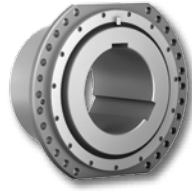
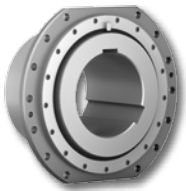


Partner for Performance



Barrel Couplings



RINGFEDER® TNK

EN 08.2019

Product Paper & Tech Paper



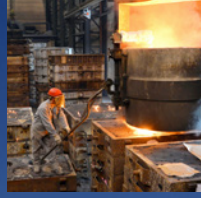
Welcome



Machine Building



Aerospace



Process



Movement



Energy



Extraction



Your system supplier for every aspect of power transmission

We say what we mean and mean what we say.

We see things from our customers' perspective.

We are considerate of our employees and their families as well as of our environment and society.



RINGFEDER POWER TRANSMISSION is the global market leader in the niche markets of drive technology and is well regarded for its customer-specific, application-oriented solutions that ensure excellent and failure-free operation for its clients. We offer locking devices, damping technology and couplings for OEMs but also for the final customer under our strong brand name RINGFEDER®.

We do not only provide competent advice to our customers on the basis of our 90 years of experience but also develop innovative ideas in cooperation with them. This is part of our aspiration to be a **Partner for Performance**.

Around the power transmission we promise

- Excellent know-how for our challenging customers
- Best cost-benefit ratio
- Short reaction times and a high product availability





Know-how

Over 90 years of expertise.

On-site worldwide

We are there for you. Anytime, anywhere.

Your expert partner

From development to the finished product.

Customer

Value

Online calculation program

Always find the right solution.

Your projects are our drive

Know-how: Over 90 years of expertise.

Rely on decades of engineering expertise from the inventor of the friction spring. As an expert in drive and damping technology, we are your reliable partner wherever forces are at work. Be it the permanent transfer of very high torques due to non-positive or positive connections or the absorption and trapping of extreme energies to protect expensive constructions.

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We accompany you through to the successful completion of your project. Beginning with the development phase of your project, we offer our know-how and professional solutions. By working together with global market leaders and as an international supplier of outstanding products and special solutions, we are a reliable partner for you.

Online calculation program: Always find the right solution.

In response to the complex requirements involved in the correct selection and design of the required products under practical conditions, we have developed our online calculation program. Engineers and experts are able to calculate transferable torques and other important values, taking into account various parameters. Visit our website www.ringfeder.com!

On-site worldwide: We are there for you. Anytime, anywhere.

With our locations in Germany, the Czech Republic, the USA, Brazil, China and India as well as a worldwide service and partner network, we are there for you around the clock. This ensures our support for the successful completion of your projects at any time.

RINGFEDER®

Barrel Couplings

Introduction

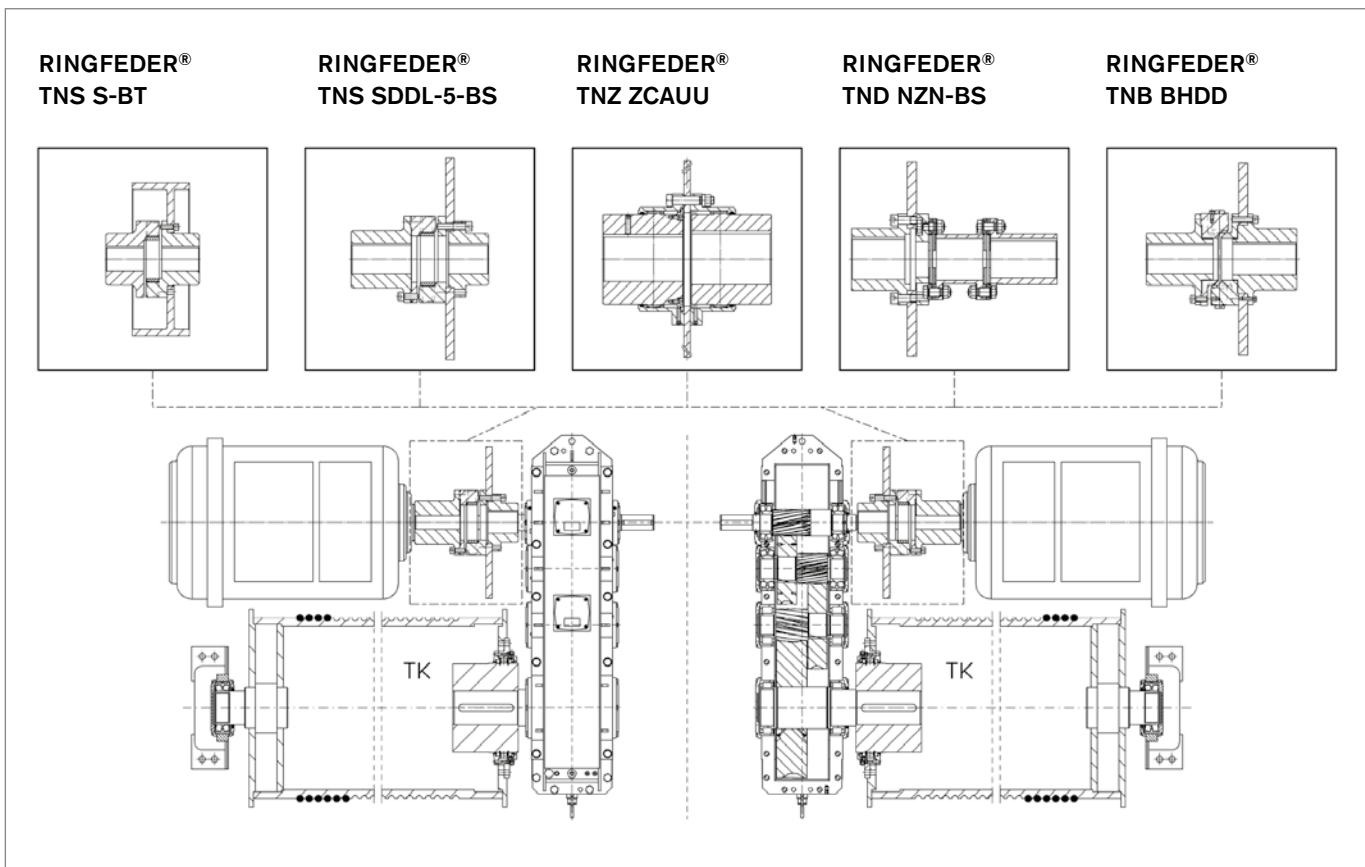
The barrel couplings complement the portfolio of the well-proven RINGFEDER® couplings for crane and hoisting gear applications. The comprehensive range of RINGFEDER® drive couplings that connect the driving motor with the gearbox and which are generally equipped with brake discs, or brake drums, where required, have been offered for decades as a package solution by brake manufacturers and distributed under their own name.

