	38	63	45
40P	48	76	55
50/55	55	92	65
60/65	60	110	80
70P/75P	70	122	90
80P/85P	80	145	110

Selection criteria;
 IEC standard motor: 4 poles 1500 rpm (50 Hz)
 Shock factor: 1.5 (moderate shocks)
 Ambient temperature: - 20 to + 40 °C
 Start-up frequency: < 10/h

Fluid coupling ALFA K-CA-S-AR/ADR																				
Size		Dimensions [mm]															T [Nm]			
		d ₁	d ₂ max		D _f	D ₁		D ₁₁	l ₁ /l ₂	l ₃	S	L		C	L ₁	W		T _{A1}	T _{A2}	
FLK	POLY-NORM®	AR	ADR	AR		ADR	AR					ADR	AR			ADR	AR		ADR	AR
55S	60	55	65	56	480	97	80	129	60	110	5	125	125	467	624	-	14	50,5	-	25
		65								140										
55D	75	55	80	68	480	123	98	158	75	110	5	155	155	467	649	-	16	50,5	-	49
		65								140										
		55								110										
65S	85	75	90	78	580	139	112	182	85	140	5	175	175	480	685	-	18	50,5	-	86
		80								170										
		55								110										
65D	90	75	95	85	580	148	122	200	90	140	5	185	185	480	695	-	26	50,5	-	210
		80								170										
75PS	100	75	110	95	710	165	136	224	100	140	6	206	206	572	810	-	28	212,0	-	210
		90								170										
75PD	110	75	120	105	710	185	150	250	110	140	6	226	226	572	830	-	30	212,0	-	210
		90								170										

Product details

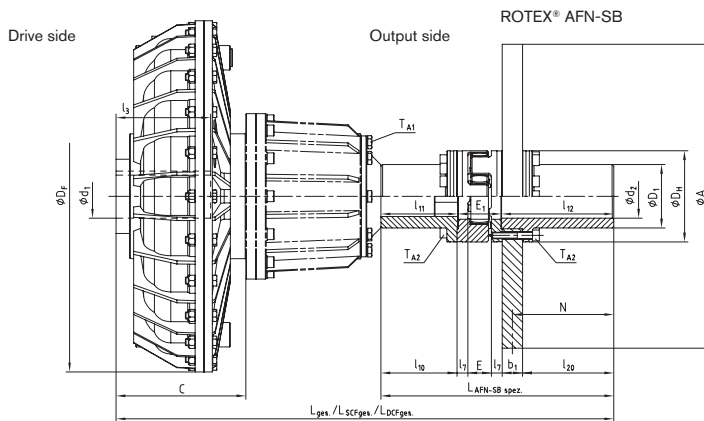
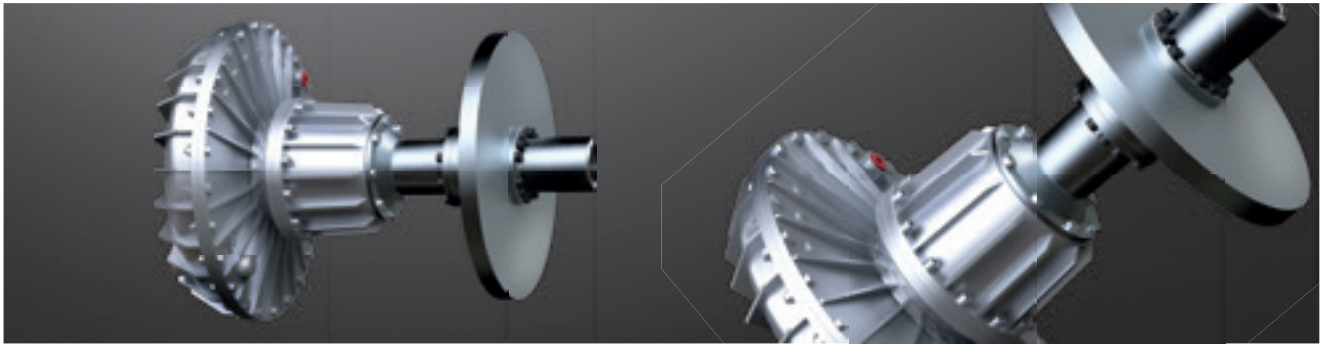
Subject to its design the fluid coupling ALFA K-CA can be used as outer wheel drive only. This coupling is a special type which allows for realizing very long and smooth start-ups. For a selection please consult with KTR/Engineered Business.

