



Couplings for Fire Pump Applications

Full range of  fire pump couplings

Made for Motion





If you need to set things in motion

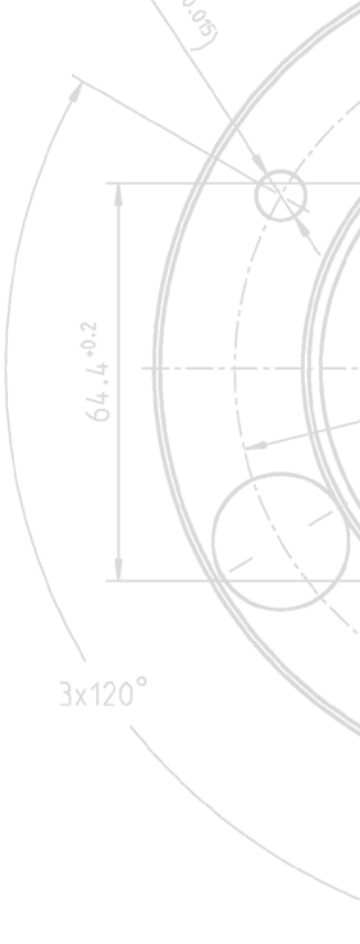
Competence meets creativity

As a leading manufacturer of high-quality drive components, KTR supplies mechanical couplings, clamping sets, torque limiters, torque measuring systems and hydraulic components all over the world. With over 50 years experience in power transmission, we are trendsetters in the development of coupling technology offering customized solutions to all industries. The KTR trademark characterizes quality, innovation, speed, reliability, flexibility and close working relationships with customers.

Having started with the curved-tooth gear coupling BoWex® and the torsionally flexible jaw coupling ROTEX®, KTR has built up an extensive product portfolio covering torques from 0.07 to over 550,000 lb-ft. Production on KTR's in-house, up-to-date machinery ensures that the couplings are made to the utmost accuracy even with couplings having a unit weight of up to 2 tons. Flexible automation ensures quick, low-cost production even if the product has to be customized to meet customers individual specifications. KTR produces several million couplings a year.

Even though KTR's standard product portfolio is quite extensive, it only represents a fraction of the options available. KTR is not only a vendor but also a solution provider.

The knowledge gained from thousands of applications in the field enables us to find optimum, low-cost solutions for customized applications. We will consult with you during the planning stage, providing drawings and prototypes or arranging for local discussions if required. Every year KTR produces more than 10,000 new products requested by customers. This trend increases year after year, leading to many special products becoming standard items. We revolutionize Power Transmission technology – in cooperation with our customers.



Accuracy meets speed

KTR produces well-designed, quality components resulting in improved characteristics of the drive system and longer service life. Our goal is to continually improve the quality of our products and services. We can analyze the stiffness of components by utilizing the FEM (Finite Element Method) system and we can also perform torsional vibration calculations for entire drive systems. In our in-house Research and Development Centre we test our products on accurate test benches under realistic operating conditions. Primary objective is to provide the utmost satisfaction to our customers.

Our technical sales engineers and our well-trained sales staff will be pleased to advise you. KTR provides extensive services online. At www.ktr.com you can request information including our product, catalog, 3D-CAD-models and assembly instructions. Depending on your application, you can select your drive component from more than 3,500 standard products. Having selected the right component for your application with our online calculation program, you are now in a position to order the products from your nearest KTR location.

For further details about us and our products; visit www.ktr.com

Our well designed product and knowledgeable customer service staff enable us to provide quick and reliable delivery to our customers. Our ability to manufacture or import KTR products to our United States headquarters in Michigan City, IN ensures that our products are available when you need them. Utilizing a global scheduling system, we can provide the same quality service for both domestic and international ship-to locations within the KTR global network.

ROTEX®

Torsionally flexible couplings for fire pump applications



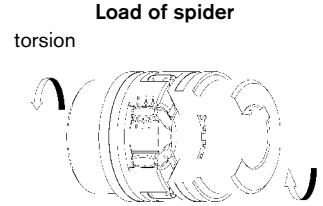
Description of coupling

ROTEX® – couplings are designed to transmit torque between drive and driven components via curved jaw hubs and elastomeric elements, commonly known as spiders. The combination of these components provides dampening and accommodation for misalignments. This product is available in a variety of mounting configurations to meet your specific needs.

