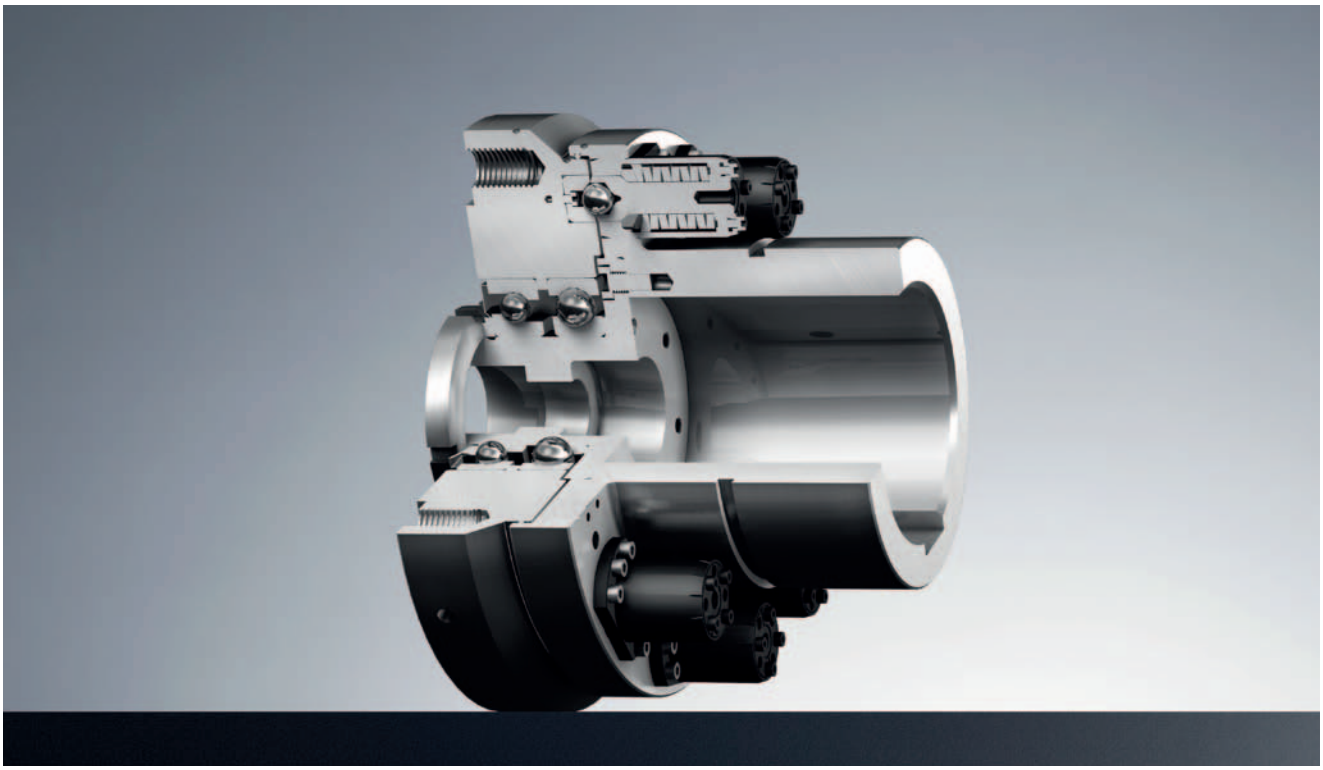
KTR-SI

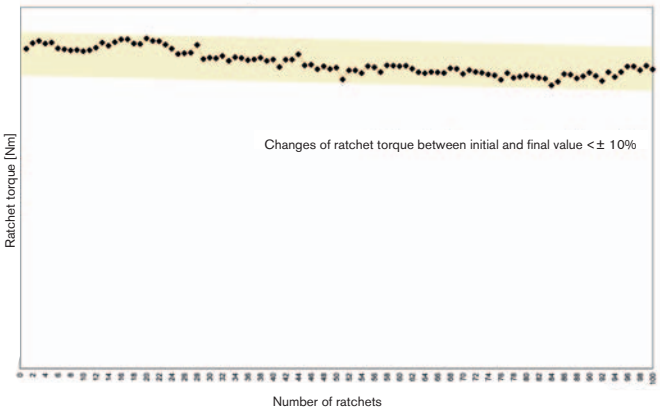
Idle rotation overload systems

Made for Motion KTR

www.ktr.com

KTR-SI FRE





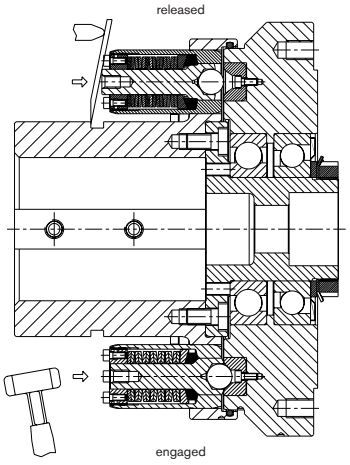
Operation of idle rotation elements

The core of the overload system is formed by the idle rotation elements. In case of overload they uncouple the driving and driven side while protecting the drive train from damages. After eliminating the overload, the rotation segments are manually re-engaged so that the drive is released again.

In order to set the coupling to the requested release torque, a defined pre-stress is generated on the disk springs in each idle rotation element via the setting nut. The number of elements varies depending on the release torque demanded. If requested, the coupling can be pre-set by the manufacturer. It is also possible to adapt the coupling while in place.

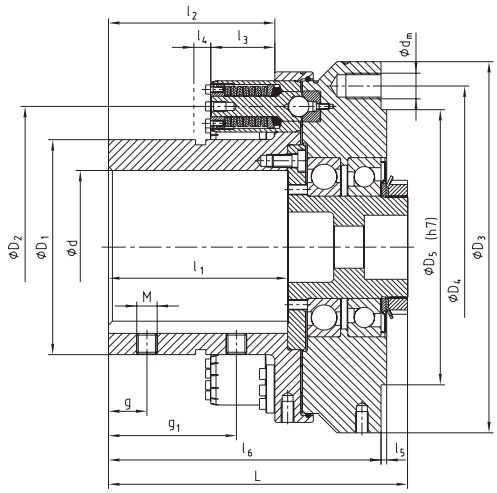
Re-engaging of idle rotation elements

After eliminating the overload driving and driven side are aligned to each other. By means of a plastic hammer or a lever the rotation segments are re-engaged manually while the re-engagement can clearly be heard. Now the overload coupling is ready for operation again.



KTR-SI FRE

- Idle rotation overload system (load separating)
- High repeating accuracy