**Bestell-
beispiel:**

ALFA	65S	K-CA	S	ADR	Ø75	Ø70	145 °C	T09-PM 120 °C
Type	Coupling size	Design	Adapter shaft	Attachment coupling: e. g. POLY-NORM®	Bore d ₁	Bore d ₂	FP	Other options: e. g. electric temperature monitoring

Fluid couplings ALFA

with ROTEX® AFN-SB special (inner wheel drive) for service brakes



— • • • — optionally: with small or large delay chamber (SCF / DCF)

Dimensions of adapter shaft S [mm]			
Size	d _s	L _s	T
10	19	35	25
20	24	44	32
30/30P	38	63	45
40P	48	76	55
50/55	55	92	65
60/65	60	110	80
70P/75P	70	122	90
80P/85P	80	145	110

Selection criteria:
 IEC standard motor: 4 poles 1500 rpm (50 Hz)
 Shock factor: 1.5 (moderate shocks)
 Ambient temperature: - 20 to + 40 °C
 Start-up frequency: < 10/h

Fluid coupling ALFA K-S-[SCF/DCF]-AFN-SB special

Size	K	ROTEX®	Dimensions [mm]														T [Nm]							
			d ₁	d _{2 max}	D _F	D ₁	D _H	l ₇	l ₁₀	l ₁₁	l ₁₂	l ₂₀	l ₃	E	E ₁	L _{AFN-SB spez.}	C	t	SCF _L	DCF _L	T _{A1}	T _{A2}		
60	65	48											110											
		55											110											
		60	65	520	94	135	16	112,5	113,5	166	135	140	35	65	344,5	192	566,5	656,5	736,5	50,5	83			
		65										140												
		75										140												
65	75	55											110											
		60																						
		65	75	520	108	160	19	131,5	133,0	166,5	135	140	40	75	374,5	240	644,5	734,5	814,5	50,5	120			
		75										140												
		80										170												
70P	90	75											140											
		80	100	640	142	200	20	164,0	165,5	206,5	175	170	45	82	454,0	240	726,0	836,0	951,0	212,0	295			
		90										170												
75P	90	80	100	640	142	200	20	164,0	165,5	206,5	175	170	45	82	454,0	265	751,0	861,0	976,0	212,0	295			
		90										170												
80P	110	110	125	810	158	255	26	201,5	203,5	212	180	210	55	103	518,5	270	823,5	941,5	1041,5	291,0	580			

ROTEX® AFN-SB special

ROTEX® Size	Torque [Nm] (98 Sh-A T-PUR)		N	Brake disk ØA x b1						
	T _{KN}	T _{Kmax}		355 x 30	400 x 30	450 x 30	500 x 30	560 x 30	630 x 30	710 x 30
65	940	1880	150	X	X	X				
75	1920	3840	150		X	X	X			
90	3600	7200	190			X	X	X	X	
110	7200	14400	195				X	X	X	X

