

TOK-COUPPLINGSYSTEM

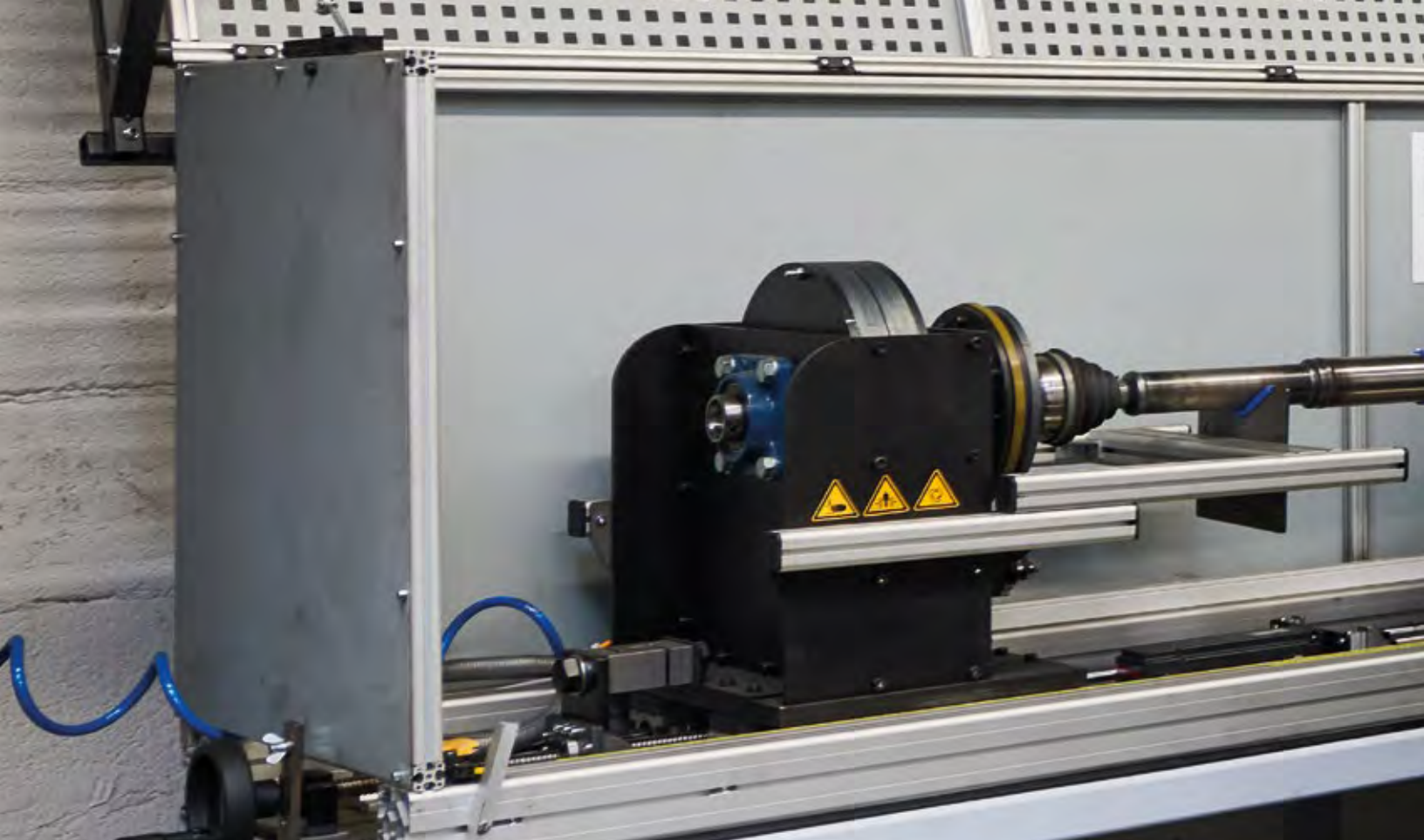
Highly Flexible Coupling Shaft for Test Benches

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SIMPLY **POWERFUL.**





D2C – Designed to Customer

The guiding principle of Designed to Customer is the recipe for success behind REICH. In addition to the catalog products, we supply our customers with couplings developed to their specific requirements.

The designs are mainly based on modular components to provide effective and efficient customer solutions.

The special nature of our close cooperation with our partners ranges from; consulting, development, design, manufacture and integration to existing environments, to customer-specific production, logistics concepts and after-sales service - worldwide.

This customer-oriented concept applies to both standard products and production in small batch sizes.

The company policy at REICH embraces, first and foremost, principles such as customer satisfaction, flexibility, quality, prompt delivery and adaptability to the requirements of our customers.

REICH supplies not only a coupling, but a solution:

Designed to Customer – SIMPLY **POWERFUL**.

D2C
Designed to Customer



TOK-COUPPLINGSYSTEM

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General Technical Description

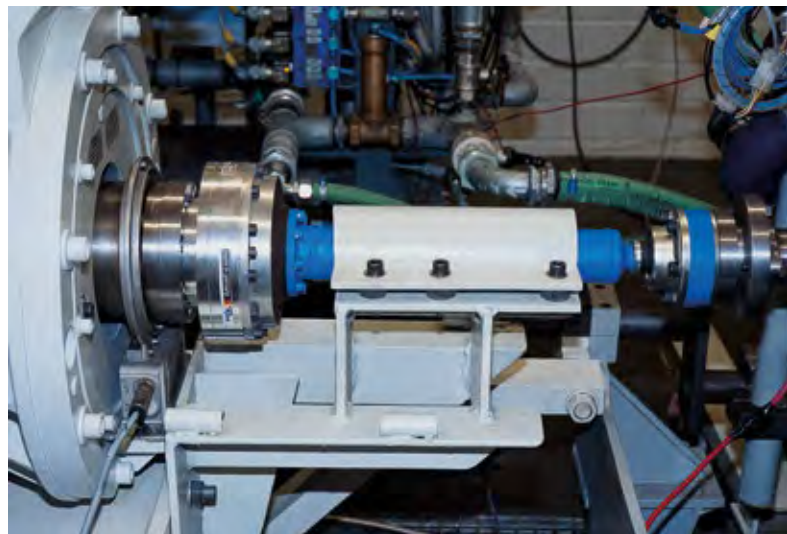
TOK-COUPPLINGSYSTEM

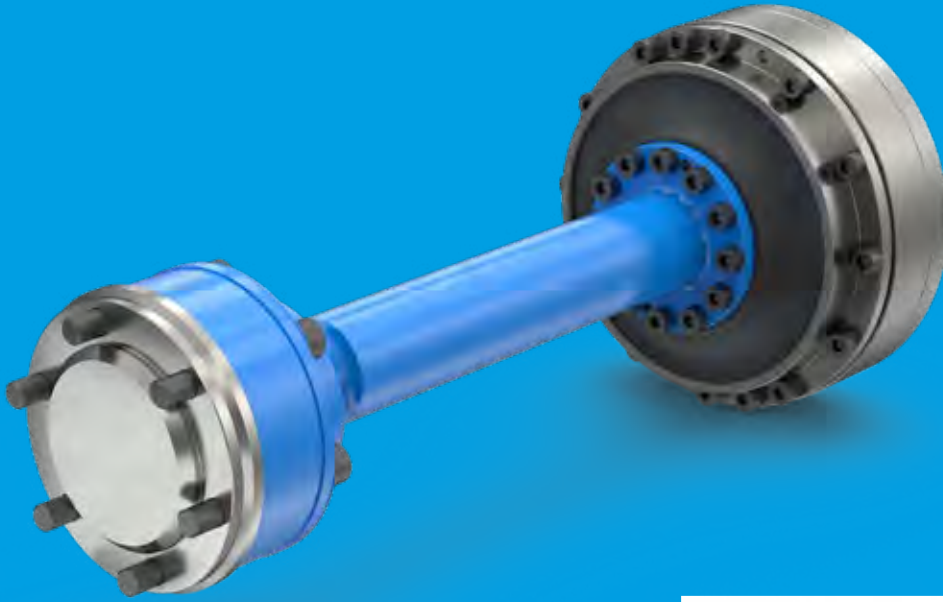
Highly Flexible Coupling Shafts for Test Benches

Test benches have a wide variety of applications in power transmission engineering. They are used to determine properties of test objects in research, development, manufacturing and quality assurance. The drive train components which are predominantly tested on test benches include, but are not limited to, engines, gearboxes, transmission elements and consumables. Given the multitude of testing tasks, the specific requirements for couplings on test benches are quite diverse. The TOK coupling system can be used in almost all applications, and on test benches in particular. The wide range of flexible coupling elements, adaptations and connection shafts ensures that a standard solution is almost always available in a wide variety of different tasks. These can be complemented by specific customized designs on request.

The flexible element is designed to combine high torque transmission capacity with high speed capability. Its torsional stiffness can be adapted to requirements by selecting different types of rubber.

Bearings or integrated joints support the loads arising from the connection between the drive end and the output end. Cardan shafts, constant velocity (CV) shafts and compact shafts are available as connections which also compensate for displacements. Adaptive designs are based on the standard DIN or SAE flange connection dimensions, the CV shaft joints and the torque measuring flanges. The couplings cover a torque range from approx. 885 lb-in (100 Nm) at 10 000 rpm up to 619,552 lb-in (70 000 Nm) at 1800 rpm.





TOK

Nominal torques from approx. 885 lb-in (100 Nm) at 10 000 rpm
up to 619,552 lb-in (70 000 Nm) at 1 800 rpm

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Advantages

Salient features and advantages of the highly flexible TOK coupling systems:

- Elements available in different torsional stiffnesses
- Suited for highest speeds
- Adaptation to DIN or SAE flanges or according to specification
- Self-centering, backlash-free and maintenance-free
- Optional reduction of the torsional stiffness through the use of 2 elements
- Balance axial, radial and angular misalignments
- Light-weight construction through the use of high-strength aluminum
- Variable mounting lengths through telescopic intermediate shafts
- For use up to T_{KN} (depending on the application)

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Standard Types

Type - S - CV



- Constant velocity shaft CV (one joint)
- Telescopic length and displacement compensation
- For highest speeds
- Little weight to be supported
- Adapters matched to DIN, SAE or CV
- Adapters for the engine and brake sides

Type - B - CS



- Cardan shaft with DIN connection
- Telescopic length and displacement compensation
- Adapters matched to SAE, CV or DIN
- Adapters for the engine and brake sides
- Easy bolting of the cardan shaft by means of stay bolts and nuts

Type - S - I



- Intermediate shaft, compact design
- Large telescopic length and misalignment compensation
- Little weight to be supported
- For highest speeds
- Adapters matched to SAE, CV or DIN
- Adapters for the engine and brake sides

- Short design
- Integrated spherical bearing for angular misalignment compensation
- For intermediate shafts similar to S-CV
- For highest speeds
- Little weight to be supported
- Adapter-mounted



Type - S

- Short design with DIN connection on the drive end
- Integrated rolling bearing arrangement
- For highest speeds
- For cardan shaft
- Adapter-mounted CV shaft
- Stay bolts for direct cardan shaft connection

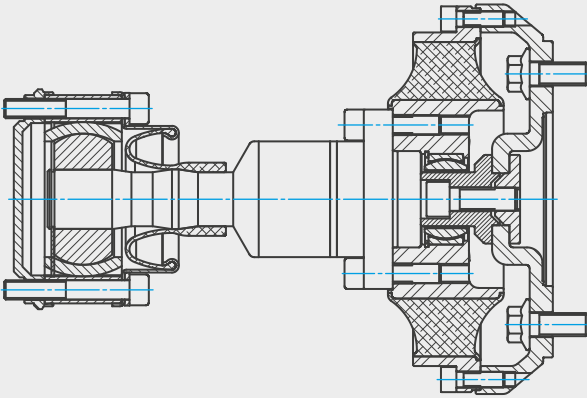


Type - B

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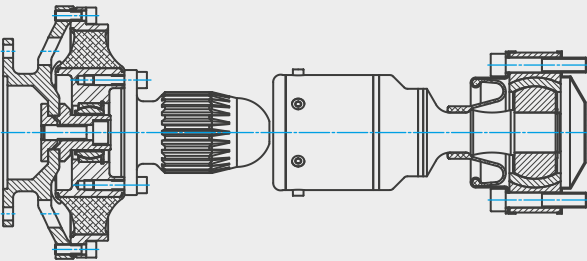
Special types