- Flange type for the connection of belt pulleys or sprockets
- To be combined with ROTEX®, GEARex® or RADEX-N® as a shaft-to-shaft connection
- The intelligent further development of shear pin couplings and hydraulic clamping sets
- Setting range up to 60,000 Nm
- (higher torques possible on request)



Torques [Nm]							
Size	Type of element	3 elements		6 elements		9 elements	
		Min.	Max.	Min.	Max.	Min.	Max.
9	1T2	1000	4000	2000	8000	–	–
	1T3	2000	5500	4000	11000		
12	1T2	1300	5000	2600	10000	3900	15000
	1T3	2400	6700	4800	13400	7200	20100
15	1T2	1700	6000	3400	12000	5100	18000
	1T3	3000	8200	6000	16400	9000	24600
20	2T2	5000	15000	10000	30000	15000	45000
	2T3	10000	20000	20000	40000	30000	60000

Dimensions of flange type																						
Size	Max. finish bore d	Dimensions [mm]																		Perm. max. bearing load [kN][2]		Speed[3] [1/min]	Weight with max. bore [kg]
		D_1	D_2	D_3	D_4	D_5	L	l_1	l_2	l_3	l_4	l_5	l_6	M	g	g_1	d_m	z	Pitch	Radial force	Axial force		
9	90	135	185	260	225	200	203,5	120	110	50	5,3	2,5	188	12	25	75	12	12	12x30°	42	30,0	3300	36
12	120	173	225	290	252	215	236	140	128	50	5,3	4,5	215	16	30	100	20	15	20x18°	75	40,0	2300	54
15	150	215	270	324	282	245	269	170	160	50	5,3	4,5	247	20	40	120	20	15	20x18°	100	50,0	2050	76
20	200	285	370	460	375	330	344	220	200	73	9	5	322	20	50	150	24	18	24x15°	162,5	80,0	1550	194