Product details

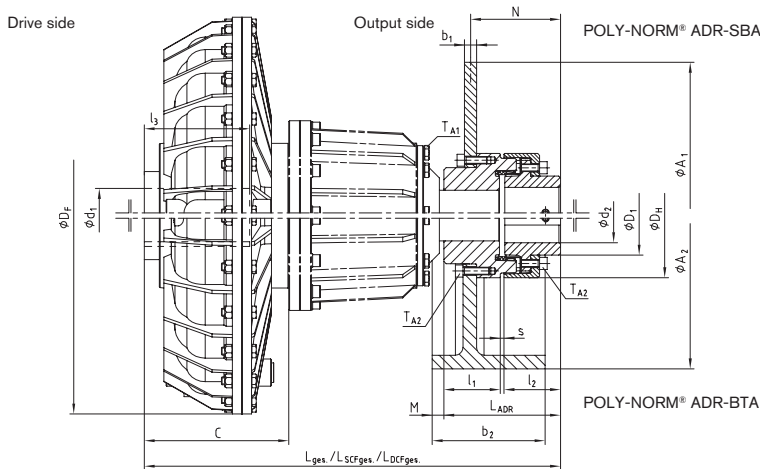
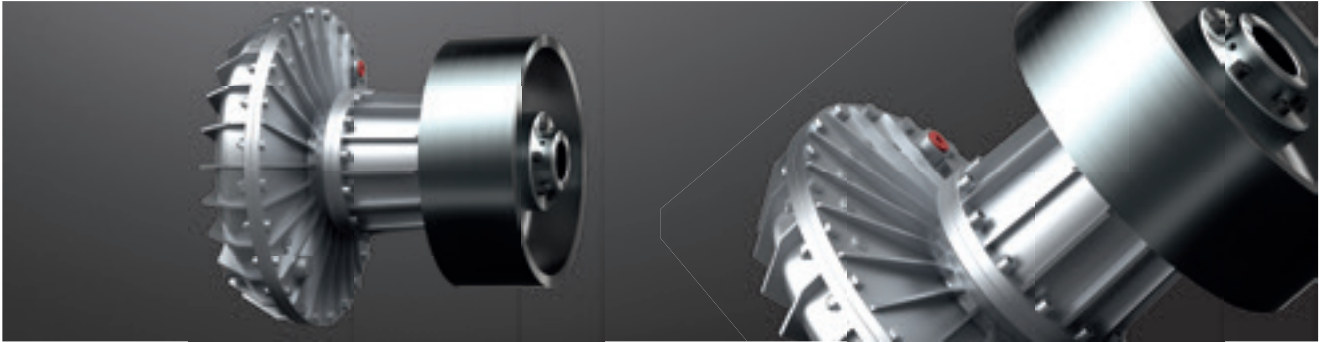
In combination with ROTEX AFN-SB special ALFA K-S is suitable for the use with service brakes. If an outer wheel drive is requested, a combination with ALFA K-MS is also available. Please consult with KTR/Engineered Business, if necessary. With the selection of the coupling make sure that the maximum braking torque does not exceed the maximum torque of the coupling.

Ordering example

ALFA	60	K	S	SCF	AFN-SB spez.	Ø55	Ø65	145 °C	–
Type	Coupling size	Design	Adapter-shaft	Optionally: e. g. small delay chamber	Attachment coupling: ROTEX®	Bore d1	Bore d2	FP	Other options

Fluid couplings ALFA

with POLY-NORM® ADR-SBA / ADR-BTA (inner wheel drive) for holding brakes



— • • • — optionally: with small or large delay chamber (SCF / DCF)

Dimensions of adapter shaft S [mm]			
Size	ds	Ls	T
10	19	35	25
20	24	44	32
30/30P	38	63	45
40P	48	76	55
50/55	55	92	65
60/65	60	110	80
70P/75P	70	122	90
80P/85P	80	145	110

Selection criteria;
IEC standard motor: 4 poles 1500 rpm (50 Hz)
Shock factor: 1.5 (moderate shocks)
Ambient temperature: - 20 to + 40 °C
Start-up frequency: < 10/h