The optimized barrel coupling series for connecting the gearbox output shaft with the rope drum extends the RINGFEDER® portfolio of drive components and increases the interest of manufacturers and operators in selecting RINGFEDER® as their direct and reliable supplier for crane components.

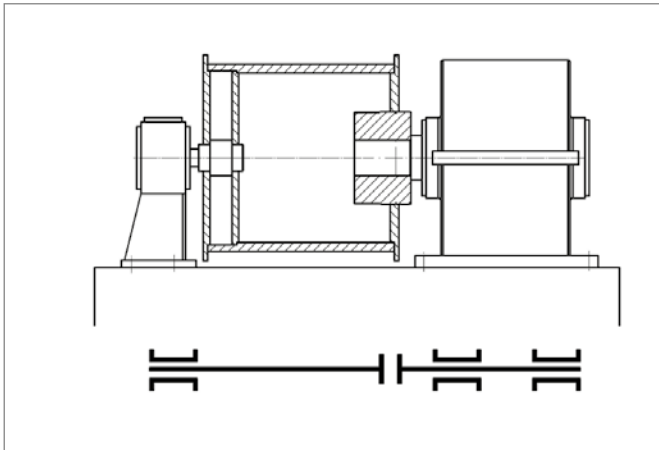
The particular feature of the barrel coupling, i.e. to transmit the torque via barrel-shaped hardened bodies being embedded in the spaces formed by the semi-circular toothings of the hub and the sleeve, ensures the safe transmission of radial forces while simultaneously compensating angular misalignments of the connected units.

The barrel coupling thus represents an articulated joint that turns a statically indeterminate system to a statically determinate one and, as a result, compensates operation-related deformations and prevents constraining forces.

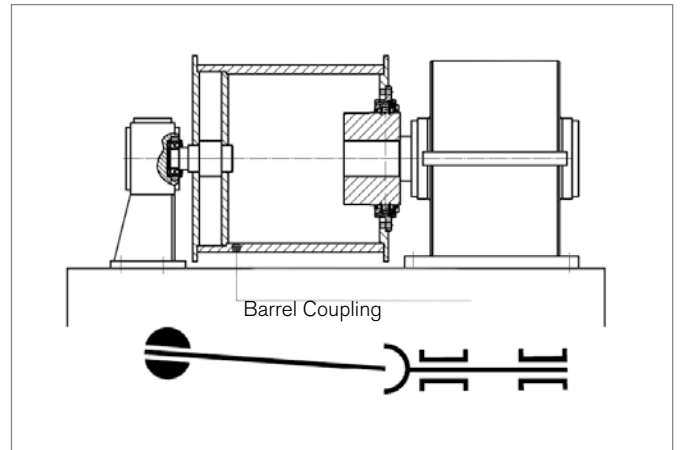
The wide range of RINGFEDER® drive couplings comprises the elastomeric, shock absorbing and fail-safe claw couplings of type RINGFEDER® TNS, the RINGFEDER® TNB couplings for very high torques, the gear couplings of type RINGFEDER® TNZ, to accommodate larger shaft misalignments and the maintenance-free steel disc couplings RINGFEDER® TND which are preferably equipped with brake discs, and optionally with brake drums.



Configuration of a double rope drum drive in a hoisting gear



Statically indeterminate because of three-point bearing. Misalignment errors cause considerable undesired reaction forces.



Statically determinate situation produced by the barrel coupling (joint). Discrepancies from the alignment will be balanced out.



RINGFEDER® TNK TKV

Power improved series

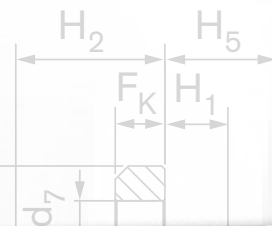


RINGFEDER® TNK TKVSG

Power improved series according to operation sheet of German Steel Iron Industry SEB 666212

Disclaimer of liability

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The barrels in the coupling typically dispose of an axial clearance so that axial movements between the rope drum and the gearbox are compensated. In such a configuration, the joint acts like a non-locating bearing. The barrels are axially secured to the hub by means of lock rings. The axial retention of the barrels in the SEB coupling version is even improved by additionally fitted pressure rings. In some applications, the barrel coupling has to take the role

of a fixed bearing what can be realized by design modifications. The use of high-strength materials allows a considerable increase of the transmission capability without requiring any change of the design and overall dimensions. As a result, a smaller coupling size can often be selected. The lower weight and the resulting lower acceleration forces contribute significantly to the energy efficiency of the crane.

