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# Welcome to your system supplier for every aspect of power transmission



## RINGFEDER POWER TRANSMISSION

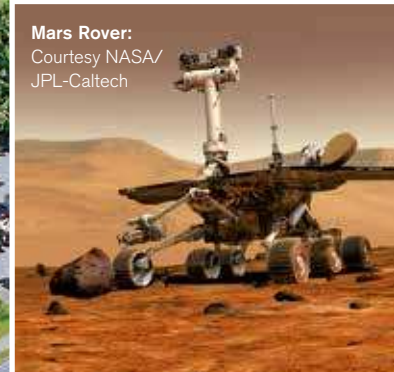
- We say what we mean and mean what we say.
- We see things from our customers' perspective.
- We are considerate of our employees and their families as well as our environment and the society.

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.





Mars Rover:  
Courtesy NASA/  
JPL-Caltech



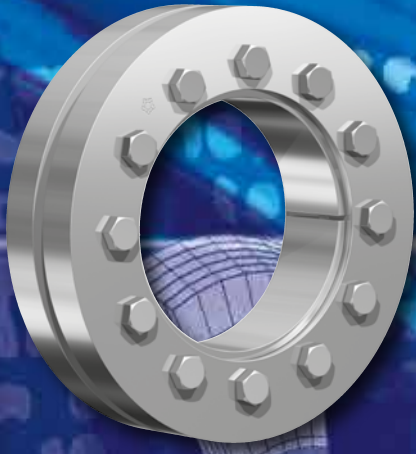
We offer locking devices, couplings, bearing housings and damping technology for OEMs but also for the final customer under our strong brand names RINGFEDER, TSCHAN, HENFEL and GERWAH. Our brand ECOLOC supplies reliable products off the shelf.

We 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





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**RINGFEDER® Shrink Discs**







## Characteristics

Shrink discs are the modern method for creating a mechanical shrink fit. The shrink disc consists of either one or two thrust rings with tapered bores and a mating tapered inner ring. By tightening locking screws the thrust rings are drawn together compressing the inner ring and applying pressure to the outside of the hub clamping it to the shaft. Being positioned around the hub there is only one interface transmitting the loads giving the shrink disc method distinct advantages such as offering the possibility of very concentric and well balanced connections that are suited to high speed applications. Traditional shrink fits require complicated calculations, close machining tolerances and fine surface finishes, they also need considerable effort with mounting and removal. The shrink disc connection has none of these disadvantages and is better than any of the other usual connection methods with regard to fatigue strength under alternating torsional stress.

Unlimited range of applications – RINGFEDER® Shrink Disc connections are suitable for securing all types of hubs onto shafts and axles. Replacing traditional shrink fits, keys and polygon connections, splined shafts etc. So cog wheels and sprockets, levers, lifters, cam discs, pulleys or brake discs, balance wheels, couplings, slip on gear mechanisms, flanges, pulley wheels and rotors can be attached absolutely reliable.

**Clearances considered for the calculation of the function values:**

$d_w$		ISO	max. Clearance S inch
above inch	up to inch		
0.236	0.394	H6/j6	0.0005
0.394	0.709		0.0006
0.709	1.181	H6/h6	0.0007
1.181	1.969	H6/g6	0.0013
1.969	3.150	H7/g6	0.0019
3.150	4.724		0.0027
4.724	7.087		0.0031
7.087	9.843		0.0035
9.843	12.402		0.0040
12.402	15.748		0.0044
15.748	19.685		0.0048
19.685	24.803		0.0054
24.803	31.496	0.0061	

Table is not valid for: RfN 4012, RfN 4022, RfN 4023

### Surface finishes

**For shaft diameter  $d_w$ : Peak-to-valley height  $R_a \leq 125$  RMS.**

Any other tolerances can be chosen. As long as the stated max. clearance is not exceeded, there will be no variations of the functional characteristics.

## Explanations to tables

### Basic dimensions when screws are not tightened

d	=	Inner diameter
D	=	Outer diameter
d <sub>w</sub>	=	Solid shaft diameter
d <sub>1</sub>	=	Pitch circle diameter
L	=	Overall length
L <sub>1</sub>	=	Overall length without screws
L <sub>2</sub>	=	Thrust ring width
L <sub>3</sub>	=	Width of ring
L <sub>B</sub>	=	Width of the half shrink disc
Z	=	Depth of center value
T <sub>A</sub>	=	Max. tightened torque of the screws
T	=	Transmissible torque at given T <sub>A</sub>
F <sub>ax</sub>	=	Transmissible axial force
G <sub>w</sub>	=	Weight
P	=	Hub surface pressure
σ <sub>v</sub>	=	Equivalent stress in the hub
n <sub>Sc</sub>	=	Quantity of screws
G	=	Center diameter
R	=	Radius
T <sub>max</sub>	=	Max. transmissible torque
σ <sub>v</sub>	=	Calculated combined stress in the hub extension (d/d <sub>w</sub> ) under consideration of the tangential, radial and torsional stresses following the equation:

$$\sigma_v = \sqrt{\frac{1}{2} [(\sigma_x - \sigma_y)^2 + (\sigma_y - \sigma_z)^2 + (\sigma_z - \sigma_x)^2] + 3\tau^2}$$

Additional loads, e.g. tension, thrust or bending have to be taken into consideration accordingly.

### Function values

The functional characteristics are valid with the screw tightening torque listed in the tables and the following assumed conditions:

The locking screws are lubricated using MoS<sub>2</sub> (μ<sub>tot</sub> = 0,1).

The tapered cones are lubricated using MoS<sub>2</sub> (μ = 0,05).

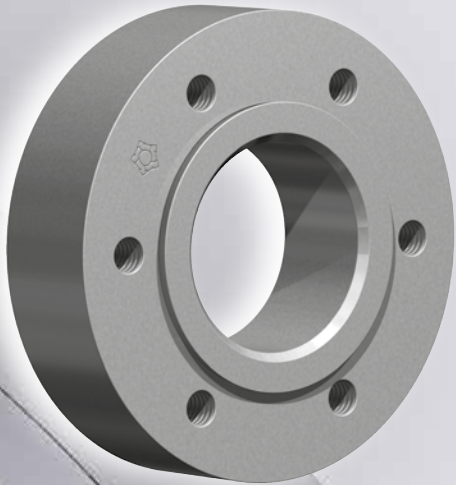
The contact surfaces (d<sub>w</sub>) are in lightly oiled condition with coefficient of friction μ = 0,12.

The hub and shaft materials have a modulus of elasticity of 210,000 N/mm<sup>2</sup>. (Lower values result in increased values for T and F<sub>ax</sub> with reduced tangential stress.)

The maximum clearance S is being fully utilized.

The shaft being used is solid, for hollow shaft applications the functional values will change.

In cases where the assumed conditions do not apply then contact our Technical Department where we will be happy to assist you with your application.



## Characteristics

**Reduced dimensions** – for lower transmissible torques, especially for applications with restricted space.

**Compensation of small tolerance errors** – please contact our engineers.

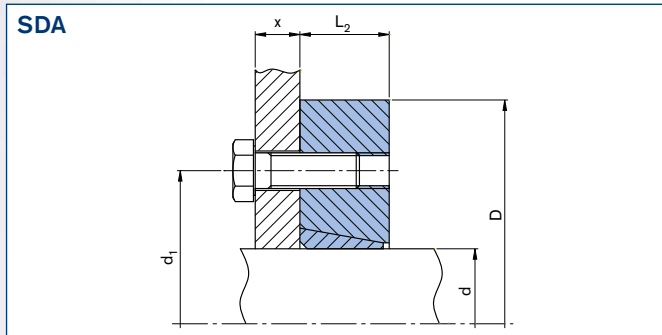
**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

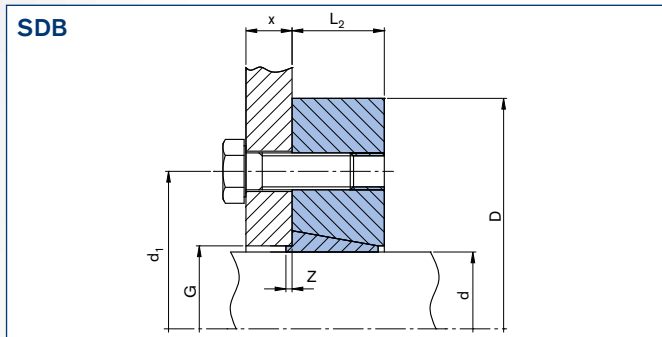
**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

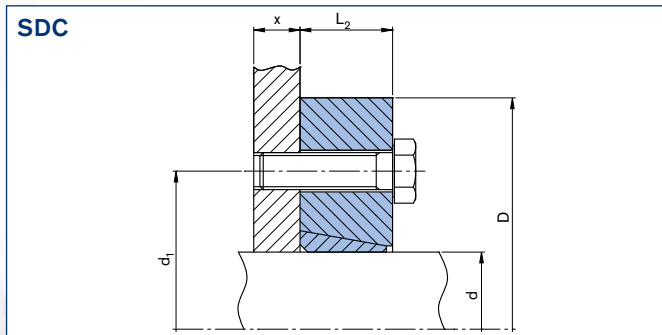
## Description of configurations



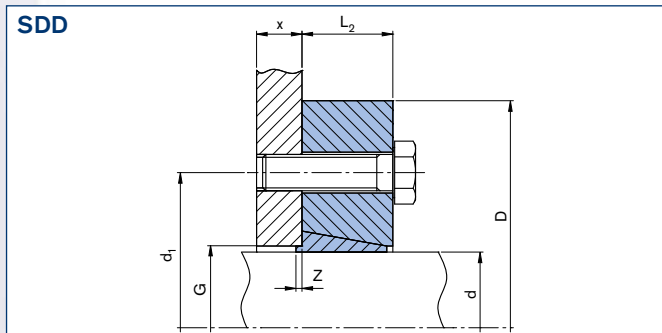
RfN 4012 configuration SDA thread in shrink disc without centering



RfN 4012 configuration SDB thread in shrink disc with centering



RfN 4012 configuration SDC through boring in shrink disc without centering



RfN 4012 configuration SDD through boring in shrink disc with centering

Type	Shrink Discs dimensions						T <sub>A</sub> <sup>1)</sup>	Transmissible torques	Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9			
	d x D		d <sub>1</sub>	G <sup>2)</sup>	L <sub>2</sub>	Z			T	Quantity	Thread	Gw
	mm	inch										
10 SD-x	9	0.354	0.984	0.472	0.394	0.059	9	15	3	M6	0.22	
	10 x 39	0.394 x 1.535						15				
	11	0.433						15				
12 SD-x	11	0.433	1.102	0.551	0.512	0.059	9	37	3	M6	0.22	
	12 x 44	0.472 x 1.732						37				
	13	0.512						37				
15 SD-x	14	0.551	1.417	0.709	0.591	0.079	22	96	3	M8	0.44	
	15 x 52	0.591 x 2.047						96				
	16	0.630						96				
20 SD-x	16	0.630	1.654	0.866	0.669	0.079	22	148	3	M8	0.66	
	18 x 60	0.709 x 2.362						148				
	20	0.787						148				
25 SD-x	20	0.787	1.890	1.063	0.748	0.079	22	251	5	M8	0.88	
	22 x 66	0.866 x 2.598						251				
	25	0.984						251				
30 SD-x	25	0.984	2.205	1.260	0.827	0.079	22	406	6	M8	1.32	
	28 x 76	1.102 x 2.992						406				
	30	1.181						406				
40 SD-x	30	1.181	2.756	1.693	0.984	0.118	45	782	6	M10	2.65	
	35 x 96	1.378 x 3.780						782				
	40	1.575						782				
50 SD-x	40	1.575	3.307	2.087	1.181	0.118	75	738	7	M12	3.97	
	45 x 112	1.772 x 4.409						1,328				
	50	1.969						1,623				

x = Configuration    SDA = Thread in shrink disc without centering    SDB = Thread in shrink disc with centering  
SDC = Through boring in shrink disc without centering    SDD = Through boring in shrink disc with centering

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table  
<sup>2)</sup> The bore tolerance of the customer component should be within the fit tolerance G6 and H7

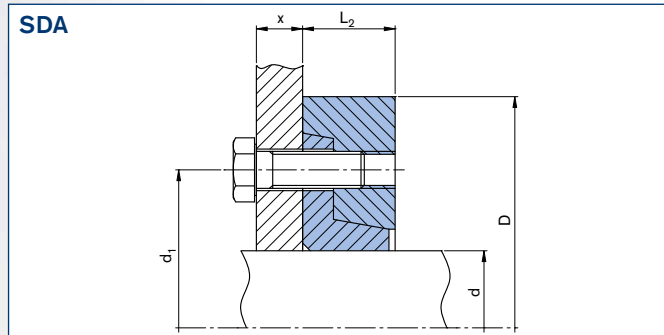
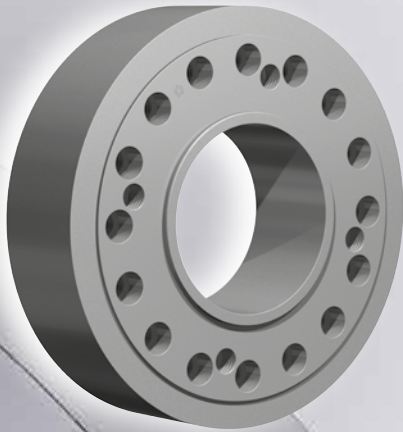
Ordering examples: RfN 4012

Series	Type	d
RfN 4012	40 SDA	1.378
RfN 4012	40 SDB	1.378
RfN 4012	40 SDC	1.378
RfN 4012	40 SDD	1.378

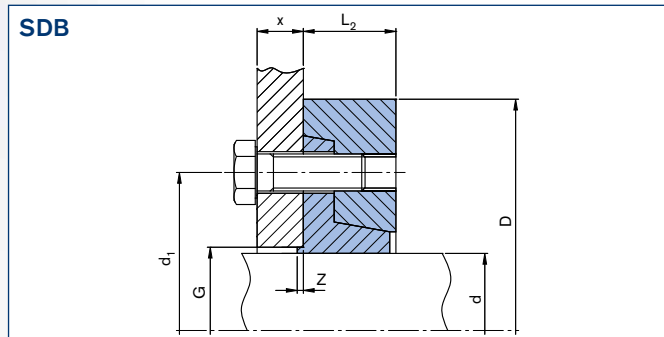
- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances  
For shaft h9
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

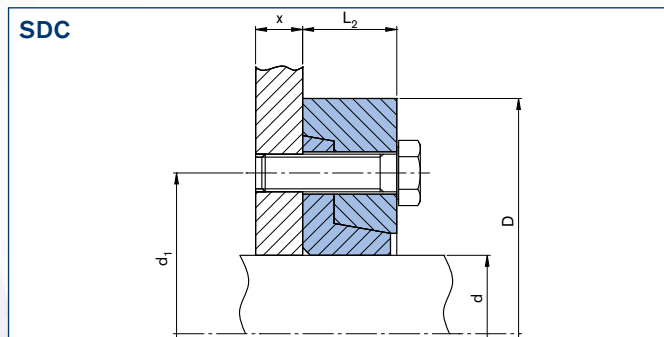
Description of configurations



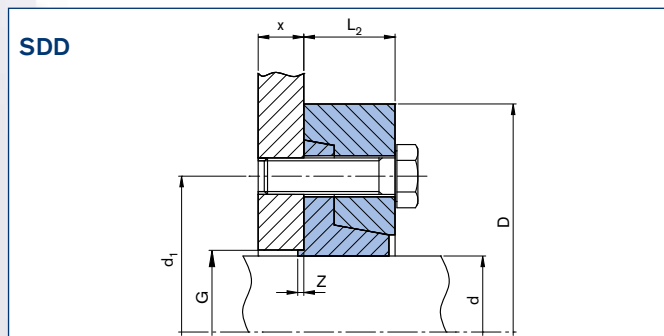
RfN 4022 configuration SDA thread in shrink disc without centering



RfN 4022 configuration SDB thread in shrink disc with centering



RfN 4022 configuration SDC through boring in shrink disc without centering



RfN 4022 configuration SDD through boring in shrink disc with centering

Type	Shrink Discs dimensions						T <sub>A</sub> <sup>1)</sup>	Transmissible torques	Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9						
	d x D		d <sub>1</sub>	G <sup>2)</sup>	L <sub>2</sub>	Z			T	Quantity	Thread	Gw			
	mm	inch											inch	inch	inch
12 SD-x	11	x 35	0.433	x 1.378	0.945	0.551	0.433	0.059	9	37	37	3	M6	0.22	
	12		0.472												---
	---		---												
14 SD-x	13	x 38	0.512	x 1.496	1.024	0.630	0.472	0.059	9	52	52	3	M6	0.22	
	14		0.551												---
	---		---												
16 SD-x	15	x 41	0.591	x 1.614	1.102	0.709	0.591	0.079	9	59	59	3	M6	0.22	
	16		0.630												---
	---		---												
18 SD-x	17	x 44	0.669	x 1.732	1.181	0.787	0.591	0.079	9	96	96	4	M6	0.22	
	18		0.709												---
	---		---												
20 SD-x	19	x 47	0.748	x 1.850	1.260	0.866	0.591	0.079	9	103	103	4	M6	0.44	
	20		0.787												---
	---		---												
25 SD-x	22	x 50	0.866	x 1.969	1.417	1.063	0.748	0.079	9	148	148	5	M6	0.44	
	24		0.945												---
	25*		0.984												---
30 SD-x	26	x 60	1.024	x 2.362	1.732	1.260	0.748	0.118	9	221	221	6	M6	0.66	
	28		1.102												---
	30		1.181												---
35 SD-x	32	x 72	1.260	x 2.835	2.047	1.496	0.827	0.118	22	332	369	5	M8	1.10	
	35		1.378												---
	36		1.417												---
40 SD-x	38	x 80	1.496	x 3.150	2.402	1.811	0.906	0.118	22	531	553	6	M8	1.32	
	40		1.575												---
	44		1.732												---
50 SD-x	42	x 90	1.654	x 3.543	2.677	2.087	0.984	0.118	22	738	959	8	M8	1.98	
	45		1.772												---
	50		1.969												---
55 SD-x	45	x 100	1.772	x 3.937	2.835	2.283	1.063	0.118	22	1,180	1,180	8	M8	2.65	
	52		2.047												---
	55		2.165												---
60 SD-x	50	x 110	1.969	x 4.331	3.150	2.480	1.063	0.118	22	1,475	1,475	9	M8	3.09	
	60		2.362												---
	62		2.441												---
70 SD-x	60	x 115	2.362	x 4.528	3.386	2.913	1.063	0.157	22	1,549	1,549	9	M8	3.09	
	65		2.559												---
	70		2.756												---
80 SD-x	70	x 138	2.756	x 5.433	3.937	3.307	1.142	0.157	45	2,950	2,950	10	M10	4.85	
	75		2.953												---
	80		3.150												---
90 SD-x	80	x 155	3.150	x 6.102	4.488	3.701	1.378	0.157	45	4,204	4,204	12	M10	7.5	
	85		3.346												---
	90		3.543												---
100 SD-x	90	x 170	3.543	x 6.693	4.882	4.094	1.575	0.157	75	6,196	6,196	12	M12	11.0	
	95		3.740												---
	100		3.937												---
110 SD-x	100	x 185	3.937	x 7.283	5.354	4.567	1.850	0.197	75	6,786	6,786	12	M12	13.2	
	105		4.134												---
	110		4.331												---

\*Screws ISO 4762

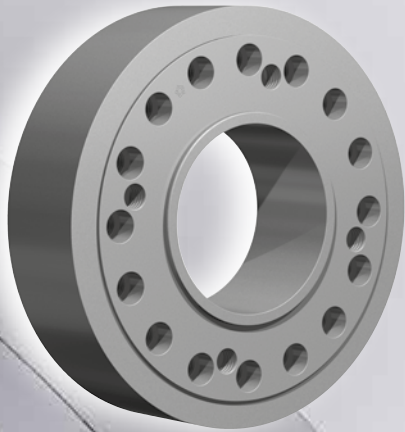
**x = Configuration**    **SDA** = Thread in shrink disc without centering    **SDB** = Thread in shrink disc with centering  
**SDC** = Through boring in shrink disc without centering    **SDD** = Through boring in shrink disc with centering

- <sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table  
<sup>2)</sup> The bore tolerance of the customer component should be within the fit tolerance G6 and H7

- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances  
For shaft h9
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

To continue see next page



### Characteristics

**Reduced dimensions** – for lower transmissible torques, especially for applications with restricted space.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

Type	Shrink Discs dimensions						T <sub>A</sub> <sup>1)</sup>	Transmissible torques	Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9			
	d x D		d <sub>1</sub>	G <sup>2)</sup>	L <sub>2</sub>	Z			T	Quantity	Thread	Gw
	mm	inch										
125 SD-x	115	4.528	6.299	4.961	1.969	0.197	185	14751	12	M16	19.8	
	120 x 215	4.724 x 8.465						15,489				
	125	4.921						15,489				
140 SD-x	130	5.118	6.772	5.748	2.126	0.197	185	19,177	14	M16	24.3	
	135 x 230	5.315 x 9.055						19,177				
	140	5.512						19,177				
155 SD-x	150	5.906	7.559	6.535	2.283	0.197	185	22,864	15	M16	33.1	
	155 x 263	6.102 x 10.354						22,864				
	160	6.299						22,864				
170 SD-x	160	6.299	8.031	6.929	2.441	0.197	185	26,552	16	M16	46.3	
	165 x 290	6.496 x 11.417						26,552				
	170	6.693						26,552				
180 SD-x	170	6.693	8.583	7.323	2.441	0.197	185	31,715	18	M16	48.5	
	175 x 300	6.890 x 11.811						31,715				
	180	7.087						31,715				
190 SD-x	180	7.087	9.134	7.717	3.110	0.197	361	44,254	15	M20	70.6	
	185 x 320	7.283 x 12.598						44,254				
	190	7.480						44,254				
200 SD-x	190	7.480	9.685	8.110	3.110	0.197	361	49,417	16	M20	81.6	
	195 x 340	7.677 x 13.386						49,417				
	200	7.874						49,417				
220 SD-x	200	7.874	10.630	8.898	3.858	0.197	627	68,593	14	M24	117	
	210 x 370	8.268 x 14.567						68,593				
	220	8.661						68,593				
240 SD-x	220	8.661	11.654	9.685	3.976	0.197	627	86,295	16	M24	146	
	230 x 405	9.055 x 15.945						86,295				
	240	9.449						86,295				
260 SD-x	240	9.449	12.520	10.472	4.409	0.197	627	92,933	16	M24	176	
	250 x 430	9.843 x 16.929						92,933				
	260	10.236						92,933				
280 SD-x	260	10.236	13.386	11.260	4.961	0.197	627	111,372	18	M24	227	
	270 x 460	10.630 x 18.110						111,372				
	280	11.024						111,372				
300 SD-x	280	11.024	14.173	12.047	5.118	0.197	627	131,286	20	M24	256	
	290 x 485	11.417 x 19.094						131,286				
	300	11.811						131,286				
320 SD-x	300	11.811	14.961	12.992	5.118	0.197	920	182,915	20	M27	295	
	320 x 520	11.811 x 20.472						182,915				
	320	12.598						182,915				
340 SD-x	300	11.811	15.827	13.780	5.669	0.197	920	202,830	21	M27	408	
	320 x 570	12.598 x 22.441						202,830				
	340	13.386						202,830				
360 SD-x	320	12.598	16.693	14.567	5.669	0.315	920	213,893	21	M27	379	
	340 x 590	13.386 x 23.228						213,893				
	360	14.173						213,893				
390 SD-x	350	13.780	18.031	15.748	5.827	0.315	1,250	267,735	20	M30	490	
	370 x 630	14.567 x 24.803						267,735				
	390	15.354						267,735				
420 SD-x	380	14.961	19.291	16.929	6.614	0.315	1,250	300,188	21	M30	558	
	400 x 650	15.748 x 25.591						300,188				
	420	16.535						300,188				
440 SD-x	400	15.748	20.157	17.717	6.929	0.315	1,250	314,201	21	M30	606	
	420 x 670	16.535 x 26.378						314,201				
	440	17.323						314,201				

Ordering examples: RfN 4022

Series	Type	d
RfN 4022	170 SDA	6.496
RfN 4022	170 SDB	6.496
RfN 4022	170 SDC	6.496
RfN 4022	170 SDD	6.496

x = Configuration (Description of configurations see page 12)

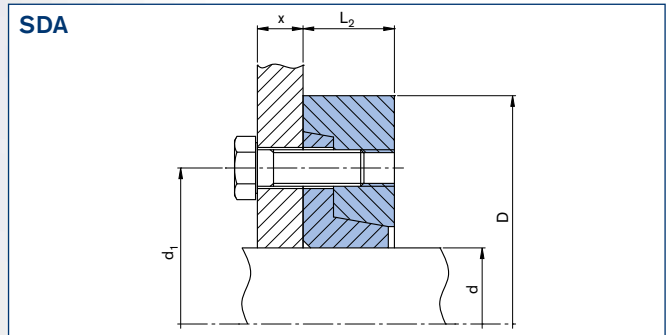
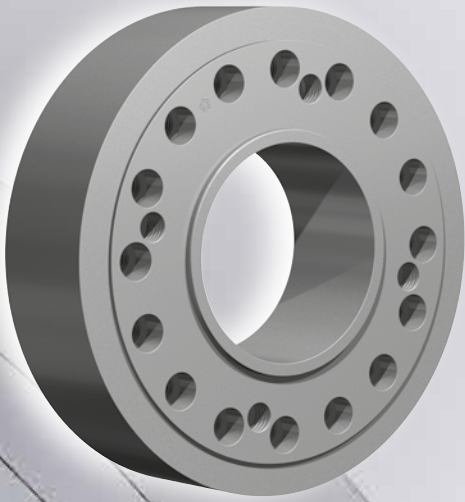
- <sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table  
<sup>2)</sup> The bore tolerance of the customer component should be within the fit tolerance G6 and H7

More sizes on request

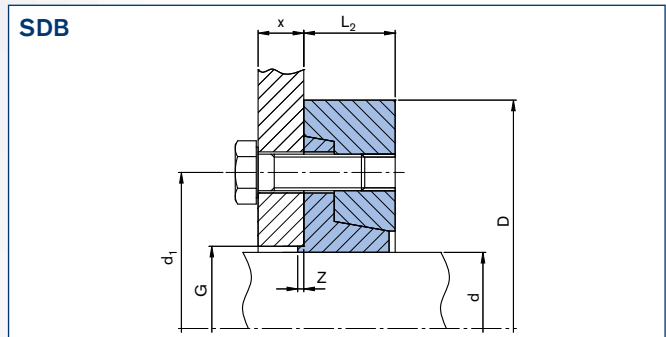
- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances  
For shaft h9
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team



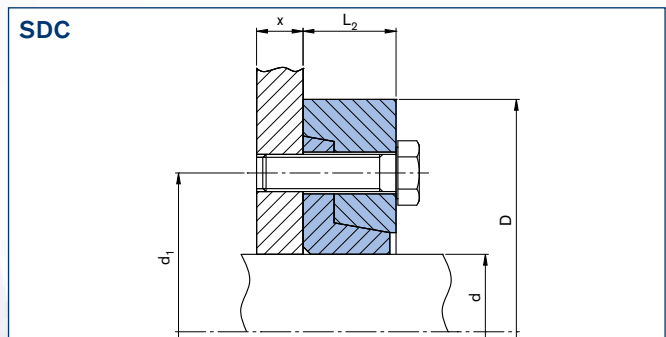
Description of configurations



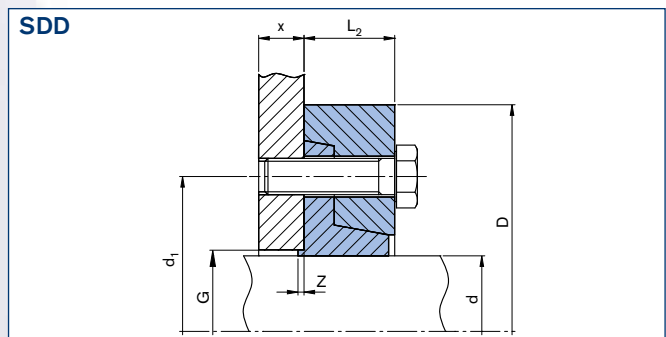
RfN 4023 configuration SDA thread in shrink disc without centering



RfN 4023 configuration SDB thread in shrink disc with centering



RfN 4023 configuration SDC through boring in shrink disc without centering



RfN 4023 configuration SDD through boring in shrink disc with centering

Type	Shrink Discs dimensions							T <sub>A</sub> <sup>1)</sup> ft-lbs	Transmissible torques T ft-lbs	Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9		
	d x D		d <sub>1</sub> inch	G <sup>2)</sup> inch	L <sub>2</sub> inch	Z inch	Quantity			Thread	Gw lbs	
	mm	inch										
50 SD-x	40	1.575	3.307	2.087	1.181	0.118	75	1,033 1,623 2,434	7	M12	4.41	
	45 x 115	1.772 x 4.528										
	50	1.969										
60 SD-x	50	1.969	3.701	2.480	1.339	0.118	75	1,696 2,581 3,467	9	M12	4.85	
	55 x 120	2.165 x 4.724										
	60	2.362										
70 SD-x	60	2.362	4.409	2.913	1.575	0.157	185	4,278 5,605 6,933	8	M16	10.4	
	65 x 155	2.559 x 6.102										
	70	2.756										
80 SD-x	70	2.756	5.118	3.307	1.732	0.157	185	5,900 7,376 8,851	9	M16	13.5	
	75 x 167	2.953 x 6.575										
	80	3.150										
90 SD-x	80	3.150	5.669	3.701	1.969	0.157	185	8,851 11,063 13,276	12	M16	17.6	
	85 x 185	3.346 x 7.283										
	90	3.543										
100 SD-x	90	3.543	6.142	4.094	2.126	0.157	185	11,801 14,014 16,964	14	M16	20.9	
	95 x 197	3.740 x 7.756										
	100	3.937										
110 SD-x	100	3.937	6.535	4.567	2.283	0.197	361	16,226 19,177 19,914	10	M20	26.5	
	105 x 215	4.134 x 8.465										
	110	4.331										
120 SD-x	110	4.331	7.323	4.961	2.559	0.197	361	24,340 28,027 31,715	14	M20	33.1	
	115 x 230	4.528 x 9.055										
	120	4.724										
140 SD-x	120	4.724	8.504	5.748	2.992	0.197	361	28,765 36,878 41,303	16	M20	66.2	
	130 x 290	5.118 x 11.417										
	140	5.512										
160 SD-x	140	5.512	9.213	6.535	3.268	0.197	627	47,204 56,792 56,792	14	M24	88.2	
	150 x 320	5.906 x 12.598										
	160	6.299										
180 SD-x	160	6.299	10.866	7.323	3.701	0.197	627	62,693 74,494 76,706	16	M24	106	
	170 x 340	6.693 x 13.386										
	180	7.087										
200 SD-x	180	7.087	11.417	8.110	3.780	0.197	920	84,082 98,096 106,209	16	M27	126	
	190 x 370	7.480 x 14.567										
	200	7.874										
220 SD-x	200	7.874	12.598	8.898	3.819	0.197	920	117,272 131,286 131,286	18	M27	157	
	210 x 405	8.268 x 15.945										
	220	8.661										

x = Configuration    SDA = Thread in shrink disc without centering    SDB = Thread in shrink disc with centering  
SDC = Through boring in shrink disc without centering    SDD = Through boring in shrink disc with centering

- <sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table  
<sup>2)</sup> The bore tolerance of the customer component should be within the fit tolerance G6 and H7

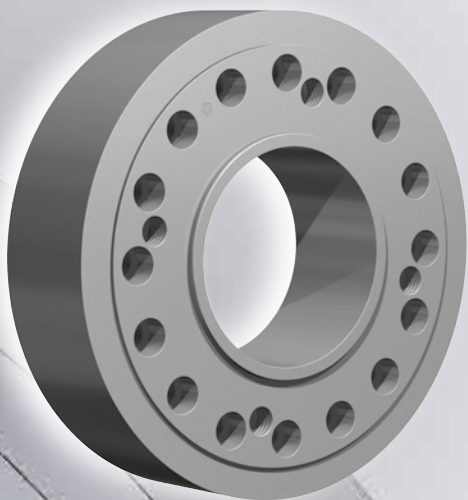
- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 µm
- Tolerances  
For shaft h9
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

Explanations to tables: Page 9

To continue see next page

Ordering examples: RfN 4023

Series	Type	d
RfN 4023	50 SDA	1.772
RfN 4023	50 SDB	1.772
RfN 4023	50 SDC	1.772
RfN 4023	50 SDD	1.772