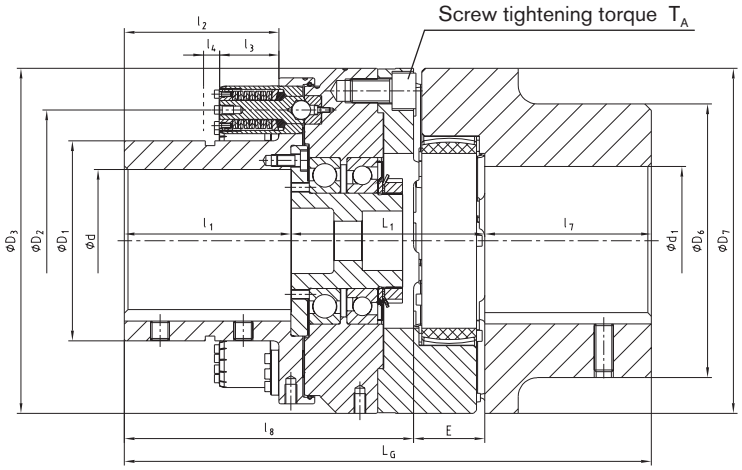
[1] Other sizes available on request
[2] Higher forces possible with stronger bearing
[3] Higher speeds possible on request

Ordering example:

KTR-SI FRE 12	1T3	9	Ø85	12000 Nm
Type/size	Type of element	Number of elements	Bore of KTR-SI FRE	Torque set

KTR-SI FRE with ROTEX®

- Idle rotation overload system (load separating)
- High repeating accuracy
- The intelligent further development of shear pin couplings and hydraulic clamping sets
- Setting range up to 60,000 Nm
- (optionally higher torques are possible)



Torques [Nm]

Size	Type of element	3 elements		6 elements		9 elements	
		Min.	Max.	Min.	Max.	Min.	Max.
9	1T2	1000	4000	2000	8000	–	–
	1T3	2000	5500	4000	11000		
12	1T2	1300	5000	2600	10000	3900	15000
	1T3	2400	6700	4800	13400	7200	20100
15	1T2	1700	6000	3400	12000	5100	18000
	1T3	3000	8200	6000	16400	9000	24600
20	2T2	5000	15000	10000	30000	15000	45000
	2T3	10000	20000	20000	40000	30000	60000

Dimensions with ROTEX®

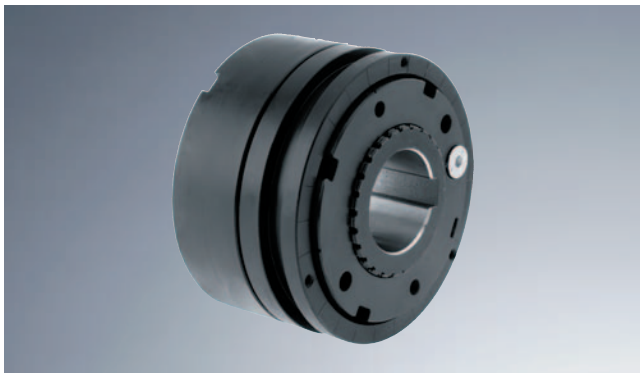
Size[1]	ROTEX® Size	ROTEX® Torque [Nm]		Max. finish bore		Dimensions [mm]														T_A [Nm]	Speed[2] [1/min]	Weight with max. bore [kg]
		T_{KN}	T_{Kmax}	d	d_1	D_1	D_2	D_3	D_6	D_7	L_G	L_1	l_1	l_2	l_3	l_4	l_7	l_8	E			
9	90	4500	9000	90	110	135	185	260	160	200	353	133	120	110	50	5,3	100	208	45	117	3300	57
12	125	12500	25000	120	125	173	225	290	230	290	445	165	146	130	50	5,3	140	245	60	560	2300	108
15	140	16000	32000	150	160	215	270	324	225	230	501	176	170	160	50	5,3	155	281	65	560	2050	142
20	180	35000	70000	200	200	285	370	460	325	420	642	227	220	200	73	9	195	362	85	970	1550	331