Compact shaft in extra short design



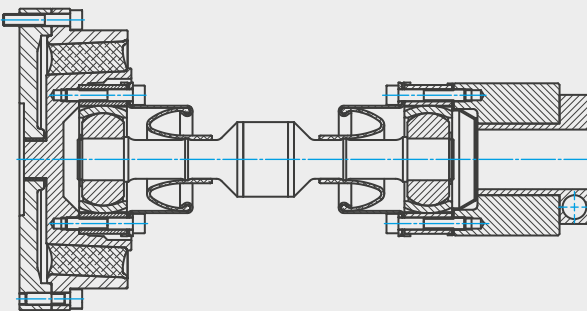
- Extremely short design
- Compact connecting flange
- Constant velocity shaft CV
- Minimum weight to be supported

Docking System Illustration with H-Flanges



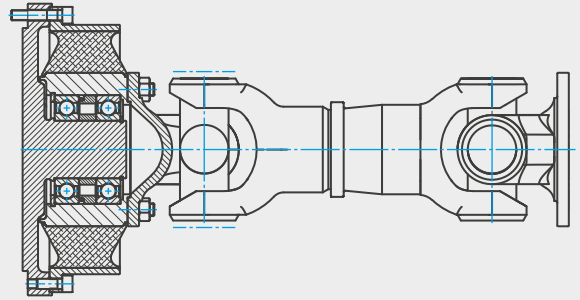
- Easy handling
- For multiple test cells
- Minimized rigging times
- Freely pluggable
- Combinable for different engines
- Short mounting length option
- Large telescopic length option

With CV shaft of extra short design



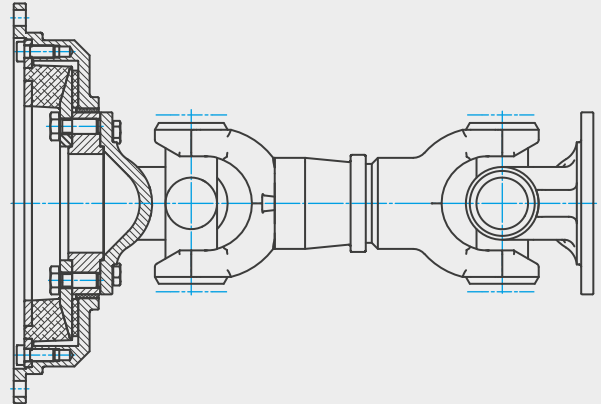
- Extremely short design
- CV shaft joint integrated in the coupling
- Constant velocity shaft CV
- Compact connecting flange
- Shaft connection with hydraulic clamping bush

- Increased speeds possible
- High speeds possible with CV shafts
- Increased displacements possible



With reinforced bearing

- U-joint coupling for cardan shaft
- Highly flexible rubber element
- Integral bearing
- Frictional damping
- Robust design



Type AC-VSK - Heavy-Duty

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Technical Layout

Design and Function

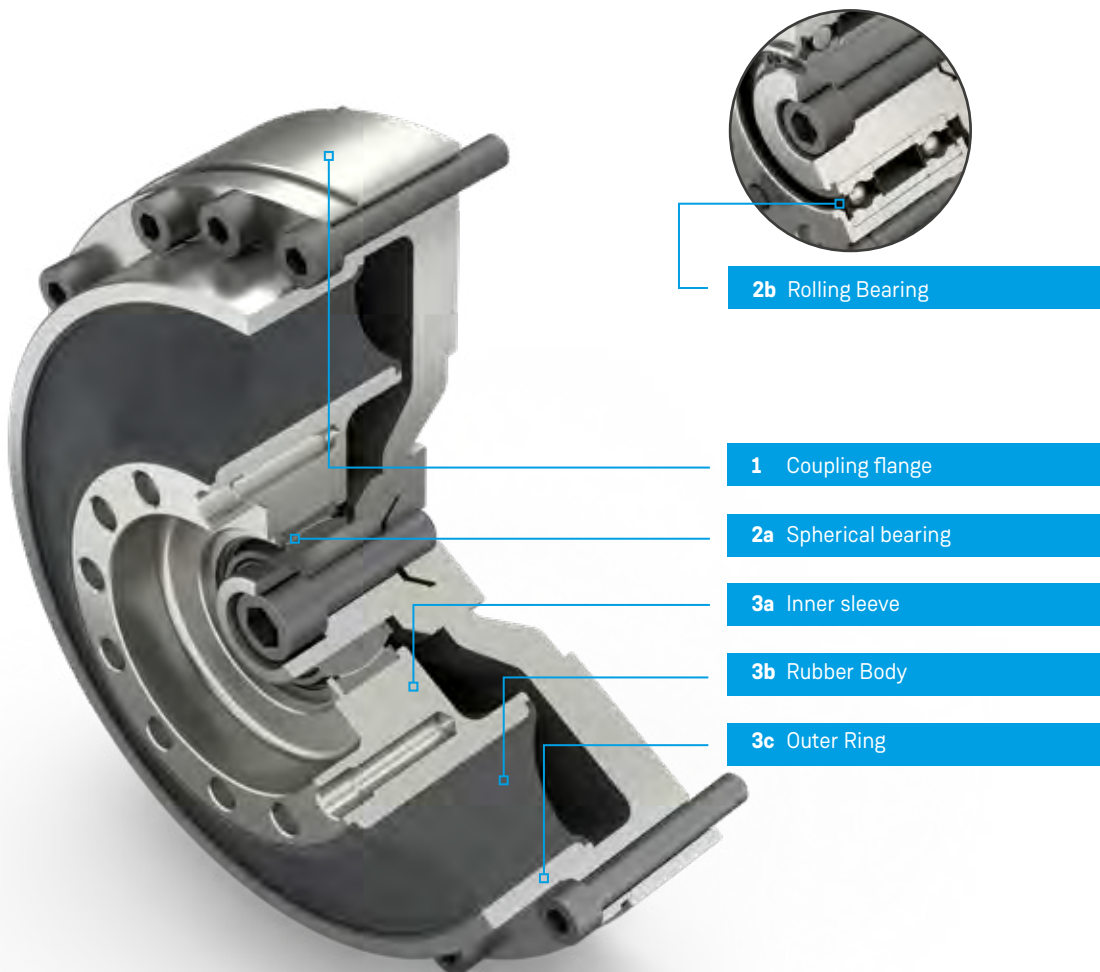
The highly flexible, torsionally optimized TOK couplings are specifically designed for use on test benches.

Radial and axial loads are supported by the bearing arrangement (2) towards the output end. Low-backlash spherical bearings (2a) center the ends relative to each other in a true running manner. Alternatively, the spherical bearings (TOK-S) can be replaced by an integrated rolling bearing (TOK-B) (2b). The highly flexible coupling element (3)

is designed as a rubber-metal bond between the inner sleeve (3a), the rubber element (3b) and the outer ring (3c). When torque acts on the drive end, the flexibility of the rubber element enables relative twisting against the output end. Torsional vibrations from the drive are thus efficiently de-coupled from the output end.

Besides the standard types customized special solutions can also be realized with the TOK Coupling System.

Layout and materials, TOK



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Materials



Materials Overview

Component	Designation	Material
1	Coupling flange, output end	High-strength aluminum
2	Bearing arrangement	-
2a	Spherical bearing	Steel (maintenance-free)
2b	Rolling Bearing	Composite material (maintenance-free)
3	Flexible element	-
3a	Inner sleeve	High-strength aluminum/steel
3b	Rubber body	Rubber according to general technical details
3c	Outer Ring	High-strength aluminum/steel

Technical Note

The technical data applies only to the complete coupling or the corresponding coupling elements. It is the customer's/user's responsibility to ensure there are no inadmissible loads acting on any of the components. In particular, existing connections, e.g. bolted connections, must be checked with regard to the torques to be transmitted. If necessary, further measures, such as additional reinforcement with pins, may be necessary. It is the customer's/user's responsibility to make sure the dimensioning of the shaft and keyed or other connection, e.g. shrinking or clamping connection, is correct.

All components that can rust are protected against corrosion as standard.

REICH have an extensive range of couplings and coupling systems to cover nearly every drive configuration. Customized solutions can be developed and manufactured even in small batches or as prototypes. In addition calculation programs are available for all necessary dimensioning.

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General Technical Data



Standard Design

Coupling	Nominal torque T_{KN}		Maximum torque T_{Kmax}		Continuous fatigue torque T_{KW} (10 Hz)		Dyn. torsional stiffness ^{1) 4)} $C_{T dyn}$		Permissible power loss ²⁾ P_{KV} (30 °) [W]	Maximum speed n_{max} [rpm]
	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm/rad]	[lb-in/rad]		
TOK 100 – 135 ⁴⁾	100	885	250	2213	60	531	135	1195	50	10000
TOK 250 – 280	250	2213	625	5523	80	708	280	2478	45	10000
TOK 350 – 600	350	3097	875	7744	135	1195	600	5310	60	10000
TOK 500 – 1050	500	4425	1250	11063	170	1505	1050	9293	60	10000
TOK 600 – 1150	600	5310	1500	13276	200	1770	1150	10178	70	10000
TOK 700 – 1500	700	6196	1750	15489	230	2036	1500	13276	70	10000
TOK 1000 – 2400	1000	8851	2500	22127	330	2921	2400	21242	90	10000
TOK 1600 – 4800	1600	14161	4000	35403	510	4514	4800	42484	100	8000
TOK 2200 – 5300	2200	19472	5500	48679	690	6107	5300	46909	180	6000
TOK 3400 – 11000	3400	30093	8500	75231	1000	8851	11000	97358	180	5000
TOK 5000 – 11500	5000	44254	12500	110634	1650	14604	11500	101784	450	5000
TOK 8000 – 24000 ⁴⁾	8000	70806	20000	177015	2500	22127	24000	212418	500	4000
TOK 18000 – 56000 ⁴⁾	18000	159313	45000	398284	5400	47794	56000	495642	1000	3500
TOK 35000 – 140000 ⁴⁾	35000	309776	87500	774440	8750	77444	140000	1239104	1000	3000
TOK 70000 – 360000 ⁴⁾	70000	619552	175000	1548881	22000	194716	360000	3186269	2500	1800

i 1) For versions with 2 rubber elements (series connection) the following applies $\frac{C_{T dyn}}{2}$

2) Permissible power loss up to 1 hour

3) Coupling dimensions and data on request

4) The stiffness may deviate by up to 20% due to manufacturing and material tolerances according to DIN 53505

Shore hardness Sh A and relative damping Ψ

Element version	Sh A	Ψ
HN	48	0.40

i Due to the physical properties of the rubber material, the measurable rubber hardness is subject to a variation that is defined as $\pm 5^\circ$ Shore A according to DIN 53505. However, this variation is minimized by our own rubber production.

Other version on request.

