

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:

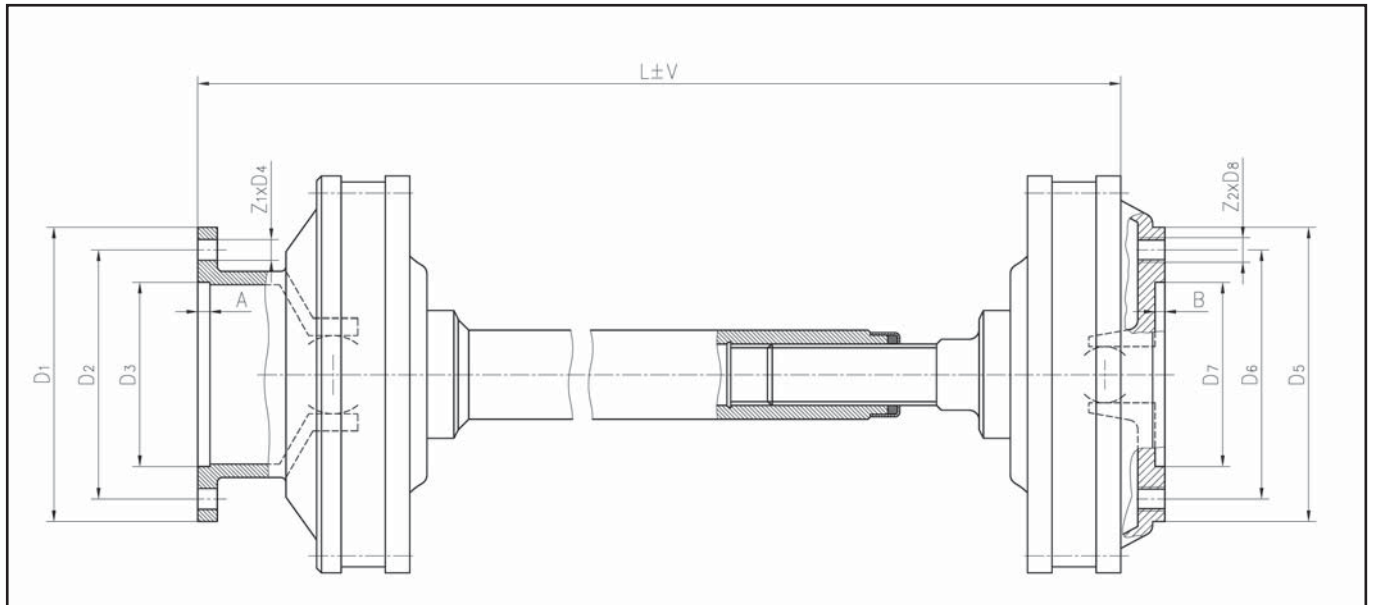
- Lowest possible torsional stiffness utilizing two flexible elements
- Simple adjustment of the torsional stiffness by changing of elements
- Compensation of axial-, radial- and angular misalignment
- Self-centering, backlash-free and maintenance-free
- Flanges adapted to DIN or SPICER bolt patterns,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

# Technical data (extract)

Coupling size	Nominal torque $T_{KN}$ [Nm]	Maximum torque $T_{Kmax}$ [Nm]	Fatigue torque $T_{KW(10\text{ Hz})}$ [Nm]	Dyn. torsional stiffness $C_{T\text{ dyn}^*)}$ [Nm/rad]	Maximum speed $n_{max}$ [rpm]
TOK 115	100	300	40	110 – 250	10000
TOK 140	160	400	60	200 – 500	10000
TOK 165	600	1600	200	600 - 1400	8000
TOK 190	850	2500	300	1250 – 2700	8000
TOK 225	1100	3300	400	1800 – 3000	8000
TOK 320	3750	10000	1250	4500 – 11000	5000
TOK 510	8000	24000	2500	10000 – 22000	3000
TOK 700	35000	105000	8750	54000 – 110000	2500

\*) Values for type TOK – ZW with two elements. For types using just one element, value has to be doubled. The TOK coupling system is variable in manifold versions. Further technical data on request.