[1] Other sizes available on request
[1] Higher speeds possible on request

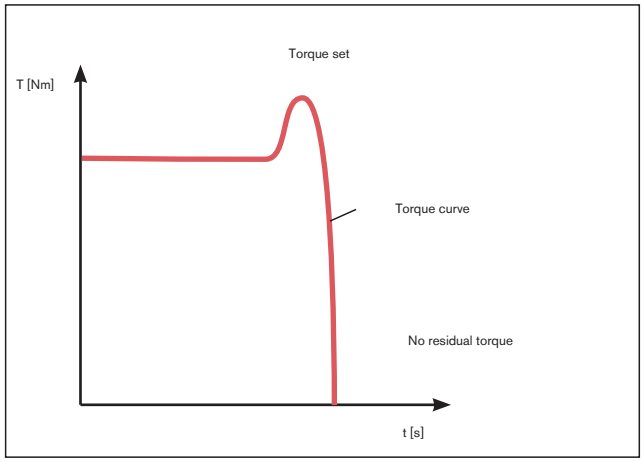
Ordering example

KTR-SI FRE 12	125	1T3	9	Ø85	Ø85	12000 Nm
Type/size	ROTEX® size	Type of element	Number of elements	ROTEX® bore	Bore of KTR-SI FRE	Torque set

Idle rotation coupling (load-separating)

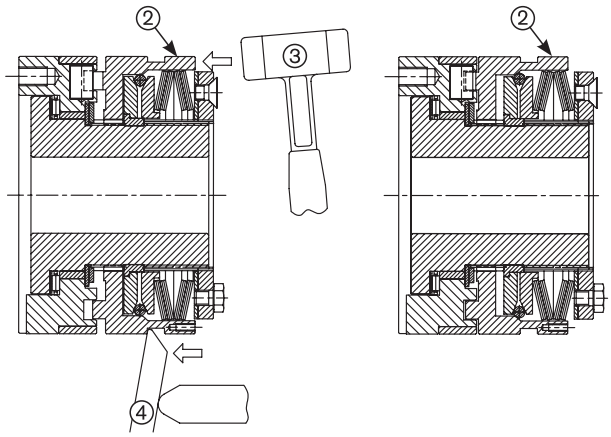


- Idle-rotation safety clutch for a torque up to 1800 Nm
- Max. speed up to 5000 rpm (see table)
- Driving and driven side are permanently separated
- Manual re-engagement
- Optional overload recognition by limit switch or sensor
- Combination with ROTEX® coupling as shaft-to-shaft connection
- Easy assembly and torque setting



Operating principle of the KTR-SI idle-rotation couplings:

- When achieving the torque set, the coupling rotates.
- Subject to the idle rotation mechanism driving and driven side remain separated. The resulting flywheel mass may run out in idle state.
- After having removed the overload, the coupling reengages.
- The re-engagement is effected manually or via a device.



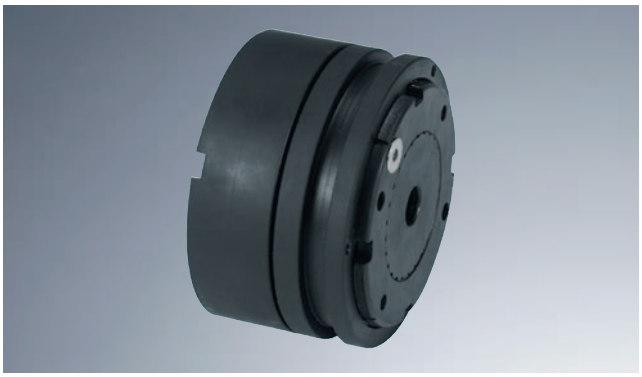
Re-engagement of the idle rotation coupling:
Re-engagement of the free-rotating coupling is effected by axial pressure on the shifting ring (2). Dependent on the existing media, accessability etc., the re-engagement can be effected in different ways:

- by several beats with a plastic hammer (3) axially on the shifting ring (see on the left)
- by mounting levers (4)
- by a pneumatic or hydraulic engagement device (automated process of engagement)

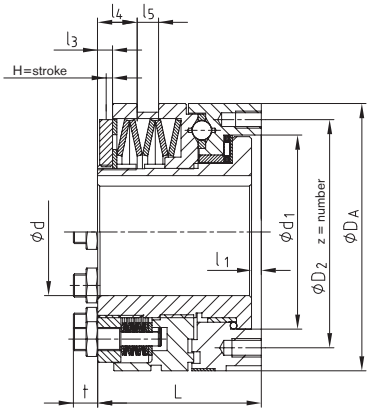
Torques [Nm]			
Size	Disk spring layer		
	T1	T2	T3
1	12-25	25-50	50-100
2	25-50	50-100	100-200
3	50-100	100-200	200-450
4	100-200	200-400	400-800
5	170-450	350-900	600-1800