Fluid coupling ALFA K-S-[SCF/DCF]-ADR-SBA / ADR-BTA

Size	Dimensions [mm]													T [Nm]		
	d ₁	d _{2 max}	D _F	D ₁	D _H	l ₁ /l ₂	l ₃	S	L _{ADR}	C	t	L	W	T _{A1}	T _{A2}	
K ROTEX®	42						110									
	48						110									
	50	60	430	80	118	60	110	5	125	179	337	417	492	14	50,5	25
	60	56					110									
55	65						110									
	60	60	430	86	129	65	110	5	135	211	374	454	529	11	50,5	49
	65						140									
	48						110									
60	75						110									
	75	68	520	98	158	75	140	5	155	192	382	472	552	16	50,5	49
	65						140									
	55						110									
65	85						140									
	85	78	520	112	182	85	140	5	175	240	445	535	615	18	50,5	86
	75						140									
	80						170									
70P	90						140									
	90	85	640	122	200	90	170	5	185	240	457	567	682	26	212,0	210
75P	100						170									
	90	95	640	136	224	100	170	6	206	265	503	613	225	28	212,0	210
80P	125	110	810	168	280	125	210	6	256	270	561	679	779	35	291,0	210

POLY-NORM® ADR-SBA / ADR-BTA

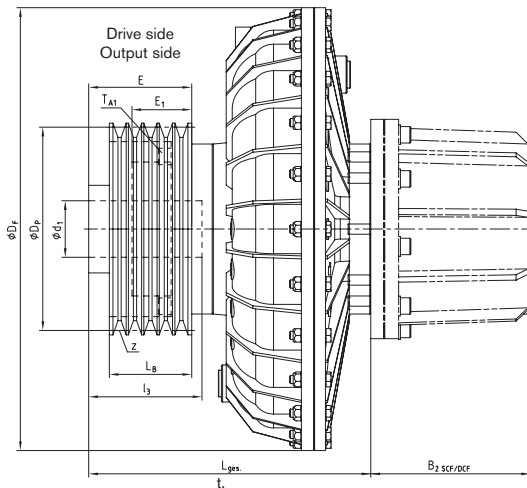
POLY-NORM® Size	60	65	75	85	90	100	125
ØA1xb1 / ØA2xb2	Dimensions [mm] N / M						
315x16	26	29	35,5				
400x16	26	29	35,5	41,5	42	48	
500x16	26	29	35,5	41,5	42	48	64
630x20						46	62
710x20						46	62
800x25						43,5	59,5
900x25							59,5
250x95	3	0					
315x118	12	9	2,5	-3,5			
400x150	25	22	15,5	9,5	9	3	
500x190						18	-2
630x236							20

Ordering example

ALFA	65	K	S	DCF	ADR-SBA	400x16	Ø75	Ø70	145 °C	-
Type	Coupling size	Design	Adapter-shaft	Optionally: e. g. large delay chamber	Attachment coupling: e. g. POLY-NORM® ADR-SBA	Brake disk/drum	Bore d ₁	Bore d ₂	FP	Other options

Fluid couplings BETA

with belt pulley (inner wheel drive)



— • • • — optionally: with small or large delay chamber (SCF / DCF)

Selection criteria;
IEC standard motor: 4 poles 1500 rpm (50 Hz)
Ambient temperature: - 20 to + 40 °C
Start-up frequency: < 10/h

Fluid coupling BETA J

Size	Dimensions [mm]									T [Nm]	
	d ₁	l ₃	D _F	E**		E ₁ **	L _{ges} **		Bw		T _{A1}
FLK				min.	max.		min.	max.	SCF	DCF	
20	19	40	230	70	85	12/32	185	218	-	-	-
	24	50									
	28	60									
	38	80									
30	28	60	290	50	117	45	218	285	55	95	25
	38	80									
	55	110									
30P	28	60	327	50	117	45	218	285	55	95	25
	38	80									
40P	55	110	338	63	141	60	247	325	58	130	50,5
	42	110									
50	55	110	430	70	160	58	244	334	80	155	50,5
	75	140									
	38	80									
55	55	110	430	70	180	58	256	296	80	155	50,5
	75	140									
	55	110									
60	55	110	520	110	210	88	302	402	90	170	50,5
	75	140									
	80	170									
65	55	110	520	110	235	88	350	475	90	170	50,5
	75	140									
	80	170									
70P	55	110	640	140	245	100	380	485	110	225	212
	75	140									
	95	170									
	110	210									
75P	55	110	640	130	245	100	420	535	110	225	212
	75	140									
	95	170									
	110	210									