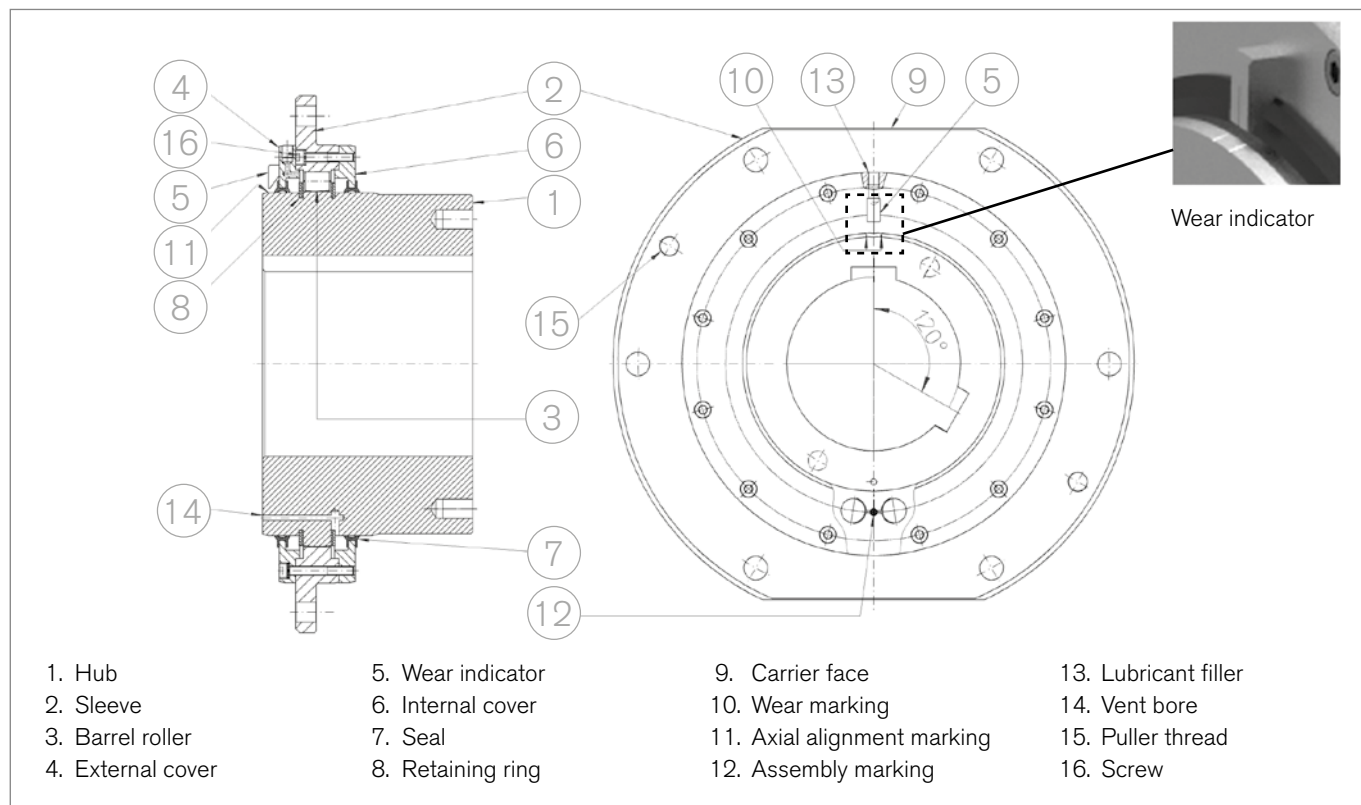
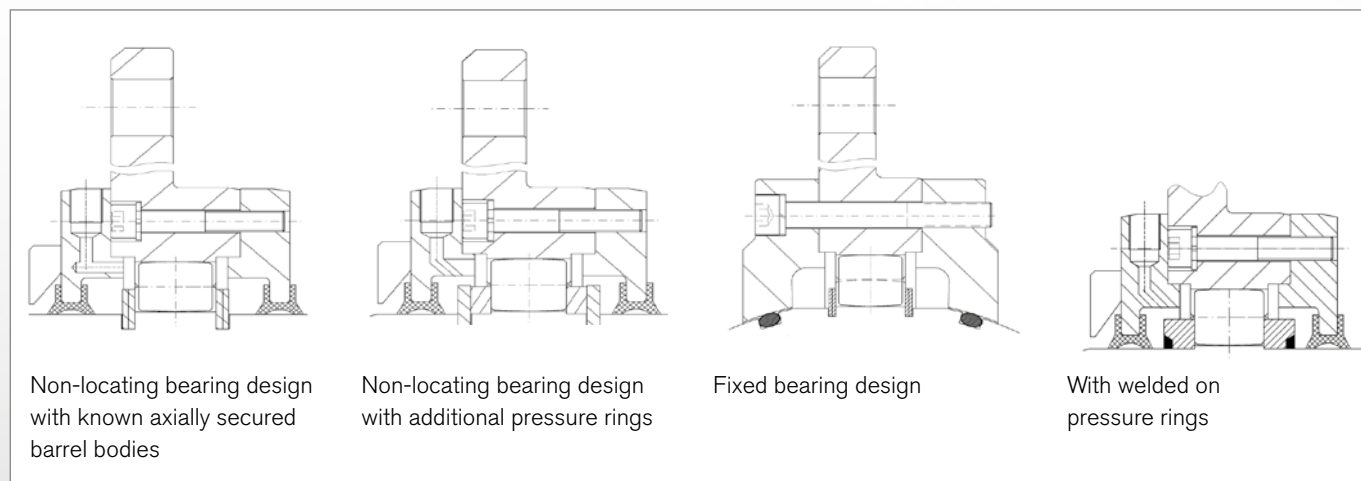


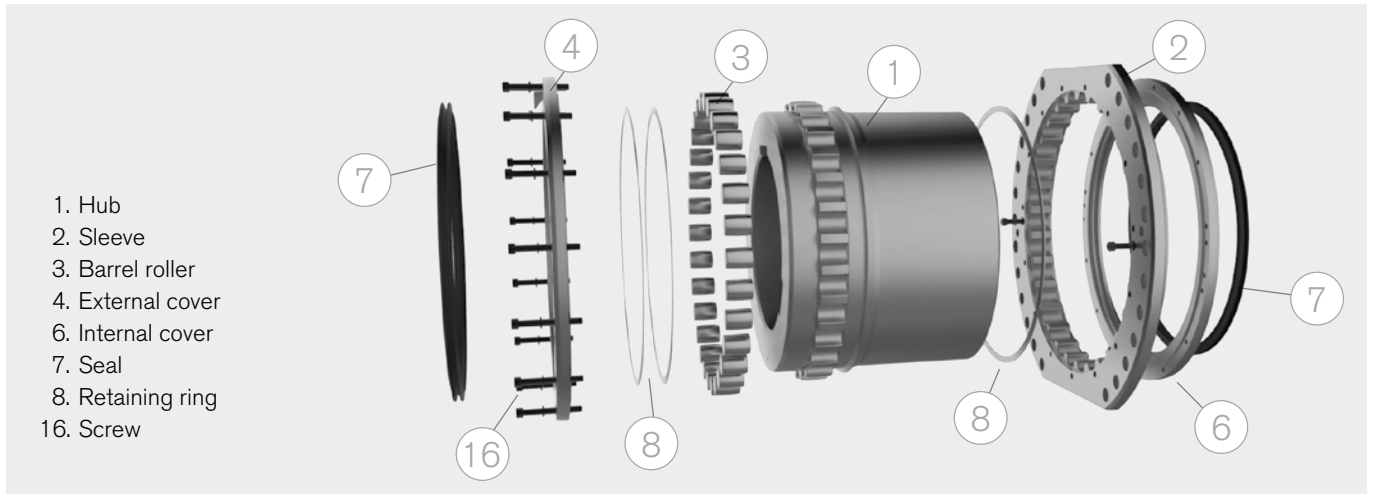
Fig. 1: Configuration and components of a barrel coupling

The torque that is induced via the gearbox output shaft is transferred over the hub and the barrel rollers into the housing. The housing transmits the torque into the drum over the bolting and two carrier faces provided on the rope drum.

bricant from escaping. An indicator that is attached to the external cover (part no. 5 in Fig. 1) allows to check the wear and the axial position (axial alignment marking, part no. 11 in Fig. 1) of the coupling housing relative to the coupling hub. If the barrel coupling has to be dismantled, assembly markings ensure easy re-assembly at a later point of time.

