made in GERMANY

In-house development

Own manufacturing

Sole distributor in Germany

Working with distributors worldwide

TAS SCHÄFER

hydraulic actuated products

EP: 0 812 397

EP: 1 666 748

Overview

Hydraulic shrink disc SHS


Standard


Test stand

Wind energy

Naval (with class approvals)


Customized

Hydraulic rigid flange coupling

FKH

Content

Description of function SHS

Shrink discs of the type SHS

The main function of a shrink disc is the safe connection of a shaft with a hub by means of friction. For example, between a drive shaft and a transmission hollow shaft. The shrink disc generates a backlash-free connection by pressing the hub onto the shaft. This connection is mainly used to transmit torque.

The shrink disc only provides the required forces, and transfers no forces or moments between shaft and hub by itself. It is not in the force flow.

It is installed by sliding the shrink disc onto the hollow shaft and the subsequent tightening of the hydraulik system. By using conical surfaces the inner diameter reduces and the radial pressure is built up. After clamping the SHS will be locked mechanically and the hydraulic pressure will be removed. Due to this simple approach the SHS is suitable for repetitive clamping operations as they occur on a test bench, for example.

Advantages of the SHS:

- application-specific design/customization
- relatively low pressure
- very rapid tightening / loosening, in comparison to the mechanical shrink disc
- mechanically removably, partially mechanically tensionable when hydraulic is not available
- simple design based on 3-parts shrink disc
- maintenance/repairs carried out by customer

To achieve proper operation and to a sufficiently high coefficient of friction, the contact surfaces between shaft and hub must be free of grease, dry and clean. The functional surfaces of the shrink disc are equipped at the factory with lubricant. The contact surfaces between the hub and shrink disc must also be provided with grease before installation.

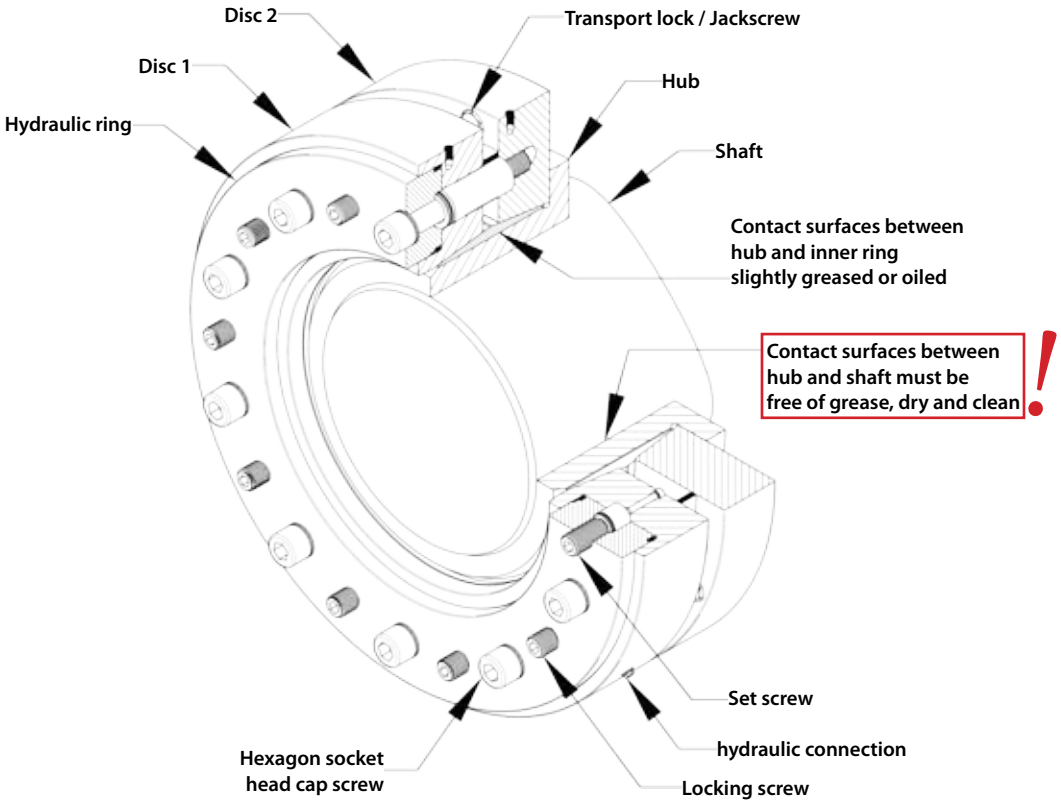
Product data SHS

Data sheets and CAD data

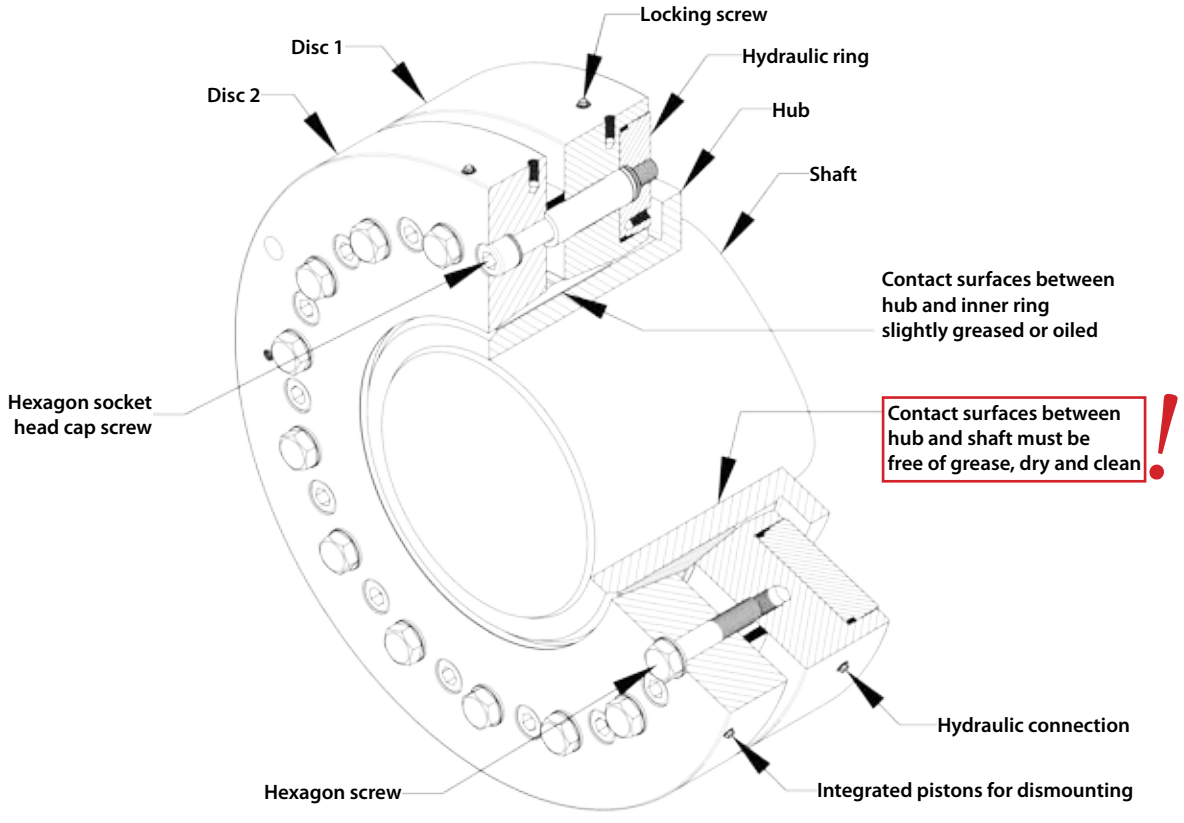
Our hydraulically tensible shrink discs are selected according to customer specifications or been redesigned. For this purpose please fill in the questionnaire (*see page 15*) and send it to info@tas-schaefer.de.

