







ROTEX® GS

Backlash-free jaw couplings

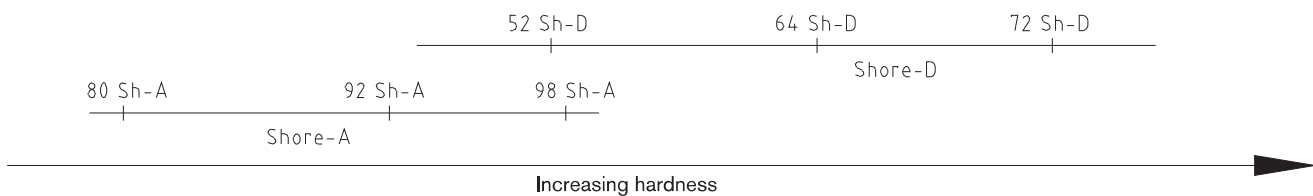
Spiders

The flexible spiders for the GS series are available in five different kinds of Shore hardness, injected in different colours, either as a torsionally soft or hard material. These five spiders with different kinds of Shore hardness allow to easily adjust the ROTEX® GS with regard to torsional stiffness and the vibration behaviour to the individual conditions of an application. The flexible prestress varies depending on the coupling size, the spiders/material and the production tolerances. Resulting from it is the axial plug-in force starting from low as a close sliding fit or with torsionally soft spider to heavy with big prestress or torsionally rigid spider (see mounting instruction KTR-N 45510 at www.ktr.com).

Along with an increasing hardness of the spider the torques to be transmitted and the stiffness of the spider increase, too. Along with reduced hardness of the spider the ability of compensating for displacements and damping the spider is increased.

Features						
Description of spider Hardness [Shore]	Marking Colour	Material	Perm. temperature range [°C]		Available for coupling size	Typical applications
			Permanent temperature	Max. temperature (short-time)		
80 ShA-GS		Polyurethane	-50 to +80	-60 to +120	Size 5 to 24	- drives of electric measuring systems
92 ShA-GS		Polyurethane	-40 to +90	-50 to +120	Size 5 to 55	- drives of electric measuring and control systems - main spindle drives
98 ShA-GS		Polyurethane	-30 to +90	-40 to +120	Size 5 to 90	- Positioning drives - main spindle drives - high load
98 ShA-GS 52 ShD-GS		Polyurethane	-30 to +90	-40 to +120	Size 24 to 55 (for ROTEX® GS HP only)	- HSC main spindle drives - test benches with severely high speeds
64 ShD-H-GS 64 ShD-GS		Hytel	-50 to +120	-60 to +150	Size 7 to 38	- planetary gears/backlash-free gears - higher torsion spring stiffness/high ambient temperatures
		Polyurethane	-20 to +110	-30 to +120	Size 42 to 90	- higher load - higher torsion spring stiffness
72 ShD-H-GS 72 ShD-GS		Hytel	-50 to +120	-60 to +150	Size 24 to 38	- very high torsion spring stiffness/high ambient temperature - very high load
		Polyurethane	-20 to +110	-30 to +120	Size 42 to 90	- very high torsion spring stiffness - very high load

Degree of hardness



Spider material	Polyurethane			Hytel
Degree of hardness	92 Shore A	98 Shore A	64 Shore D	64 Shore D
Relative damping ψ [-] ¹⁾	0.80	0.80	0.75	0.60
Resonance factor V_R [-] ¹⁾	7.90	7.90	8.50	10.5

¹⁾ Special figures apply for ROTEX® GS HP, please contact us.

Advice

- Feather keyways available from a bore $\geq \varnothing 6$. Feather keyways according to DIN 6885 sheet 1, tolerance JS9.
- Finish bore tolerance H7 (except for clamping hubs), from $\varnothing 55$ G7 with clamping ring hubs
- Finish bore tolerance H6 for ROTEX® GS P and ROTEX® GS HP
- Recommended insertion dimension of shafts into coupling hubs: l_1/l_2 ; for clamping ring hubs the minimum insertion dimension l_3 applies
- Spider with bore available on request. Please specify in the order as shown in the example on page 130.

Use in potentially explosive atmospheres

ROTEX® GS couplings are suitable for power transmission in drives in potentially explosive atmospheres. The couplings are assessed and approved according to EU directive 2014/34/EU as units of category 2G/2D and thus suitable for the use in potentially explosive atmospheres of zone 1, 2, 21 and 22. Please read through our information included in the respective Type Examination Certificate and the operating and assembly instructions at www.ktr.com.

Selection: If used in potentially explosive atmospheres the clamping ring hubs (clamping hubs without feather keyway only for use in category 3) must be selected in a way that there is a minimum safety factor of $s = 2$ between the peak torque of the machine including all operating parameters and the nominal torque and frictional locking torque of the coupling.