## Characteristics

**Heavy design** – suitable for high torque and bending moments.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

Type	Shrink Discs dimensions							T <sub>A</sub> <sup>1)</sup> ft-lbs	Transmissible torques T ft-lbs	Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9		
	d x D		d <sub>1</sub> inch	G <sup>2)</sup> inch	L <sub>2</sub> inch	Z inch	Quantity			Thread	Gw lbs	
	mm	inch										
240 SD-x	220	8.661	13.386	9.685	4.331	0.197	920	155,626	20	M27	190	
	230 x 430	9.055 x 16.929										
	240	9.449										
260 SD-x	240	9.449	14.016	11.260	4.685	0.197	920	172,590	21	M27	240	
	250 x 460	9.843 x 18.110										
	260	10.236										
280 SD-x	260	10.236	14.173	12.047	4.921	0.197	920	172,590	21	M27	276	
	270 x 485	10.630 x 19.094										
	280	11.024										
300 SD-x	280	11.024	14.961	12.992	5.118	0.197	920	182,178	21	M27	318	
	290 x 520	11.417 x 20.472										
	300	11.811										
320 SD-x	300	11.811	15.827	13.780	5.354	0.315	920	220,531	24	M27	368	
	310 x 550	12.205 x 21.654										
	320	12.598										
340 SD-x	320	12.598	16.693	14.567	5.591	0.315	920	232,332	24	M27	404	
	330 x 570	12.992 x 22.441										
	340	13.386										
360 SD-x	340	13.386	17.874	15.748	5.787	0.315	1,250	302,400	24	M30	481	
	350 x 610	13.780 x 24.016										
	360	14.173										
390 SD-x	360	14.173	19.134	16.929	6.575	0.315	1,250	323,790	24	M30	551	
	380 x 630	14.961 x 24.803										
	390	15.354										
420 SD-x	390	15.354	19.921	17.717	6.890	0.394	1,250	337,066	24	M30	644	
	410 x 670	16.142 x 26.378										
	420	16.535										
440 SD-x	400	15.748	21.024	18.504	6.890	0.394	1,250	414,510	28	M30	701	
	420 x 700	16.535 x 27.559										
	440	17.323										

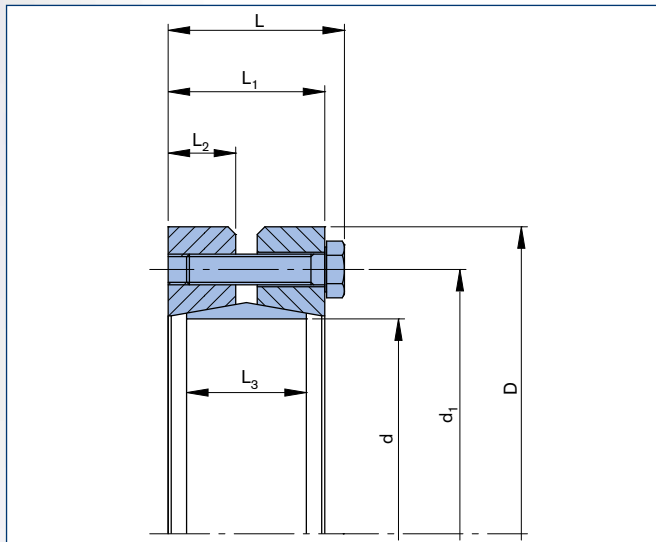
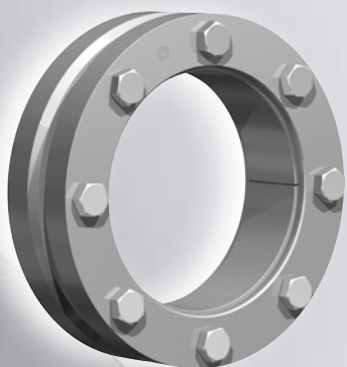
x = Configuration    SDA = Thread in shrink disc without centering    SDB = Thread in shrink disc with centering  
SDC = Through boring in shrink disc without centering    SDD = Through boring in shrink disc with centering

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table  
<sup>2)</sup> The bore tolerance of the customer component should be within the fit tolerance G6 and H7

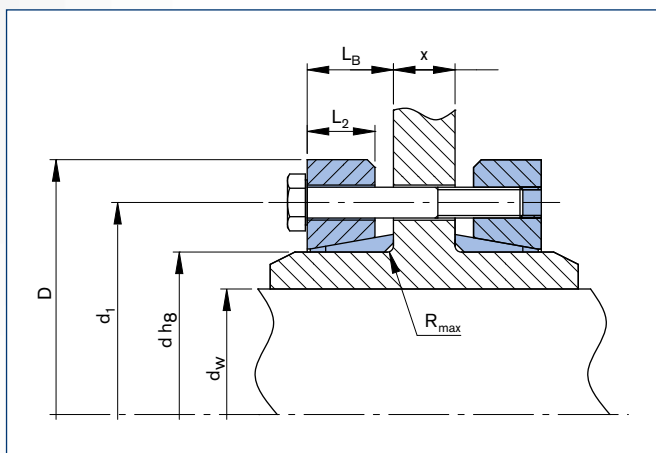
- Surface finishes For shaft R<sub>a</sub> ≤ 3,2 μm
  - Tolerances For shaft h9
  - When using a hollow shaft instead of a solid shaft please contact our Engineering-Team
- [Explanations to tables: Page 9](#)    [More sizes on request](#)

Ordering examples: RfN 4023

Series	Type	d
RfN 4023	280 SDA	10.630
RfN 4023	280 SDB	10.630
RfN 4023	280 SDC	10.630
RfN 4023	280 SDD	10.630



RINGFEDER® Shrink Disc RfN 4051 · Dimensions



RINGFEDER® Shrink Disc RfN 4051 GT · Location

#### Shrink discs GT (split)

In the application shown above special screws according to the dimension  $X$  are required, which have to be ordered accordingly. When dimension „ $X$ “ larger than  $2 \cdot L_1$  is chosen, a reduction of the transmissible torque up to 50% has to be considered to the type GT.

Shrink Discs dimensions											Transmissible torques or axial forces				Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9						
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>B</sub>	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	Gw	T <sub>max</sub>
mm		inch	mm		inch	inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs
125	x	185	4.921	x	7.283	3.740 3.937 4.134 4.331	6.220	2.283	2.008	0.866	1.535	1.201	45	7,781 8,925 10,178 10,916	49,458 53,954 58,451 59,575	27,723	40,350 40,641 41,802 38,899	8	M10	11.2	9,736 11,156 12,723 13,645
140	x	220	5.512	x	8.661	4.724 4.921	6.890	2.283	2.008	0.866	1.535	1.215	45	10,916 13,748 15,120	59,575 69,691 73,063	27,868	40,786 40,786 45,721	9	M10	17.6	17,185 18,900
155	x	245	6.102	x	9.646	5.118 5.315 5.512	7.559	2.283	2.008	0.866	1.535	1.201	45	17,702 19,472 21,390	82,056 87,676 92,172	30,771	42,527 44,414 48,478	11	M10	22.0	24,340 26,737 35,495
165	x	260	6.496	x	10.236	5.709 5.512 5.315	8.268	2.756	2.441	1.024	1.811	1.417	75	28,396 25,962 23,602	119,149 112,405 106,785	32,512	47,462 44,705 43,253	10	M12	30.9	35,495 29,502
175	x	275	6.890	x	10.827	6.102 5.709 5.906	8.661	2.756	2.441	1.024	1.811	1.417	75	33,928 28,765 31,273	132,638 120,273 125,894	33,674	48,478 43,834 45,430	11	M12	32.4	42,410 35,956 39,091
185	x	295	7.283	x	11.614	6.496 6.299 6.102	8.858	2.756	2.441	1.024	1.811	1.417	75	39,829 37,100 34,371	146,126 140,506 134,886	34,835	49,494 46,301 44,560	12	M12	37.9	49,785 46,374 42,963
195	x	315	7.677	x	12.402	6.890 6.693 6.496	9.331	3.150	2.835	1.220	2.205	1.614	75	53,474 49,933 46,467	185,468 178,724 170,856	33,819	51,526 46,882 44,414	15	M12	52.5	66,842 62,416 58,083
200	x	330	7.874	x	12.992	7.283 6.890 7.087	9.528	3.150	2.835	1.220	2.205	1.614	75	62,325 54,580 58,637	205,701 191,088 200,081	35,270	63,864 48,478 53,413	16	M12	59.1	77,905 68,224 73,295
220	x	345	8.661	x	13.583	7.874 7.480 7.087	10.433	3.701	3.307	1.417	2.598	1.850	185	77,445 68,963 61,071	237,175 220,314 206,825	31,932	53,268 44,414 40,205	10	M16	70.5	96,805 86,203 76,338
240	x	370	9.449	x	14.567	7.874 8.268 8.465	11.417	3.701	3.307	1.417	2.598	1.850	185	83,345 94,040 99,203	255,159 272,020 281,012	35,270	44,124 47,898 51,672	12	M16	79.4	104,181 117,549 124,003
260	x	395	10.236	x	15.551	9.252 8.661 9.055	12.205	4.016	3.622	1.575	2.835	2.067	185	127,600 109,898 121,699	331,595 303,494 322,602	34,835	52,833 43,979 48,478	14	M16	106.0	159,498 137,371 152,122
280	x	425	11.024	x	16.732	9.843 9.449 9.055	13.110	4.488	4.094	1.811	3.307	2.343	185	153,415 139,401 126,124	373,185 352,952 333,843	31,642	47,027 41,657 39,189	16	M16	132.0	191,766 174,249 157,654
300	x	460	11.811	x	18.110	9.843 10.630 10.236	14.094	4.488	4.094	1.811	3.307	2.343	185	158,578 188,080 172,591	386,673 424,891 404,658	33,238	40,495 49,640 43,979	18	M16	154.0	198,220 235,098 215,737
320	x	495	12.598	x	19.488	11.417 10.630 11.024	14.882	4.567	4.173	1.890	3.307	2.382	185	225,696 191,768 209,470	477,721 436,131 456,364	34,690	51,526 42,527 45,430	20	M16	185.0	282,117 239,708 261,835
340	x	535	13.386	x	21.063	12.008 11.811 11.417	15.827	4.567	4.173	1.890	3.307	2.382	185	248,561 238,973 221,271	496,830 485,590 465,357	34,254	47,317 44,850 41,802	21	M16	220.0	310,698 298,713 276,586
350	x	545	13.780	x	21.457	11.811 12.008 12.205	16.260	5.315	4.803	2.126	3.937	2.697	361	274,376 283,964 295,028	558,653 571,017 582,258	33,383	42,382 44,124 46,446	16	M20	265.0	342,966 354,952 368,781
360	x	555	14.173	x	21.850	12.598 11.811 12.205	16.654	5.315	4.803	2.126	3.937	2.697	361	306,092 265,525 286,177	582,258 539,544 562,025	32,367	45,576 39,189 41,221	16	M20	276.0	382,610 331,903 357,718
380	x	585	14.961	x	23.031	12.992 12.795 12.598	17.402	5.866	5.354	2.362	4.409	2.972	361	344,445 332,644 320,843	637,336 624,972 611,483	30,916	41,366 39,915 38,899	18	M20	331.0	430,552 415,801 401,049
390	x	595	15.354	x	23.425	12.992 13.386 13.780	17.795	5.866	5.354	2.362	4.409	3.071	361	372,473 388,288 425,578	687,919 713,772 740,749	33,383	41,366 44,124 48,914	20	M20	344.0	465,586 497,854 531,967

<sup>1)</sup> Shrink disc GT (split) delivered without screws. Tightening torques for screws quantity see table

- Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

To continue see next page

## Characteristics

**Light design** – suitable for medium transmissible values when space is limited.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

### Shrink discs GT (split)

In the application shown above special screws according to the dimension X are required, which have to be ordered accordingly. When dimension „X“ larger than  $2 \cdot L_1$  (RfN 4051 Light Duty Series, Page 20) is chosen, a reduction of the transmissible torque up to 50% has to be considered to the type GT.

Shrink Discs dimensions											Transmissible torques or axial forces				Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9						
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>B</sub>	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	Gw	T <sub>max</sub>
mm		inch	mm		inch	inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs
400	x	615	15.748	x	24.213	14.173	18.189	5.866	5.354	2.362	4.409	3.071	361	461,719	782,339	34,254	50,075	21	M20	362.0	577,142
						13.386								405,664	727,260		42,237				507,074
						13.780								432,954	755,362		45,140				541,186
420	x	630	16.535	x	24.803	14.567	19.094	6.181	5.669	2.520	4.724	3.228	361	483,108	796,951	31,787	43,108	22	M20	408.0	603,879
						14.173								455,081	769,974		40,205				568,845
						13.780								426,315	741,873		38,463				532,889
440	x	660	17.323	x	25.984	14.567	19.882	6.181	5.669	2.520	4.724	3.228	361	499,335	822,805	33,238	39,770	24	M20	452.0	624,162
						14.961								530,313	850,906		41,657				662,884
						15.354								562,028	879,007		44,850				702,528
460	x	685	18.110	x	26.969	16.142	20.748	6.732	6.220	2.795	5.197	3.602	361	689,628	1,029,630	33,674	47,608	28	M20	518.0	862,948
						15.354								619,559	971,179		41,076				774,440
						15.748								656,437	1,002,653		43,398				820,538
480	x	715	18.898	x	28.150	16.535	21.535	6.732	6.220	2.795	5.197	3.602	361	694,053	1,007,149	32,222	42,092	28	M20	562.0	867,557
						16.732								712,493	1,022,436		43,689				890,606
						16.142								657,175	977,924		39,915				821,460
500	x	750	19.685	x	29.528	16.732	22.323	6.732	6.220	2.795	5.197	3.602	361	727,244	1,044,242	33,093	39,915	30	M20	628.0	909,045
						16.929								747,158	1,059,305		40,786				933,938
						17.323								786,250	1,089,204		43,108				982,801

<sup>1)</sup> Shrink disc GT (split) delivered without screws. Tightening torques for screws quantity see table

■ Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$

■ Tolerances  
For shaft see table page 8

[Explanations to tables: Page 9](#)

[More sizes on request](#)

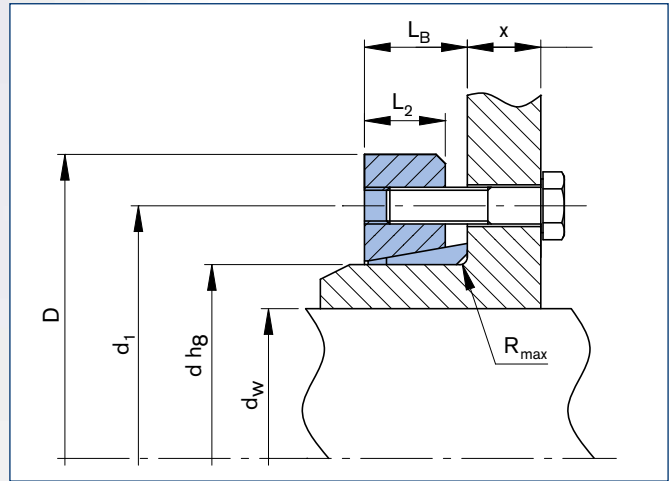
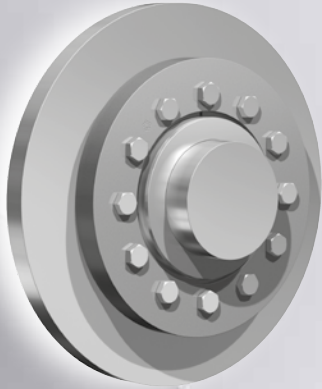
■ When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Ordering examples: RfN 4051

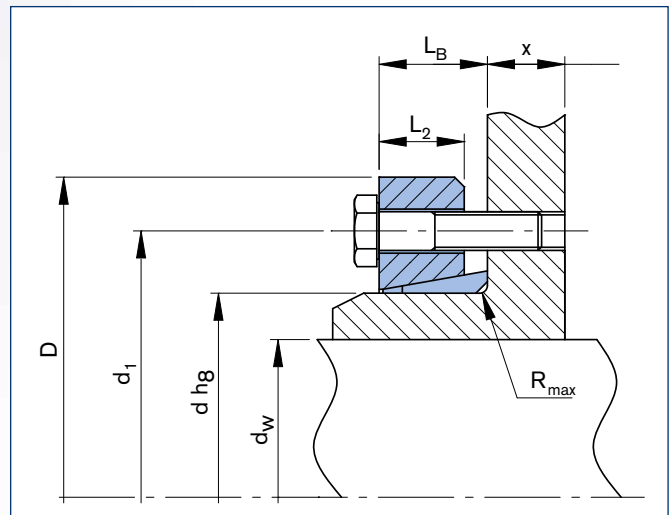
Series	d	D	Version
RfN 4051	16.535	24.803	-
RfN 4051	16.535	24.803	GT

GT = Split





RINGFEDER® Shrink Disc RfN 4051 HT · Dimensions



RINGFEDER® Shrink Disc RfN 4051 HC · Dimensions

**Half shrink discs**

Type HT (Threaded holes in thrust ring)

Type HC (Clearance holes in thrust ring)

Shrink Discs dimensions										Transmissible torques or axial forces		Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9				
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L <sub>B</sub>	L <sub>2</sub>	R	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	Quantity	Thread	Gw
mm			inch			inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs			lbs
125	x	185	4.921	x	7.283	3.740	6.220	1.201	0.866	0.189	45	3,891	24,747	8	M10	5.51
						3.937						4,462	26,997			
						4.134						5,089	29,247			
140	x	220	5.512	x	8.661	4.331	6.890	1.215	0.866	0.189	45	5,458	29,697	9	M10	8.82
						4.724						6,874	34,871			
						4.921						7,560	36,446			
155	x	245	6.102	x	9.646	5.118	7.559	1.201	0.866	0.189	45	8,851	40,946	11	M10	11.0
						5.315						9,736	43,870			
						5.512						10,695	46,120			
165	x	260	6.496	x	10.236	5.315	8.268	1.417	1.024	0.189	75	11,801	53,319	10	M12	15.4
						5.512						12,981	56,244			
						5.709						14,198	59,619			
175	x	275	6.890	x	10.827	5.709	8.661	1.417	1.024	0.189	75	14,382	60,069	11	M12	15.9
						5.906						15,636	62,993			
						6.102						16,964	66,368			
185	x	295	7.283	x	11.614	6.102	8.858	1.417	1.024	0.189	75	17,185	67,493	12	M12	18.7
						6.299						18,550	70,305			
						6.496						19,914	73,117			
195	x	315	7.677	x	12.402	6.496	9.331	1.614	1.220	0.189	75	23,233	85,491	15	M12	25.8
						6.693						24,966	89,428			
						6.890						26,737	92,803			
200	x	330	7.874	x	12.992	6.890	9.528	1.614	1.220	0.189	75	27,290	95,615	16	M12	28.9
						7.087						29,318	100,114			
						7.283						31,162	102,927			
220	x	345	8.661	x	13.583	7.087	10.433	1.850	1.417	0.189	185	30,535	103,489	10	M16	34.4
						7.480						34,481	110,238			
						7.874						38,722	118,675			
240	x	370	9.449	x	14.567	7.874	11.417	1.850	1.417	0.189	185	41,672	127,674	12	M16	38.6
						8.268						47,020	136,110			
						8.465						49,601	140,610			
260	x	395	10.236	x	15.551	8.661	12.205	2.067	1.575	0.252	185	54,948	151,859	14	M16	52.9
						9.055						60,849	161,420			
						9.252						63,799	165,920			
280	x	425	11.024	x	16.732	9.055	13.110	2.343	1.811	0.252	185	63,062	167,045	16	M16	66.1
						9.449						69,700	176,606			
						9.843						76,706	186,730			
300	x	460	11.811	x	18.110	9.843	14.094	2.343	1.811	0.252	185	79,288	193,479	18	M16	76.1
						10.236						86,295	202,478			
						10.630						94,039	212,602			
320	x	495	12.598	x	19.488	10.630	14.882	2.382	1.890	0.252	185	95,883	218,227	20	M16	92.6
						11.024						104,734	228,351			
						11.417						112,847	239,037			
340	x	535	13.386	x	21.063	11.417	15.827	2.382	1.890	0.252	185	110,634	232,850	21	M16	110
						11.811						119,485	242,974			
						12.008						124,279	248,598			
350	x	545	13.780	x	21.457	11.811	16.260	2.697	2.126	0.252	361	137,187	279,533	16	M20	132
						12.008						141,981	285,720			
						12.205						147,512	291,344			
360	x	555	14.173	x	21.850	11.811	16.654	2.697	2.126	0.252	361	132,761	269,971	16	M20	138
						12.205						143,087	281,220			
						12.598						153,044	291,344			
380	x	585	14.961	x	23.031	12.598	17.402	2.972	2.362	0.252	361	160,420	305,967	18	M20	165
						12.795						166,320	312,717			
						12.992						172,221	318,903			
390	x	595	15.354	x	23.425	12.992	17.795	3.071	2.362	0.331	361	186,234	344,213	20	M20	172
						13.386						199,142	357,149			
						13.780						212,787	370,648			

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table

- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 µm
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

To continue see next page

## Characteristics

**Light design** – suitable for medium transmissible values when space is limited.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

### Half shrink discs

Type HT (Threaded holes in thrust ring)

Type HC (Clearance holes in thrust ring)

Shrink Discs dimensions										T <sub>A</sub> <sup>1)</sup>	Transmissible torques or axial forces		Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9		Gw	
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L <sub>B</sub>	L <sub>2</sub>		R	T	F <sub>ax</sub>	Quantity		Thread
mm			inch			inch	inch	inch	inch	inch	ft-lbs	lbs			lbs	
400	x	615	15.748	x	24.213	13.386	18.189	3.071	2.362	0.331	361	202,830	363,899	21	M20	177
						13.780						216,474	377,960			
						14.173						230,857	391,458			
420	x	630	16.535	x	24.803	13.780	19.094	3.228	2.520	0.331	361	213,155	371,210	22	M20	204
						14.173						227,538	385,271			
						14.567						241,562	398,770			
440	x	660	17.323	x	25.984	14.567	19.882	3.228	2.520	0.331	361	249,665	411,706	24	M20	226
						14.961						265,154	425,767			
						15.354						281,011	439,828			
460	x	685	18.110	x	26.969	15.354	20.748	3.602	2.795	0.390	361	309,776	485,948	28	M20	259
						15.748						328,215	501,696			
						16.142						344,810	515,195			
480	x	715	18.898	x	28.150	16.142	21.535	3.602	2.795	0.390	361	328,584	489,323	28	M20	281
						16.535						347,023	503,946			
						16.732						356,242	511,595			
500	x	750	19.685	x	29.528	16.732	22.323	3.602	2.795	0.390	361	363,618	522,507	30	M20	314
						16.929						373,575	530,043			
						17.323						393,121	545,004			

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table

- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 µm
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

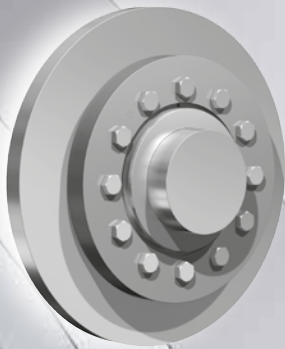
[Explanations to tables: Page 9](#)

Ordering examples: RfN 4051

Series	d	D	Version
RfN 4051	16.535	24.803	HT
RfN 4051	16.535	24.803	HC

HT = Half shrink disc with threaded holes in thrust ring

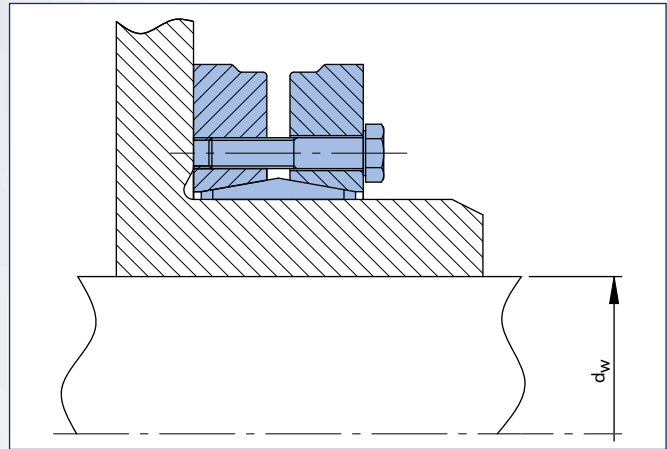
HC = Half shrink disc with clearance holes in thrust ring



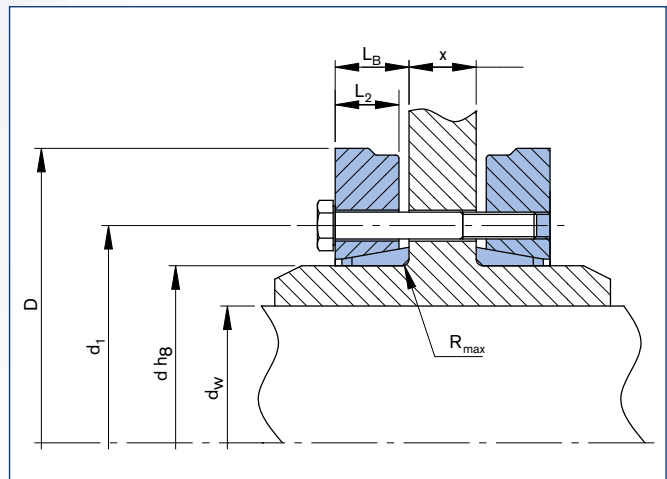
**OPTIONAL  
NICKEL PLATED**

### Shrink discs GT (split)

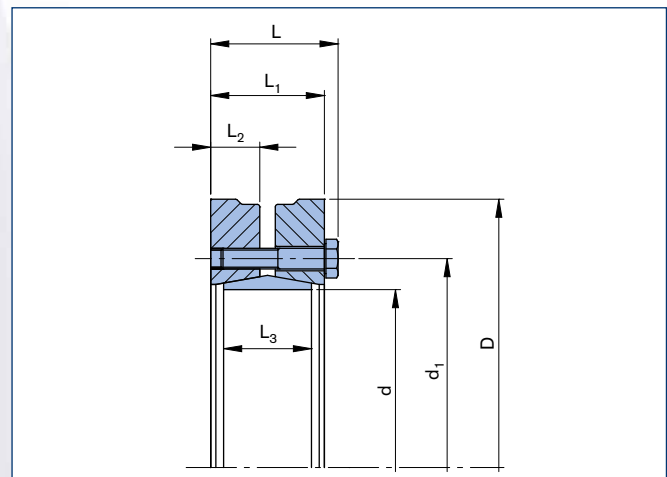
In the application shown above special screws according to the dimension X are required, which have to be ordered accordingly. When dimension „X“ larger than  $2 \cdot L_1$  (RfN 4061 Standard Series, Page 28) is chosen, a reduction of the transmissible torque up to 50% has to be considered to the type GT.



RINGFEDER® Shrink Disc RfN 4061 · Location



RINGFEDER® Shrink Disc RfN 4061 GT · Location



RINGFEDER® Shrink Disc RfN 4061 · Dimensions

Shrink Discs dimensions												Transmissible torques or axial forces				Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9					
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>B</sub>	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	G <sub>w</sub>	T <sub>max</sub>
mm		inch	mm		inch	inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs
14	x	37	0.551	x	1.457	0.394	0.945	0.583	0.472	0.197	0.354	0.374	2	22	1,800	40,350	60,235	3	M4*	0.2	28
						0.472								27	1,800		68,799				34
						0.472								35	2,250		80,846				44
16	x	41	0.630	x	1.614	0.472	1.063	0.728	0.591	0.246	0.472	0.374	3	52	3,375	48,769	73,879	4	M5	0.2	66
						0.512								66	4,050		83,458				81
						0.551								81	4,500		112,342				96
18	x	44	0.709	x	1.732	0.551	1.142	0.728	0.591	0.246	0.472	0.374	3	66	3,600	43,398	66,622	4	M5	0.4	81
						0.591								74	4,050		75,911				96
						0.630								89	4,500		102,327				118
20	x	46	0.787	x	1.811	0.591	1.260	0.827	0.689	0.276	0.472	0.453	3	81	4,500	48,769	67,057	5	M5	0.4	103
						0.630								103	4,949		72,137				125
						0.669								118	5,399		84,184				148
21	x	50	0.827	x	1.969	0.630	1.417	0.886	0.748	0.315	0.591	0.465	3.7	148	6,974	55,736	77,507	6	M5	0.4	184
						0.669								170	7,649		87,377				214
						0.709								192	8,324		108,278				243
24	x	50	0.945	x	1.969	0.748	1.417	0.886	0.748	0.315	0.591	0.465	3.7	177	7,199	48,769	71,847	6	M5	0.4	221
						0.787								199	7,874		80,410				251
						0.827								221	8,549		98,553				288
30	x	52	1.181	x	2.047	0.945	1.634	1.024	0.886	0.374	0.709	0.504	3.7	258	8,549	37,883	56,607	7	M5	0.4	332
						0.984								295	9,224		61,832				369
						1.024								325	9,674		71,411				413
36	x	72	1.417	x	2.835	1.102	2.047	1.083	0.925	0.394	0.709	0.543	9	435	11,924	43,979	56,607	5	M6	1.1	538
						1.181								509	13,049		63,574				634
						1.220								516	13,049		77,798				656
38	x	72	1.496	x	2.835	1.142	2.165	1.181	1.024	0.413	0.827	0.598	9	516	13,949	42,818	54,865	6	M6	1.1	656
						1.181								568	14,623		57,187				715
						1.220								575	14,173		68,799				723
40	x	72	1.575	x	2.835	1.181	2.244	1.122	0.965	0.413	0.748	0.583	9	531	13,724	44,995	54,429	6	M6	1.1	664
						1.220								538	13,274		65,315				671
						1.260								583	13,949		66,767				730
44	x	80	1.732	x	3.150	1.260	2.480	1.181	1.024	0.433	0.787	0.602	9	590	14,173	45,285	62,267	7	M6	1.1	738
						1.378								738	16,423		64,444				922
						1.417								774	17,098		66,476				996
48	x	80	1.890	x	3.150	1.417	2.677	1.181	1.024	0.433	0.866	0.622	9	664	14,623	37,738	53,849	7	M6	1.3	848
						1.496								774	16,198		55,155				996
						1.575								885	17,548		58,493				1,143
50	x	90	1.969	x	3.543	1.496	2.756	1.240	1.083	0.472	0.886	0.642	9	996	20,023	45,576	60,671	9	M6	2	1,217
						1.575								1,106	21,598		62,848				1,401
						1.654								1,254	23,173		67,783				1,586
55	x	100	2.165	x	3.937	1.654	2.953	1.358	1.201	0.512	0.906	0.701	9	959	17,548	35,996	49,785	8	M6	2.4	1,180
						1.772								1,143	19,573		52,107				1,438
						1.890								1,328	21,598		59,509				1,696
62	x	110	2.441	x	4.331	1.890	3.386	1.358	1.201	0.512	0.906	0.701	9	1,770	28,347	47,898	59,074	12	M6	2.9	2,213
						1.969								1,955	29,922		60,816				2,434
						2.047								2,065	30,597		69,960				2,581
68	x	115	2.677	x	4.528	1.969	3.386	1.358	1.201	0.512	0.925	0.701	9	1,401	21,373	35,561	45,576	10	M6	3.1	1,733
						2.165								1,660	23,398		53,268				2,102
						2.362								2,102	27,222		59,655				2,655
75	x	138	2.953	x	5.433	2.165	3.937	1.488	1.280	0.551	0.984	0.776	22	1,955	27,222	40,205	54,720	7	M8	5.1	2,434
						2.362								2,434	31,272		60,380				3,061
						2.559								2,987	35,546		60,380				3,762
80	x	145	3.150	x	5.709	2.362	3.937	1.488	1.280	0.551	0.984	0.776	22	2,360	28,347	37,593	51,236	7	M8	5.5	2,950
						2.559								2,876	32,172		51,962				3,614
						2.756								3,393	35,996		56,897				4,241

<sup>1)</sup> Different quality of screws. ISO 4014/4017 - 8.8

<sup>1)</sup> Shrink disc GT (split) delivered without screws. Tightening torques for screws quantity see table

■ Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm

■ Tolerances  
For shaft see table page 8

Explanations to tables: Page 9

To continue see next page

■ When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

### Characteristics

**Standard series** – this is the most popular shrink disc. High transmission values are possible and by varying the screw tightening torque the shrink disc can be adapted to the design specification.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.


