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## Shrink Discs, Smart-Lock, Shaft and Flange Couplings



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



## RINGFEDER POWER TRANSMISSION

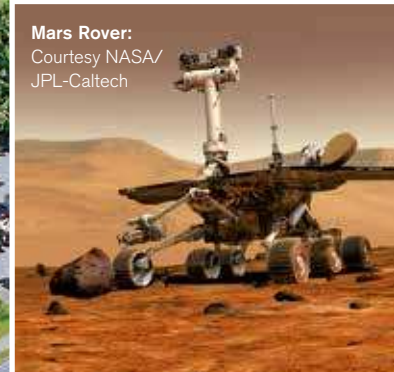
- We say what we mean and mean what we say.
- We see things from our customers' perspective.
- We are considerate of our employees and their families as well as our environment and the society.

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



```
1 IP address (1 host) 64.0  
-rootpo="21000101"  
2.2:ssh ... successful.  
3.3:ssh ... successful.  
4.4:ssh ... successful.  
5.5:ssh ... successful.  
6.6:ssh ... successful.  
7.7:ssh ... successful.  
8.8:ssh ... successful.  
9.9:ssh ... successful.  
Level (9)  
root@
```

Content



Content

## Smart-Lock

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# Content

# Content

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# Content

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## 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).

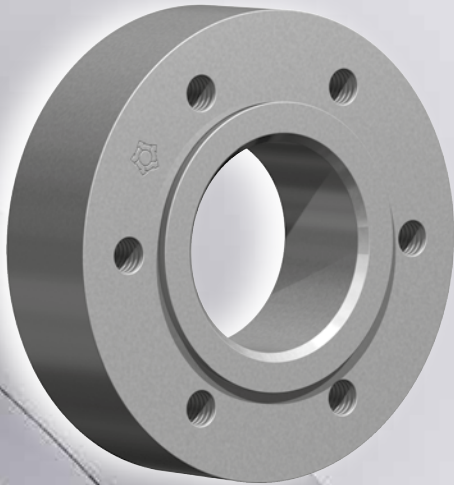
The contact surfaces (d<sub>w</sub>) are in lightly oiled condition with coefficient of friction μ = 0,12.

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.

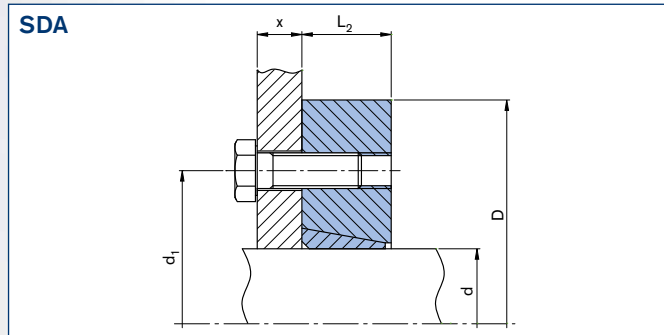
**Maximum reliability** – suitable for static, dynamic and impact loads.

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

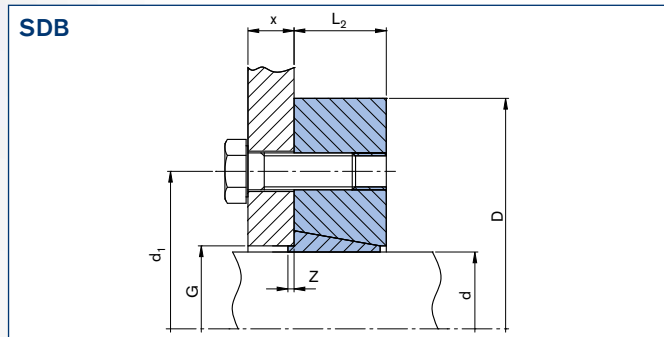
**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

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

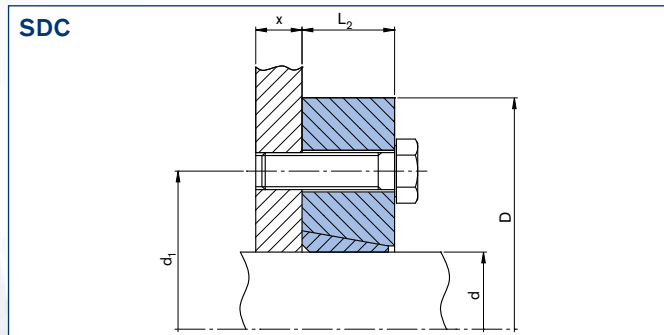
## Description of configurations



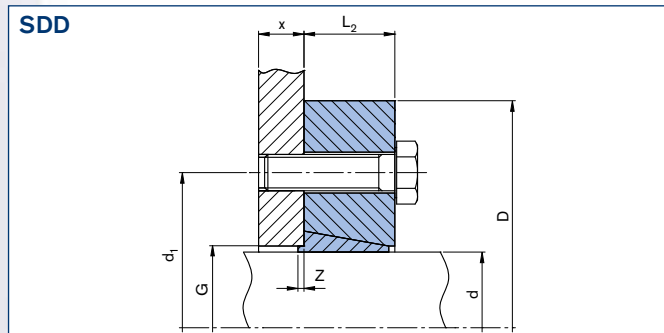
RfN 4012 configuration SDA thread in shrink disc without centering



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						15				
	10 x 39	0.394 x 1.535	0.984	0.472	0.394	0.059	9	15	3	M6	0.22	
	11	0.433						15				
12 SD-x	11	0.433						37				
	12 x 44	0.472 x 1.732	1.102	0.551	0.512	0.059	9	37	3	M6	0.22	
	13	0.512						37				
15 SD-x	14	0.551						96				
	15 x 52	0.591 x 2.047	1.417	0.709	0.591	0.079	22	96	3	M8	0.44	
	16	0.630						96				
20 SD-x	16	0.630						148				
	18 x 60	0.709 x 2.362	1.654	0.866	0.669	0.079	22	148	3	M8	0.66	
	20	0.787						148				
25 SD-x	20	0.787						251				
	22 x 66	0.866 x 2.598	1.890	1.063	0.748	0.079	22	251	5	M8	0.88	
	25	0.984						251				
30 SD-x	25	0.984						406				
	28 x 76	1.102 x 2.992	2.205	1.260	0.827	0.079	22	406	6	M8	1.32	
	30	1.181						406				
40 SD-x	30	1.181						782				
	35 x 96	1.378 x 3.780	2.756	1.693	0.984	0.118	45	782	6	M10	2.65	
	40	1.575						782				
50 SD-x	40	1.575						738				
	45 x 112	1.772 x 4.409	3.307	2.087	1.181	0.118	75	1,328	7	M12	3.97	
	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

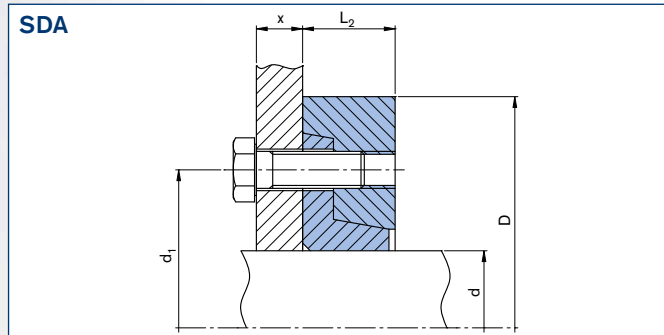
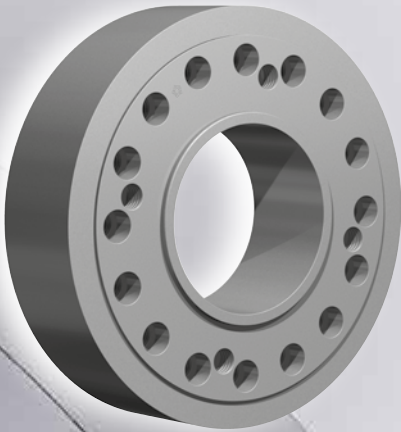
Ordering examples: RfN 4012

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

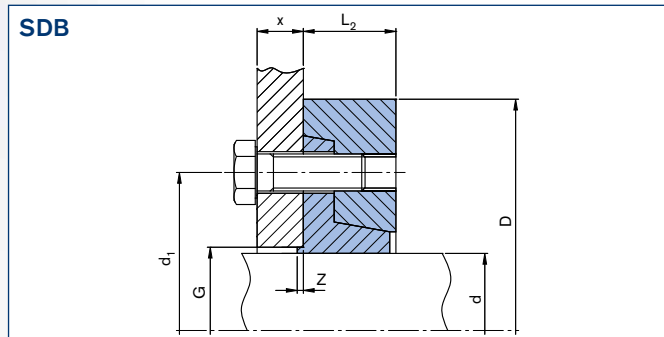
- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances  
For shaft h9
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

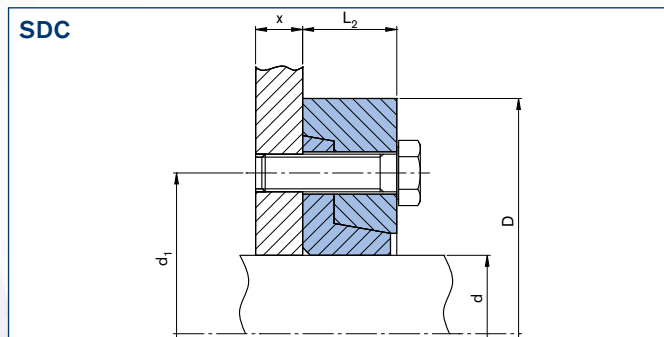
Description of configurations



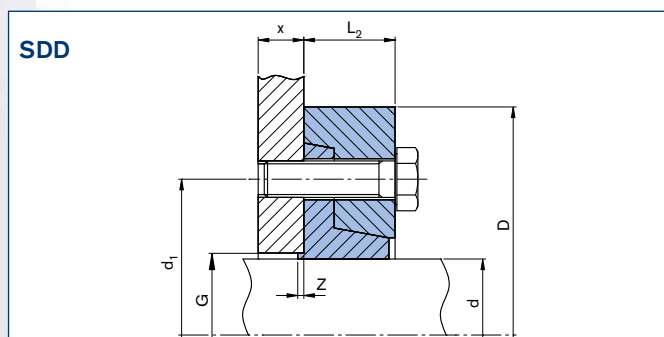
RfN 4022 configuration SDA thread in shrink disc without centering



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

\*Screws ISO 4762

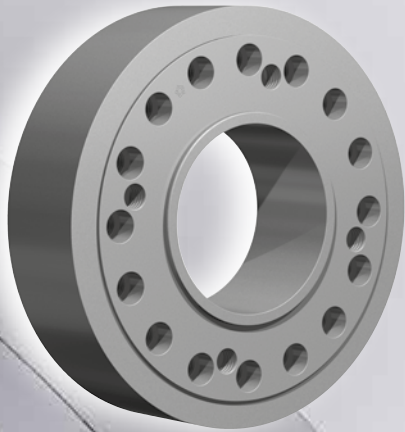
**x = Configuration**    **SDA** = Thread in shrink disc without centering    **SDB** = Thread in shrink disc with centering  
**SDC** = Through boring in shrink disc without centering    **SDD** = Through boring in shrink disc with centering

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

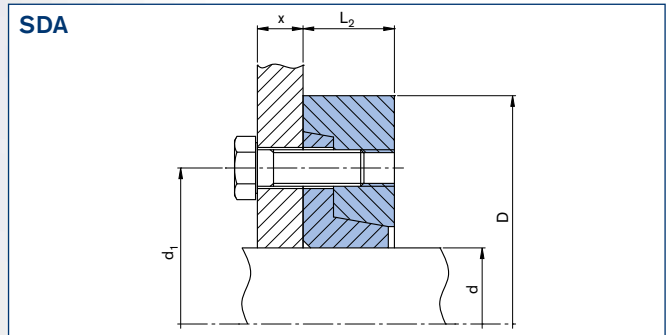
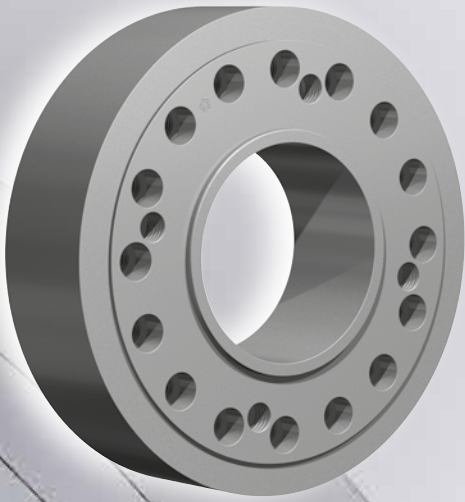
- Shrink disc delivered without screws. Tightening torques for screws quantity see table
- The bore tolerance of the customer component should be within the fit tolerance G6 and H7

