



Couplings for machine tools

Perfect performance with dynamic drives

www.ktr.com

Made for Motion





If you want to set things in motion: KTR

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 more than 50 years experience in power transmission we are trendsetters in the development of coupling technology and offer customised solutions to all industries. The KTR trademark characterises quality and innovation, speed, reliability, flexibility and a close working relationship 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 0,15 to over 750.000 Nm. The production by KTR's in-house, up-to-date machinery ensures that the couplings are made to the utmost accuracy. The couplings having a unit weight of up to 2 tons. Flexible automation ensures a quick and low-cost production even if the product has to be customised to meet customers individual specifications. KTR produce several million couplings a year.

Even though KTR's standard product portfolio is quite extensive, it only represents a fraction of the different options available. KTR is not only a subcontractor but also a solution provider. The knowledge gained from thousands of applications in the field allows us to find optimum, low-cost solutions for customised applications. We will consult 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 ordered by customers. This trend increases year on year. This leads to many special products becoming standard items: We permanently give vital ideas to the Power Transmission technology – in cooperation with our customers.



Accuracy meets speed

KTR products are evidence of well-designed, quality components resulting in improved characteristics of the drive system and as a consequence, a longer service life. It is our aim to continually improve the quality of our products and services. We can analyse the stiffness of components by utilising 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 in realistic operating conditions. Our main objective is to provide the uppermost satisfaction to our customers.

Our technical sales engineers and our well-trained sales staff will be pleased to give you advice. KTR provides you with extensive services online, too: At www.ktr.com you can request information, including our product catalogue, 3D-CAD-models and assembly instructions. Depending on your application you can select your drive component from of more than 3.500 standard products. Having selected which one is the right component for your application by using our online calculation program, you are now in a position to order the products by

contacting your nearest KTR company. Alternatively our Euro shop is open 24 hours a day.

Our latest scheduling system SAP ERP ensures an optimum networking with our customers and allows for a quick and reliable delivery service. A selection of 3.500 couplings and hydraulic components are permanently available from stock. For orders placed by 2:00pm we guarantee the despatch of orders the same day! In the KTR Logistics Centre the overall flow of goods is supervised by radio-controlled barcode scanning. Leading distribution partners ensure delivery on time. Our tracking and tracing system allows you to follow the progress of your order at all times. KTR supplies to every location in the world.

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



In good shape, in due time ...

Machine tools have to meet with contradictory demands: Speed and accuracy, flexibility and reliability, highest efficiency combined with highest profitability. KTR couplings are as up to date as the applications and designs of the latest machine tools!

It does not matter if the application is for a standard machine or a complex production system: we at KTR can always offer a solution. We are aware that accurate positioning adhering to smallest tolerances, full dynamics, without any loss of time, stiffness and flexibility, all at the same time is important to you. That is why it is not sufficient to take a look at the operation of the coupling separately: We consider the drive system to operate as a unit.

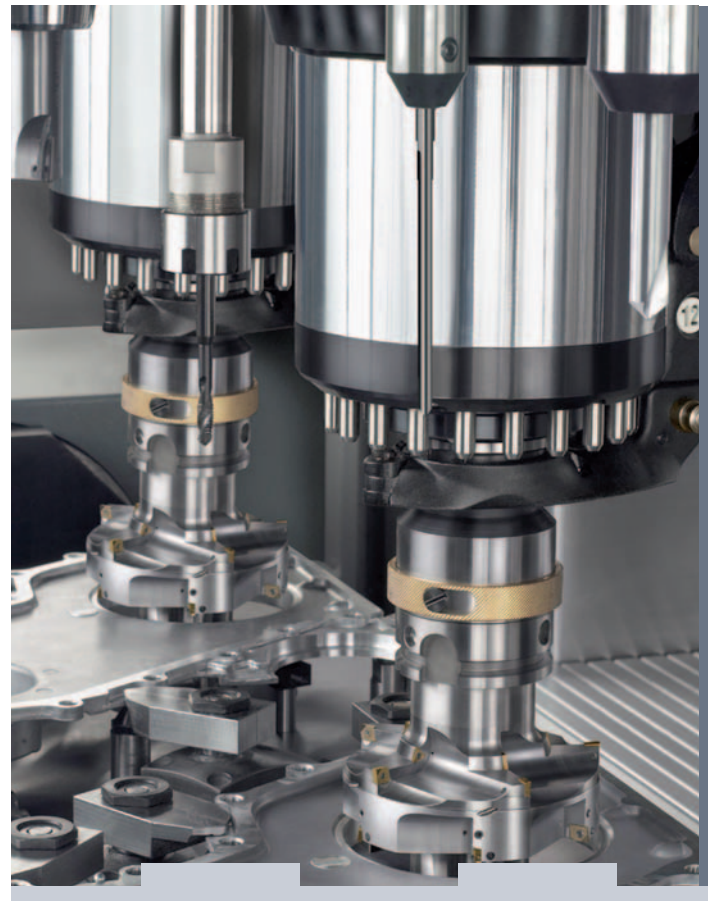
Stiffness and flexibility simultaneously

Thanks to our detailed knowledge of the industry we have often managed to set new standards for servo drives: by designing the vibration-damping backlash-free jaw coupling ROTEX® GS, the torsionally stiff lamina coupling RADEX®-NC and the torsionally stiff, flexible metal bellow-type coupling TOOLFLEX®, but also innovations like the two-part and axial-

plug-in TOOLFLEX® PI and the safety system KTR-SI compact in combination with ROTEX® GS or TOOLFLEX®.

Short cycle time, long service life

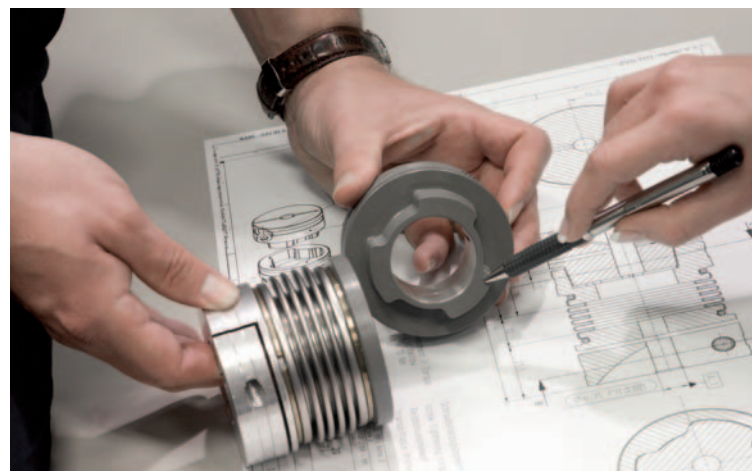
All KTR products for servo motors have similar characteristics. They are permanently backlash-free, maintenance-free and have a very long service life. The majority of manufacturers of machine tools use KTR's ROTEX® GS as an axially plug-in, flexible and backlash-free coupling. Many well-known automobile manufacturers specify KTR Couplings for their production, and apart from that, large manufacturers of motors recommend KTR for their positioning drives, as, quality is decisive.



... always well-advised !

KTR not only puts a lot of work into their products, but also into its advisory service. If high demands are set on the power and accuracy of machine tools, correct selection of the machine components is particularly important. That is why KTR's application engineers are always pleased to support you with the selection of the best coupling system for your individual application.

KTR also supplies couplings for pumps in coolant systems and cutting machines as well as torque limiters and hydraulic components. For further details please have a look at our company catalogue or at www.ktr.com.



Only the best for machine tools

Apart from our well-known shaft coupling ROTEX® GS which is often used on applications requiring accuracy, e.g. on main spindles, the following KTR products can also be used:

- The backlash-free, flexible jaw coupling ROTEX® GS has proven its worth in positioning technology and on main spindle drives. In spite of its feature of damping vibrations it is sufficiently torsionally stiff so that even with highly dynamic servo drives the accuracy does not have to suffer. ROTEX® GS is also available as a clamping ring design for high friction torques.

- ROTEX® GS P was developed by KTR in cooperation with VDMA (association of German manufacturers of machines and plants) to be used on stub spindles of multiple spindle heads. The integrated clamping system of the backlash-free, highly precise shaft coupling consists of steel for 100%. With a circumferential speed of 75 m/s and higher it is ideally suited for applications on HSC main spindle drives running at high speeds. ROTEX® GS P is in accordance with the standard: DIN 69002.

- The backlash-free metal bellows-type coupling TOOLFLEX® with a non-positive connection of bellow and hub and a frictionally engaged clamping hub is suitable for temperatures up to 280 °C. It is also available in a short design with flange connections, a mini version and other types, for example as an axial plug-in TOOLFLEX® PI (Plug-In): It provides for high torsional stiffness, reduces the assembly times and reduces cost.

- The backlash-free lamina coupling RADEX®-NC was developed by KTR specifically for servo technology. Due to its laminas being made from stainless spring steel it is extremely torsionally stiff and at the same time flexible. Aluminium hubs ensure a low mass moment of inertia even with the double-cardanic design.

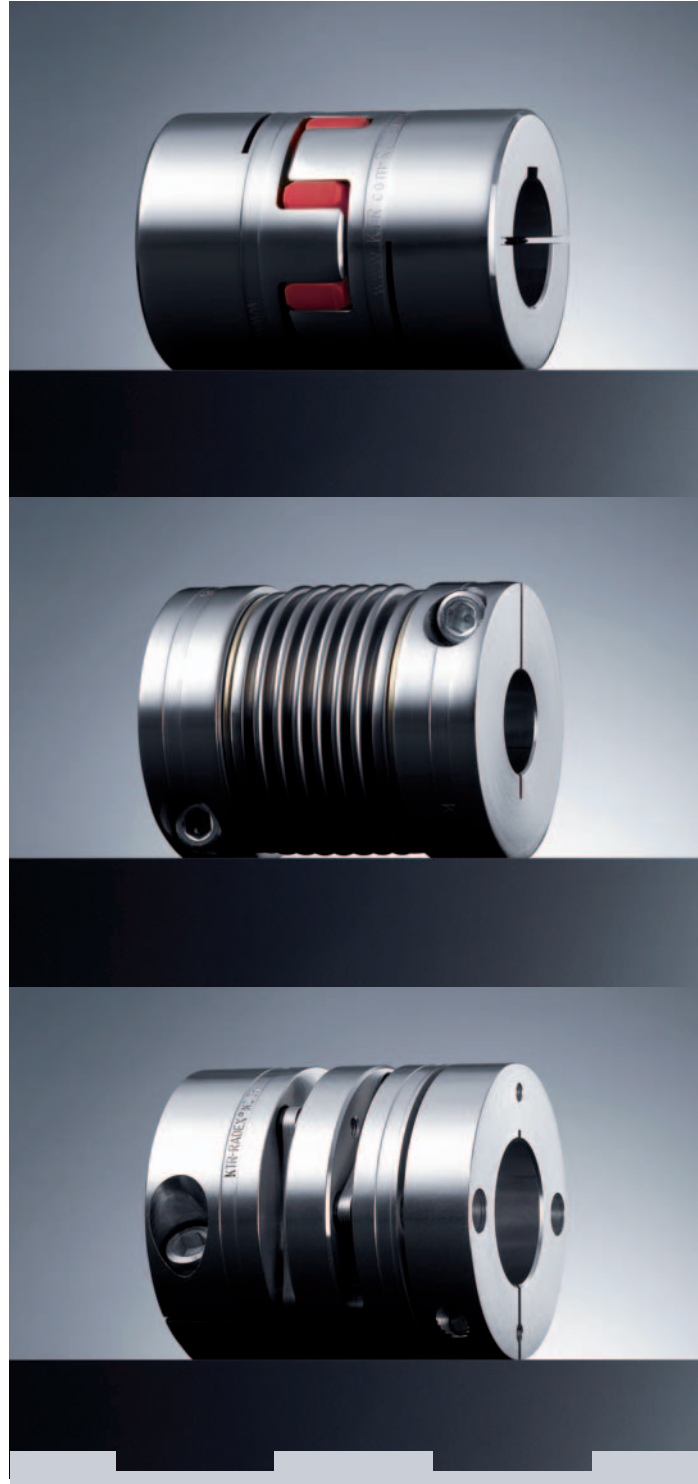


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Application recommendation

If a shaft coupling is needed for a servo drive, three different backlash-free coupling types are available: ROTEX® GS, TOOLFLEX® and RADEX®-NC. Dependent on the required torsional stiffness of the complete system you choose the best coupling for your individual application.