General description

In general, pumps used in fire protection systems require a unique solution, not only from a regulatory standpoint, but an understanding of what is required of the coupling. A few of the criteria below are difficult to achieve with a coupling requiring lubrication or frequent maintenance.

- More stop & starts than runtime
- Standby mode for majority of life
- Expected to transmit torque when all else fails
- Ability to accommodate misalignments



KTR considered these criteria when selecting the ROTEX® coupling as a reduced maintenance, fail-safe solution to be used in fire pump applications – and we were not alone. ROTEX® has earned the Underwriters Lab listing for UL 448A - Flexible Couplings and Connecting Shafts for Stationary Fire Pumps. In addition to adherence to UL's stringent test criteria – which included running the coupling at maximum torque and speed without the elastomeric element – the ROTEX® standard coupling provides:

- Lubrication free design for reduced maintenance
- Steel construction with multiple clamping options
- Curve jaw design eases assembly and reduces restoring forces
- Urethane Spider, balance between dampening and torque capacity

Fire Pump use

ROTEX® couplings meet the requirements of NFPA 20 - Standard for Installation of Stationary Pumps for Fire Protection, and by completing the required endurance testing of UL 448A, flexible couplings and connecting shafts for stationary fire pumps.



Coupling selection

ROTEX® couplings intended for use in electric motor driven shaft-to-shaft stationary fire pumps require:

- 92 Sh A spider (T-PUR® Orange) or 94 Sh A-T spider (blue with yellow tips)
- Steel hub material with either 2 setscrews 90 degrees apart or cross clamping

Coupling selections must be made based on maximum torque rating of the driver (not the pump). Calculated maximum motor torque, adjusted by the safety factor must not exceed the maximum torque rating of the coupling. It is recommended that a torsional analysis to be conducted on the actual drive system arrangement.

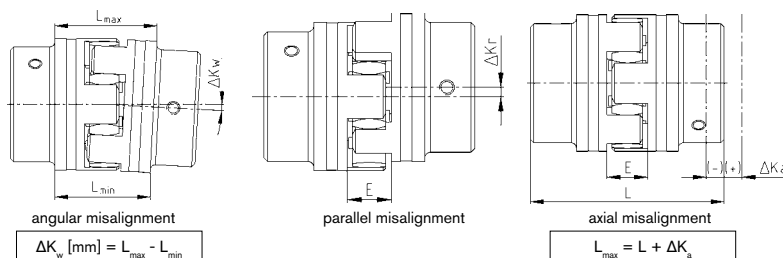
ROTEX® Size	Speed	Spider (part 2) Rated torque [lb-ft]		Max Bore with set screw Ød ¹⁾	Max Bore with cross clamp Ød ¹⁾	BHP/KW @ RPM Operating Speed			
		Min	Max			1,500	1,800	3,000	3,600
42	3,600	45	130	2.125	1.875	37	45	74	89
						28	33	56	67
55	3,600	45	202	2.813	2.563	58	69	115	139
						43	52	86	103
65	3,600	45	307	3.000	2.625	88	105	176	211
						65	79	131	157
75	3,600	45	629	3.625	3.000	180	216	359	431
						134	161	268	322
90	1,800	45	1,180	4.250	3.438	337	404		
						251	302		

Service factors ²⁾	
Load type (Driven)	Safety Factor
Centrifugal Pump	1.00
Reciprocating Pump	2.00
Reciprocating Pump 1 or 2 Cylinders	2.25
Reciprocating Pump 3 or more Cylinders	1.75
Rotary - gear, lobe or vane	1.50