Versions

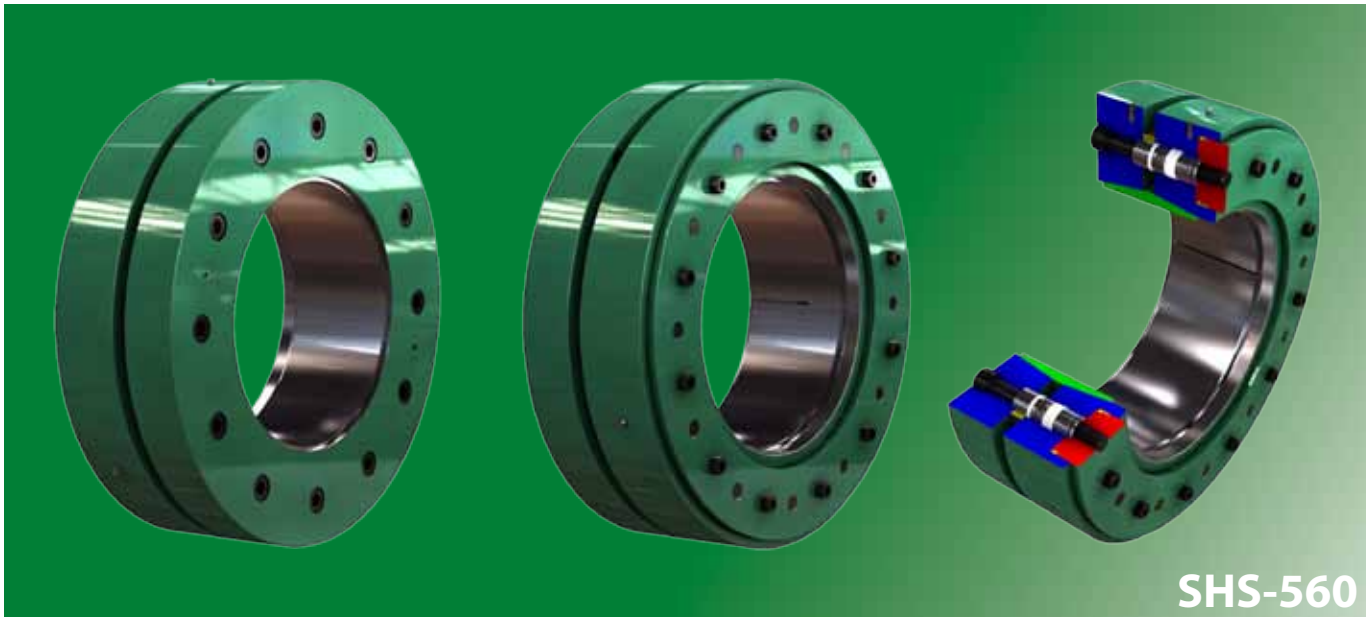
Hydraulics on the front

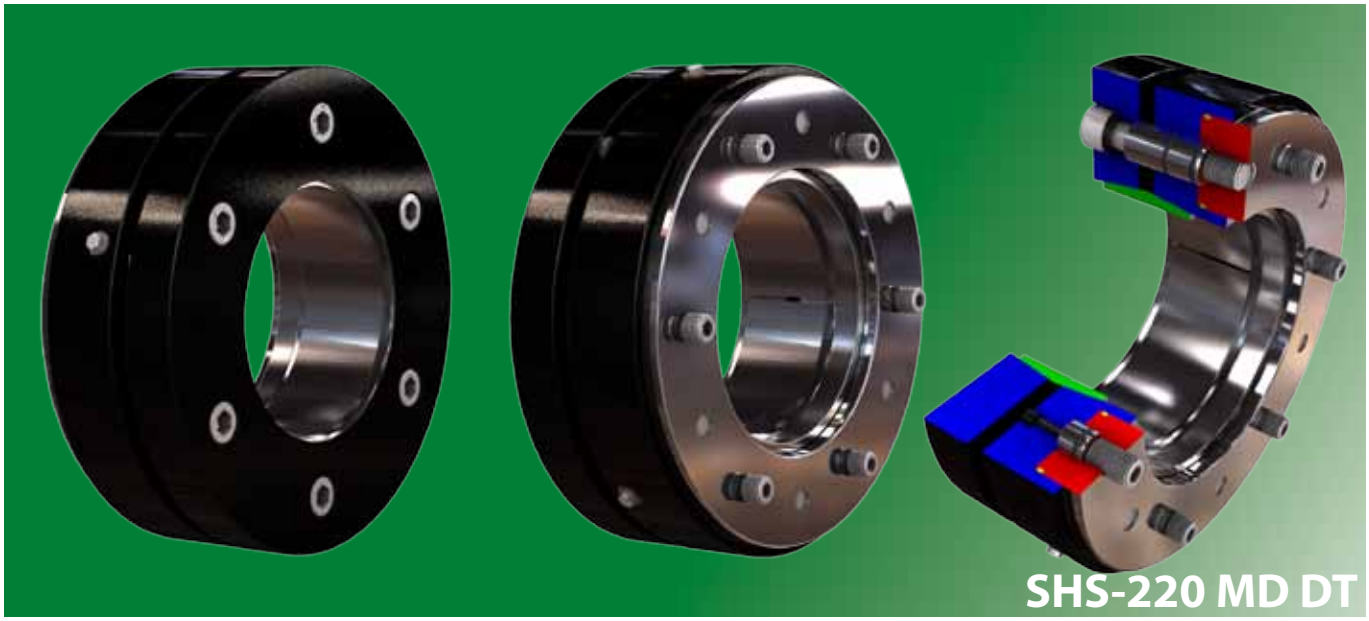


Hydraulics on the back



SHS Standard

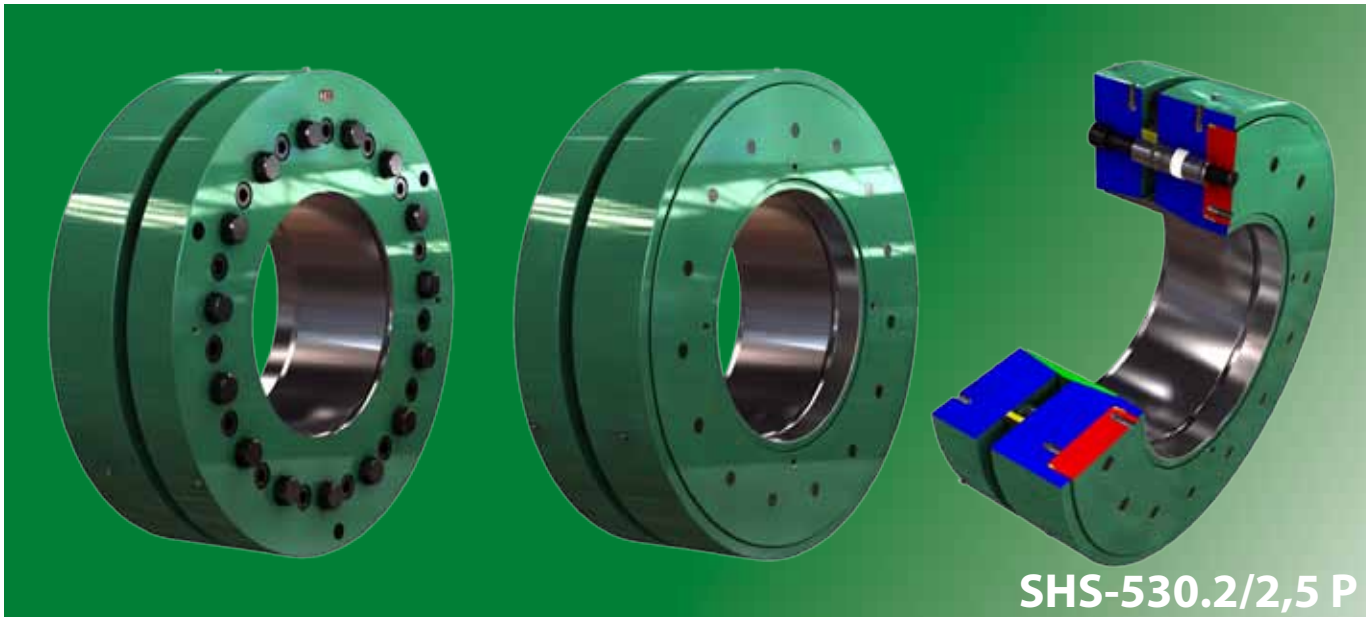


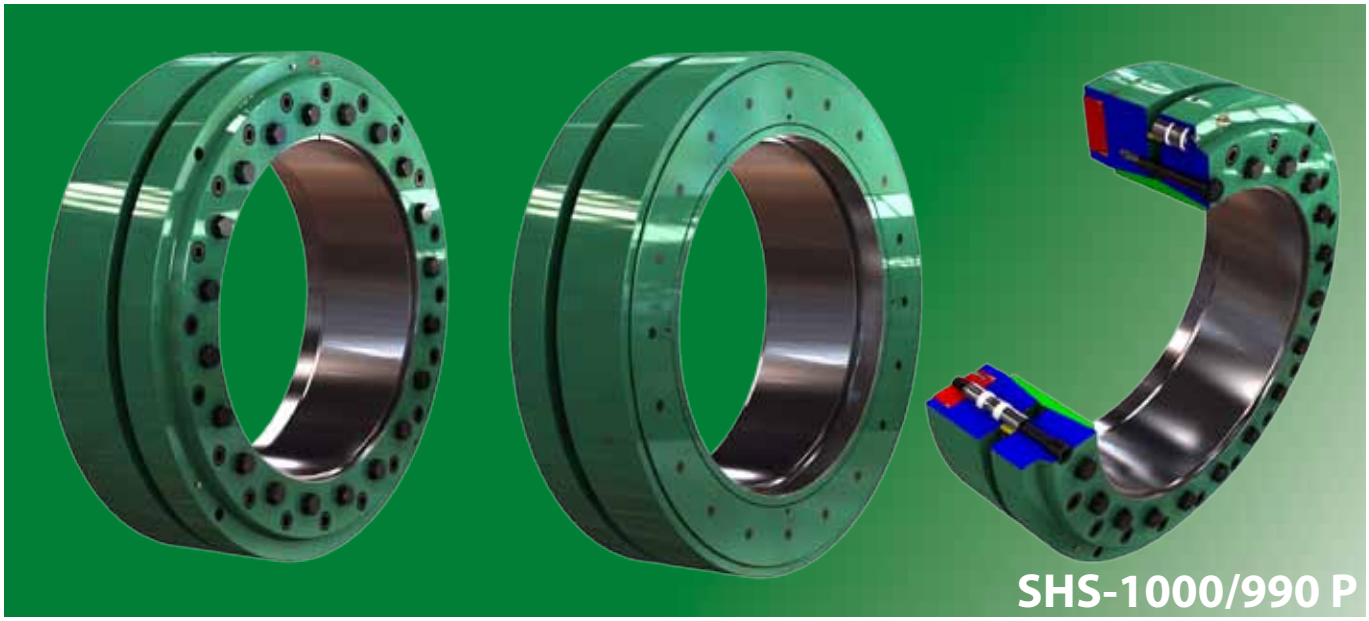


Typical fields of application	Industrial gearboxes Hollow shaft gearboxes Hydraulic motors
Nominal sizes	140 - 1.000 mm
Nominal torques	20 - 10.000 kNm
Pressure range	up to 180 bar
Versions	Hydraulic on the front Bolting on both sides
Features	simple design
Options	improved corrosion protection