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Technical data

Size	Spider GS Shore hardness	Shore scale	Max. speed [rpm] for type					Torque [Nm]		Static torsion spring stiffness ¹⁾ [Nm/rad]	Dynamic torsion spring stiffness ¹⁾ [Nm/rad]	Radial torsion spring stiffness C _r [N/mm]	Weight [kg]		Mass moment of inertia J [kgm ²]		
			2.0 / 2.1 2.5 / 2.6	2.8 2.9	1.0 1.1	6.0 light ²⁾	6.0 P ²⁾	DKM	T _{KN}				T _{K max}	Each hub ⁵⁾	Spider	Each hub ⁵⁾	Spider
5	70	A	38000	38000	47700		57300	0.2	0.3	1.78	5	43	0.001	0.2 x 10 ⁻³	0.015 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	27000	27000	34100		40900	0.7	1.4	8.6	26	114	0.003	0.7 x 10 ⁻³	0.085 x 10 ⁻⁶	0.01 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					
8	80	A	23800					0.7	1.4	8.8	27	117	0.003	0.5 x 10 ⁻³	0.117 x 10 ⁻⁶	0.0124 x 10 ⁻⁶	
	98	A						2.0	4.0	23.5	71	433					
	64	D						2.4	4.8	35.3	106	648					
9	80	A	19000	19000	23800		28600	1.8	3.6	17.2	52	125	0.01	1.7 x 10 ⁻³	0.48 x 10 ⁻⁶	0.085 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	15200	19100		22900	3.0	6.0	84.3	252	274	0.02	2.3 x 10 ⁻³	1.5 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					
13	80	A	12700					3.6	7.2	111	330	359	0.01	2.0 x 10 ⁻³	1.1 x 10 ⁻⁶	0.155 x 10 ⁻⁶	
	98	A						11.0	22.0	316	941	1109					
	64	D						14.5	29.0	430	1287	1570					
14	80	A	12700	12700	15900	32000	47700	19100	4.0	8.0	60.2	180	153	0.02	4.7 x 10 ⁻³	2.8 x 10 ⁻⁶	0.509 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				
16	80	A	12000						5.0	10.0	157	471	400	0.02	3.6 x 10 ⁻³	2.8 x 10 ⁻⁶	0.435 x 10 ⁻⁶
	98	A							15.0	30.0	450	1341	1710				
	64	D							19.0	38.0	612	1835	2238				
		D							6.0	12.0	618	1065	582				
19	80	A	9550	9550	11900	24000	35800	14300	12.0	24.0	1090	1815	1120	0.09	7.6 x 10 ⁻³	19.5 x 10 ⁻⁶	1.35 x 10 ⁻⁶
	92	A							21.0	42.0	1512	2540	2010				
	98	A							26.0	52.0	2560	3810	2930				
	64	D							35	70	2280	4010	1480				
24	92	A	6950	10400	8650	17000	26000	10400	60	120	3640	5980	2560	0.2	0.02	81.9 x 10 ⁻⁶	6.7 x 10 ⁻⁶
	98	A							75	150	5030	10896	3696				
	64	D							97	194	9944	17095	5799				
	72 ³⁾	D							95	190	4080	6745	1780				
28	92	A	5850	8800	7350	15000	22000	8800	160	320	6410	9920	3200	0.3	0.03	184.2 x 10 ⁻⁶	14.85 x 10 ⁻⁶
	98	A							200	400	10260	20177	4348				
	64	D							260	520	21526	36547	7876				
	72 ³⁾	D							190	380	6525	11050	2350				
38	92	A	4750	7150	5950	12000	17900	7150	325	650	11800	17160	4400	0.6	0.05	542.7 x 10 ⁻⁶	39.4 x 10 ⁻⁶
	98	A							405	810	26300	40335	6474				
	64	D							525	1050	44584	71180	11425				
	72 ³⁾	D							265	530	10870	15680	2430				
42	92	A	4000	5000	10000	8050 ⁴⁾	15000	6000	450	900	21594	37692	5570	2.4	0.08	2802 x 10 ⁻⁶	85 x 10 ⁻⁶
	98	A							560	1120	36860	69825	7270				
	64	D							728	1456	58600	93800	9766				
	72 ³⁾	D							310	620	12968	18400	2580				
48	92	A	3600	4550	9100	7200 ⁴⁾	13600	5450	525	1050	25759	45620	5930	3.3	0.09	4709 x 10 ⁻⁶	135 x 10 ⁻⁶
	98	A							655	1310	57630	99750	8274				
	64	D							852	1704	80000	136948	11359				
	72 ³⁾	D							410	820	15482	21375	2980				
55	92	A	3150	3950	6350 ⁴⁾	11900	4750		685	1370	42117	61550	6686	5.1	0.12	9460 x 10 ⁻⁶	229 x 10 ⁻⁶
	98	A							825	1650	105730	130200	9248				
	64	D							1072	2144	150000	209530	12762				
	72 ³⁾	D							940	1880	48520	71660	6418				
65	98	A	2800	3500	5650 ⁴⁾	11000			1175	2350	118510	189189	8870	6.7	0.2	15143 x 10 ⁻⁶	437 x 10 ⁻⁶
	64	D							1527	3054	160000	310000	11826				
	72 ³⁾	D							1920	3840	79150	150450	8650				
75	92	A	2350	2950	4750 ⁴⁾	8950			2400	4800	182320	316377	11923	10.5	0.3	32750 x 10 ⁻⁶	1179 x 10 ⁻⁶
	64	D							3120	6240	360540	586429	16454				
	72 ³⁾	D							3600	7200	204500	302900	10700				
90	98	A	1900	2380	3800 ⁴⁾	7150			4500	9000	429450	908700	14700	18.2	0.6	87099 x 10 ⁻⁶	3362 x 10 ⁻⁶
	64	D							5850	11700	847440	1308852	20290				
	72 ³⁾	D															

¹⁾ Static and dynamic torsion spring stiffness with 0.5 x T_{KN}

²⁾ For higher speeds see ROTEX® GS HP

³⁾ When using the spider 72 ShD, we recommend to use hubs made of steel

⁴⁾ Clamping ring hubs 6.0 made of steel

⁵⁾ Hubs with an average bore type 1.0

The coupling has to be dimensioned in a way that the permissible coupling load is not exceeded during any operating condition (see coupling selection on page 22 et seqq.).

The torques specified T_{KN}/T_{K max} refer to the spider. The shaft-hub-connection needs to be inspected by the customer.

For technical data of type HP see page 138.