ROTEX® GS Backlash-free, flexible jaw-type coupling

- axial plug-in ability
- high power density
- adjustment of damping through different elastomer hardness of the spiders

Shaft encoders, miniature drives	
Ball screws, synchronous belt drives	
Low backlash/backlash-free gears	
Main spindle drives	

- compact design, easy assembly/disassembly, electric insulation
- high power density, adapted torsional stiffness, damping vibrations, for thread drives with incline < 40 (otherwise an inspection by KTR is necessary)
- high power density, easy blind assembly/disassembly, fail-safe, suitable for average to high gear ratios $i \geq 7$, temperature range 80 °C at the maximum
- high power density, good concentric running properties of the clamping ring hubs, damping vibrations with interrupted cutting, higher accuracy of the ROTEX® GS-P design for HSC machining



TOOLFLEX® Backlash-free, torsionally stiff metal bellow-type coupling

- non-positive bellow-hub connection
- frictionally engaged clamping hubs

Shaft encoders, miniature drives	
Ball screws, synchronous belt drives	
Low backlash/backlash-free gears	
Main spindle drives	

- compact flexible coupling with low radial restoring forces
- suitable if higher torsional stiffness is required, e. g. high incline with threaded spindle drives $s \geq 40$, constant torsional stiffness with high temperatures
- suitable if higher torsional stiffness is required, e. g. gear ratios $i < 7$, constant torsional stiffness with high temperatures
- high torsional stiffness, for main spindle drives subject to critical resonances



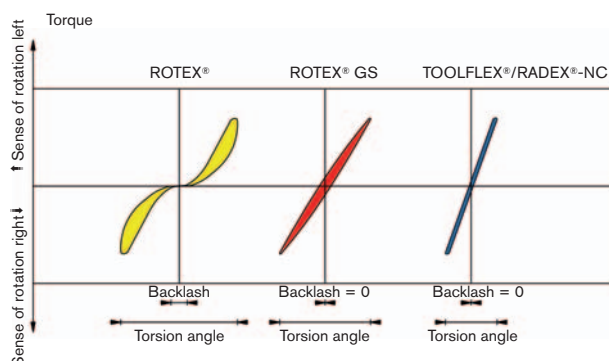
RADEX®-NC Backlash-free, torsionally rigid steel lamina coupling

- compact design
- higher torsional stiffness
- frictionally engaged clamping hubs

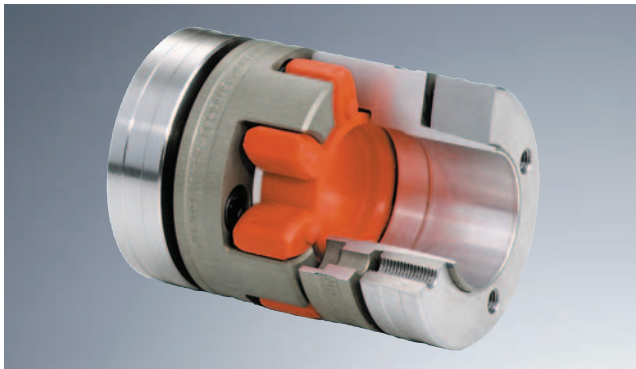
Shaft encoders, miniature drives	
Ball screws, synchronous belt drives	
Low backlash/backlash-free gears	
Main spindle drives	

- double-cardanic design to compensate for bigger displacements
- suitable if higher torsional stiffness is required, e. g. high incline with threaded spindle drives $s \geq 40$, constant torsional stiffness with high temperatures
- suitable if higher torsional stiffness is required, e. g. gear ratios $i < 7$, constant torsional stiffness with high temperatures
- high torsional stiffness, for main spindle drives subject to critical resonances, for high torques type RADEX®-N is available: T_{KN} up to 280.000 Nm

The diagram alongside this text clarifies the influence of the ROTEX®, ROTEX® GS, RADEX®-NC and the TOOLFLEX® couplings regarding backlash and torsion angle. Due to the high stiffness of the RADEX®-NC and the TOOLFLEX® the torsion angle is very low under torque. However, contrary to the flexible ROTEX® and the backlash-free ROTEX® GS a damping of torsional vibrations is not possible.



Technical description



ROTEX® GS is a 3-part, axial plug-in coupling backlash-free under pre-stress. It is convincing even with critical applications by its backlash-free power transmission, its stiffness which is each adapted to the application and its optimum damping of vibrations. This principle of installation offers significant assembly possibilities which optimize the assembly times in production.

ROTEX® GS straight tooth, backlash-free)

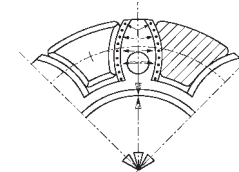
The straight toothings of the spider mounted under prestress results in a smaller surface pressure and consequently higher stiffness of the coupling system. The flexible teeth compensate for misalignment but are supported radially in the inside diameter by a central web. This avoids too high internal or external deformation by high acceleration or high speeds. This is vital for a smooth operation and long service life of the coupling.

The hub claws and the nylon teeth are chamfered to allow for a "blind assembly". The pegs arranged reciprocally on the spider prevent the spider from touching the hub over the entire surface. Observing the distance dimension E ensures the ability of the coupling to compensate for displacements. The plug-in force varies depending on the Shore hardness and prestress of the spider (see comments in the mounting instructions KTR-N 45510).

By observing the gap dimension "s" the electrical isolation is ensured, as well as a high service life of the coupling. This fact is gaining more and more importance, due to the increasing precision of shaft encoders and the existing demand for electro-magnetic compatibility.

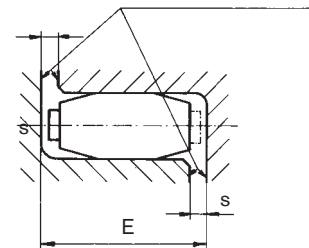
The elastic spiders of the GS line are available in three different kinds of Shore hardness, identified by colour, the material being soft to hard. Due to these four spiders with different kinds of Shore hardness it is easily possible to adjust the **ROTEX® GS** regarding the torsional stiffness and the vibration behaviour to the individual conditions of an application.

Limitation by concave cams in case of too high speeds/centrifugal forces and prestress of elastomer parts



Support to the axis of rotation

Electric isolation due to gap dimension "s"



Spider

Description of spider hardness [Shore]	Identification Colour	Material	Permissible temperature range [° C]		Available for coupling size	Typical applications
			Permanent temperature	Max. temperature short-term		
80 Sh A-GS	blue	Polyurethane	- 50 to + 80	- 60 to + 120	size 5 to 24	- drives of electric measuring systems
92 Sh A-GS	yellow	Polyurethane	- 40 to + 90	- 50 to + 120	size 5 to 55	- drives of electric measuring and control systems
95/98 Sh A-GS	red	Polyurethane	- 30 to + 90	- 40 to + 120	size 5 to 75	- positioning drives, main spindle drives - high load
64 Sh D-H-GS	green	Hytrel	- 50 to + 120	- 60 to + 150	size 7 to 38	- planetary gears / backlash-free gears - heighten torsional stiffnes
64 Sh D-GS	green	Polyurethane	- 20 to + 110	- 30 to + 120	size 42 to 75	- high load - high ambient temperat. / resistant to hydrolysis

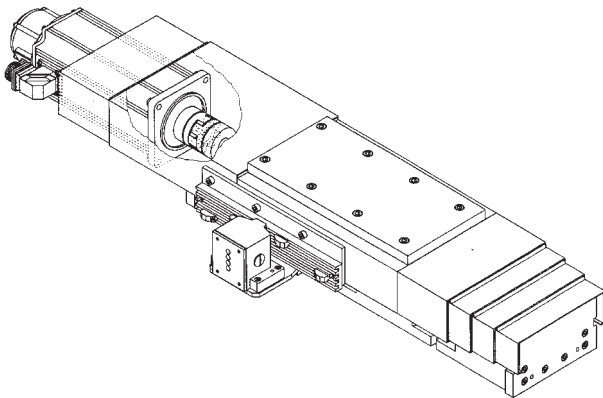
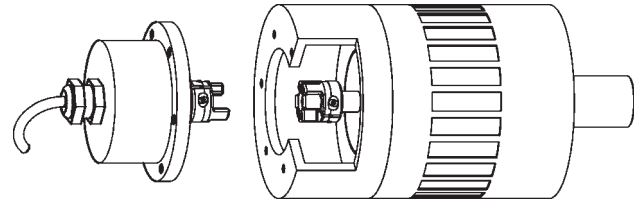
Application recommendation

Measurement and control systems

For measurement and control systems a high torsional stiffness of the coupling is required in order to obtain positioning repeatability.

The torques that arise are relatively small so that backlash-free, torsionally stiff power transmission is achieved by the elastomer pre-stress.

In order to minimize the restoring forces we would recommend the spider 80 Sh A GS for such applications.



Servo and positioning drives

ROTEX® GS as an alternative to torsionally rigid couplings

Torsionally rigid shaft-to-shaft connections do not only transmit the torque backlash-free and non-rigid, but also torque peaks and vibrations. For driving systems with critical vibrations, the benefit of high stiffness for torque transmission soon becomes a serious disadvantage.

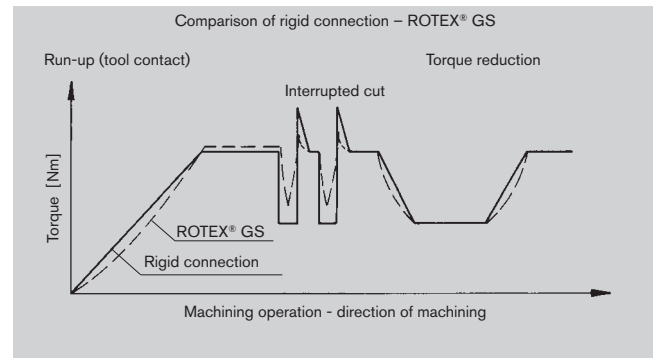
For applications on which torsionally rigid shaft-to-shaft connections may cause a problematic torque transmission, the optimum alternative is ROTEX® GS.

Backlash-free, damping vibrations, yet sufficiently torsionally rigid so that even highly dynamic servo drives must not suffer from lower precision with the right sizing of the coupling.

Main spindle drives

With the high torques in the field of machine tools, e. g. direct spindle drives, initial small twisting (under prestress) and damping dependent on the elastomer hardness is achieved. Peak tensions and shock loads are reduced or the resonance range is shifted to non-critical speed ranges, respectively.

For peripheral speeds up to 40 m/s (referred to the outside diameter of the coupling) we would recommend to use our ROTEX® GS clamping ring hub. For peripheral speeds exceeding 50 m/s, ROTEX® GS...P should be used. We have on hand experiences from industrial applications for peripheral speeds up to 80 m/s.



Explosion protection use

ROTEX® GS couplings are suitable for power transmission in drives in hazardous areas. The couplings are certified and confirmed according to EC standard 94/9/EC (ATEX 95) as units of category 2G/2D and thus suitable for the use in hazardous areas of zone 1, 2, 21 and 22. Please read through our information included in the respective Type Examination Certificate and the operating and mounting instructions at www.ktr.com.

Selection: In case of use in hazardous areas the clamping ring hubs (clamping hubs without feather keyway only for use in category 3) must be selected so that there is a minimum safety factor of $s = 2$ between the peak torque (including all operating parameters) and the nominal torque and frictional torque of engagement of the coupling.



Technical data

Size	Spider Shore-GS	Shore range	max. speed [rpm] for hub design				Torque [Nm]		Static torsion spring stiffness ¹⁾ [Nm/rad]	Dynamic torsion spring stiffness ¹⁾ [Nm/rad]	Radial stiffness C _r [N/mm]	Weight [kg]		Mass moment of inertia J [kgm ²]	
			2.0 / 2.1 2.5 / 2.6	1.0 1.1	6.0 ²⁾	6.0 P ²⁾	T _{KN}	T _{K max}				each hub	spider	each hub	spider
5	70	A	3800	47700			0,2	0,3	1,78	5	43	1 x 10 ⁻³	0,2 x 10 ⁻³	0,016 x 10 ⁻⁶	0,002 x 10 ⁻⁶
	80	A					0,3	0,6	3,15	10	82				
	92	A					0,5	1,0	5,16	16	154				
	98	A					0,9	1,7	8,3	25	296				
7	80	A	2700	34100			0,7	1,4	8,6	26	114	3 x 10 ⁻³	0,7 x 10 ⁻³	0,085 x 10 ⁻⁶	0,014 x 10 ⁻⁶
	92	A					1,2	2,4	14,3	43	219				
	98	A					2,0	4,0	22,9	69	421				
	64	D					2,4	4,8	34,3	103	630				
9	80	A	1900	23800			1,8	3,6	17,2	52	125	9 x 10 ⁻³	1,8 x 10 ⁻³	0,49 x 10 ⁻⁶	0,079 x 10 ⁻⁶
	92	A					3,0	6,0	31,5	95	262				
	98	A					5,0	10,0	51,6	155	518				
	64	D					6,0	12,0	74,6	224	739				
12	80	A	15200	19100			3,0	6,0	84,3	252	274	14 x 10 ⁻³	2,3 x 10 ⁻³	1,3 x 10 ⁻⁶	0,139 x 10 ⁻⁶
	92	A					5,0	10,0	160,4	482	470				
	98	A					9,0	18,0	240,7	718	846				
	64	D					12,0	24,0	327,9	982	1198				
14	80	A	12700	15900	25400	47700	4,0	8,0	60,2	180	153	20 x 10 ⁻³	4,6 x 10 ⁻³	2,8 x 10 ⁻⁶	0,457 x 10 ⁻⁶
	92	A					7,5	15,0	114,6	344	336				
	98	A					12,5	25,0	171,9	513	654				
	64	D					16,0	32,0	234,2	702	856				
19	80	A	9550	11900	19000	35800	4,9	9,8	618	1065	582	66 x 10 ⁻³	7 x 10 ⁻³	20,4 x 10 ⁻⁶	1,49 x 10 ⁻⁶
	92	A					10,0	20,0	1090	1815	1120				
	98	A					17,0	34,0	1512	2540	2010				
	64	D					21,0	42,0	2560	3810	2930				
24	92	A	6950	8650	13800	26000	35	70	2280	4010	1480	132 x 10 ⁻³	18 x 10 ⁻³	50,8 x 10 ⁻⁶	7,5 x 10 ⁻⁶
	98	A					60	120	3640	5980	2560				
	64	D					75	150	5030	10895	3696				
28	92	A	5850	7350	11700	22000	95	190	4080	6745	1780	253 x 10 ⁻³	29 x 10 ⁻³	200,3 x 10 ⁻⁶	16,5 x 10 ⁻⁶
	98	A					160	320	6410	9920	3200				
	64	D					200	400	10260	20177	4348				
38	92	A	4750	5950	9550	17900	190	380	6525	11050	2350	455 x 10 ⁻³	49 x 10 ⁻³	400,6 x 10 ⁻⁶	44,6 x 10 ⁻⁶
	98	A					325	650	11800	17160	4400				
	64	D					405	810	26300	42515	6474				
42	92	A	4000	5000	8050	15000	265	530	10870	15680	2430	1850 x 10 ⁻³	79 x 10 ⁻³	2246 x 10 ⁻⁶	100 x 10 ⁻⁶
	98	A					450	900	21594	37692	5570				
	64	D					560	1120	36860	62600	7270				
48	92	A	3600	4550	7200	13600	310	620	12968	18400	2580	2520 x 10 ⁻³	98 x 10 ⁻³	3786 x 10 ⁻⁶	200 x 10 ⁻⁶
	98	A					525	1050	25759	45620	5930				
	64	D					655	1310	57630	99750	8274				
55	92	A	3150	3950	6350	11900	410	820	15482	21375	2980	3800 x 10 ⁻³	115 x 10 ⁻³	7496 x 10 ⁻⁶	300 x 10 ⁻⁶
	98	A					685	1370	42117	61550	6686				
	64	D					825	1650	105730	130200	9248				
65	95	A	2800	3500	5650	11000	940	1880	48520	71660	6418	4500 x 10 ⁻³	210 x 10 ⁻³	12000 x 10 ⁻⁶	500 x 10 ⁻⁶
	64	D					1175	2350	118510	189189	8870				
75	95	A	2350	2950	4750	8950	1920	3840	79150	150450	8650	7180 x 10 ⁻³	340 x 10 ⁻³	26000 x 10 ⁻⁶	2000 x 10 ⁻⁶
	64	D					2400	4800	182320	316377	11923				


¹⁾ Static and dynamic torsional stiffness with 0,5 x T_{KN}

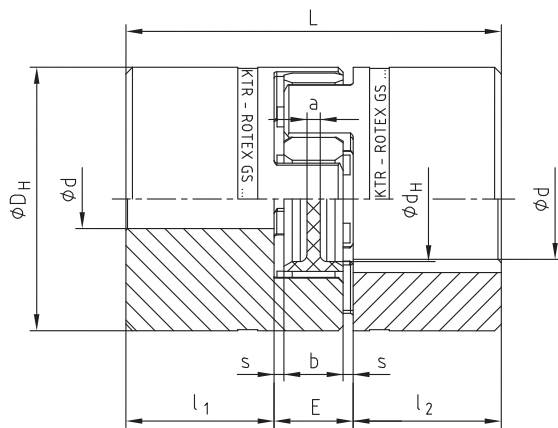
²⁾ Higher speeds on request

The size of the coupling has to be such that the permissible coupling load is not exceeded in any operating condition (see coupling selection at our company catalogue).