**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.



OPTIONAL  
NICKEL PLATED

Shrink Discs dimensions											Transmissible torques or axial forces				Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9						
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>B</sub>	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	Gw	T <sub>max</sub>
mm		inch	mm		inch	inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs
85	x	155	3.346	x	6.102	2.362	4.488	1.803	1.594	0.630	1.181	0.906	22	3,577	42,520	47,172	58,639	11	M8	7.7	4,462
						2,559								4,278	51,074		5,347				
						2,756								4,769	61,977		6,269				
90	x	155	3.543	x	6.102	2.559	4.488	1.752	1.535	0.669	1.181	0.906	22	3,540	39,146	39,770	51,236	10	M8	7.2	4,425
						2,756								4,462	51,672		5,569				
						2,953								4,870	53,994		6,749				
95	x	170	3.740	x	6.693	2.559	5.000	2.067	1.858	0.748	1.339	0.925	22	3,946	43,870	39,915	50,656	12	M8	10.4	4,942
						2,756								4,979	50,656		6,232				
						2,953								5,394	51,526		7,523				
100	x	170	3.937	x	6.693	2.756	5.000	2.067	1.858	0.748	1.339	1.004	22	5,126	45,445	37,883	48,043	12	M8	9.9	6,417
						2,953								5,605	48,043		7,007				
						3,150								6,712	49,059		8,371				
110	x	185	4.331	x	7.283	2,953	5.709	2.339	2.087	0.906	1.654	1.122	45	6,011	58,269	36,867	45,866	10	M10	13.9	7,486
						3,150								7,449	45,866		9,293				
						3,346								8,998	51,817		11,248				
115	x	185	4.528	x	7.283	3,150	5.709	2.457	2.205	0.906	1.654	1.260	45	7,007	60,069	35,270	43,834	10	M10	13.4	8,740
						3,543								8,925	49,640		11,137				
						3,740								10,363	51,236		12,944				
125	x	215	4.921	x	8.465	3,346	6.299	2.378	2.126	0.906	1.654	1.260	45	8,150	67,493	39,044	51,381	12	M10	19.2	10,178
						3,543								9,662	51,091		12,059				
						3,740								11,174	51,091		13,977				
140	x	230	5.512	x	9.055	3,740	6.890	2.677	2.382	1.024	1.811	1.398	75	11,137	82,116	38,173	48,769	10	M12	23.4	13,903
						3,937								12,944	48,624		16,153				
						4,134								14,751	48,624		18,439				
165	x	290	6.496	x	11.417	4,528	8.268	3.189	2.795	1.220	2.205	1.594	185	23,159	135,211	40,641	48,478	8	M16	47.8	28,986
						4,724								26,183	48,624		32,748				
						4,921								29,060	50,510		36,325				
185	x	330	7.283	x	12.992	5,315	9.291	3.795	3.402	1.504	2.795	1.890	185	38,722	176,831	35,706	44,560	10	M16	79.4	48,384
						5,512								42,299	44,995		52,846				
						5,709								46,024	45,576		57,530				
195	x	350	7.677	x	13.780	5,512	9.685	3.780	3.386	1.504	2.795	1.890	185	48,642	212,152	40,641	48,188	12	M16	88.2	60,812
						5,906								57,235	49,059		71,544				
						6,102								61,771	50,075		77,223				
200	x	350	7.874	x	13.780	5,906	9.685	3.780	3.386	1.504	2.795	1.890	185	55,317	224,976	39,625	47,317	12	M16	86	69,146
						6,102								59,743	47,898		74,641				
						6,299								64,315	48,914		80,394				

<sup>1)</sup> Shrink disc GT (split) delivered without screws. Tightening torques for screws quantity see table

- Surface finishes For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances For shaft see table page 8
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

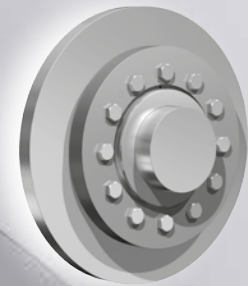
Explanations to tables: Page 9

Ordering examples: RfN 4061

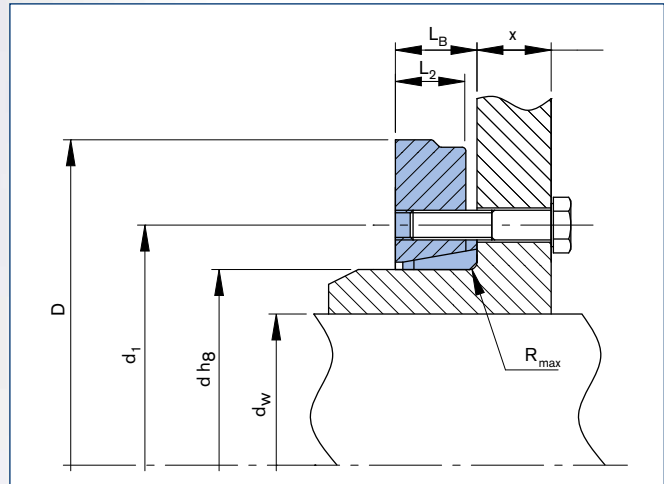
Series	d	D	Version
RfN 4061	7.677	13.780	-
RfN 4061	7.677	13.780	N
RfN 4061	7.677	13.780	GT
RfN 4061	7.677	13.780	GT-N

N = Nickel plated series  
 GT = Split  
 GT-N = Split-nickel plated

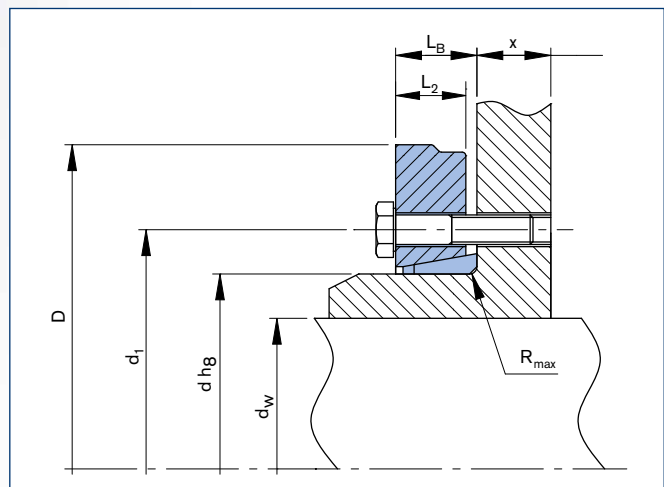




**OPTIONAL  
NICKEL PLATED**



RINGFEDER® Shrink Disc RfN 4061 HT version



RINGFEDER® Shrink Disc RfN 4061 HC · Dimensions

**Half shrink discs**

Type HT (Threaded holes in thrust ring)

Type HC (Clearance holes in thrust ring)

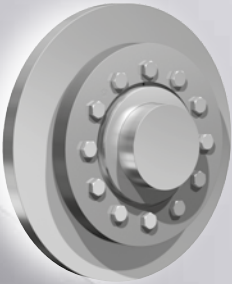
Shrink Discs dimensions										Transmissible torques or axial forces		Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9					
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L <sub>B</sub>	L <sub>2</sub>	R	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	Quantity	Thread	Gw	T <sub>max</sub>
mm		inch	mm		inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs			lbs	ft-lbs
14	x	37	0.551	x	1.457	0.394	0.945	0.374	0.197	0.039	2	11	900	3	M4	0.1	13
						0.433						17	1,125				17
						0.472						26	1,687				26
16	x	41	0.630	x	1.614	0.472	1.063	0.374	0.246	0.039	3	33	2,025	4	M5	0.1	41
						0.512						41	2,250				41
						0.551						33	1,800				33
18	x	44	0.709	x	1.732	0.551	1.142	0.374	0.246	0.039	3	37	2,025	4	M5	0.2	44
						0.591						44	2,250				44
						0.630						41	2,250				41
20	x	46	0.787	x	1.811	0.591	1.260	0.453	0.276	0.051	3	41	2,250	5	M5	0.2	52
						0.630						52	2,475				52
						0.669						59	2,700				59
21	x	50	0.827	x	1.969	0.630	1.417	0.465	0.315	0.051	3.7	74	3,487	6	M5	0.2	85
						0.669						85	3,825				85
						0.709						96	4,162				96
24	x	50	0.945	x	1.969	0.748	1.417	0.465	0.315	0.051	3.7	89	3,600	6	M5	0.2	100
						0.787						100	3,937				100
						0.827						111	4,275				111
30	x	52	1.181	x	2.047	0.945	1.634	0.504	0.374	0.051	3.7	129	4,275	7	M5	0.2	148
						0.984						148	4,612				148
						1.024						162	4,837				162
36	x	72	1.417	x	2.835	1.220	2.047	0.543	0.394	0.051	9	258	6,524	5	M6	0.6	254
						1.181						254	6,524				254
						1.102						218	5,962				218
38	x	72	1.496	x	2.835	1.142	2.165	0.598	0.413	0.051	9	258	6,974	6	M6	0.6	284
						1.181						284	7,312				284
						1.220						288	7,087				288
40	x	72	1.575	x	2.835	1.181	2.244	0.583	0.413	0.051	9	266	6,862	6	M6	0.6	269
						1.220						269	6,637				269
						1.260						291	6,974				291
44	x	80	1.732	x	3.150	1.260	2.480	0.602	0.433	0.110	9	295	7,087	7	M6	0.6	369
						1.378						369	8,212				369
						1.417						387	8,549				387
48	x	80	1.890	x	3.150	1.575	2.677	0.622	0.433	0.110	9	443	8,774	7	M6	0.7	443
						1.496						387	8,099				387
						1.417						332	7,312				332
50	x	90	1.969	x	3.543	1.654	2.756	0.642	0.472	0.110	9	627	11,586	9	M6	0.9	498
						1.496						498	10,011				498
						1.575						553	10,799				553
55	x	100	2.165	x	3.937	1.890	2.953	0.701	0.512	0.110	9	664	10,799	8	M6	1.2	664
						1.772						572	9,786				572
						1.654						479	8,774				479
62	x	110	2.441	x	4.331	1.890	3.386	0.701	0.512	0.110	9	885	14,173	12	M6	1.4	977
						1.969						977	14,961				977
						2.047						1,033	15,298				1,033
68	x	115	2.677	x	4.528	1.969	3.386	0.701	0.512	0.110	9	701	10,686	10	M6	1.5	701
						2.165						830	11,699				830
						2.362						1,051	13,611				1,051
75	x	138	2.953	x	5.433	2.165	3.937	0.776	0.551	0.110	22	977	13,611	7	M8	2.5	1,217
						2.362						1,217	15,636				1,217
						2.559						1,494	17,773				1,494
80	x	145	3.150	x	5.709	2.362	3.937	0.776	0.551	0.110	22	1,180	14,173	7	M8	2.6	1,180
						2.559						1,438	16,086				1,438
						2.756						1,696	17,998				1,696
85	x	155	3.346	x	6.102	2.362	4.488	0.906	0.630	0.130	22	1,789	21,260	11	M8	3.6	1,789
						2.559						2,139	23,847				2,139
						2.756						2,508	26,435				2,508

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table

- Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

To continue see next page



OPTIONAL  
NICKEL PLATED

## Characteristics

**Standard series** – this is the most popular shrink disc. High transmission values are possible and by varying the screw tightening torque the shrink disc can be adapted to the design specification.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

Shrink Discs dimensions							Transmissible torques or axial forces		Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9								
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L <sub>B</sub>	L <sub>2</sub>	R	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	Quantity	Thread	Gw	T <sub>max</sub>
mm		inch	inch	inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs			lbs	ft-lbs
90	x	155	3.543	x	6.102	2.559	4.488	0.906	0.669	0.130	22	1,770	19,573	10	M8	3.4	2,213
						2.756						2,231	21,935				2,784
						2.953						2,692	24,185				3,374
95	x	170	3.740	x	6.693	2.559	5.000	0.925	0.748	0.130	22	1,973	21,935	12	M8	4.9	2,471
						2.756						2,489	24,410				3,116
						2.953						3,006	26,997				3,762
100	x	170	3.937	x	6.693	2.756	5.000	1.004	0.748	0.130	22	2,563	22,723	12	M8	4.7	3,208
						2.953						2,803	25,085				3,503
						3.150						3,356	27,560				4,186
110	x	185	4.331	x	7.283	2.953	5.709	1.122	0.906	0.189	45	3,006	29,134	10	M10	6.5	3,743
						3.346						4,499	33,296				5,624
						3.150						3,725	32,059				4,647
115	x	185	4.528	x	7.283	3.150	5.709	1.260	0.906	0.189	45	3,503	30,034	10	M10	6.4	4,370
						3.543						4,462	33,971				5,569
						3.740						5,181	37,009				6,472
125	x	215	4.921	x	8.465	3.346	6.299	1.260	0.906	0.189	45	4,075	33,746	12	M10	9.3	5,089
						3.543						4,831	36,784				6,030
						3.740						5,587	39,933				6,988
140	x	230	5.512	x	9.055	3.740	6.890	1.398	1.024	0.189	75	5,569	41,058	10	M12	11.4	6,952
						3.937						6,472	44,433				8,076
						4.134						7,376	47,695				9,220
165	x	290	6.496	x	11.417	4.528	8.268	1.594	1.220	0.189	185	11,580	67,605	8	M16	23.1	14,493
						4.724						14,530	71,655				16,374
						4.921						13,092	74,692				18,162
185	x	330	7.283	x	12.992	5.709	9.291	1.890	1.504	0.189	185	23,012	97,865	10	M16	38.6	28,765
						5.315						19,361	88,416				24,192
						5.512						21,150	93,140				26,423
195	x	350	7.677	x	13.780	5.906	9.685	1.890	1.504	0.189	185	28,617	116,425	12	M16	43.0	35,772
						6.102						30,885	121,600				38,611
						5.512						24,321	106,076				30,406
200	x	350	7.874	x	13.780	5.906	9.685	1.890	1.504	0.189	185	27,659	112,488	12	M16	41.9	34,573
						6.102						29,871	117,550				37,321
						6.299						32,158	122,724				40,197

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table

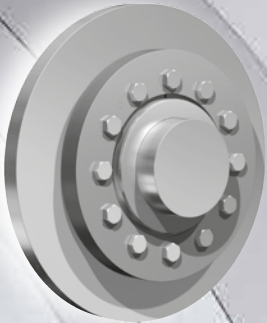
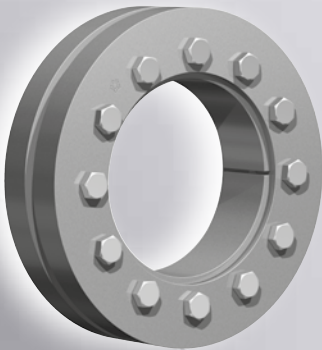
- Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

Ordering examples: RfN 4061

Series	d	D	Version
RfN 4061	4.331	7.283	HT
RfN 4061	4.331	7.283	HT-N
RfN 4061	4.331	7.283	HC
RfN 4061	4.331	7.283	HC-N

HT = Half shrink disc with threaded holes in thrust ring  
 HT-N = Half shrink disc with threaded holes in thrust ring - nickel plated  
 HC = Half shrink disc with clearance holes in thrust ring  
 HC-N = Half shrink disc with clearance holes in thrust ring - nickel plated



## Characteristics

**Standard series** – this is the most popular shrink disc. High transmission values are possible and by varying the screw tightening torque the shrink disc can be adapted to the design specification.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

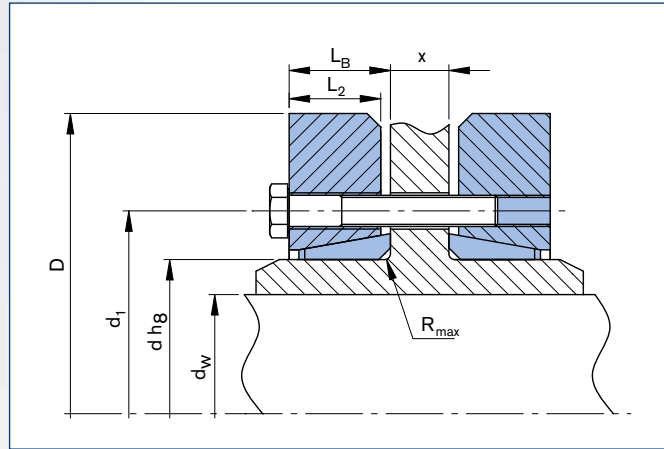
**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

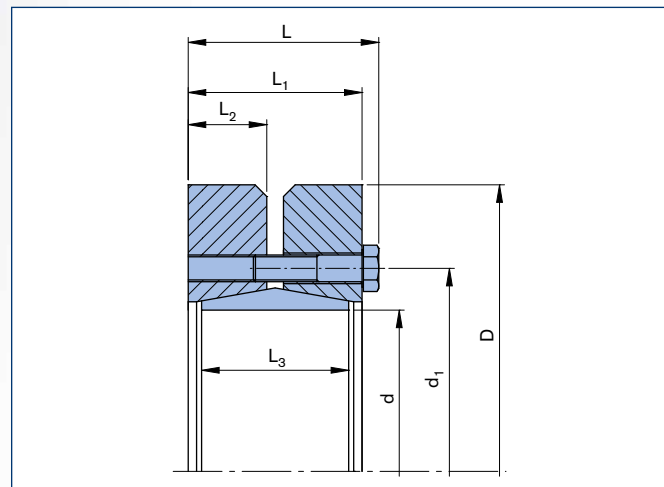
**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.



RINGFEDER® Shrink Disc RfN 4071 GT · Location



RINGFEDER® Shrink Disc RfN 4071 · Dimensions

Shrink Discs dimensions											Transmissible torques or axial forces				Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9						
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>B</sub>	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	G <sub>w</sub>	T <sub>max</sub>
mm		inch	mm		inch	inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs
220	x	370	8.661	x	14.567	6.299	10.630	4.488	4.094	1.850	3.465	2.343	185	70,068	267,721	35,996	42,818	15	M16	119	87,585
						6.496								75,231	278,745	35,996	43,253				94,039
						6.693								81,132	290,219	35,996	43,979				101,415
240	x	405	9.449	x	15.945	7.087	11.614	4.803	4.291	1.929	3.622	2.441	361	101,784	354,562	39,479	45,721	12	M20	148	127,229
						6.693								88,507	329,365	39,479	44,850				110,634
						7.480								115,060	376,835	39,479	48,478				143,825
260	x	430	10.236	x	16.929	8.268	12.638	5.236	4.724	2.126	4.055	2.657	361	151,200	452,202	38,028	47,753	14	M20	181	189,000
						7.874								135,711	422,955	38,028	45,576				169,639
						7.480								120,960	395,958	38,028	44,414				151,200
280	x	460	11.024	x	18.110	8.268	13.622	5.787	5.276	2.362	4.488	3.012	361	160,051	470,200	36,431	42,818	16	M20	225	200,064
						8.661								179,965	499,447	36,431	44,414				224,956
						9.055								199,142	528,694	36,431	47,027				248,927
300	x	485	11.811	x	19.094	9.646	14.331	6.102	5.591	2.520	4.803	3.130	361	232,332	593,037	35,706	45,285	18	M20	260	290,415
						9.449								217,581	577,513	35,706	43,979				271,976
						9.055								202,830	546,917	35,706	42,237				253,537
320	x	520	12.598	x	20.472	9.449	15.197	6.102	5.591	2.520	4.803	3.130	361	230,119	595,511	37,302	42,527	20	M20	289	287,649
						9.843								250,771	626,783	37,302	43,689				313,464
						10.236								275,848	652,430	37,302	46,446				344,810
340	x	570	13.386	x	22.441	9.843	16.063	6.654	6.142	2.795	5.276	3.406	361	287,649	701,700	38,318	42,818	24	M20	410	359,561
						10.236								311,620	730,947	38,318	44,560				389,525
						10.630								339,279	764,918	38,318	46,011				424,098
350	x	580	13.780	x	22.835	10.630	17.008	6.890	6.378	2.874	5.512	3.524	361	326,002	737,021	35,561	41,947	24	M20	430	407,503
						11.024								354,030	771,668	35,561	43,544				442,537
						11.220								368,781	787,416	35,561	44,560				460,976
360	x	590	14.173	x	23.228	11.024	17.008	6.890	6.378	2.874	5.512	3.524	361	341,491	744,671	34,545	40,931	24	M20	450	426,864
						11.614								385,007	795,515	34,545	43,253				481,259
						11.417								370,256	778,642	34,545	42,382				462,820
380	x	645	14.961	x	25.394	11.417	18.031	7.205	6.614	2.992	5.669	3.642	620	418,198	879,656	38,173	43,544	20	M24	527	522,747
						11.811								449,913	917,902	38,173	44,560				562,391
						12.205								485,316	955,698	38,173	46,446				606,645
390	x	660	15.354	x	25.984	11.811	18.425	7.205	6.614	2.992	5.669	3.642	620	460,239	935,900	39,189	44,269	21	M24	573	575,298
						12.205								494,904	974,146	39,189	45,576				618,630
						12.598								529,570	1,008,792	39,189	48,043				661,962
400	x	680	15.748	x	26.772	12.402	18.898	7.205	6.614	2.992	5.669	3.642	620	494,167	958,398	38,173	43,834	21	M24	617	617,708
						12.598								512,606	977,521	38,173	44,995				640,757
						12.992								548,746	1,012,392	38,173	47,027				685,933
420	x	690	16.535	x	27.165	12.992	19.843	7.992	7.402	3.386	6.457	4.193	620	575,298	1,091,134	36,431	42,818	24	M24	697	719,123
						13.386								619,552	1,133,879	36,431	44,414				774,440
						13.780								663,806	1,174,375	36,431	46,737				829,757
440	x	750	17.323	x	29.528	13.386	20.748	8.543	7.953	3.583	6.969	4.469	620	594,475	1,066,386	32,367	38,754	24	M24	899	743,094
						13.780								634,303	1,104,632	32,367	39,770				792,879
						14.173								676,344	1,145,128	32,367	41,366				845,430
460	x	770	18.110	x	30.315	14.173	21.535	8.543	7.953	3.583	6.969	4.469	620	737,562	1,275,614	35,996	42,527	28	M24	926	921,953
						14.567								789,191	1,318,359	35,996	43,689				986,489
						14.961								1,032,587	1,361,105	35,996	45,576				1,290,734
480	x	800	18.898	x	31.496	15.354	22.441	8.976	8.386	3.780	7.402	4.685	620	862,948	1,383,602	34,835	40,931	30	M24	1,113	1,078,684
						15.748								914,577	1,428,598	34,835	42,382				1,143,221
						15.748								966,206	1,473,593	34,835	44,414				1,207,758
500	x	850	19.685	x	33.465	16.142	23.228	9.055	8.386	3.780	7.402	4.685	920	967,681	1,475,843	35,125	41,221	24	M27	1,268	1,209,602
						16.142								1,017,836	1,514,088	35,125	43,108				1,272,294
						16.535								1,073,153	1,559,084	35,125	45,140				1,341,441

<sup>1)</sup> Shrink disc GT (split) delivered without screws. Tightening torques for screws quantity see table

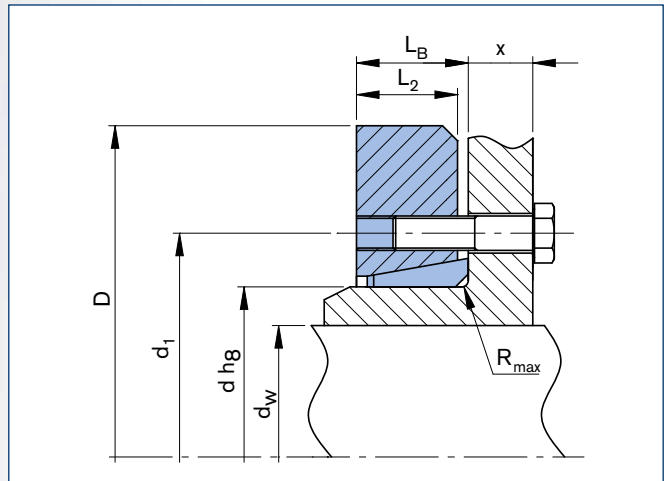
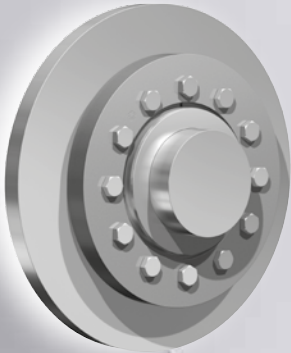
- Surface finishes For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances For shaft see table page 8
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

Explanations to tables: Page 9

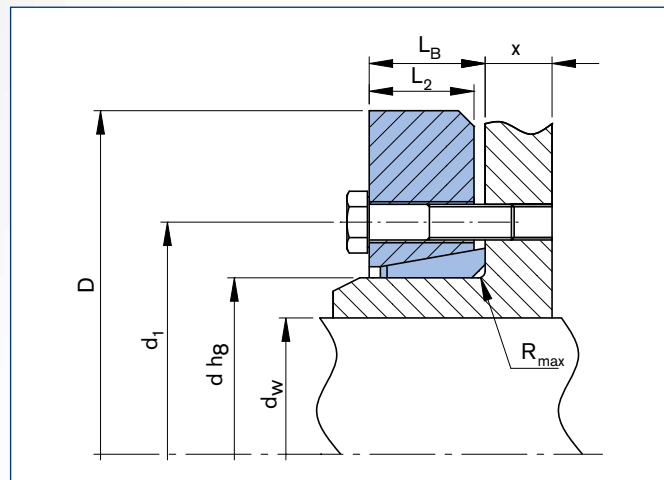
Ordering examples: RfN 4071

Series	d	D	Version
RfN 4071	15.354	25.984	-
RfN 4071	15.354	25.984	GT

GT = Split



RINGFEDER® Shrink Disc RfN 4071 HT version



RINGFEDER® Shrink Disc RfN 4071 HC · Dimensions

**Half shrink discs**

Type HT (Threaded holes in thrust ring)

Type HC (Clearance holes in thrust ring)

Shrink Discs dimensions									T <sub>A</sub> <sup>1)</sup>	Transmissible torques or axial forces		Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9		Gw	T <sub>max</sub>		
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L <sub>B</sub>		T	F <sub>ax</sub>	Quantity	Thread			lbs	ft-lbs
mm			inch	inch	inch	inch	inch	inch		ft-lbs	lbs						
220	x	370	8.661	x	14.567	6.299	10.630	2.343	1.850	0.291	185	35,034	133,861	15	M16	60	43,793
						6.496						37,616	139,373				47,020
						6.693						40,566	145,110				50,707
240	x	405	9.449	x	15.945	7.087	11.614	2.441	1.929	0.291	361	50,892	177,281	12	M20	74	63,615
						6.693						44,254	164,682				55,317
						7.480						57,530	188,417				71,912
260	x	430	10.236	x	16.929	8.268	12.638	2.657	2.126	0.291	361	75,600	226,101	14	M20	90	94,500
						7.874						67,856	211,477				84,820
						7.480						60,480	197,979				75,600
280	x	460	11.024	x	18.110	8.268	13.622	3.012	2.362	0.331	361	80,025	235,100	16	M20	112	100,032
						8.661						89,983	249,723				112,478
						9.055						99,571	264,347				124,464
300	x	485	11.811	x	19.094	9.646	14.331	3.130	2.520	0.331	361	116,166	296,518	18	M20	130	145,208
						9.449						108,790	288,757				135,988
						9.055						101,415	273,458				126,768
320	x	520	12.598	x	20.472	9.449	15.197	3.130	2.520	0.331	361	115,060	297,756	20	M20	144	143,825
						9.843						125,386	313,392				156,732
						10.236						137,924	326,215				172,405
340	x	570	13.386	x	22.441	9.843	16.063	3.406	2.795	0.331	361	143,825	350,850	24	M20	205	179,781
						10.236						155,810	365,474				194,762
						10.630						169,639	382,459				212,049
350	x	580	13.780	x	22.835	10.630	17.008	3.524	2.874	0.331	361	163,001	368,511	24	M20	215	203,752
						11.024						177,015	385,834				221,269
						11.220						184,391	393,708				230,488
360	x	590	14.173	x	23.228	11.024	17.008	3.524	2.874	0.331	361	170,746	372,335	24	M20	225	213,432
						11.614						192,504	397,758				240,630
						11.417						185,128	389,321				231,410
380	x	645	14.961	x	25.394	11.417	18.031	3.642	2.992	0.331	620	209,099	439,828	20	M24	263	261,374
						11.811						224,956	458,951				281,196
						12.205						242,658	477,849				303,322
390	x	660	15.354	x	25.984	11.811	18.425	3.642	2.992	0.331	620	230,119	467,950	21	M24	287	287,649
						12.205						247,452	487,073				309,315
						12.598						264,785	504,396				330,981
400	x	680	15.748	x	26.772	12.402	18.898	3.642	2.992	0.331	620	247,083	479,199	21	M24	309	308,854
						12.598						256,303	488,760				320,378
						12.992						274,373	506,196				342,966
420	x	690	16.535	x	27.165	12.992	19.843	4.193	3.386	0.390	620	287,649	545,567	24	M24	348	359,561
						13.386						309,776	566,940				387,220
						13.780						331,903	587,187				414,879
440	x	750	17.323	x	29.528	13.386	20.748	4.469	3.583	0.390	620	297,237	533,193	24	M24	450	371,547
						13.780						317,152	552,316				396,440
						14.173						338,172	572,564				422,715
460	x	770	18.110	x	30.315	14.173	21.535	4.469	3.583	0.390	620	368,781	637,807	28	M24	463	460,976
						14.567						394,596	659,180				493,245
						14.961						516,293	680,552				645,367
480	x	800	18.898	x	31.496	14.961	22.441	4.685	3.780	0.390	620	431,474	691,801	30	M24	557	539,342
						15.354						457,288	714,299				571,611
						15.748						483,103	736,796				603,879
500	x	850	19.685	x	33.465	15.748	23.228	4.685	3.780	0.390	920	483,841	737,921	24	M27	634	604,801
						16.142						508,918	757,044				636,147
						16.535						536,576	779,542				670,720

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table

- Surface finishes For shaft R<sub>a</sub> ≤ 3,2 µm
- Tolerances For shaft see table page 8
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

Explanations to tables: Page 9

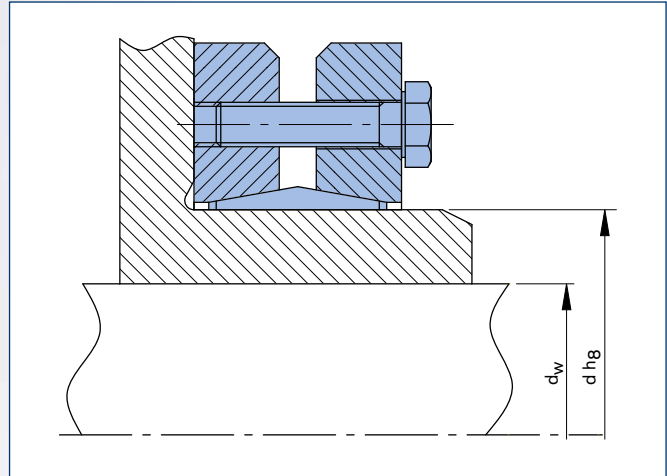
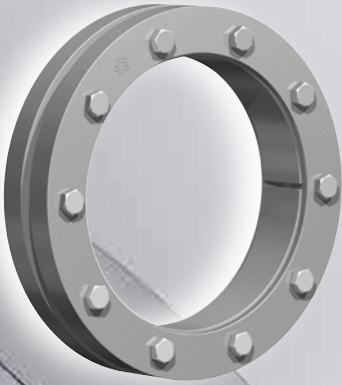
Ordering examples: RfN 4071

Series	d	D	Version
RfN 4071	16.535	27.165	HT
RfN 4071	16.535	27.165	HC

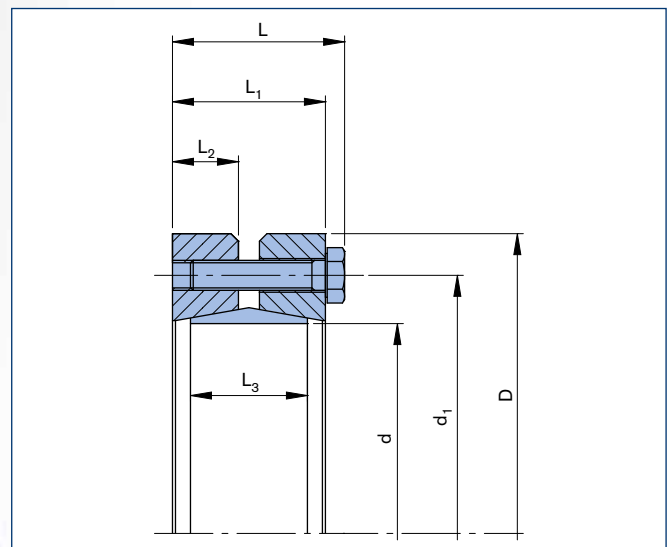
HT = Half shrink disc with threaded holes in thrust ring

