Reich Kupplungen

Dipl.-Ing. Herwarth Reich GmbH

TOK coupling system

Highly flexible test bench shaft

Your drive is our strength. Your strength is our drive.

General technical description

Test bench couplings are applied in miscellaneous test benches. By reason of manifold, specific requirements TOK system is designed according to the modular design concept, to be applicable on almost every engine test bench.

For specific requirements, e.g. special-test benches, the standard parts can be combined with specific-designed parts to derive solutions corresponding to individual conditions.

The torsional stiffness can be easily changed and adapted by simply replacing the flexible elements, as well in service. The rubber element of the coupling is vulcanised to an inner and outer ring, thus enabling torque transmission without being affected by centrifugal forces at high speeds.

Modular design concept of the TOK – ZW coupling system

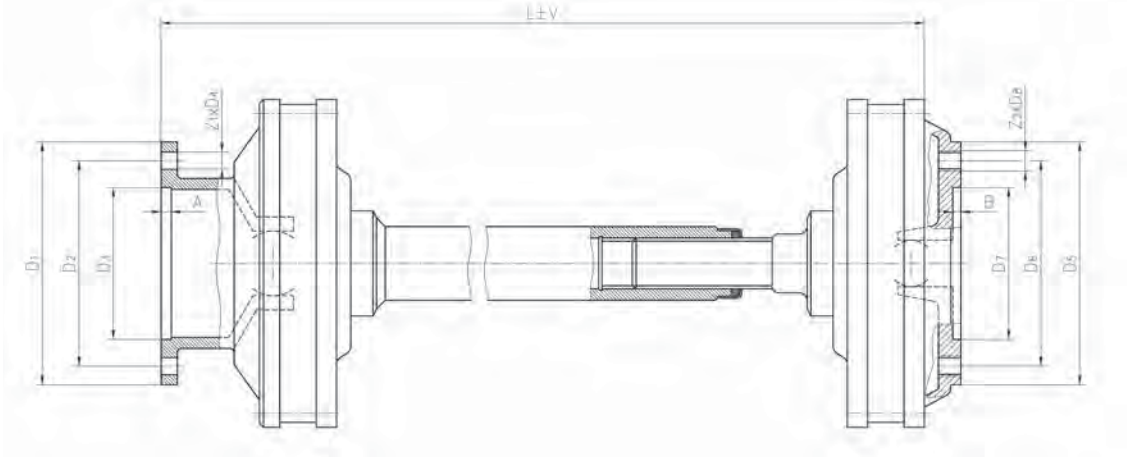
Advantages of the TOK - ZW coupling system:

- Lowest possible torsional stiffness utilizing two flexible elements
- Simple adjustment of the torsional stiffness by changing of elements
- Compensation of axial-, radial- and angular misalignment
- Self-centering, backlash-free and maintenance-free
- Flanges adapted to DIN or SPICER bolt patterns, respectively on demand
- Variable installation lengths utilizing telescopic spacer shafts
- Ideal for highest speed
- Lowest possible weight by using high-tensile aluminium and CFRP

Coupling size		Nominal torque T_{KN}		Maximum torque T_{Kmax}		Vibratory [2] $T_{KW\ (10\ Hz)}$		Relative damping	Dyn. torsional stiffness [3] $C_{T\ dyn}$ *)		Maximum speed n_{max}
Size	Element Version [1]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]	Ψ	[Nm/rad]	[lb-in/rad]	[rpm]
TOK 115	HN	100	885	250	2213	60	531	0,4	135	1195	10000
	WN							0,6	220	1947	
TOK 140	HN	350	3098	900	7966	135	1195	0,4	500	4425	10000
	WN							0,6	800	7081	
TOK 165	HN	600	5310	1500	13276	210	1859	0,4	1150	10178	10000
	WN							0,6	1800	15931	
TOK 190	HN	1000	8851	2500	22127	330	2921	0,4	2600	23012	9000
	WN							0,6	3100	27437	
TOK 225	HN	1600	14161	4000	35403	510	4514	0,4	5300	46909	8000
	WN							0,6	8000	70806	
TOK 255	HN	2200	19472	5500	48679	690	6107	0,4	5200	46024	6000
	WN							0,6	7800	69036	
TOK 320	HN	3750	33190	9400	83197	1155	10223	0,4	13000	115060	5000
	WN							0,6	18000	159313	
TOK 510	HN	7500	66381	20000	177015	2280	20180	0,4	23000	203567	4000
	WN							0,6	32000	283224	
TOK 700	HN	30000	265522	60000	531045	7530	66646	0,4	105000	929328	3000
	WN							0,6	140000	1239104	