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Selection of the coupling size

In selecting the coupling size the following should be satisfied:

☒ The **nominal torque of the coupling** T_{KN} must be taken into account at every temperature and operating load of the coupling, while observing the service factors S (e.g. temperature factor S_t) shall be at least equal to the maximum nominal torque on the drive side T_{AN} ; the temperature in the immediate vicinity of the coupling must be taken into account.

$$T_{KN} \geq T_{AN} \cdot S_t \cdot S_B$$

☒ A safety factor of $S_M = 1.3$ should be applied if the coupling size is pre-selected based on the continuous engine power to be transmitted. For the layout, it is recommended to consider the nominal **engine drive torque** T_{AN} and the maximum coupling torque occurring in operation. The coupling size selection for test bench applications should be verified by a torsional vibration analysis which we will conduct on request. For compiling the details, please use the sheet 'Details for coupling selection and torsional vibration analysis' on the last page. For long test bench shafts, the bending critical speed may also have to be taken into account. Essentially it is the responsibility of the operator to comply with the safety regulations applicable to the specific use.

$$T_{AN} [\text{lb-in}] = 63,000 \frac{P [\text{HP}]}{n [\text{rpm}]} \cdot S_M$$

☒ The **temperature factor** S_t allows for the decreasing load capacity of the coupling when affected by elevated ambient temperatures in the vicinity of the coupling.

Temperature t	140 °F	158 °F	176 °F	>176 °F
	60 °C	70 °C	80 °C	>80 °C
S_t	1.25	1.4	1.6	on request

☒ A continuous torsional vibration analysis to verify the coupling selection should confirm that the permissible **continuous fatigue torque** T_{KW} is at least equal to the highest fatigue torque T_W under reversing stresses encountered throughout the operating speed range while taking into account the temperature and frequency.

$$T_{KW} (10 \text{ Hz}) \geq T_W \cdot S_f \cdot S_t$$

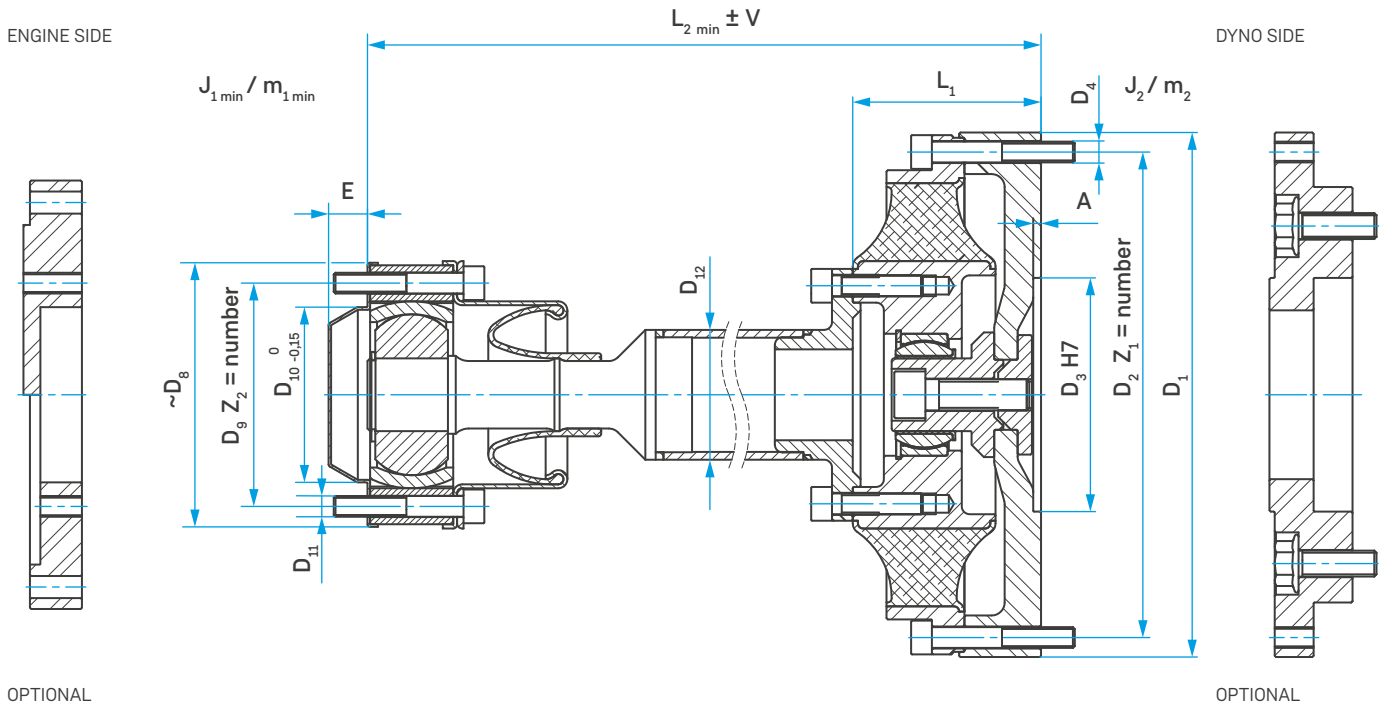
☒ The **frequency factor** S_f allows for the frequency dependence of the permissible continuous fatigue torque under reversing stresses $T_{KW} (10 \text{ Hz})$ with an operating frequency f_x .

$$S_f = \sqrt{\frac{f_x}{10}}$$

Take care not to continuously operate the system at the resonance frequency of the test bench to avoid damage to the coupling, the test objects and the test bench components.

TOK

Type - S - CV



i for adapter dimensions see page 34

METRIC DIMENSIONS

Coupling Dimensions, drive end and output end

Coupling size	CV											
	D ₈ [mm]	D ₉ [mm]	Z ₂	D ₁₁	D ₁₀ [mm]	E [mm]	D ₁ [mm]	D ₂ [mm]	Z ₁	D ₄	D ₃ [mm]	A [mm]
250-280	103	86.0	6	M8	67.5	15	182	170.0	12	M6	3.543	3
350-600	103	86.0	6	M8	67.5	15	168	156.0	12	M6	3.543	3
500-1050	103	86.0	6	M8	67.5	15	202	187.0	12	M8	3.543	3
600-1150	103	86.0	6	M8	67.5	15	202	187.0	12	M8	3.543	3
700-1500	103	86.0	6	M8	67.5	15	202	187.0	12	M8	3.543	3
1000-2400	111	94.0	6	M10	81.0	16	228	210.0	12	M8	3.543	3
1600-4800	131	108.0	6	M12	90.0	20	269	252.0	12	M8	3.543	3
2200-5300	131	108.0	6	M12	90.0	20	305	286.0	12	M8	3.543	3
3400-11000	150	128.0	6	M12	112.0	25	373	345.0	12	M12	3.543	3
5000-11500	188	155.5	6	M16	136.0	26	472	438.2	16	M12	5.512	3

Coupling details

Coupling size	L ₁ [mm]	L _{2 min} ¹⁾ [mm]	D ₁₂ [mm]	CV shaft joint size	V [mm]	J _{1 min} [kgm ²]	m _{1 min} [kg]	J ₂ [kgm ²]	m ₂ [kg]
250-280	71	277	50	CV13	11.0	0.0040	2.6	0.0100	3.8
350-600	64	231	50	CV13	11.0	0.0043	2.4	0.0070	3.4
500-1050	73	240	50	CV13	11.0	0.0060	2.4	0.0180	5.3
600-1150	78	245	50	CV13	11.0	0.0062	2.4	0.0180	5.3
700-1500	86	253	50	CV13	11.0	0.0065	2.5	0.0190	5.5
1000-2400	85	255	60	CV15	8.0	0.0120	3.2	0.0260	6.6
1600-4800	86	264	70	CV21	12.0	0.0260	5.1	0.0500	9.3
2200-5300	99	277	70	CV21	12.0	0.0370	5.2	0.0960	14.0
3400-11000	100	348	90	CV30	12.5	0.0920	8.4	0.2100	23.0
5000-11500	130	415	100	CV32	12.5	0.1800	13.0	0.6300	35.0

i 1) Alternative lengths on request

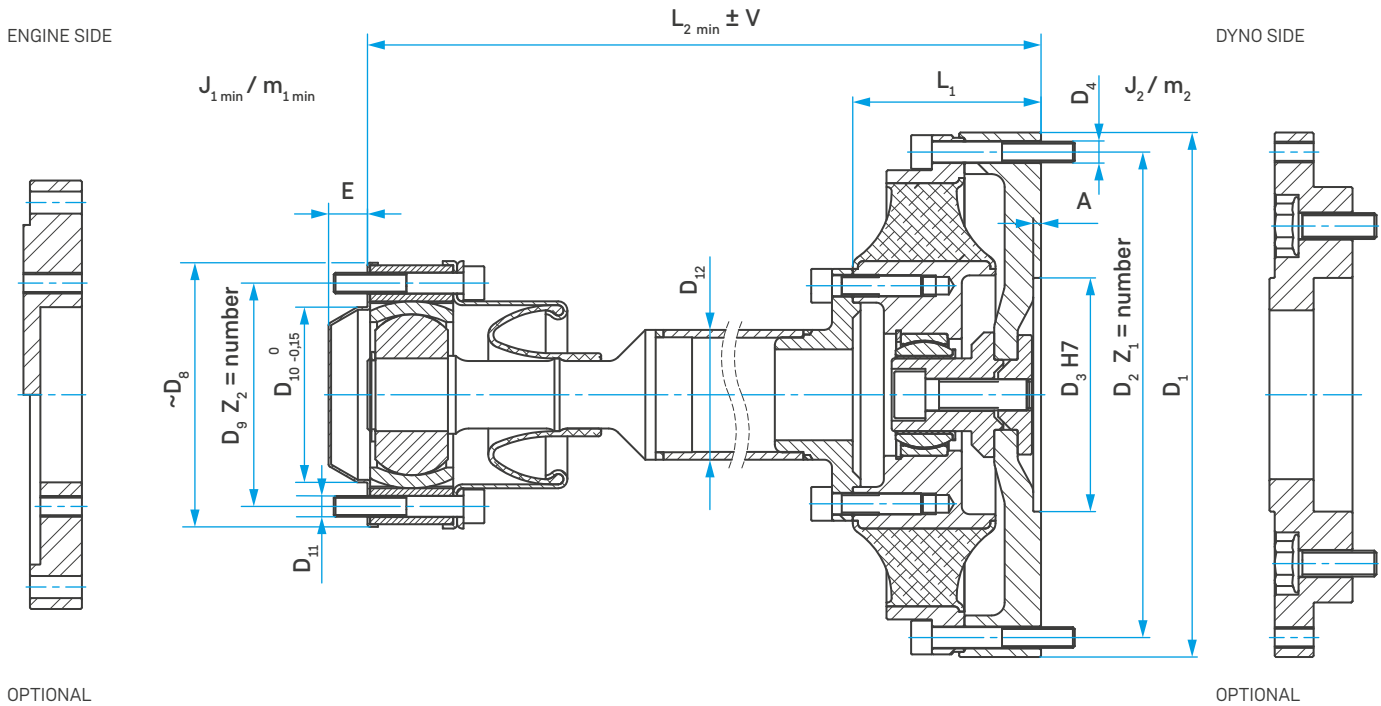
Ordering example

Coupling size	Dynamic torsional stiffness of the coupling	Bearing version (S = spherical bearing)	Size of the constant velocity shaft	Total length of the coupling without adapter (L ₂)
TOK600	- 1150 -	S -	CV13 -	245