TAS SCHÄFER
ANTRIEBSTECHNIK

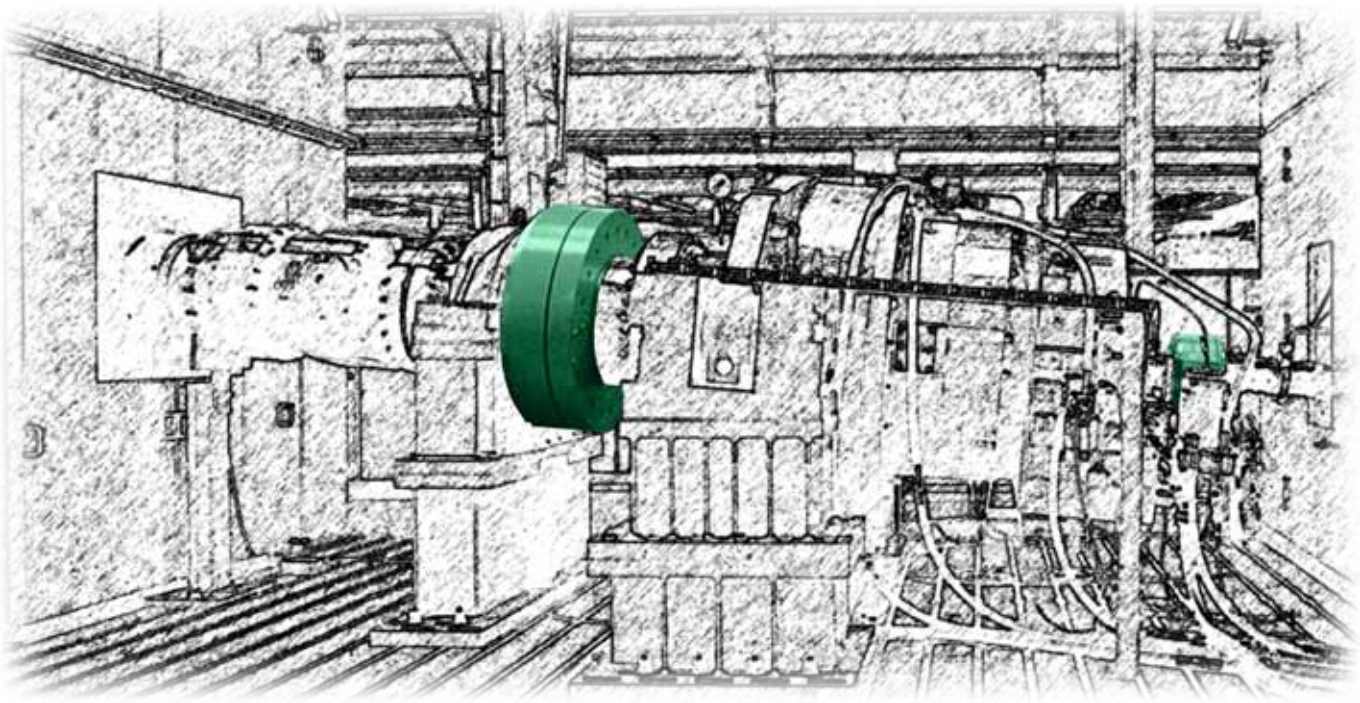
SHS Test stand

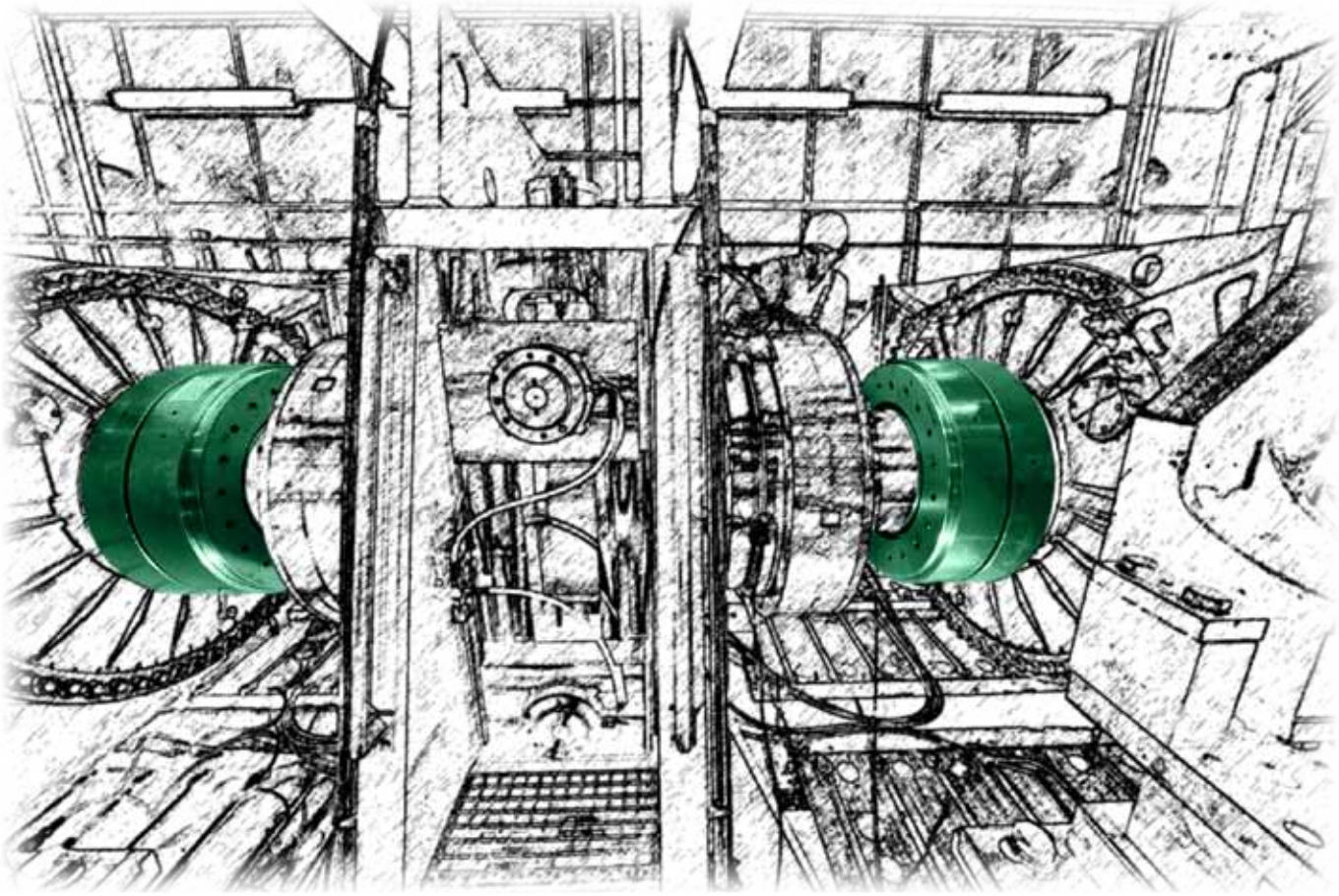




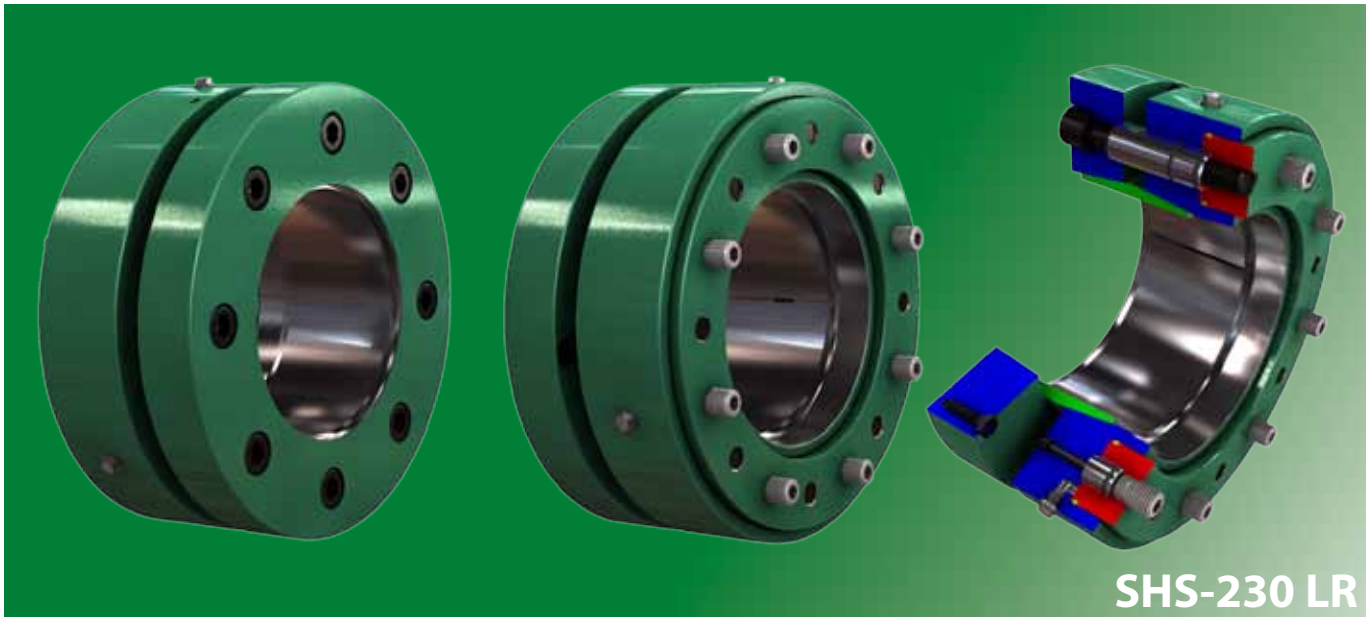
Typical fields of application	Gearbox test stands
Nominal sizes	140 - 1.000 mm
Nominal torques	20 - 14.000 kNm
Pressure range	up to 200 bar (up to 400 bar for dismounting)