HC = Half shrink disc with clearance holes in thrust ring

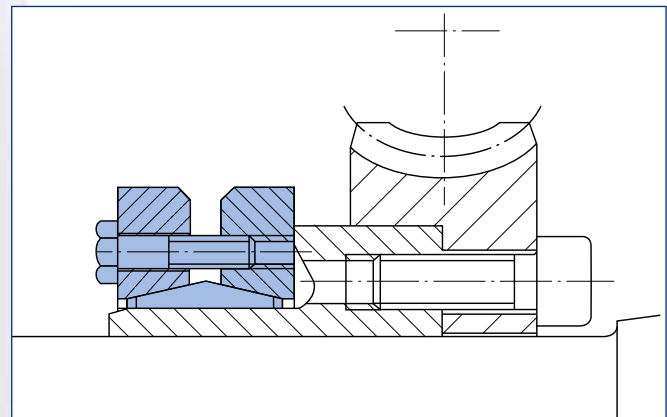




RINGFEDER® Shrink Disc RfN 4073 · Location



RINGFEDER® Shrink Disc RfN 4073 · Dimensions



Example of application: Worm gear

Shrink Discs dimensions										Transmissible torques or axial forces				Locking screws <sup>1)</sup> ISO 4014 / 4017 - 8.8						
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	Gw	T <sub>max</sub>
mm		inch	mm		inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs
14	x	34	0.551	x	1.339	0.354	0.945	0.551	0.472	0.197	0.354	2	7	562	32,222	56,461	3	M4*	0.22	13
						0.394							10	787		59,219				19
						0.433							15	1,035		52,397				26
16	x	42	0.630	x	1.654	0.433	1.181	0.583	0.472	0.197	0.354	2	24	1,620	38,318	59,219	4	M4*	0.22	30
						0.472							30	1,912		60,090				38
						0.512							38	2,227		63,864				47
20	x	47	0.787	x	1.850	0.551	1.339	0.689	0.551	0.236	0.394	2	30	1,642	28,013	44,995	4	M5	0.29	38
						0.591							38	1,890		45,140				47
						0.630							46	2,160		46,446				58
22	x	50	0.866	x	1.969	0.630	1.457	0.728	0.591	0.256	0.394	2	50	2,362	31,787	46,446	5	M5	0.35	63
						0.669							59	2,587		47,317				74
						0.709							69	2,925		49,494				87
24	x	50	0.945	x	1.969	0.709	1.535	0.728	0.591	0.256	0.394	4	136	5,843	39,770	73,008	5	M5	0.35	170
						0.748							151	6,293		78,814				189
						0.787							173	6,742		84,329				216
28	x	56	1.102	x	2.205	0.787	1.693	0.728	0.591	0.256	0.394	2	57	2,160	24,965	39,189	5	M5	0.40	71
						0.866							76	2,587		39,334				95
						0.945							97	3,037		41,947				122
31	x	60	1.220	x	2.362	0.945	1.811	0.728	0.591	0.256	0.394	2	81	2,475	22,643	35,415	5	M5	0.44	102
						0.984							91	2,700		35,706				114
						1.063							114	3,150		38,318				142
36	x	66	1.417	x	2.598	1.102	2.047	0.728	0.591	0.256	0.394	2	119	3,150	23,368	33,819	6	M5	0.53	148
						1.181							143	3,600		34,690				179
						1.260							159	3,712		47,608				198
40	x	68	1.575	x	2.677	1.299	2.165	0.728	0.591	0.256	0.394	3	195	4,500	28158	47,172	6	M5	0.51	244
						1.339							214	4,724		47,753				268
						1.378							236	5,062		48,769				292
46	x	80	1.811	x	3.150	1.496	2.480	0.886	0.748	0.315	0.551	3	295	5,849	23223	40,350	8	M5	0.97	371
						1.575							347	6,524		41,802				434
						1.654							406	7,312		47,317				504
51	x	86	2.008	x	3.386	1.654	2.697	0.886	0.748	0.315	0.551	3	325	5,849	20,901	36,141	8	M5	1.08	406
						1.732							376	6,412		37,012				472
						1.772							406	6,749		37,883				502
56	x	91	2.205	x	3.583	1.811	2.874	0.886	0.748	0.315	0.551	3	413	6,749	21,481	34,980	9	M5	1.15	509
						1.890							465	7,312		35,561				583
						1.969							524	7,874		37,447				656
61	x	96	2.402	x	3.780	2.047	3.031	0.886	0.748	0.315	0.551	3	524	7,649	21,917	41,366	10	M5	1.23	656
						2.126							597	8,324		42,237				745
						2.205							671	8,999		44,850				833
66	x	100	2.598	x	3.937	2.283	3.228	0.886	0.748	0.315	0.551	3	627	8,212	20,320	38,609	10	M5	1.26	789
						2.362							701	8,887		40,060				878
						2.441							782	9,561		44,705				974
70	x	110	2.756	x	4.331	2.441	3.543	1.083	0.945	0.394	0.709	4	1,040	12,711	22,207	40,495	10	M5	2.05	1,305
						2.520							1,151	13,611		43,544				1,438
						2.559							1,202	14,061		46,737				1,505
75	x	114	2.953	x	4.488	2.598	3.661	1.083	0.945	0.394	0.709	4	1,092	12,374	20,611	37,157	10	M5	2.05	1,357
						2.677							1,195	13,274		38,899				1,490
						2.756							1,305	14,173		43,689				1,630
80	x	120	3.150	x	4.724	2.795	3.976	1.083	0.945	0.394	0.709	4	1,475	15,748	23,368	39,044	12	M5	2.29	1,844
						2.874							1,593	16,648		41,366				1,991
						2.953							1,719	17,436		47,753				2,154
85	x	128	3.346	x	5.039	2.992	4.134	1.260	1.102	0.453	0.866	9	1,748	17,436	19,885	35,706	8	M6	3.11	2,183
						3.071							1,888	18,448		38,609				2,360
						3.150							2,036	19,348		45,866				2,545
94	x	140	3.701	x	5.512	3.228	4.685	1.260	1.102	0.453	0.866	9	1,696	15,636	17,998	36,722	8	M6	3.66	2,117
						3.346							1,918	17,098		38,028				2,397
						3.465							2,154	18,673		41,947				2,699

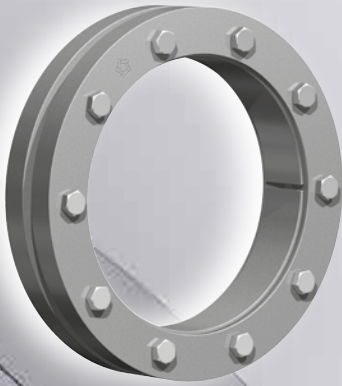
<sup>1)</sup> Different quality of screws. ISO 4014/4017 - 8.8

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table

- Surface finishes For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances For shaft see table page 8
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

Explanations to tables: Page 9

To continue see next page



## Characteristics

**Mini series** – this range is a very compact design with low inertia values. It is ideally suited for mechanical seal and small gearbox applications.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

Shrink Discs dimensions										Transmissible torques or axial forces				Locking screws <sup>1)</sup> ISO 4014 / 4017 - 8.8						
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	Gw	T <sub>max</sub>
mm			inch			inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs
105	x	150	4.134	x	5.906	3.622	5.039	1.260	1.102	0.453	0.866	9	2,213	18,223	18,143	34,690	9	M6	3.90	2,766
						3.740							2,456	19,573		35,706				3,068
						3.858							2,714	21,035		38,609				3,393
112	x	158	4.409	x	6.220	3.937	5.315	1.260	1.102	0.453	0.866	9	2,500	19,010	16,982	32,658	9	M6	4.21	3,127
						4.094							2,840	20,810		34,980				2,633
						4.173							3,024	21,598		38,318				3,776
120	x	164	4.724	x	6.457	4.173	5.551	1.417	1.260	0.512	0.984	9	2,876	20,585	15,531	30,190	10	M6	4.85	3,592
						4.331							3,245	22,498		31,496				4,057
						4.409							3,444	23,398		33,383				4,300
130	x	172	5.118	x	6.772	4.528	5.945	1.417	1.260	0.512	0.984	9	3,135	22,273	14,369	27,723	10	M6	4.87	3,924
						4.724							3,607	22,835		29,319				4,507
						4.803							3,762	23,398		32,658				4,706
140	x	182	5.512	x	7.165	4.921	6.339	1.417	1.260	0.512	0.984	9	4,197	30,372	15,966	30,190	12	M6	5.29	5,244
						5.039							4,529	26,885		30,916				5,657
						5.118							4,757	27,897		31,932				5,945
150	x	194	5.906	x	7.638	5.315	6.732	1.417	1.260	0.512	0.984	9	4,632	26,097	14,950	28,158	12	M6	5.95	5,782
						5.433							4,964	27,222		29,029				6,210
						5.512							5,200	28,122		29,900				6,498
160	x	204	6.299	x	8.031	5.591	7.126	1.417	1.260	0.512	0.984	9	4,691	24,972	13,934	25,981	12	M6	6.17	5,856
						5.709							5,015	26,322		26,416				6,269
						5.827							5,355	27,447		27,142				6,690

<sup>1)</sup> Different quality of screws. ISO 4014/4017 - 8.8

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table

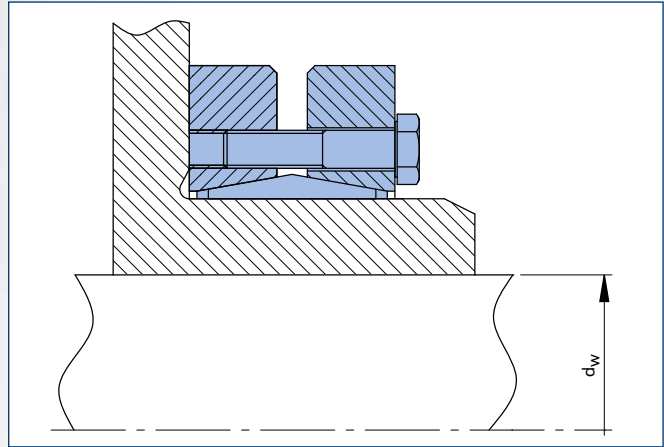
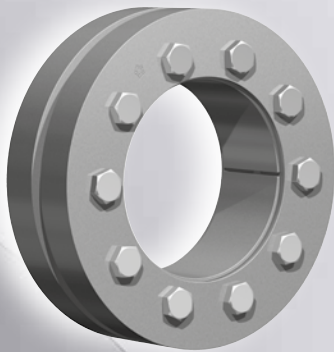
- Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

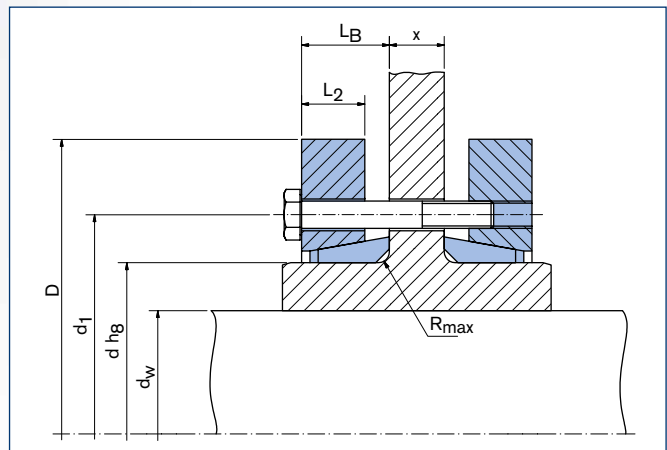
More sizes on request

Ordering example: RfN 4073

Series	d	D
RfN 4073	1.811	3.150



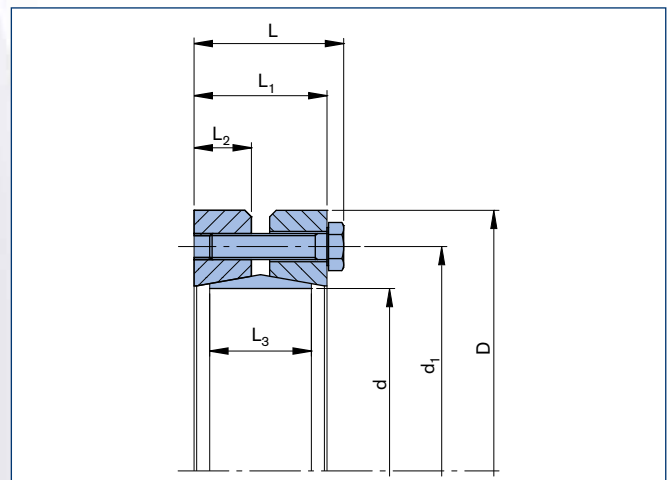
RINGFEDER® Shrink Disc RfN 4091 · Location



RINGFEDER® Shrink Disc RfN 4091 GT · Location

### Shrink discs GT (split)

In the application shown above special screws according to the dimension  $X$  are required, which have to be ordered accordingly. When dimension „ $X$ “ larger than  $2 \cdot L_1$  is chosen, a reduction of the transmissible torque up to 50% has to be considered to the type GT.



RINGFEDER® Shrink Disc RfN 4091 · Dimensions

Shrink Discs dimensions											Transmissible torques or axial forces				Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9						
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>B</sub>	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	G <sub>w</sub>	T <sub>max</sub>
mm		inch	mm		inch	inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs
50	x	95	1.969	x	3.740	1.496 1.575 1.654 1.772	2.874	1.752	1.535	0.669	1.181	0.906	18	1,328 1,549 1,770 1,991	23,847 25,872 27,897 30,372	41,366	59,509 64,880 74,169 66,331	7	M8	3.1	1,660 1,936 2,213 2,489
55	x	105	2.165	x	4.134	1.654 1.890 2.047	3.071	1.752	1.535	0.669	1.181	0.906	21	1,660 2,360 2,655	27,447 33,296 32,622	42,092	58,639 83,313 66,476	7	M8	3.8	2,075 2,950 3,319
62	x	115	2.441	x	4.528	1.969 1.890 1.969	3.346	1.752	1.535	0.669	1.181	0.906	22	2,508 2,176 2,655	31,947 30,147 33,071	40,060	58,203 54,575 48,478	7	M8	4.4	3,135 2,720 3,319
68	x	118	2.677	x	4.646	2.165 2.362 2.559	3.661	1.929	1.732	0.748	1.339	1.063	22	3,393 4,204 5,163	37,796 42,745 56,019	37,738	52,542 68,944 78,378	8	M8	4.6	4,241 5,255 6,454
75	x	145	2.953	x	5.709	2.362 2.165 2.362	4.134	2.087	1.811	0.787	1.417	1.063	45	4,204 3,393 4,204	49,720 43,420 44,995	43,834	63,428 58,493 55,010	7	M10	8.4	5,255 4,241 5,255
80	x	145	3.150	x	5.709	2.559 2.756 2.559	4.134	2.087	1.811	0.787	1.417	1.063	45	5,163 6,196 4,942	50,845 56,919 48,820	41,076	59,945 74,024 49,204	7	M10	7.9	6,454 7,744 6,177
90	x	160	3.543	x	6.299	2.756 2.953 2.756	4.567	2.244	1.969	0.866	1.575	1.142	45	5,974 7,081 6,491	54,669 60,519 59,619	37,593	51,091 57,332 48,478	8	M10	10.6	7,468 8,851 8,113
100	x	170	3.937	x	6.693	2.953 3.150 2.953	4.961	2.402	2.126	0.906	1.732	1.260	45	7,376 8,998 8,113	65,918 72,217 69,293	38,463	49,640 53,413 45,866	10	M10	12.3	9,220 11,248 10,141
110	x	185	4.331	x	7.283	3.150 3.346 3.346	5.433	2.638	2.362	1.024	1.969	1.378	45	9,515 10,842 11,063	76,042 79,192 79,866	36,867	46,592 52,252 48,043	12	M10	16.8	11,893 13,553 13,829
125	x	215	4.921	x	8.465	3.543 3.740 3.740	6.299	2.874	2.559	1.102	2.165	1.476	75	12,907 14,751 15,931	87,291 94,940 102,589	35,996	48,043 48,914 47,753	10	M12	24.3	16,134 18,439 19,914
135	x	212	5.315	x	8.346	3.543 4.134 4.331	6.772	3.346	3.031	1.260	2.362	1.772	75	13,866 20,504 43,295	94,490 119,462 246,574	36,431	47,898 49,059 68,218	12	M12	23.6	16,595 25,630 54,100
140	x	300	5.512	x	11.811	3.937 3.543 4.134	8.661	4.173	3.780	1.654	3.150	2.126	185	34,665 27,069 21,316	211,927 183,805 123,962	52,252	62,848 61,396 44,995	12	M16	78.3	43,332 33,817 26,626
155	x	263	6.102	x	10.354	4.331 4.528 4.921	7.756	3.602	3.307	1.378	2.598	1.772	75	23,897 26,700 37,394	132,736 141,735 183,355	35,996	45,140 45,576 49,930	15	M12	43.2	29,871 33,375 46,743
165	x	290	6.496	x	11.417	4.724 4.528 4.921	8.268	3.858	3.465	1.496	2.835	1.929	185	33,928 30,240 53,695	176,606 166,482 262,097	39,189	47,608 47,027 53,268	10	M16	57.3	42,410 37,800 67,118
175	x	300	6.890	x	11.811	5.118 5.315 5.315	8.661	4.882	4.488	1.969	3.622	2.323	185	58,931 64,389 53,104	276,720 291,119 247,474	43,689	54,284 56,026 47,462	15	M16	80.5	73,646 80,468 66,381
185	x	330	7.283	x	12.992	5.512 5.709 5.315	9.291	4.803	4.409	1.969	3.622	2.402	185	57,530 63,430 70,142	258,722 269,971 316,991	38,173	48,478 50,075 56,026	14	M16	104	71,912 79,288 87,659
190	x	350	7.480	x	13.780	5.512 6.102 5.512	9.409	5.079	4.587	1.969	3.622	2.441	350	76,264 96,326 55,317	332,515 379,085 241,849	48,043	56,897 63,864 44,995	12	M20	121	95,330 120,407 69,146
195	x	350	7.677	x	13.780	5.906 6.102 5.709	9.685	4.803	4.409	1.969	3.622	2.500	185	64,905 70,806 62,693	265,472 277,845 263,222	36,286	46,301 47,898 46,011	14	M16	117	81,132 88,507 78,366
200	x	350	7.874	x	13.780	5.906 6.102	9.685	4.803	4.409	1.969	3.622	2.500	185	68,224 73,756	276,720 290,219	37,883	46,737 47,898	15	M16	110	85,281 92,195

<sup>1)</sup> Shrink disc GT (split) delivered without screws. Tightening torques for screws quantity see table

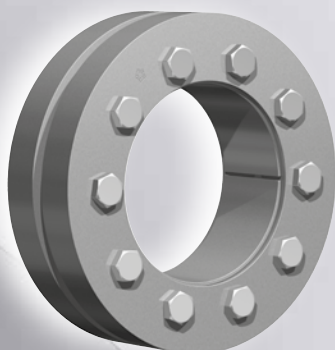
■ Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 µm

■ Tolerances  
For shaft see table page 8

Explanations to tables: Page 9

To continue see next page

■ When using a hollow shaft instead of a solid shaft please contact our Engineering-Team



## Characteristics

**Heavy design** – for highest transmission values.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft.

RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

Shrink Discs dimensions												Transmissible torques or axial forces				Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9					
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>B</sub>	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	G <sub>w</sub>	T <sub>max</sub>
mm		inch	mm		inch	inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs
220	x	370	8.661	x	14.567	6.496	10.630	5.669	5.276	2.362	4.488	2.933	185	100,308	371,210	37,012	45,866	20	M16	143	125,386
						6.299								93,670	357,712		44,850				117,088
						6.693								108,053	386,959		47,172				135,066
240	x	405	9.449	x	15.945	7.480	11.614	6.181	5.669	2.559	4.724	3.130	361	146,037	467,950	37,883	49,494	15	M20	192	182,547
						7.087								129,811	440,953		45,721				162,264
						6.693								114,322	409,456		44,269				142,903
260	x	430	10.236	x	16.929	7.480	12.638	6.811	6.299	2.835	5.354	3.445	361	157,101	508,446	37,012	44,705	18	M20	220	196,376
						7.874								177,015	544,442		46,737				221,269
						8.268								197,667	580,438		50,220				247,083
280	x	460	11.024	x	18.110	9.055	13.622	7.283	6.772	3.071	5.827	3.780	361	261,835	695,176	36,867	51,672	21	M20	291	327,293
						8.661								236,020	654,680		47,462				295,025
						8.268								210,205	616,434		44,995				262,756
300	x	485	11.811	x	19.094	9.055	14.331	7.441	6.929	3.150	5.984	3.858	361	251,509	665,929	35,125	43,253	22	M20	309	314,386
						9.449								277,323	704,175		45,866				346,654
						9.646								290,599	723,298		47,462				363,249
320	x	520	12.598	x	20.472	9.449	15.197	7.736	7.244	3.228	6.299	4.016	361	278,798	708,674	34,109	40,931	24	M20	364	348,498
						9.843								306,088	748,045		42,673				382,610
						10.236								332,640	780,667		46,156				415,801
340	x	570	13.386	x	22.441	9.843	16.535	8.465	7.874	3.622	6.929	4.331	620	361,037	879,656	36,722	42,818	21	M24	529	451,296
						10.236								390,908	916,777		44,995				488,635
						10.630								426,311	961,772		47,317				532,889
350	x	580	13.780	x	22.835	10.630	16.732	8.465	7.874	3.622	6.929	4.331	620	410,084	927,351	35,851	44,124	21	M24	545	512,606
						11.024								445,487	971,896		46,446				556,859
						11.220								463,926	993,269		48,043				579,908
360	x	590	14.173	x	23.228	11.024	17.008	8.622	8.031	3.622	7.087	4.508	620	451,388	983,145	35,561	43,979	22	M24	551	564,235
						11.417								489,004	1,028,140		46,446				611,255
						11.614								508,180	1,050,638		48,188				635,225
380	x	645	14.961	x	25.394	11.811	18.031	8.622	8.031	3.622	7.087	4.508	620	492,691	1,002,268	33,819	42,092	22	M24	705	615,864
						11.417								455,813	960,648		40,495				569,767
						12.205								530,307	1,045,014		44,560				662,884
390	x	660	15.354	x	25.984	12.598	18.425	8.937	8.346	3.780	7.402	4.665	620	600,744	1,145,128	34,254	46,156	24	M24	772	750,930
						12.205								562,022	1,104,632		43,108				702,528
						11.811								522,194	1,060,762		41,221				652,742
400	x	680	15.748	x	26.772	12.402	18.898	8.937	8.346	3.780	7.402	4.665	620	564,235	1,092,258	33,528	41,366	24	M24	816	705,294
						12.598								581,199	1,108,457		42,673				726,499
						12.992								623,240	1,153,002		45,285				779,050
420	x	690	16.535	x	27.165	12.992	19.843	9.961	9.370	4.370	8.425	5.177	620	736,824	1,362,230	34,980	43,834	30	M24	904	921,031
						13.780								840,821	1,465,719		49,640				1,051,026
						13.386								787,716	1,413,974		46,156				984,645
440	x	750	17.323	x	29.528	13.386	20.748	10.591	9.921	4.528	8.819	5.453	920	780,341	1,401,600	33,528	41,076	24	M27	1,190	975,426
						13.780								833,445	1,453,345		42,818				1,041,806
						14.173								888,025	1,505,089		45,285				1,110,031
460	x	770	18.110	x	30.315	14.173	21.535	10.591	9.921	4.528	8.819	5.551	920	973,582	1,673,821	37,302	45,285	28	M27	1,190	1,216,977
						14.567								1,047,338	1,732,315		47,317				1,309,173
						14.961								1,106,343	1,788,559		50,220				1,382,929
480	x	800	18.898	x	31.496	14.961	22.835	11.457	10.787	5.039	9.685	5.984	920	1,132,158	1,817,806	34,980	43,834	30	M27	1,433	1,415,197
						15.354								1,199,276	1,876,300		46,156				1,499,095
						15.748								1,268,607	1,934,794		49,349				1,585,758
500	x	850	19.685	x	33.465	15.748	23.622	11.457	10.787	5.039	9.685	5.984	920	1,290,734	1,968,540	35,706	44,850	32	M27	1,653	1,613,417
						16.142								1,357,114	2,020,284		47,608				1,696,393
						16.535								1,430,870	2,081,028		50,801				1,788,588

<sup>1)</sup> Shrink disc GT (split) delivered without screws. Tightening torques for screws quantity see table

- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

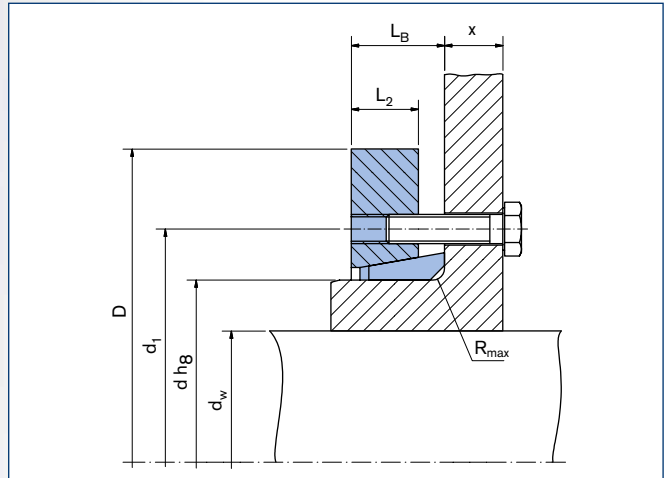
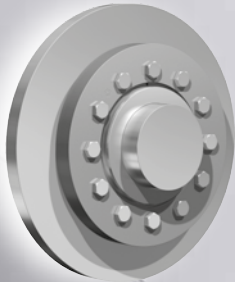
More sizes on request

Ordering examples: RfN 4091

Series	d	D	Version
RfN 4091	8.661	14.567	-
RfN 4091	8.661	14.567	GT

GT = Split



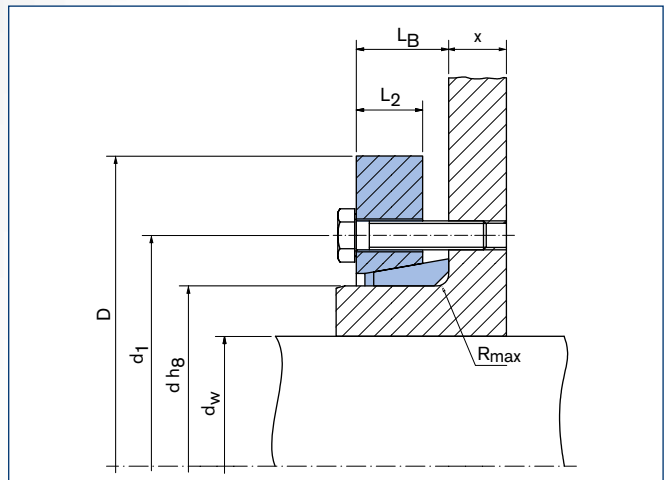


RINGFEDER® Shrink Disc RfN 4091 HT

**Half shrink discs**

Type HT (Threaded holes in thrust ring)

Type HC (Clearance holes in thrust ring)



RINGFEDER® Shrink Disc RfN 4091 HC · Dimensions

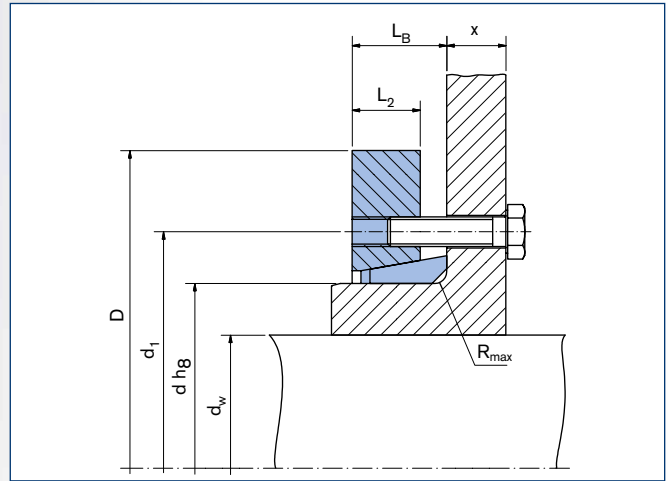
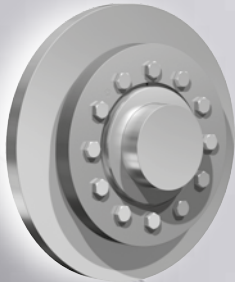
Shrink Discs dimensions							T <sub>A</sub> <sup>1)</sup>	Transmissible torques or axial forces		Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9		G <sub>w</sub>	T <sub>max</sub>				
d	x	D	d	x	D	d <sub>w</sub>		T	F <sub>ax</sub>	Quantity	Thread						
mm			inch			inch		ft-lbs	lbs								
50	x	95	1.969	x	3.740	1.575	18	774	12,936	7	M8	1.54	968				
			1.654			2.874		0.906					0.669	0.071	885	13,949	1,106
			1.496												664	11,924	830
55	x	105	2.165	x	4.134	1.654	21	830	13,724	7	M8	1.87	1,037				
			1.772			3.071		0.906					0.669	0.071	996	15,186	1,245
			1.890												1,180	16,648	1,475
62	x	115	2.441	x	4.528	1.890	22	1,088	15,073	7	M8	2.20	1,360				
			1.969			3.346		0.906					0.669	0.071	1,254	15,973	1,567
			2.047												1,328	16,311	1,660
68	x	118	2.677	x	4.646	1.969	22	1,328	16,536	8	M8	2.31	1,660				
			2.165			3.661		1.063					0.748	0.110	1,696	18,898	2,120
			2.362												2,102	21,373	2,628
75	x	145	2.953	x	5.709	2.165	45	1,586	21,710	7	M10	4.19	2,120				
			2.362			4.134		1.063					0.787	0.110	2,102	24,860	2,628
			2.559												2,581	28,010	3,227
80	x	145	3.150	x	5.709	2.362	45	2,102	22,498	7	M10	3.97	2,628				
			2.559			4.134		1.063					0.787	0.110	2,581	25,422	3,227
			2.756												3,098	28,459	3,872
90	x	160	3.543	x	6.299	2.559	45	2,471	24,410	8	M10	5.29	3,089				
			2.756			4.567		1.142					0.866	0.110	2,987	27,335	3,734
			2.953												3,540	30,259	4,425
100	x	170	3.937	x	6.693	2.756	45	3,245	29,809	10	M10	6.17	4,057				
			2.953			4.961		1.260					0.906	0.130	3,688	32,959	4,610
			3.150												4,499	36,109	5,624
110	x	185	4.331	x	7.283	2.953	45	4,057	34,646	12	M10	8.38	5,071				
			3.150			5.433		1.378					1.024	0.130	4,757	38,021	5,947
			3.346												5,421	39,596	6,776
125	x	215	4.921	x	8.465	3.543	75	6,454	43,645	10	M12	12.1	8,067				
			3.740			6.299		1.476					1.102	0.130	7,376	47,470	9,220
			3.346												5,532	39,933	6,915
135	x	212	5.315	x	8.346	3.543	75	6,933	47,245	12	M12	11.6	8,298				
			3.740			6.772		1.772					1.260	0.189	7,966	51,295	9,957
			4.134												10,252	59,731	12,815
140	x	300	5.512	x	11.811	3.543	185	13,534	91,903	12	M16	38.6	18,347				
			3.937			8.661		2.126					1.654	0.189	17,333	105,964	23,556
			4.331												21,647	123,287	29,318
155	x	263	6.102	x	10.354	4.134	75	9,957	61,418	15	M12	21.5	12,446				
			4.331			7.795		1.772					1.378	0.189	11,432	65,805	14,290
			4.528												12,539	70,193	15,673
165	x	290	6.496	x	11.417	4.528	185	15,120	83,241	10	M16	28.7	18,900				
			4.724			8.268		1.929					1.496	0.189	16,964	88,303	21,205
			4.921												18,697	91,678	23,371
175	x	300	6.890	x	11.811	4.921	185	26,847	131,049	10	M16	32.0	33,559				
			5.118			8.661		2.323					1.969	0.189	29,466	138,360	36,823
			5.315												32,195	145,559	40,234
185	x	330	7.283	x	12.992	5.315	185	26,552	123,737	14	M16	51.8	33,190				
			5.512			9.291		2.402					1.969	0.189	28,765	129,361	35,956
			5.709												31,715	134,986	39,644
190	x	350	7.480	x	13.780	5.315	350	35,071	158,496	12	M20	57.3	43,830				
			5.512			9.409		2.441					1.969	0.189	38,132	166,257	47,665
			6.102												48,163	189,542	60,203
195	x	350	7.677	x	13.780	5.512	185	27,659	120,925	14	M16	58.4	34,573				
			5.906			9.685		2.500					1.969	0.189	32,453	132,736	40,566
			6.102												35,403	138,923	44,254

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table

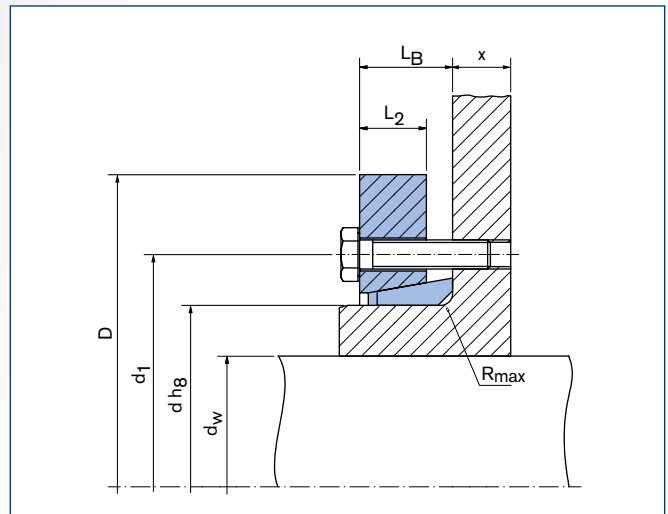
- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