Coupling designation: TOK600 - 1150 - S - CV13 - 245

TOK

Type - S - CV



i for adapter dimensions see page 34

INCH DIMENSIONS

Coupling Dimensions, drive end and output end

Coupling size	CV											
	D ₈ [in]	D ₉ [in]	Z ₂	D ₁₁	D ₁₀ [in]	E [in]	D ₁ [in]	D ₂ [in]	Z ₁	D ₄	D ₃ [in]	A [in]
250-280	4.06	3.39	6	M8	2.657	0.59	7.17	6.69	12	M6	3.543	0.12
350-600	4.06	3.39	6	M8	2.657	0.59	6.61	6.14	12	M6	3.543	0.12
500-1050	4.06	3.39	6	M8	2.657	0.59	7.95	7.36	12	M8	3.543	0.12
600-1150	4.06	3.39	6	M8	2.657	0.59	7.95	7.36	12	M8	3.543	0.12
700-1500	4.06	3.39	6	M8	2.657	0.59	7.95	7.36	12	M8	3.543	0.12
1000-2400	4.37	3.70	6	M10	3.189	0.63	8.98	8.27	12	M8	3.543	0.12
1600-4800	5.16	4.25	6	M12	3.543	0.79	10.59	9.92	12	M8	3.543	0.12
2200-5300	5.16	4.25	6	M12	3.543	0.79	12.01	11.26	12	M8	3.543	0.12
3400-11000	5.91	5.04	6	M12	4.409	0.98	14.69	13.58	12	M12	3.543	0.12
5000-11500	7.40	6.12	6	M16	5.354	1.02	18.58	17.25	16	M12	5.512	0.12

Coupling details

Coupling size	L ₁ [in]	L _{2 min} ¹⁾ [in]	D ₁₂ [in]	CV shaft joint size	V [in]	J _{1 min} [lb-in ²]	m _{1 min} [lb]	J ₂ [lb-in ²]	m ₂ [lb]
250-280	2.80	10.91	1.97	CV13	0.43	14	5.7	34	8.4
350-600	2.52	9.09	1.97	CV13	0.43	15	5.3	24	7.5
500-1050	2.87	9.45	1.97	CV13	0.43	21	5.3	61	11.7
600-1150	3.07	9.65	1.97	CV13	0.43	21	5.3	61	11.7
700-1500	3.39	9.96	1.97	CV13	0.43	22	5.5	65	12.1
1000-2400	3.35	10.04	2.36	CV15	0.31	41	7.1	89	14.6
1600-4800	3.39	10.39	2.76	CV21	0.47	89	11.3	171	20.5
2200-5300	3.90	10.91	2.76	CV21	0.47	126	11.5	328	30.9
3400-11000	3.94	13.70	3.54	CV30	0.49	314	18.5	718	50.8
5000-11500	5.12	16.34	3.94	CV32	0.49	615	28.7	2153	77.3

i 1) Alternative lengths on request

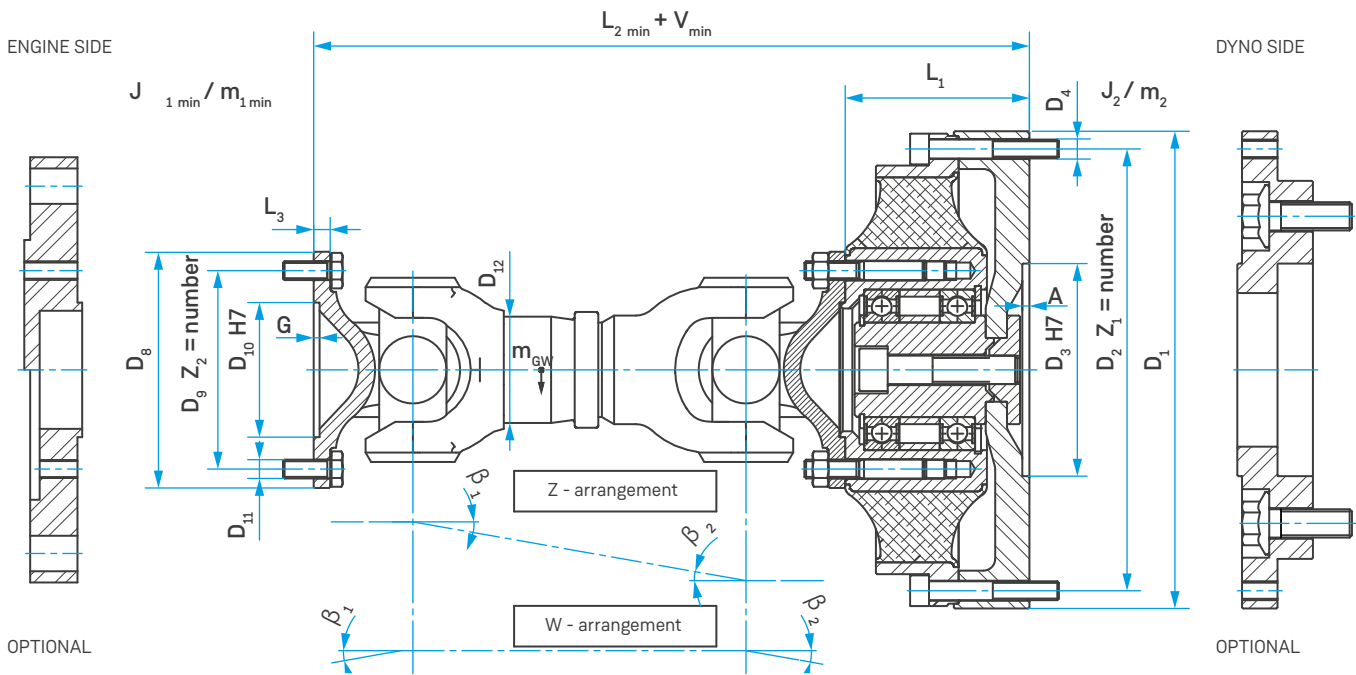
Ordering example

Coupling size	Dynamic torsional stiffness of the coupling	Bearing version (S = spherical bearing)	Size of the constant velocity shaft	Total length of the coupling without adapter (L ₂)
TOK600	- 1150 -	S -	CV13 -	245

Coupling designation: TOK600 - 1150 - S - CV13 - 245

TOK

Type - B - CS



i for adapter dimensions see page 34

METRIC DIMENSIONS

Coupling Dimensions, drive end and output end

Coupling size	DIN connection											
	D ₈ [mm]	D ₉ [mm]	Z ₂	D ₁₁	D ₁₀ [mm]	G [mm]	D ₁ [mm]	D ₂ [mm]	Z ₁	D ₄	D ₃ [mm]	A [mm]
250-280	100	84.0	6	M8	57	2.5	182	170.0	12	M6	90	3
350-600	90	74.5	4	M8	47	2.5	168	156.0	12	M6	90	3
500-1050	100	84.0	6	M8	57	2.5	202	187.0	12	M8	90	3
600-1150	100	84.0	6	M8	57	2.5	202	187.0	12	M8	90	3
700-1500	100	84.0	6	M8	57	2.5	202	187.0	12	M8	90	3
1000-2400	120	101.5	8	M10	75	2.5	228	210.0	12	M8	90	3
1600-4800	150	130.0	8	M12	90	3.0	269	252.0	12	M8	90	3
2200-5300	150	130.0	8	M12	90	3.0	305	286.0	12	M8	90	3
3400-11000	180	155.5	8	M16	110	3.6	373	345.0	12	M12	90	3
5000-11500	180	155.5	10	M16	110	3.6	472	438.2	16	M12	140	3

Coupling details

Coupling size	L ₁ [mm]	L _{2 min} ^{1) 2)} [mm]	L ₃ [mm]	D ₁₂ [mm]	V _{min} ²⁾ [mm]	J _{1 min} ²⁾ [kgm ²]	m ₁ ²⁾ [kg]	J ₂ [kgm ²]	m ₂ ²⁾ [kg]	n _{max} ³⁾ [min ⁻¹]
250-280	92	325	7	50	17	0.0053	2.0	0.0100	6.4	7000
350-600	64	297	6	50	17	0.0046	1.9	0.0070	5.5	7000
500-1050	73	336	7	50	22	0.0086	2.5	0.0180	8.5	7000
600-1150	78	341	7	50	22	0.0090	2.5	0.0190	8.8	7000
700-1500	86	349	7	50	22	0.0100	2.5	0.0190	9.6	7000
1000-2400	82	435	9	70	27	0.0260	5.6	0.0250	15.0	5500
1600-4800	86	454	10	80	32	0.0590	7.8	0.0510	22.0	4500
2200-5300	99	507	12	90	42	0.0980	10.0	0.0970	30.0	4000
3400-11000	100	578	14	110	47	0.2500	18.0	0.2100	51.0	2500
5000-11500	140	618	14	110	47	0.3800	18.0	0.7600	77.0	2300

i 1) Alternative lengths/telescopic lengths on request

2) Shortest mounting length which can be pushed together by at least another 8 mm

3) The maximum speed exclusively applies to the design as shown. For the speed reduction for other cardan shafts. see page 34. Alignment $\beta_1 = \beta_2 \leq 1^\circ$.

Cardan shaft with a balance quality of G 6.3 according to DIN ISO 21940

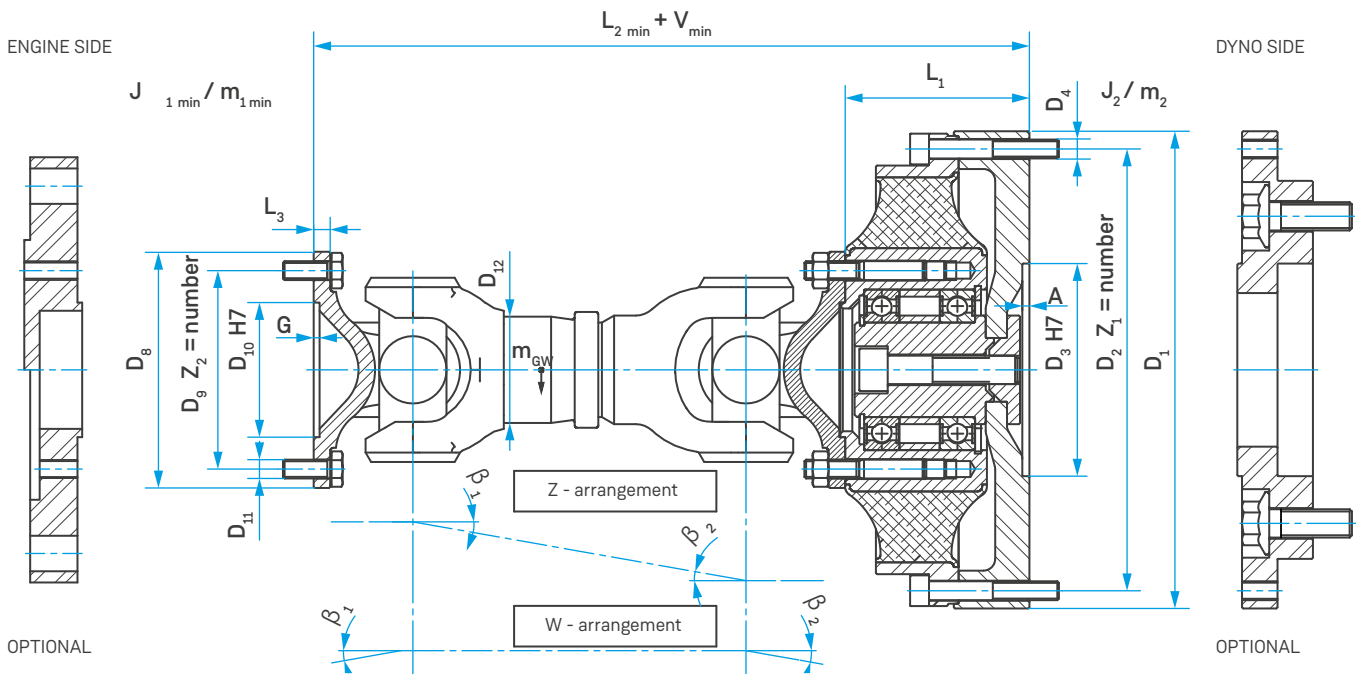
Ordering example

Coupling size	Dynamic torsional stiffness of the coupling	Bearing version (B = rolling bearing)	DIN connection of the cardan shaft	Total length of the coupling without adapter (L ₂)	Telescopic length of the coupling
TOK600	- 1150 -	B -	CS100 -	341 -	V22