Versions	Hydraulic on the front or on the back Bolting on both sides or on the front
Features	Optimized for permanent operation reduced wear higher safety simplified handling and maintenance Application specific customization
Options	improved corrosion protection

SHS Test stand



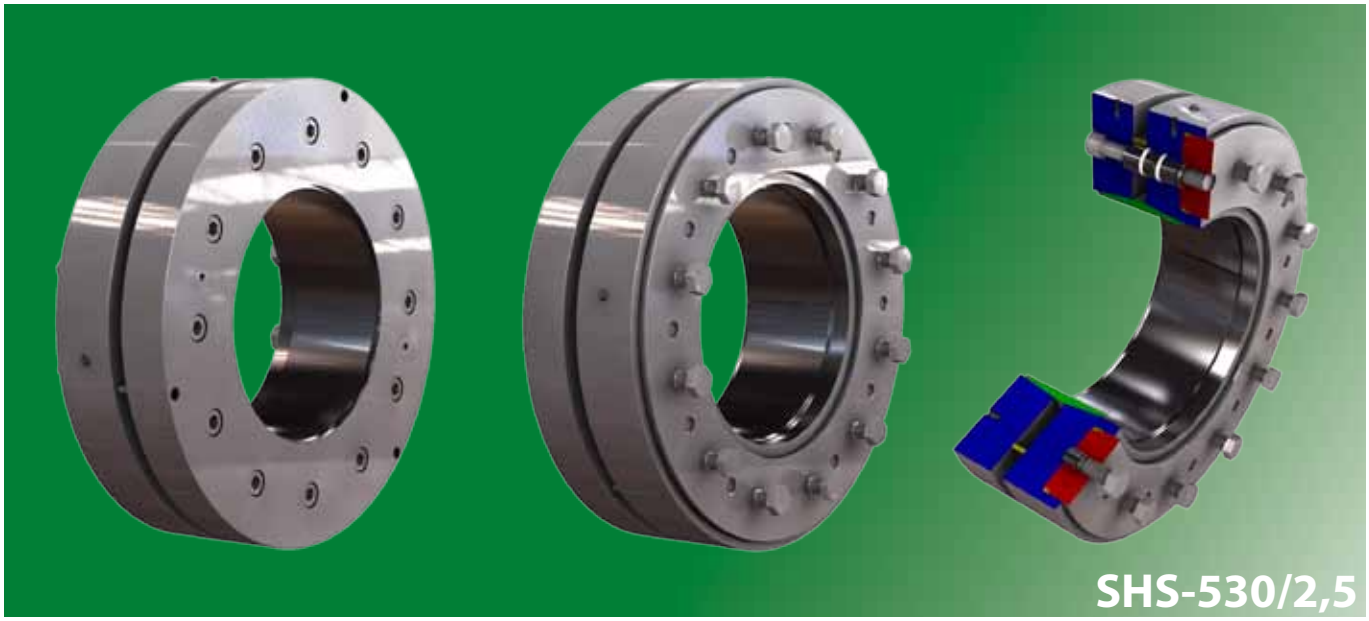


SHS Marine (with class approvals)