The internal and external covers, each of which is equipped with a lip seal, effectively prevent foreign matter from entering and lu-





Coupling size selection

Considering the group classification according to FEM or DIN, the coupling size is determined on basis of:

1. the torque to be transmitted
2. the applied radial load
3. verification of the geometric dimension

1. Selection on basis of the torque to be transmitted

For the coupling size selection applies:

$$T_{Kmax} > T_K$$

T_{Kmax} = the type-dependent maximum torque of the barrel coupling (see Tables & Values)

It can be calculated on basis of:

- a) maximum motor power or installed power
- b) required motor power

a) Calculating the torque on basis of the maximum motor power P_i

In this approach, the power reserve of the motor is included in the calculation of the torque:

T_K	=	$9550 \cdot P_i / n \cdot k_1$	[Nm]
T_K	=	Coupling torque at the rope drum	[Nm]
P_i	=	Installed motor power	[kW]
n	=	Rotary speed of the rope drum	[rpm]
k_1	=	Service factor	[-]

Service factor k_1 to the group classification acc. to (*)

DIN 15020 (1974)	Class		Factor k_1
	FEM (1970)	FEM 1.001 (1998) BS466 (1984)	
1 Bm	IB	M1, M2, M3	1,12
1 Am	IA	M4	1,25
2 m	II	M5	1,4
3 m	III	M6	1,6
4 m	IV	M7	1,8
5 m	V	M8	2
L4-T8-M8; L3-T9-M8; L4-T9-M8			2,2

(*) Service factor according to standardized calculation method, version (year)

b) Calculating the torque on basis of the required power P_N

In this approach, the torque required to lift the load is calculated taking into account the system-related additional forces:

$$P_N = F_R \cdot v_T / 60000 \quad [\text{kW}]$$

$$T_K = 9550 \cdot P_N / n \cdot k_1 \quad [\text{Nm}]$$

or

$$T_K = F_R \cdot D / 2 \cdot k_1 \quad [\text{Nm}]$$

P_N = Required power [kW]
 F_R = Entire tackle at the drum, including the lifting gear paying regard to the efficiencies and drum bearings [N]

(see 2. selection on basis of the radial load)

$$v_T = \text{Rope velocity at the drum} \quad [\text{m/min}]$$

$$D = \text{Effective winding diameter at the drum} \quad [\text{m}]$$

2. Selection on basis of the radial load acting on the barrel coupling

a) Determination of the radial load acting on the barrel coupling

The radial force F_S acting on the barrel coupling is composed of the pull on account of the working load and weight of the lifting device and of the impact of the rope sheave and the efficiency of the bearings.

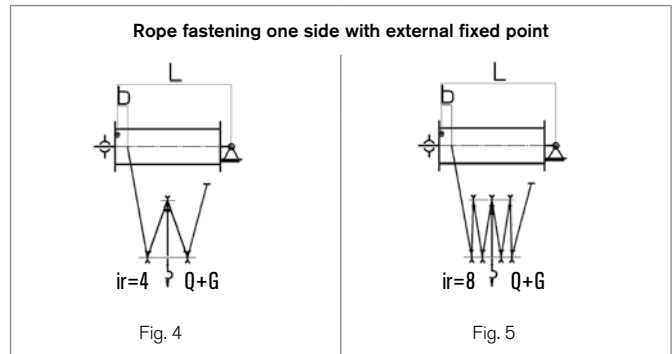
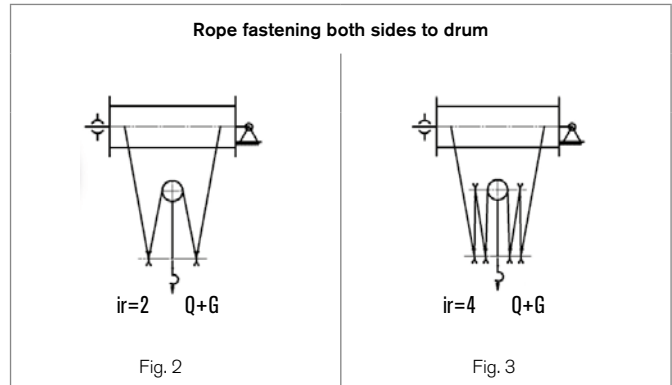
$$F_S = (Q + G) / (ir \cdot \eta) \quad [\text{N}]$$

Q = Max. force of the working load [N]
 G = Weight force of the lifting device and the rope ($m \cdot g$) [N]
 m = Mass [kg]
 g = 9.81 (gravity acceleration) [m/s^2]
 η = Efficiency of the support bearing and lifting device bearing [-]

The transmission ratio ir is determined as a function of rope fastening, number of pulley and tackles:

$$ir = \text{Transmission ratio} = \frac{\text{Total number of rope lines in the lifting device}}{\text{Number of rope lines to the drum}} [-]$$

Efficiency η							
ir	2	3	4	5	6	7	8
η with plain bearings	0,92	0,9	0,88	0,86	0,84	0,83	0,81
η with ball bearings	0,97	0,96	0,95	0,94	0,93	0,92	0,91



The transmission ratio and the used bearings in the lifting device determine the efficiency η

b) Calculation of the radial load acting on the barrel coupling

In this approach, the impact of an inclined rope guide by the tackles and pulleys and the drum diameter is neglected because these effects, calculated by the equation below, reduce the radial force F_T acting on the barrel coupling.

For systems with two ropes at the drum, see fig. 2 & 3

$$F_T = F_S / 2 + W / 2$$

For systems with only one rope at the drum, see fig. 4 & 5

$$F_T = F_S (1 - b / L) + W / 2$$

W = Weight of the drum including rope and the connected parts of the barrel coupling [N]
 b = Minimal distance between rope and joint of the barrel coupling [m]
 L = Distance between the bearing locations of the rope drum [m]

According to the design rules of FEM 1.001, version 1998 and BS466, version 1984, the safety factor k_2 has to be considered for the radial load:

Safety factor k_2				
Load spectrum	L1	L2	L3	L4
k_2	1,05	1,1	1,15	1,2

The value F_R which is to be calculated for the selected coupling must be lower than the permissible radial load F_{Rmax} indicated in the tables.

$$F_R = F_T \cdot k_2 < F_{Rmax} \quad [Nm]$$

c) Size optimization on account of permissible correction of the calculation

The loads due to torque and radial force correlate, so that in case one of the maximum values is not fully used up, the other value can be corrected. This may in some cases allow the use of a smaller coupling size.

Case 1: Radial load correction -> F_C [Nm]

The torque capability of the selected size is not yet fully used and the calculated radial force F_R is above the permissible value. It is:

$$F_C = F_{Rmax} + (T_{max} - T_K) \cdot C > F_R \text{ and } F_C < 1.5 \cdot F_{Rmax}$$

Case 2: Torque correction -> T_C [Nm]

The calculated torque is just above the permissible torque of the coupling, however, the permissible radial load F_{Rmax} is not yet fully used up. It is:

$$T_C = T_{max} + (F_{Rmax} - F_T) / (C \cdot k_1) \text{ and } T_C < 1.08 \cdot T_{max}$$