Product details

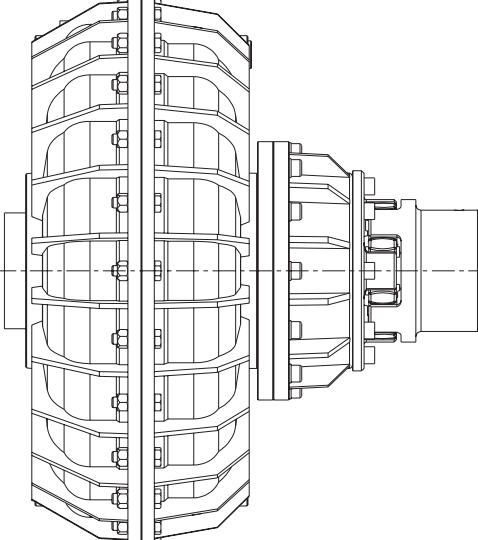
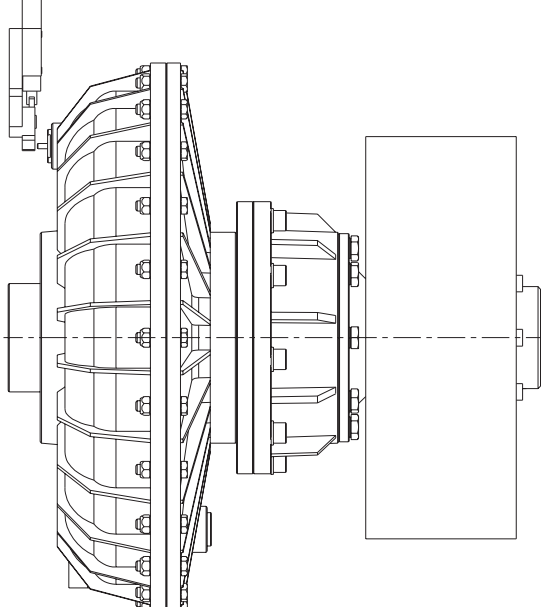
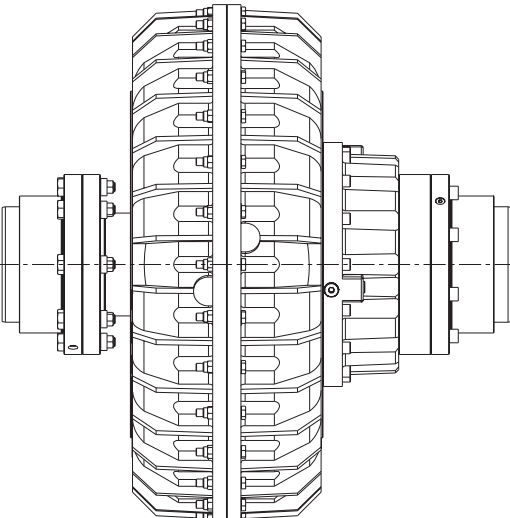
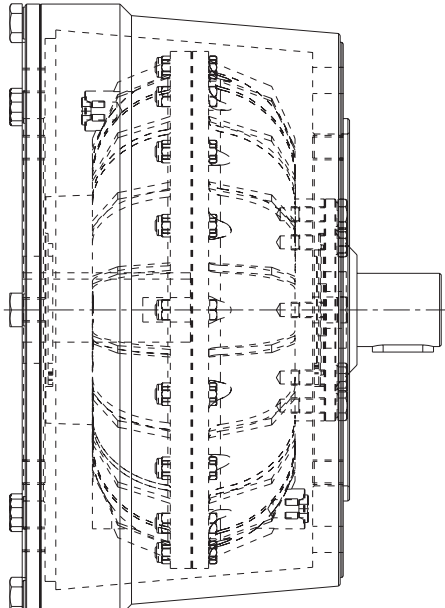
Subject to its design the fluid coupling BETA J can be used as an inner wheel drive only. The body of the coupling is identical with the standard of ALFA K. BETA J is specifically used for belt pulleys. The dimensions of the belt pulley have to be specified by the customer. With type BETA J the belt drive is assembled accessible from outside, i. e. if the belt drive has to be disassembled, this can be done without having to dismount the entire fluid coupling.