More sizes on request

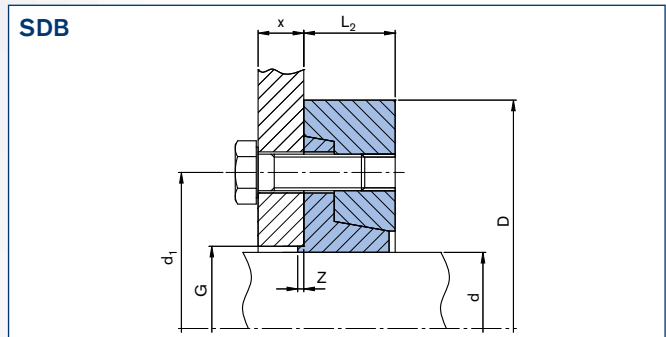
- Surface finishes  
For shaft  $R_a \leq 3,2 \mu m$
- Tolerances  
For shaft h9
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team



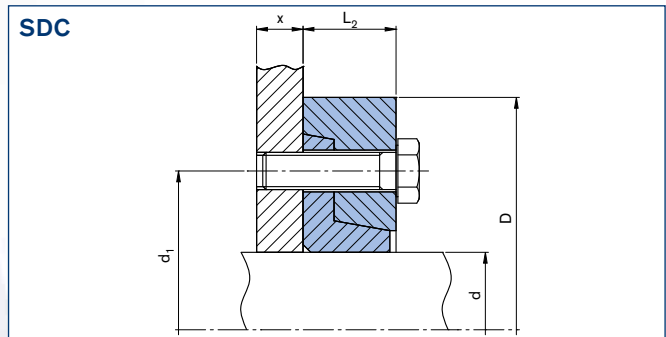
Description of configurations



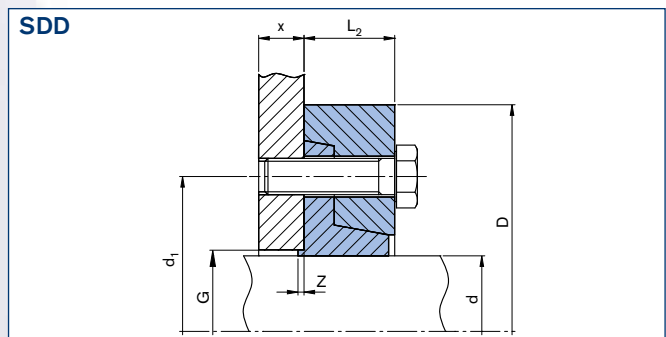
RfN 4023 configuration SDA thread in shrink disc without centering



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		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	T ft-lbs		Quantity	Thread	Gw lbs		
	mm	inch											
50 SD-x	40	1.575	3.307	2.087	1.181	0.118	75	1,033	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	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	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	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	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	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	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	19,914	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	24,340	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	41,303	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	56,792	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	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	106,209	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.

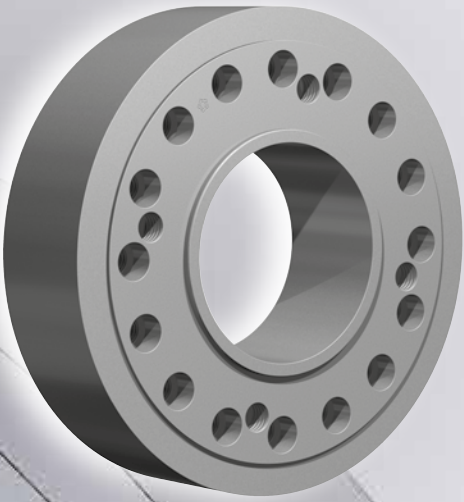
**Maximum reliability** – suitable for static, dynamic and impact loads.

**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										

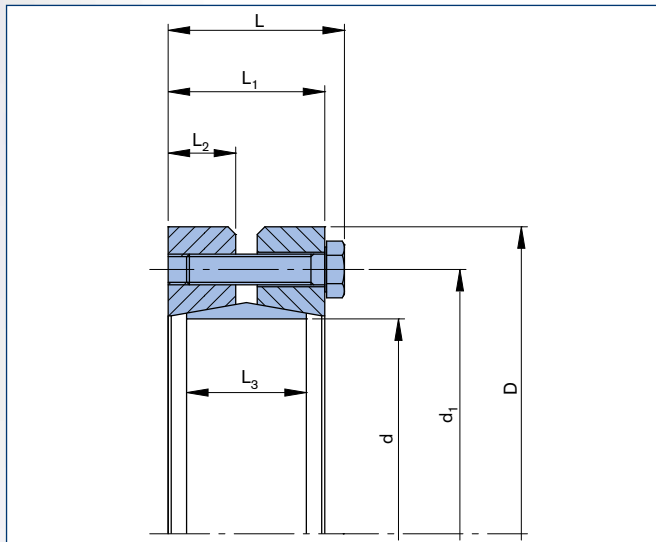
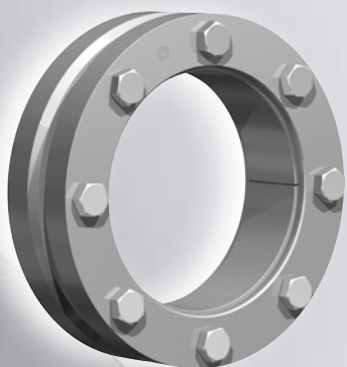
x = Configuration    SDA = Thread in shrink disc without centering    SDB = Thread in shrink disc with centering  
SDC = Through boring in shrink disc without centering    SDD = Through boring in shrink disc with centering

<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

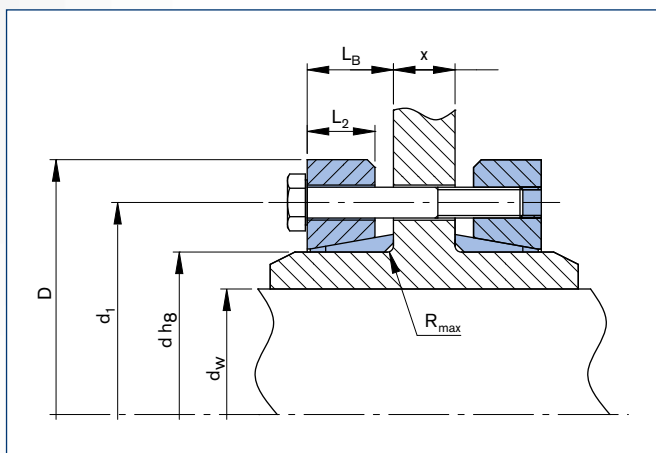
- Surface finishes For shaft R<sub>a</sub> ≤ 3,2 μm
  - Tolerances For shaft h9
  - When using a hollow shaft instead of a solid shaft please contact our Engineering-Team
- [Explanations to tables: Page 9](#)    [More sizes on request](#)

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	inch	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	6.220	2.283	2.008	0.866	1.535	1.201	45	7,781	49,458	27,723	40,350	8	M10	11.2	9,736
				3.937								8,925	53,954		40,641				11,156
				4.134								10,178	58,451		41,802				12,723
140	x 220	5.512	x 8.661	4.331	6.890	2.283	2.008	0.866	1.535	1.215	45	10,916	59,575	27,868	38,899	9	M10	17.6	13,645
				4.724								13,748	69,691		40,786				17,185
				4.921								15,120	73,063		45,721				18,900
155	x 245	6.102	x 9.646	5.118	7.559	2.283	2.008	0.866	1.535	1.201	45	17,702	82,056	30,771	42,527	11	M10	22.0	22,127
				5.315								19,472	87,676		44,414				24,340
				5.512								21,390	92,172		48,478				26,737
165	x 260	6.496	x 10.236	5.709	8.268	2.756	2.441	1.024	1.811	1.417	75	28,396	119,149	32,512	47,462	10	M12	30.9	35,495
				5.512								25,962	112,405		44,705				32,453
				5.315								23,602	106,785		43,253				29,502
175	x 275	6.890	x 10.827	6.102	8.661	2.756	2.441	1.024	1.811	1.417	75	33,928	132,638	33,674	48,478	11	M12	32.4	42,410
				5.709								28,765	120,273		43,834				35,956
				5.906								31,273	125,894		45,430				39,091
185	x 295	7.283	x 11.614	6.496	8.858	2.756	2.441	1.024	1.811	1.417	75	39,829	146,126	34,835	49,494	12	M12	37.9	49,785
				6.299								37,100	140,506		46,301				46,374
				6.102								34,371	134,886		44,560				42,963
195	x 315	7.677	x 12.402	6.890	9.331	3.150	2.835	1.220	2.205	1.614	75	53,474	185,468	33,819	51,526	15	M12	52.5	66,842
				6.693								49,933	178,724		46,882				62,416
				6.496								46,467	170,856		44,414				58,083
200	x 330	7.874	x 12.992	7.283	9.528	3.150	2.835	1.220	2.205	1.614	75	62,325	205,701	35,270	63,864	16	M12	59.1	77,905
				6.890								54,580	191,088		48,478				68,224
				7.087								58,637	200,081		53,413				73,295
220	x 345	8.661	x 13.583	7.874	10.433	3.701	3.307	1.417	2.598	1.850	185	77,445	237,175	31,932	53,268	10	M16	70.5	96,805
				7.480								68,963	220,314		44,414				86,203
				7.087								61,071	206,825		40,205				76,338
240	x 370	9.449	x 14.567	7.874	11.417	3.701	3.307	1.417	2.598	1.850	185	83,345	255,159	35,270	44,124	12	M16	79.4	104,181
				8.268								94,040	272,020		47,898				117,549
				8.465								99,203	281,012		51,672				124,003
260	x 395	10.236	x 15.551	9.252	12.205	4.016	3.622	1.575	2.835	2.067	185	127,600	331,595	34,835	52,833	14	M16	106.0	159,498
				8.661								109,898	303,494		43,979				137,371
				9.055								121,699	322,602		48,478				152,122
280	x 425	11.024	x 16.732	9.843	13.110	4.488	4.094	1.811	3.307	2.343	185	153,415	373,185	31,642	47,027	16	M16	132.0	191,766
				9.449								139,401	352,952		41,657				174,249
				9.055								126,124	333,843		39,189				157,654
300	x 460	11.811	x 18.110	9.843	14.094	4.488	4.094	1.811	3.307	2.343	185	158,578	386,673	33,238	40,495	18	M16	154.0	198,220
				10.630								188,080	424,891		49,640				235,098
				10.236								172,591	404,658		43,979				215,737
320	x 495	12.598	x 19.488	11.417	14.882	4.567	4.173	1.890	3.307	2.382	185	225,696	477,721	34,690	51,526	20	M16	185.0	282,117
				10.630								191,768	436,131		42,527				239,708
				11.024								209,470	456,364		45,430				261,835
340	x 535	13.386	x 21.063	12.008	15.827	4.567	4.173	1.890	3.307	2.382	185	248,561	496,830	34,254	47,317	21	M16	220.0	310,698
				11.811								238,973	485,590		44,850				298,713
				11.417								221,271	465,357		41,802				276,586
350	x 545	13.780	x 21.457	11.811	16.260	5.315	4.803	2.126	3.937	2.697	361	274,376	558,653	33,383	42,382	16	M20	265.0	342,966
				12.008								283,964	571,017		44,124				354,952
				12.205								295,028	582,258		46,446				368,781
360	x 555	14.173	x 21.850	12.598	16.654	5.315	4.803	2.126	3.937	2.697	361	306,092	582,258	32,367	45,576	16	M20	276.0	382,610
				11.811								265,525	539,544		39,189				331,903
				12.205								286,177	562,025		41,221				357,718
380	x 585	14.961	x 23.031	12.992	17.402	5.866	5.354	2.362	4.409	2.972	361	344,445	637,336	30,916	41,366	18	M20	331.0	430,552
				12.795								332,644	624,972		39,915				415,801
				12.598								320,843	611,483		38,899				401,049
390	x 595	15.354	x 23.425	12.992	17.795	5.866	5.354	2.362	4.409	3.071	361	372,473	687,919	33,383	41,366	20	M20	344.0	465,586
				13.386								398,288	713,772		44,124				497,854
				13.780								425,578	740,749		48,914				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](#)

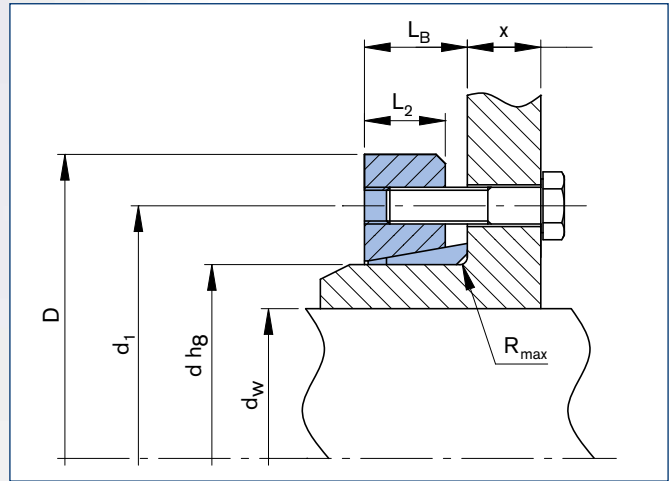
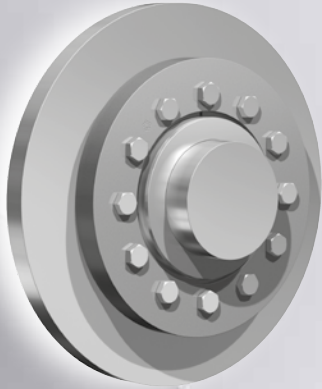
■ When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Ordering examples: RfN 4051