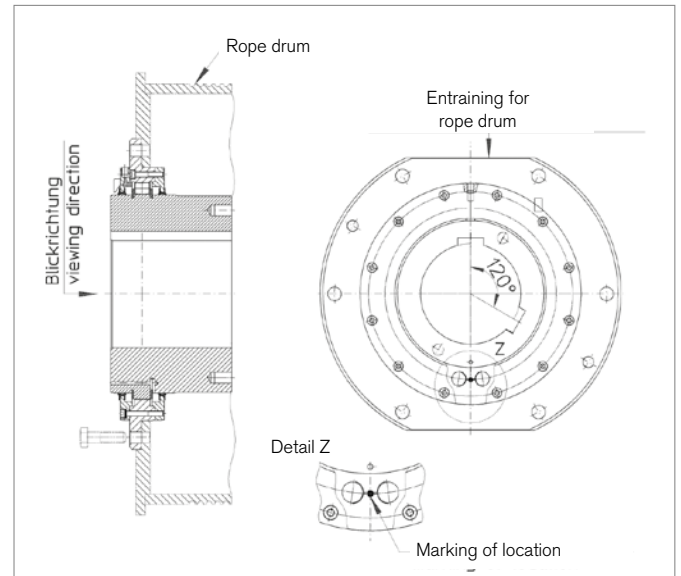
Correction factor C for T_{Kmax}/F_{Rmax}			
Coupling size	C	Coupling size	C
25	14,8	1000	4,4
50	13,7	1500	3,7
75	11,4	2100	3,6
100	10,8	2600	3,3
130	9,0	3400	3,3
160	8,7	4200	2,9
200	7,4	6200	2,6
300	7,2	8200	2,4
400	6,1	9200	2,2
500	5,3	10200	1,9
600	4,8	---	---

3. Checking the connection geometry

As a standard, the hubs of the barrel couplings are equipped with 2 keyways offset by 120° according to DIN 6885-1. The position of the keyways is always specified in viewing direction of the rope drum

drum. Other hub-shaft connections can also be provided. The transmission capability of the hub-shaft connection has to be checked for each type of connection. If an interference fit is used as a hub-shaft connection, the influence of the interference on the functionally required clearance of the barrel coupling has to be checked by us.

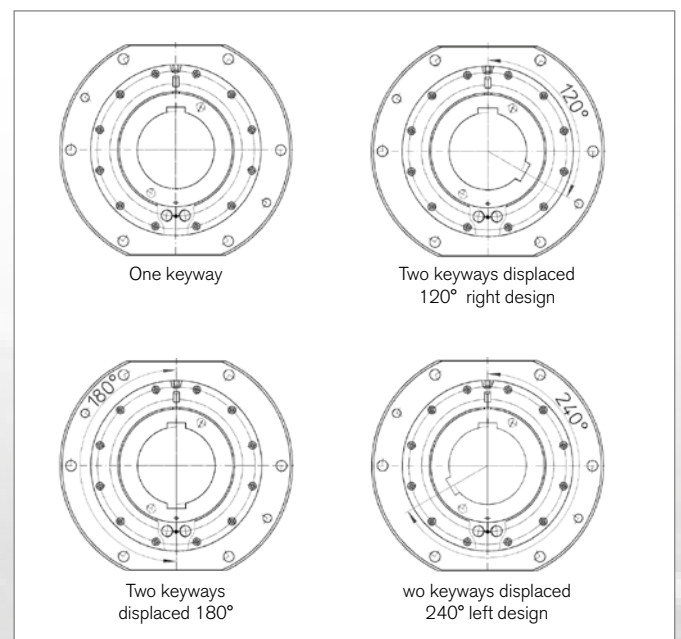
The installation of a hub with interference fit is often done in warm condition of the hub. This requires the prior removal of the barrel coupling. While assembling the individual components, the position marking must always be observed. This marking can be found on a tooth opposite to the wear marking.

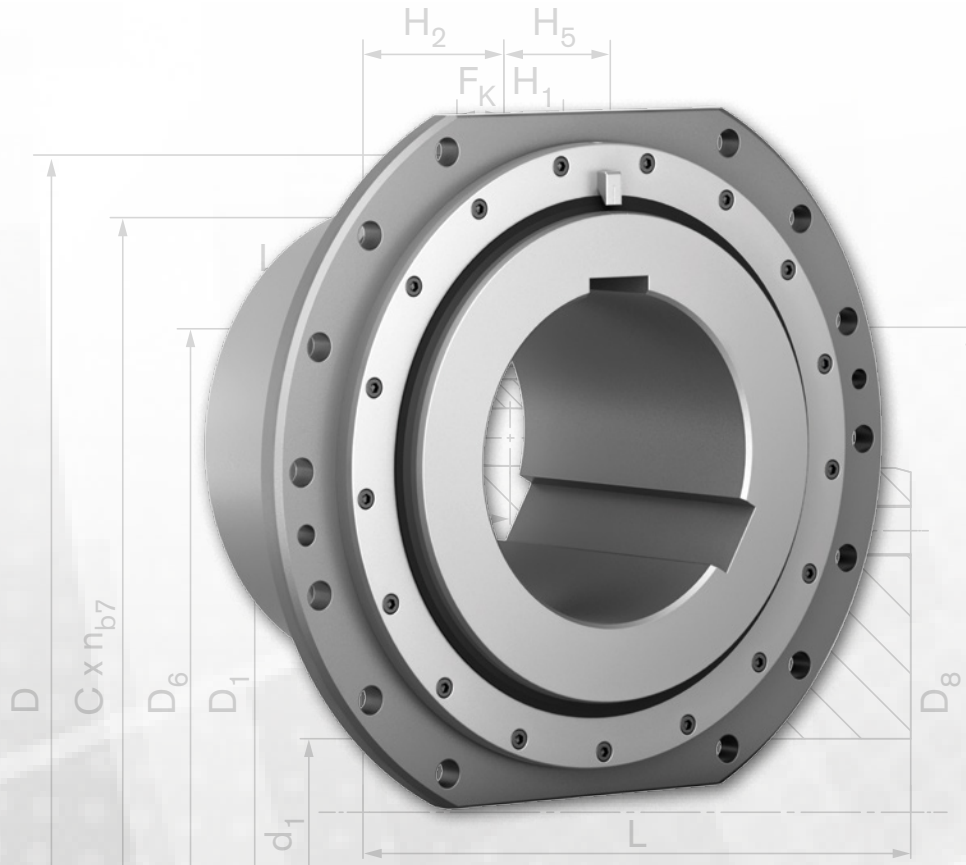


The position of the keyways is always defined in viewing direction of the rope drum.

The flange is included in the rope drum through the face S (h9/F8) to secure the torque transmission capacity, as is standard for rope drums. The connecting screws must have at least strength category 10.9.

The position of the keyways is always defined in viewing direction of the rope drum.