Max. speeds [rpm]	
Size	$n_{max.}$
1	5000
2	4000
3	3500
4	3000
5	2300

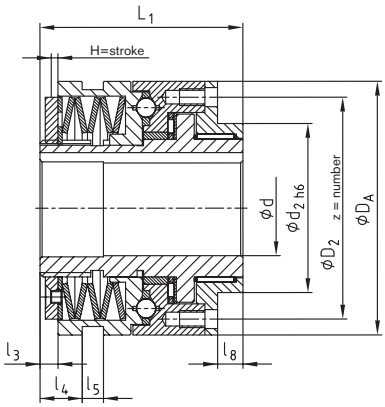
Type FT, KT und LT



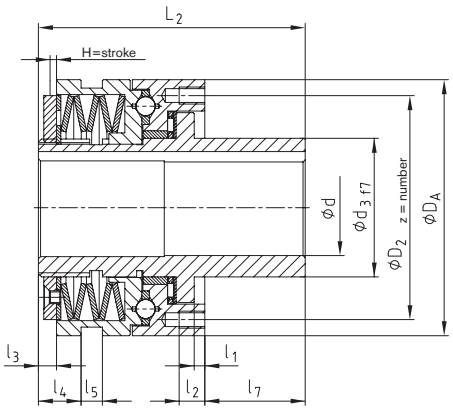
- Standard KTR-SI safety clutch up to 8200 Nm
- Available ready for assembly with the torque set
- For direct mounting of customers' components
- Available as a ratchet, synchronous and fail-safe design
- Torque setting possible while in place
- Finish bore according to ISO fit H7, feather keyway according to DIN 6885 sheet 1 - JS9
- Surface protection by phosphating



Type FT



Type KT



Type LT

Dimensions [mm]																			
Size	Bore d		d_1	D_2	D_A	d_2	d_3	l_1	l_2	l_3	l_4	l_5	l_7	l_8	L	L_1	L_2	z	H = Hub
	Pilot bore	Max.																	FR
1	10	25	60,0	70	82	50	38	4,0	8,0	6,0	11,5	9	33,0	10	52,0	70,0	85,0	6xM5	2,3
2	14	35	78,0	89	100	60	52	5,0	10,0	5,0	12,0	9	39,0	12	61,0	78,0	100,0	6xM6	3,0
3	18	45	90,5	105	120	80	65	5,0	12,0	8,5	21,0	10	47,0	12	78,0	96,0	125,0	6xM8	3,5
4	24	55	105,0	125	146	100	78	6,5	15,0	11,0	27,0	9	52,5	16	100,0	124,5	152,5	6xM10[1)]	3,8
5	30	65	120,5	155	176	120	90	6,5	17,0	12,0	33,0	9	57,5	18	113,5	140,0	171,0	6xM12[1)]	4,5

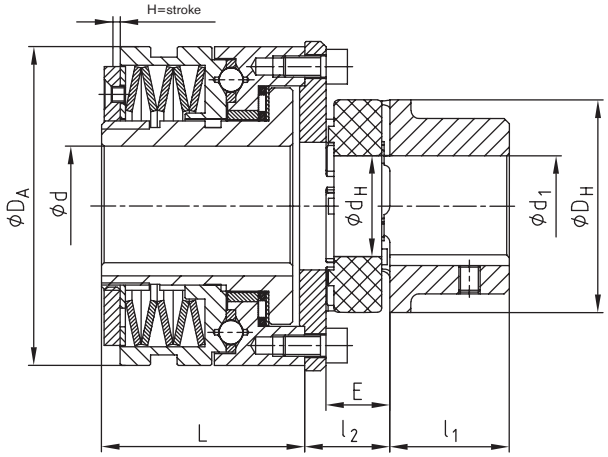
Torques [Nm]			
Size	Disk spring layering		
	T1	T2	T3
1	12-25	25-50	50-100
2	25-50	50-100	100-200
3	50-100	100-200	200-450
4	100-200	200-400	400-800
5	170-450	350-900	600-1800

Ordering example:

KTR-SI	2	FR	FT	T2	Ø20	50 Nm
Type	Size	Design	Design	Disk springs	Bore	Torque set

With torsionally flexible ROTEX®

- KTR-SI safety clutch as a shaft-to-shaft connection
- Axial plug-in
- Able to compensate for misalignment
- Available as a ratchet, synchronous and fail-safe design
- Torque setting possible while in place
- Various kinds of elastomer hardness available
- Finish bore according to ISO fit H7, feather keyway according to DIN 6885 sheet 1 - JS9



Technical data							Torques [Nm]		
KTR-SI Size	ROTEX® Size	Torque [Nm] 1)		ROTEX® Size	Torque [Nm] 1)		Disk spring layering		
		T_{KN}	T_{Kmax}		T_{KN}	T_{Kmax}	T1	T2	T3
1	24	60	120	38	325	650	12-25	25-50	50-100
2	28	160	320	48	525	1050	25-50	50-100	100-200
3	38	325	650	55	685	1370	50-100	100-200	200-450
4	48	525	1050	75	1920	3840	100-200	200-400	400-800
5	55	685	1370	90	3600	7200	170-450	350-900	600-1800

Dimensions												
KTR-SI Size	ROTEX® Size	Max. Bore [mm]		Dimensions [mm]							H=stroke [mm]	
		d	d_1	D_A	D_H	d_H	E	l_1	l_2	L	FR	
1	24	25	28	82	55	27	18	30	24	52	2,3	
	38		45		80	38	24	45	32,5			
2	28	35	38	100	65	30	20	35	28	61	3,0	
	48		60		105	51	28	56	38			
3	38	45	45	120	80	38	24	45	32	78	3,5	
	55		70		120	60	30	65	43			
4	48	55	60	146	105	51	28	56	38	100	3,8	
	75		95		160	80	40	85	56,5			
5	55	65	70	176	120	60	30	65	44	113,5	4,5	
	90		110		200	100	45	100	62			

1) The respective ROTEX® coupling can be selected based on the torque of the machine (see coupling selection for ROTEX®). Torques for 98 Sh-A spider

Ordering example:

KTR-SI 2	28	FR	T2	Ø25	Ø20	50 Nm
Type/size	ROTEX® Size	Design	Disk spring layer	ROTEX® Bore	KTR-SI Bore	Torque set

KTR worldwide:

Belgium/Luxembourg
KTR Benelux B. V. (Office Belgium)
Blancefloerlaan 167/22
BE-2050 Antwerpen
Phone: +32 3 2110567
Fax: +32 3 2110568
E-mail: ktr-be@ktr.com

Brazil
KTR do Brasil Ltda.
Rua Jandaia do Sul 471 -
Bairro Emiliano Perneta
Pinhais - PR - Cep: 83324-440
Brasil
Phone: +55 41 36 69 57 13
Fax: +55 41 36 69 57 13
E-mail: ktr-br@ktr.com

China
KTR Power Transmission Technology
(Shanghai) Co. Ltd.
Building 1005, ZOBON Business Park
999 Wangqiao Road
Pudong
Shanghai 201201
China
Phone: +86 21 58 38 18 00
Fax: +86 21 58 38 19 00
E-mail: ktr-cn@ktr.com

Czech Republic
KTR CR, spol. s. r. o.
Olomoucká 226
CZ-569 43 Jevícko
Phone: +420 461 325 162
Fax: +420 461 325 162
E-mail: ktr-cz@ktr.com

Finland
KTR Finland OY
Tiistinniityntie 4
FI-02230 Espoo
PL 23
SF-02231 Espoo
Phone: +358 2 07 41 46 10
Fax: +358 2 07 41 46 19
E-mail: ktr-fi@ktr.com

France
KTR France S.A.R.L.
46 – 48 Chemin de la Bruyère
F-69570 Dardilly
Phone: +33 478 64 54 66
Fax: +33 478 64 54 31
E-mail: ktr-fr@ktr.com

Great Britain
KTR Couplings Ltd.
Robert House
Unit 7, Acorn Business Park
Woodseats Close
Sheffield
England, S8 0TB
Phone: +44 11 42 58 77 57
Fax: +44 11 42 58 77 40
E-mail: ktr-uk@ktr.com