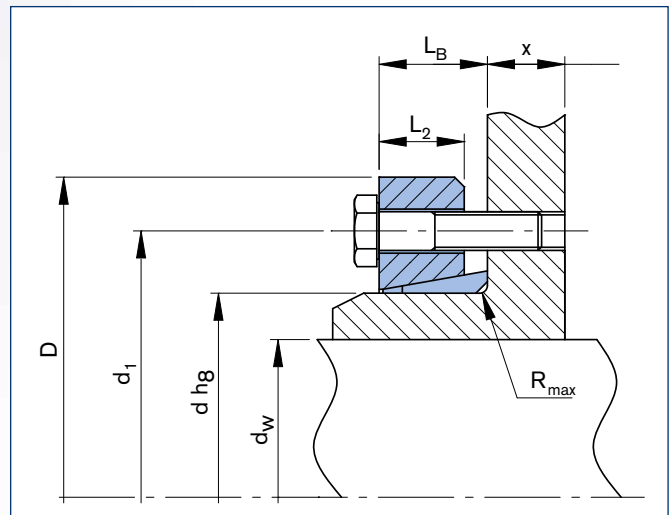
Series	d	D	Version
RfN 4051	16.535	24.803	-
RfN 4051	16.535	24.803	GT

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

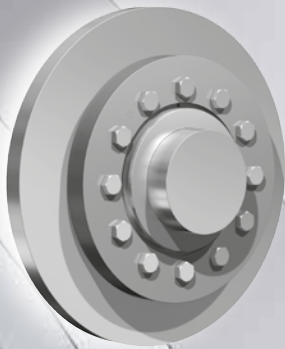
- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

[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

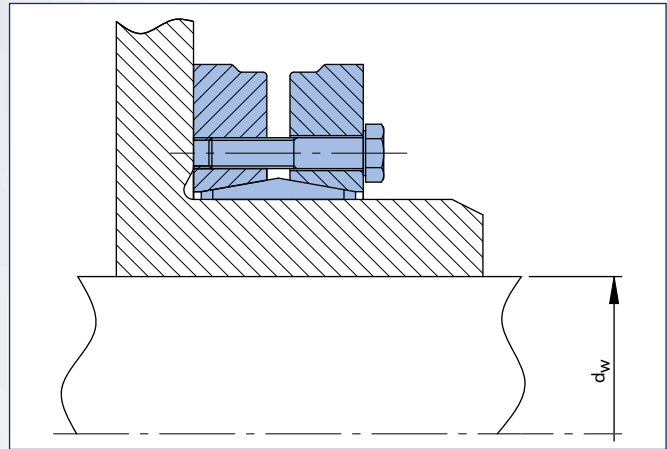
HT = Half shrink disc with threaded holes in thrust ring  
 HC = Half shrink disc with clearance holes in thrust ring



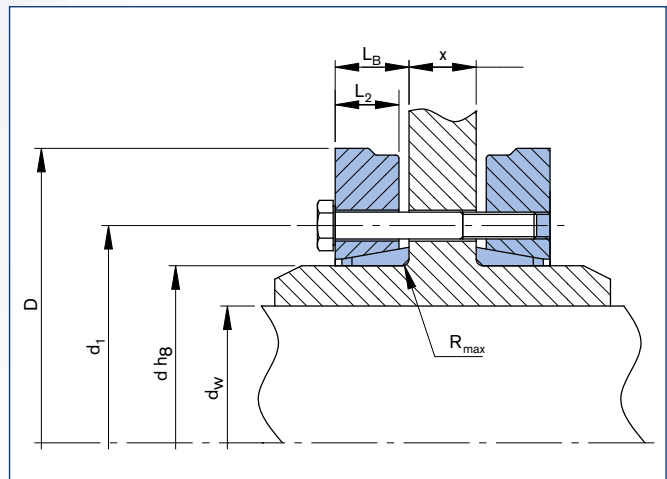
**OPTIONAL  
NICKEL PLATED**

### Shrink discs GT (split)

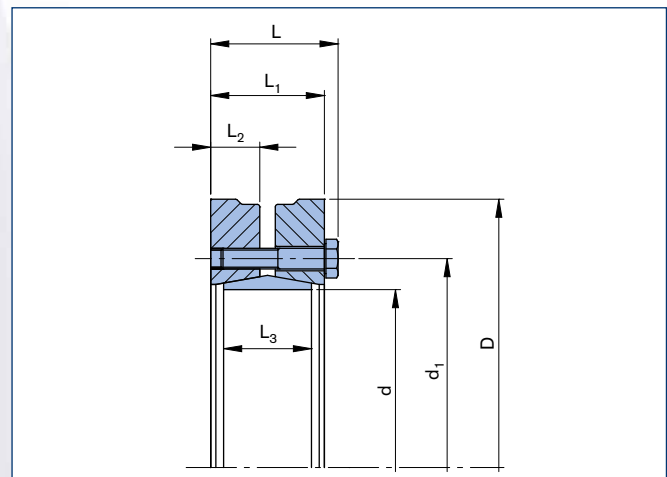
In the application shown above special screws according to the dimension X are required, which have to be ordered accordingly. When dimension „X“ larger than  $2 \cdot L_1$  (RfN 4061 Standard Series, Page 28) is chosen, a reduction of the transmissible torque up to 50% has to be considered to the type 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		55,445				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  $R_a \leq 3,2 \mu\text{m}$

■ 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	inch	inch	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	47,695		59,074				5,347
						2.756								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	0.906	22	3,540	39,146	39,770	51,236	10	M8	7.2	4,425
						2.756								4,462	43,870		51,672				5,569
						2.953								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	0.925	22	3,946	43,870	39,915	50,656	12	M8	10.4	4,942
						2.756								4,979	48,820		50,656				6,232
						2.953								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	1.004	22	5,126	45,445	37,883	48,043	12	M8	9.9	6,417
						2.953								5,605	50,170		48,043				7,007
						3.150								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	1.122	45	6,011	58,269	36,867	45,866	10	M10	13.9	7,486
						3.150								7,449	64,118		45,866				9,293
						3.346								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	1.260	45	7,007	60,069	35,270	43,834	10	M10	13.4	8,740
						3.543								8,925	67,943		49,640				11,137
						3.740								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	1.260	45	8,150	67,493	39,044	51,381	12	M10	19.2	10,178
						3.543								9,662	73,567		51,091				12,059
						3.740								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	1.398	75	11,137	82,116	38,173	48,769	10	M12	23.4	13,903
						3.937								12,944	88,866		48,624				16,153
						4.134								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	1.594	185	23,159	135,211	40,641	48,478	8	M16	47.8	28,986
						4.724								26,183	143,310		48,624				32,748
						4.921								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	1.890	185	38,722	176,831	35,706	44,560	10	M16	79.4	48,384
						5.512								42,299	186,280		44,995				52,846
						5.709								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	1.890	185	48,642	212,152	40,641	48,188	12	M16	88.2	60,812
						5.906								57,235	232,850		49,059				71,544
						6.102								61,771	243,199		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	235,100		47,898				74,641
						6.299								64,315	245,449		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

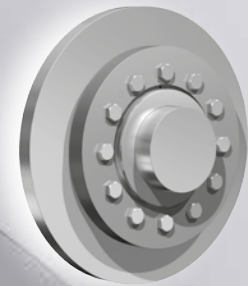
Explanations to tables: Page 9

Ordering examples: RfN 4061

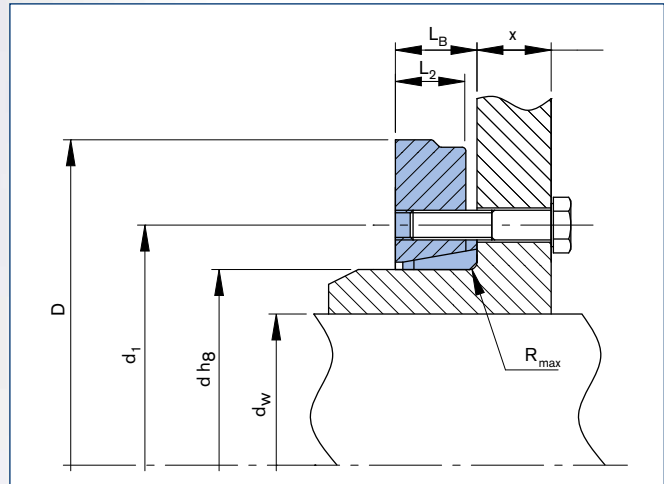
Series	d	D	Version
RfN 4061	7.677	13.780	-
RfN 4061	7.677	13.780	N
RfN 4061	7.677	13.780	GT
RfN 4061	7.677	13.780	GT-N

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

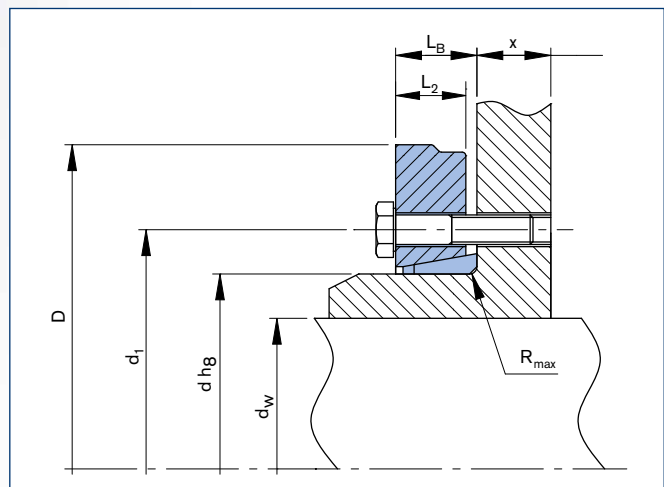




**OPTIONAL  
NICKEL PLATED**



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)

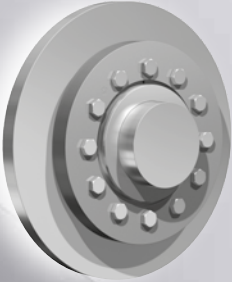
Shrink Discs dimensions										Transmissible torques or axial forces		Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9					
d	x	D	d	x	D	d <sub>w</sub>	d <sub>1</sub>	L <sub>B</sub>	L <sub>2</sub>	R	T <sub>A</sub> <sup>1)</sup>	T	F <sub>ax</sub>	Quantity	Thread	Gw	T <sub>max</sub>
mm		inch	inch	inch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

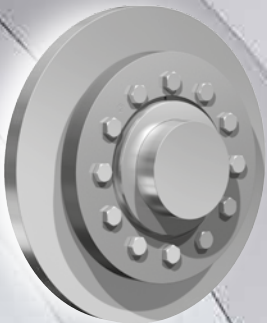
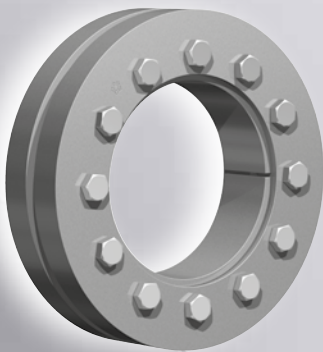
- Surface finishes  
For shaft  $R_a \leq 3,2 \mu\text{m}$
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

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.

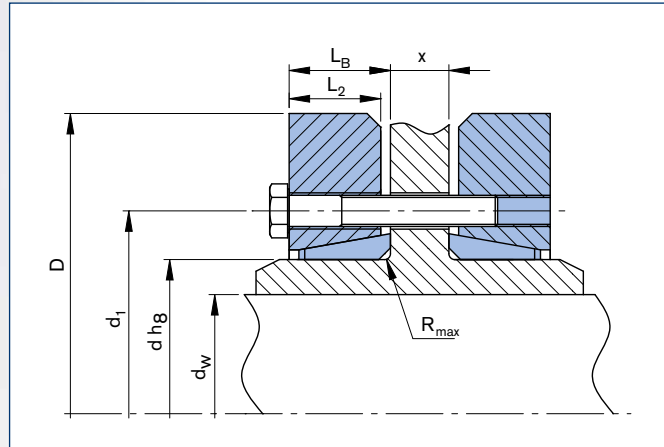
**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

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

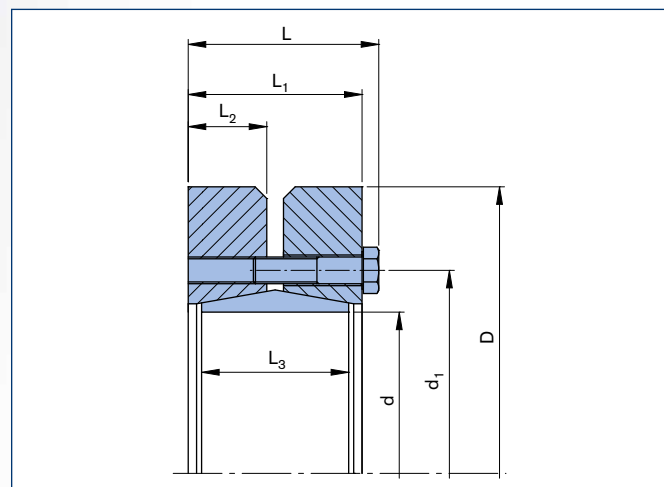
**Easy mounting** – no steps, keyways, splines are required, therefore hubs can be located and locked at any point or angle on the shaft. RINGFEDER® Shrink Discs use standard screws tightened with standard tools. No additional machining or fitting work is required.