TNK TKV

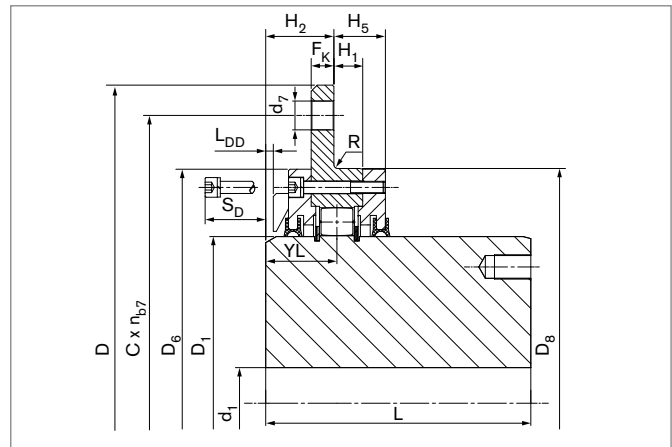
Further information on
RINGFEDER® TNK TKV
on www.ringfeder.com

Power improved series

RINGFEDER® TNK TKV of reinforced-material

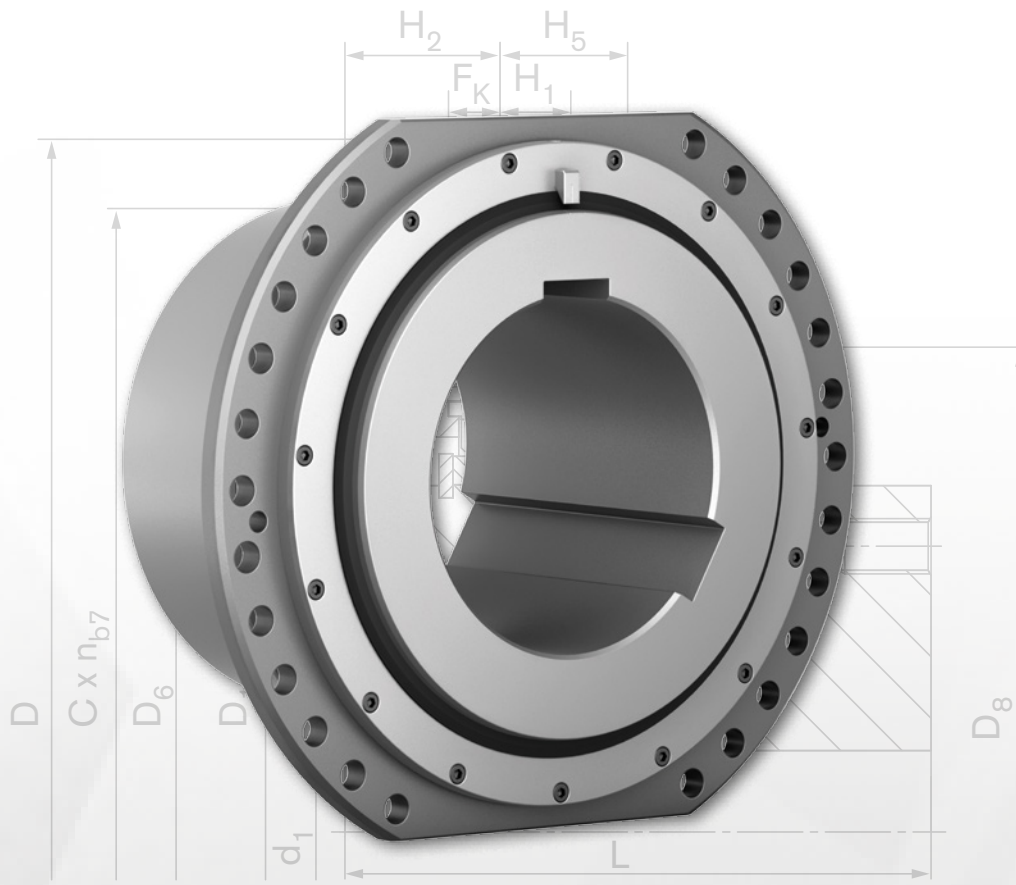
Power improved series

Proven design, hub and housing of reinforced material to transmit higher torque and higher radial load by same designed space.



Characteristics

- Torsionally rigid, compensate for angular and axial shaft misalignment
- Torque transmission by hardened steel rollers
- With standardised connection to rope drums in crane lifting gear
- Outer diameters up to 850 mm
- With wear indicator for easier monitoring of the situation
- Bores up to 425 mm
- Torques up to $T_{Kmax} = 815.000 \text{ Nm}$
- Maximum radial load $F_R = 490.000 \text{ N}$



TNK TKVSG

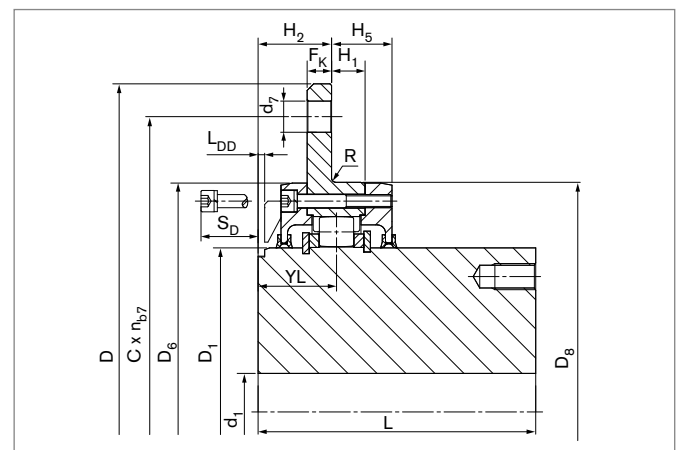
Further information on
RINGFEDER® TNK TKVSG
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Power improved SEB series

RINGFEDER® TNK TKVSG (SEB-design)

Construction and design acc. to operation sheet of German Steel Iron Industry SEB 666212.

Hub and housing of reinforced material - Additional retainer rings improve axial fixing of the barrel by created axial rope forces.



Characteristics

- Torsionally rigid, compensate for angular and axial shaft misalignment
- Torque transmission by hardened steel rollers
- With standardised connection to rope drums in crane lifting gear
- Outer diameters up to 1120 mm
- With wear indicator for easier monitoring of the situation
- Bores up to 550 mm
- Torques up to $T_{Kmax} = 1.390.000 \text{ Nm}$
- Maximum radial load $F_R = 670.000 \text{ N}$