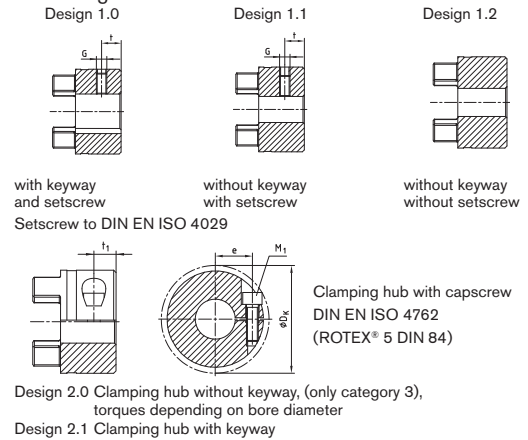
Miniature couplings



- Backlash-free shaft connections for measurement drive with small torques
- Small dimensions - low flywheel mass
- Maintenance-free, easy to check visually
- Different elastomer hardness of spiders
- Finish bore acc. to ISO fit H7 (apart from clamping hub), keyway, from $\varnothing 6$ mm acc. to DIN 6885 sheet 1 - JS9
-  Approved according to EC Standard 94/9/EC (only for hub design 1.0 and 2.1)



Hub designs:



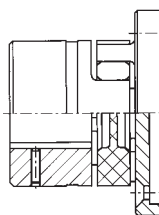
Size	Finish bore				Dimensions [mm]								Setscrew		Clamping screw					T_A [Nm]
	d_{min}	1.0 d_{max}	1.1, 1.2 d_{max}	2.0, 2.1 d_{max}	D_H	d_H	L	$l_1; l_2$	E	b	s	a	G	t	M_1	t_1	e	$\varnothing D_K$		
ROTEX® GS Aluminium (Al-H)																				
5	2	—	6	5	10	—	15	5	5	4	0,5	4,0	M2	2,5	M1,2	2,5	3,5	11,4	—	
7	3	7	7	7	14	—	22	7	8	6	1,0	6,0	M3	3,5	M2	3,5	5,0	16,5	0,37	
9	4	10	11	11	20	7,2	30	10	10	8	1,0	1,5	M4	5,0	M2,5	5,0	7,5	23,4	0,76	
12	4	12	12	12	25	8,5	34	11	12	10	1,0	3,5	M4	5,0	M3	5,0	9,0	27,5	1,34	
14	5	16	16	16	30	10,5	35	11	13	10	1,5	2,0	M4	5,0	M3	5,0	11,5	32,2	1,34	

Bores and the corresponding transmittable torques of the clamping hub design 2.0 [Nm]

Size	$\varnothing 2$	$\varnothing 3$	$\varnothing 4$	$\varnothing 5$	$\varnothing 6$	$\varnothing 7$	$\varnothing 8$	$\varnothing 9$	$\varnothing 10$	$\varnothing 11$	$\varnothing 12$	$\varnothing 14$	$\varnothing 15$	$\varnothing 16$
5	*	*	*	*										
7		0,8	0,9	0,95	1,0	1,1								
9			2,1	2,2	2,3	2,4	2,5	2,6	2,7	2,8				
12			3,6	3,8	4,0	4,1	4,3	4,5	4,7	4,8	5,0			
14			4,7	4,7	4,8	5,0	5,1	5,3	5,5	5,6	5,8	6,1	6,3	6,5

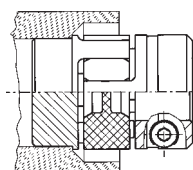
* Use of DIN 84 screw, tightening torque T_A not defined (slotted screw)

Other designs

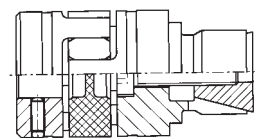


ROTEX® GS-CF

ROTEX® GS for hollow shaft connections



ROTEX® GS with interference fit hub



ROTEX® GS with expansion hub

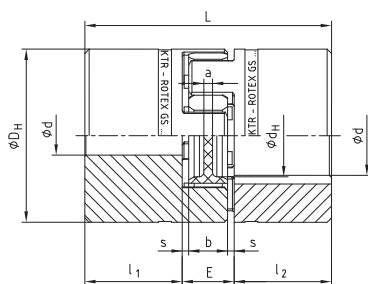
Order form:

ROTEX® GS 14	80 Sh A-GS	1.0	—	$\varnothing 12$	2.0	—	$\varnothing 10$
Coupling size	Spider hardness	Hub design		Finish bore	Hub design		Finish bore

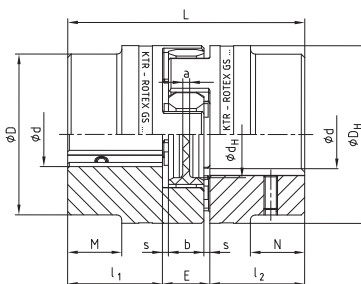
Standard types



- Backlash-free shaft connection under prestress for spindle drives, elevating platforms, machine tool drives, etc.
- Small dimensions - low flywheel mass
- Maintenance-free, easy to check visually
- Finish bore acc. to ISO fit H7 (apart from clamping hub), keyway, from Ø 6 mm acc. to DIN 6885 sheet 1 - JS9
- Approved according to EC Standard 94/9/EC (only for hub design 1.0 and 2.1/2.6)

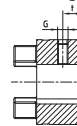


ROTEX® GS 5 - 38

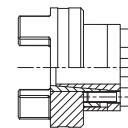


ROTEX® GS 42 - 75

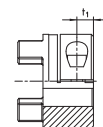
Hub designs:



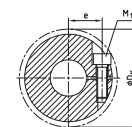
Design 1.0 with keyway and thread
1.1 without keyway, with thread



Design 4.2 with CLAMPEX® KTR 250



Design from size 19 as standard
2.5 double slot, without keyway (only for category 3)
2.6 double slot with keyway



Design 2.5 Torque depending on bore diameter

Size	un-bored	Finish bores				Dimensions [mm]										Setscrew		Clamping screw				
		d _{min.}	1.0, 1.1 d _{max.}	2.5 d _{max.}	2.6 ¹⁾ d _{max.}	D	D _H	d _H	L	l _{1, l2}	M, N	E	b	s	a	G	t	M ₁	t ₁	e	ØD _K	T _A [Nm]
ROTEX® GS Aluminium (Al-H)																						
19	●	6	24	24	24	-	40	18	66	25	-	16	12	2,0	3,0	M5	10	M6	11,0	14,5	46	10,5
24	●	8	28	28	28	-	55	27	78	30	-	18	14	2,0	3,0	M5	10	M6	10,5	20,0	57,5	10,5
28	●	10	38	38	38	-	65	30	90	35	-	20	15	2,5	4,0	M8	15	M8	11,5	25,0	73	25
38	●	12	45	45	45	-	80	38	114	45	-	24	18	3,0	4,0	M8	15	M8	15,5	30,0	83,5	25
ROTEX® GS Steel																						
42	●	14	55	50	45	85	95	46	126	50	28	26	20	3,0	4,0	M8	20	M10	18	32,0	93,5	69
48	●	15	62	55	55	95	105	51	140	56	32	28	21	3,5	4,0	M8	20	M12	21	36,0	105	120
55	●	20	74	68	68	110	120	60	160	65	37	30	22	4,0	4,5	M10	20	M12	26	42,5	119,5	120
65	●	22	80	70	70	115	135	68	185	75	47	35	26	4,5	4,5	M10	20	M12	33	45,0	124	120
75	●	30	95	80	80	135	160	80	210	85	53	40	30	5,0	5,0	M10	25	M16	36	51,0	147,5	295

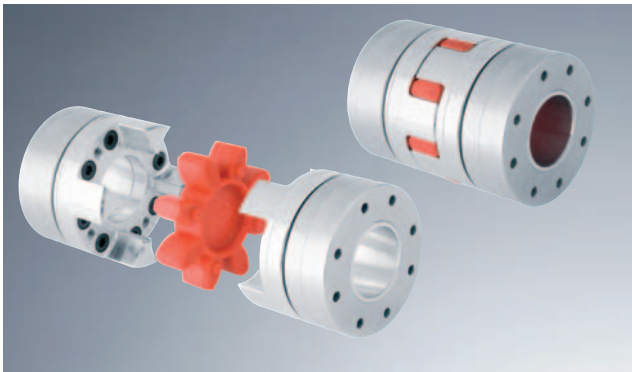
Bores and the corresponding transmittable torques of the clamping hub design 2.5 [Nm]																												
Size	Ø8	Ø10	Ø11	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø75	Ø80
19	25	27	27	29	30	31	32	32	34	30 ²⁾	32 ²⁾																	
24		34	35	36	38	38	39	40	41	42	43	45	46															
28				80	81	81	84	85	87	89	91	92	97	99	102	105	109											
38					92	94	97	98	99	102	104	105	109	112	113	118	122	123	126	130								
42									232	238	244	246	255	260	266	274	283	288	294	301	309	315						
48												393	405	413	421	434	445	454	462	473	486	494	514					
55															473	486	498	507	514	526	539	547	567	587	608			
65																507	518	526	535	547	559	567	587	608	627	648		
75																			1102	1124	1148	1163	1201	1239	1278	1316	1354	1393

¹⁾ from Ø65 keyway opposite to the clamping screw

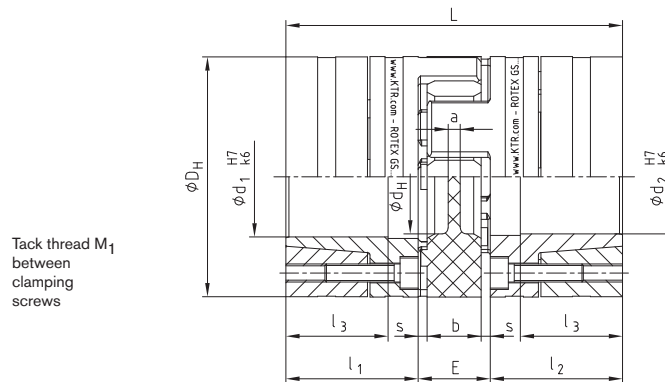
²⁾ clamping hub single slotted 2 x clamping screw M4 and dimension e=15

Order form:	ROTEX® GS 24	98 Sh A-GS	2.5 - Ø 24	1.0 - Ø 20
	Coupling size	Spider hardness	Hub design Finish bore	Hub-design Finish bore

Clamping ring hubs light



- Backlash-free shaft coupling with integrated clamping system
- Low weight and low mass moment of inertia due to a design fully made from aluminium
- Easy assembly due to internal clamping screws and block assembly
- High friction torques
- High smoothness of running, application up to a peripheral speed of 40 m/s



Size	Torque [Nm] ¹⁾				Dimensions [mm]										Clamping screws			Weight per hub with max. bore [kg]	Mass moment of inertia per hub with max. bore [kgm ²]		
	92 Sh A		98 Sh A		D _H ²⁾	d _H	L	l ₁ ; l ₂	l ₃	E	b	s	a	M	number z	T _A [Nm]	M ₁				
Hub material – Aluminium (Al-H) Clamping ring material – Aluminium (Al-H)																					
NEW 14	7,5	15	12,5	25	30	10,5	50	18,5	13,5	13	10	1,5	2,0	M3	4	1,34	;3	0,032	0,04 x 10 ⁻⁴		
NEW 19	10	20	17	34	40	18	66	25	18	16	12	2,0	3,0	M4	6	3	M4	0,077	0,19 x 10 ⁻⁴		
24	35	70	60	120	55	27	78	30	22	18	14	2,0	3,0	M5	4	6	M5	0,162	0,78 x 10 ⁻⁴		
28	95	190	160	320	65	30	90	35	27	20	15	2,5	4,0	M5	8	6	M5	0,240	1,70 x 10 ⁻⁴		
38	190	380	325	650	80	38	114	45	35	24	18	3,0	4,0	M6	8	10	M6	0,490	5,17 x 10 ⁻⁴		
42	265	530	450	900	95	46	126	50	35	26	20	3,0	4,0	M8	4	25	M8	0,772	11,17 x 10 ⁻⁴		
48	310	620	525	1050	105	51	140	56	41	28	21	3,5	4,0	M10	4	49	M10	1,066	18,81 x 10 ⁻⁴		

¹⁾ Please note coupling selection on pages at our company catalogue · ²⁾ $\phi D_H + 2$ mm with high speeds for expansion of spider

³⁾ In case of using the spider 64 Sh D-GS resp. short dimensioning we recommend the application of clamping ring hubs made of steel.

Bore d_1/d_2 and the corresponding transmittable friction torques T_R of clamping ring hub in [Nm] ¹⁾																					
Size	Ø6	Ø10	Ø11	Ø14	Ø15	Ø16	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55
NEW 14	5,4	7,5	11,3	24,7																	
NEW 19		17	20	41	49	36	56	64													
24				47	57	67	98	110	127	139	175										
28							121	133	201	219	248	285	253	307	329						
38								203	304	331	394	452	453	543	550	609	669	634			
42									444	508	535	638	692	763	754	858	964	976			
48										572	638	762	842	929	943	1074	1208	1136	1336		

The transmittable torques of the clamping connection consider the max. clearance with shaft fit k6 / bore H7. With bigger clearance the torque is reduced.

As shaft material – steel or spheroidal iron with a yield point of approx. 250 N/mm² or more can be used.