**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	inch	inch	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

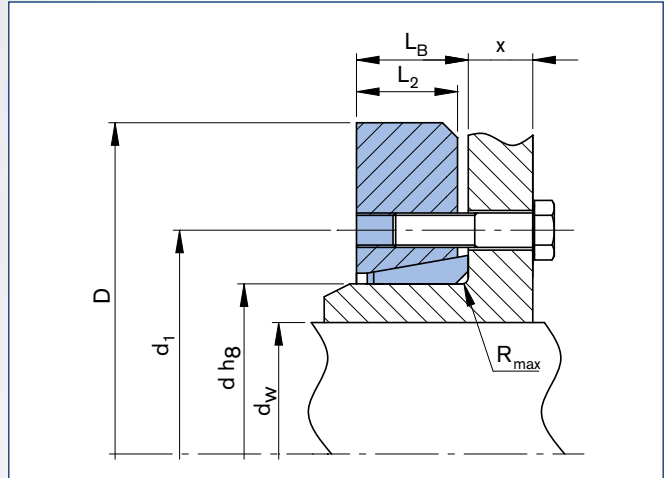
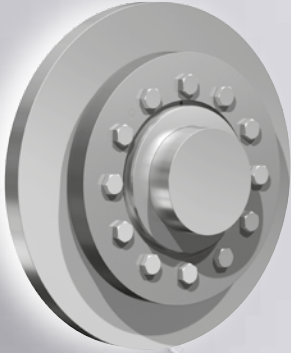
- Surface finishes For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances For shaft see table page 8
- When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

Explanations to tables: Page 9

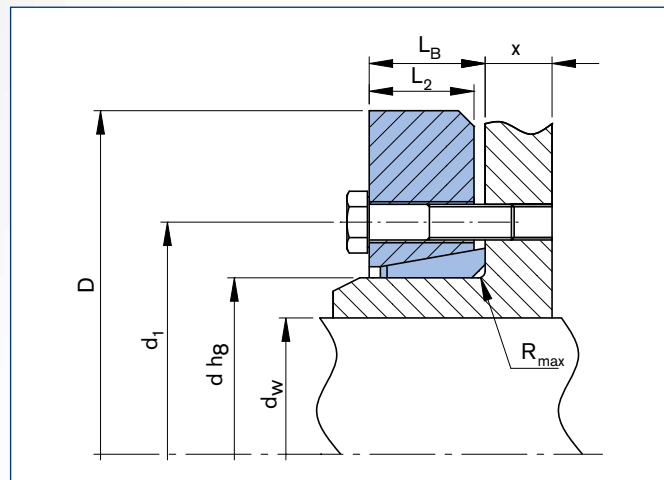
Ordering examples: RfN 4071

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				
mm		inch	inch	inch	inch	inch	inch	inch		ft-lbs	lbs					lbs	ft-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

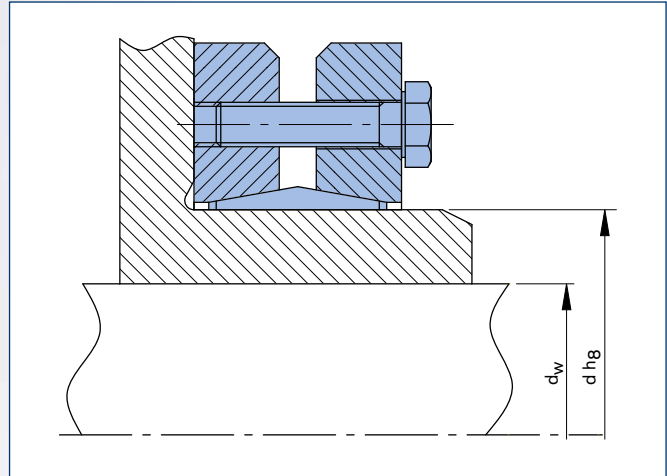
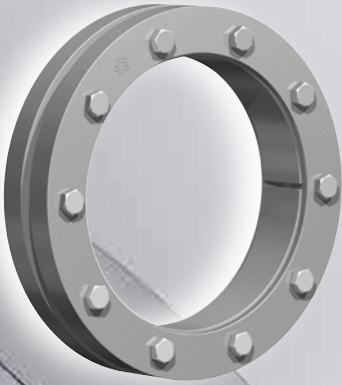
Ordering examples: RfN 4071

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

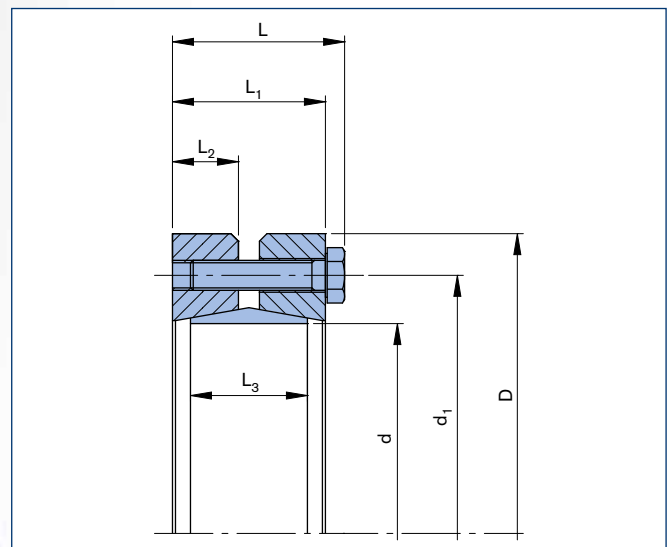
HT = Half shrink disc with threaded holes in thrust ring

HC = Half shrink disc with clearance holes in thrust ring

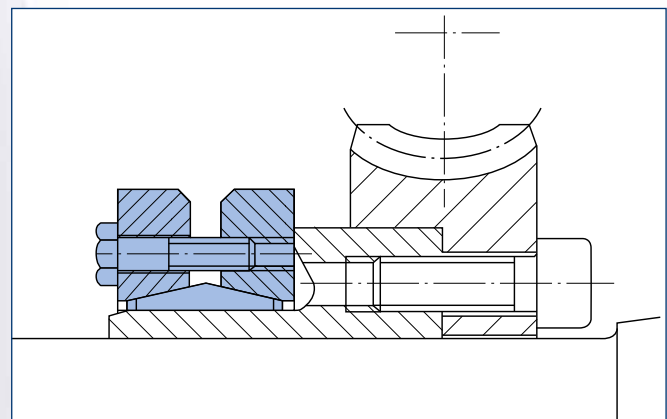




RINGFEDER® Shrink Disc RfN 4073 · Location



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	28,158	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	23,223	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

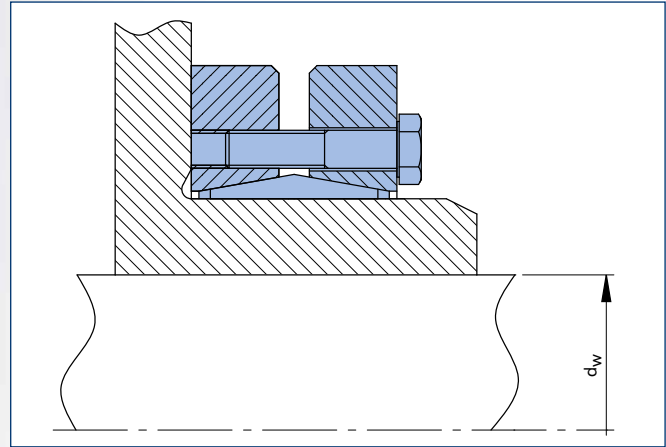
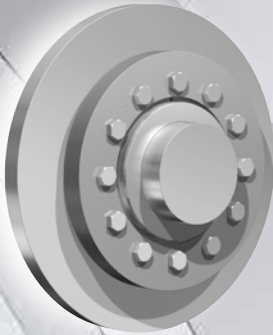
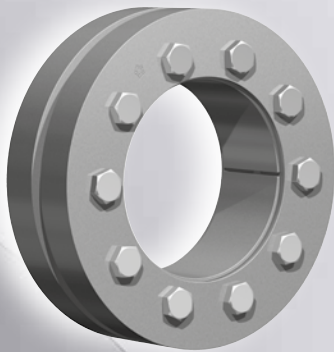
- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

Explanations to tables: Page 9

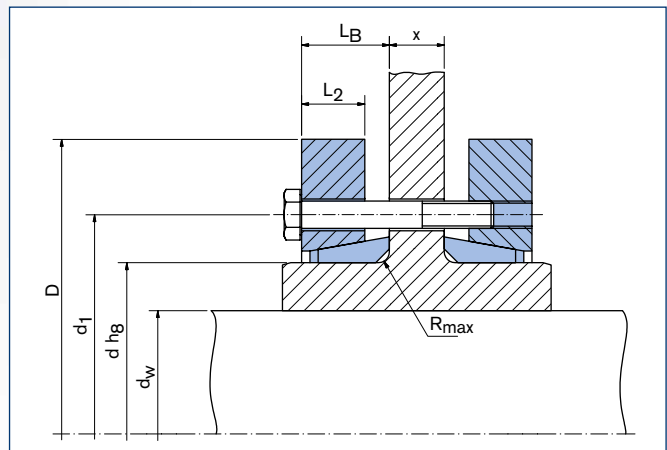
More sizes on request

Ordering example: RfN 4073

Series	d	D
RfN 4073	1.811	3.150



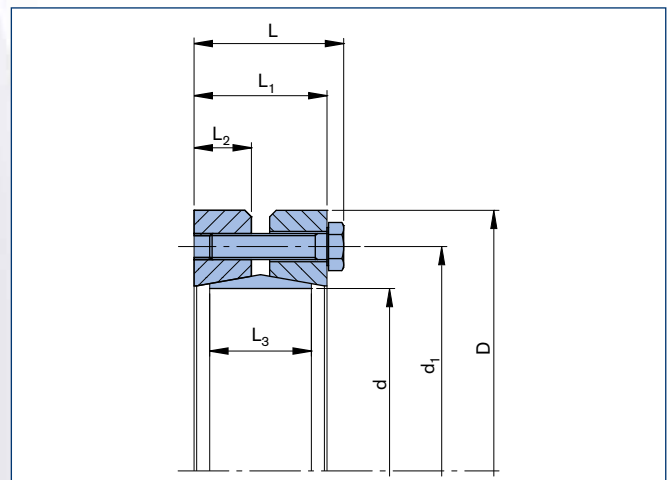
RINGFEDER® Shrink Disc RfN 4091 · Location