India
KTR Couplings (India) Pvt. Ltd.,
T-36 / 37 / 38, MIDC Bhosari
Pune 411026
India
Phone: +91 20 27 12 73 22
Fax: +91 20 27 12 73 23
E-mail: ktr-in@ktr.com

Italy
KTR Kupplungstechnik GmbH
Sede senza rappresentanza stabile
sul Territorio Nazionale
Via Fermi, 25
IT-40033 Casalecchio di Reno (BO)
Phone: +39 051 613 32 32
Fax: +39 02 700 37 570
E-mail: ktr-it@ktr.com

Japan
KTR Japan Co., Ltd.
3-1-23 Daikaidori
Hyogo-ku, Kobe-shi
652-0803 Japan
Phone: +81 7 85 74 03 13
Fax: +81 7 85 74 03 10
E-mail: ktr-jp@ktr.com

KTR Japan – Tokyo Office
1-11-6, Higashi-Ueno, Taito-Ku,
Tokyo 110-0015 Japan
(Takeno-building, 5F)
Japan
Phone: +81 3 58 18 32 07
Fax: +81 3 58 18 32 08

Korea
KTR Korea Ltd.
101, 15-16, 147 Beon-Gil
Beolmal-Ro
Guri-City, Gyeonggi-Do
471-856 Korea
Phone: +82 3 15 69 45 10
Fax: +82 3 15 69 45 25
E-mail: ktr-kr@ktr.com

Netherlands
KTR Benelux B. V.
Postbus 87
NL-7550 AB Hengelo (O)
Adam Smithstraat 37
NL-7559 SW Hengelo (O)
Phone: +31 74 2553680
Fax: +31 74 2553689
E-mail: ktr-nl@ktr.com

Norway
KTR Kupplungstechnik Norge AS
Fjellbovegen 13
NO-2016 Frogner
Phone: +47 64 83 54 90
Fax: +47 64 83 54 95
E-mail: ktr-no@ktr.com

Poland
KTR Polska SP. Z. O. O.
ul. Czerwone Maki 65
PL-30-392 Kraków
Phone: +48 12 267 28 83
Fax: +48 12 267 07 66
E-mail: ktr-pl@ktr.com

Russia
KTR Privodnaya technika, LLC
6 Verhnii Pereulok 12
Litera A, Office 229
194292 St. Petersburg
Russia
Phone: +7 812 383 51 20
Fax: +7 812 383 51 25
E-mail: ktr-ru@ktr.com
Internet: www.ktr.ru

Spain
KTR Kupplungstechnik GmbH
c) Estartetxe, n° 5 – Oficina 218
ES-48940 Leioa (Vizcaya)
Phone: +34 9 44 80 39 09
Fax: +34 9 44 31 68 07
E-mail: ktr-es@ktr.com

Sweden
KTR Sverige AB
Box 742
SE - 191 27 Sollentuna
Phone: +46 86 25 02 90
Fax: +46 86 25 02 99
E-mail: info.se@ktr.com

Switzerland
KTR Kupplungstechnik AG
Bahnstr. 60
CH-8105 Regensdorf
Phone: +41 4 33 11 15 55
Fax: +41 4 33 11 15 56
E-mail: ktr-ch@ktr.com

Taiwan
KTR Taiwan Ltd.
1 F, No.: 17, Industry 38 Road
Taichung Industry Zone
Taichung
Taiwan, R. O. C.
Phone: +886 4 23 59 32 78
Fax: +886 4 23 59 75 78
E-mail: ktr-tw@ktr.com

Turkey
KTR Turkey
Güç Aktarma Sistemleri
San. ve Tic. Ltd. Sti.
Kayışdagı Cad. No: 117/2
TR 34758 Atasehir -İstanbul
Phone: +90 216 574 37 80
Fax: +90 216 574 34 45
E-mail: ktr-tr@ktr.com

USA
KTR Corporation
122 Anchor Road
Michigan City, Indiana 46360
USA
Phone: +1 2 19 8 72 91 00
Fax: +1 2 19 8 72 91 50
E-mail: ktr-us@ktr.com

04/14 - We reserve the right for modifications

KTR Kupplungstechnik GmbH
P.O. Box 1763
D-48407 Rheine
Phone: +49 5971 798-0
Fax: +49 5971 798-698 and 798-450
E-mail: mail@ktr.com
Internet: www.ktr.com

Made for Motion KTR