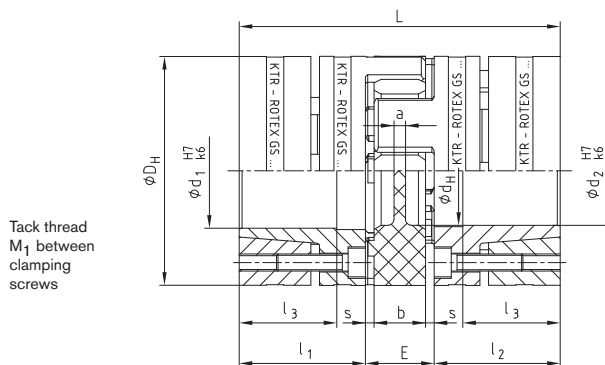
For the stiffness calculation of the shaft/hollow shaft see KTR standard 45510 at our homepage www.ktr.com.

Order form:	ROTEX® GS 24	98 Sh A- GS	6.0 light – Ø 24	6.0 light – Ø 20
	Coupling size	Spider hardness	Hub design Finish bore	Hub design Finish bore

Clamping ring hubs



- Backlash-free shaft coupling with integrated clamping system
- Applicable to, for example, forward feed main spindle drives of machine tools, press rollers, etc.
- High smoothness of running, application up to a peripheral speed of 40 m/s
- For high friction torques (consider the selection in case of explosion protection use)
- Easy to assemble due to internal clamping screws
- Finish bore up to Ø 50 mm according to ISO fit H7, from Ø 55 mm according to ISO fit G7
- Approved according to EC Standard 94/9/EC (Explosion Certificate ATEX 95)



Tack thread M1 between clamping screws

Size	Torques [Nm] ¹⁾				Dimensions [mm]										Clamping screws			Weight per hub with max. bore [kg]	Mass moment of inertia per hub with max. bore [kgm²]
	92 Sh A		98 Sh A		D _H ³⁾	d _H	L	l ₁ ; l ₂	l ₃	E	b	s	a	M	number z	T _A [Nm]	M ₁		
4) Hub material – Aluminium (Al-H) Clamping ring material – Steel																			
14	7,5	15	12,5	25	30	10,5	50	18,5	13,5	13	10	1,5	2,0	M3	4	1,34	M3	0,049	0,07 x 10 ⁻⁴
19	10,0	20	17	34	40	18	66	25	18	16	12	2,0	3,0	M4	6	3	M4	0,120	0,31 x 10 ⁻⁴
24	35,0	70	60	120	55	27	78	30	22	18	14	2,0	3,0	M5	4	6	M5	0,280	1,35 x 10 ⁻⁴
28	95,0	190	160	320	65	30	90	35	27	20	15	2,5	4,0	M5	8	6	M5	0,450	3,13 x 10 ⁻⁴
38	190,0	380	325	650	80	38	114	45	35	24	18	3,0	4,0	M6	8	10	M6	0,950	9,60 x 10 ⁻⁴
Hub and clamping ring material – Steel (St-H)																			
19	10,0	20	17	34	40	18	66	25	18	16	12	2,0	3,0	M4	6	4,1	M4	0,179	0,44 x 10 ⁻⁴
24	35,0	70	60	120	55	27	78	30	22	18	14	2,0	3,0	M5	4	8,5	M5	0,399	1,91 x 10 ⁻⁴
28	95,0	190	160	320	65	30	90	35	27	20	15	2,5	4,0	M5	8	8,5	M5	0,592	4,18 x 10 ⁻⁴
38	190,0	380	325	650	80	38	114	45	35	24	18	3,0	4,0	M6	8	14	M6	1,225	12,9 x 10 ⁻⁴
42	265	530	450	900	95	46	126	50	35	26	20	3,0	4,0	M8	4	35	M8	2,30	31,7 x 10 ⁻⁴
48	310	620	525	1050	105	51	140	56	41	28	21	3,5	4,0	M10	4	69	M10	3,08	52,0 x 10 ⁻⁴
55	375	750	685	1370	120	60	160	65	45	30	22	4,0	4,5	M10	4	69	M10	4,67	103,0 x 10 ⁻⁴
65	-	-	940 ²⁾	1880 ²⁾	135	68	185	75	55	35	26	4,5	4,5	M12	4	120	M12	6,70	191,0 x 10 ⁻⁴
75	-	-	1920 ²⁾	3840 ²⁾	160	80	210	85	63	40	30	5,0	5,0	M12	5	120	M12	9,90	396,8 x 10 ⁻⁴

¹⁾ Please note coupling selection at our company catalogue ²⁾ Figures for 95 Sh A - GS ³⁾ ØD_H + 2 mm with high speeds for expansion of spider

⁴⁾ In case of using the spider 64 Sh D-GS resp. short dimensioning we recommend the application of clamping ring hubs made of steel.


Bores d ₁ /d ₂ and the corresponding transmittable friction torques T _R of clamping ring hub in [Nm] ¹⁾																									
Größe	Ø6	Ø10	Ø11	Ø14	Ø15	Ø16	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø48	Ø50	Ø55	Ø60	Ø65	Ø70	Ø80
14	8,6	13,8	14,7	22,7																					
19		31	37	62	68	62	83	90																	
24				67	74	66	90	97	112	120	143														
28					142	154	189	170	237	250	280	307	310	353	389										
38								269	337	356	398	436	442	501	533	572	615	644							
42										399	445	506	470	566	581	647	630	728	836	858					
48											650	685	809	841	926	916	1042	1181	1125	1311					
55														918	954	1052	1040	1185	1220	1318	1359	1646	1662	1960	
65																1568	1569	1768	1833	1968	2049	2438	2495	2898	
75																	2246	2338	2500	2620	3082	3179	3657	4235	

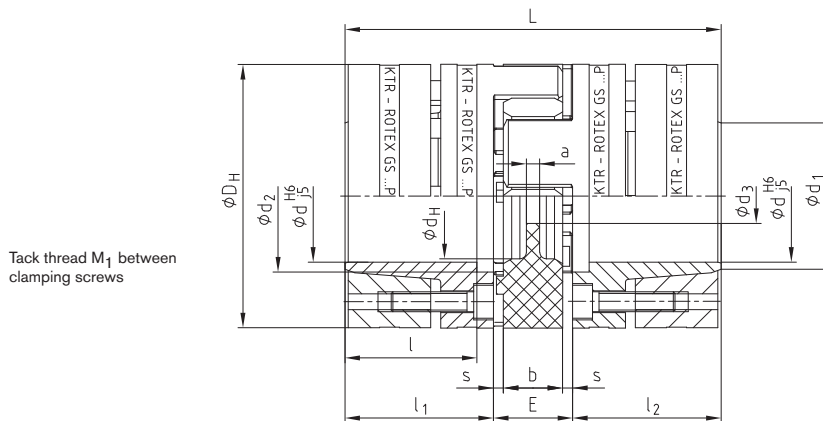
The transmittable torques of the clamping connection consider the max. clearance with shaft fit k6 / bore H7, from Ø55 G7/m6. With bigger clearance the torque is reduced. For the stiffness calculation of the shaft/hollow shaft see KTR standard 45510 at our homepage www.ktr.com.

Order form:	ROTEX® GS 24	-	98 Sh A-GS	6.0	-	Ø 24	6.0	-	Ø 20
	Coupling size	For design made from steel please add „STEEL“	Spider hardness	Hub design	Finish bore	Hub design	Finish bore		

Type P according to DIN 69002



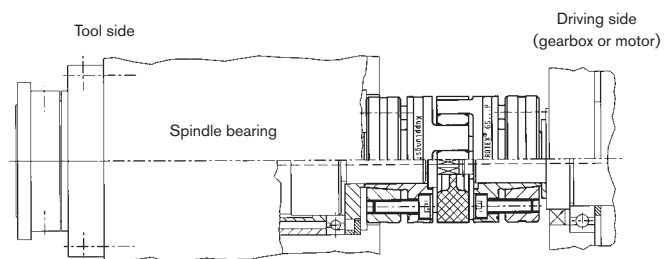
- Backlash-free, highly accurate shaft coupling with integrated clamping system
- Developed specifically for stub spindles on multiple spindle heads according to DIN 69002
- Application on main spindle drives with high speeds, peripheral speeds of 50 m/s and more (please consult with KTR Engineering Department)
- For high friction torques (consider the selection in case of explosion protection use)
- Easy to assemble to due internal clamping screws
-  Approved according to EC Standard 94/9/EC (Certificate ATEX 95)



Size	Torque [Nm] ²⁾				Dimensions [mm]													Transmittable torque of clamping ring hub ϕd [Nm] ¹⁾	Tightening torque of clamping screws T_A [Nm]	Weight per hub with bore ϕd norm [kg]	Mass moment of inertia with bore ϕd norm [kgm ²]
	98 Sh A-GS		64 Sh A-GS		d ¹⁾	D _H ³⁾	d _H	L	l ₁ ; l ₂	l	E	b	s	a	d ₁	d ₂	d ₃				
	T _{KN}	T _{Kmax}	T _{KN}	T _{Kmax}																	
14 P	12,5	25	16	32	14*	32	10,5	50	18,5	15,5	13	10	1,5	2	17	17	8,5	25	1,89	0,08	0,011x10 ⁻³
19 P 37,5	14	28	17	34	16*	37,5	18	66	25	21	16	12	2	3	20	19	9,5	60	3,05	0,16	0,037x10 ⁻³
19 P	17	34	21	42	19*	40	18	66	25	21	16	12	2	3	23	22	9,5	71	3,05	0,19	0,046x10 ⁻³
24 P 50	43	86	54	108	24*	50	27	78	30	25	18	14	2	3	28	29	12,5	108	4,9	0,331	0,136x10 ⁻³
24 P	60	120	75	150	25*	55	27	78	30	25	18	14	2	3	30	30	12,5	170	8,5	0,44	0,201x10 ⁻³
28 P	160	320	200	400	35*	65	30	90	35	30	20	15	2,5	4	40	40	14,5	506	8,5	0,64	0,438x10 ⁻³
38 P	325	650	405	810	40	80	38	114	45	40	24	18	3	4	46	46	16,5	821	14	1,32	1,325x10 ⁻³
42 P	450	900	560	1120	42	95	46	126	50	45	26	20	3	4	52	55	18,5	709	35	2,23	3,003x10 ⁻³
48 P	525	1050	655	1310	45	105	51	140	56	50	28	21	3,5	4	52	60	20,5	1340	69	3,09	5,043x10 ⁻³
55 P	685	1370	825	1650	50	120	60	160	65	58	30	22	4	4,5	55	72	22,5	1510	69	4,74	10,02x10 ⁻³

¹⁾ * Standard spindle shaft diameter · ²⁾ Please note coupling selection at our company catalogue · ³⁾ $\phi D_H + 2$ mm with higher speed for expansion of spider
For the stiffness calculation of the shaft/hollow shaft see KTR standard 45510 at our homepage www.ktr.com.

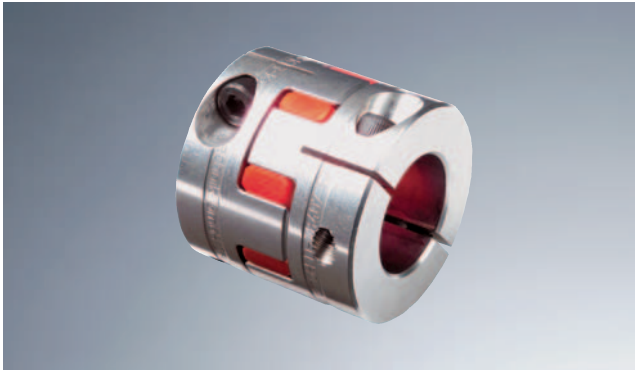
Selection for stub spindles						
Spindle drive	ROTEX® GS P Size	Dimensions				
		d	D _H	l ₁ ; l ₂	L	E
25 x 20	14 P	14	32	18,5	50	13
32k x 25	19 P37,5	16	37,5	25	66	16
32g x 30	19 P	19	40	25	66	16
40 x 35	24 P50	24	50	30	78	18
50 x 45	24 P	25	55	30	78	18
63 x 55	28 P	35	65	35	90	20



ROTEX® GS type P with central coolant supply for stub spindles and multiple spindle heads

Order form:	ROTEX® GS 24	P	98 Sh A-GS	6.0	-	$\phi 25$	6.0	-	$\phi 25$
	Coupling size	Type	Spieder hardness	Hub-design		Finish bore	Hub-design		Finish bore

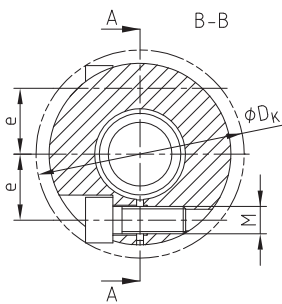
Compact



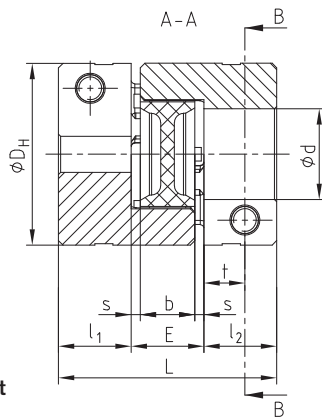
- Up to 1/3 shorter
- High performance

Design with axial slot, patent pending

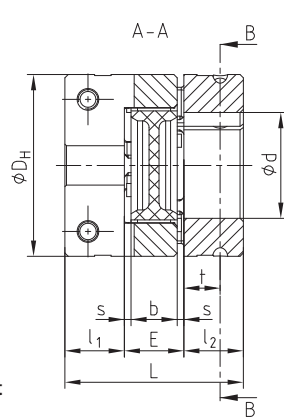
- Good concentric running properties
- Uniform power transmission due to cams without slots
- Improved balancing quality
- Finish bore from Ø 6 mm also available with feather key acc. To DIN 6885 sheet 1 – JS9