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	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
50	x	95	1.969	x	3.740	1.496	2.874	1.752	1.535	0.669	1.181	0.906	18	1,328	23,847	41,366	59,509	7	M8	3.1	1,660
						1.575								1,549	25,872		64,880				1,936
						1.654								1,770	27,897		74,169				2,213
						1.772								1,991	30,372		66,331				2,489
55	x	105	2.165	x	4.134	1.654	3.071	1.752	1.535	0.669	1.181	0.906	21	1,660	27,447	42,092	58,639	7	M8	3.8	2,075
						1.890								2,360	33,296		83,313				2,950
						2.047								2,655	32,622		66,476				3,319
						1.969								2,508	31,947		58,203				3,135
62	x	115	2.441	x	4.528	1.890	3.346	1.752	1.535	0.669	1.181	0.906	22	2,176	30,147	40,060	54,575	7	M8	4.4	2,720
						1.969								2,655	33,071		48,478				3,319
						2.165								3,393	37,796		52,542				4,241
						2.362								4,204	42,745		68,944				5,255
68	x	118	2.677	x	4.646	2.559	3.661	1.929	1.732	0.748	1.339	1.063	22	5,163	56,019	37,738	78,378	8	M8	4.6	6,454
						2.362								4,204	49,720		63,428				5,255
						2.165								3,393	43,420		58,493				4,241
						2.626								4,204	44,995		55,010				5,255
75	x	145	2.953	x	5.709	2.756	4.134	2.087	1.811	0.787	1.417	1.063	45	5,163	50,845	41,076	59,945	7	M10	7.9	6,454
						2.559								6,196	56,919		74,024				7,744
						2.362								4,942	48,820		49,204				6,177
						2.165								5,974	54,669		51,091				7,468
80	x	145	3.150	x	5.709	2.953	4.567	2.244	1.969	0.866	1.575	1.142	45	7,081	60,519	37,593	57,332	8	M10	10.6	8,851
						2.756								6,491	59,619		48,478				8,113
						2.559								7,376	65,918		49,640				9,220
						2.362								8,998	72,217		53,413				11,248
90	x	160	3.543	x	6.299	2.953	4.961	2.402	2.126	0.906	1.732	1.260	45	8,113	69,293	38,463	45,866	10	M10	12.3	10,141
						2.756								9,515	76,042		46,592				11,893
						2.559								10,842	79,192		52,252				13,553
						2.362								11,063	79,866		48,043				13,829
100	x	170	3.937	x	6.693	3.431	6.299	2.874	2.559	1.102	2.165	1.476	75	12,907	87,291	35,996	48,043	10	M12	24.3	16,134
						3.346								14,751	94,940		48,914				18,439
						3.150								15,931	102,589		47,753				19,914
						2.953								13,866	94,490		47,898				16,595
110	x	185	4.331	x	7.283	4.134	6.772	3.346	3.031	1.260	2.362	1.772	75	20,504	119,462	36,431	49,059	12	M12	23.6	25,630
						4.331								43,295	246,574		68,218				54,100
						3.937								34,665	211,927		62,848				43,332
						3.543								27,069	183,805		61,396				33,817
125	x	215	4.921	x	8.465	4.134	7.56	3.602	3.307	1.378	2.598	1.772	75	21,316	123,962	35,996	44,995	15	M12	43.2	26,626
						4.331								23,897	132,736		45,140				29,871
						3.937								26,700	141,735		45,576				33,375
						3.543								37,394	183,355		49,930				46,743
140	x	300	5.512	x	11.811	4.921	8.268	3.858	3.465	1.496	2.835	1.929	185	33,928	176,606	39,189	47,608	10	M16	57.3	42,410
						4.528								30,240	166,482		47,027				37,800
						4.921								53,695	262,097		53,268				67,118
						4.331								58,931	276,720		54,284				73,646
155	x	263	6.102	x	10.354	5.315	8.661	4.173	3.780	1.654	3.150	2.126	185	64,389	291,119	43,689	56,026	15	M16	80.5	80,468
						4.921								53,104	247,474		47,462				66,381
						4.528								57,530	258,722		48,478				71,912
						4.331								63,430	269,971		50,075				79,288
165	x	290	6.496	x	11.417	5.315	9.409	4.803	4.409	1.969	3.622	2.402	185	70,142	316,991	48,043	56,026	14	M16	104	87,659
						5.118								76,264	332,515		56,897				95,330
						5.315								96,326	379,085		63,864				120,407
						5.112								55,317	241,849		44,995				69,146
175	x	300	6.890	x	11.811	5.112	9.685	4.803	4.409	1.969	3.622	2.500	185	76,264	332,515	36,286	56,897	14	M16	117	81,132
						5.315								96,326	379,085		63,864				120,407
						5.112								55,317	241,849		44,995				69,146
						5.112								64,905	265,472		46,301				81,132
185	x	330	7.283	x	12.992	6.102	9.685	4.803	4.409	1.969	3.622	2.500	185	70,806	277,845	37,883	47,898	15	M16	110	88,507
						5.709								62,693	263,222		46,011				78,366
						5.315								68,224	276,720		46,737				85,281
						5.112								73,756	290,219		47,898				92,195

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

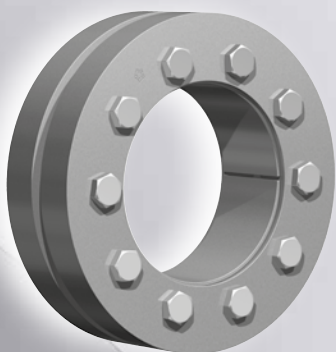
■ Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm

■ 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 6.299 6.693 7.480	10.630	5.669	5.276	2.362	4.488	2.933	185	100,308 93,670 108,053 146,037	371,210 357,712 386,959 467,950	37,012	45,866 44,850 47,172 49,494	20	M16	143	125,386 117,088 135,066 182,547
240	x	405	9.449	x	15.945	7.087 6.693 7.480	11.614	6.181	5.669	2.559	4.724	3.130	361	129,811 114,322 157,101	440,953 409,456 508,446	37,883	45,721 44,269 44,705	15	M20	192	162,264 142,903 196,376
260	x	430	10.236	x	16.929	7.874 8.268 9.055	12.638	6.811	6.299	2.835	5.354	3.445	361	177,015 197,667 261,835	544,442 580,438 695,176	37,012	46,737 50,220 51,672	18	M20	220	221,269 247,083 327,293
280	x	460	11.024	x	18.110	8.661 8.268 9.055	13.622	7.283	6.772	3.071	5.827	3.780	361	236,020 210,205 251,509	654,680 616,434 665,929	36,867	47,462 44,995 43,253	21	M20	291	295,025 262,756 314,386
300	x	485	11.811	x	19.094	9.449 9.646 9.449	14.331	7.441	6.929	3.150	5.984	3.858	361	277,323 290,599 278,798	704,175 723,298 708,674	35,125	45,866 47,462 40,931	22	M20	309	346,654 363,249 348,498
320	x	520	12.598	x	20.472	9.843 10.236 9.843	15.197	7.736	7.244	3.228	6.299	4.016	361	306,088 332,640 361,037	748,045 780,667 879,656	34,109	42,673 46,156 42,818	24	M20	364	382,610 415,801 451,296
340	x	570	13.386	x	22.441	10.236 10.630 10.630	16.535	8.465	7.874	3.622	6.929	4.331	620	390,908 426,311 410,084	916,777 961,772 927,351	36,722	44,995 47,317 44,124	21	M24	529	488,635 532,889 512,606
350	x	580	13.780	x	22.835	11.024 11.220 11.024	16.732	8.465	7.874	3.622	6.929	4.331	620	445,487 463,926 451,388	971,896 993,269 983,145	35,851	46,446 48,043 43,979	21	M24	545	556,859 579,908 564,235
360	x	590	14.173	x	23.228	11.417 11.614 11.811	17.008	8.622	8.031	3.622	7.087	4.508	620	489,004 508,180 492,691	1,028,140 1,050,638 1,002,268	35,561	46,446 48,188 42,092	22	M24	551	611,255 635,225 615,864
380	x	645	14.961	x	25.394	11.417 12.205 12.598	18.031	8.622	8.031	3.622	7.087	4.508	620	455,813 530,307 600,744	960,648 1,045,014 1,145,128	33,819	40,495 44,560 46,156	22	M24	705	569,767 662,884 750,930
390	x	660	15.354	x	25.984	12.205 11.811 12.402	18.425	8.937	8.346	3.780	7.402	4.665	620	562,022 522,194 564,235	1,104,632 1,060,762 1,092,258	34,254	43,108 41,221 41,366	24	M24	772	702,528 652,742 705,294
400	x	680	15.748	x	26.772	12.598 12.992 12.992	18.898	8.937	8.346	3.780	7.402	4.665	620	581,199 623,240 736,824	1,108,457 1,153,002 1,362,230	33,528	42,673 45,285 43,834	24	M24	816	726,499 779,050 921,031
420	x	690	16.535	x	27.165	13.780 13.386 13.386	19.843	9.961	9.370	4.370	8.425	5.177	620	840,821 787,716 780,341	1,465,719 1,413,974 1,401,604	34,980	49,640 46,156 41,076	30	M24	904	1,051,026 984,645 975,426
440	x	750	17.323	x	29.528	13.780 14.173 14.173	20.748	10.591	9.921	4.528	8.819	5.453	920	833,445 888,025 973,582	1,453,345 1,505,089 1,673,821	33,528	42,818 45,285 45,285	24	M27	1,190	1,041,806 1,110,031 1,216,977
460	x	770	18.110	x	30.315	14.567 14.961 14.961	21.535	10.591	9.921	4.528	8.819	5.551	920	1,047,338 1,106,343 1,132,158	1,732,315 1,788,559 1,817,806	37,302	47,317 50,220 43,834	28	M27	1,190	1,309,173 1,382,929 1,415,197
480	x	800	18.898	x	31.496	15.354 15.748 15.748	22.835	11.457	10.787	5.039	9.685	5.984	920	1,199,276 1,268,607 1,290,734	1,876,300 1,934,794 1,968,540	34,980	46,156 49,349 44,850	30	M27	1,433	1,499,095 1,585,758 1,613,417
500	x	850	19.685	x	33.465	16.142 16.535	23.622	11.457	10.787	5.039	9.685	5.984	920	1,357,114 1,430,870	2,020,284 2,081,028	35,706	47,608 50,801	32	M27	1,653	1,696,393 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

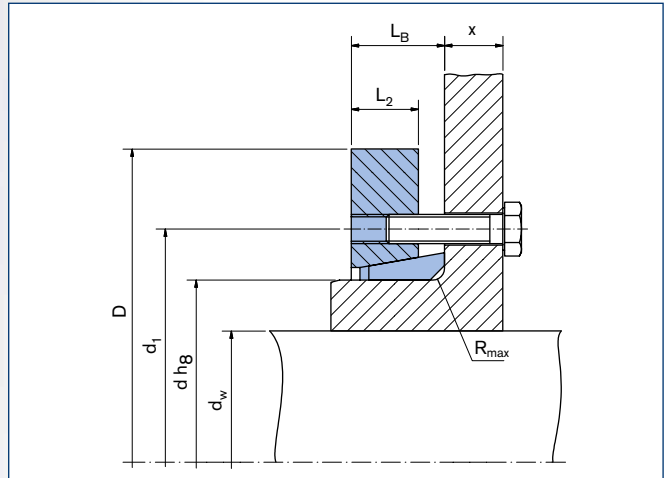
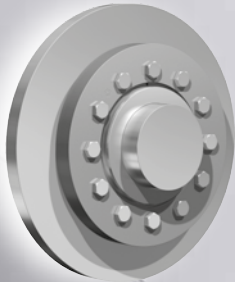
More sizes on request

Ordering examples: RfN 4091

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

GT = Split



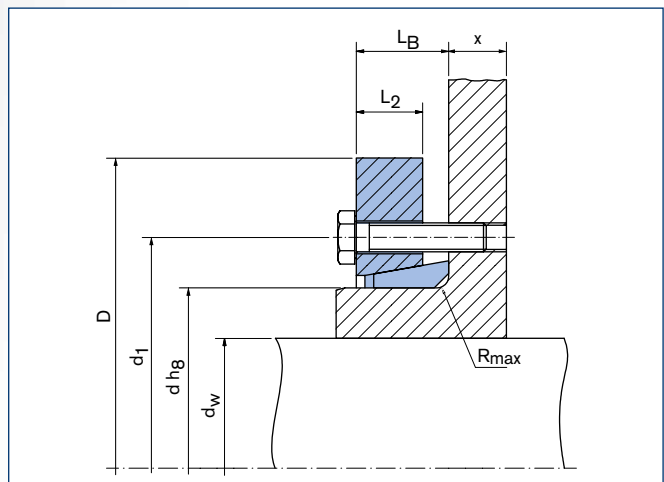


RINGFEDER® Shrink Disc RfN 4091 HT

**Half shrink discs**

Type HT (Threaded holes in thrust ring)

Type HC (Clearance holes in thrust ring)