¹⁾ Inch bores machined to AGMA 9002-Class 1, keyways machined to ANSI B17.1

Metric bores machined to ISO H7, keyways machined to DIN 6885 JS9

²⁾ For electric motor driven pump applications

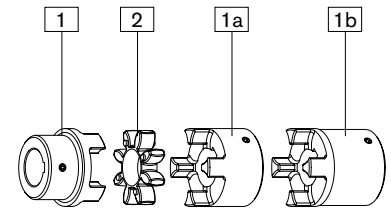
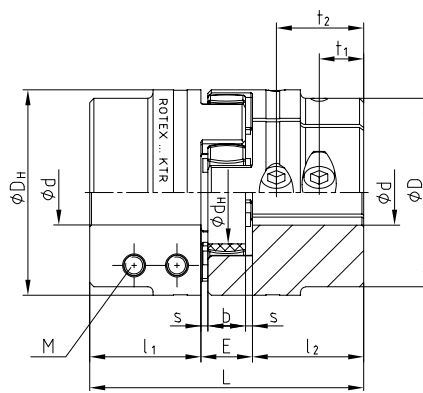
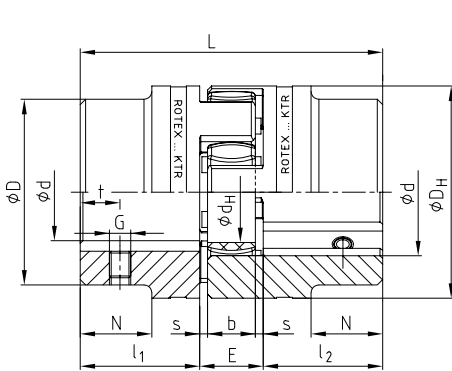


Misalignments				
ROTEX® Size	Max. Speed	Min./Max. axial misalignment ΔKa [in]	Min./Max. parallel misalignment ΔKr [in]	Min./Max. angular misalignment ΔKw [in]
42	3,600	-0.04 / +0.04	0.004	0.024
55	3,600	-0.04 / +0.05	0.005	0.035
65	3,600	-0.04 / +0.05	0.005	0.043
75	1,800	-0.06 / +0.06	0.008	0.063
75	3,600	-0.06 / +0.06	0.006	0.053
90	1,800	-0.04 / +0.08	0.009	0.081

Shaft Coupling Listed Design - steel with 92 shore A spider



- Fail safe
- Reduced maintenance – no lubrication
- Curve jaw construction
- Ease of assembly
- Torsionally flexible / vibration-damping
- Steel hubs
- Standard hub with 2 setscrews
- Available in both inch and Metric bores
- Installation instructions available at www.ktr.com



ROTEX® Steel																			
Size	Hub Style	Dimensions [in]																	Weight ²⁾ [lb]
		General								Setscrews ¹⁾			Cross clamp						
		L	l ₁ ; l ₂	E	b	s	D _H	d _H	D	N	G	t	T _A [lb-ft]	M	t ₁	t ₂	T _A [lb-ft]		
42	1	4.96	1.97	1.02	0.79	0.12	3.74	1.81	3.35	1.10	M8	0.59	8	M10	0.71	-	51	5.56	
	1b	6.93	2.95						3.74	-								8.78	
55	1	6.30	2.56	1.18	0.87	0.16	4.72	2.36	4.33	1.46	M10	0.79	13	M12	1.02	2.01	89	11.14	
	1b	8.27	3.54						4.72	-								16.38	
65	1	7.28	2.95	1.38	1.02	0.18	5.31	2.68	4.53	1.85	M10	0.79	13	M12	1.30	2.40	89	14.97	
	1b	9.25	3.94						5.31	-								22.76	
75	1	8.27	3.35	1.57	1.18	0.20	6.30	3.15	5.31	2.09	M10	0.79	13	M16	1.42	2.68	218	23.22	
	1b	10.24	4.33						6.30	-								36.16	
90	1	9.65	3.94	1.77	1.34	0.22	7.87	3.94	6.30	2.44	M12	1.18	30	M20	1.57	3.15	428	41.23	
	1b	11.61	4.92						7.87	-								65.26	

¹⁾ Quantity 2 setscrews per hub 90 degrees apart.
²⁾ Weights refer to the mid range bore without keyway.
³⁾ 2.0= cross clamped hub

Order form	ROTEX® 42	Steel	92 Sh A	1	Ø2.125	1	Ø1.875	Listed
	Coupling Size	Material	Spider Hardness	Hub Style ³⁾	Finish Bore	Hub Style ³⁾	Finish Bore	Certification