ROTEX® GS 7 - 19 compact
single slotted ¹⁾ design 2.0



ROTEX® GS 24 - 38 compact
axially slotted design 2.8



ROTEX® GS Compact																
Size	Torque [Nm]			Dimensions [mm]												T _A [Nm]
	92Sh A	98Sh A	64Sh D	d _{max.}	D _H	D _K	L	l ₁ , l ₂	E	b	s	t	e	M		
7	1,2	2,0	2,4	7	14	16,6	18	5	8	6	1	2,5	5,0	M2	0,37	
9	3,0	5,0	6	9	20	21,3	24	7	10	8	1	3,5	6,7	M2,5	0,76	
12	5,0	9,0	12	12	25	26,2	26	7	12	10	1	3,5	8,3	M3	1,34	
14	7,5	12,5	16	16 ²⁾	30	30,5	32	9,5	13	10	1,5	4,5	9,6	M4	2,9	
19	10	17	21	24 ²⁾	40	45,0	50	17	16	12	2	9	14,0	M6	10	
24	35	60	75	32	55	57,5	54	18	18	14	2	11	20,0	M6	10	
28	95	160	200	35	65	69,0	62	21	20	15	2,5	12	23,8	M8	25	
38	190	325	405	45	80	86,0	76	26	24	18	3	16	30,5	M10	49	

Bores and the corresponding transmittable torques of clamping hub design 2.0/2.8																											
Size	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	
7	0,8	0,9	1,0	1,0	1,1																						
9		1,9	2,0	2,1	2,2	2,3	2,4																				
12		3,4	3,6	3,7	3,9	4,1	4,2	4,4	4,6	4,7																	
14			7,1	7,4	7,7	8,0	8,2	8,5	8,8	9,1	5,8 ²⁾	5,9 ²⁾	6,1 ²⁾														
19						24,3	25,0	25,7	26,3	27,0	28,4	29,0	29,7	31,1	31,7	32,4	25,0 ²⁾										
24								21	23	25	30	32	34	38	40	42	51	53	59	63	68						
28											54	58	62	70	74	78	93	97	109	116	124	136					
38											92	99	111	117	123	148	154	173	185	197	216	234	247	259	278		


¹⁾ ROTEX® GS compact size 7 to 19 axially slotted on request

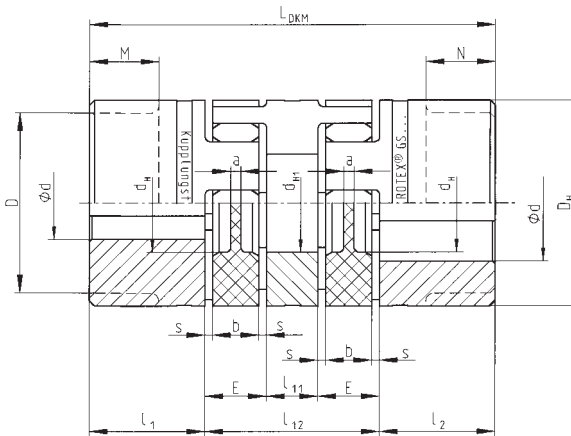
²⁾ Size 14 with screw M3 and dimension e=10.4, size 19 with screw M5 and dimension e=15.5

Order form:	ROTEX® GS 38	Compact	98 Sh A-GS	2.8	-	Ø28	2.8	-	Ø45
	Coupling size	Design	Spider Hardness	Hub-design		Finish bore	Hub-design		Finish bore

Typ DKM (double cardanic)



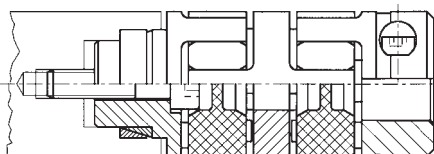
- Backlash-free, double cardanic shaft connection
- Double cardanic design allowing for absorption of larger radial displacements
- Axial plug-in ability - easy blind assembly
- Maintenance-free
- Simple to check visually
- Finish bore according to ISO fit H7 (apart from clamping hub), keyway, from Ø 6 mm according to DIN 6885 sheet 1 - JS9
-  Approved according to EC Standard 94/9/EC (Explosion Certificate ATEX 95)



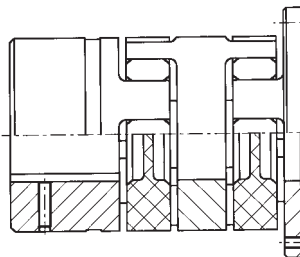
Size	Dimensions [mm]																																																																						
	d _{max.} ¹⁾	D	D _H	d _H	d _{H1}	l ₁ ; l ₂	M; N	l ₁₁	l ₁₂	L _{DKM}	E	b	s	a																																																									
5	5	—	10	—	—	5	—	3	13	23	5	4	0,5	4,0																																																									
7	7	—	14	—	—	7	—	4	20	34	8	6	1,0	6,0																																																									
9	11	—	20	7,2	—	10	—	5	25	45	10	8	1,0	1,5																																																									
12	12	—	25	8,5	—	11	—	6	30	52	12	10	1,0	3,5																																																									
14	16	—	30	10,5	—	11	—	8	34	56	13	10	1,5	2,0																																																									
19	24	—	40	18,0	18	25	—	10	42	92	16	12	2,0	3,0																																																									
24	28	—	55	27,0	27	30	—	16	52	112	18	14	2,0	3,0																																																									
28	38	—	65	30,0	30	35	—	18	58	128	20	15	2,5	4,0																																																									
38	45	—	80	38,0	38	45	—	20	68	158	24	18	3,0	4,0																																																									
<table border="1"> <thead> <tr> <th>Hub material</th> <th colspan="5">Aluminium (Al-H)</th> <th>Spacer material</th> <th colspan="5">Aluminium (Al-H)</th> </tr> </thead> <tbody> <tr> <td>42</td> <td>55</td> <td>85</td> <td>95</td> <td>46</td> <td>46</td> <td>50</td> <td>28</td> <td>22</td> <td>74</td> <td>174</td> <td>26</td> <td>20</td> <td>3,0</td> <td>4,0</td> </tr> <tr> <td>48</td> <td>62</td> <td>95</td> <td>105</td> <td>51</td> <td>51</td> <td>56</td> <td>32</td> <td>24</td> <td>80</td> <td>192</td> <td>28</td> <td>21</td> <td>3,5</td> <td>4,0</td> </tr> <tr> <td>55</td> <td>74</td> <td>110</td> <td>120</td> <td>60</td> <td>60</td> <td>65</td> <td>37</td> <td>28</td> <td>88</td> <td>218</td> <td>30</td> <td>22</td> <td>4,0</td> <td>4,5</td> </tr> </tbody> </table>															Hub material	Aluminium (Al-H)					Spacer material	Aluminium (Al-H)					42	55	85	95	46	46	50	28	22	74	174	26	20	3,0	4,0	48	62	95	105	51	51	56	32	24	80	192	28	21	3,5	4,0	55	74	110	120	60	60	65	37	28	88	218	30	22	4,0	4,5
Hub material	Aluminium (Al-H)					Spacer material	Aluminium (Al-H)																																																																
42	55	85	95	46	46	50	28	22	74	174	26	20	3,0	4,0																																																									
48	62	95	105	51	51	56	32	24	80	192	28	21	3,5	4,0																																																									
55	74	110	120	60	60	65	37	28	88	218	30	22	4,0	4,5																																																									

¹⁾ depend on hub design

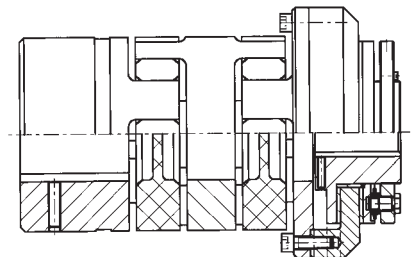
Other designs:



ROTEX® GS - DKM as hollow shaft design



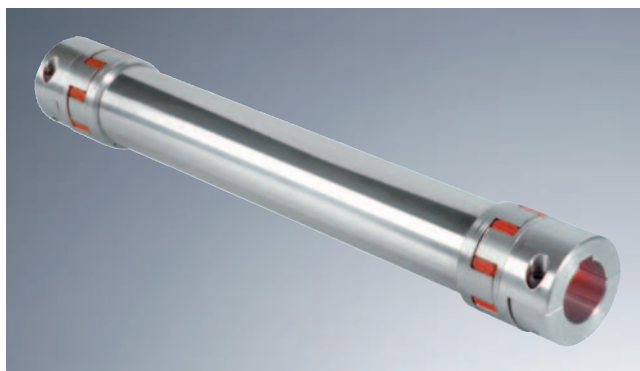
ROTEX® GS - CF - DKM



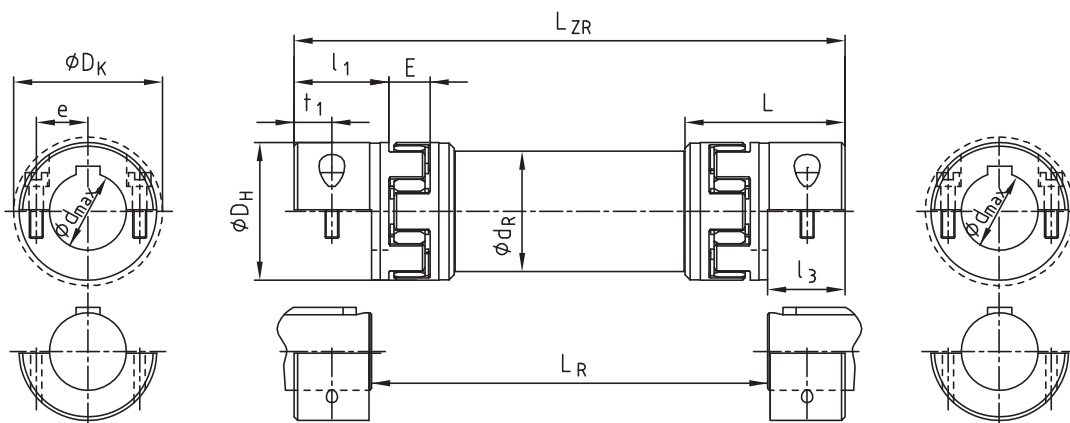
ROTEX® GS - DKM in combination with torque limiter KTR-RU

Order form:	ROTEX® GS 24	DKM	92 Sh A-GS	1.0	-	Ø38	2.5	-	Ø32
	Coupling size	Type	Spieder hardness	Hub-design		Finish bore	Hub-design		Finish bore

Intermediate shaft coupling



- Use with lifting machines, in handling units, robotic palletisers etc.
- Easy, radial coupling assembly because of split coupling hub
- Exchange of spiders without displacing the drive and driven side
- Lengths are possible up to 4 m without intermediate bearing dependent on speed and size
- Positive and frictionally engaged torque transmission
- Low mass moment of inertia due to use of aluminium
- Can be combined with other hub forms (clamping or clamping ring hubs)
- Finish bore according to ISO H7, keyway according to DIN 6885 sheet 1 - JS9



ROTEX® GS type ZR3																	
Size	Dimensions [mm]																
	Finish bore		General												Capscrew DIN EN ISO 4762		
	d _{min.}	d _{max.}	D _H	l ₁	L	l ₃	E	L _R		L _{ZR}		d _R	D _K	t ₁	e	8.8	T _A [Nm]
19	8	20	40	25	49,0	17,5	16	98	2965	133	3000	40	46	8,0	14,5	M6	10
24	10	28	55	30	59,0	22,0	18	113	3456	157	3500	50	57,5	10,5	20	M6	10
28	14	38	65	35	67,0	25,0	20	131	3950	181	4000	60	73	11,5	25	M8	25
38	18	45	80	45	83,5	33,0	24	163	3934	229	4000	70	83,5	15,5	30	M8	25
42	22	50	95	50	93,0	36,5	26	180	3927	253	4000	80	93,5	18,0	32	M10	49
48	22	55	105	56	100,0	39,5	28	202	3921	281	4000	100	105	18,5	36	M12	86

Technical data of type ZR3 with a spider 98 Sh-A-GS													
Size	Coupling torques [Nm]		Mass moment of inertia [10 ⁻³ kgm ²]			stat. torsion spring stiffness [Nm ² /rad]	Size	Coupling torques [Nm]		Mass moment of inertia [10 ⁻³ kgm ²]			stat. torsion spring stiffness [Nm ² /rad]
	T _{KN}	T _{K max.}	Hub ¹⁾	ZR-hub	Pipe/meter	ZW C ₂ ²⁾		T _{KN}	T _{K max.}	Nabe ¹⁾	ZR-Nabe	Rohr/Meter	ZW C ₂ ²⁾
19	17	34	0,02002	0,01304	0,329	3243,6	38	325	650	0,50385	0,2572	2,972	29290,4
24	60	120	0,07625	0,04481	0,673	6631,8	42	450	900	1,12166	0,5523	4,560	44929,7
28	160	320	0,17629	0,10950	1,199	11814,1	48	525	1050	1,87044	1,1834	9,251	91158,2

Bores and the corresponding transmittable friction torques of split hub without keyway [mm]																								
Größe	Ø8	Ø10	Ø11	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø22	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø46	Ø48	Ø50	Ø55
19	17	21	23	30	32	34	38	40	42															
24		21	23	30	32	34	38	40	42	47	51	53	59											
28				54	58	62	70	74	78	86	93	97	109	117	124	136	148							
38							70	74	78	86	93	97	109	117	124	136	148	156	163	175				
42										136	149	155	174	186	198	217	235	248	260	279	285	297	310	
48										199	217	226	253	271	290	317	344	362	380	407	416	434	452	498

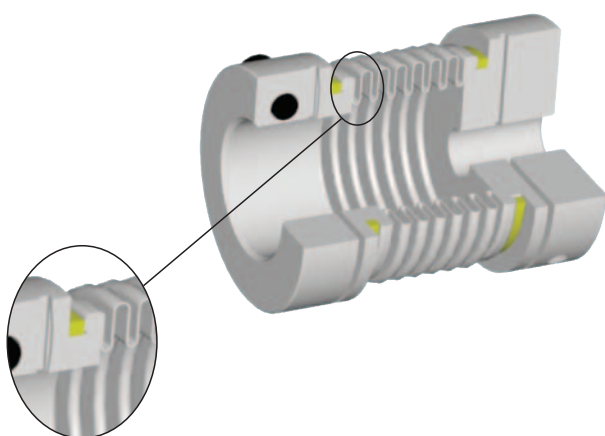
¹⁾ At d_{max.} ²⁾ Torsional spring stiffness with an intermediate pipe of a length of 1 m, L_{pipe} being = L_{ZR} - 2 · L
 For enquiries and orders please mention the shaft distance dimension L_R along with the maximum speed to review the critical speed.