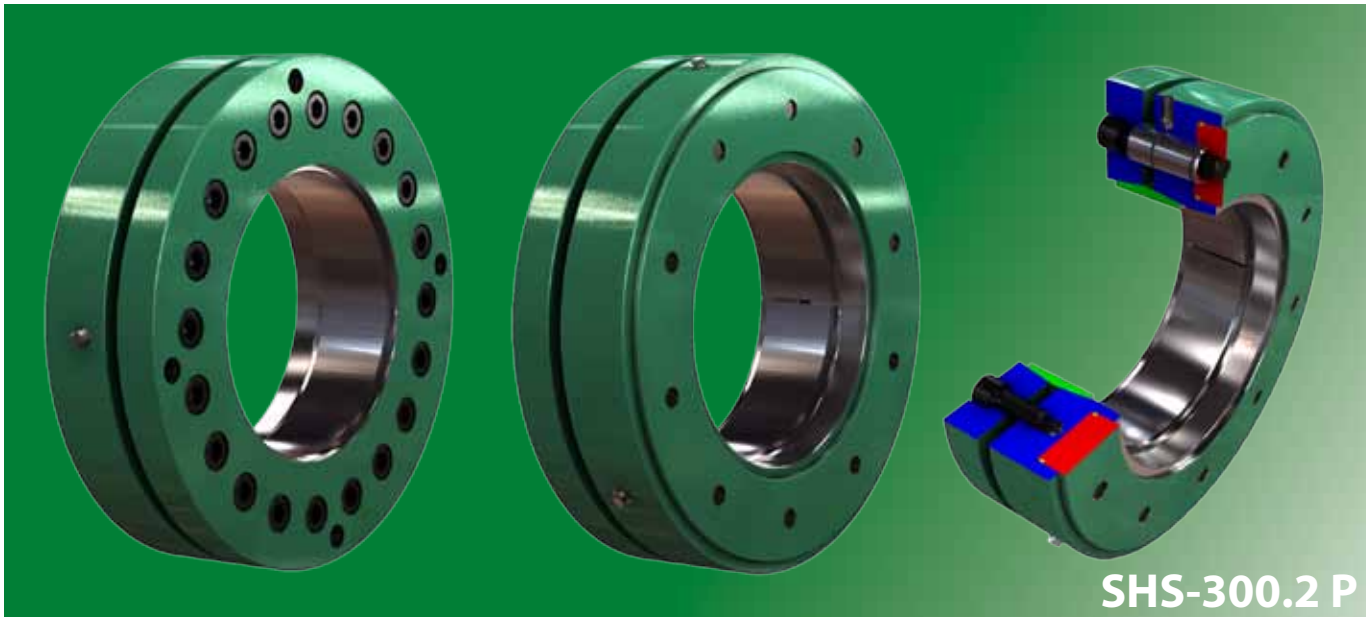
Typical fields of application	shafting
Nominal sizes	140 - 800 mm
Nominal torques	14 - 2.800 kNm
Pressure range	up to 200 bar up to 400 bar (dismounting)
Versions	Hydraulic on the front Hydraulic on the back Bolting on both sides Bolting on the front
Features	wide design reduced surface pressure high safety Application specific customization full class approvals
Options	hydraulic dismounting

SHS Wind energy



Typical fields of application	Main rotor shaft Generator shaft
Nominal sizes	140 - 1.000 mm
Nominal torques	20 - 12.000 kNm
Pressure range	up to 200 bar
Versions	Hydraulic on the front Hydraulic on the back Bolting on both sides Bolting on the front
Features	special corrosion protection Application specific customization
Options	-

SHS Customized



Typical fields of application	Crusher Mills Shredder ... etc.
Nominal sizes	100 - 1.000 mm
Nominal torques	10 - 12.000 kNm
Pressure range	up to 200 bar up to 400 bar (dismounting)
Versions	Hydraulic on the front or on the back Bolting on both sides or on the front
Features	Application specific customization
Options	By arrangement and engineering viability

Dimensioning outside clamping shaft / hub connection

(Shrinkdisc)

Company _____ Date _____

Adress _____

Contact person _____ Department _____

Phone _____ FAX _____

E-Mail _____

Project-No. _____

TAS Schäfer GmbH
Osterfeldstraße 75
58300 Wetter (Ruhr)
Germany
☎ +49 (0) 2335 9781-0
🖷 +49 (0) 2335 72956
E-Mail: info@tas-schaefer.de

In order to allow us an accurate assessment / design, please fill in all the known data.
If you are able to provide us a drawing, a sketch or similar, please send us such known information too.

Load configuration:

Motor power	p	[kW]
Speed at LSS	n	[min^{-1}]
Safety factor	SF	
Nominal torque	M_t	[Nm]
Max. torque	$M_{t\,max}$	[Nm]
Max. add. radial load	F_{rad}	[N]
Max. add. bending moment	M_b	[Nm]
Max. add. axial load	F_{ax}	[N]
Operation time		[%]
Number of starts		[n/t]

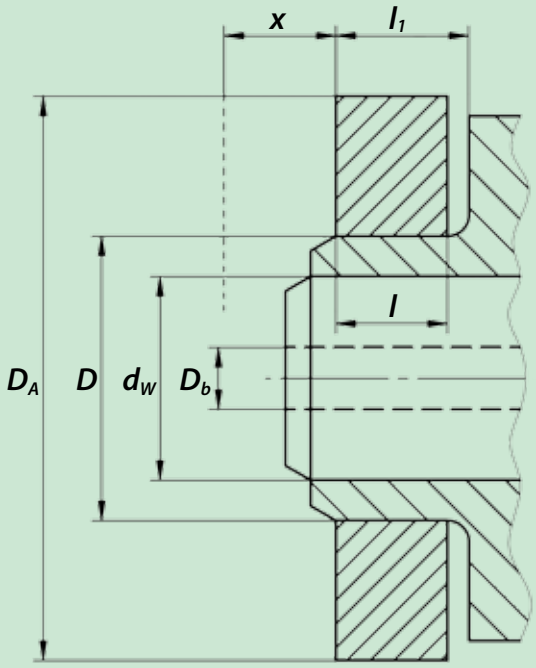
Device type:

- ◯ Type 30..
- ◯ Type 31..
- ◯ SHS (hydraulic)
- ◯ Customized

Environment:

- ☐ corrosive
- ☐ Dust

Temperature range [°C]



Geometric details:

Nominal diameter	D	[mm]		Tolerance		Rz
Shaft diameter	d_w	[mm]		Tolerance		Rz
Bore in the shaft	D_b	[mm]				
Max. clamping length	l	[mm]		Max. install. length	l_1	[mm]
Max. diameter	D_A	[mm]		available space	x	[mm]

Materials:	**Designation**	***R_e/$R_{p0,2}$* [MPa]**	***E-Modulus* [MPa]**
Shaft			
Hub			

Comments: (coatings, environmental conditions, number of tensions, special requests, etc. ...)

This form is also available on our website at - www.tas-schaefer.de

Description of function FKH

Rigid flange couplings of the type FKH

The main function of a hydraulic flange coupling (hereinafter called FKH) is the safe connection of two shafts. For example, between a drive shaft and a transmission shaft. The FKH produces a rigid and backlash-free connection between the shafts. This connection is mainly used to transmit torque, but can also absorb bending moments. The FKH is located in the power flow.

It is installed by sliding the FKH onto the shaft and the subsequent tightening of the hydraulic system. By using conical surfaces the inner diameter reduces and the radial pressure is built up. After clamping the FKH will be locked mechanically and the hydraulic pressure will be removed. Due to this simple approach, the FKH is suitable for repetitive clamping operations.