RINGFEDER® Shrink Disc RfN 4091 HC · Dimensions

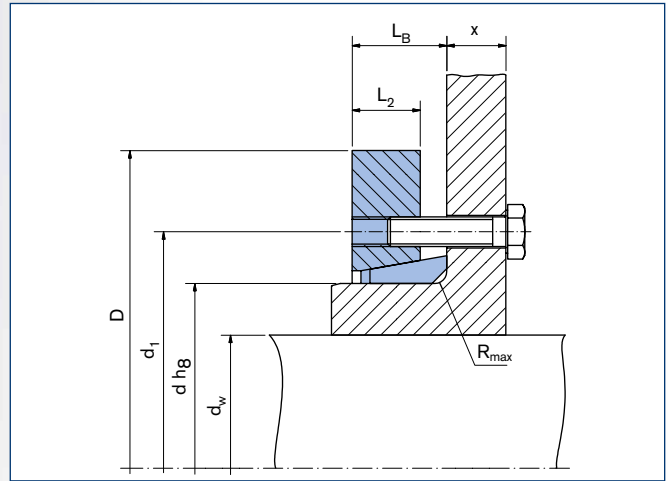
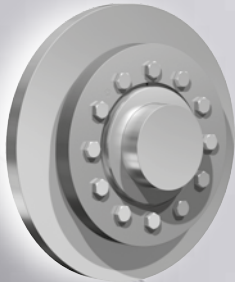
Shrink Discs dimensions							T <sub>A</sub> <sup>1)</sup>	Transmissible torques or axial forces		Locking screws <sup>1)</sup> ISO 4014 / 4017 - 10.9		G <sub>w</sub>	T <sub>max</sub>				
d	x	D	d	x	D	d <sub>w</sub>		d <sub>1</sub>	L <sub>B</sub>	L <sub>2</sub>	R			T	F <sub>ax</sub>	Quantity	Thread
mm			inch			inch	inch	inch	inch	inch	ft-lbs	lbs			lbs	ft-lbs	
50	x	95	1.969	x	3.740	1.575	2.874	0.906	0.669	0.071	18	774	12,936	7	M8	1.54	968
						1.654						885	13,949				1,106
						1.496						664	11,924				830
55	x	105	2.165	x	4.134	1.654	3.071	0.906	0.669	0.071	21	830	13,724	7	M8	1.87	1,037
						1.772						996	15,186				1,245
						1.890						1,180	16,648				1,475
62	x	115	2.441	x	4.528	1.890	3.346	0.906	0.669	0.071	22	1,088	15,073	7	M8	2.20	1,360
						1.969						1,254	15,973				1,567
						2.047						1,328	16,311				1,660
68	x	118	2.677	x	4.646	1.969	3.661	1.063	0.748	0.110	22	1,328	16,536	8	M8	2.31	1,660
						2.165						1,696	18,898				2,120
						2.362						2,102	21,373				2,628
75	x	145	2.953	x	5.709	2.165	4.134	1.063	0.787	0.110	45	1,586	21,710	7	M10	4.19	2,120
						2.362						2,102	24,860				2,628
						2.559						2,581	28,010				3,227
80	x	145	3.150	x	5.709	2.362	4.134	1.063	0.787	0.110	45	2,102	22,498	7	M10	3.97	2,628
						2.559						2,581	25,422				3,227
						2.756						3,098	28,459				3,872
90	x	160	3.543	x	6.299	2.559	4.567	1.142	0.866	0.110	45	2,471	24,410	8	M10	5.29	3,089
						2.756						2,987	27,335				3,734
						2.953						3,540	30,259				4,425
100	x	170	3.937	x	6.693	2.756	4.961	1.260	0.906	0.130	45	3,245	29,809	10	M10	6.17	4,057
						2.953						3,688	32,959				4,610
						3.150						4,499	36,109				5,624
110	x	185	4.331	x	7.283	2.953	5.433	1.378	1.024	0.130	45	4,057	34,646	12	M10	8.38	5,071
						3.150						4,757	38,021				5,947
						3.346						5,421	39,596				6,776
125	x	215	4.921	x	8.465	3.543	6.299	1.476	1.102	0.130	75	6,454	43,645	10	M12	12.1	8,067
						3.740						7,376	47,470				9,220
						3.946						5,532	39,933				6,915
135	x	212	5.315	x	8.346	3.543	6.772	1.772	1.260	0.189	75	6,933	47,245	12	M12	11.6	8,298
						3.740						7,966	51,295				9,957
						4.134						10,252	59,731				12,815
140	x	300	5.512	x	11.811	3.543	8.661	2.126	1.654	0.189	185	13,534	91,903	12	M16	38.6	18,347
						3.937						17,333	105,964				23,556
						4.331						21,647	123,287				29,318
155	x	263	6.102	x	10.354	4.134	7.795	1.772	1.378	0.189	75	9,957	61,418	15	M12	21.5	12,446
						4.331						11,432	65,805				14,290
						4.528						12,539	70,193				15,673
165	x	290	6.496	x	11.417	4.528	8.268	1.929	1.496	0.189	185	15,120	83,241	10	M16	28.7	18,900
						4.724						16,964	88,303				21,205
						4.921						18,697	91,678				23,371
175	x	300	6.890	x	11.811	4.921	8.661	2.323	1.969	0.189	185	26,847	131,049	10	M16	32.0	33,559
						5.118						29,466	138,360				36,823
						5.315						32,195	145,559				40,234
185	x	330	7.283	x	12.992	5.315	9.291	2.402	1.969	0.189	185	26,552	123,737	14	M16	51.8	33,190
						5.512						28,765	129,361				35,956
						5.709						31,715	134,986				39,644
190	x	350	7.480	x	13.780	5.315	9.409	2.441	1.969	0.189	350	35,071	158,496	12	M20	57.3	43,830
						5.512						38,132	166,257				47,665
						6.102						48,163	189,542				60,203
195	x	350	7.677	x	13.780	5.512	9.685	2.500	1.969	0.189	185	27,659	120,925	14	M16	58.4	34,573
						5.906						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

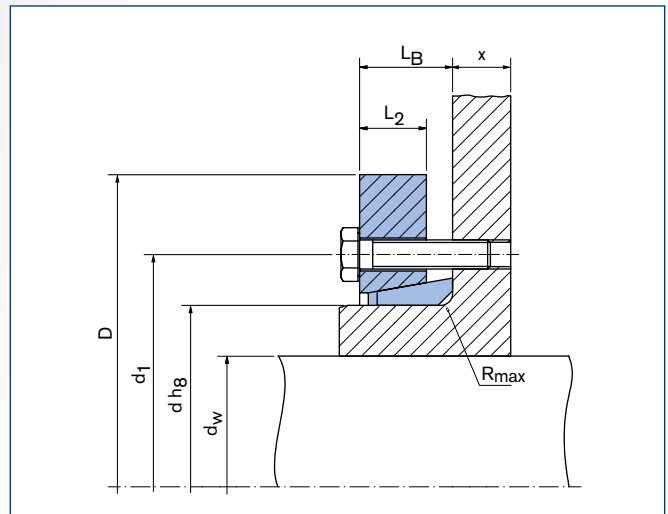
- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 μm
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team

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

<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

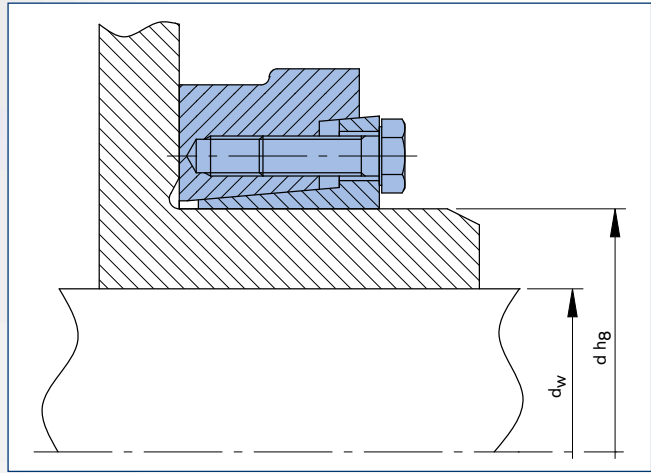
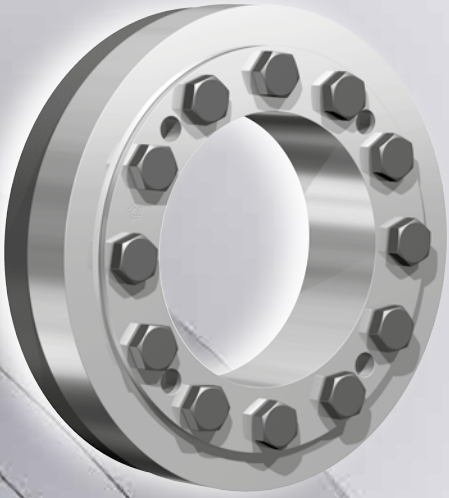
■ When using a hollow shaft instead of a solid shaft please contact our Engineering-Team

Ordering examples: RfN 4091

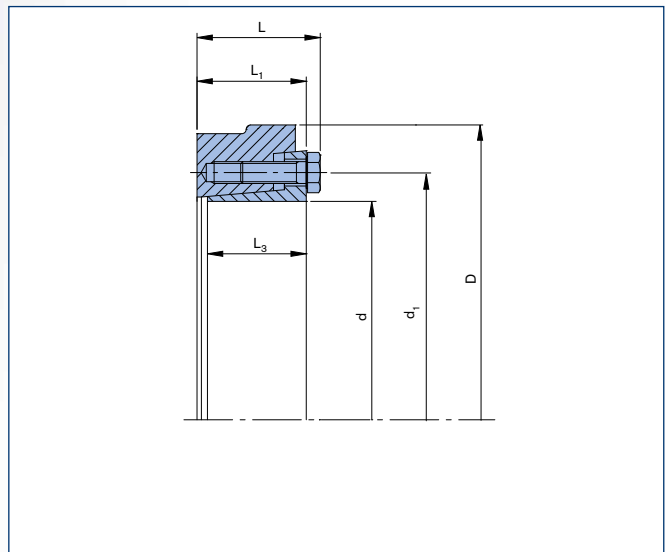
Series	d	D	Version
RfN 4091	18.110	30.315	HT
RfN 4091	18.110	30.315	HC

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

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

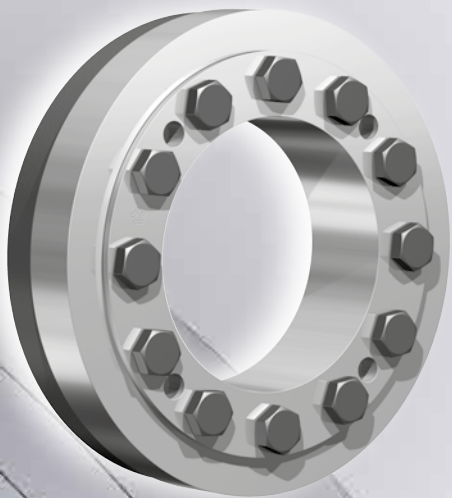
■ Tolerances  
For shaft see table page 8

■ 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		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

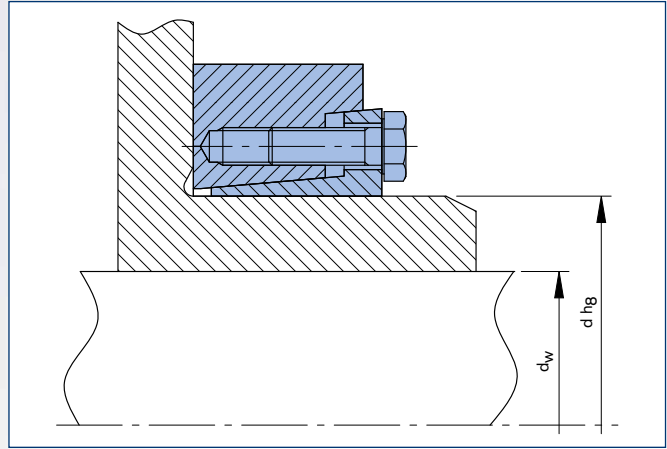
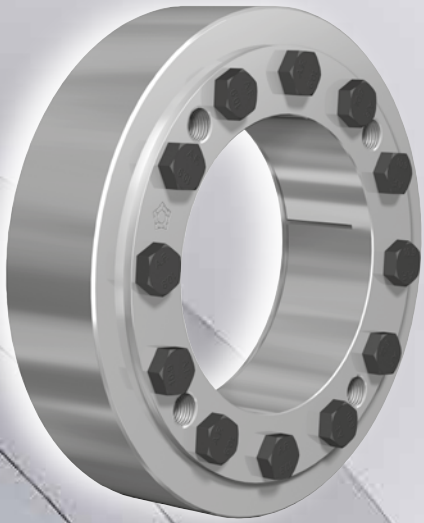
- Surface finishes  
For shaft R<sub>a</sub> ≤ 3,2 µm
- Tolerances  
For shaft see table page 8
- When using a hollow shaft instead of a solid shaft  
please contact our Engineering-Team
- Hub with yield strength Rp0,2 ≥ 360 N/mm<sup>2</sup>

Explanations to tables: Page 9

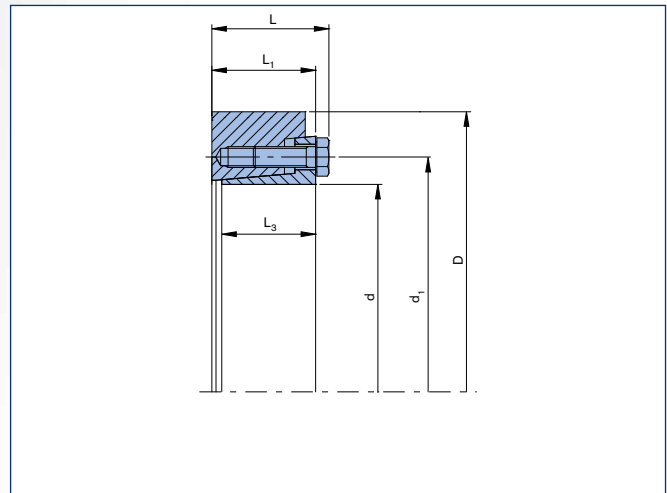
Ordering example: RfN 4161

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	607,435	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	2,002,286	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	17.717	x	37.008	18.110	10.236	9.449	8.110	1,400	1,877,095	2,544,704	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	18.110	x	37.795	18.504	10.984	10.236	8.976	1,400	2,141,880	2,840,547	M30	2,068	2,356,511
			18.898			8.976			2,189,084		3,128,516	2,408,140			
			18.504			8.976			2,291,605		2,912,314	2,520,987			
590	x	960	18.504	x	37.795	18.898	14.961	14.213	11.260	1,400	2,959,099	3,840,790	M30	2,588	3,255,009
			19.685			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	19.685	x	38.189	20.472	11.969	11.220	9.606	1,400	2,509,186	3,061,473	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	20.472	x	40.945	21.260	12.874	12.047	10.827	1,990	2,816,749	3,304,447	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	20.866	x	40.945	21.654	16.457	15.591	12.205	2,580	4,246,882	4,893,228	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	22.047	x	44.882	22.835	12.402	11.575	10.236	1,990	3,332,821	3,630,663	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	23.622	x	45.276	24.409	13.386	16.850	14.173	2,580	5,656,363	5,751,061	M36	4,073	6,221,999
			25.197			14.173			6,069,134		5,971,763	6,676,048			
			25.984			14.173			6,716,900		6,304,052	7,388,589			
800	x	1230	25.197	x	48.425	25.984	14.685	13.858	11.654	1,990	5,087,673	4,775,341	M33	4,176	5,596,440
			27.559			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