To continue see next page



RINGFEDER® Shrink Disc RfN 4091 HT



RINGFEDER® Shrink Disc RfN 4091 HC · Dimensions

Shrink Discs dimensions										Transmissible torques or axial forces		Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9					
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L <sub>B</sub>	L <sub>2</sub>	R	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	Quantity	Thread	G <sub>w</sub>	T <sub>max</sub>
mm		inch	inch	inch	inch	inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs			lbs	ft-lbs
200	x	350	7.874	x	13.780	5.906	9.685	2.500	1.969	0.189	185	34,112	138,360	15	M16	55.1	42,640
						6.102						36,878	145,110				46,098
						5.709						31,346	131,611				39,183
220	x	370	8.661	x	14.567	6.299	10.630	2.933	2.362	0.252	185	46,835	178,856	20	M16	71.7	58,544
						6.496						50,154	185,605				62,693
						6.693						54,026	193,479				67,533
240	x	405	9.449	x	15.945	6.693	11.614	3.130	2.559	0.252	361	57,161	204,728	15	M20	96.0	71,451
						7.087						64,905	220,476				81,132
						7.480						73,019	233,975				91,273
260	x	430	10.236	x	16.929	7.480	12.638	3.445	2.835	0.252	361	78,550	254,223	18	M20	110	98,188
						7.874						88,507	272,221				110,634
						8.268						98,833	290,219				123,542
280	x	460	11.024	x	18.110	8.268	13.622	3.780	3.071	0.331	361	105,103	308,217	21	M20	146	131,378
						8.661						118,010	327,340				147,512
						9.055						130,917	347,588				163,647
300	x	485	11.811	x	19.094	9.055	14.331	3.858	3.150	0.331	361	125,754	332,964	22	M20	154	157,193
						9.449						138,662	352,087				173,327
						9.646						145,300	361,649				181,625
320	x	520	12.598	x	20.472	9.449	15.197	4.016	3.228	0.331	361	139,399	354,337	24	M20	182	174,323
						9.843						153,044	374,023				191,305
						10.236						166,320	390,333				207,900
340	x	570	13.386	x	22.441	9.843	16.535	4.331	3.622	0.331	620	180,518	439,828	21	M24	265	225,648
						10.236						195,454	458,389				244,317
						10.630						213,155	480,886				266,444
350	x	580	13.780	x	22.835	10.630	16.732	4.331	3.622	0.331	620	205,042	463,676	21	M24	272	256,303
						11.024						222,744	485,948				278,430
						11.220						231,963	496,635				289,954
360	x	590	14.173	x	23.228	11.417	17.008	4.508	3.622	0.390	620	244,502	514,070	22	M24	276	305,627
						11.614						254,090	525,319				317,613
						11.024						225,694	491,573				282,117
380	x	645	14.961	x	25.394	11.417	18.031	4.508	3.622	0.390	620	227,907	480,324	22	M24	353	284,883
						11.811						246,346	501,134				307,932
						12.205						265,154	522,507				331,442
390	x	660	15.354	x	25.984	11.811	18.425	4.665	3.780	0.390	620	261,097	530,381	24	M24	386	326,371
						12.205						281,011	552,316				351,264
						12.598						300,372	572,564				375,465
400	x	680	15.748	x	26.772	12.402	18.898	4.665	3.780	0.390	620	282,117	546,129	24	M24	408	352,647
						12.598						290,599	554,228				363,249
						12.992						311,620	576,501				389,525
420	x	690	16.535	x	27.165	12.992	19.843	5.177	4.370	0.390	620	368,412	681,115	30	M24	452	460,515
						13.386						393,858	706,987				492,323
						13.780						420,410	732,859				525,513
440	x	750	17.323	x	29.528	13.386	20.748	5.453	4.528	0.390	920	390,170	700,800	24	M27	595	487,713
						13.780						416,723	726,672				520,903
						14.173						444,012	752,545				555,015
460	x	770	18.110	x	30.315	14.173	21.535	5.551	4.528	0.488	920	486,791	836,911	28	M27	595	608,489
						14.567						523,669	866,158				654,586
						14.961						553,172	894,280				691,464
480	x	800	18.898	x	31.496	14.961	22.835	5.984	5.039	0.488	920	566,079	908,903	30	M27	717	707,599
						15.354						599,638	938,150				749,547
						15.748						634,303	967,397				792,879
500	x	850	19.685	x	33.465	15.748	23.622	5.984	5.039	0.488	920	645,367	984,270	32	M27	827	806,708
						16.142						678,557	1,010,142				848,196
						16.535						715,435	1,040,514				894,294

<sup>1)</sup> Shrink disc delivered without screws. Tightening torques for screws quantity see table

■ Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$

■ Tolerances  
For shaft see table page 8

Explanations to tables: Page 9

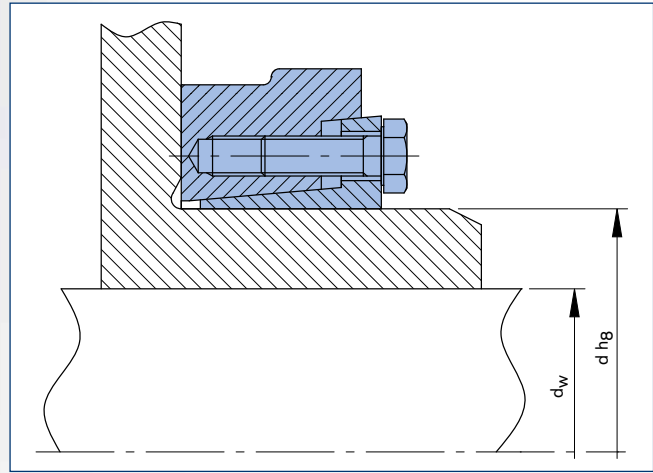
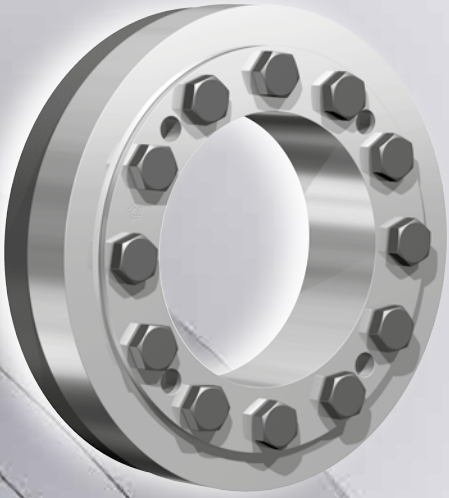
■ When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

Ordering examples: RfN 4091

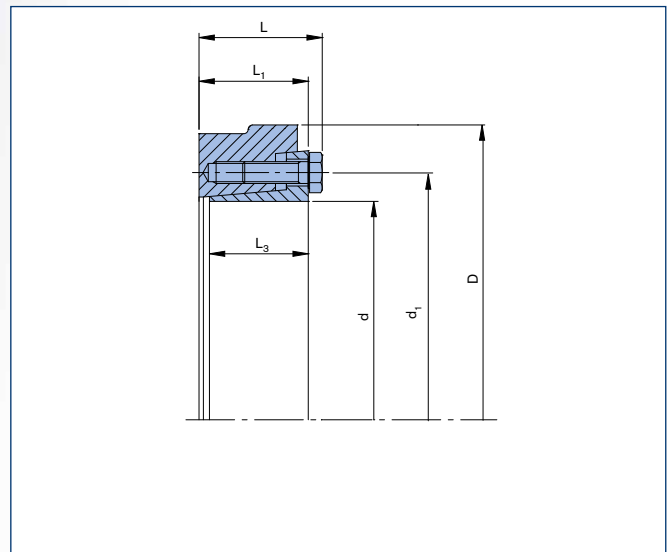
Series	d	D	Version
RfN 4091	18.110	30.315	HT
RfN 4091	18.110	30.315	HC

HT = Half shrink disc with threaded holes in thrust ring

HC = Half shrink disc with clearance holes in thrust ring



RINGFEDER® Shrink Disc RfN 4161 · Location



RINGFEDER® Shrink Disc RfN 4161 · Dimensions

Shrink Discs dimensions										Transmissible torques or axial forces			Locking screws ISO 4014 / 4017 - 12.9			
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>3</sub>	T <sub>A</sub>	T	F <sub>ax</sub>	Thread	G <sub>w</sub>	T <sub>max</sub>
mm			inch			inch		inch			ft-lbs	ft-lbs	lbs		lbs	ft-lbs
18	x	44	0.709	x	1.732	0.591	1.181	0.748	0.591	0.512	9	59	2,473	M6	0.44	65
						0.630	1.181			0.512		81	3,147			89
						--	--			--		--	--			--
20	x	47	0.787	x	1.850	0.669	1.260	0.768	0.610	0.531	9	111	4,047	M6	0.44	122
						0.709	1.260			0.531		133	4,496			146
						--	--			--		--	--			--
24	x	50	0.945	x	1.969	0.748	1.417	0.866	0.709	0.591	9	118	3,822	M6	0.44	130
						0.787	1.417			0.591		155	4,496			170
						0.866	1.417			0.591		207	5,620			227
26	x	51.5	1.024	x	2.028	0.787	1.496	0.866	0.709	0.630	9	170	5,171	M6	0.44	187
						0.866	1.496			0.630		221	6,070			243
						0.945	1.496			0.630		229	6,519			252
30	x	60	1.181	x	2.362	0.945	1.732	0.945	0.787	0.669	9	199	5,171	M6	0.66	219
						0.984	1.732			0.669		236	5,620			260
						1.024	1.732			0.669		266	6,295			292
36	x	72	1.417	x	2.835	1.063	2.047	1.083	0.866	0.728	26	376	8,318	M8	1.10	414
						1.181	2.047			0.728		524	10,566			576
						1.299	2.047			0.728		701	13,039			771
38	x	72	1.496	x	2.835	1.299	2.126	1.083	0.866	0.728	26	634	11,690	M8	1.10	698
						1.063	2.126			0.728		354	8,093			389
						1.181	2.126			0.728		479	9,667			527
40	x	80	1.575	x	3.150	1.339	2.402	1.161	0.945	0.807	26	597	10,791	M8	1.54	657
						1.378	2.402			0.807		649	11,240			714
						1.457	2.402			0.807		708	11,690			779
44	x	80	1.732	x	3.150	1.378	2.402	1.161	0.945	0.807	26	590	11,690	M8	1.32	649
						1.417	2.402			0.807		656	12,814			722
						1.457	2.402			0.807		774	13,489			852
50	x	90	1.969	x	3.543	1.496	2.677	1.240	1.024	0.866	26	1,106	17,760	M8	1.76	1,217
						1.575	2.677			0.866		1,254	19,558			1,379
						1.654	2.677			0.866		1,475	21,132			1,623
55	x	100	2.165	x	3.937	1.654	2.835	1.358	1.142	0.984	26	1,180	17,535	M8	2.42	1,298
						1.772	2.835			0.984		1,475	19,783			1,623
						1.890	2.835			0.984		1,770	22,256			1,947
60	x	110	2.362	x	4.331	2.047	3.150	1.358	1.142	0.965	26	1,991	23,605	M8	2.87	2,191
						1.890	3.150			0.965		1,623	20,682			1,785
						1.969	3.150			0.965		1,844	22,031			2,028
62	x	110	2.441	x	4.331	1.890	3.150	1.358	1.142	0.965	26	1,623	20,682	M8	2.87	1,785
						1.969	3.150			0.965		1,844	22,031			2,028
						2.047	3.150			0.965		1,991	23,605			2,191
68	x	115	2.677	x	4.528	1.969	3.386	1.358	1.142	0.965	26	1,770	21,132	M8	3.09	1,947
						2.165	3.386			0.965		2,213	24,954			2,434
						2.362	3.386			0.965		2,803	28,776			3,083
75	x	138	2.953	x	5.433	2.165	3.937	1.476	1.220	1.035	52	2,729	30,349	M10	5.07	3,002
						2.362	3.937			1.035		3,467	35,070			3,813
						2.559	3.937			1.035		4,278	39,791			4,706
80	x	141	3.150	x	5.551	2.362	4.094	1.476	1.220	1.024	52	3,098	31,698	M10	5.07	3,408
						2.559	4.094			1.024		3,835	35,969			4,219
						2.756	4.094			1.024		4,647	40,466			5,111
85	x	155	3.346	x	6.102	2.559	4.488	1.752	1.496	1.339	52	4,352	41,814	M10	7.72	4,787
						2.756	4.488			1.339		5,310	45,861			5,841
						2.953	4.488			1.339		6,269	51,032			6,896
90	x	155	3.543	x	6.102	2.559	4.488	1.752	1.496	1.299	52	4,352	40,915	M10	7.72	4,787
						2.756	4.488			1.299		5,310	45,861			5,841
						2.953	4.488			1.299		6,269	51,032			6,896
95	x	170	3.740	x	6.693	2.756	4.882	1.949	1.693	1.476	52	5,458	47,884	M10	11.0	6,004
						2.953	4.882			1.476		6,564	53,055			7,221
						3.150	4.882			1.476		7,671	58,450			8,438
100	x	185	3.937	x	7.283	3.150	5.472	2.224	1.929	1.693	90	11,063	83,179	M12	14.8	12,170
						3.346	5.472			1.693		12,760	89,924			14,036
						3.543	5.472			1.693		14,456	96,668			15,902

■ Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$

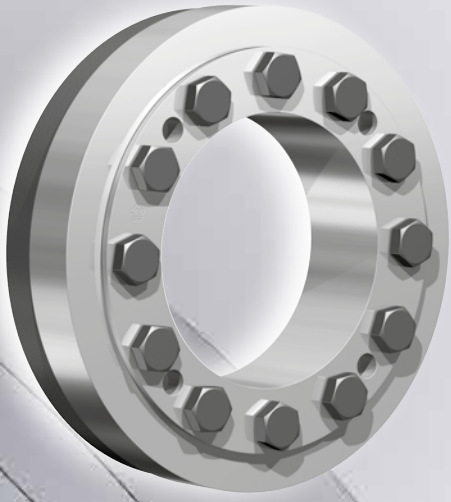
■ Tolerances  
For shaft see table page 8

■ When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

■ Hub with yield strength  $R_{p0,2} \geq 360 \text{ N/mm}^2$

Explanations to tables: Page 9

To continue see next page



## Characteristics

**Standard design** – for high transmission values.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Short installation time** – cost savings particularly in serial production.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

Shrink Discs dimensions										Transmissible torques or axial forces			Locking screws ISO 4014 / 4017 - 12.9			
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>3</sub>	T <sub>A</sub>	T	F <sub>ax</sub>	Thread	Gw	T <sub>max</sub>
mm		inch		inch		inch			ft-lbs	ft-lbs	lbs		lbs	ft-lbs		
105	x	185	4.134	x	7.283	3.543	5.472	2.224	1.929	1.693	90	13,719	97,567	M12	14.1	15,091
						3.150	5.472			1.693		10,252	78,233			11,277
						3.346	5.472			1.693		11,875	85,427			13,062
110	x	185	4.331	x	7.283	3.150	5.472	2.224	1.929	1.693	90	11,432	85,427	M12	13.5	12,575
						3.346	5.472			1.693		13,129	92,172			14,441
						3.543	5.472			1.693		14,751	98,916			16,226
115	x	200	4.528	x	7.874	3.346	5.906	2.461	2.165	1.890	90	12,686	91,048	M12	17.6	13,955
						3.543	5.906			1.890		14,677	99,590			16,145
						3.740	5.906			1.890		16,890	108,358			18,579
120	x	200	4.724	x	7.874	3.346	5.906	2.461	2.165	1.890	90	12,686	91,048	M12	17.0	13,955
						3.543	5.906			1.890		14,677	99,590			16,145
						3.740	5.906			1.890		16,890	108,358			18,579
125	x	215	4.921	x	8.465	3.543	6.181	2.382	2.087	1.831	90	14,161	94,420	M12	19.6	15,577
						3.740	6.181			1.831		16,005	101,164			17,606
						3.937	6.181			1.831		17,997	107,908			19,796
130	x	230	5.118	x	9.055	4.331	6.772	2.579	2.283	2.008	90	26,552	146,126	M12	25.4	28,470
						3.740	6.772			2.008		19,103	121,397			21,013
						3.937	6.772			2.008		21,389	130,389			23,528
135	x	230	5.315	x	9.055	3.740	6.772	2.638	2.283	2.008	140	15,821	101,614	M14	24.5	17,403
						3.937	6.772			2.008		17,923	109,257			19,715
						4.331	6.772			2.008		22,496	124,769			24,708
140	x	230	5.512	x	9.055	3.937	6.772	2.638	2.283	2.008	140	18,660	112,404	M14	23.6	20,526
						4.134	6.772			2.008		20,652	119,149			22,717
						4.528	6.772			2.008		26,257	137,133			28,883
150	x	263	5.906	x	10.354	4.331	7.480	2.795	2.441	2.165	140	27,290	151,296	M14	35.9	30,019
						4.724	7.480			2.165		33,412	169,506			36,753
						4.921	7.480			2.165		36,657	178,723			40,323
155	x	263	6.102	x	10.354	4.331	7.480	2.795	2.441	2.165	140	24,340	134,885	M14	34.8	26,774
						4.528	7.480			2.165		26,995	143,203			29,694
						4.724	7.480			2.165		29,871	151,521			32,858
160	x	290	6.299	x	11.417	5.315	7.874	3.071	2.677	2.402	215	53,473	240,546	M16	49.2	58,821
						4.724	7.874			2.402		42,262	213,568			46,489
						5.118	7.874			2.402		49,195	229,305			54,115
165	x	290	6.496	x	11.417	5.315	7.874	3.071	2.677	2.402	215	53,473	240,546	M16	47.8	58,821
						4.921	7.874			2.402		45,360	220,313			49,896
						4.724	7.874			2.402		41,672	211,320			45,839
170	x	300	6.693	x	11.811	5.709	8.268	3.083	2.689	2.402	215	57,825	243,018	M16	49.2	63,607
						5.118	8.268			2.402		44,991	210,871			49,490
						5.512	8.268			2.402		53,326	229,980			58,658
175	x	300	6.890	x	11.811	5.512	8.268	3.083	2.689	2.402	215	53,473	231,553	M16	47.8	58,821
						5.118	8.268			2.402		45,360	202,328			49,896
						5.315	8.268			2.402		49,417	222,561			54,358
180	x	320	7.087	x	12.598	6.102	8.819	3.819	3.386	3.051	215	80,616	314,957	M16	75.0	88,677
						5.906	8.819			3.051		74,789	303,942			82,268
						5.512	8.819			3.051		63,799	278,089			70,179
185	x	320	7.283	x	12.598	5.512	8.819	3.819	3.386	3.051	215	70,806	281,011	M16	73.0	77,887
						5.709	8.819			3.051		76,706	303,492			84,377
						6.102	8.819			3.051		88,507	348,454			97,358
190	x	340	7.480	x	13.386	6.299	9.370	3.764	3.370	3.031	215	83,713	314,732	M16	79.2	92,085
						5.906	9.370			3.031		67,856	281,011			74,641
						6.102	9.370			3.031		73,019	292,252			80,321
195	x	340	7.677	x	13.386	6.299	9.370	3.764	3.370	3.031	215	87,991	335,190	M16	77.2	96,790
						6.496	9.370			3.031		93,007	343,733			102,307
						5.906	9.370			3.031		75,969	308,887			83,566
200	x	340	7.874	x	13.386	5.906	9.370	3.768	3.374	3.031	215	79,657	325,973	M16	75.0	87,622
						6.102	9.370			3.031		85,557	337,213			94,113
						6.299	9.370			3.031		91,458	348,454			100,603

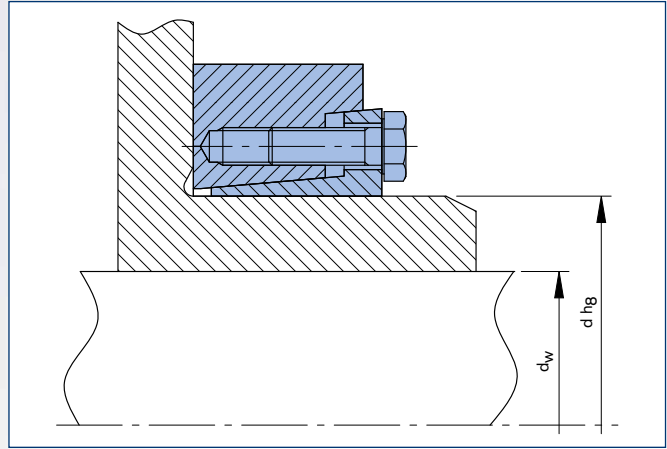
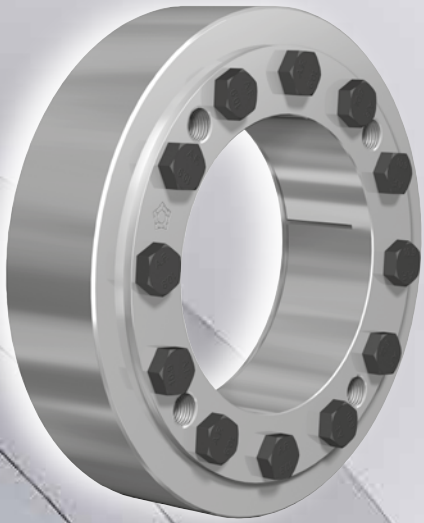
- Surface finishes  
For shaft  $R_a \leq 3,2 \mu m$
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team
- Hub with yield strength  $Rp0,2 \geq 360 N/mm^2$

Explanations to tables: Page 9

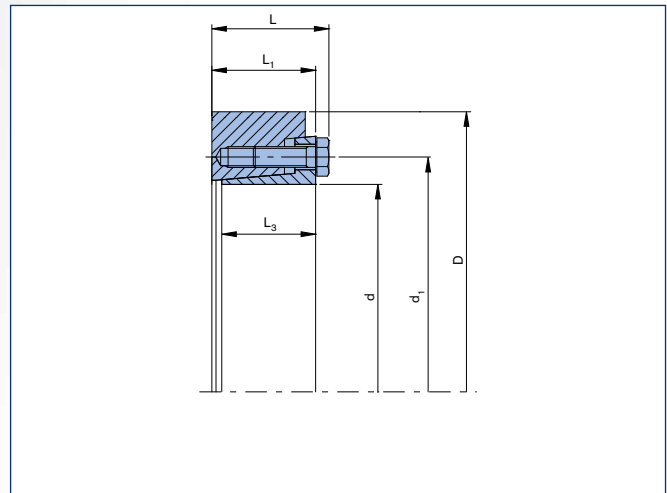
Ordering example: RfN 4161

Series	d	D
RfN 4161	5.906	10.354





RINGFEDER® Shrink Disc RfN 4181 · Location



RINGFEDER® Shrink Disc RfN 4181 · Dimensions

Shrink Discs dimensions										Transmissible torques or axial forces			Locking screws ISO 4014 / 4017 - 12.9		
d	x	D	d	x	D	d <sub>w</sub>	L	L <sub>1</sub>	L <sub>3</sub>	T <sub>A</sub>	T	F <sub>ax</sub>	Thread	Gw	T <sub>max</sub>
mm			inch			inch	inch			ft-lbs	ft-lbs	lbs		lbs	ft-lbs
220	x	370	8.661	x	14.567	6.299	4.567	4.055	3.425	428	118,010	449,952	M20	117	129,811
						6.693			3.425		134,236	483,698			147,660
						7.087			3.425		151,938	517,445			167,132
240	x	405	9.449	x	15.945	6.693	4.803	4.291	3.622	428	140,137	506,196	M20	148	154,150
						7.087			3.622		158,576	539,942			174,433
						7.874			3.622		198,404	697,435			218,245
260	x	430	10.236	x	16.929	7.480	5.079	4.567	4.016	428	182,178	584,938	M20	171	200,396
						7.874			4.016		204,305	618,684			224,735
						8.661			4.016		250,771	697,426			275,848
280	x	460	11.024	x	18.110	8.268	5.276	4.764	4.606	428	207,992	604,286	M20	219	228,792
						8.661			4.606		230,857	640,057			253,943
						9.449			4.606		280,274	712,499			308,301
300	x	485	11.811	x	19.094	8.661	6.181	5.591	4.803	725	283,961	787,416	M24	263	312,358
						9.055			4.803		313,464	832,411			344,810
						9.843			4.803		372,469	911,153			409,716
320	x	520	12.598	x	20.472	9.449	6.165	5.575	4.882	725	327,478	832,411	M24	291	360,225
						9.843			4.882		359,930	878,306			395,923
						10.630			4.882		427,786	966,497			470,565
340	x	570	13.386	x	22.441	9.843	6.693	6.102	5.315	725	415,985	1,012,392	M24	411	457,583
						10.236			5.315		451,388	1,057,387			496,527
						11.024			5.315		530,307	1,158,826			583,338
350	x	580	13.780	x	22.835	10.630	7.008	6.417	5.512	725	435,162	983,145	M24	417	478,678
						11.024			5.512		479,415	1,044,564			527,357
						11.417			5.512		516,293	1,086,184			567,923
360	x	590	14.173	x	23.228	10.630	6.732	6.142	5.236	725	485,316	1,091,134	M24	428	533,847
						11.024			5.236		525,144	1,147,378			577,659
						11.811			5.236		608,489	1,237,368			669,338
380	x	640	14.961	x	25.197	11.417	7.283	6.614	5.827	1,070	542,108	1,140,403	M27	546	596,319
						11.811			5.827		582,674	1,184,724			640,941
						12.205			5.827		623,240	1,226,569			685,564
390	x	650	15.354	x	25.591	11.417	7.323	6.614	5.669	1,400	666,018	1,406,100	M30	570	732,620
						11.811			5.669		715,435	1,451,095			786,979
						12.598			5.669		818,694	1,563,583			900,563
400	x	660	15.748	x	25.984	11.811	7.992	7.323	6.614	1,070	590,050	1,199,797	M27	697	649,055
						12.205			6.614		641,679	1,262,790			705,847
						12.598			6.614		663,806	1,265,490			730,186
420	x	670	16.535	x	26.378	12.598	8.071	7.323	6.535	1,400	714,698	1,362,455	M30	655	786,167
						12.992			6.535		765,589	1,415,324			842,148
						13.780			6.535		872,536	1,521,288			959,789
440	x	740	17.323	x	29.134	13.386	8.386	7.638	7.126	1,400	893,925	1,603,854	M30	848	983,318
						13.780			7.126		952,930	1,660,998			1,048,223
						14.567			7.126		1,076,841	1,775,511			1,184,525
460	x	770	18.110	x	30.315	14.173	8.780	7.953	6.772	1,070	1,129,945	1,914,771	M27	1,047	1,242,939
						14.567			6.772		1,199,276	1,977,314			1,319,203
						15.354			6.772		1,346,788	2,106,675			1,481,467
480	x	800	18.898	x	31.496	14.961	9.173	8.425	7.402	1,400	1,343,838	2,157,295	M30	1,092	1,478,222
						15.354			7.402		1,422,757	2,225,463			1,565,033
						16.142			7.402		1,586,496	2,360,673			1,745,145
500	x	850	19.685	x	33.465	15.748	9.213	8.465	7.480	1,400	1,530,441	2,334,126	M30	1,381	1,683,485
						16.142			7.480		1,615,998	2,404,543			1,777,598
						16.929			7.480		1,793,751	2,544,929			1,973,126
520	x	850	20.472	x	33.465	16.535	9.803	9.094	7.795	1,400	1,375,553	1,998,012	M30	1,420	1,512,740
						16.929			7.795		1,408,006	1,997,562			1,548,880
						17.323			7.795		1,475,124	2,045,032			1,622,636
530	x	850	20.866	x	33.465	16.929	10.236	9.449	8.110	1,400	1,767,936	2,508,482	M30	1,440	1,944,730
						17.323			8.110		1,859,040	2,577,550			2,044,944
						18.110			8.110		2,048,517	2,716,810			2,253,369

- Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team
- Hub with yield strength  $R_{p0,2} \geq 360 \text{ N/mm}^2$

Explanations to tables: Page 9  
To continue see next page

Ordering example: RfN 4181

Series	d	D
RfN 4181	10.236	16.929

## Characteristics

**Two part shrink disc heavy duty series** – with additional guide mechanism for the inner ring. For the transmission of maximum torques.

**Highest reliability** – applicable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Fully replaceable** – the RINGFEDER® Shrink Discs work without any positive locking.

**Visual check of the tightening status** – minimisation of faults during assembly.

**Easy mounting** – RINGFEDER® Shrink Discs use standard screws and tightened using standard tools. No additional machining or fitting work is required.

**Short assembly times** – cost savings particularly in the case of series production.

**Low susceptibility to contamination** – when the locking screws are tightened the contact (functional) surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

**Easy adjustability** – no stops, steps, keyways, splines etc. are required therefore, hubs can be located and locked at any point or angle on the shaft.

Shrink Discs dimensions									T <sub>A</sub>	Transmissible torques or axial forces		Locking screws ISO 4014 / 4017 - 12.9		T <sub>max</sub>	
d	x	D	d	x	D	d <sub>w</sub>	L	L <sub>1</sub>		L <sub>3</sub>	T	F <sub>ax</sub>	Thread		G <sub>w</sub>
mm			inch			inch	inch				ft-lbs	lbs			lbs
540	x	910	17.323	x	35.827	17.717	10.276	9.528	8.386	1,400	1,445,622	M30	1,765	1,792,276	
			18.110			8.386			1,519,378		2,058,530			1,880,783	
			17.717			8.386			1,593,134		2,114,774			1,976,666	
560	x	940	22.047	x	37.008	18.110	10.236	9.449	8.110	1,400	1,877,095	M30	1,651	2,064,805	
			18.898			8.110			1,969,295		2,611,746			2,166,224	
			18.110			8.110			2,160,703		2,746,057			2,376,774	
580	x	960	22.835	x	37.795	18.504	10.984	10.236	8.976	1,400	2,141,880	M30	2,068	2,356,511	
			18.898			8.976			2,189,084		3,128,516			2,408,140	
			18.898			8.976			2,291,605		2,912,314			2,520,987	
590	x	960	23.228	x	37.795	18.504	14.961	14.213	11.260	1,400	2,959,099	M30	2,588	3,255,009	
			18.898			11.260			3,097,161		3,936,405			3,406,877	
			19.685			11.260			3,383,229		4,127,860			3,721,551	
620	x	970	24.409	x	38.189	20.472	11.969	11.220	9.606	1,400	2,509,186	M30	1,955	2,760,105	
			20.472			9.606			2,734,880		3,208,383			3,008,368	
			21.260			9.606			2,970,900		3,356,192			3,267,990	
640	x	1040	25.197	x	40.945	20.472	12.874	12.047	10.827	1,990	2,816,749	M33	2,795	3,097,760	
			22.047			10.827			2,924,433		3,304,447			3,217,245	
			20.866			10.827			3,033,593		3,304,447			3,336,730	
660	x	1040	25.984	x	40.945	21.654	16.457	15.591	12.205	2,580	4,246,882	M36	3,193	4,671,570	
			22.441			12.205			4,600,100		5,102,456			5,060,110	
			22.047			12.205			4,968,158		5,317,308			5,464,973	
700	x	1140	27.559	x	44.882	22.835	12.402	11.575	10.236	1,990	3,332,821	M33	3,235	3,666,104	
			23.622			10.236			3,599,303		3,785,896			3,959,233	
			23.622			10.236			3,878,101		3,943,154			4,265,911	
750	x	1150	29.528	x	45.276	24.409	13.386	16.850	14.173	2,580	5,656,363	M36	4,073	6,221,999	
			25.591			14.173			6,069,134		5,971,763			6,676,048	
			25.197			14.173			6,716,900		6,304,052			7,388,589	
800	x	1230	31.496	x	48.425	25.984	14.685	13.858	11.654	1,990	5,087,673	M33	4,176	5,596,440	
			25.984			11.654			5,441,732		5,030,013			5,985,906	
			27.559			11.654			6,188,514		5,393,350			6,807,365	

- Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team
- Hub with yield strength  $Rp0,2 \geq 360 \text{ N/mm}^2$

**Explanations to tables: Page 9**  
More sizes on request

Ordering example: RfN 4181

Series	d	D
RfN 4181	10.236	16.929

RINGFEDER® Stainless steel products

**STAINLESS STEEL**

## Shrink Discs



**RfN 4061**  
Standard Series,  
stainless steel



## Characteristics

**Standard series** – High transmission values are possible and by varying the screw tightening torque the shrink disc can be adapted to the design specification.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

## Explanations to tables

### Basic dimensions when screws are not tightened

d	=	Inner diameter
D	=	Outer diameter
d <sub>w</sub>	=	Solid shaft diameter
d <sub>1</sub>	=	Pitch circle diameter
L	=	Overall length
L <sub>1</sub>	=	Overall length without screws
L <sub>2</sub>	=	Thrust ring width
L <sub>3</sub>	=	Width of ring
T <sub>A</sub>	=	Max. tightened torque of the screws
T	=	Transmissible torque at given T <sub>A</sub>
F <sub>ax</sub>	=	Transmissible axial force
G <sub>w</sub>	=	Weight
P	=	Hub surface pressure
σ <sub>v</sub>	=	Equivalent stress in the hub
n <sub>Sc</sub>	=	Quantity of screws
T <sub>max</sub>	=	Max. transmissible torque
σ <sub>v</sub>	=	Calculated combined stress in the hub extension (d/d <sub>w</sub> ) under consideration of the tangential, radial and torsional stresses following the equation:

$$\sigma_v = \sqrt{\frac{1}{2} [(\sigma_x - \sigma_y)^2 + (\sigma_y - \sigma_z)^2 + (\sigma_z - \sigma_x)^2] + 3\tau^2}$$

Additional loads, e.g. tension, thrust or bending have to be taken into consideration accordingly.