Coupling designation: TOK600 - 1150 - B - CS100 - 341 - V22

TOK

Type - B - CS



i for adapter dimensions see page 34

INCH DIMENSIONS

Coupling Dimensions, drive end and output end

Coupling size	DIN connection											
	D ₈ [in]	D ₉ [in]	Z ₂	D ₁₁	D ₁₀ [in]	G [in]	D ₁ [in]	D ₂ [in]	Z ₁	D ₄	D ₃ [in]	A [in]
250-280	3.94	3.31	6	M8	2,244	0.10	7.17	6.69	12	M6	3,543	0.12
350-600	3.54	2.93	4	M8	1,850	0.10	6.61	6.14	12	M6	3,543	0.12
500-1050	3.94	3.31	6	M8	2,244	0.10	7.95	7.36	12	M8	3,543	0.12
600-1150	3.94	3.31	6	M8	2,244	0.10	7.95	7.36	12	M8	3,543	0.12
700-1500	3.94	3.31	6	M8	2,244	0.10	7.95	7.36	12	M8	3,543	0.12
1000-2400	4.72	4.00	8	M10	2,953	0.10	8.98	8.27	12	M8	3,543	0.12
1600-4800	5.91	5.12	8	M12	3,543	0.12	10.59	9.92	12	M8	3,543	0.12
2200-5300	5.91	5.12	8	M12	3,543	0.12	12.01	11.26	12	M8	3,543	0.12
3400-11000	7.09	6.12	8	M16	4,331	0.14	14.69	14.37	12	M12	3,543	0.12
5000-11500	7.09	6.12	10	M16	4,331	0.14	18.58	17.25	16	M12	5,512	0.12

Coupling details

Coupling size	L ₁ [in]	L _{2 min} ^{1) 2)} [in]	L ₃ [in]	D ₁₂ [in]	V _{min} ²⁾ [in]	J _{1 min} ²⁾ [lb-in ²]	m ₁ ²⁾ [lb]	J ₂ [lb-in ²]	m ₂ ²⁾ [lb]	n _{max} ³⁾ [rpm]
250-280	3.62	12.80	0.28	1.97	0.67	18	4.4	34	14.1	7000
350-600	2.52	11.69	0.24	1.97	0.67	16	4.2	24	12.1	7000
500-1050	2.87	13.23	0.28	1.97	0.87	29	5.5	62	18.8	7000
600-1150	3.07	13.43	0.28	1.97	0.87	31	5.5	65	19.4	7000
700-1500	3.39	13.74	0.28	1.97	0.87	34	5.5	65	21.2	7000
1000-2400	3.23	17.13	0.35	2.76	1.06	89	12.4	85	33.1	5500
1600-4800	3.39	17.87	0.39	3.15	1.26	202	17.2	174	48.6	4500
2200-5300	3.90	19.96	0.47	3.54	1.65	335	22.1	331	66.2	4000
3400-11000	3.94	22.76	0.55	4.33	1.85	854	39.7	718	112.6	2500
5000-11500	5.51	24.33	0.55	4.33	1.85	1299	39.7	2597	169.9	2300

i 1) Alternative lengths/telescopic lengths on request

2) Shortest mounting length which can be pushed together by at least another 0.31 in

3) The maximum speed exclusively applies to the design as shown. For the speed reduction for other cardan shafts. see page 34. Alignment $\beta_1 = \beta_2 \leq 1^\circ$.

Cardan shaft with a balance quality of G 6.3 according to DIN ISO 21940

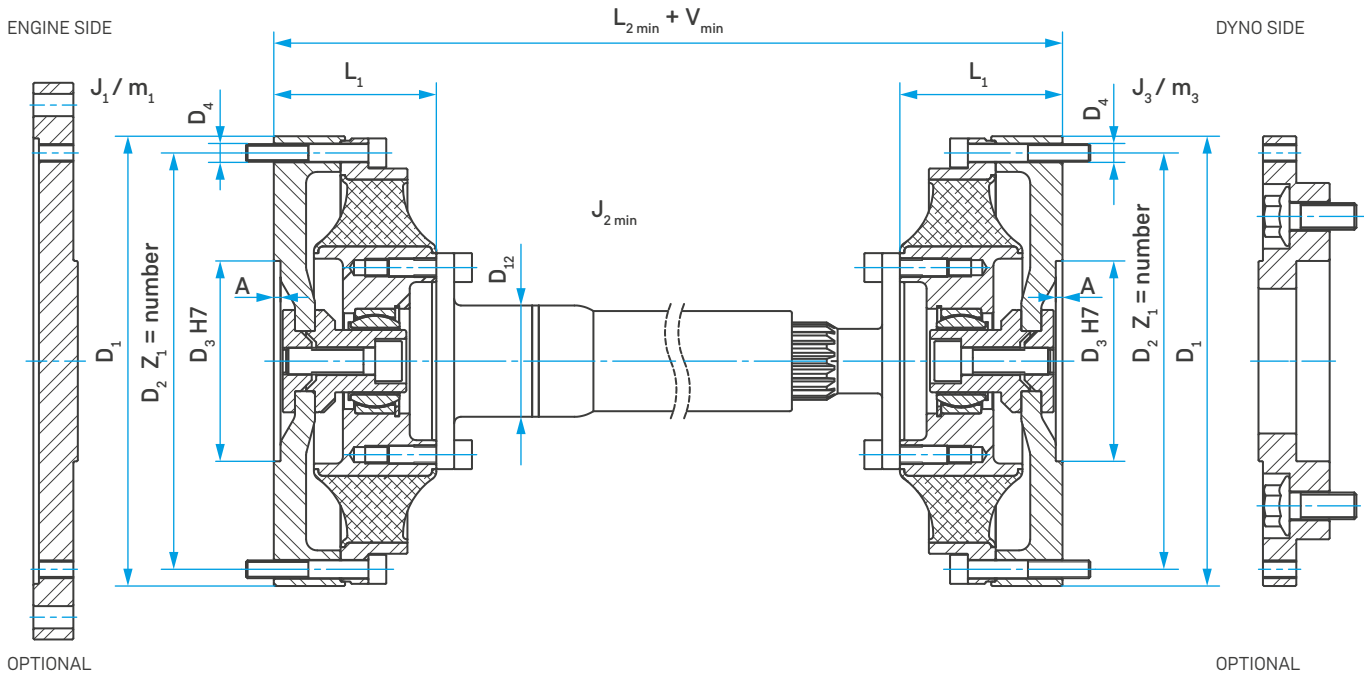
Ordering example

Coupling size	Dynamic torsional stiffness of the coupling	Bearing version (B = rolling bearing)	DIN connection of the cardan shaft	Total length of the coupling without adapter (L ₂)	Telescopic length of the coupling
TOK600	- 1150 -	B -	CS100 -	341 -	V22

Coupling designation: TOK600 - 1150 - B - CS100 - 341 - V22

TOK

Type - S - I



i for adapter dimensions see page 34

METRIC DIMENSIONS

Coupling Dimensions, drive end and output end

Coupling size	D ₁ [mm]	D ₂ [mm]	Z ₁	D ₄	D ₃ [mm]	A [mm]
250-140	182	170.0	12	M6	90	3
350-300	168	156.0	12	M6	90	3
500-525	202	187.0	12	M8	90	3
600-575	202	187.0	12	M8	90	3
700-750	202	187.0	12	M8	90	3
1000-1200	228	210.0	12	M8	90	3
1600-2400	269	252.0	12	M8	90	3
2200-2650	305	286.0	12	M8	90	3
3400-5500	373	345.0	12	M12	90	3
5000-5750	472	438.2	16	M12	140	3

Coupling details

Coupling size	L ₁ [mm]	L _{2 min} ^{1) 2)} [mm]	D ₁₂ [mm]	V _{min} ¹⁾ [mm]	J ₁ [kgm ²]	m ₁ ²⁾ [kg]	J _{2 min} ²⁾ [kgm ²]	J ₃ [kgm ²]	m ₃ ²⁾ [kg]
250-140	71	320	40	32	0.0100	3.6	0.0020	0.0100	3.7
350-300	64	328	40	32	0.0070	3.4	0.0028	0.0070	3.6
500-525	73	374	50	32	0.0180	5.5	0.0065	0.0180	5.8
600-575	78	384	50	32	0.0180	5.5	0.0069	0.0180	6.0
700-750	86	400	50	32	0.0190	6.0	0.0076	0.0190	6.3
1000-1200	85	448	70	32	0.0260	7.9	0.0160	0.0260	8.9
1600-2400	86	450	80	32	0.0500	11.0	0.0340	0.0500	12.0
2200-2650	99	596	90	32	0.0960	17.0	0.0610	0.0960	19.0
3400-5500	100	558	100	32	0.2100	25.0	0.1500	0.2100	27.0
5000-5750	130	618	110	32	0.6300	39.0	0.2700	0.6300	42.0

i 1) Alternative lengths/telescopic lengths on request

2) Shortest mounting length

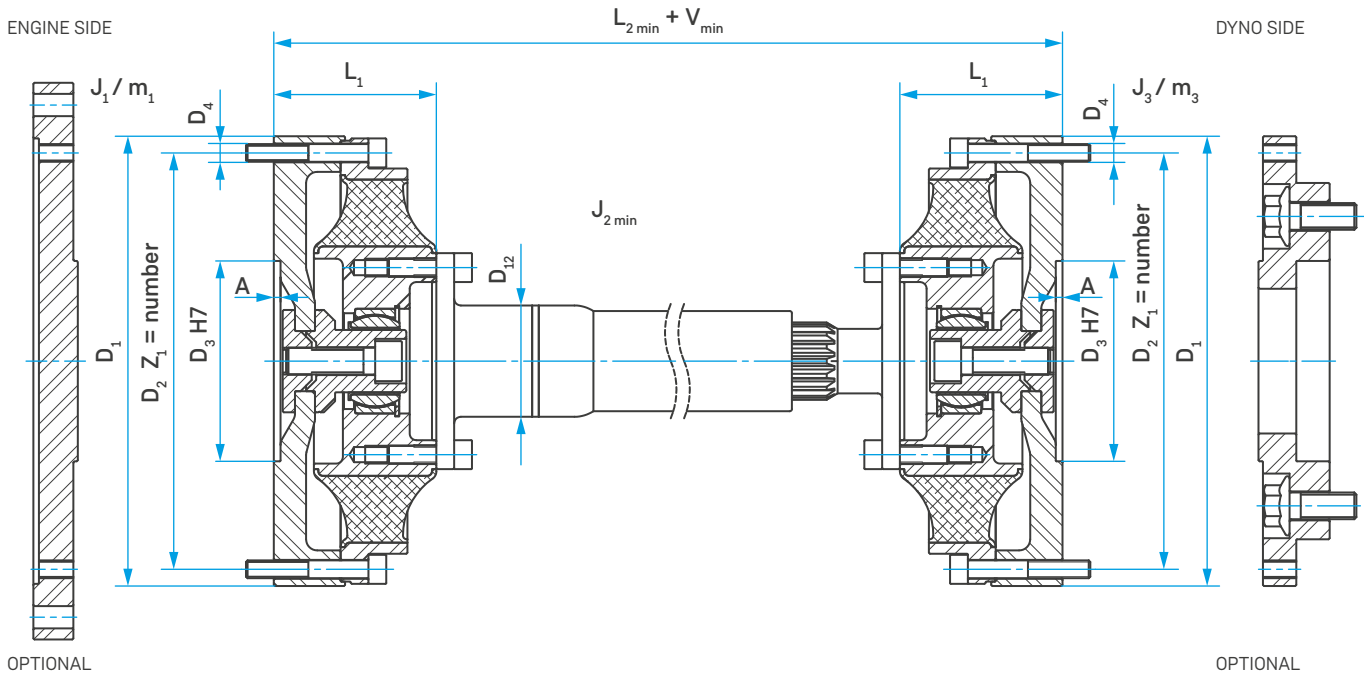
Ordering example

Coupling size	Dynamic torsional stiffness of the coupling	Bearing version (S = spherical bearing)	Telescopic shaft as spacer	Total length of the coupling without adapter (L ₂)	Telescopic length of the coupling
TOK600	- 575 -	S -	I -	384 -	V32