Ordering example

BETA	70P	J	Ø75	4 SPB 315	145 °C	-
Type	Coupling size	Design	Bore d ₁	Dimensions of belt pulley	FP	Other options

Fluid couplings

Additional types and variants

ALFA K-SCF-CF spez.	ALFA K-S-SCF-ADR-BTA-ET
	
<p>Combination with ROTEX®</p>	<p>Combination with POLY-NORM® and brake drum or disk and safety gear „ET“</p>
ALFA K-WAG	ALFA CK-S
	
<p>Combination with GEARex®</p>	<p>For smaller sizes options with a housing are also available</p>

For further details please contact KTR/Engineered Business.

Fluid couplings

Details of operation

Selection of oil

The selection of oil depends on various factors. In general oils with a high viscosity index have to be used with lower temperatures, while oils with a high lubricating performance need to be used with permanent operation. For the use with temperatures down to - 20 °C we would recommend the following oils:

Öil brand		BP	CASTROL	ESSO	MOBIL	SHELL
Öltyp		ENERGOL HPL22	HYSPIN AWS22	NUTO H22	DTE 22	TELLUS OIL 22
Viscosity	ISO VG	22	22	22	22	22
	cSt with 40 °C	21	22	21	22	22
	Engler	2,3	2,3	2,3	2,3	2,3
Viscosity index		104	100	104	110	90
Density	kg/dm ³	0,875	0,870	0,864	0,860	0,871
Pour point	°C	-30	-30	-35	-30	-30
Flash point	°C	192	210	204	200	180

Oil filling capacity

An optimum application requires adjustment of oil. Filling of the coupling is performed by the customer as a standard. The coupling must neither be filled insufficiently nor overfilled. Unless otherwise specified, the standard oil filling capacity should be preferred, the volume may have to be re-adjusted, if necessary.

Coupling size / Type	ALFA K / K-RM ALFA K-MS ALFA KLM-S / KLM-S-RM BETA J			ALFA K-SCF / K-RM-SCF ALFA K-MS-SCF ALFA KLM-S-SCF / KLM-S-RM-SCF BETA J-SCF			ALFA K-DCF / K-RM-DCF ALFA K-MS-DCF ALFA KLM-S-DCF / KLM-S-RM-SCF BETA J-SCF			ALFA K-CA		
	Oil filling capacity [l]											
	min.	Std.*	max.	min.	Std.*	max.	min.	Std.*	max.	min.	Std.*	max.
10	0,32	0,55	0,55	-	-	-	-	-	-	-	-	-
20	0,71	1,20	1,20	-	-	-	-	-	-	-	-	-
30	1,34	2,39	2,39	1,47	2,43	2,65	1,61	2,42	2,94	-	-	-
30P	2,27	4,05	4,05	2,39	3,94	4,32	2,53	3,78	4,62	-	-	-
40P	2,32	4,07	4,07	2,5	4,06	4,44	2,93	4,09	5,34	-	-	-
50	2,67	4,39	4,39	3,07	4,37	5,27	3,56	4,59	6,36	-	-	-
55	4,44	7,19	7,19	4,84	7,04	8,06	5,33	7,17	9,12	-	-	-
55S	-	-	-	-	-	-	-	-	-	10,80	14,60	18,20
55D	-	-	-	-	-	-	-	-	-	10,30	13,90	17,0
60	4,95	8,61	8,61	5,58	8,23	10,01	6,29	8,41	11,63	-	-	-
65	7,84	13,48	13,48	8,47	12,80	14,86	9,20	12,77	16,42	-	-	-
65S	-	-	-	-	-	-	-	-	-	20,80	28,70	34,40
65D	-	-	-	-	-	-	-	-	-	19,01	26,10	31,90
70P	10,16	18,05	18,05	11,31	16,89	20,53	13,06	17,64	24,28	-	-	-
75P	17,15	30,14	30,14	20,29	29,36	36,64	12,98	29,68	23,25	-	-	-
75PS	-	-	-	-	-	-	-	-	-	37,70	52,00	63,20
75PD	-	-	-	-	-	-	-	-	-	35,30	48,40	59,00
80P	20,48	35,53	35,53	23,76	35,21	42,5	26,57	35,27	48,45	45,60	69,50	79,20
85P	35,12	60,64	60,64	40,39	57,79	71,49	44,43	56,28	79,94	-	-	-
85PD	-	-	-	-	-	-	-	-	-	77,30	114,90	138,50
90P	51,06	91,92	91,92	57,25	91,70	104,8	63,94	90,62	118,72	108,20	166,10	186,30
95P	86,72	153,33	153,33	98,63	154,89	178,18	105,81	146,71	192,94	-	-	-