**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.

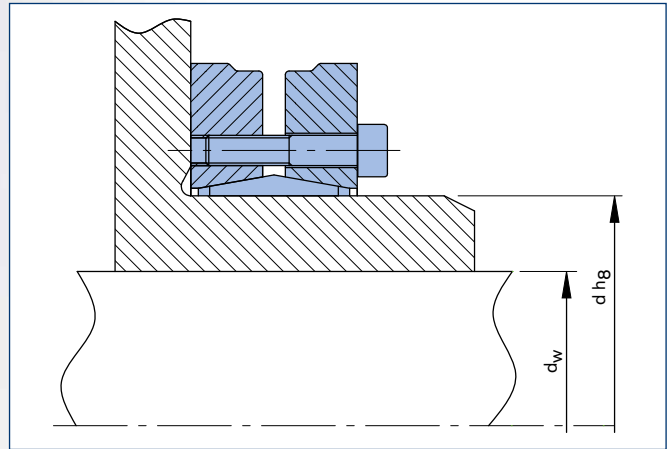
The shaft being used is solid, for hollow shaft applications the functional values will change.

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.

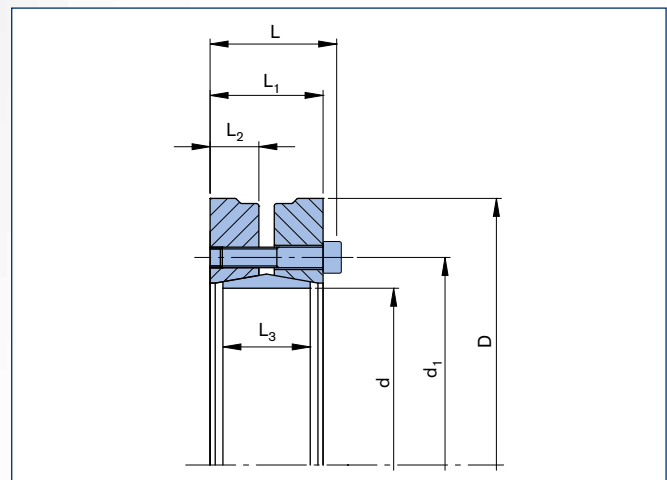




**STAINLESS STEEL**



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

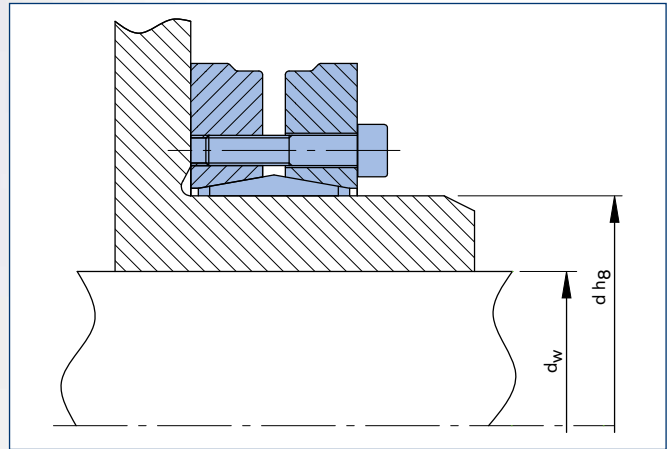
Explanations to tables: Page 63

To continue see next page

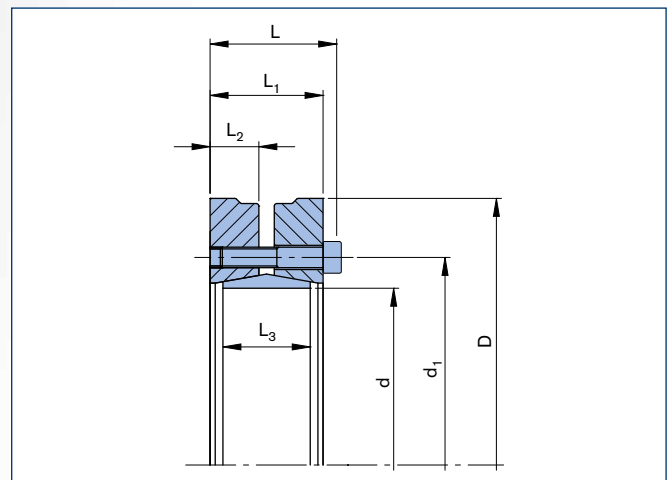
Ordering example: RfN 4061

Series	d	D	Version
RfN 4061	2.953	5.433	SST

SST = Stainless steel



RINGFEDER® Shrink Disc RfN 4061 stainless steel · Location



RINGFEDER® Shrink Disc RfN 4061 stainless steel · Dimensions

**STAINLESS STEEL**

Shrink Discs dimensions									T <sub>A</sub>	Transmissible torques or axial forces				High-strength special screws ISO 4762						
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	F <sub>ax</sub>	P	σ <sub>v</sub>	Quantity	Thread	Gw	T <sub>max</sub>
mm		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	22	3,577	42,520	47,172	58,639	11	M8	7.7	4,462
						2.559	4.488						4,278	47,695		61,977				5,347
						2.756	4.488						5,015	52,869		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	39,770	51,236	10	M8	7.3	4,425
						2.756	4.488						4,462	43,870		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	39,915	50,656	12	M8	10.4	4,942
						2.756	5.000						4,979	48,820		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	37,883	48,043	12	M8	9.9	6,417
						2.953	5.000						5,605	50,170		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	36,867	45,866	10	M10	13.9	7,486
						3.150	5.709						7,449	64,118		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	35,270	43,834	10	M10	13.4	8,740
						3.543	5.709						8,925	67,943		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	39,044	51,381	12	M10	19.2	10,178
						3.543	6.299						9,662	73,567		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	38,173	48,769	10	M12	23.4	13,903
						3.937	6.890						12,944	88,866		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	40,641	48,478	8	M16	47.8	28,986
						4.724	8.268						26,183	143,310		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	35,706	44,560	10	M16	79.4	48,384
						5.512	9.291						42,299	186,280		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	40,641	48,188	12	M16	88.2	60,812
						5.906	9.685						57,235	232,850		49,059				71,544
						6.102	9.685						61,771	243,199		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	39,625	47,317	12	M16	86.0	69,146
						6.102	9.685						59,743	235,100		47,898				74,641
						6.299	9.685						64,315	245,449		48,914				80,394

- 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 63 [More sizes on request](#)

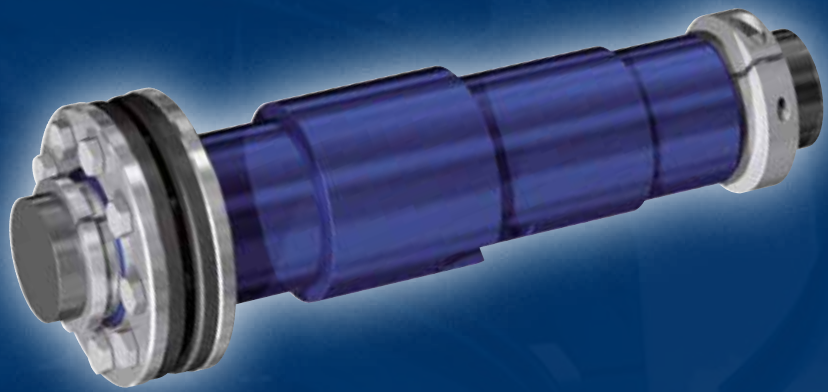
Ordering example: RfN 4061

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%.

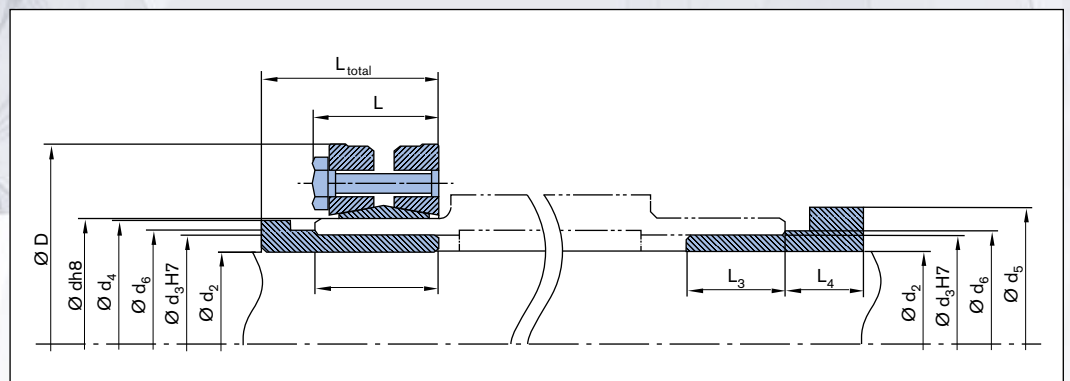
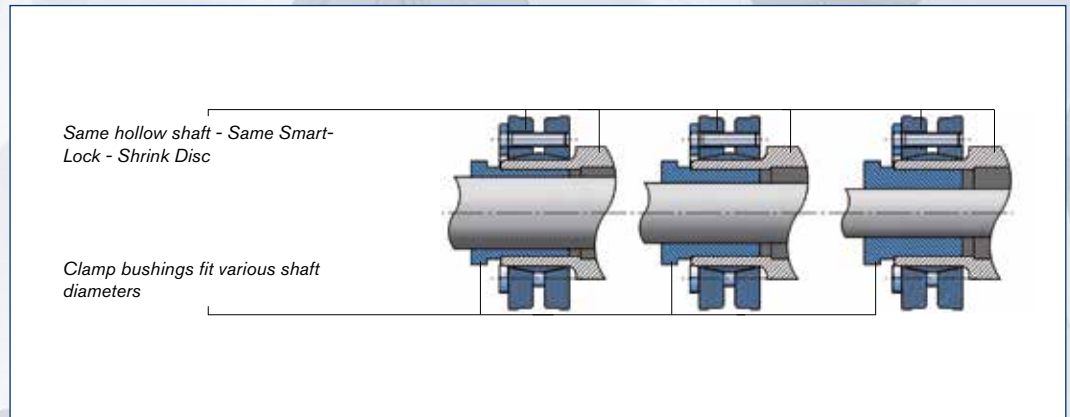
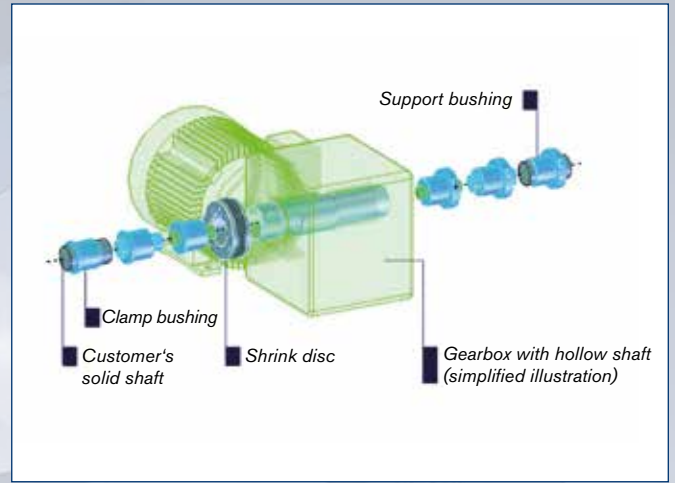
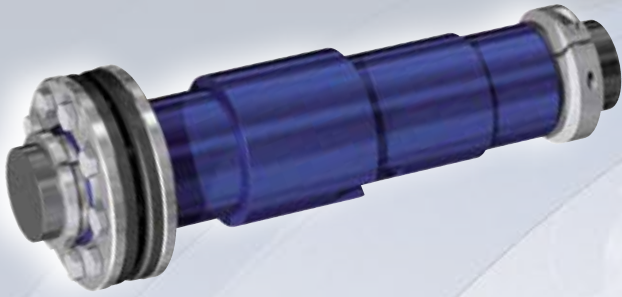
## Technical details of the Smart-Lock-Set

### 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
44	1 1 1/8 1 3/16 1 1/4	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 7/16	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 1/2	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 3/8 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	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	1 15/16 2	2.559	2.874	3.130	2.638	5.433	1.969	1.535	1.535	0.709	0.006	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	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.