Coupling designation: TOK600 - 575 - S - I - 384 - V32

TOK

Type - S - I



i for adapter dimensions see page 34

INCH DIMENSIONS

Coupling Dimensions, drive end and output end

Coupling size	D ₁ [in]	D ₂ [in]	Z ₁	D ₄	D ₃ [in]	A [in]
250-140	7.17	6.69	12	M6	3.543	0.12
350-300	6.61	6.14	12	M6	3.543	0.12
500-525	7.95	7.36	12	M8	3.543	0.12
600-575	7.95	7.36	12	M8	3.543	0.12
700-750	7.95	7.36	12	M8	3.543	0.12
1000-1200	8.98	8.27	12	M8	3.543	0.12
1600-2400	10.59	9.92	12	M8	3.543	0.12
2200-2650	12.01	11.26	12	M8	3.543	0.12
3400-5500	14.69	13.58	12	M12	3.543	0.12
5000-5750	18.58	17.25	16	M12	5.512	0.12

Coupling details

Coupling size	L ₁ [in]	L _{2 min} ^{1) 2)} [in]	D ₁₂ [in]	V _{min} ¹⁾ [in]	J ₁ [lb-in ²]	m ₁ ²⁾ [lb]	J _{2 min} ²⁾ [lb-in ²]	J ₃ [lb-in ²]	m ₃ ²⁾ [lb]
250-140	2.80	12.60	1.57	1.26	34	8.0	7	34	8.2
350-300	2.52	12.91	1.57	1.26	24	7.5	10	24	8.0
500-525	2.87	14.72	1.97	1.26	62	12.1	22	62	12.8
600-575	3.07	15.12	1.97	1.26	62	12.1	24	62	13.2
700-750	3.39	15.75	1.97	1.26	65	13.2	26	65	13.9
1000-1200	3.35	17.64	2.76	1.26	89	17.4	55	89	19.6
1600-2400	3.39	17.72	3.15	1.26	171	24.3	116	171	26.5
2200-2650	3.90	23.46	3.54	1.26	328	37.5	208	328	42.0
3400-5500	3.94	21.97	3.94	1.26	718	55.2	513	718	59.6
5000-5750	5.12	24.33	4.33	1.26	2153	86.1	923	2153	92.7

i 1) Alternative lengths/telescopic lengths on request

2) Shortest mounting length

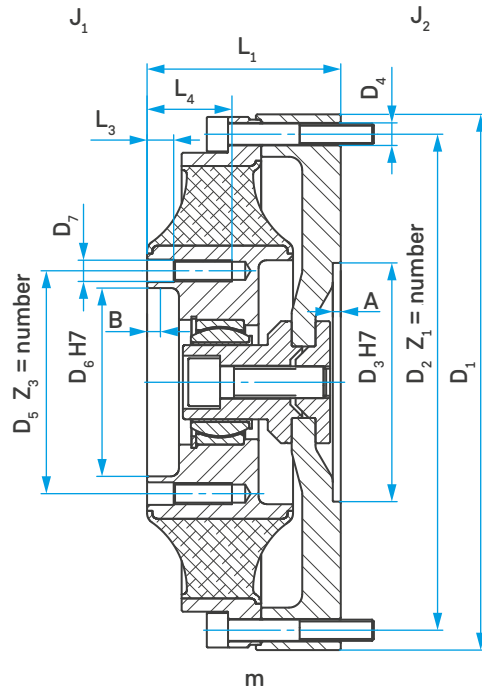
Ordering example

Coupling size	Dynamic torsional stiffness of the coupling	Bearing version (S = spherical bearing)	Telescopic shaft as spacer	Total length of the coupling without adapter (L ₂)	Telescopic length of the coupling
TOK600	- 575 -	S -	I -	384 -	V32

Coupling designation: TOK600 - 575 - S - I - 384 - V32

TOK

Type - S



METRIC DIMENSIONS

Coupling Dimensions, drive end and output end

Coupling size	D ₅ [mm]	Z ₃	D ₇	D ₆ [mm]	D ₁ [mm]	D ₂ [mm]	Z ₁	D ₄	D ₃ [mm]
250-280	56.0	12	M6	43	182	170.0	12	M6	90
350-600	66.0	8	M8	53	168	156.0	12	M6	90
500-1050	84.0	12	M8	71	202	187.0	12	M8	90
600-1150	84.0	12	M8	71	202	187.0	12	M8	90
700-1500	84.0	12	M8	71	202	187.0	12	M8	90
1000-2400	101.5	12	M10	75	228	210.0	12	M8	90
1600-4800	108.0	12	M12	85	269	252.0	12	M8	90
2200-5300	130.0	12	M12	104	305	286.0	12	M8	90
3400-11000	155.5	10	M16	110	373	345.0	12	M12	90
5000-11500	155.5	14	M16	110	472	438.2	16	M12	140

Coupling details

Coupling size	L ₁ [mm]	L ₃ [mm]	L ₄ [mm]	A [mm]	B _{min} [mm]	J ₁ [kgm ²]	J ₂ [kgm ²]	m [kg]
250-280	71	9	23	3	5	0.0007	0.0100	2.8
350-600	64	10	26	3	5	0.0010	0.0073	2.6
500-1050	73	10	32	3	5	0.0021	0.0180	4.1
600-1150	78	10	32	3	5	0.0022	0.0180	4.2
700-1500	86	12	32	3	5	0.0025	0.0190	4.5
1000-2400	85	12	30	3	5	0.0042	0.0270	5.0
1600-4800	86	16	34	3	5	0.0120	0.0500	7.0
2200-5300	99	16	34	3	5	0.0200	0.0970	11.0
3400-11000	100	20	44	3	5	0.0530	0.2100	17.0
5000-11500	130	30	50	3	5	0.1000	0.6300	29.0

Ordering example

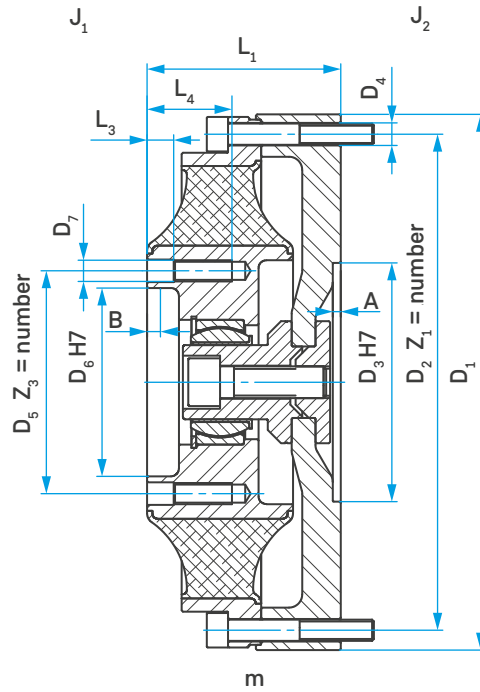
Coupling size	Dynamic torsional	Bearing version
Nominal torque of the coupling	stiffness of the coupling	(S = spherical bearing)

TOK600	- 1150 -	S
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Coupling designation: TOK600 - 1150 - S

TOK

Type - S



INCH DIMENSIONS

Coupling Dimensions, drive end and output end

Coupling size	D ₅ [in]	Z ₃	D ₇	D ₆ [in]	D ₁ [in]	D ₂ [in]	Z ₁	D ₄	D ₃ [in]
250-280	2.20	12	M6	1.693	7.17	6.69	12	M6	3.543
350-600	2.60	8	M8	2.087	6.61	6.14	12	M6	3.543
500-1050	3.31	12	M8	2.795	7.95	7.36	12	M8	3.543
600-1150	3.31	12	M8	2.795	7.95	7.36	12	M8	3.543
700-1500	3.31	12	M8	2.795	7.95	7.36	12	M8	3.543
1000-2400	4.00	12	M10	2.953	8.98	8.27	12	M8	3.543
1600-4800	4.25	12	M12	3.346	10.59	9.92	12	M8	3.543
2200-5300	5.12	12	M12	4.094	12.01	11.26	12	M8	3.543
3400-11000	6.12	10	M16	4.331	14.69	13.58	12	M12	3.543
5000-11500	6.12	14	M16	4.331	18.58	17.25	16	M12	5.512

Coupling details

Coupling size	L ₁ [in]	L ₃ [in]	L ₄ [in]	A [in]	B _{min} [in]	J ₁ [lb-in ²]	J ₂ [lb-in ²]	m [lb]
250-280	2.80	0.35	0.91	0.12	0.20	2	34	6.2
350-600	2.52	0.39	1.02	0.12	0.20	3	25	5.7
500-1050	2.87	0.39	1.26	0.12	0.20	7	62	9.1
600-1150	3.07	0.39	1.26	0.12	0.20	8	62	9.3
700-1500	3.39	0.47	1.26	0.12	0.20	9	65	9.9
1000-2400	3.35	0.47	1.18	0.12	0.20	14	92	11.0
1600-4800	3.39	0.63	1.34	0.12	0.20	41	171	15.5
2200-5300	3.90	0.63	1.34	0.12	0.20	68	331	24.3
3400-11000	3.94	0.79	1.73	0.12	0.20	181	718	37.5
5000-11500	5.12	1.18	1.97	0.12	0.20	342	2153	64.0

Ordering example

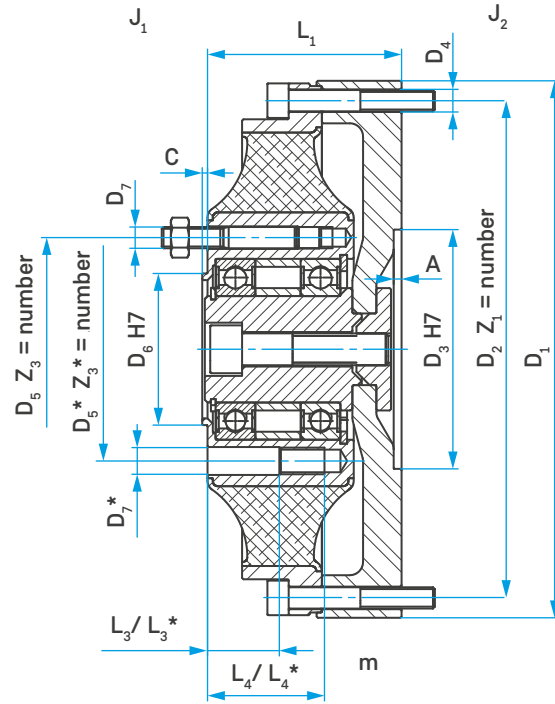
Coupling size	Dynamic torsional	Bearing version
Nominal torque of the coupling	stiffness of the coupling	(S = spherical bearing)

TOK600	- 1150 -	S
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Coupling designation: TOK600 - 1150 - S