[1]) Rubber element versions: HN = 48° Shore A; WN = 55° Shore A; alternative versions on request.
[2]) Continuous vibratory torque: ± T_{KW} at f = 10 Hz. Apply $T_{KW} \cdot \sqrt{\frac{f_x}{10}}$ for other frequencies f_x.
[3]) For 2-rubber-element versions (inline), apply = $\frac{C_{Tdyn}}{2}$

Data for coupling selection



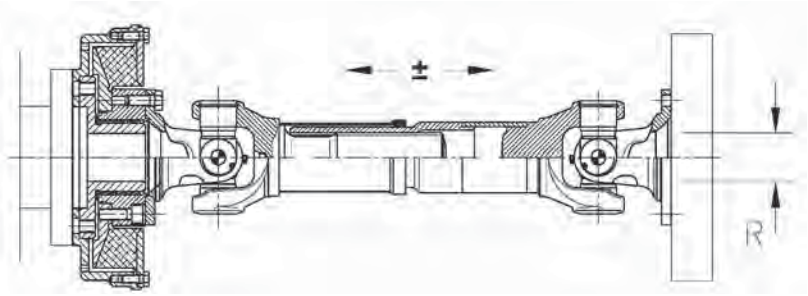
ENGINE side		DYNAMOMETER side	
Type		**Type**	
Engine power P [HP]		Moment of inertia J [lb-in²]	
Engine speed range n [rpm] (idle – maximum speed)		Connection dimensions (acc. above sketch)	
Maximum torque T [lb-in]			
In-line / V engine (angle) (alternative: harmonic main degree)		**INSTALLATION CONDITIONS**	
Number of cylinders z		Installation length L	from to
Total displacement V_H [cui]		Telescopic length V	from to
Moment of inertia J [lb-in²] (engine + flywheel)		Misalignment	Ka= Kr= Kw=
Connection dimensions (acc. above sketch)		Others	

Standard connection dimensions: DIN connections, SPICER connections, CV connections. Other connection dimensions on request.

Application examples and types of design

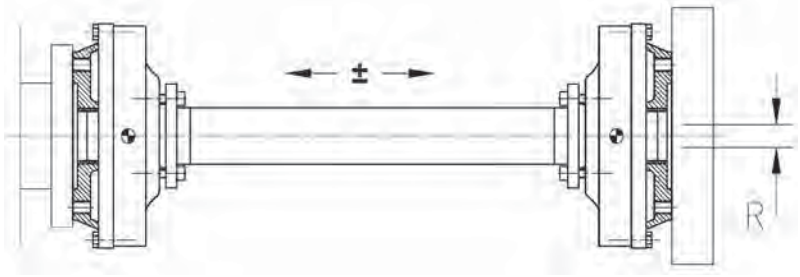
AC – VSK cardan shaft - Standard application

Highly flexible coupling AC – VSK in combination with a cardan shaft for rotational speeds up to n_{max} = 7000 rpm. Seperate catalogue available.



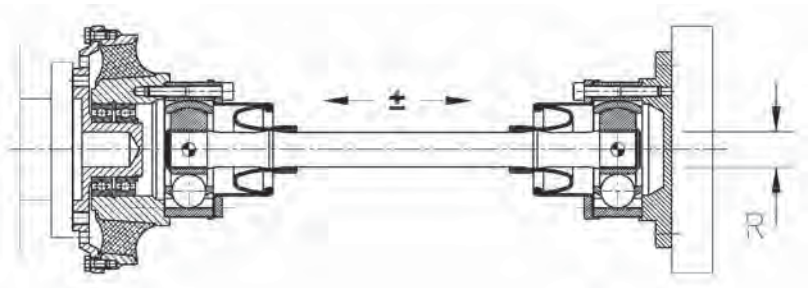
TOK – ZW with intermediate shaft

Highly flexible double element coupling TOK – ZW with intermediate shaft for length adaptation of the space between engine and dynamometer. The coupling has got a low torsional stiffness and operates in case of axial, radial and angular misalignment as a cardan shaft. Rotational speed up to n_{max} = 10000 rpm.



TOK-CV with constant velocity shaft

Highly flexible coupling TOK – CV in combination with a constant velocity shaft for smooth running even at highest rotational speed up to n_{max} = 10000 rpm



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The present TOK edition renders parts of the previous TOK catalogues obsolete.
All dimensions in millimeters and inches.
We reserve the right to change dimensions and/or design details without prior notice.