### Function values

The functional characteristics are valid with the screw tightening torque listed in the tables and the following assumed conditions:

The locking screws are lubricated using MoS<sub>2</sub> (μ<sub>tot</sub> = 0,1).

The tapered cones are lubricated using MoS<sub>2</sub> (μ = 0,05).

The contact surfaces (d<sub>w</sub>) are in lightly oiled condition with coefficient of friction μ = 0,12.

The hub and shaft materials have a modulus of elasticity of 210,000 N/mm<sup>2</sup>. (Lower values result in increased values for T and F<sub>ax</sub> with reduced tangential stress.)

The maximum clearance S is being fully utilized.

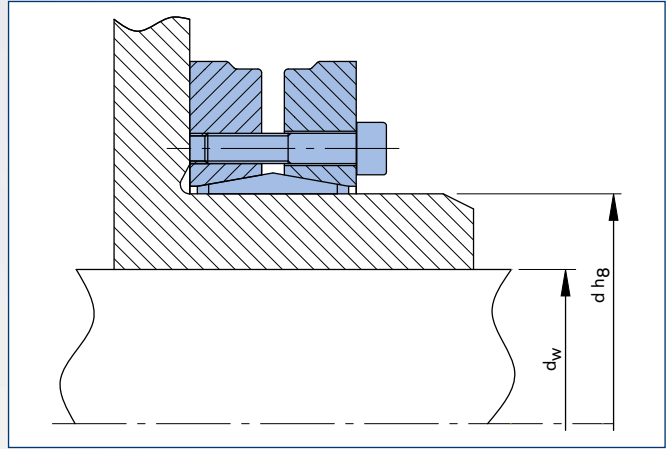
The shaft being used is solid, for hollow shaft applications the functional values will change.

In cases where the assumed conditions do not apply then contact our Technical Department where we will be happy to assist you with your application.

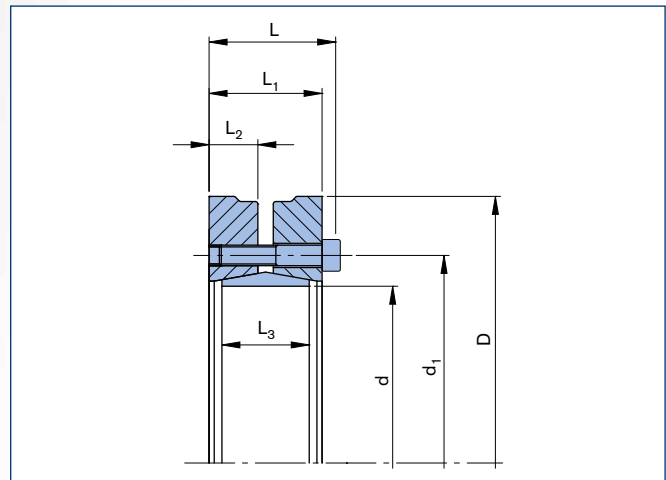




**STAINLESS STEEL**



RINGFEDER® Shrink Disc RfN 4061 stainless steel · Location



RINGFEDER® Shrink Disc RfN 4061 stainless steel · Dimensions

Shrink Discs dimensions									Transmissible torques or axial forces					High-strength special screws ISO 4762					
d	x	D	d <sub>w</sub>	d <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	T <sub>A</sub>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	Gw	T <sub>max</sub>		
mm	inch	inch	inch						ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs		
14	x	37	0.551	x	1.457	0.394	0.945	0.583	0.472	0.197	0.354	2	22	1,800	3	M4	0.2	28	
						0.433	0.945						27	1,800				68,799	34
						0.472	0.945						35	2,250				80,846	44
16	x	41	0.630	x	1.614	0.472	1.063	0.728	0.591	0.246	0.472	3	52	3,375	4	M5	0.2	66	
						0.512	1.063						66	4,050				48,769	81
						0.551	1.063						81	4,500				112,342	96
18	x	44	0.709	x	1.732	0.551	1.142	0.728	0.591	0.246	0.472	3	66	3,600	4	M5	0.4	81	
						0.591	1.142						74	4,050				43,398	96
						0.630	1.142						89	4,500				102,327	118
20	x	46	0.787	x	1.811	0.591	1.260	0.827	0.689	0.276	0.472	3	81	4,500	5	M5	0.4	103	
						0.630	1.260						103	4,949				48,769	125
						0.669	1.260						118	5,399				84,184	148
21	x	50	0.827	x	1.969	0.630	1.417	0.886	0.748	0.315	0.591	4	148	6,974	6	M5	0.4	184	
						0.669	1.417						170	7,649				55,736	214
						0.709	1.417						192	8,324				108,278	243
24	x	50	0.945	x	1.969	0.748	1.417	0.886	0.748	0.315	0.591	4	177	7,199	6	M5	0.4	221	
						0.787	1.417						199	7,874				48,769	251
						0.827	1.417						221	8,549				98,553	288
30	x	60	1.181	x	2.362	0.945	1.634	1.024	0.886	0.374	0.709	4	258	8,549	7	M5	0.4	332	
						0.984	1.634						295	9,224				37,883	369
						1.024	1.634						325	9,674				71,411	413
36	x	72	1.417	x	2.835	1.102	2.047	1.083	0.925	0.394	0.709	9	435	11,924	5	M6	1.1	538	
						1.181	2.047						509	13,049				43,979	634
						1.220	2.047						516	13,049				77,798	656
38	x	72	1.496	x	2.835	1.142	2.165	1.181	1.024	0.413	0.827	9	516	13,949	6	M6	1.1	656	
						1.181	2.165						568	14,623				42,818	715
						1.220	2.165						575	14,173				68,799	723
40	x	72	1.575	x	2.835	1.181	2.244	1.122	0.965	0.413	0.748	9	531	13,724	6	M6	1.1	664	
						1.220	2.244						538	13,274				44,995	671
						1.260	2.244						583	13,949				66,767	730
44	x	80	1.732	x	3.150	1.260	2.480	1.181	1.024	0.433	0.787	9	590	14,173	7	M6	1.1	738	
						1.378	2.480						738	16,423				45,285	922
						1.417	2.480						774	17,098				66,476	996
48	x	80	1.890	x	3.150	1.417	2.677	1.181	1.024	0.433	0.866	9	664	14,623	7	M6	1.3	848	
						1.496	2.677						774	16,198				37,738	996
						1.575	2.677						885	17,548				58,493	1,143
50	x	90	1.969	x	3.543	1.496	2.756	1.240	1.083	0.472	0.886	9	996	20,023	9	M6	2.0	1,217	
						1.575	2.756						1,106	21,598				45,576	1,401
						1.654	2.756						1,254	23,173				67,783	1,586
55	x	100	2.165	x	3.937	1.654	2.953	1.358	1.201	0.512	0.906	9	959	17,548	8	M6	2.4	1,180	
						1.772	2.953						1,143	19,573				35,996	1,438
						1.890	2.953						1,328	21,598				59,509	1,696
62	x	110	2.441	x	4.331	1.890	3.386	1.358	1.201	0.512	0.906	9	1,770	28,347	12	M6	2.9	2,213	
						1.969	3.386						1,955	29,922				47,898	2,434
						2.047	3.386						2,065	30,597				69,960	2,581
68	x	115	2.677	x	4.528	1.969	3.386	1.358	1.201	0.512	0.925	9	1,401	21,373	10	M6	3.1	1,733	
						2.165	3.386						1,660	23,398				35,561	2,102
						2.362	3.386						2,102	27,222				59,655	2,655
75	x	138	2.953	x	5.433	2.165	3.937	1.488	1.280	0.551	0.984	22	1,955	27,222	7	M8	5.1	2,434	
						2.362	3.937						2,434	31,272				40,205	3,061
						2.559	3.937						2,987	35,546				60,380	3,762
80	x	145	3.150	x	5.709	2.362	3.937	1.488	1.280	0.551	0.984	22	2,360	28,347	7	M8	5.5	2,950	
						2.559	3.937						2,876	32,172				37,593	3,614
						2.756	3.937						3,393	35,996				56,897	4,241

- Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 63

To continue see next page

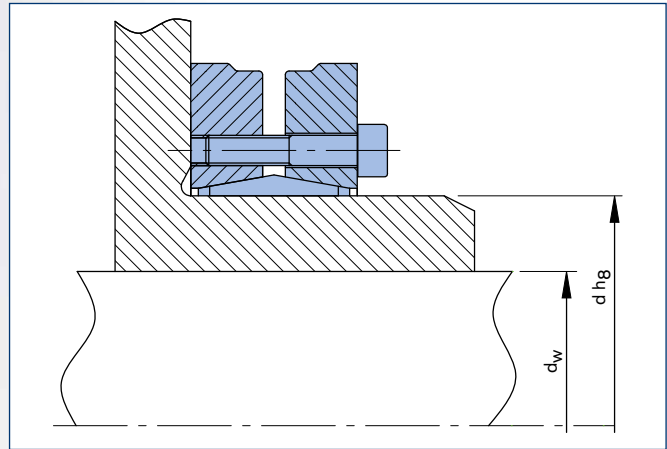
Ordering example: RfN 4061

Series	d	D	Version
RfN 4061	2.953	5.433	SST

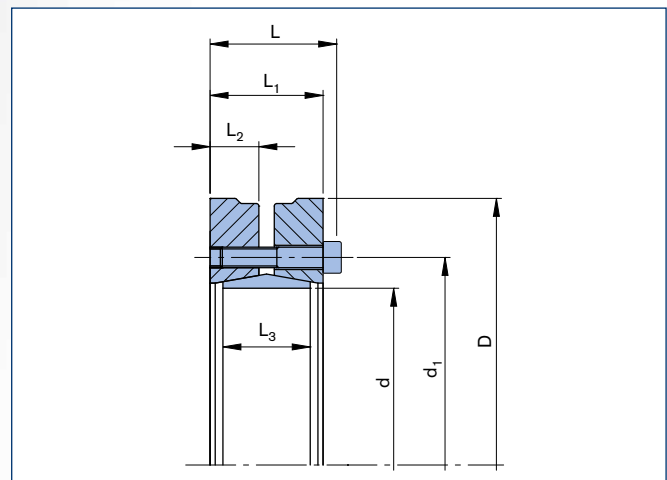
SST = Stainless steel



**STAINLESS STEEL**



RINGFEDER® Shrink Disc RfN 4061 stainless steel · Location



RINGFEDER® Shrink Disc RfN 4061 stainless steel · Dimensions

Shrink Discs dimensions									Transmissible torques or axial forces					High-strength special screws ISO 4762				
d x D		d <sub>w</sub> x d <sub>1</sub>		L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	T <sub>A</sub>	T	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	Gw	T <sub>max</sub>		
mm	inch	inch		inch				ft-lbs	ft-lbs	lbs	psi	psi			lbs	ft-lbs		
85	x 155	3.346	x 6.102	2.362	4.488	1.803	1.594	0.630	1.181	22	3,577	42,520	58,639	11	M8	7.7	4,462	
				2.559	4.488						4,278	47,695	47,172				59,074	5,347
				2.756	4.488						5,015	52,869	61,977				6,269	
90	x 155	3.543	x 6.102	2.559	4.488	1.752	1.535	0.669	1.181	22	3,540	39,146	51,236	10	M8	7.3	4,425	
				2.756	4.488						4,462	43,870	39,770				51,672	5,569
				2.953	4.488						5,384	48,370	53,994				6,749	
95	x 170	3.740	x 6.693	2.559	5.000	2.067	1.858	0.748	1.339	22	3,946	43,870	50,656	12	M8	10.4	4,942	
				2.756	5.000						4,979	48,820	39,915				50,656	6,232
				2.953	5.000						6,011	53,994	51,526				7,523	
100	x 170	3.937	x 6.693	2.756	5.000	2.067	1.858	0.748	1.339	22	5,126	45,445	48,043	12	M8	9.9	6,417	
				2.953	5.000						5,605	50,170	37,883				48,043	7,007
				3.150	5.000						6,712	55,119	49,059				8,371	
110	x 185	4.331	x 7.283	2.953	5.709	2.339	2.087	0.906	1.654	44	6,011	58,269	45,866	10	M10	13.9	7,486	
				3.150	5.709						7,449	64,118	36,867				45,866	9,293
				3.346	5.709						8,998	66,593	51,817				11,248	
115	x 185	4.528	x 7.283	3.150	5.709	2.457	2.205	0.906	1.654	44	7,007	60,069	43,834	10	M10	13.4	8,740	
				3.543	5.709						8,925	67,943	35,270				49,640	11,137
				3.740	5.709						10,363	74,017	51,236				12,944	
125	x 215	4.921	x 8.465	3.346	6.299	2.378	2.126	0.906	1.654	44	8,150	67,493	51,381	12	M10	19.2	10,178	
				3.543	6.299						9,662	73,567	39,044				51,091	12,059
				3.740	6.299						11,174	79,866	51,091				13,977	
140	x 230	5.512	x 9.055	3.740	6.890	2.677	2.382	1.024	1.811	74	11,137	82,116	48,769	10	M12	23.4	13,903	
				3.937	6.890						12,944	88,866	38,173				48,624	16,153
				4.134	6.890						14,751	95,390	48,624				18,439	
165	x 290	6.496	x 11.417	4.528	8.268	3.189	2.795	1.220	2.205	184	23,159	135,211	48,478	8	M16	47.8	28,986	
				4.724	8.268						26,183	143,310	40,641				48,624	32,748
				4.921	8.268						29,060	149,384	50,510				36,325	
185	x 330	7.283	x 12.992	5.315	9.291	3.795	3.402	1.504	2.795	184	38,722	176,831	44,560	10	M16	79.4	48,384	
				5.512	9.291						42,299	186,280	35,706				44,995	52,846
				5.709	9.291						46,024	195,729	45,576				57,530	
195	x 350	7.677	x 13.780	5.512	9.685	3.780	3.386	1.504	2.795	184	48,642	212,152	48,188	12	M16	88.2	60,812	
				5.906	9.685						57,235	232,850	40,641				49,059	71,544
				6.102	9.685						61,771	243,199	50,075				50,075	77,223
200	x 350	7.874	x 13.780	5.906	9.685	3.780	3.386	1.504	2.795	184	55,317	224,976	47,317	12	M16	86.0	69,146	
				6.102	9.685						59,743	235,100	39,625				47,898	74,641
				6.299	9.685						64,315	245,449	48,914				48,914	80,394

- Surface finishes For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances For shaft see table page 8
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

Explanations to tables: Page 63 [More sizes on request](#)

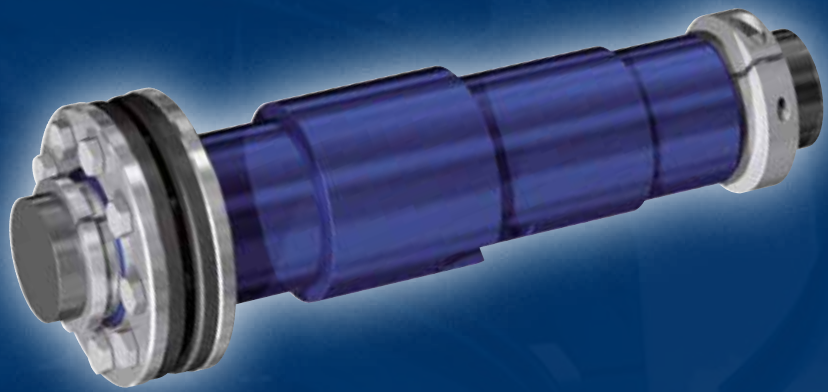
Ordering example: RfN 4061

Series	d	D	Version
RfN 4061	3.740	6.693	SST

SST = Stainless steel

**RINGFEDER® Smart-Lock**





**Smart-Lock-Set RfN 4001**

## Smart-Lock-Set: the connection of the future

For the perfect hollow shaft connection, the solid shaft is always manufactured to a high degree of precision, normally with a dimensional tolerance of h6/H6. This close tolerance, high-finish shaft is inserted into the equally close tolerance hollow bore of the gearbox and secured in place by the compressive force of the shrink disc. Only by maintaining the strict dimensional tolerances the full torque capacity can be reliability achieved. Smart-Lock puts an end to all the precision machining involved and guarantees an optimum connection even with clearances up to 0.2 mm/0.007 in.

The flexibility offered by using interchangeable bushings between the solid shaft and the hollow shaft of the gearbox makes the Smart-Lock-Set an invaluable aid to the marketplace. Thanks to the availability of shaft adapter bushings with various inside diameters. One gearbox can be used with a range of shaft sizes without a change out to the shaft or shrink disc. The ease of selecting and using the Smart-Lock-Set is child's play.

The Smart-Lock-Set is an efficient design that makes economic sense to the user. Not only can it compensate larger dimensional tolerances (up to 0.2 mm/0.007 in.), it also offers significant cost savings by requiring a minimal number of spare parts needed in inventory. Furthermore, inexpensive, cold drawn, commercial available shafting up to quality grade h11 can be utilized without additional machining. The export market also benefits from using Smart-Lock-Set; adapter bushings in inch size standards are readily available from local inventories for countries that don't use metric measurements. Expensive specials and large spare part inventories are a thing of the past.

## Characteristics

Flexible, cost-saving, easy to maintain: Smart-Lock-Set is the new Shaft/Hollow Shaft connection from RINGFEDER®. Cylindrical bushings allow the attachment of hollow shaft gear reducers and other hollow shaft connections to any metric and inch size solid shaft diameter.

### ▪ **Reliable:**

Tension-optimized and virtually indestructible shrink discs guarantee the highest possible degree of safety.

### ▪ **Uncompromising:**

Cylindrical bushings for a wide range of shaft diameters provide the perfect connection.

### ▪ **Economical:**

The Smart-Lock-Set requires minimal labor at installation and reduces spare part inventory costs up to 70%.

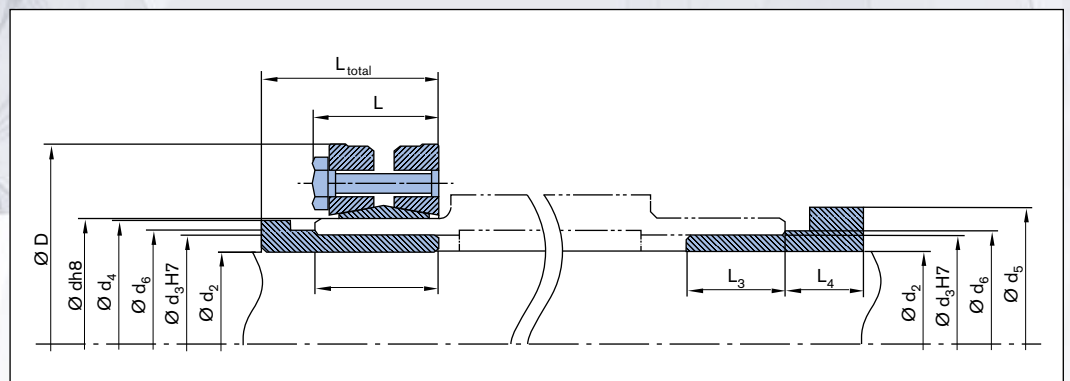
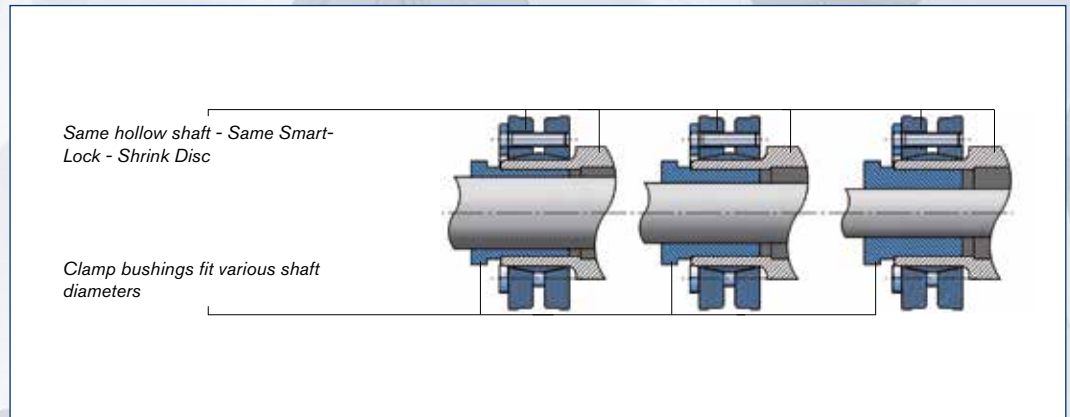
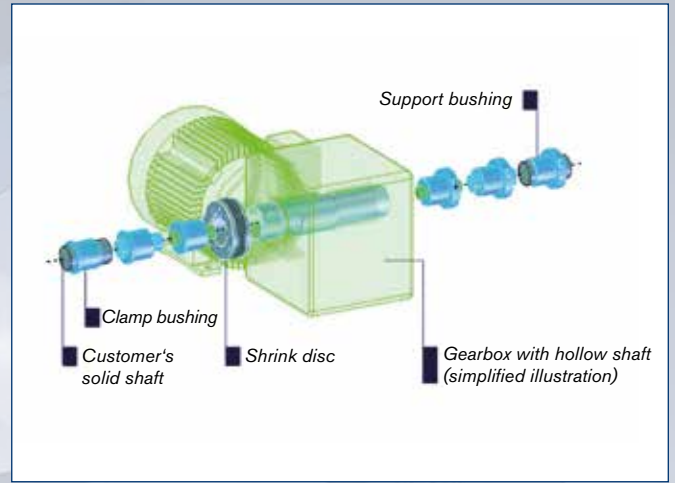
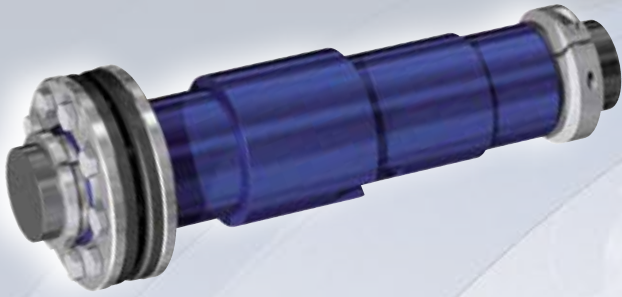
## Technical details of the Smart-Lock-Set

### For gearbox manufacturers:

- Eight standard sizes of adaptor bushings are available for hollow shaft outside diameters from 44 to 90 mm.
- Commercially available solid shafting without any machining can be used. Diameters from 25 to 70 mm are possible.
- The range of transmissible torque is 580 Nm–5600 Nm.

### For users of gearboxes:

- The torque to be transmitted is the criterion used to select the shaft diameter.
- The optimum shaft size for an individual gearbox can be used in connection with the Smart-Lock-Set.
- It is possible to standardize on a certain gearbox size for a range of shaft diameters. The results are lower costs for maintenance and spare parts.



RINGFEDER® Smart-Lock RfN 4001 · Dimensions



Dimensions											Max. allowable clearance	Technical data					
Ød	Ød <sub>2</sub>	Ød <sub>3</sub>	Ød <sub>4</sub>	Ød <sub>5</sub>	Ød <sub>6</sub>	ØD	L <sub>total</sub>	L	L <sub>3</sub>	L <sub>4</sub>		Transmissible torque	Axial force	Screws	Tightening torque	Weight	
mm/in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lb-in.	lb-ft.	lbs	ISO 4014/4017-10.9	lbs-ft	lbs
44	1 1 1/8	1.417	1.693	1.949	1.496	3.150	1.614	1.220	1.181	0.709	0.005	5.222 5.841 6.019 6.196	435 487 502 516	10.566	M6	8.85	1.65
50	1 3/16 1 1/4 1 3/8	1.654	1.929	2.343	1.732	3.543	1.772	1.339	1.339	0.709	0.006	7.612 8.054 8.851 9.205	634 671 738 767	12.814	M6	8.85	2.20
55	1 3/16 1 1/4 1 3/8 1 7/16	1.890	2.126	2.539	1.969	3.937	1.811	1.378	1.378	0.709	0.006	7.966 8.408 9.293 9.647 10.090	664 701 774 804 841	13.489	M6	8.85	2.87
62	1 7/16 1 1/2 1 5/8 1 3/4	2.047	2.362	2.736	2.126	4.331	1.850	1.417	1.417	0.109	0.006	14.869 15.622 16.285 17.613 18.941	1.239 1.302 1.357 1.468 1.578	21.806	M6	8.85	3.31
68	1 5/8 1 3/4 1 15/16	2.362	2.638	2.933	2.441	4.528	1.890	1.457	1.457	0.709	0.006	17.879 19.295 21.357 19.560	1.490 1.608 1.780 1.630	22.031	M6	8.85	3.86
75	2 1 15/16	2.559	2.874	3.130	2.638	5.433	1.969	1.535	1.535	0.709	0.006 0.007	16.374 16.462	1.364 1.372	16.861	M8	22.13	5.95
80	1 15/16 2 2 3/8 2 7/16	2.756	3.071	3.327	2.835	5.709	1.969	1.535	1.535	0.709	0.007	31.155 29.384 34.872 35.846	2.596 2.449 2.906 2.987	32.148 31.923	M8	22.13	6.39
90	2 3/8 2 7/16 2 3/4	2.953	3.465	3.524	3.031	6.102	2.244	1.811	1.811	0.709	0.007	42.041 43.192 48.679	3.503 3.599 4.057	35.520	M8	22.13	8.60

Larger dimensions available upon request. Technical data subject to change without notice. The Smart-Lock-Set is supplied with a Shrink Disc RfN 4061. The bushings are only suitable for one-time use.

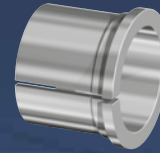
Ordering example: RfN 4001

Series	d	d <sub>2</sub>
RfN 4001	1.969	1 1/4

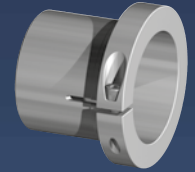
■ When using a hollow shaft instead of a solid shaft please contact our Engineering-Team



Shrink Disc



CB · Clamp bushing



SB · Support bushing

Smart-Lock-Set-Part numbers for inch size spare parts

Shrink Disc	Ød	Ød <sub>2</sub>	Ød <sub>3</sub>	Clamp bushing	Support bushing
	mm	mm	mm	Inch sizes	Inch sizes
RfN 4061-44x80	44	1.0	36	44 CB 1.0/36	44 SB 1.0/36
		1.125		44 CB 1.125/36	44 SB 1.125/36
		1.1875		44 CB 1.1875/36	44 SB 1.1875/36
		1.25		44 CB 1.25/36	44 SB 1.25/36
RfN 4061-50x90	50	1.1875	42	50 CB 1.875/42	50 SB 1.875/42
		1.25		50 CB 1.25/42	50 SB 1.25/42
		1.375		50 CB 1.375/42	50 SB 1.375/42
		1.4375		50 CB 1.4375/42	50 SB 1.4375/42
RfN 4061-55x100	55	1.1875	48	55 CB 1.875/48	55 SB 1.875/48
		1.25		55 CB 1.25/4	55 SB 1.875/48
		1.375		55 CB 1.375/48	55 SB 1.875/48
		1.4375		55 CB 1.4375/48	55 SB 1.875/48
RfN 4061-62x110	62	1.5	52	55 CB 1.5/48	55 SB 1.5/48
		1.375		62 CB 1.375/52	62 SB 1.375/52
		1.4375		62 CB 1.4375/52	62 SB 1.4375/52
		1.5		62 CB 1.5/52	62 SB 1.5/52
		1.625		62 CB 1.625/52	62 SB 1.625/52
RfN 4061-68x115	68	1.75	60	62 CB 1.75/52	62 SB 1.75/52
		1.9375		62 CB 1.9375/52	62 SB 1.9375/52
		1.625		68 CB 1.625/60	68 SB 1.625/60
		1.75		68 CB 1.75/60	68 SB 1.75/60
RfN 4061-75x138	75	1.9375	65	68 CB 1.9375/60	68 SB 1.9375/60
		2.0		68 CB 2.0/60	68 SB 2.0/60
		1.9375		75 CB 1.9375/65	75 SB 1.9375/65
RfN 4061-80x145	80	2.0	70	75 CB 2.0/65	75 SB 2.0/65
		2.375		80 CB 1.9375/70	80 SB 1.9375/70
		2.4375		80 CB 2.0/70	80 SB 2.0/70
RfN 4061-90x155	90	2.375	75	80 CB 2.375/70	80 SB 2.375/70
		2.4375		80 CB 2.4375/70	80 SB 2.4375/70
		2.375		90 CB 2.375/75	90 SB 2.375/75
		2.75		90 CB 2.4375/75	90 SB 2.4375/75
				90 CB 2.75/75	90 SB 2.75/75

\* Ordering examples metric sizes. All spare parts can be ordered individually.

Ordering example Shrink Disc: RfN 4061

Shrink Disc
RfN 4061 – 44 x 80

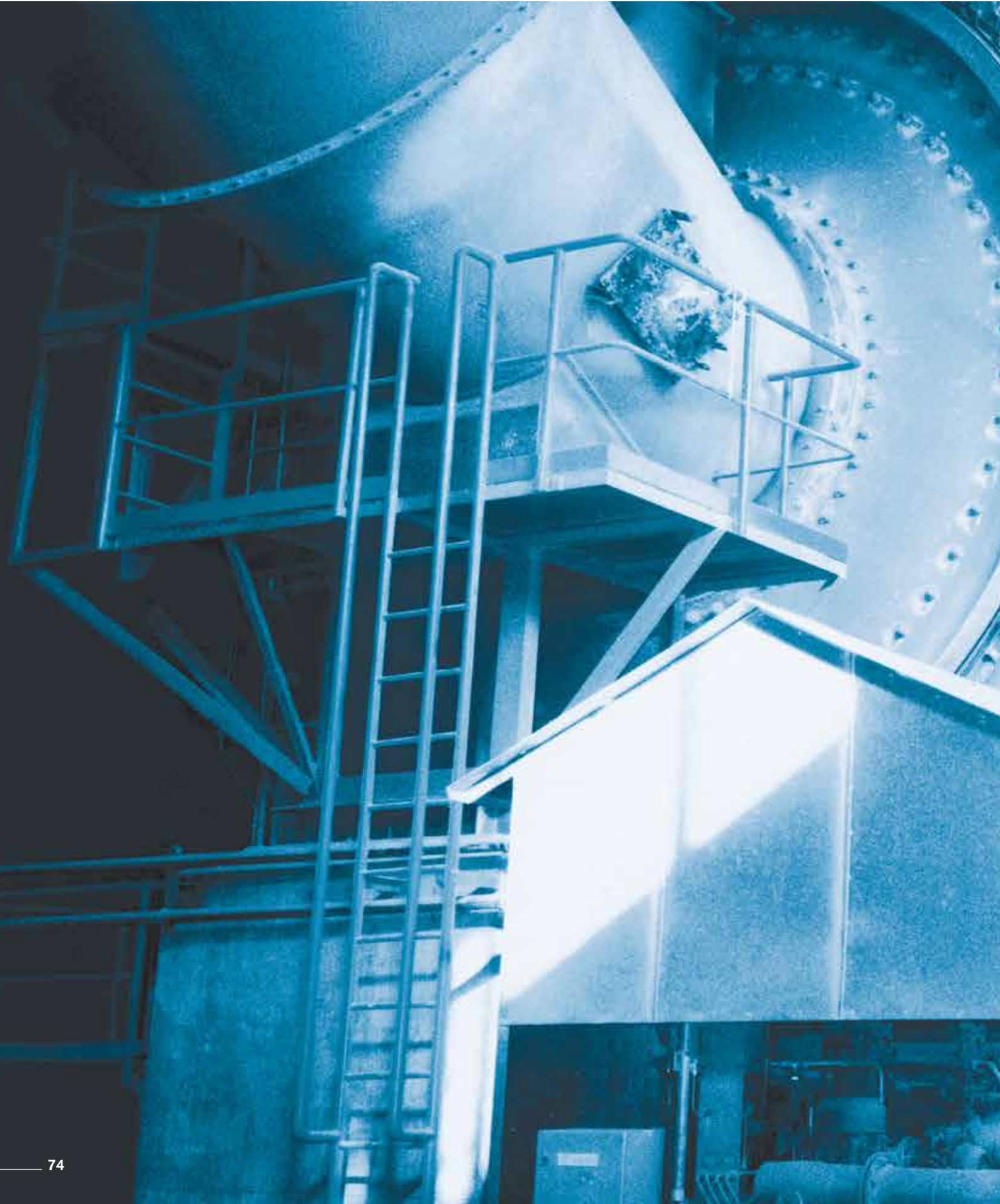
Ordering examples adapter bushings: RfN 4001

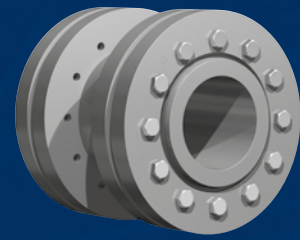
Series	d	Version
RfN 4001	80	CB 55 x 70
RfN 4001	55	SB 35 x 48

CB = Clamp bushing

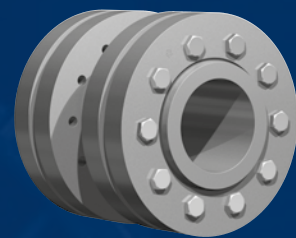
SB = Support bushing

# RINGFEDER® Shaft Couplings





**RfN 5071**



**RfN 5091**

## Characteristics

Shrink discs are the modern method for creating a mechanical shrink fit. The shrink disc consists of either one or two thrust rings with tapered bores and a mating tapered inner ring. By tightening locking screws the thrust rings are drawn together compressing the inner ring and applying pressure to the outside of the hub clamping it to the shaft. Being positioned around the hub there is only one interface transmitting the loads giving the shrink disc method distinct advantages such as offering the possibility of very concentric and well balanced connections that are suited to high speed applications. Traditional shrink fits require complicated calculations, close machining tolerances and fine surface finishes, they also need considerable effort with mounting and removal. The shrink disc connection has none of these disadvantages and is better than any of the other usual connection methods with regard to fatigue strength under alternating torsional stress.