Order form:	ROTEX® GS 24	ZR3	1200 mm	98 Sh A-GS	7.5	-	Ø24	7.5	-	Ø24
	Coupling size	Type	Shaft distance dimension (L _R)	Spider hardness	Hub design		Finish bore	Hub design		Finish bore

Coupling description

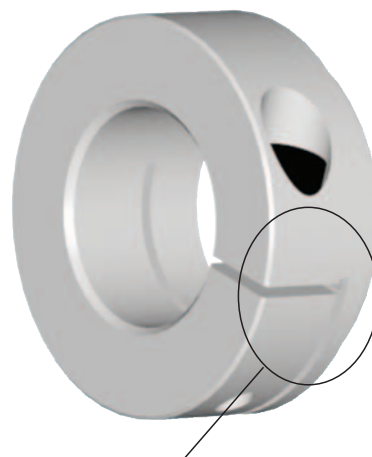
TOOLFLEX® is a metal bellow-type coupling, a coupling system which has proven its worth in the field in many cases. The metal bellow compensates perfectly for axial, radial and angular displacements. At the same time its geometric shape allows for high torsional stiffness and a low mass moment of inertia. TOOLFLEX® is produced in eleven sizes for maximum torques up to 340 Nm.

Its main application ranges are both positioning drives, e. g. ball spindles with a high incline, and indexing tables or planetary and worm gears with small gear ratios.



Subject to its well-approved joint procedure a non-positive connection of the aluminium hubs with the multilayer bellows made from stainless steel is produced. The flanged insert connection sizes 20 to 45 ensures a torque transmission of every single bellow layer. Since Toolflex is a metal coupling, it remains fatigue-endurable in the high temperature range up to a maximum of 200 °C. Moreover, it is resistant to influences of media or critical operating conditions, respectively

The well-known shaft-hub-connection by means of clamping hubs ensures an easy assembly by a radial clamping screw. Subject to two slots in the hub there is no deformation of the bellow when tightening the clamping screw. For higher friction torques type KN with taper hubs can be used.



clamping hub with two slots

Types



Type M and S



Type KN



Type PI

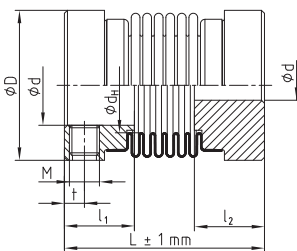


Type CF

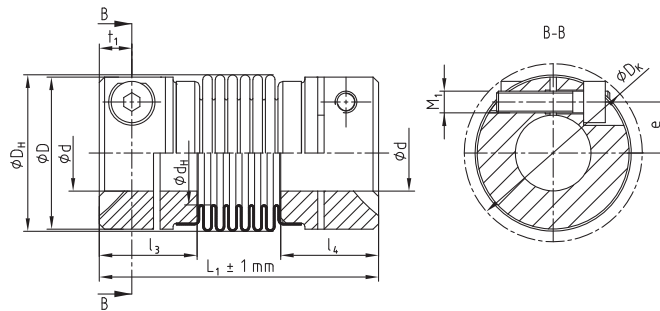
Miniature couplings



- Backlash-free, torsionally stiff
- Maintenance-free
- Low mass moment of inertia
- Easy assembly due to tolerance F7
- Temperature range - 30 °C to + 100 °C
- Finish bore from Ø 6 mm also available with feather key acc. To DIN 6885 sheet 1 – JS9



TOOLFLEX® Type 1.1



TOOLFLEX® Type 2.5

Technical data of type with fixing screw (type 1.1)

Size	Design ¹⁾²⁾	Torque T _{KN} [Nm]	Dimensions [mm]									Perm. displacements			Torsional stiffness C _T [Nm/rad]	Weight ⁴⁾ [kg]
			Finish bore		General			Fixing screw			Axial [mm]	Radial [mm]	Angular [degrees]			
			d _{min.}	d _{max.}	D _H	d _H	L	l ₁ ; l ₂	M	t				number ³⁾ z		
5	S	0,1	2	5	10	6	15 ¹⁾	6	M2	1,8	1	0,30	0,10	0,7	97	0,0027
	M											17 ²⁾	0,40	0,15	1,0	75
7	S	1,0	3	8	15	9	18 ¹⁾	7	M3	2,0	1	0,30	0,10	0,7	390	0,005
	M											20 ²⁾	0,40	0,15	1,0	300
9	S	1,5	4	10	20	12	21 ¹⁾	8	M3	2,2	2	0,35	0,15	1,0	750	0,010
	M											24 ²⁾	0,50	0,20	1,5	580
12	S	2,0	5	14	25	16	27,5 ¹⁾	11	M4	2,8	2	0,40	0,15	1,0	1270	0,017
	M											31 ²⁾	0,60	0,20	1,5	980
16	S	5,0	5	18	32	20	37 ¹⁾	13	M5	4	2	0,3	0,15	1,0	4500	0,046
	M											41 ²⁾	0,5	0,20	1,5	3050
20	S	15	6	25	40	27	42 ¹⁾	15	M5	5	2	0,4	0,15	1,0	9600	0,076
	M											49 ²⁾	0,6	0,20	1,5	6600

Circumferential speed v_{max} = 25 m/s

Technical data of type with clamping screw (type. 2.5)

Size	Design ¹⁾²⁾	Torque T _{KN} [Nm]	Dimensions [mm]											Perm. displacements			Torsional stiffness C _T [Nm/rad]	Weight ⁴⁾ [kg]
			Finish bore		General			Clamping screw					Axial [mm]	Radial [mm]	Angular [degrees]			
			d _{min.}	d _{max.}	D _H	d _H	L ₁	l ₃ ; l ₄	M ₁	t ₁	e	D _K				T _A [Nm]		
7	S	1,0	3	7	15	9	24 ¹⁾	9	M2	3,2	5,0	16,5	0,37	0,3	0,1	0,7	390	0,007
	M													26 ²⁾	0,4	0,15	1,0	300
9	S	1,5	3	9	20	12	30 ¹⁾	11	M2,5	3,5	7,1	21,5	0,76	0,35	0,15	1,0	750	0,014
	M													33 ²⁾	0,5	0,2	1,5	580
12	S	2,0	4	12	25	16	34,5 ¹⁾	13	M3	4,0	8,5	26,5	1,34	0,4	0,15	1,0	1270	0,025
	M													38 ²⁾	0,6	0,2	1,5	980

¹⁾ Design S = 4 shafts ²⁾ Design M = 6 shafts ³⁾ Quantity each hub, from size 9: 2x120° offset

⁴⁾ Figures refer to the complete coupling with max. bores

Circumferential speed v_{max} = 20 m/s

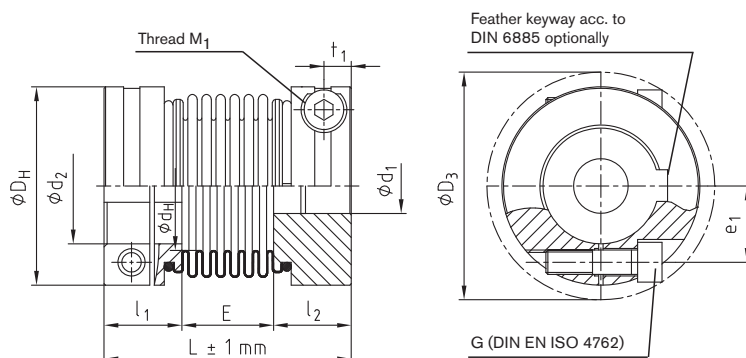
Order form:

TOOLFLEX® 7 M	2.5	-	Ø4	2.5	-	Ø6
Coupling size	Hub design	Finish bore	Hub design	Finish bore		

Type M



- Backlash-free, torsionally stiff
- Non-positive bellow-hub connection
- Frictionally engaged clamping hubs
- Maintenance-free
- Suitable for high temperatures due to flanged insert connection (max. 200 °C)
- Well-resistant to corrosion due to bellow made from stainless steel and aluminium clamping hubs
- Finish bore from Ø 6 mm also available with feather key acc. To DIN 6885 sheet 1 – JS9



TOOLFLEX Type M

Size	Dimensions [mm]												T _A [Nm]
	Finish bore		General					Clamping screws					
	d _{min.}	d _{max.}	L	l ₁ :l ₂	E	D _H	d _H	M ₁	D ₃	t ₁	e ₁		
16	5	16	49	17,0	15	32	20	M4	35,0	5	12,0	2,9	
20	8	20	62	21,5	19	40	27	M5	43,5	6	14,5	6	
30	10	30	72	23,0	26	55	33	M6	58,0	7	19	10	
38	14	38	81	25,5	30	65	42	M8	72,6	9	25	25	
NEW 42	14	42	95	30,0	35	70	46	M8	76,1	9	27	25	
45	14	45	103	32,0	39	83	58	M10	89,0	11	30	49	
55 ³⁾	20	55	125	40,0	45	100	73	M12	106,0	14	37	120	

Technical data

Size	Torque T _{KN} [Nm]	Speed n ¹⁾ [rpm]	Moment of inertia ²⁾ [x10 ⁻⁶ kgm ²]	Torsional stiffness C _T [Nm/rad]	Axial spring stiffness [N/mm]	Radial spring stiffness [N/mm]	Perm. displacements			Mass ²⁾ [x10 ⁻³ kg]
							Axial [mm]	Radial [mm]	Angular [degrees]	
16	5	14900	10	3050	29	92	±0,5	0,20	1,5	61
20	15	11950	32	6600	42	126	±0,6	0,20	1,5	144
30	35	8700	123	14800	65	155	±0,8	0,25	2,0	306
38	65	7350	262	24900	72	212	±0,8	0,25	2,0	448
NEW 42	95	6820	427	36500	80	333	±0,8	0,25	2,0	520
45	150	5750	1020	64000	88	492	±1,0	0,30	2,0	1125
55 ³⁾	340	4800	5118	96100	107	598	±1,0	0,30	2,0	3300

Bore range and respective torques of frictional engagement of the clamping hub [Nm]

Size	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	Ø45	Ø50	Ø55
16	8,5	8,8	9,1	9,4	9,7	9,9	10,2	10,5	11,1	11,4	11,7															
20				17,6	18,1	18,6	19,0	19,5	20,5	21,0	21,4	22,4	22,9	23,3												
30								33	34	35	36	36,4	38	38,5	39	42	42,5	44,5	46							
38												84	85	87	92	93	97	99	101	105	109					
NEW 42									84	85	87	89	90	92	96	98	101	104	106	110	114	116	119			
45														157	165	167	173	177	181	187	193	197	200	206		
55 ³⁾															397	401	413	421	429	441	453	462	470	482	502	522

¹⁾ With v = 25 m/s

²⁾ Figures refer to the complete coupling with max. bores

³⁾ Hubs from steel welded with bellow

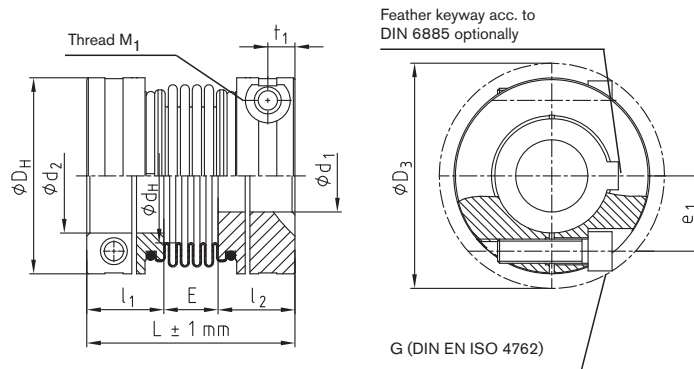
Order form:

TOOLFLEX® 30 M	Ø25	Ø30
Coupling size	Finish bore	Finish bore

Type S



- Short design
- Higher stiffness of torsion spring
- Lower mass moment of inertia
- Finish bore from Ø 6 mm also available with feather key acc. To DIN 6885 sheet 1 – JS9



TOOLFLEX Type S

Size	Dimensions [mm]											
	Finish bore		General					Clamping screws				
	d _{min.}	d _{max.}	L	l ₁ · l ₂	E	D _H	d _H	M ₁	D ₃	t ₁	e ₁	T _A [Nm]
16	5	16	45	17,0	11	32	20	M4	35,0	5	12,0	2,9
20	8	20	55	21,5	12	40	27	M5	43,5	6	14,5	6
30	10	30	63	23,0	17	55	33	M6	58,0	7	19	10
38	14	38	69	25,5	18	65	42	M8	72,6	9	25	25
NEW 42	14	42	84	30,0	24	70	46	M8	76,1	9	27	25
45	14	45	86,5	32,0	22,5	83	58	M10	89,0	11	30	49
55 ³⁾	20	55	111	40,0	31	100	73	M12	106,0	14	37	120

Technical data

Size	Torque T _{KN} [Nm]	Speed n ¹⁾ [rpm]	Moment of inertia ²⁾ [x10 ⁻⁶ kgm ²]	Torsional stiffness C _T [Nm/rad]	Axial spring stiffness [N/mm]	Radial spring stiffness [N/mm]	Perm. displacements			Mass ²⁾ [x10 ⁻³ kg]
							Axial [mm]	Radial [mm]	Angular [degrees]	
16	5	14900	9	4500	43	138	±0,3	0,15	1,0	61
20	15	11950	30	9600	63	189	±0,4	0,15	1,0	121
30	35	8700	114	17800	97	233	±0,5	0,20	1,5	243
38	65	7350	245	37400	108	318	±0,6	0,20	1,5	351
NEW 42	95	6820	396	54700	120	499	±0,6	0,20	1,5	485
45	150	5750	931	95800	132	738	±0,9	0,25	1,5	824
55 ³⁾	340	4800	4996	144100	160	894	±1,0	0,25	1,5	3213

¹⁾ With v = 25 m/s

²⁾ Figures refer to the complete coupling with max. bores

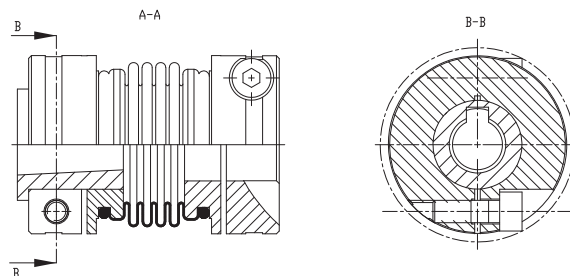
³⁾ Hubs from steel welded with bellow

Info:

Torques of frictional engagement of the clamping hub shown under Type M (page 22)

Other designs:

Type for FANUC-Motors



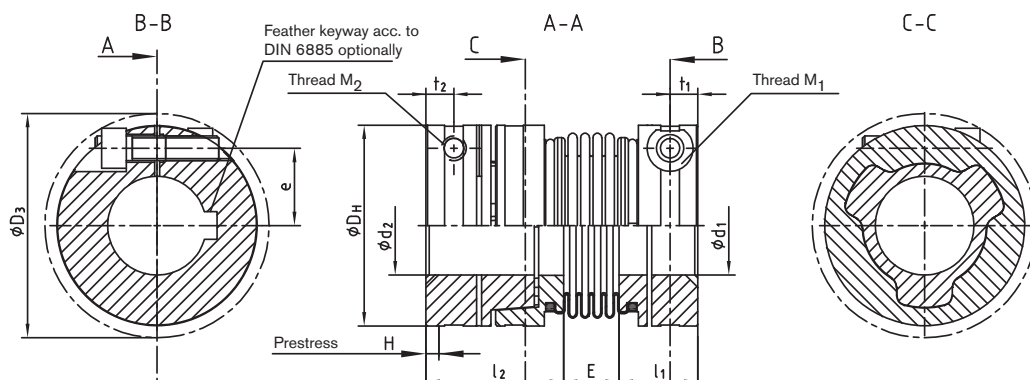
Order form:

TOOLFLEX® 30 S	Ø25	Ø30
Coupling size	Finish bore	Finish bore

Type PI



- Axial plug-in
- Backlash-free, torsionally stiff
- Maintenance-free
- Suitable for high temperatures due to flanged insert connection (max. 200 °C)
- Well-resistant to corrosion due to bellow made from stainless steel and aluminium clamping hubs
- Optionally type M (6 shafts)
 - higher perm. displacements
- or Type S (4 shafts, short design)
 - higher stiffness of torsion spring
 - lower mass moment of inertia



Plug in metal bellow-type coupling type PI

Size	Design	Dimensions [mm]										Clamping screws			
		d ₁ /d ₂ min.	d ₁ max.	d ₂ max.	L ¹⁾	l ₁	l ₂	E	D _H	H	M ₁ /M ₂	D ₃	e	t ₁ /t ₂	T _A [Nm]
20	S	8	20	20	67,0	21,5	33,5	12,0	40	0,5 - 1	M5	43,5	14,5	6	6
	M				74,0			19,0							
30	S	10	30	28	73,5	23,0	33,5	17,0	55	0,5 - 1	M6	58,0	19,0	7	10
	M				82,5			26,0							
38	S	14	38	32	87,5	25,5	44,0	18,0	65	0,5 - 1,5	M8	72,6	25,0	9	25
	M				99,5			30,0							
42	S	14	45	42	93,0	30	39,0	24,0	70		M8	76,1	25,0	9	25
	M				104,0			35,0							
45	S	14	45	42	96,0	32,0	41,5	22,5	83	0,5 - 1,5	M10	89,0	30,0	11	49
	M				112,5			39,0							

Technical data

Size	Design	Torque T _{KN} [Nm]	Speed n ³⁾ [min ⁻¹]	Moment of inertia ²⁾ [x10 ⁻⁶ kgm ²]	Torsional stiffness C _T [Nm/rad]	Axial spring stiffness [N/mm]	Radial spring stiffness [N/mm]	Perm. displacements		Mass ²⁾ [x10 ⁻³ kg]
								Radial [mm]	Angular [degrees]	
20	S	15	11950	37	9600	63	189	0,15	1,0	149
	M			38	6600	42	126	0,20	1,5	155
30	S	35	8700	140	17800	97	233	0,20	1,5	294
	M			145	14800	65	155	0,25	2,0	313
38	S	65	7350	329	37400	108	318	0,20	1,5	496
	M			346	24900	72	212	0,25	2,0	520
42	S	95	6820	396	54700	120	499	0,20	1,5	485
	M			427	36500	80	333	0,25	2,0	520
45	S	150	5750	1031	95800	132	738	0,25	1,5	930
	M			1127	64000	88	492	0,30	2,0	1000

Transmittable friction torque of clamping hubs Ød₁/Ød₂

Size	Ø8	Ø9	Ø10	Ø11	Ø12	Ø14	Ø15	Ø16	Ø18	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø42	
20	17,6	18,1	18,6	19,0	19,5	20,5	21,0	21,4	22,4	22,9	23,3										
30				33,0	34,0	35,0	36,0	36,4	38,0	38,5	39,0	42,0	42,5	44,5	46						
38									84,0	85,0	87,0	92,0	93,0	97,0	99,0	101,0					
42																					
45											157,0	165,0	167,0	173,0	177,0	181,0	187,0	193,0	197,0	200,0	

¹⁾When being plugged in

²⁾Figures refer to the complete coupling with max. bores

³⁾With v = 25 m/s

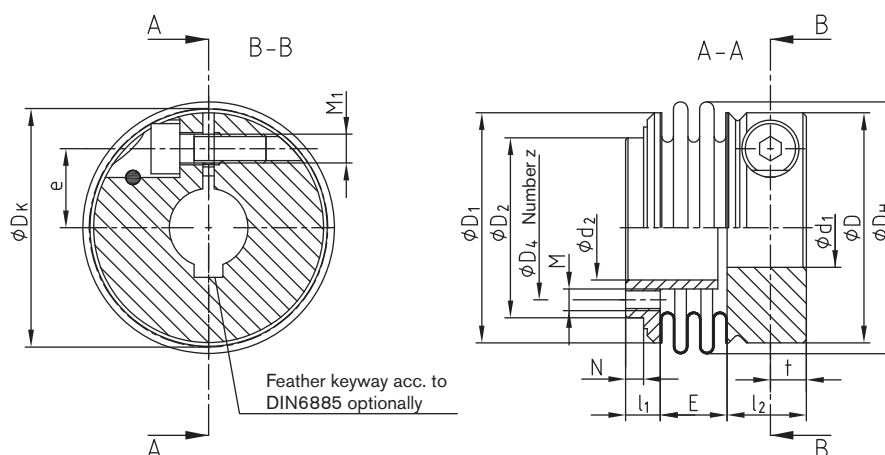
Order form:

TOOLFLEX® 30 PI-S	d ₁ - Ø22	d ₂ - Ø18
Coupling size	Finish bore Component 1	Finish bore Component 2

Type CF



- Extremely short design
- 25 % higher torques possible compared to type M or type S
- High torsional stiffness
- Backlash-free, torsionally stiff
- Maintenance-free
- Subject to welded connection suitable for high temperatures (max. 280° C)
- Particularly suitable for the use on gearboxes
- In case of only small angular and axial displacement a design with a one-wave bellow can be used, too



TOOLFLEX® Type CF (Flange coupling)

Size	Dimensions [mm]											
	Finish bore d_1		E	D	D_H	t	l_2	e	D_K	M_1	T_A [Nm]	
	min.	max.										
16	5	14	9,3	32,0	35,0	5,0	11,0	11,0	33,2	M4	4,1	
20	8	19	10,0	38,5	43,0	6,0	13,0	14,0	42,6	M5	8,1	
30	10	28	12,4	51,0	56,0	7,5	16,0	18,0	53,3	M6	14	
38	14	24	13,0	62,0	67,0	9,0	18,5	24,0	69,8	M8	34	
45	14	38	17,0	78,0	84,0	11,5	22,5	27,5	84,6	M10	67	
55	15	48	17,5	89,0	100,0	12,5	26,0	32,0	98,7	M12	115	

Technical data

Size	Torque T_{KN} [Nm]	Speed $n^{1)}$ [min ⁻¹]	Dimensions flange [mm]							Mass ²⁾ [x10 ⁻³ kg]	Moment of inertia ²⁾ [x10 ⁻⁸ kgm ²]		
			d_2	D_1	D_2	D_4	z	M	N			l_1	
16	10	13640	14,5	32,0								73	10
20	20	11100	19,5	38,0								130	29
30	40	8530	28,5	52,5								248	104
38	80	7130	35,5	62,0								534	368
45	180	5680	41,5	78,0								890	836
55	400	4800	57,5	95,0								1247	1630

Transmittable friction torque of clamping hubs $\varnothing d_1$

Size	$\varnothing 5$	$\varnothing 6$	$\varnothing 7$	$\varnothing 8$	$\varnothing 9$	$\varnothing 10$	$\varnothing 11$	$\varnothing 12$	$\varnothing 14$	$\varnothing 15$	$\varnothing 16$	$\varnothing 18$	$\varnothing 19$	$\varnothing 20$	$\varnothing 24$	$\varnothing 25$	$\varnothing 28$	$\varnothing 30$	$\varnothing 32$	$\varnothing 35$	$\varnothing 38$	$\varnothing 40$	$\varnothing 42$	$\varnothing 45$	
16	11,9	12,4	12,8	13,3	13,7	14,2	14,6	15,0	15,9																
20				26,1	26,8	27,5	28,2	29,0	30,4	31,1	31,8	33,3	34,0												
30						46,9	47,9	49,0	51,0	52,0	53,0	55,1	56,1	57,1	61,2	62,2	65,3								
38									116,3	118,1	120,0	123,8	125,6	127,5	135,0	136,9	142,5	146,3							
45									206,5	209,5	212,5	218,5	221,4	224,4	236,4	239,4	248,4	254,4	260,3	269,3	278,3				
55									343,7	348,0	356,7	361,1	365,4	382,8	387,2	400,2	408,9	417,6	430,7	443,7	452,4	461,1	474,2		

¹⁾ With $v = 25$ m/s

²⁾ Figures refer to the complete coupling with max. bore, figures depending on the flange dimensions

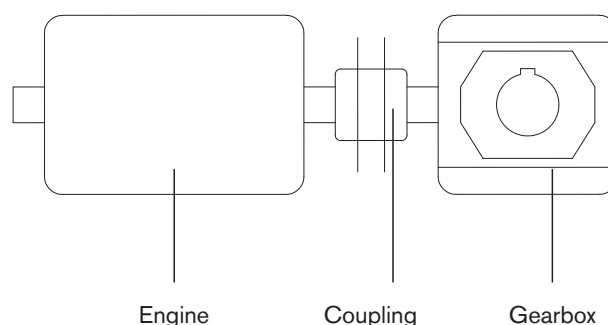
Order form:	TOOLFLEX®30 CF	$\varnothing 22$	45 - 34 - 6xM5 - 3 - 5,5
	Coupling size	Finish bore	$D_2 - D_4 - z \times M - N - l_1$ Dimensions flange

Coupling description

The RADEX®-NC is a line particularly developed for the servo technology. In this coupling a package of torsionally rigid steel laminae that are soft in bending ensures a reliable compensation for axial, angular and radial shaft displacements. As all-metal coupling - the laminae are made from stainless steel - the RADEX®-NC can even be used with high temperatures (up to 200 °C) and under aggressive ambient conditions. The RADEX®-NC is manufactured in 6 sizes from size 5 to 35 for max. torques of up to 200 Nm. The hubs are frictionally engaged clamping hubs made from aluminium (size 42 made from steel) and are thus backlash-free even in a reversing drive.



A typical application of the RADEX®-NC are backlash-free worm gear pairs with low transmissions. The rigidity of the coupling must be converted by reason of the transmission of the gearbox from the drive side to the driven side. Here the transmission itself has a decisive influence because it is squarely included in the calculation. This converted rigidity is added in line to the gearbox stiffness in order to get the total rigidity. In case of transmissions that are lower than $i = 8$ we recommend to use the RADEX®-NC due to the loss of rigidity of the total system if flexible couplings are used.



Explosion protection use


RADEX®-NC couplings are suitable for power transmission in drives in hazardous areas. The couplings are certified and confirmed according to EC standard 94/9/EC (ATEX 95) as units of category 2G/2D and thus suitable for the use in hazardous areas of zone 1, 2, 21 and 22. Please read through our information included in the respective Type Examination Certificate and the operating and mounting instructions at www.ktr.com.

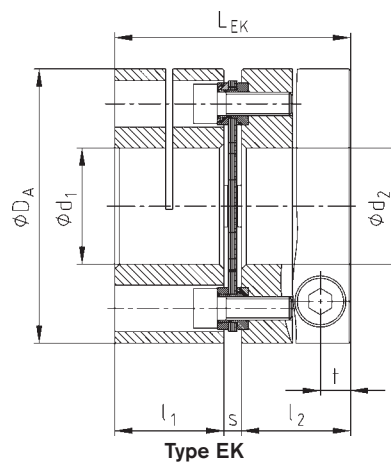
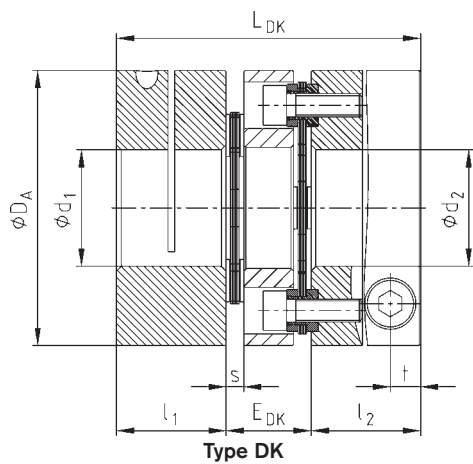


Selection: In case of use in hazardous areas the clamping hubs without feather key, only for use in category 3 (with feather key for category 2), must be selected in a way that there is a minimum safety factor of $s = 2$ between the peak torque (including all operating parameters) and the nominal torque and frictional torque of engagement of the coupling.