TOK

Type - B



METRIC DIMENSIONS

Coupling Dimensions. drive end and output end

Coupling size	D ₅ [mm]	D ₅ [*] [mm]	Z ₃	Z ₃ [*]	D ₇	D ₇ [*]	D ₆ [mm]	D ₁ [mm]	D ₂ [mm]	Z ₁	D ₄	D ₃ [mm]
250-280	84.0	-	6	-	M8	-	57	182	170.0	12	M6	90
350-600	74.5	74.5	4	4	M8	M8	47	168	156.0	12	M6	90
500-1050	84.0	84.0	6	6	M8	M10	57	202	187.0	12	M8	90
600-1150	84.0	84.0	6	6	M8	M10	57	202	187.0	12	M8	90
700-1500	84.0	84.0	6	6	M8	M10	57	202	187.0	12	M8	90
1000-2400	101.5	-	8	-	M10	-	75	228	210.0	12	M8	90
1600-4800	130.0	-	8	-	M12	-	90	269	252.0	12	M8	90
2200-5300	130.0	130.0	8	8	M12	M14	90	305	286.0	12	M8	90
3400-11000	155.5	-	8	-	M16	-	110	373	345.0	12	M12	90
5000-11500	155.5	-	10	-	M16	-	110	472	438.2	16	M12	140

i For the permissible speeds and attached weights see page 34

Coupling details

Coupling size	L ₁ [mm]	L ₃ [mm]	L ₃ [*] [mm]	L ₄ [mm]	L ₄ [*] [mm]	A [mm]	C [mm]	J ₁ [kgm ²]	J ₂ [kgm ²]	m [kg]
250-280	92	9.0	-	23	-	3	2.0	0.0024	0.0100	4.4
350-600	64	35.0	35.0	47	47	3	2.0	0.0022	0.0070	3.6
500-1050	73	33.9	30.3	47	55	3	2.0	0.0044	0.0180	5.8
600-1150	78	33.9	30.3	47	48	3	2.0	0.0048	0.0190	6.1
700-1500	86	33.9	30.3	47	48	3	2.0	0.0060	0.0190	6.9
1000-2400	82	30.3	-	48	-	3	2.0	0.0110	0.0250	8.7
1600-4800	86	37.4	-	56	-	3	2.5	0.0320	0.0510	14.0
2200-5300	99	35.3	33.5	58	58	3	2.5	0.0590	0.0970	20.0
3400-11000	100	39.9	-	66	-	3	3.0	0.1500	0.2100	32.0
5000-11500	140	39.9	-	65	-	3	3.0	0.2800	0.7600	58.0

Ordering example

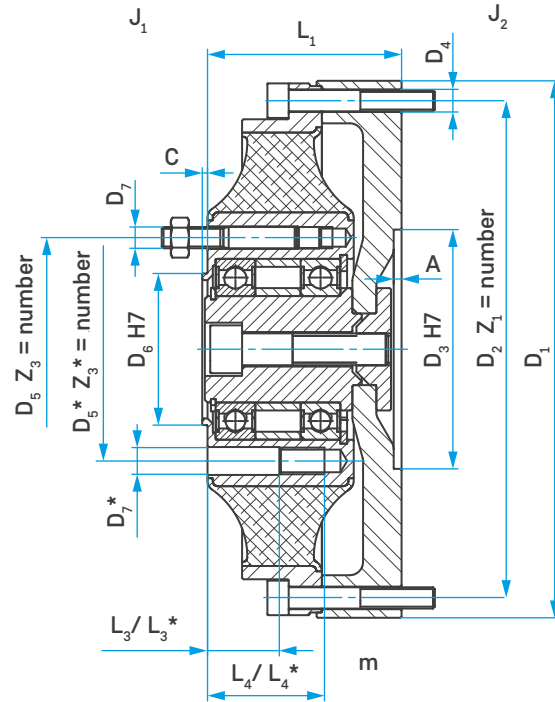
Coupling size	Dynamic torsional	Bearing version
Nominal torque of the coupling	stiffness of the coupling	(S = spherical bearing)

TOK600	- 1150 -	B
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Coupling designation: TOK600 - 1150 - B

TOK

Type - B



INCH DIMENSIONS

Coupling Dimensions, drive end and output end

Coupling size	D ₅ [in]	D ₅ [*] [in]	Z ₃	Z ₃ [*]	D ₇	D ₇ [*]	D ₆ [in]	D ₁ [in]	D ₂ [in]	Z ₁	D ₄	D ₃ [in]
250-280	3.31	-	6	-	M8	-	2.244	7.17	6.69	12	M6	3.543
350-600	2.93	2.93	4	4	M8	M8	1.850	6.61	6.14	12	M6	3.543
500-1050	3.31	3.31	6	6	M8	M10	2.244	7.95	7.36	12	M8	3.543
600-1150	3.31	3.31	6	6	M8	M10	2.244	7.95	7.36	12	M8	3.543
700-1500	3.31	3.31	6	6	M8	M10	2.244	7.95	7.36	12	M8	3.543
1000-2400	4.00	-	8	-	M10	-	2.953	8.98	8.27	12	M8	3.543
1600-4800	5.12	-	8	-	M12	-	3.543	10.59	9.92	12	M8	3.543
2200-5300	5.12	5.12	8	8	M12	M14	3.543	12.01	11.26	12	M8	3.543
3400-11000	6.12	-	8	-	M16	-	4.331	14.69	13.58	12	M12	3.543
5000-11500	6.12	-	10	-	M16	-	4.331	18.58	17.25	16	M12	5.512

i For the permissible speeds and attached weights see page 35

Coupling details

Coupling size	L ₁ [in]	L ₃ [in]	L ₃ [*] [in]	L ₄ [in]	L ₄ [*] [in]	A [in]	C [in]	J ₁ [lb-in ²]	J ₂ [lb-in ²]	m [lb]
250-280	3.62	0.35	-	0.91	-	0.12	0.08	8	34	9.7
350-600	2.52	1.38	1.38	1.85	1.85	0.12	0.08	8	24	8.0
500-1050	2.87	1.33	1.19	1.85	2.17	0.12	0.08	15	62	12.8
600-1150	3.07	1.33	1.19	1.85	1.89	0.12	0.08	16	65	13.5
700-1500	3.39	1.33	1.19	1.85	1.89	0.12	0.08	21	65	15.2
1000-2400	3.23	1.19	1.19	1.89	-	0.12	0.08	38	85	19.2
1600-4800	3.39	1.37	-	2.20	-	0.12	0.10	109	174	30.9
2200-5300	3.90	1.39	-	2.28	2.28	0.12	0.10	202	331	44.1
3400-11000	3.94	1.57	1.32	2.60	-	0.12	0.12	513	718	70.6
5000-11500	5.51	1.57	-	2.56	-	0.12	0.12	957	2597	128.0

Ordering example

Coupling size	Dynamic torsional	Bearing version
Nominal torque of the coupling	stiffness of the coupling	(S = spherical bearing)

TOK600	- 1150 -	B
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Coupling designation: TOK600 - 1150 - B

TOK

Adapter dimension tables

Optional DIN standard adapters, output end

Coupling size	Adapter connections Output end			Adapter connections Output end			Adapter connections Output end		
	DIN	J_4 [kgm ²]	m_4 [kg]	DIN	J_4 [kgm ²]	m_4 [kg]	DIN	J_4 [kgm ²]	m_4 [kg]
250-280	90	0.0048	1.3	100	0.0050	1.4	120	0.0055	1.5
350-600	90	0.0036	1.0	100	0.0037	1.0	120	0.0038	1.0
500-1050/ 600-1150/ 700-1500	100	0.0073	1.6	120	0.0078	1.7	150	0.0091	1.8
1000-2400	120	0.0110	1.8	150	0.0120	1.9	180	0.0140	2.0
1600-4800	120	0.0220	2.4	150	0.0220	2.4	180	0.0260	3.2
2200-5300	120	0.0360	3.4	150	0.0380	3.6	180	0.0400	3.8
3400-11000	150	0.1310	7.4	180	0.1310	7.4	225	0.1360	7.8
5000-11500	180	0.3400	12.1	225	0.3420	11.9	250	0.3470	12.4



Ordering example

Dynamometer side DIN120

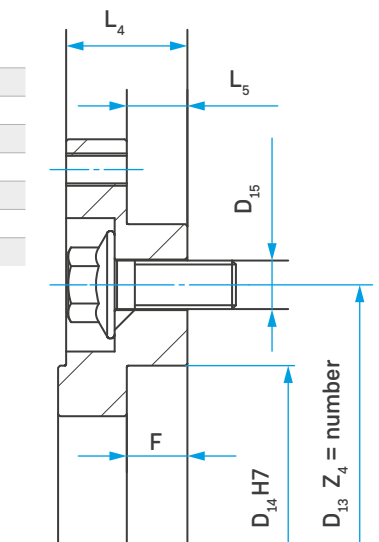
D 120

Adapter designation: TOK350 - D - 120

DIN adapter dimensions, output end

Size DIN	D_{13} [mm]	Z_4	D_{15}	D_{14} [mm]	$L_4^{1)}$ [mm]	L_5 [mm]	F_{min} [mm]
90	74.5	4	M8	47	30	15	3.0
100	84.0	6	M8	57	30	15	3.0
120	101.5	8	M10	75	30	15	3.0
150	130.0	8	M12	90	30	15	3.5
180	155.5	8	M14	110	30	15	4.5
225	196.0	8	M16	140	30	15	5.5
250	218.0	8	M18	140	30	15	6.5

ⁱ 1) If necessary different for TOK3400 and TOK5000

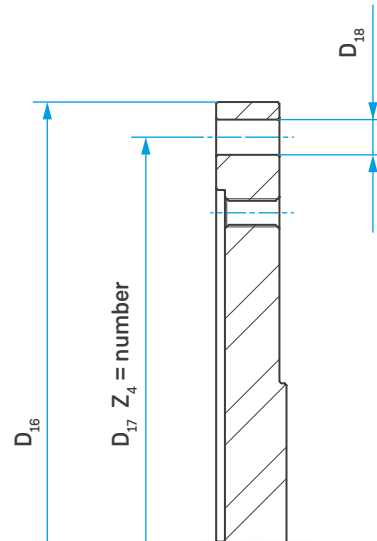


METRIC DIMENSIONS

Flywheel adapter SAE J 620, drive side

Engine flywheel SAE J 620

Size	D_{16} [mm]	D_{17} [mm]	D_{18} [mm]	Z_4
8	263.5	244.5	10	6
10	314.3	295.3	10	8
11.5	352.4	333.4	10	8
14	466.7	438.2	12	8
18	571.5	542.9	16	6



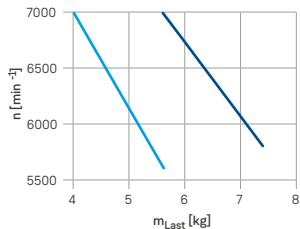
Ordering example

Nominal torque of the engine side SAE8
coupling

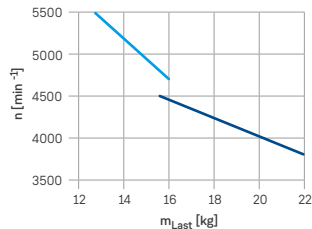
TOK1000 - E - 8

Adapter designation: TOK1000 - E - 8

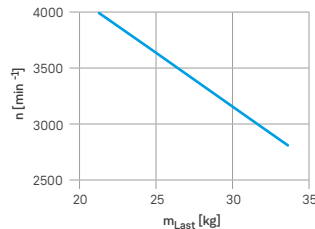
Dependence of speed on weight load



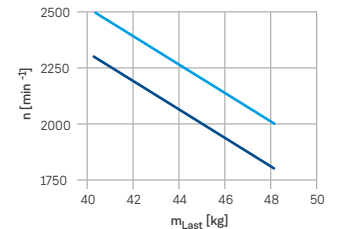
TOK250 TOK500
TOK350 TOK600
TOK700



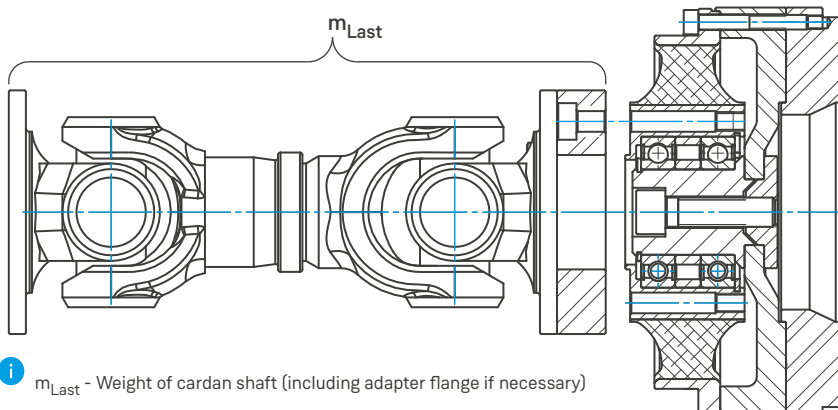
TOK1000 TOK1600



TOK2200



TOK3400 TOK5000



i m_{Last} - Weight of cardan shaft (including adapter flange if necessary)