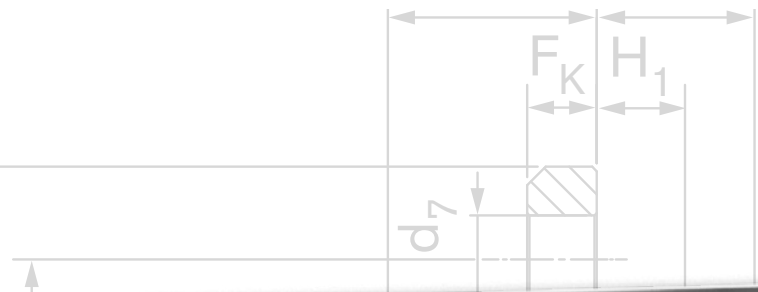


Barrel Couplings

RINGFEDER® TNK

Tables & Values

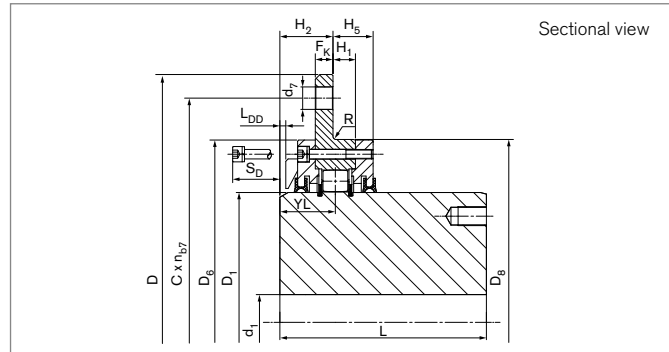
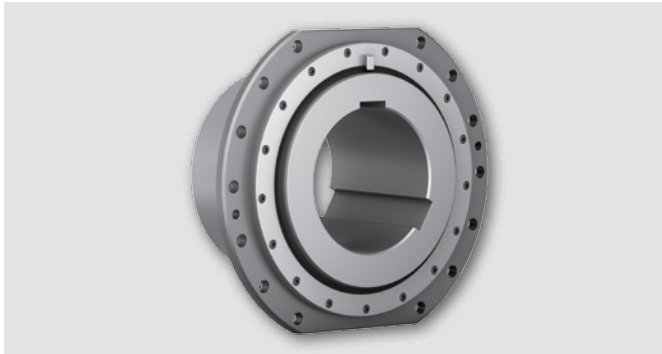
The equations and recommendations from the chapter 'Coupling size selection' must be taken into account in order to determine coupling size.



Barrel Couplings

RINGFEDER® TNK TKV

Power improved series



Identifier	Size	T _{Kmax}	F _{rad}	d _{1kmin}	d _{1kmax}	D	L	L _{min}	D ₁	D ₆	D ₈	H ₁	R	H ₂	F _K	H ₅	YL
		Nm	N	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
WG7125	25	6500	17500	20	66	250	95	85	95	159	160	16	2,5	42	12	31	44,0
WG7128	50	8400	20000	20	77	280	100	85	110	179	180	16	2,5	42	12	31	44,0
WG7132	75	10500	21500	20	88	320	110	95	125	199	200	17	2,5	45	15	32	46,0
WG7134	100	16000	28000	20	98	340	125	95	140	219	220	17	2,5	45	15	32	46,0
WG7136	130	21500	37000	47	112	360	130	95	160	239	240	19	2,5	45	15	34	47,0
WG7138	160	27000	42500	47	126	380	145	95	180	259	260	19	2,5	45	15	34	47,0
WG7140	200	31500	48000	47	140	400	170	95	200	279	280	19	2,5	45	15	34	47,0
WG7142	300	39000	53000	47	155	420	175	95	220	309	310	19	2,5	45	15	34	47,0
WG7145	400	53500	75000	47	183	450	185	120	260	339	340	22	2,5	60	20	40	61,0
WG7151	500	91000	118000	77	210	510	220	125	295	399	400	22	2,5	60	20	42	61,0
WG7155	600	127000	132000	77	220	550	240	125	310	419	420	22	2,5	60	20	42	61,0
WG7158	1000	180000	145000	102	250	580	260	130	350	449	450	22	2,5	60	20	42	61,0
WG7165	1500	241000	184000	102	295	650	315	140	415	529	530	27	2,5	65	25	47	66,0
WG7166	2100	360000	283000	102	305	665	330	145	430	544	545	34	4,0	65	25	54	69,5
WG7168	2600	425000	330000	102	315	680	350	145	445	559	560	34	4,0	65	25	54	69,5
WG7171	3400	529000	366000	178	335	710	380	165	475	599	600	34	4,0	81	35	59	85,5
WG7178	4200	660000	420000	208	380	780	410	165	535	669	670	34	4,0	81	35	59	85,5
WG7185	6200	815000	490000	238	425	850	450	165	600	729	730	34	4,0	81	35	59	85,5

To continue see next page

Barrel Couplings RINGFEDER® TNK TKV

Identifier	Size	C	n _{b7}	d ₇	S (h9/F8)	S _D	G _G	L _{DD}	X _a	J _{sb}	G _{w_{sb}}
		mm		mm	mm	mm	inch	mm	mm	10 ⁻³ kgm ²	kg
WG7125	25	220	10	15	220	50	G1/8	5	+/-3	60	12
WG7128	50	250	10	15	250	50	G1/8	5	+/-3	90	16
WG7132	75	280	10	19	280	60	G1/8	5	+/-4	170	23
WG7134	100	300	10	19	300	60	G1/8	5	+/-4	230	29
WG7136	130	320	10	19	320	60	G1/8	5	+/-4	320	35
WG7138	160	340	10	19	340	60	G1/8	5	+/-4	440	45
WG7140	200	360	10	19	360	60	G1/8	5	+/-4	610	59
WG7142	300	380	10	19	380	60	G1/8	5	+/-4	850	73
WG7145	400	400	10	24	400	70	G1/4	9	+/-4	1450	101
WG7151	500	460	10	24	460	70	G1/4	7	+/-6	2860	152
WG7155	600	500	10	24	500	70	G1/4	7	+/-6	3730	180
WG7158	1000	530	14	24	530	70	G1/4	7	+/-6	5350	228
WG7165	1500	600	14	24	580	80	G1/4	7	+/-6	11640	379
WG7166	2100	615	26	24	590	90	G1/4	7	+/-6	13790	426
WG7168	2600	630	26	24	600	90	G1/4	7	+/-6	16070	477
WG7171	3400	660	26	28	640	90	G1/4	13	+/-8	22730	545
WG7178	4200	730	26	28	700	90	G1/4	13	+/-8	35260	725
WG7185	6200	800	26	28	760	90	G1/4	13	+/-8	59650	961

Explanations

T_{Kmax} = Max. transmissible torque of the coupling	D₆ = Diameter	d₇ = Bore diameter
F_{rad} = Admissible force radial	D₈ = Outer diameter	S (h9/F8) = Distance of the flattening
d_{1kmin} = Min. bore diameter d ₁ with keyway acc. to DIN 6885-1	H₁ = Length	S_D = Disassembly Space
d_{1kmax} = Max. bore diameter d ₁ with keyway acc. to DIN 6885-1	R = Radius	G_G = Whitworth thread
D = Outer diameter	H₂ = Distance	L_{DD} = Distance dimension
L = Total length	F_K = Flange thickness	X_a = Axial gap max.
L_{min} = Minimum length	H₅ = Distance	J_{sb} = Moment of inertia at smallest bore diameter
D₁ = Outer diameter	Y_L = Distance	G_{w_{sb}} = Weight at smallest bore diameter
	C = Pitch circle diameter	
	n_{b7} = Quantity of bore d ₇	