Advantages of the FKH:

- high transmittable torque and bending moments (high friction)
- application-specific design/customization
- easy mounting and adjustment because of clearance fit
- relatively low pressure (closed system)
- very rapid tightening/loosening
- simple design (single cone)
- short installation length
- also usable for shafts with keyway (should be filled)
- combination of different shaft diameters

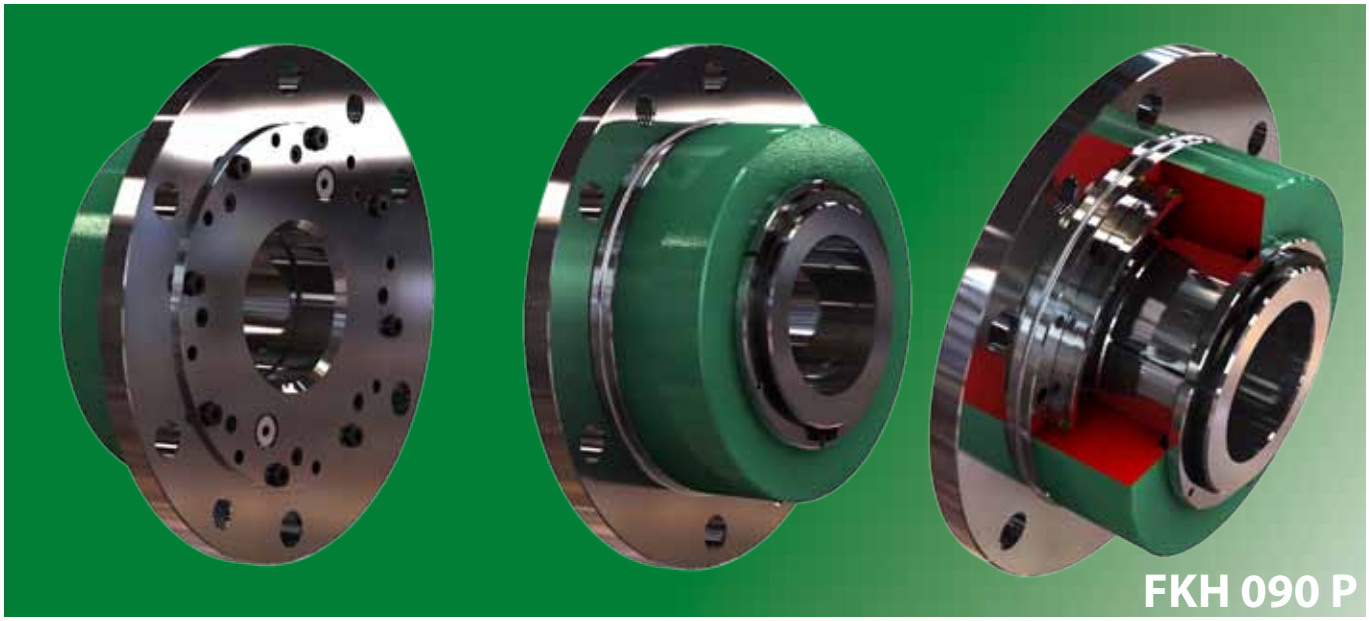
To achieve proper operation and to a sufficiently high coefficient of friction, the contact surfaces between shaft and FKH must be free of grease, dry and clean. The functional surfaces of the FKH are equipped at the factory with lubricant.

Product data FKH

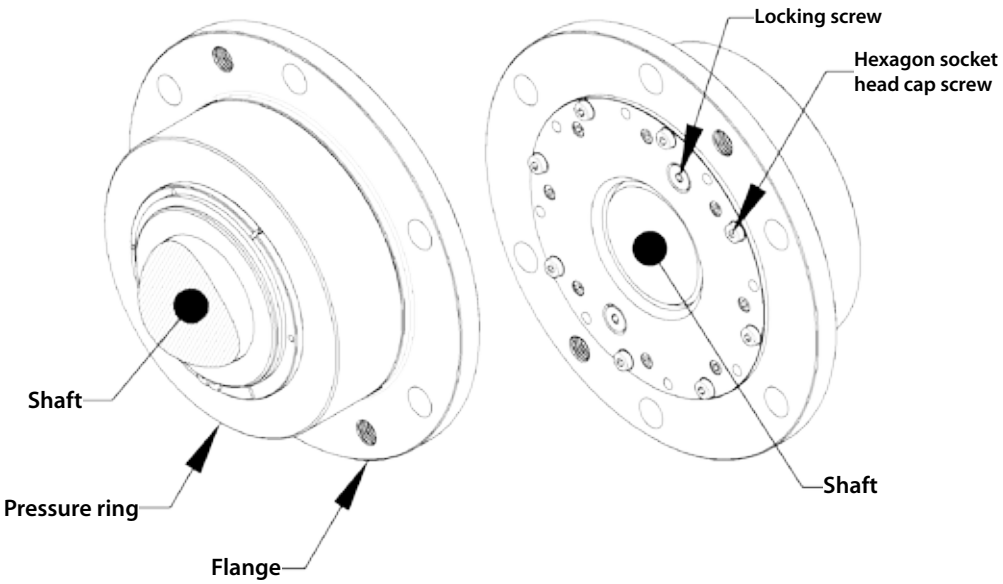
Data sheets and CAD data

Our hydraulically tensible rigid flange couplings are selected according to customer specifications or been redesigned. For this purpose please fill in the questionnaire (*see pages 18/19*) and send it to info@tas-schaefer.de.

FKH Rigid flange coupling



Typical fields of application	Conveyor drives Agitator shaft
Nominal sizes	70 - 500 mm
Nominal torques	6 - 2.500 kNm
Pressure range	up to 400 bar
Versions	standard design heavy design
Features	short installation length high stability tensionable from the shaft side desired shaft stepping closed hydraulic system mechanical lock
Options	improved corrosion protection



Dimensioning of Rigid Coupling Design FK/FKH

(Shaft - Connection)

Company _____ Date _____

Address _____

Contact _____ Department _____

Phone _____ FAX _____

E-Mail _____

Reference _____

TAS Schäfer GmbH
Osterfeldstraße 75
58300 Wetter (Ruhr)
Germany
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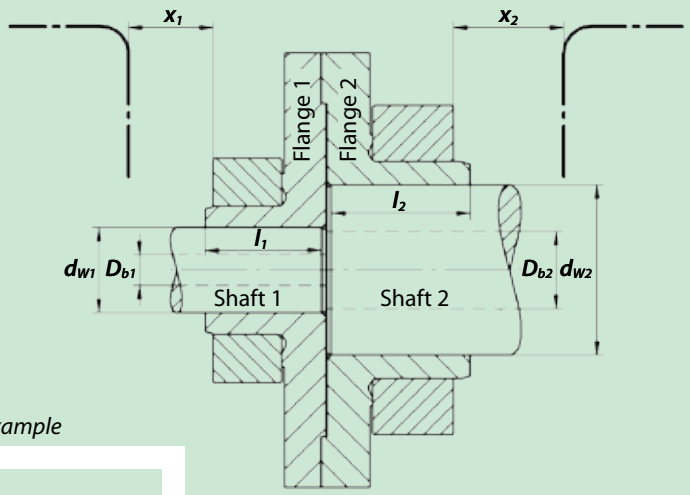
+49 (0) 2335 72956
E-Mail: info@tas-schaefer.de

In order to allow us an accurate evaluation / design, please fill in all the known data.
If you are able to provide us a drawing, a sketch or similar, please send us such known information too.