Standard types



- Backlash-free torque transmission
- Higher torsional rigidity
- Backlash-free shaft-hub-connection
- Low mass moment of inertia
- High speeds
- Operating temperature up to 200 °C
- Compact type
- Finish bore from Ø 6 mm also available with feather key acc. To DIN 6885 sheet 1 – JS9
-  Approved according to EC Standard 94/9/EC (Explosion Certificate ATEX 95) (without feather key only for category 3)



RADEX®-NC types DK and EK

Size	Dimensions [mm]								Clamping screw		Mass moment of inertia	
	max. d ₁ /d ₂	D _A	l ₁ :l ₂	L _{DK}	E _{DK}	L _{EK}	s	t	M	T _A [Nm]	DK [kgm ²]	EK [kgm ²]
5	10	26	12	34	10	26,5	2,5	3,5	M2,5	0,8	0,000004	0,000003
10	15	35	16	44	12	35	3	5,0	M4	3	0,000016	0,000012
15	20	47	21	55	13	45	3	6,8	M6	10	0,000065	0,000053
20	25	59	24	67	19	52	4	6,5	M6	10	0,000199	0,000154
25	35	70	32	88	24	69	5	9,0	M8	25	0,000508	0,000393
35	40	84	35	98	28	77	7	10,5	M10	49	0,001153	0,000911
42	55	104	40	116	36	91	11	10,5	M10	69	0,007458	0,006153

Technical data

Size	T _{KN} [Nm]	T _{K max.} [Nm]	max. speed [rpm]	Torsional rigidity [Nm/rad]		Displacement type DK			Displacement type EK		
				Type EK	Type DK	Radial [mm]	Axial [mm]	Angular [°] ¹⁾	Radial [mm]	Axial [mm]	Angular [°] ¹⁾
5	2,5	5	25000	2400	1200	0,10	0,4	1	—	0,2	1
10	7,5	15	20000	5600	2800	0,14	0,8	1	—	0,4	1
15	20	40	16000	12000	6000	0,16	1,0	1	—	0,5	1
20	30	60	12000	30000	15000	0,25	1,2	1	—	0,6	1
25	60	120	10000	60000	30000	0,30	1,6	1	—	0,8	1
35	100	200	9000	72000	36000	0,40	2,0	1	—	1,0	1
42	180	360	7000	120000	60000	0,50	2,8	1	—	1,4	1

Transmittable torque of the RADEX®-NC clamping hub [Nm] for standard bores

Size	Pilot bore	Ø3	Ø5	Ø8	Ø10	Ø12	Ø14	Ø15	Ø16	Ø19	Ø20	Ø24	Ø25	Ø28	Ø30	Ø32	Ø35	Ø38	Ø40	Ø45	Ø50	Ø55
5	2,5	2,2	2,3	2,4	2,5																	
10	4,5		8	9	10	10	11	11														
15	5,5				28	30	31	32	32	34	35											
20	7,5					36	37	38	39	40	41	44	45									
25	9,5							82	83	87	88	93	94	98	100	103	106					
35	11,5									155	157	165	167	173	177	181	187	193	197			
42	15,0											285	287	296	301	307	315	323	329	343	357	370

¹⁾ for each laminae

Order form:

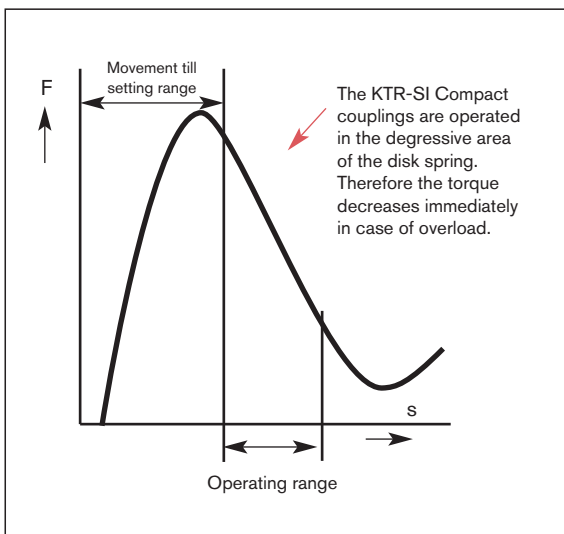
RADEX®-NC 20	DK	Ø20	Ø25
Coupling size	Type	Finish bore	Finish bore

Backlash-free, torsionally stiff safety clutch

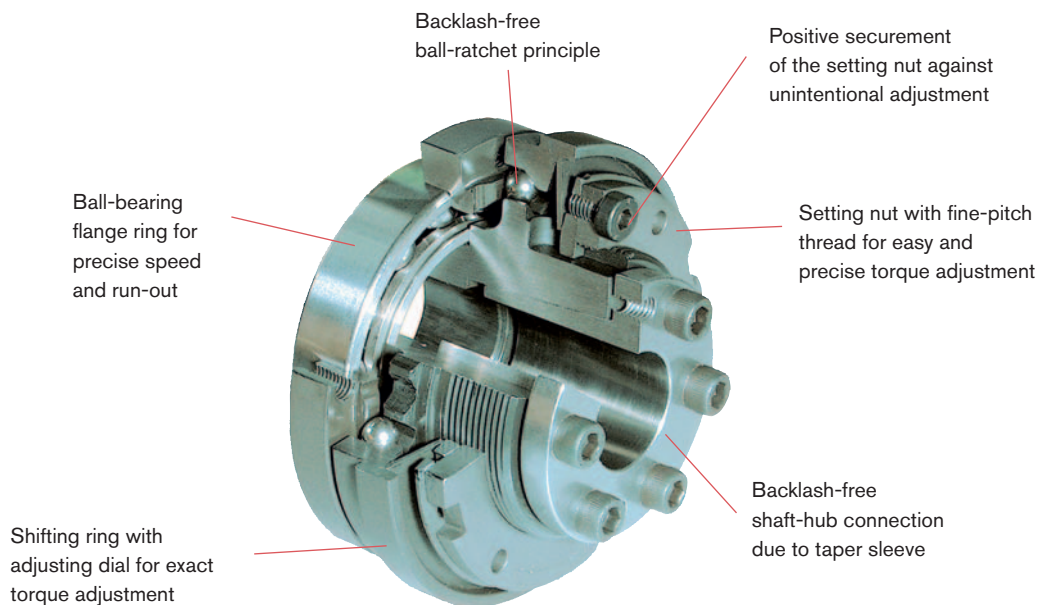
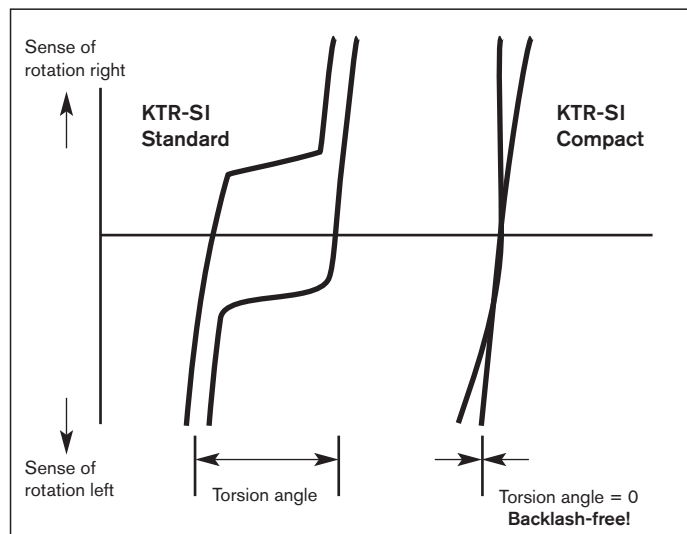


- Backlash-free safety clutch with patented curve spring design
- Precise switch-off with high repeating accuracy
- Exact, backlash-free torque transmission, even in case of wear
- Easy torque setting
- Ball-bearing connection flange
- Hardened ratchet surfaces for long lifespan
- Backlash-free shaft-hub connection due to taper sleeve
- Can be used with proven ROTEX® GS as shaft-to-shaft connection

Characteristic special curve



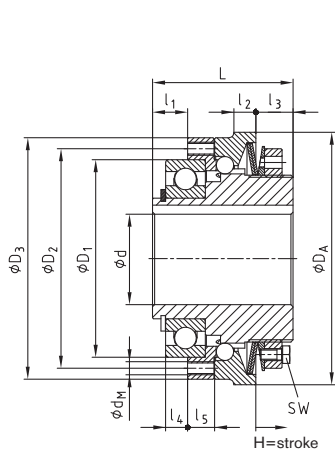
What is backlash-free ?



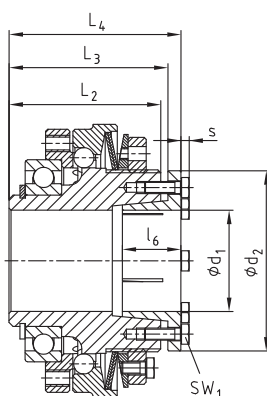
Type FT, FT-4.5 and FT with ROTEX® GS



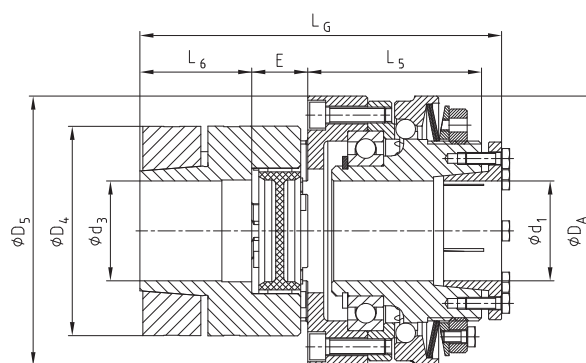
- Torque up to 740 Nm
- Maximum shaft diameter up to 60 mm
- Backlash-free and vibration-reducing in combination with ROTEX® GS
- Drive and driven-sided with backlash-free, frictionally engaged shaft-hub connection
- Synchronous and ratchet design
- Also available in combination with torsionally stiff RADEX®-N or RADEX®-NC
- Finish bore according to ISO fit H7, feather keyway according to DIN 6885 sheet 1 - JS9



Type FT



Type FT-4.5
with clamping connection



Type FT with ROTEX® GS
as shaft-to-shaft connection

Technical data

Size	Speed [min ⁻¹]	Torques [Nm]			Dimensions [mm]													
		T1	T2	T3	d _{max}	D ₁ ^{H5}	D ₂	D ₃	D _A	d _M	L	l ₁	l ₂	l ₃	l ₄	l ₅	SW	H-stroke
01	4000	3-14	6-28	13-56	20	47	56	65	70	8xM4	40	8	7	12	5	7,5	7	1,2
0	3000	9-35	18-70	40-140	30 ¹⁾	62	71	80	85	8xM5	48	11	8	14	7	8,0	7	1,5
1	2500	19-65	38-130	78-260	35 ¹⁾	75	85	95	100	8xM6	59	14	9	16	9	10,5	8	1,8
2	2000	35-110	80-220	160-440	45 ¹⁾	90	100	110	115	8xM6	64	16	10	17	10	12	10	2,0
3	1200	80-185	160-370	320-740	50	100	116	130	135	8xM8	75	18	12	21	10	12	10	2,2

1) max. finish bore, keyway to DIN 6885 sheet 3

Dimensions with taper sleeve type 4.5 [mm]

Size	Dimensions [mm]							
	d _{1max}	L ₂	L ₃	L ₄	l ₆	d ₂	s	SW ₁
01	10-20	40	42	47	26	40,5	2,8	7
	19-25					42,0		
0	30	46	49	56	31	57	4,0	10
1	19-30	57	60	67	31	57	4,0	10
	32-40					64		
2	50	63	68,5	73	29	73,5	4,0	10
3	32-50	75	78,5	85	29	73,5	4,0	10
	55-60		78,0			86		

Dimensions type FT with ROTEX® GS [mm]

Size	ROTEX® GS Size	Dimensions [mm]									
		d _{1max}	d _{3max}	D ₄	D ₅	L _G	L ₅	L ₆	D _A	E	
01	24	25	28	55	70	102	47	30	70	18	
0	28	30	38	65	85	119,5	54,5	35	85	20	
1	38	40	45	80	100	146	67	45	100	24	
2	42	50	55	95	115	159	73	50	115	26	
3	48	60	62	105	135	182	87	56	135	28	

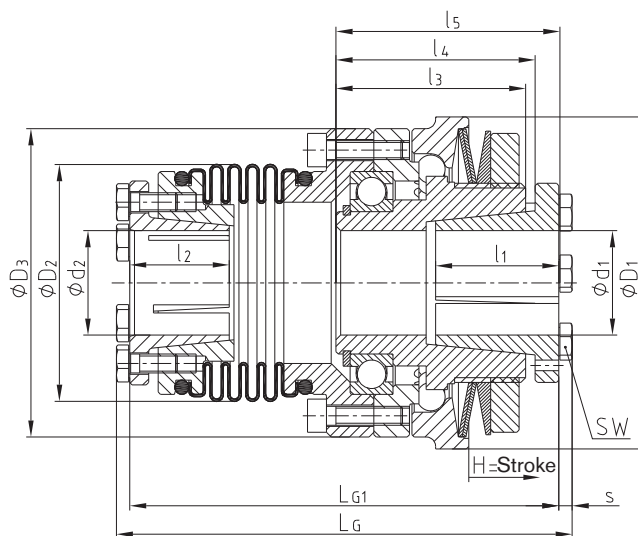
Order form:

KTR-SI Compact	2	DK	T2	Ø 40	4.5	150 Nm
Coupling type	Size	Design	Disk springs	Bore	Hub design	Torque set

with a torsionally stiff TOOLFLEX® S-KN



- Max. shaft diameter up to 56 mm
- Non-positive bellow-hub connection
- Maintenance-free
- Good properties of concentric running with high speeds
- Optionally available as design M (6 shafts) or design S (4 shafts, short version)



KTR-SI Compact with TOOLFLEX® S-KN

Technical data – Speeds, torques, dimensions

KTR-SI Compact Size	TOOLFLEX® S-KN ¹⁾ Size	Max. speed [min ⁻¹]	TOOLFLEX® S-KN Torques [Nm]	KTR-SI Compact Torques [Nm]		Dimensions [mm]				
				T1	T2	d ₁ max.	d ₂ max.	D ₁	L _G ²⁾	L _{G1} ²⁾
01	30	4000	35	3-14	6-28	25	22	70	96	90,5
0	38	3000	65	9-35	18-70	30	28	85	109	102,0
1	45	2500	150	19-65	38-130	40	40	100	145	137,5
2	55	2000	340	35-110	80-220	50	56	115	170	159,5

Technical data – Dimensions

KTR-SI Compact Size	TOOLFLEX® S-KN ¹⁾ Size	Dimensions [mm]									
		D ₂	D ₃	l ₁	l ₂	l ₃	l ₄	l ₅	s	SW ₁	H
01	30	50,0	65	26	22	40	42,0	47	2,8	7	1,2
0	38	60,5	80	31	26	46	49,0	56	4,0	7	1,5
1	45	82,0	95	40	34	57	60,0	67	4,0	8	1,8
2	55	97,0	110	29	40	63	68,5	73	3,5	10	2,0

1) Optionally available with clamping hub

2) Depending on the type of TOOLFLEX®, M (6 shafts) or S (4 shafts)

Order form:

KTR-SI Compact	1	45	DK	T2	d ₁ Ø 40	d ₂ Ø 40	100 Nm
Coupling type	KTR-SI Compact Size	TOOLFLEX® S-KN Size	Design	Disk springs	Bore KTR-SI Compact	Bore TOOLFLEX® S-KN	Torque set



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