*recommended standard oil filling

Retaining screw of motor shaft

Diameter of motor shaft [mm]	14	19	24	28	38	42-48	55-60-65-70-75-80-85	90-95-100-110-125
Retaining screw	M5	M6	M8	M10	M12	M16	M20	M24
Tightening torque [Nm]	6	10,4	25	50,5	87	212	413	710



Company: _____
 Address: _____
 Phone: _____ Fax: _____
 Name: _____ Department: _____
 E-mail: _____ Date: _____

1. Driving side

Electric motor

Manufacturer: _____ Type: _____
 Rated power: _____ kW
 Rated speed: _____ rpm
 Mass moment of inertia: _____ kgm² reduced to coupling speed
 Motor shaft length: _____ mm
 Motor shaft diameter: _____ mm
 Activation: Star delta Direct Other
 Other: _____

Diesel engine

Manufacturer: _____ Type: _____
 Rated power: _____ kW
 Rated speed: _____ rpm
 Mass moment of inertia: _____ kgm² reduced to coupling speed
 2 stroke 4 stroke Number of cylinders _____ Piston Ø _____ mm
 In-line engine V-engine V-angle _____ ° Stroke _____ mm
 Other: _____

2. Driven side

Application/driven machine: _____
 Mass moment of inertia: _____ kgm² based on _____ rpm
 Rated power: _____ kW
 Starting frequency/hour: _____
 Start-up time: _____ Sec.
 Torque limiting: _____ Nm
 Dimension of gearbox/machine shaft Ø _____ x length _____ mm

Please observe protection note ISO 16016.	Drawn: 2016-09-08 Pz	Replaced for: KTR-N dated 2016-09-06
	Verified: 2016-09-08 Pz	Replaced by:

3. Version

Position of coupling:	<input type="checkbox"/> Horizontal	<input type="checkbox"/> Vertical
Vertical position of coupling:	<input type="checkbox"/> Motor on top	<input type="checkbox"/> Motor at the bottom
Drive:	<input type="checkbox"/> Inner wheel	<input type="checkbox"/> Outer wheel
Radial disassembly:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Brake drum:	Diameter _____ mm	Length _____ mm
Brake disk:	Diameter _____ mm	Length _____ mm
V-belt pulley:	Diameter _____ mm	Groove profile _____
		Number of grooves _____

4. General

Ambient temperature: _____ °C

Environment: _____ (Dust, sand, water, ...)

Other: _____

5. Documentations and specifications by QM

Material test certificate: _____

Initial sample test report: _____

ATEX: Yes No _____

Other: _____

6. Remark

(Quantity, other couplings required ...)