Loads:

Motor power	p	[kW]	
Motor speed	n	[min^{-1}]	
Transmission ratio	i		
Drive speed	n	[min^{-1}]	
Nominal torque	M_t	[Nm]	
Max. torque	$M_{t\,max}$	[Nm]	
Safety factor	SF		
Nominal braking torque	M_{br}	[Nm]	
Holdback torque	M_{rh}	[Nm]	
Operation time		[%]	
Number of starts		[n/t]	



Example

Geometric details:

Shaft 1 / Flange 1 (*male*)

Shaft diameter d_{W1}[mm] Tolerance Rz

Bore in the shaft D_{b1}[mm]

Material $R_e/R_{p0,2}$ [MPa] *E-Modulus* [MPa]

Max. clamping length l_1 [mm]

available space x_1 [mm]

Shaft 2 / Flange 2 (*female*)

Shaft diameter d_{W2}[mm] Tolerance Rz

Bore in the shaft D_{b2}[mm]

Material $R_e/R_{p0,2}$ [MPa] *E-Modulus* [MPa]

Max. clamping length l_2 [mm]

available space x_2 [mm]

Device type:

- ◯ FK standard
- ◯ FK type „B“
- ◯ FKH (hydraulic)
- ◯ Customized

Environment:

- ☐ corrosive
- ☐ Dust

Temperature range [°C]

(for a "flying" drive, use sheet 2 please)

			static	*dynamic*
Max. bending moment	M_b	[Nm]		
Max. radial load	F_{rad}	[N]		
Max. axial load	F_{ax}	[N]		

Comments: (coatings, environmental conditions, number of tensions, special requirements, etc. ...)

This form is also available on our website at - www.tas-schaefer.de

Dimensioning of Rigid Coupling Design FK/FKH

(Shaft - Connection)

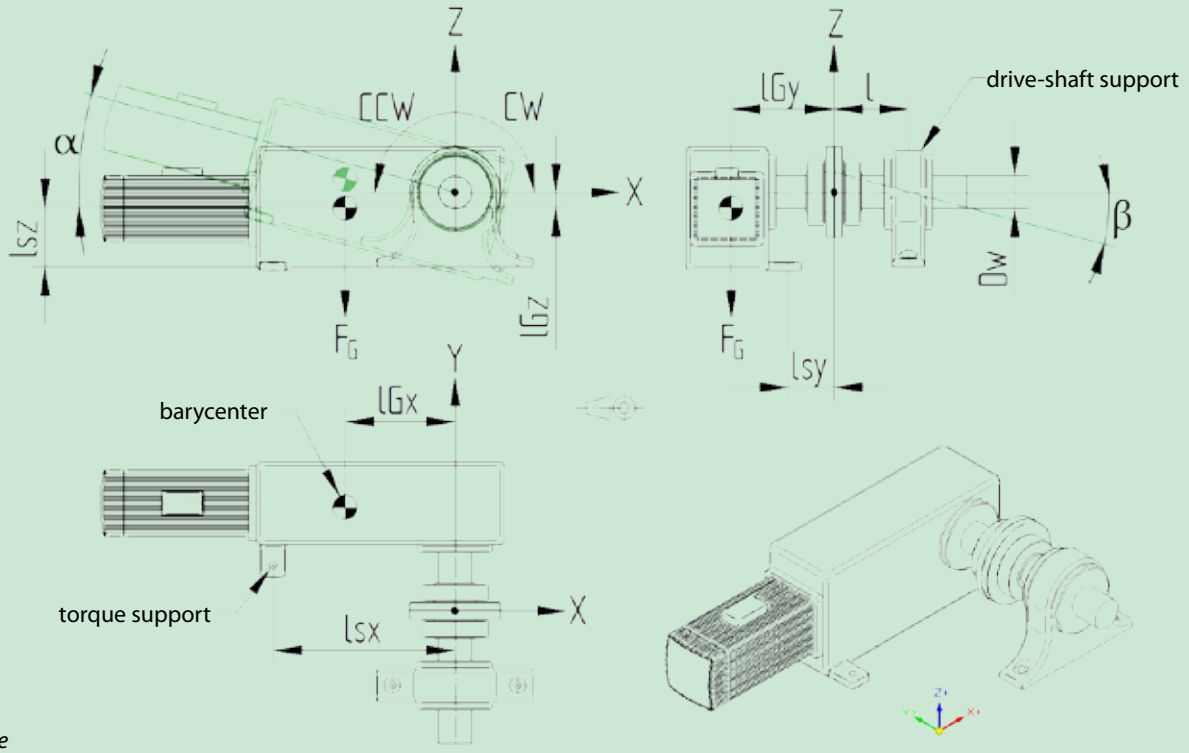
Company _____ Date _____

Address _____

Reference _____

TAS Schäfer GmbH
Osterfeldstraße 75
58300 Wetter (Ruhr)
Germany

Using a "flying" drive (typical arrangement for conveyor drives), creates bending moment. Information about weight, COG, torque-arm, rotational direction and type of torque support are very important to evaluate the bending loads. All information is needed to do this calculation completely!



Example

Drivetrain mass	F_G	[N]				
Shaft extension	l	[mm]				
Position of barycenter (COG)		*lGx* [mm]		*lGy* [mm]	*lGz* [mm]	
	min.					
	max.(1)				(1)	
Position torque support		*lsx* [mm]		*lsy* [mm]	*lsz* [mm]	
	min.					
(1) *only if variable*	max. (1)				(1)	

Angle of drivetrain	α	[°]		☐ alterable	from	to

Further details

Rigidity of torque support		[N/mm]				
Enabled movement	*X*±	[mm]		*Y*±	[mm]	
Shaft bending under load	β	[minute]				
Max. shaft run-out (manufacturing):	radial	[mm]		angle	[minute]	

Examples for torque support mounting

Fixed: *stationary (screws, bolts fastening, …)*
Flexible: *freely movable or possible slight movements (rubber bearing, …)*
Variable: *movable in a defined direction (rail system, swinging support, …)*

Direction of rotation:
- ◯ CW (clockwise)
- ◯ CCW (counterclockwise)
- ◯ CW/CCW (both directions)

Torque support design:
- ◯ fixed
- ◯ flexible
- ◯ variable

Backstop:
- ◯ without
- ◯ at drive
- ◯ not at drive

Brake:
- ◯ without
- ◯ at drive
- ◯ not at drive

This form is also available on our website at - www.tas-schaefer.de

Further products from our company

Locking assemblies


TAS 110


TAS 130


TAS 131


TAS 3003


TAS 3006


TAS 3012


TAS 3013


TAS 3015


TAS 3015DK


TAS 3020


TAS 4006


TAS 3014

Shrink disc in two-part design


TAS 3173


TAS 3171, 3181, 3191, 3193

Shaft couplings


TAS W


TAS WK


TAS WLA


TAS WLB


TAS AFS

Flange couplings


TAS FK


TAS FKB


TAS FKBS


TAS FKH

TAS SCHÄFER

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