**Unlimited range of applications** – RINGFEDER® Shrink Disc connections are suitable for securing all types of hubs onto shafts and axles. Replacing traditional shrink fits, keys and polygon connections, splined shafts etc. So cog wheels and sprockets, levers, lifters, cam discs, pulleys or brake discs, balance wheels, couplings, slip on gear mechanisms, flanges, pulley wheels and rotors can be attached absolutely reliable.

## Explanations to tables

### Basic dimensions when screws are not tightened

$d$	=	Inner diameter
$D$	=	Outer diameter
$d_w$	=	Solid shaft diameter
$L_{total}$	=	Total length (several parts)
$L$	=	Overall length
$T_A$	=	Max. tightened torque of the screws
$T$	=	Transmissible torque at given $T_A$
$F_{ax}$	=	Transmissible axial force

Additional loads, e.g. tension, thrust or bending have to be taken into consideration accordingly.

### Function values

The functional characteristics are valid with the screw tightening torque listed in the tables and the following assumed conditions:

The locking screws are lubricated using MoS<sub>2</sub> ( $\mu_{tot} = 0,1$ ).

The tapered cones are lubricated using MoS<sub>2</sub> ( $\mu = 0,05$ ).

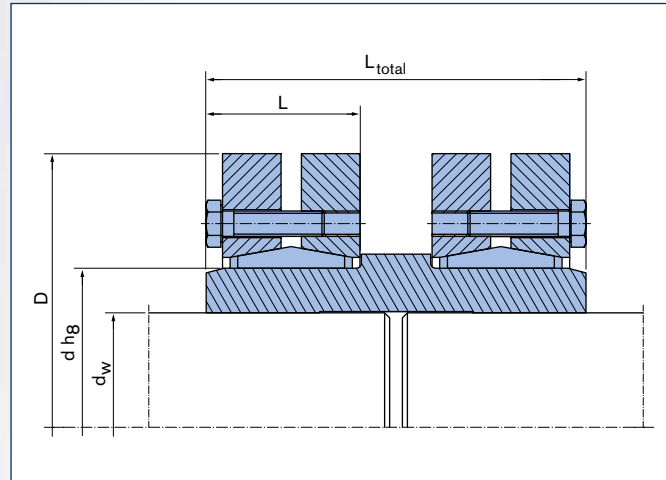
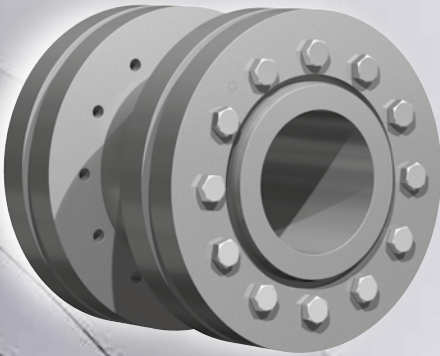
The contact surfaces ( $d_w$ ) are in lightly oiled condition with coefficient of friction  $\mu = 0,12$ .

The hub and shaft materials have a modulus of elasticity of 210,000 N/mm<sup>2</sup>. (Lower values result in increased values for  $T$  and  $F_{ax}$  with reduced tangential stress.)

The maximum clearance  $S$  is being fully utilized.

The shaft being used is solid, for hollow shaft applications the functional values will change.

In cases where the assumed conditions do not apply then contact our Technical Department where we will be happy to assist you with your application.



RINGFEDER® Shaft Coupling RfN 5071 · Dimensions

### Explanations

- $T_A$  = Max. tightened torque of the screws
- $T$  = Transmissible torque at given  $T_A$
- $F_{ax}$  = Transmissible axial force

Clearances considered for the calculation of the function values:

$d_w$		ISO	max. Clearance S inch
above inch	up to inch		
0.236	0.394	H6/j6	0.0005
0.394	0.709		0.0006
0.709	1.181	H6/h6	0.0007
1.181	1.969	H6/g6	0.0013
1.969	3.150	H7/g6	0.0019
3.150	4.724		0.0027
4.724	7.087		0.0031
7.087	9.843		0.0035
9.843	12.402		0.0040
12.402	15.748		0.0044
15.748	19.685		0.0048
19.685	24.803		0.0054
24.803	31.496	0.0061	

### Surface

For shaft diameter  $d_w$ : Peak-to-valley height  $R_a \leq 125$  RMS.

Shaft couplings dimensions								Transmissible torques or axial forces		Locking Screws DIN EN ISO 4014 / 4017 - 10.9			
d	x	D	d	x	D	d <sub>w</sub>	L <sub>total</sub>	L	T <sub>A</sub>	T	F <sub>ax</sub>	Thread	
mm		inch	mm		inch	inch	inch	inch	ft-lbs	ft-lbs	lbs		
20	x	46	0.787	x	1.811	0.591 0.630 0.669	1.772	0.827	3	81 103 118	4,496 4,946 5,395	M5	
24	x	50	0.945	x	1.969	0.748 0.787 0.827	1.969	0.906	3.7	177 199 221	7,194 7,868 8,543	M5	For all shaft couplings intermediate values for T and F <sub>ax</sub> can be calculated dependent on T <sub>A</sub> and the clearance S. In addition, stepped shaft couplings are available for different shaft diameters.
30	x	52	1.181	x	2.047	0.945 0.984 1.024	2.165	1.024	3.7	258 295 325	8,543 9,217 9,667	M5	
36	x	72	1.417	x	2.835	1.102 1.181 1.220	2.559	1.102	9	435 509 516	11,915 13,039	M6	If required, we like to be of assistance.
40	x	72	1.575	x	2.835	1.181 1.220 1.260	2.559	1.142	9	531 538 583	13,713 13,264 13,938	M6	
44	x	80	1.732	x	3.150	1.260 1.378 1.417	2.756	1.181	9	590 738 774	14,163 16,411 17,085	M6	
50	x	90	1.969	x	3.543	1.496 1.575 1.654	3.150	1.260	9	996 1,106 1,254	20,008 21,582 23,155	M6	
55	x	100	2.165	x	3.937	1.654 1.772 1.890	3.346	1.378	9	959 1,143 1,328	17,535 19,558 21,582	M6	
62	x	110	2.441	x	4.331	1.890 1.969 2.047	3.543	1.378	9	1,770 1,955 2,065	28,326 29,900 30,574	M6	
68	x	115	2.677	x	4.528	1.969 2.165 2.362	3.937	1.378	9	1,401 1,660 2,102	21,357 23,380 27,202	M6	
75	x	138	2.953	x	5.433	2.165 2.362 2.559	4.724	1.496	22	1,955 2,434 2,987	27,202 31,248 35,520	M8	
80	x	145	3.150	x	5.709	2.362 2.559 2.756	5.118	1.496	22	2,360 2,876 3,393	28,326 32,148 35,969	M8	
90	x	155	3.543	x	6.102	2.559 2.756 2.953	5.512	1.772	22	3,540 4,462 5,414	39,117 43,838 48,334	M8	
100	x	170	3.937	x	6.693	2.756 2.953 3.150	6.299	2.087	22	5,126 5,605 6,712	45,411 50,132 55,078	M8	
110	x	185	4.331	x	7.283	2.953 3.150 3.346	7.087	2.362	45	6,011 7,449 8,998	58,226 64,071 66,543	M10	
125	x	215	4.921	x	8.465	3.346 3.740 3.740	7.874	2.402	45	8,150 9,662 11,174	67,443 73,513 79,807	M10	
140	x	230	5.512	x	9.055	3.740 3.937 4.134	8.268	2.677	75	11,137 12,944 14,751	82,055 88,800 95,319	M12	
165	x	290	6.496	x	11.417	4.528 4.724 4.921	9.449	3.189	185	23,159 26,183 29,060	135,110 143,203 149,273	M16	
185	x	330	7.283	x	12.992	5.315 5.512 5.709	10.433	3.819	185	38,722 42,299 46,024	176,700 186,142 195,584	M16	

■ Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$

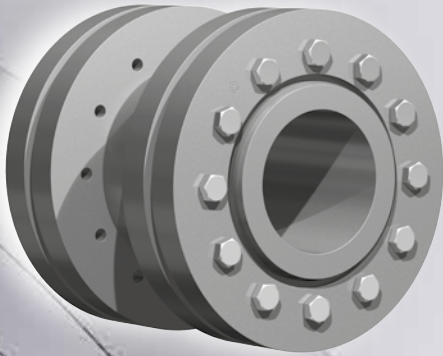
■ Tolerances  
For shaft see table page 78

Explanations to tables: Page 77

To continue see next page

■ When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team





## Characteristics

**Standard series** – this is the most popular shrink disc. High transmission values are possible and by varying the screw tightening torque the shrink disc can be adapted to the design specification.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

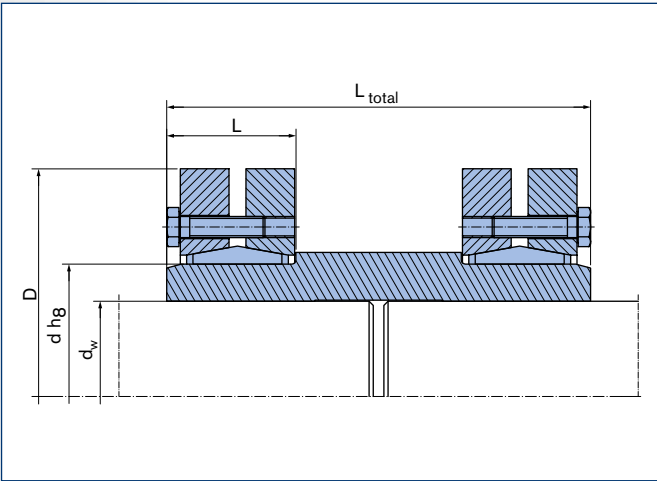
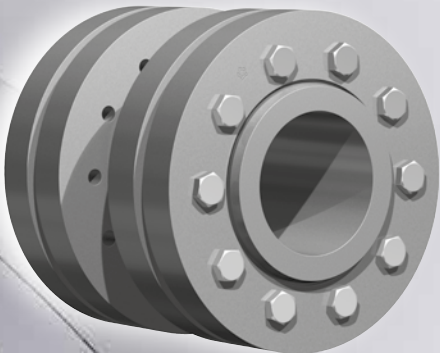
Shaft couplings dimensions								Transmissible torques or axial forces		Locking Screws DIN EN ISO 4014 / 4017 - 10.9			
d	x	D	d	x	D	d <sub>w</sub>	L <sub>total</sub>	L	T <sub>A</sub>	T	F <sub>ax</sub>	Thread	
mm		inch		inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs		
200	x	350	7.874	x	13.780	5.906	11.417	3.780	185	55,317	224,809	M16	
						6.102				59,743	234,925		
						6.299				64,315	245,267		
220	x	370	8.661	x	14.567	6.299	12.205	4.488	185	70,068	267,523	M16	
						6.496				75,231	278,538		
						6.693				81,132	290,003		
240	x	405	9.449	x	15.945	6.693	13.780	4.803	361	88,507	329,120	M20	For all shaft couplings intermediate values for T and F <sub>ax</sub> can be calculated dependent on T <sub>A</sub> and the
						7.087				101,784	354,299		
						7.480				115,060	376,555		
260	x	430	10.236	x	16.929	7.480	15.354	5.236	361	120,960	395,664	M20	clearance S. In addition, stepped shaft couplings are available for different shaft diameters.
						7.874				135,711	422,641		
						8.268				151,200	451,866		
280	x	460	11.024	x	18.110	8.268	16.929	5.787	361	160,051	469,851	M20	If required, we like to be of assistance.
						8.661				179,965	499,076		
						9.055				199,142	528,301		
300	x	485	11.811	x	19.094	9.055	17.520	6.102	361	202,830	546,510	M20	
						9.449				217,581	577,084		
						9.646				232,332	592,596		
320	x	520	12.598	x	20.472	9.449	18.110	6.102	361	230,119	595,069	M20	
						9.843				250,771	626,318		
						10.236				275,848	651,946		
340	x	570	13.386	x	22.441	9.843	18.898	6.654	361	287,649	701,179	M20	
						10.236				311,620	730,404		
						10.630				339,279	764,350		
350	x	580	13.780	x	22.835	10.630	19.291	6.890	361	326,002	736,474	M20	
						11.024				354,030	771,095		
						11.220				368,781	786,831		
360	x	590	14.173	x	23.228	11.024	19.685	6.890	361	341,491	744,117	M20	
						11.417				370,256	778,064		
						11.614				385,007	794,924		
380	x	645	14.961	x	25.394	11.417	20.866	7.205	620	418,198	879,003	M24	
						11.811				449,913	917,220		
						12.205				485,316	954,988		
390	x	660	15.354	x	25.984	11.811	21.260	7.205	620	460,239	935,205	M24	
						12.205				494,904	973,423		
						12.598				529,570	1,008,043		
400	x	680	15.748	x	26.772	12.402	21.260	7.205	620	494,167	957,686	M24	
						12.598				512,606	976,795		
						12.992				548,746	1,011,640		
420	x	690	16.535	x	27.165	12.992	22.835	7.992	620	575,298	1,090,323	M24	
						13.386				619,552	1,133,037		
						13.780				663,806	1,173,502		
440	x	750	17.323	x	29.528	13.386	23.622	8.661	620	594,475	1,065,594	M24	
						13.780				634,303	1,103,812		
						14.173				676,344	1,144,277		
460	x	770	18.110	x	30.315	14.173	24.409	8.661	620	737,562	1,274,666	M24	
						14.567				789,191	1,317,380		
						14.961				840,821	1,360,094		
480	x	800	18.898	x	31.496	14.961	25.394	9.055	620	862,948	1,382,575	M24	
						15.354				914,577	1,427,537		
						15.748				966,206	1,472,498		
500	x	850	19.685	x	33.465	15.748	26.378	9.055	920	967,681	1,474,746	M27	
						16.142				1,017,836	1,512,964		
						16.535				1,073,153	1,557,926		

- Surface finishes For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances For shaft see table page 78
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

Explanations to tables: Page 77

Ordering example: RfN 5071

Series	d	d <sub>w</sub>
RfN 5071	15.354	25.984



RINGFEDER® Shaft Coupling RfN 5091 · Dimensions

Shaft couplings dimensions					Transmissible torques or axial forces			Locking Screws DIN EN ISO 4014 / 4017 - 10.9	
d x D	d x D	d <sub>w</sub>	L <sub>total</sub>	L	T <sub>A</sub>	T	F <sub>ax</sub>	Thread	
mm	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs		
125 x 215	4.921 x 8.465	3.346	7.874	2.874	75	11,063	79,807	M12	For all shaft couplings intermediate values for T and F <sub>ax</sub> can be calculated dependent on T <sub>A</sub> and the clearance S. In addition, stepped shaft couplings are available for different shaft diameters.
		3.543				12,907	87,226		
		3.740				14,751	94,869		
140 x 300	5.512 x 11.811	3.543	8.661	4.173	185	27,069	97,342	M16	
		3.937				34,665	105,435		
		4.331				43,295	112,404		
155 x 263	6.102 x 10.354	4.134	9.055	3.622	75	21,316	123,645	M12	
		4.331				23,897	132,637		
		4.528				26,700	141,630		
165 x 290	6.496 x 11.417	4.528	9.449	3.858	185	30,240	166,359	M16	
		4.724				33,928	176,475		
		4.921				37,394	183,219		
175 x 300	6.890 x 11.811	4.921	10.433	4.882	185	53,695	261,902	M16	
		5.118				58,931	276,515		
		5.315				64,389	291,128		
185 x 330	7.283 x 12.992	5.315	10.433	4.803	185	53,104	247,290	M16	
		5.512				57,530	258,530		
		5.709				63,430	269,771		
195 x 350	7.677 x 13.780	5.512	11.024	4.803	185	55,317	241,670	M16	
		5.906				64,905	267,073		
		6.102				70,806	277,639		
200 x 350	7.874 x 13.780	5.906	11.417	4.803	185	68,224	276,515	M16	
		6.102				73,756	290,003		
		6.299				78,919	302,368		
220 x 370	8.661 x 14.567	6.299	12.205	5.669	185	93,670	357,446	M16	
		6.496				100,308	370,935		
		6.693				108,053	386,671		
240 x 405	9.449 x 15.945	6.693	13.780	6.181	361	114,322	409,152	M20	
		7.087				129,811	440,625		
		7.480				146,037	467,603		
260 x 430	10.236 x 16.929	7.480	15.354	6.811	361	157,101	508,068	M20	
		7.874				177,015	544,038		
		8.268				197,667	580,007		
280 x 460	11.024 x 18.110	8.268	16.929	7.283	361	210,205	615,976	M20	
		8.661				236,020	654,194		
		9.055				261,835	694,660		
300 x 485	11.811 x 19.094	9.055	17.520	7.441	361	251,509	665,434	M20	
		9.449				277,323	703,652		
		9.646				290,599	722,761		
320 x 520	12.598 x 20.472	9.449	18.110	7.756	361	278,798	708,148	M20	
		9.843				306,088	747,490		
		10.236				332,641	780,087		
340 x 570	13.386 x 22.441	9.843	18.898	8.465	620	361,037	879,003	M24	
		10.236				390,908	916,096		
		10.630				426,311	961,058		
350 x 580	13.780 x 22.835	10.630	19.291	8.465	620	410,085	926,662	M24	
		11.024				445,488	971,174		
		11.220				463,927	992,531		
360 x 590	14.173 x 23.228	11.024	19.685	8.622	620	451,388	982,415	M24	
		11.417				489,004	1,027,377		
		11.614				508,180	1,049,858		
380 x 645	14.961 x 25.394	11.417	20.866	8.622	620	455,813	959,934	M24	
		11.811				492,691	1,001,524		
		12.205				530,307	1,044,237		

■ Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm

■ Tolerances  
For shaft see table page 78

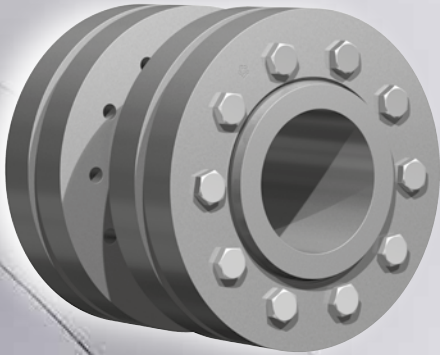
Explanations to tables: Page 77

To continue see next page

■ When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Ordering example: RfN 5091

Series	d	d <sub>w</sub>
RfN 5091	9.449	15.945



### Characteristics

**Heavy design** – for highest transmission values.

**Slitted inner ring** – low forces and pressures on hub and shaft.

**Compensation of small tolerance errors** – please contact our engineers.

**Maximum reliability** – suitable for static, dynamic and impact loads.

**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**Easy replacement** – the RINGFEDER® Shrink Disc is free from any form fit.

**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**Easy removal** – after loosening the locking screws, the RINGFEDER® Shrink Disc will self release and the hub will move freely on the shaft.

**Low susceptibility to contamination** – when the locking screws are tightened the functional contact surfaces are pressed firmly together and prevent the ingress of dirt and moisture.

Shaft couplings dimensions					Transmissible torques or axial forces			Locking Screws DIN EN ISO 4014 / 4017 - 10.9	
d x D	d x D	d <sub>w</sub>	L <sub>total</sub>	L	T <sub>A</sub>	T	F <sub>ax</sub>	Thread	
mm	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs		
390 x 660	15.354 x 25.984	11.811	21.260	8.937	620	522,194	1,059,974	M24	For all shaft couplings intermediate values for T and F <sub>ax</sub> can be calculated dependent on T <sub>A</sub> and the clearance S. In addition, stepped shaft couplings are available for different shaft diameters.  If required, we like to be of assistance.
		12.205				562,022	1,103,812		
		12.598				600,744	1,144,277		
400 x 680	15.748 x 26.772	12.402	21.260	8.937	620	564,235	1,091,447		
		12.598				581,199	1,107,633		
		12.992				623,240	1,152,146		
420 x 690	16.535 x 27.165	12.992	22.835	9.961	620	736,825	1,361,218		
		13.386				787,716	1,412,924		
		13.780				840,821	1,464,630		
440 x 750	17.323 x 29.528	13.386	23.622	10.591	920	780,341	1,400,559		
		13.780				833,445	1,452,265		
		14.173				888,025	1,503,972		
460 x 770	18.110 x 30.315	14.173	24.409	10.591	920	973,582	1,672,578		
		14.567				104,7338	1,731,029		
		14.961				1,106,343	1,787,231		
480 x 800	18.898 x 31.496	14.961	25.394	11.457	920	1,132,158	1,816,456		
		15.354				1,199,276	1,874,906		
		15.748				1,268,607	1,933,357		
500 x 850	19.685 x 33.465	15.748	26.378	11.457	920	1,290,734	1,967,078		
		16.142				1,357,114	2,018,784		
		16.535				1,430,870	2,079,482		

■ Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$

■ Tolerances  
For shaft see table page 78

Explanations to tables: Page 77

■ When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Ordering example: RfN 5091

Series	d	d <sub>w</sub>
RfN 5091	14.173	11.024

# Flange Couplings RINGFEDER® RfN 5571



RINGFEDER® Flange Couplings are the better alternative to press fits. Neither additional components such as keyways or wedges, nor a warming of the outer section and cooling of the inner section are required. The flange coupling is simply pushed onto the shaft

and fastened so it is frictionally engaged by tightening the screws in the shrink disc. They transfer torque and bending moments as well as axial and radial forces.

## ***Advantages***

- *Strong connection with high torque capacity*
- *Easy assembly and disassembly*
- *Backlash-free shaft hub connection*
- *High level of true running accuracy*

## ***Applications***

- *Mining companies*
- *Plant manufacturers*
- *Gearbox manufacturers*

## Designs

### **Version A** Shrink Discs with hexagon head screws

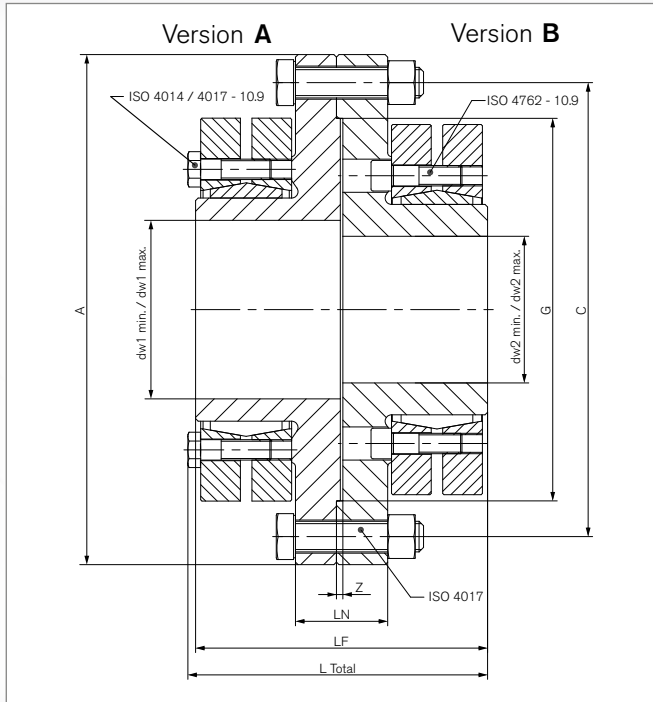


### **Version B** Shrink Discs with hexagon socket head cap screws





# Flange Couplings RINGFEDER® RfN 5571



## Explanations to tables

Basic dimensions when screws are not tightened

- d<sub>w1</sub>** = Solid shaft diameter
- d<sub>w2</sub>** = Solid shaft diameter
- A** = Max. outer diameter
- C** = Pitch circle diameter
- G** = Center diameter
- LF** = Total length of the mated flanges (HM+HF)
- LN** = Flange width
- L<sub>total</sub>** = Total length (several parts)
- Z** = Depth of center value
- T** = Transmissible torque at given T<sub>A</sub>
- n<sub>Sc3</sub>** = Quantity of screws at flange
- D<sub>G3</sub>** = Thread of the flange screws
- T<sub>A3</sub>** = Tightening torque of the flange bolts (D<sub>G3</sub>)
- n<sub>SD</sub>** = Quantity of screws (Shrink disc)
- D<sub>SD</sub>** = Diameter of screws (Shrink disc)
- T<sub>A</sub>** = Max. tightened torque of the clamping screws
- Gw** = Weight

# Flange Couplings RINGFEDER® RfN 5571

Size	Flange couplings dimensions									Transmissible torques T	Flange screws ISO 4017			Shrink disc screws Version A: ISO 4014/4017 - 10.9 Version B: ISO 4762 - 10.9				Gw
	d <sub>w1</sub>	d <sub>w2</sub>	A	C	G	L <sub>F</sub>	L <sub>N</sub>	L <sub>total</sub>	Z		n <sub>Sc3</sub>	D <sub>G3</sub>	T <sub>A3</sub>	Size	n <sub>SD</sub>	D <sub>SD</sub>	T <sub>A</sub>	
	inch	inch	inch	inch	inch	inch	inch	inch	inch		ft-lbs	pcs.	mm	ft-lbs	inch	pcs.	mm	
075	2.756	2.756								5,148				100x170	12	M 8	22	
	2.953	2.953	9.449	8.268	6.693	5.354	1.732	5.787	0.157	5,606	6	M16	155	100x170	12	M 8	22	57
	3.150	3.150								6,712				100x170	12	M 8	22	
090	2.756	2.756								5,148				100x170	12	M 8	22	
	2.953	2.953								5,606				100x170	12	M 8	22	
	3.150	3.150	12.008	10.433	8.465	6.299	1.890	6.654	0.197	6,712	6	M20	310	100x170	12	M 8	22	106
	>3.150	>3.150								6,823				125x215	12	M 10	44	
	3.543	3.543								9,662				125x215	12	M 10	44	
	3.937	3.937								13,166				125x215	12	M 10	44	
100	3.543	3.543								10,105				130x215	12	M 10	44	
	3.740	3.740								11,654				130x215	12	M 10	44	
	3.937	3.937	13.386	11.260	9.055	7.480	2.205	7.756	0.197	13,424	5	M24	531	130x215	12	M 10	44	139
	>3.937	>3.937								12,944				140x230	10	M 12	74	
	4.331	4.331								16,890				140x230	10	M 12	74	
	4.528	4.528								19,051				140x230	10	M 12	74	
120	3.740	3.740								11,137				140x230	10	M 12	74	
	4.134	4.134								14,751				140x230	10	M 12	74	
	4.528	4.528	15.748	14.016	11.811	8.976	2.835	9.449	0.197	19,066	8	M24	531	140x230	10	M 12	74	265
	>4.528	>4.528								23,197				165x290	8	M 16	184	
	4.921	4.921								29,060				165x290	8	M 16	184	
	5.315	5.315								36,473				165x290	8	M 16	184	
130	4.528	4.528								23,197				165x290	8	M 16	184	
	4.921	4.921								29,060				165x290	8	M 16	184	
	5.315	5.315	15.748	14.016	11.811	8.976	2.835	9.449	0.197	36,473	8	M24	531	165x290	8	M 16	184	265
	>5.315	>5.315								33,559				175x300	8	M 16	184	
	5.413	5.413								35,071				175x300	8	M 16	184	
	5.512	5.512								36,657				175x300	8	M 16	184	
150	4.921	4.921								27,032				175x300	8	M 16	184	
	5.118	5.118								30,646				175x300	8	M 16	184	
	5.512	5.512	18.701	16.535	13.780	10.945	3.543	11.417	0.236	36,657	10	M30	1,069	175x300	8	M 16	184	474
	>5.512	>5.512								48,643				195x350	12	M 16	184	
	5.906	5.906								57,235				195x350	12	M 16	184	
	6.496	6.496								71,471				195x350	12	M 16	184	
165	5.512	5.512								48,643				195x350	12	M 16	184	
	5.906	5.906								57,235				195x350	12	M 16	184	
	6.496	6.496	20.079	17.323	14.567	12.362	3.543	12.835	0.236	71,471	14	M30	1,069	195x350	12	M 16	184	595
	>6.496	>6.496								76,117				220x370	15	M 16	184	
	6.693	6.693								81,612				220x370	15	M 16	184	
	7.087	7.087								93,266				220x370	15	M 16	184	
180	6.299	6.299								70,807				220x370	15	M 16	184	
	6.693	6.693								81,612				220x370	15	M 16	184	
	7.087	7.087	21.260	18.701	15.945	12.677	3.465	13.346	0.236	93,266	16	M30	1,069	220x370	15	M 16	184	683
	>7.087	>7.087								104,329				240x405	12	M 20	361	
	7.480	7.480								118,269				240x405	12	M 20	361	
	7.874	7.874								133,168				240x405	12	M 20	361	
200	6.693	6.693								91,311				240x405	12	M 20	361	
	7.283	7.283								111,189				240x405	12	M 20	361	
	7.874	7.874	22.047	19.685	16.929	14.488	4.331	15.079	0.315	133,168	16	M30	1,069	240x405	12	M 20	361	871
	>7.874	>7.874								140,323				260x430	14	M 20	361	
	8.268	8.268								157,029				260x430	14	M 20	361	
	8.661	8.661								174,693				260x430	14	M 20	361	
220	7.480	7.480								124,649				260x430	14	M 20	361	
	8.071	8.071								148,547				260x430	14	M 20	361	
	8.661	8.661	23.228	20.866	18.110	15.433	4.094	16.024	0.315	174,693	18	M30	1,069	260x430	14	M 20	361	981
	>8.661	>8.661								181,774				280x460	16	M 20	361	
	9.055	9.055								201,246				280x460	16	M 20	361	
	9.449	9.449								221,787				280x460	16	M 20	361	

# Flange Couplings RINGFEDER® RfN 5571

Size	Flange couplings dimensions									Transmissible torques T ft-lbs	Flange screws ISO 4017			Shrink disc screws Version A: ISO 4014/4017 - 10.9 Version B: ISO 4762 - 10.9				
	d <sub>w1</sub>	d <sub>w2</sub>	A	C	G	L <sub>F</sub>	L <sub>N</sub>	L <sub>total</sub>	Z		n <sub>Sc3</sub>	D <sub>G3</sub>	T <sub>A3</sub>	Size	n <sub>SD</sub>	D <sub>SD</sub>	T <sub>A</sub>	G <sub>w</sub>
	inch	inch	inch	inch	inch	inch	inch	inch	inch		pcs.	mm	ft-lbs	inch	pcs.	mm	ft-lbs	lbs
240	8.268	8.268	24.213	21.850	19.094	16.063	4.094	16.654	0.315	20	M30	1,069	280x460	16	M 20	361	1,102	
	8.858	8.858											280x460	16	M 20	361		
	9.449	9.449											280x460	16	M 20	361		
	>9.449	>9.449											300x485	18	M 20	361		
	9.843	9.843											300x485	18	M 20	361		
	10.236	10.236											300x485	18	M 20	361		
260	9.055	9.055	27.953	25.197	22.441	17.717	4.646	18.307	0.315	24	M30	1,069	300x485	18	M 20	361	1,720	
	9.646	9.646											300x485	18	M 20	361		
	10.236	10.236											300x485	18	M 20	361		
	>10.236	>10.236											340x570	24	M 20	361		
	10.827	10.827											340x570	24	M 20	361		
	11.417	11.417											340x570	24	M 20	361		
290	9.055	9.055	28.346	25.984	23.228	17.717	4.173	18.307	0.315	24	M30	1,069	340x570	24	M 20	361	1,742	
	10.236	10.236											340x570	24	M 20	361		
	11.417	11.417											340x570	24	M 20	361		
	>11.417	>11.417											360x590	24	M 20	361		
	12.008	12.008											360x590	24	M 20	361		
	12.598	12.598											360x590	24	M 20	361		
310	11.024	11.024	31.693	28.937	25.984	19.055	4.488	19.291	0.315	28	M30	1,069	360x590	24	M 20	361	2,337	
	11.811	11.811											360x590	24	M 20	361		
	12.598	12.598											360x590	24	M 20	361		
	>12.598	>12.598											390x660	21	M 24	620		
	12.992	12.992											390x660	21	M 24	620		
	13.386	13.386											390x660	21	M 24	620		
340	11.811	11.811	32.874	30.315	27.165	20.787	4.803	21.181	0.394	30	M30	1,069	390x660	21	M 24	620	2,712	
	12.598	12.598											390x660	21	M 24	620		
	13.386	13.386											390x660	21	M 24	620		
	>13.386	>13.386											420x690	24	M 24	620		
	13.780	13.780											420x690	24	M 24	620		
	14.173	14.173											420x690	24	M 24	620		
380	12.992	12.992	36.220	33.268	30.315	21.890	5.039	22.598	0.394	35	M30	1,069	420x690	24	M 24	620	3,131	
	13.583	13.583											420x690	24	M 24	620		
	14.173	14.173											420x690	24	M 24	620		
	>14.173	>14.173											460x770	28	M 24	620		
	14.764	14.764											460x770	28	M 24	620		
	15.354	15.354											460x770	28	M 24	620		
410	14.173	14.173	40.551	37.008	33.465	24.331	6.142	24.724	0.472	32	M36	1,770	460x770	28	M 24	620	4,850	
	14.764	14.764											460x770	28	M 24	620		
	15.354	15.354											460x770	28	M 24	620		
	>15.354	>15.354											500x850	24	M 27	922		
	16.142	16.142											500x850	24	M 27	922		
	16.929	16.929											500x850	24	M 27	922		
440	15.748	15.748	43.307	39.370	35.433	27.402	6.299	27.323	0.551	36	M36	1,770	500x850	24	M 27	922	5,908	
	16.339	16.339											500x850	24	M 27	922		
	16.929	16.929											500x850	24	M 27	922		
	>16.929	>16.929											530x900	30	M 27	922		
	17.520	17.520											530x900	30	M 27	922		
	18.110	18.110											530x900	30	M 27	922		
470	16.929	16.929	46.457	42.520	38.583	29.291	6.457	29.449	0.551	40	M36	1,770	530x900	30	M 27	922	7,363	
	17.520	17.520											530x900	30	M 27	922		
	18.110	18.110											530x900	30	M 27	922		
	>18.110	>18.110											590x980	36	M 27	922		
	18.898	18.898											590x980	36	M 27	922		
	19.685	19.685											590x980	36	M 27	922		