## Data for coupling selection



ENGINE side		DYNAMOMETER side	
<b>Type</b>		<b>Type</b>	
Engine power P [kW]		Moment of inertia J [kgm <sup>2</sup> ]	
Engine speed range n [rpm] (idle – maximum speed)		Connection dimensions (acc. above sketch)	
Maximum torque T [Nm]			
In-line / V engine (angle) (alternative: harmonic main degree)		<b>INSTALLATION CONDITIONS</b>	
Number of cylinders z		Installation length L	from                      to
Total displacement V <sub>H</sub> [ccm]		Telescopic length V	from                      to
Moment of inertia J [kgm <sup>2</sup> ] (engine + flywheel)		Misalignment	Ka=                      Kr=                      Kw=
Connection dimensions (acc. above sketch)		Others	

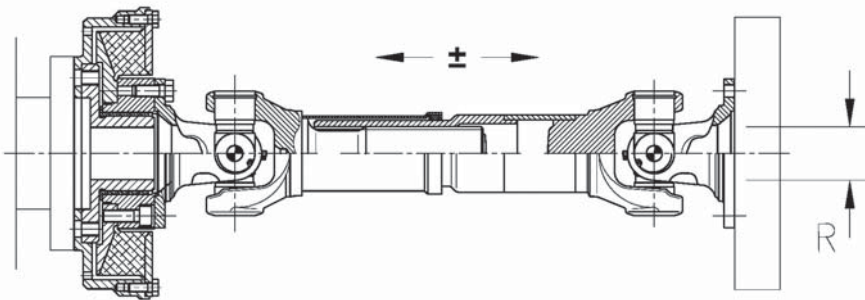
**Standard connection dimensions:** DIN connections, SPICER connections, CV connections. Other connection dimensions on request.

## Application examples and types of design



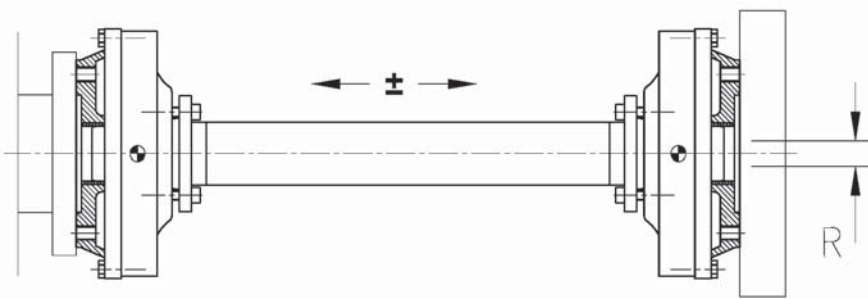
### AC – VSK cardan shaft - Standard application

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



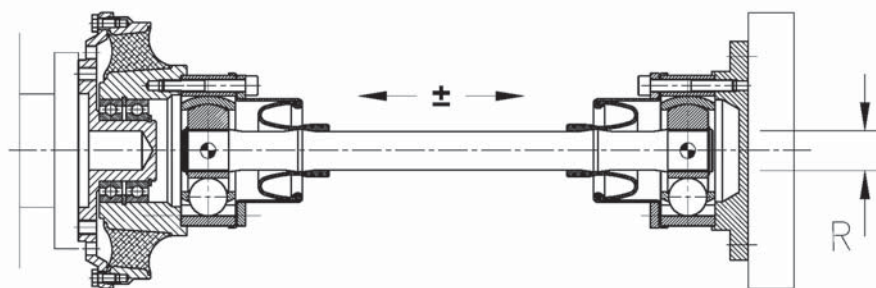
### TOK – ZW with intermediate shaft

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. We reserve the right to change dimensions and/or design details without prior notice.