TOK

Adapter dimension tables

Optional DIN standard adapters, output end

Coupling size	Adapter connections Output end			Adapter connections Output end			Adapter connections Output end		
	DIN	J ₄ [lb-in ²]	m ₄ [lb]	DIN	J ₄ [lb-in ²]	m ₄ [in]	DIN	J ₄ [lb-in ²]	m ₄ [lb]
250-280	90	16	2.9	100	17	3.1	120	19	3.3
350-600	90	12	2.2	100	13	2.2	120	13	2.2
500-1050/ 600-1150/ 700-1500	100	25	3.5	120	27	3.8	150	31	4.0
1000-2400	120	38	4.0	150	41	4.2	180	48	4.4
1600-4800	120	75	5.3	150	75	5.3	180	89	7.1
2200-5300	120	123	7.5	150	130	8.0	180	137	8.4
3400-11000	150	448	16.3	180	448	16.3	225	465	17.2
5000-11500	180	1162	26.7	225	1169	26.3	250	1186	27.4



Ordering example

Dynamometer side DIN120

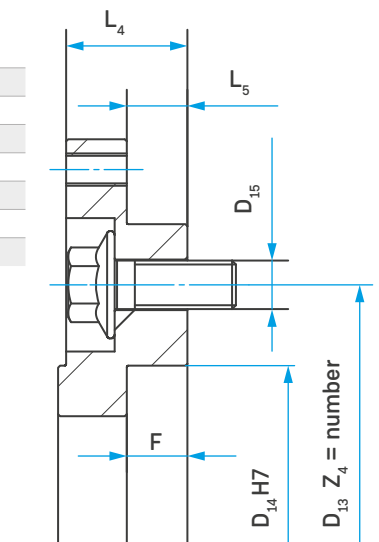
D 120

Adapter designation: TOK350 - D - 120

DIN adapter dimensions, output end

Size DIN	D ₁₃ [in]	Z ₄	D ₁₅	D ₁₄ [in]	L ₄ ¹⁾ [in]	L ₅ [in]	F _{min} [in]
90	2.93	4	M8	1.850	1.18	0.59	0.12
100	3.31	6	M8	2.244	1.18	0.59	0.12
120	4.00	8	M10	2.953	1.18	0.59	0.12
150	5.12	8	M12	3.543	1.18	0.59	0.14
180	6.12	8	M14	4.331	1.18	0.59	0.18
225	7.72	8	M16	5.512	1.18	0.59	0.22
250	8.58	8	M18	5.512	1.18	0.59	0.26

ⁱ 1) If necessary different for TOK3400 and TOK5000

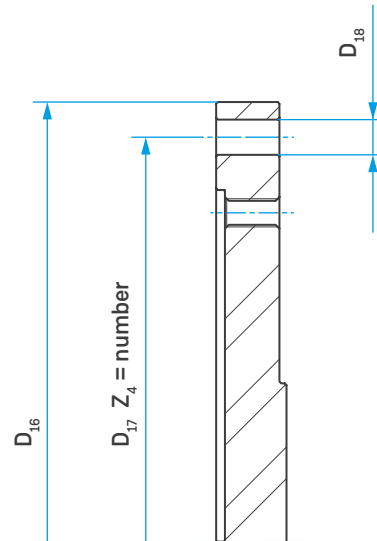


INCH DIMENSIONS

Flywheel adapter SAE J 620, drive side

Engine flywheel SAE J 620

Size	D ₁₆ [in]	D ₁₇ [in]	D ₁₈ [in]	Z ₄
8	10.37	9.63	0.39	6
10	12.37	11.63	0.39	8
11.5	13.87	13.13	0.39	8
14	18.37	17.25	0.47	8
18	22.50	21.37	0.63	6

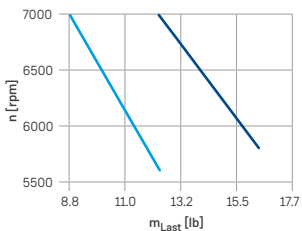


Ordering example

Nominal torque of the coupling	engine side	SAE8
TOK1000 -	E -	8

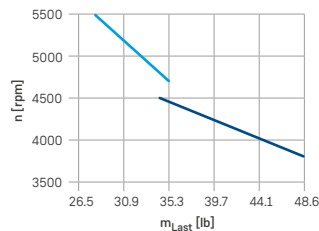
Adapter designation: TOK1000 - E - 8

Dependence of speed on weight load



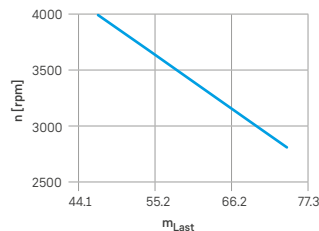
TOK250
TOK350

TOK500
TOK600
TOK700

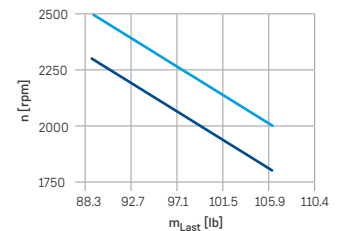


TOK1000

TOK1600

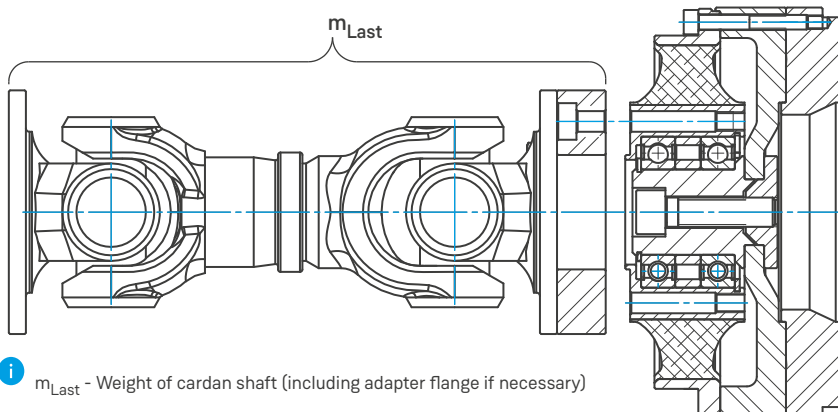


TOK2200



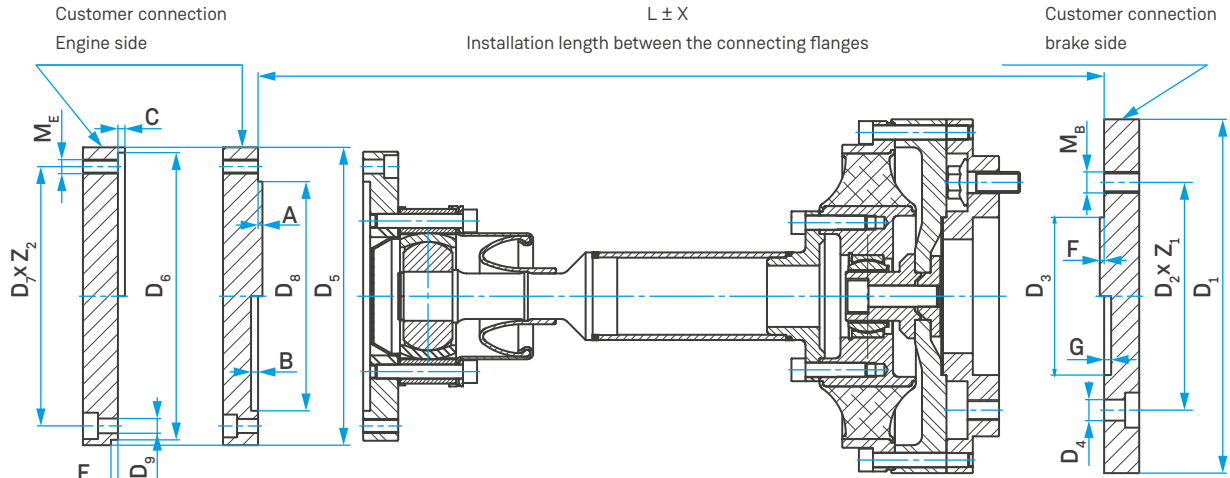
TOK3400

TOK5000

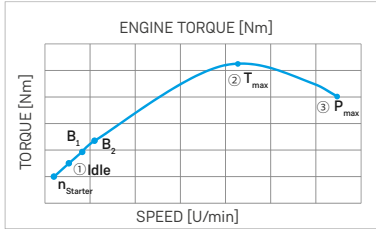


i m_{Last} - Weight of cardan shaft (including adapter flange if necessary)

Data Required for Coupling Size Selection



Engine	Please mark with a cross	Diesel	Gas	Gas	Turbo	Biturbo	Cylinder deactivation*		Connection dimensions, customer												
							yes	no	Engine			Brake									
Type/designation/ manufacturer									Symbol	Value	Unit	Symbol	Value	Unit							
									D5		[mm]	D1		[mm]							
									D6		[mm]	D2		[mm]							
									D7		[mm]	Z1		-							
									Z2		-	D4		[mm]							
									D9		[mm]	MB		-							
									ME		-	D3		[mm]							
									D8		[mm]	F		[mm]							
									A		[mm]	G		[mm]							
									B		[mm]	L		[mm]							
									C		[mm]	X		[mm]							
									E		[mm]			[mm]							
									Clutch shaft installation						Please mark with a cross						
									Directly between engine and brake or measuring flange (classic)												
									Not directly on the engine (e.g. use of an intermediate bearing)												
									Vehicle coupling used?												
									Dummy gear used? (if yes: specify J+Ct)												
									Operational displacement			Symbol	Value	Unit							
									Axial displacement			Ka		[mm]							
									Radial displacement			Kr		[mm]							
									Angular displacement			Kw		[°]							
									Brake			Dyno	EC	DC	AC	Please mark with a cross					
												Controller frequency							[Hz]		
												Water brake									
									Miscellaneous												
									Type/designation												
									Mass moment of inertia reduced			JBrake					[kgm ²]				
									Dual mass flywheel			yes/no	J1		[kgm ²]	J2		[kgm ²]	Ct	**	[Nm/rad]
									Smallest operating point B1			n	[rpm]	T	[Nm]	P	[kW]	t	[s]	Frequency/h	
									Second smallest operating point B2			n	[rpm]	T	[Nm]	P	[kW]	t	[s]	Frequency/h	
									Lowest operating speed at full throttle			n	[rpm]	Ambient temperature					[°C]		









i * Description of deactivation
 ** Provide dual mass flywheel characteristic curve






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