# Flange Couplings RINGFEDER® RfN 5571

Size	Flange couplings dimensions									Transmissible torques T	Flange screws ISO 4017			Shrink disc screws Version A: ISO 4014/4017 - 10.9 Version B: ISO 4762 - 10.9				Gw
	d <sub>w1</sub>	d <sub>w2</sub>	A	C	G	L <sub>F</sub>	L <sub>N</sub>	L <sub>total</sub>	Z		n <sub>Sc3</sub>	D <sub>G3</sub>	T <sub>A3</sub>	Size	n <sub>SD</sub>	D <sub>SD</sub>	T <sub>A</sub>	
	inch	inch	inch	inch	inch	inch	inch	inch	inch		pcs.	mm	ft-lbs	inch	pcs.	mm	ft-lbs	
500	18.504	18.504	47.638	43.701	40.157	29.291	6.457	29.449	0.551	1699361	42	M36	1770	590x980	36	M 27	922	7981
	19.094	19.094												590x980	36			
	19.685	19.685												590x980	36			
	>19.685	>19.685												620x1020	38			
	20.472	20.472												620x1020	38			
	21.260	21.260												620x1020	38			

## Surface finishes

For shaft:  $R_a \leq 3,2 \mu\text{m}$


## Tolerances

For shaft see table below

## Explanations to tables: Page 88


## Ordering example: RfN 5571

Series	Size	Version	d <sub>w1</sub>	d <sub>w2</sub>	Further details
RfN 5571	500	A	19.094	20.472	-



Series	Size	Version	d <sub>w1</sub>	Further details
RfN 5571	500	B	19.094	HF

HM = Centering outside  
HF = Centering inside



## Table clearance

d <sub>w</sub>		ISO	Max. Clearance S inch
above inch	up to inch		
0.236	0.394	H6/j6	0.0005
0.394	0.709		0.0006
0.709	1.181	H6/h6	0.0007
1.181	1.969	H6/g6	0.0013
1.969	3.150	H7/g6	0.0019
3.150	4.724		0.0027
4.724	7.087		0.0031
7.087	9.843		0.0035
9.843	12.402		0.0040
12.402	15.748		0.0044
15.748	19.685		0.0048
19.685	24.803		0.0054
24.803	31.496	0.0061	



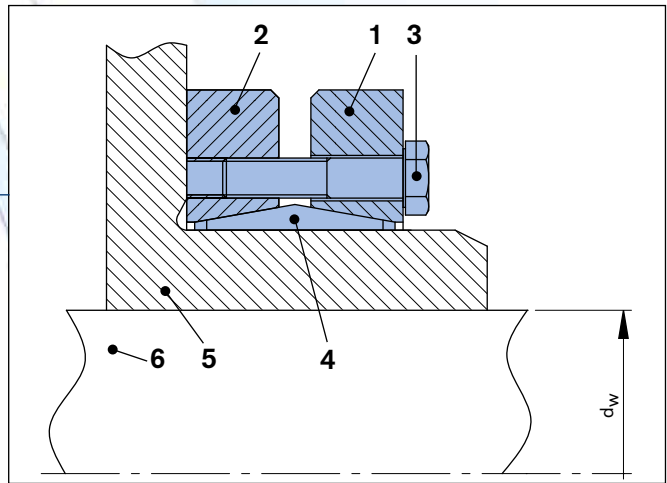
All technical details and information are non-binding and cannot be used as a basis for legal claims. The user is obligated to determine whether the represented products meet his requirements. We reserve the right at all times to carry out modifications in the interests of technical progress. Upon the issue of this catalogue all previous brochures and questionnaires on the products displayed are no longer valid.

Clearances considered for the calculation of the function values

## Part description

### 3-part design

- 1 Front thrust ring
- 2 Rear thrust ring
- 3 Locking screw
- 4 Inner ring
- 5 Hub
- 6 Shaft



RINGFEDER® Shrink Discs RfN 4051/4061/4071/4073/4091/4061 stainless steel

Detailed installation and removal instructions can be found on our homepage [www.ringfeder.com](http://www.ringfeder.com).

## Installation and removal instructions

Shrink Discs RfN 4051, 4061, 4071, 4073, 4091,  
4061 stainless steel

### Installation

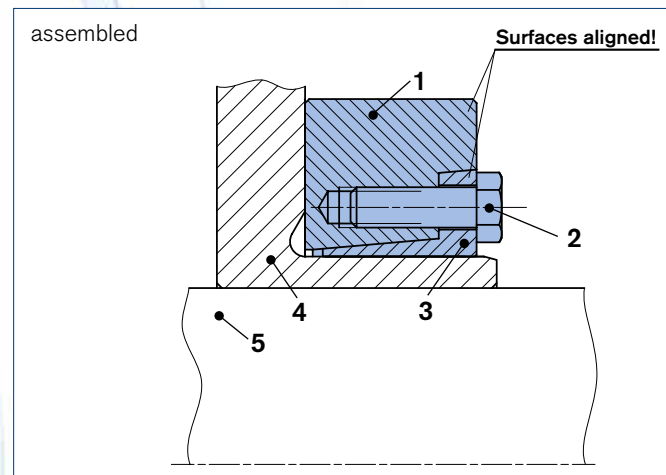
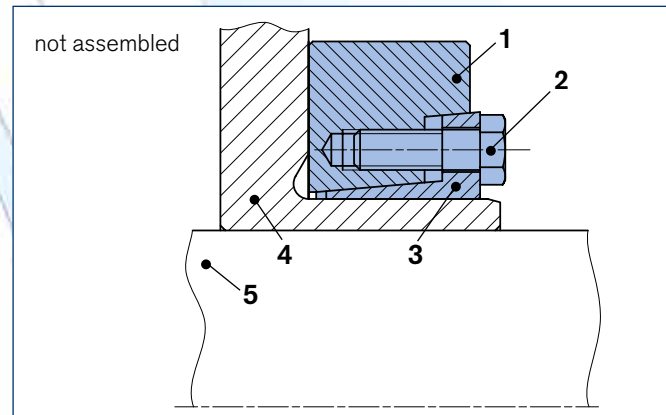
1. Clean the area on the hub where the shrink disc will be seated and oil to ease assembly, if necessary.
2. Removing spacers which may be present between the tensioning discs for transport purposes.
3. Sliding the shrink disc onto the hub.  
Attention: Do not start tensioning before the shaft is in the bore of the hub, this may cause permanent deformation.
4. Slide the hub onto the shaft and position as required. Use a thin oil to lightly lubricate the hub bore and shaft to facilitate assembly.  
Attention: Do not use lubricants containing MOS2.
5. Tighten by uniformly tensioning the screws in circular sequence, increasing the applied torque stepwise after each sequence. Tension the bolts in sequence (not cross-wise), using a torque wrench. Before starting to tension, make sure that the tensioning discs are aligned plane-parallel.
6. Re-check tightening torque by applying it to all screws all the way around. If all screws have reached the max. tightening torque  $T_A$ , the assembly is completed.

### Removal

1. Loosen the tensioning bolts evenly and in sequence, again in several circular sequences, to avoid jamming of the discs on the inner ring. Never completely remove the tensioning bolts from their threaded holes, this creates a risk of accidents.
2. Sliding the shrink disc and its attachment part from the shaft. First remove possible traces of rust from the shaft.
3. Sliding the shrink disc from the hub.

## Part description

### 2-part design



RINGFEDER® Shrink Discs RfN 4161/4181

- 1 Outer ring
- 2 Locking screw
- 3 Inner ring
- 4 Hub
- 5 Shaft

Detailed installation and removal instructions can be found on our homepage [www.ringfeder.com](http://www.ringfeder.com).

## Installation and removal instructions

Shrink Discs RfN 4161, 4181

### Installation

1. Clean the area on the hub where the shrink disc will be seated and oil to ease assembly, if necessary.
2. Sliding the shrink disc onto the hub.  
Attention: Do not start tensioning before the shaft is in the bore of the hub; this may cause permanent deformation.
3. Slide the hub onto the shaft and position as required. Use a thin oil to lightly lubricate the hub bore and shaft to facilitate assembly.  
Attention: Do not use lubricants containing  $\text{MOS}_2$ .
4. Tighten by uniformly tensioning the bolts in circular sequence, increasing the applied torque stepwise after each sequence. Tension the bolts in sequence (not cross-wise). Make sure that the faces of the inner and outer rings are aligned plane-parallel.



- Assembly, using a torque wrench:  
Check torquing of the bolts in sequence of their positions. Assembly is only complete once all the bolts have been torqued as specified.



- Assembly, without a torque wrench:  
Assembly is complete once the faces of the inner and outer rings are aligned flush.

### Removal

1. Loosen the tensioning bolts evenly and in sequence, again in several circular sequences, to avoid jamming of the discs on the inner ring. Never completely remove the tensioning bolts from their threaded holes, this creates a risk of accidents.
2. Disassembling the shaft, i.e. removing the hub from the shaft. First remove possible traces of rust on the shaft and the hub.
3. Sliding the shrink disc from the hub.

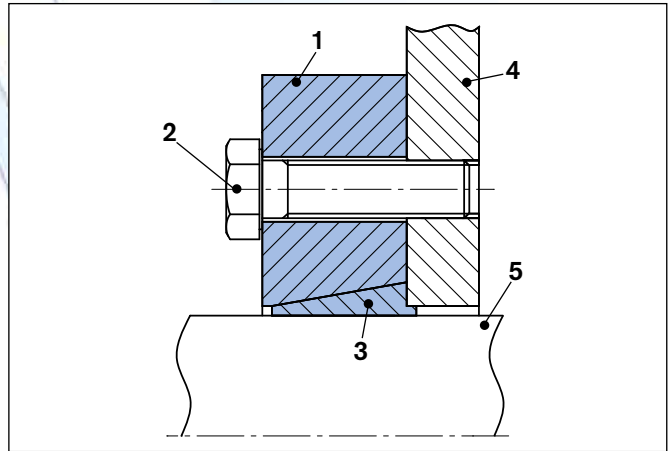


## Part description

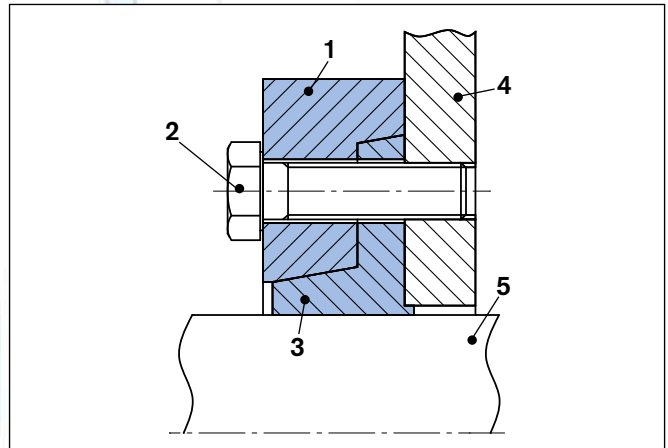
- 1 Outer ring
- 2 Locking screw
- 3 Inner ring
- 4 Attachment part
- 5 Shaft

Part 2, 4, 5 provided by the customer

### 2-part design with attachment part



RINGFEDER® Shrink Discs RfN 4012



RINGFEDER® Shrink Discs RfN 4022/4023

Detailed installation and removal instructions can be found on our homepage [www.ringfeder.com](http://www.ringfeder.com).

## Installation and removal instructions

Shrink Discs RfN 4012, 4022, 4023

### Installation

1. Clean and degrease position of the shrink disc on the shaft and contact surface of the attachment part.
2. Fasten the attachment part to the shrink disc.  
**ATTENTION:** Tighten the bolts lightly.
3. Sliding the shrink disc onto the shaft.
4. Tighten by uniformly tensioning the bolts in circular sequence, increasing the applied torque stepwise after each sequence. Tension the bolts in sequence (not cross-wise), using a torque wrench.
5. Re-check tightening torque by applying it to all screws all the way around. If all screws have reached the max. tightening torque  $T_A$ , the assembly is completed.

### Removal

1. Loosen the tensioning bolts evenly and in sequence, again in several circular sequences, to avoid jamming of the discs on the inner ring. Never completely remove the tensioning bolts from their threaded holes, this creates a risk of accidents.
2. Sliding the shrink disc and its attachment part from the shaft. First remove possible traces of rust from the shaft.
3. Releasing the attachment part from the shrink disc.

# ISO Tolerances

## Shafts

Nominal diameter of shaft		d11		e8		e7		f8		f7		g6		h11		h9		h8		h7	
mm		µm		µm		µm		µm		µm		µm		µm		µm		µm		µm	
above	to	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower
3	6	- 30	- 105	- 20	- 38	- 20	- 32	- 10	- 28	- 10	- 22	- 4	- 12	0	- 75	0	- 30	0	- 18	0	- 12
6	10	- 40	- 130	- 25	- 47	- 25	- 40	- 13	- 35	- 13	- 28	- 5	- 14	0	- 90	0	- 36	0	- 22	0	- 15
10	18	- 50	- 160	- 32	- 59	- 32	- 50	- 16	- 43	- 16	- 34	- 6	- 17	0	- 110	0	- 43	0	- 27	0	- 18
18	30	- 65	- 195	- 40	- 73	- 40	- 61	- 20	- 53	- 20	- 42	- 7	- 20	0	- 130	0	- 52	0	- 33	0	- 21
30	50	- 80	- 240	- 50	- 89	- 50	- 75	- 25	- 64	- 25	- 50	- 9	- 25	0	- 160	0	- 62	0	- 39	0	- 25
50	80	- 100	- 290	- 60	- 106	- 60	- 90	- 30	- 76	- 30	- 60	- 10	- 29	0	- 190	0	- 74	0	- 46	0	- 30
80	120	- 120	- 340	- 72	- 126	- 72	- 107	- 36	- 90	- 36	- 71	- 12	- 34	0	- 220	0	- 87	0	- 54	0	- 35
120	180	- 145	- 395	- 85	- 148	- 85	- 125	- 43	- 106	- 43	- 83	- 14	- 39	0	- 250	0	- 100	0	- 63	0	- 40
180	250	- 170	- 460	- 100	- 172	- 100	- 146	- 50	- 122	- 50	- 96	- 15	- 44	0	- 290	0	- 115	0	- 72	0	- 46
250	315	- 190	- 510	- 110	- 191	- 110	- 162	- 56	- 137	- 56	- 108	- 17	- 49	0	- 320	0	- 130	0	- 81	0	- 52
315	400	- 210	- 570	- 125	- 214	- 125	- 182	- 62	- 151	- 62	- 119	- 18	- 54	0	- 360	0	- 140	0	- 89	0	- 57
400	500	- 230	- 630	- 135	- 232	- 135	- 198	- 68	- 165	- 68	- 131	- 20	- 60	0	- 440	0	- 155	0	- 97	0	- 63
500	630	- 260	- 700	- 145	- 255	- 145	- 215	- 76	- 186	- 76	- 146	- 22	- 66	0	- 440	0	- 175	0	- 110	0	- 70
630	800	- 290	- 790	- 160	- 285	- 160	- 240	- 80	- 205	- 80	- 160	- 24	- 74	0	- 500	0	- 200	0	- 125	0	- 80

Nominal diameter of shaft		h6		h5		j6		k6		k5		m6		m5		n6		p6	
mm		µm		µm		µm		µm		µm		µm		µm		µm		µm	
above	to	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower
3	6	0	- 8	0	- 5	+ 7	- 1	-	-	-	-	+ 12	+ 4	+ 9	+ 4	+ 16	+ 8	+ 20	+ 12
6	10	0	- 9	0	- 6	+ 7	- 2	+ 10	+ 1	+ 7	+ 1	+ 15	+ 6	+ 12	+ 6	+ 19	+ 10	+ 24	+ 15
10	18	0	- 11	0	- 8	+ 8	- 3	+ 12	+ 1	+ 9	+ 1	+ 18	+ 7	+ 15	+ 7	+ 23	+ 12	+ 29	+ 18
18	30	0	- 13	0	- 9	+ 9	- 4	+ 15	+ 2	+ 11	+ 2	+ 21	+ 8	+ 17	+ 8	+ 28	+ 15	+ 35	+ 26
30	50	0	- 16	0	- 11	+ 11	- 5	+ 18	+ 2	+ 13	+ 2	+ 25	+ 9	+ 20	+ 9	+ 33	+ 17	+ 42	+ 26
50	80	0	- 19	0	- 13	+ 12	- 7	+ 21	+ 2	+ 15	+ 2	+ 30	+ 11	+ 24	+ 11	+ 39	+ 20	+ 51	+ 32
80	120	0	- 22	0	- 15	+ 13	- 9	+ 25	+ 3	+ 18	+ 3	+ 35	+ 13	+ 28	+ 13	+ 45	+ 23	+ 59	+ 37
120	180	0	- 25	0	- 18	+ 14	- 11	+ 28	+ 3	+ 21	+ 3	+ 40	+ 15	+ 33	+ 15	+ 52	+ 27	+ 68	+ 43
180	250	0	- 29	0	- 20	+ 16	- 13	+ 33	+ 4	+ 24	+ 4	+ 46	+ 17	+ 37	+ 17	+ 60	+ 31	+ 79	+ 50
250	315	0	- 32	0	- 23	+ 16	- 16	+ 36	+ 4	+ 27	+ 4	+ 53	+ 20	+ 43	+ 20	+ 66	+ 34	+ 88	+ 56
315	400	0	- 36	0	- 25	+ 18	- 18	+ 40	+ 4	+ 29	+ 4	+ 57	+ 21	+ 46	+ 21	+ 73	+ 37	+ 98	+ 62
400	500	0	- 40	0	- 27	+ 20	- 20	+ 45	+ 5	+ 32	+ 5	+ 63	+ 23	+ 50	+ 23	+ 80	+ 40	+ 108	+ 68
500	630	0	- 44	0	- 28	-	-	+ 44	0	-	-	+ 70	+ 26	-	-	+ 88	+ 44	+ 122	+ 78
630	800	0	- 50	0	- 32	-	-	+ 50	0	-	-	+ 80	+ 30	-	-	+ 100	+ 50	+ 138	+ 88

# Bores

Nominal diameter of bore		D11		E8		E7		F8		F7		G7		H11		H9		H8		H7	
mm		µm		µm		µm		µm		µm		µm		µm		µm		µm		µm	
above	to	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower
3	6	+ 105	+ 30	+ 38	+ 20	+ 32	+ 20	+ 28	+ 10	+ 22	+ 10	+ 16	+ 4	+ 75	0	+ 30	0	+ 18	0	+ 12	0
6	10	+ 130	+ 40	+ 47	+ 25	+ 40	+ 25	+ 35	+ 10	+ 28	+ 13	+ 20	+ 5	+ 90	0	+ 36	0	+ 22	0	+ 15	0
10	18	+ 160	+ 50	+ 59	+ 32	+ 50	+ 32	+ 43	+ 12	+ 34	+ 16	+ 24	+ 6	+ 110	0	+ 43	0	+ 27	0	+ 18	0
18	30	+ 195	+ 65	+ 73	+ 40	+ 61	+ 40	+ 53	+ 15	+ 41	+ 20	+ 28	+ 7	+ 130	0	+ 52	0	+ 33	0	+ 21	0
30	50	+ 240	+ 80	+ 89	+ 50	+ 75	+ 50	+ 64	+ 18	+ 50	+ 25	+ 34	+ 9	+ 160	0	+ 62	0	+ 39	0	+ 25	0
50	80	+ 290	+ 100	+ 106	+ 60	+ 90	+ 60	+ 76	+ 21	+ 60	+ 30	+ 40	+ 10	+ 190	0	+ 74	0	+ 46	0	+ 30	0
80	120	+ 340	+ 120	+ 126	+ 72	+ 107	+ 72	+ 90	+ 25	+ 71	+ 36	+ 47	+ 12	+ 220	0	+ 87	0	+ 54	0	+ 35	0
120	180	+ 395	+ 145	+ 148	+ 85	+ 125	+ 85	+ 106	+ 28	+ 83	+ 43	+ 54	+ 14	+ 250	0	+ 100	0	+ 63	0	+ 40	0
180	250	+ 460	+ 170	+ 172	+ 100	+ 146	+ 100	+ 122	+ 33	+ 96	+ 50	+ 61	+ 15	+ 290	0	+ 115	0	+ 72	0	+ 46	0
250	315	+ 510	+ 190	+ 191	+ 110	+ 162	+ 110	+ 137	+ 36	+ 108	+ 56	+ 69	+ 17	+ 320	0	+ 130	0	+ 81	0	+ 52	0
315	400	+ 570	+ 210	+ 214	+ 125	+ 182	+ 125	+ 151	+ 40	+ 119	+ 62	+ 75	+ 18	+ 360	0	+ 140	0	+ 89	0	+ 57	0
400	500	+ 630	+ 230	+ 232	+ 135	+ 198	+ 135	+ 165	+ 45	+ 131	+ 68	+ 83	+ 20	+ 400	0	+ 155	0	+ 97	0	+ 63	0
500	630	+ 700	+ 260	+ 255	+ 145	+ 215	+ 145	+ 186	+ 76	+ 146	+ 76	+ 92	+ 22	+ 440	0	+ 175	0	+ 110	0	+ 70	0
630	800	+ 790	+ 290	+ 285	+ 160	+ 240	+ 160	+ 205	+ 80	+ 160	+ 80	+ 104	+ 24	+ 500	0	+ 200	0	+ 125	0	+ 80	0

Nominal diameter of bore		H6		J7		J6		K7		K6		M7		M6		N7		N6		P7	
mm		µm		µm		µm		µm		µm		µm		µm		µm		µm		µm	
above	to	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower
3	6	+ 8	0	+ 5	- 7	+ 4	- 4	-	-	-	-	0	- 12	- 1	- 9	- 4	- 16	- 5	- 13	- 8	- 20
6	10	+ 9	0	+ 8	+ 7	+ 5	- 4	+ 5	- 10	+ 2	- 7	0	- 15	- 3	- 12	- 4	- 19	- 7	- 16	- 9	- 24
10	18	+ 11	0	+ 10	- 8	+ 6	- 5	+ 6	- 12	+ 2	- 9	0	- 18	- 4	- 15	- 5	- 23	- 9	- 20	- 11	- 29
18	30	+ 13	0	+ 12	- 9	+ 8	- 5	+ 6	- 15	+ 2	- 11	0	- 21	- 4	- 17	- 7	- 28	- 11	- 24	- 14	- 35
30	50	+ 16	0	+ 14	- 11	+ 10	- 6	+ 7	- 18	+ 3	- 13	0	- 25	- 4	- 20	- 8	- 33	- 12	- 28	- 17	- 42
50	80	+ 19	0	+ 18	- 12	+ 13	- 6	+ 9	- 21	+ 4	- 15	0	- 30	- 5	- 24	- 9	- 39	- 14	- 33	- 21	- 51
80	120	+ 22	0	+ 22	- 13	+ 16	- 6	+ 10	- 25	+ 4	- 18	0	- 35	- 6	- 28	- 10	- 45	- 16	- 38	- 24	- 59
120	180	+ 25	0	+ 26	- 14	+ 18	- 7	+ 12	- 28	+ 4	- 21	0	- 40	- 8	- 33	- 12	- 52	- 20	- 45	- 28	- 68
180	250	+ 29	0	+ 30	- 16	+ 22	- 7	+ 13	- 33	+ 5	- 24	0	- 46	- 8	- 37	- 14	- 60	- 22	- 51	- 33	- 79
250	315	+ 32	0	+ 36	- 16	+ 25	- 7	+ 16	- 36	+ 5	- 27	0	- 52	- 9	- 41	- 14	- 66	- 25	- 57	- 36	- 88
315	400	+ 36	0	+ 39	- 18	+ 29	- 7	+ 17	- 40	+ 7	- 29	0	- 57	- 10	- 46	- 16	- 73	- 26	- 62	- 41	- 98
400	500	+ 40	0	+ 43	- 20	+ 33	- 7	+ 18	- 45	+ 8	- 32	0	- 63	- 10	- 50	- 17	- 80	- 27	- 67	- 45	- 108
500	630	+ 44	0	-	-	-	-	0	- 70	0	- 44	- 26	- 96	- 26	- 70	- 44	- 114	- 44	- 88	- 78	- 148
630	800	+ 50	0	-	-	-	-	0	- 80	0	- 50	- 30	- 110	- 30	- 80	- 50	- 130	- 50	- 100	- 88	- 168

# Fax Inquiry

To get a design proposal for RINGFEDER® Shaft-hub-connection

RINGFEDER POWER TRANSMISSION USA CORPORATION, Westwood/USA

FAX: +1 201 664 6053

## Addresser

Company

Attn.  Dept.

Address

Phone  Fax

E-Mail

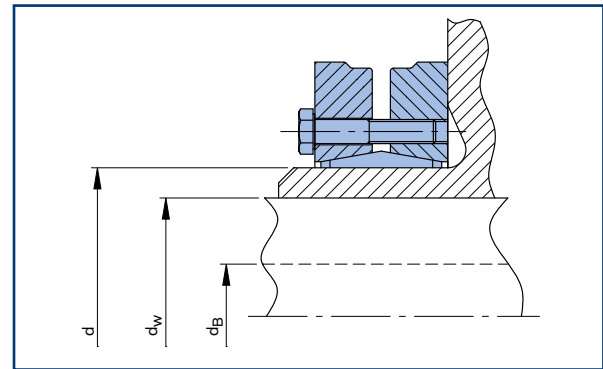
We ask for a consulting discussion. Please call us back under

To make it easy for our technical staff and to avoid errors or mistakes your inquiry should include the following information:

## Information for technical service

### Expected maximum loads

Max. torque  
 Max. bending moment  
 Max. axial load  
 Max. radial load



T max. =  lb-ft  
 M<sub>b</sub> max. =  lb-ft  
 F<sub>ax</sub> max. =  lbs  
 F<sub>r</sub> max. =  lbs

### Dimensions, materials:

Shaft diameter  
 In case of hollow shaft, internal diameter  
 Shaft revolution speed  
 Inner diameter shrink disc  
 Hub width  
 Hub material/yield strength  
 Shaft material/yield strength  
 Temperature of the connection

d<sub>w</sub> =  inches  
 d<sub>B</sub> =  inches  
 n =  rpm  
 d =  inches  
 L<sub>N</sub> =  inches  
 R<sub>p0,2N</sub> =  psi  
 R<sub>p0,2W</sub> =  psi  
 Temp. =  degree F

Additional information:

**Please send a drawing or sketch together with your inquiry!**

RINGFEDER POWER TRANSMISSION USA CORPORATION · 165 Carver Avenue · P.O. Box 691 Westwood · NJ 07675 · USA

Toll Free: +1 888 746-4333 · Phone: +1 201 666 3320 Fax: +1 201 664 6053

E-mail: sales.usa@ringfeder.com

# Fax Inquiry

To get a design proposal for RINGFEDER® Flange Couplings

RINGFEDER POWER TRANSMISSION USA CORPORATION, Westwood/USA

FAX: +1 201 664 6053

## Addresser

Company

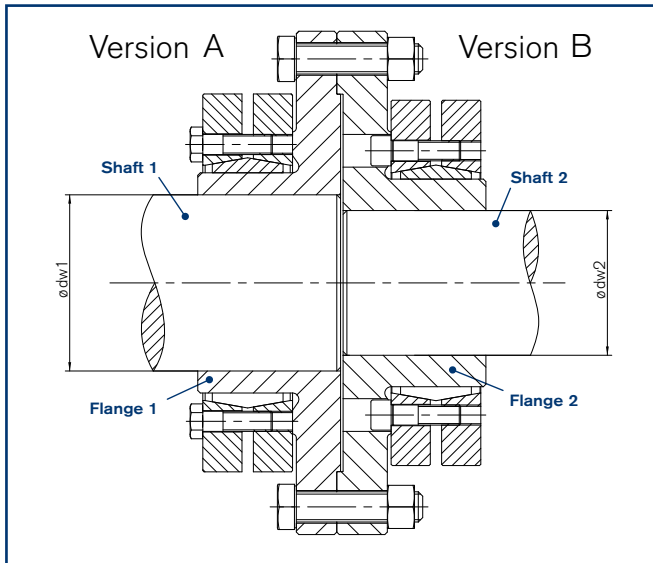
Attn.  Dept.

Address

Phone  Fax

E-Mail

We ask for a consulting discussion. Please call us back under



### Version A

Shaft diameter  $d_{w1}$  =  inches  
 Shaft diameter  $d_{w2}$  =  inches

### Version B

Shaft diameter  $d_{w1}$  =  inches  
 Shaft diameter  $d_{w2}$  =  inches

### Yield point

Material =   
 $R_{p0,2W}$  =  N/mm<sup>2</sup>

## Expected maximum loads

Max. torque  $T_{max.}$  =  ft-lbs      Max. axial load  $F_{ax max.}$  =  lbs  
 Max. bending moment  $M_{bmax.}$  =  ft-lbs      Max. radial load  $F_r max.$  =  lbs

Additional information:

**Please send a drawing or sketch together with your inquiry!**

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 Toll Free: +1 888 746-4333 · Phone: +1 201 666 3320 Fax: +1 201 664 6053  
 E-mail: sales.usa@ringfeder.com



## Locking Devices



Locking Assemblies



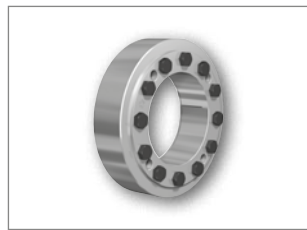
Locking Assemblies for bending moments



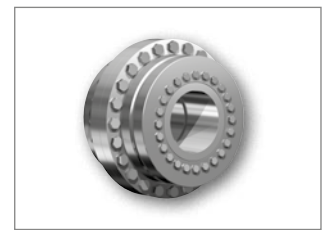
Locking Assemblies - Stainless steel



Locking Elements



Shrink Discs



Flange Couplings

## Damping Technology



Friction Springs



DEFORM plus®



DEFORM plus® R



## Couplings



Torsionally Flexible Couplings



Torsionally Flexible Couplings



Torsionally Flexible Couplings



Torsionally Rigid Gear Couplings



Torsionally Rigid Barrel Coupling



Couplings with variable Stiffness



**Couplings**



Flexible Couplings Henflex



Hydrodynamic Couplings Henfluid



Hydrodynamic Couplings with variable speed

**Bearing Housings**



Bearing Housings

**Remark:**

HENFEL products are only available in South America and selected markets.



**Couplings**



Metal Bellows Couplings



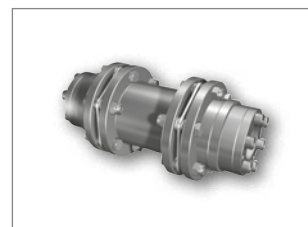
Servo-Insert Couplings



Safety Couplings



Line Shafts



Torsionally Rigid Disc Couplings





**RINGFEDER POWER TRANSMISSION GMBH**

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 Phone: +86 (0) 512-5745-3960 · Fax: +86 (0) 512-5745-3961 · E-mail: sales.china@ringfeder.com