Ordering example

Identifier	Size	d _{1k}
WG7155	600	190

Further information on
RINGFEDER® TNK TKV
 on www.ringfeder.com

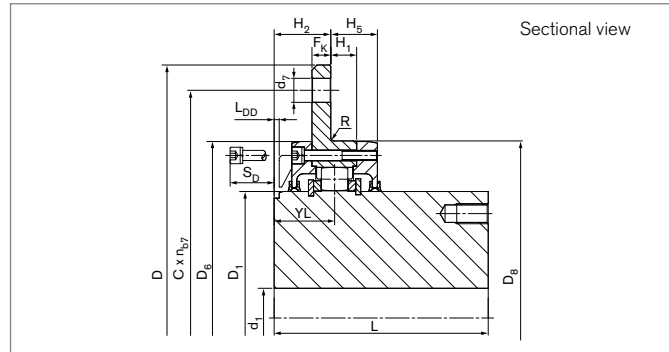
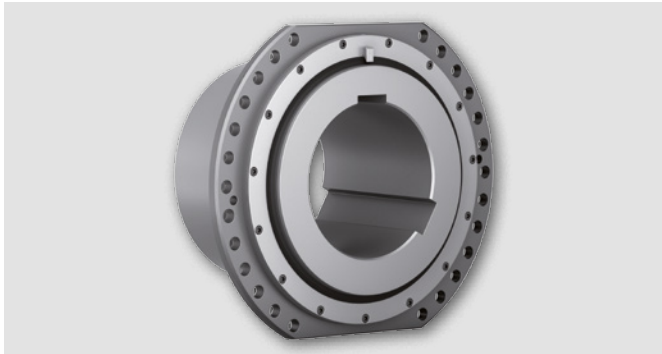
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Barrel Couplings

RINGFEDER® TNK TKVSG

Power improved SEB series



Identifier	SEB 666212	Size	T _{Kmax}	F _{rad}	d _{1kmin}	d _{1kmax}	D	L	L _{min}	D ₁	D ₆	D ₈	H ₁	R	H ₂	F _K	H ₅	YL
			Nm	N	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
WG7340	SG130	200	31500	48000	47	140	400	170	100	200	279	280	20,5	2,5	45	15	37,0	48,0
WG7342	(*)	300	39000	53000	47	155	420	175	100	220	309	310	25,0	2,5	45	15	40,0	50,0
WG7345	SG140	400	53500	75000	47	183	450	185	120	260	339	340	21,0	2,5	60	20	39,0	60,5
WG7351	(*)	500	91000	118000	77	210	510	220	135	295	399	400	29,0	2,5	60	20	49,0	64,5
WG7355	SG185	600	127000	132000	77	220	550	240	135	310	419	420	29,0	2,5	60	20	49,0	64,5
WG7358	SG200	1000	180000	145000	102	250	580	260	140	350	449	450	29,5	2,5	60	20	49,5	65,0
WG7365	SG240	1500	241000	184000	102	295	650	315	145	415	529	530	31,5	2,5	65	25	51,5	68,5
WG7366	(*)	2100	360000	283000	102	305	665	330	155	430	544	545	43,0	4,0	65	25	64,0	74,0
WG7368	SG270	2600	425000	330000	102	315	680	350	155	445	559	560	43,0	4,0	65	25	64,0	74,0
WG7371	SG315	3400	529000	366000	178	335	710	380	175	475	599	600	38,0	4,0	81	35	63,0	86,0
WG7378	SG355	4200	660000	420000	208	380	780	410	175	535	669	670	40,0	4,0	81	35	66,0	87,5
WG7385	SG400	6200	815000	490000	238	425	850	450	175	600	729	730	42,0	4,0	81	35	66,0	87,5
WG7394	(*)	8200	930000	525000	---	460	940	500	191	650	796	800	44,0	4,0	86	40	62,0	92,0
WG7310	(*)	9200	1100000	550000	---	490	1025	500	191	695	856	860	44,0	4,0	86	40	62,0	92,0
WG7311	(*)	10200	1390000	670000	---	550	1120	500	191	780	946	950	44,0	4,0	86	40	62,0	92,0

*Construction and design acc. to operation sheet of German Steel Iron Industry SEB 666212

To continue see next page

Barrel Couplings RINGFEDER® TNK TKVSG

Identifier	SEB 666212	Size	C	n_{b7}	d_7	S (h9/F8)	S_D	G_G	L_{DD}	X_a	J_{sb}	G_{Wsb}
			mm		mm	mm	mm	inch	mm	mm	$10^{-3}kgm^2$	kg
WG7340	SG130	200	360	10	19	360	60	G1/8	4	+/-4	630	60
WG7342	(*)	300	380	10	19	380	60	G1/8	5	+/-4	870	74
WG7345	SG140	400	400	10	24	400	70	G1/4	9	+/-4	1450	101
WG7351	(*)	500	460	10	24	460	70	G1/4	7	+/-6	2920	154
WG7355	SG185	600	500	10	24	500	70	G1/4	7	+/-6	3790	182
WG7358	SG200	1000	530	14	24	530	70	G1/4	7	+/-6	5410	227
WG7365	SG240	1500	600	14	24	580	80	G1/4	7	+/-6	11680	380
WG7366	(*)	2100	615	26	24	590	90	G1/4	6	+/-6	13900	427
WG7368	SG270	2600	630	26	24	600	90	G1/4	6	+/-6	16550	478
WG7371	SG315	3400	660	26	28	640	90	G1/4	10	+/-8	22930	548
WG7378	SG355	4200	730	26	28	700	90	G1/4	10	+/-8	37480	725
WG7385	SG400	6200	800	26	28	760	90	G1/4	10	+/-8	59580	960
WG7394	(*)	8200	875	32	28	830	95	G1/4	10	+/-10	88210	1011
WG7310	(*)	9200	945	32	34	900	95	G1/4	10	+/-10	118920	1062
WG7311	(*)	10200	1040	32	34	1000	95	G1/4	10	+/-10	181970	1315

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Explanations

T_{Kmax} = Max. transmissible torque of the coupling	D_6 = Diameter	d_7 = Bore diameter
F_{rad} = Admissible force radial	D_8 = Outer diameter	S (h9/F8) = Distance of the flattening
d_{1kmin} = Min. bore diameter d_1 with keyway acc. to DIN 6885-1	H_1 = Length	S_D = Disassembly Space
d_{1kmax} = Max. bore diameter d_1 with keyway acc. to DIN 6885-1	R = Radius	G_G = Whitworth thread
D = Outer diameter	H_2 = Distance	L_{DD} = Distance dimension
L = Total length	F_K = Flange thickness	X_a = Axial gap max.
L_{min} = Minimum length	H_5 = Distance	J_{sb} = Moment of inertia at smallest bore diameter
D_1 = Outer diameter	YL = Distance	G_{Wsb} = Weight at smallest bore diameter
	C = Pitch circle diameter	
	n_{b7} = Quantity of bore d_7	

Ordering example

Identifier	Size	d_{1k}
WG7378	4200	340

Further information on
RINGFEDER® TNK TKVSG
 on www.ringfeder.com

Disclaimer of liability

All technical details and notes are non-binding and cannot be used as a basis for legal claims. The user is obligated to determine whether the represented products meet his requirements. We reserve the right carry out modifications at any time in the interests of technical progress.



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