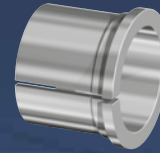
Ordering example: RfN 4001

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

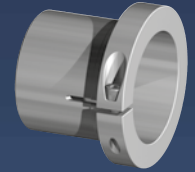
■ When using a hollow shaft instead of a solid shaft please contact our Engineering-Team



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

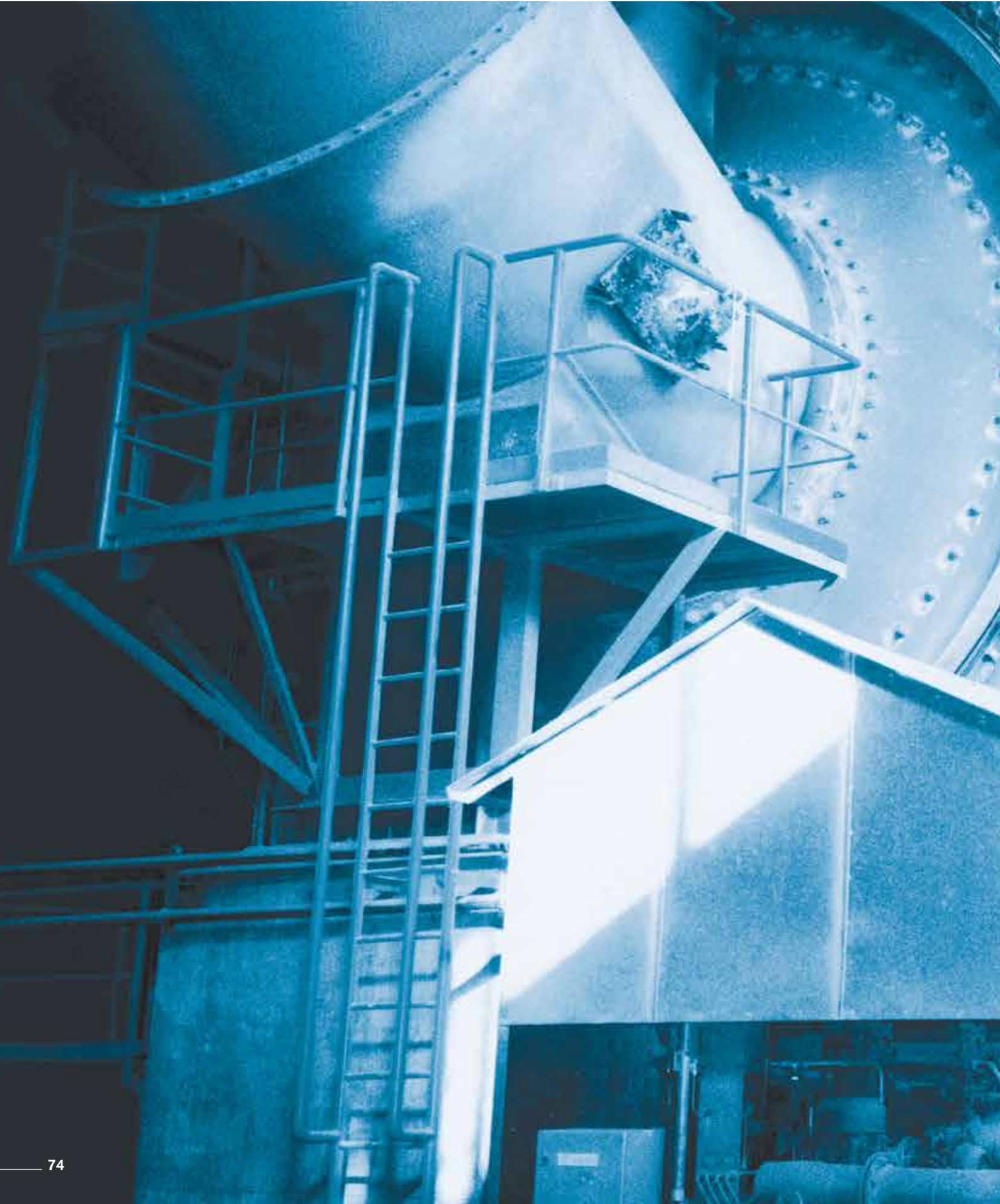
Ordering examples adapter bushings: RfN 4001

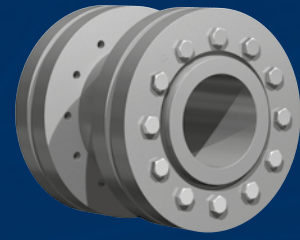
Series	d	Version
RfN 4001	80	CB 55 x 70
RfN 4001	55	SB 35 x 48

CB = Clamp bushing

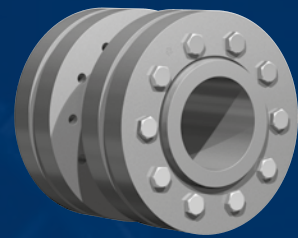
SB = Support bushing

# 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> ( $\mu = 0,05$ ).

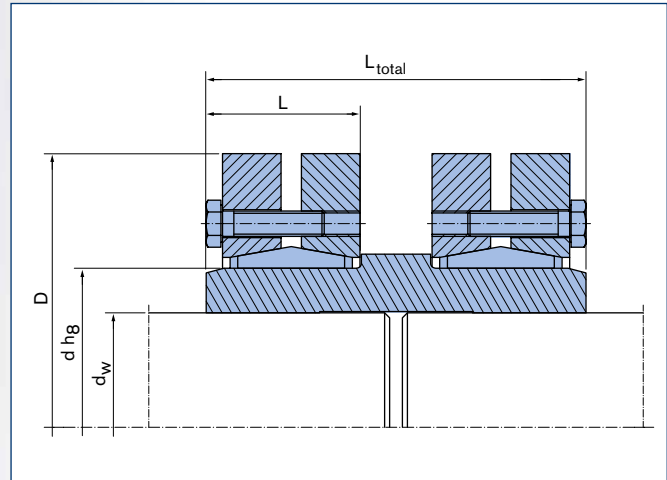
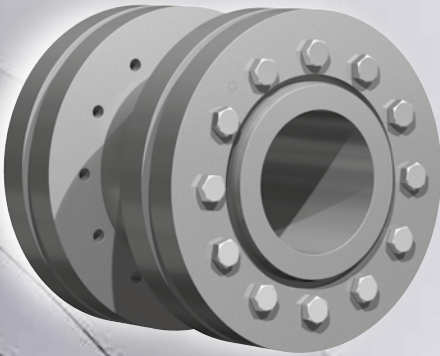
The contact surfaces ( $d_w$ ) are in lightly oiled condition with coefficient of friction  $\mu = 0,12$ .

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			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.

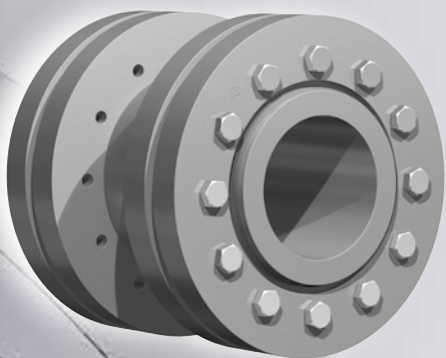
**Simplified manufacture** – only plain shaft and bore diameters with easily achieved surface finish and tolerances are required.

**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.



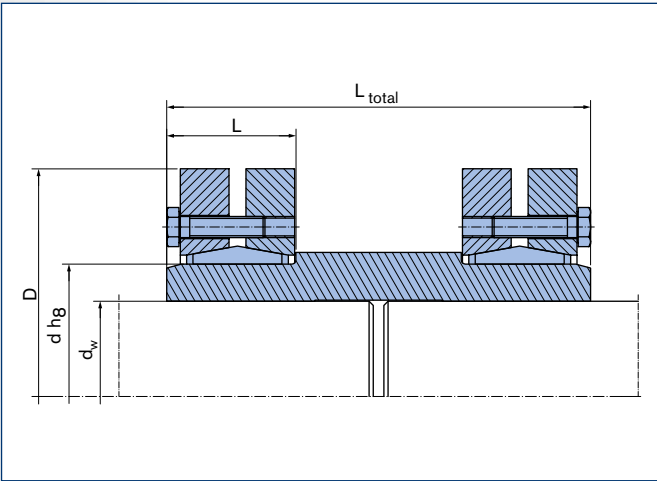
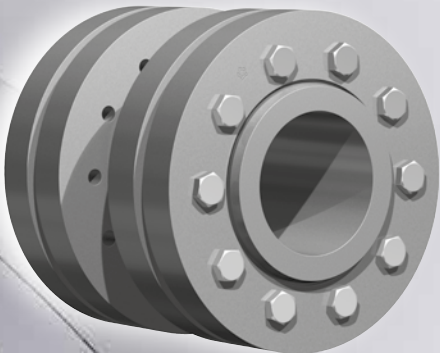
Shaft couplings dimensions								Transmissible torques or axial forces		Locking Screws DIN EN ISO 4014 / 4017 - 10.9			
d	x	D	d	x	D	d <sub>w</sub>	L <sub>total</sub>	L	T <sub>A</sub>	T	F <sub>ax</sub>	Thread	
mm		inch		inch	inch	inch	inch	inch	ft-lbs	ft-lbs	lbs		
200	x	350	7.874	x	13.780	5.906 6.102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

- 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

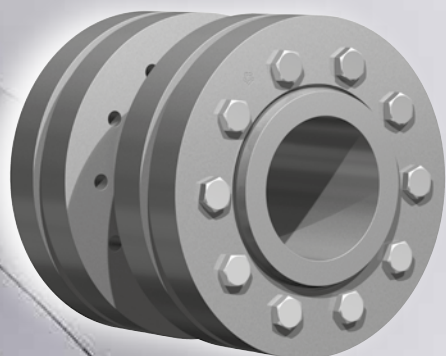
Explanations to tables: Page 77

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

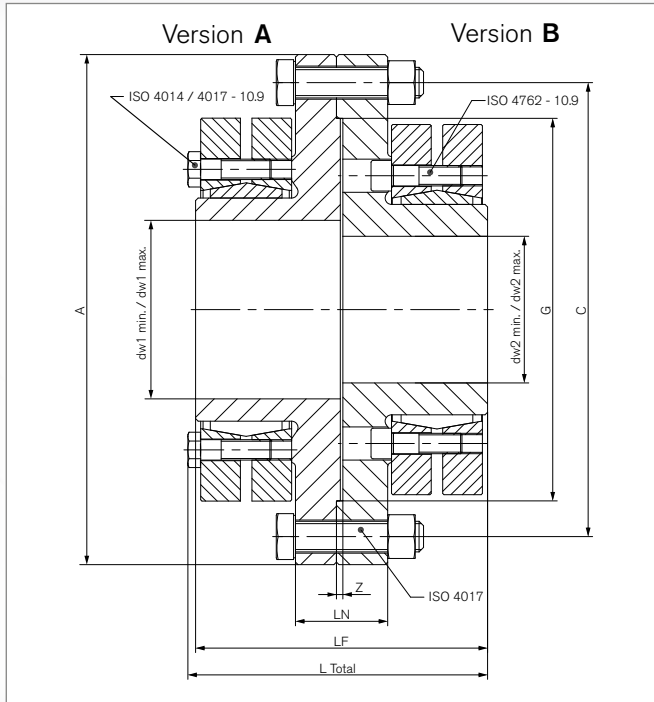


### **Version B** Shrink Discs with hexagon socket head cap screws





# Flange Couplings RINGFEDER® RfN 5571



## Explanations to tables

Basic dimensions when screws are not tightened

- dw<sub>1</sub>** = Solid shaft diameter
- dw<sub>2</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	9.449	8.268	6.693	5.354	1.732	5.787	0.157	5,148	6	M16	155	100x170	12	M 8	22	57
	2.953	2.953								5,606				100x170	12	M 8	22	
	3.150	3.150								6,712				100x170	12	M 8	22	
090	2.756	2.756	12.008	10.433	8.465	6.299	1.890	6.654	0.197	5,148	6	M20	310	100x170	12	M 8	22	106
	2.953	2.953								5,606				100x170	12	M 8	22	
	3.150	3.150								6,712				100x170	12	M 8	22	
	>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	13.386	11.260	9.055	7.480	2.205	7.756	0.197	10,105	5	M24	531	130x215	12	M 10	44	139
	3.740	3.740								11,654				130x215	12	M 10	44	
	3.937	3.937								13,424				130x215	12	M 10	44	
	>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	15.748	14.016	11.811	8.976	2.835	9.449	0.197	11,137	8	M24	531	140x230	10	M 12	74	265
	4.134	4.134								14,751				140x230	10	M 12	74	
	4.528	4.528								19,066				140x230	10	M 12	74	
	>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	15.748	14.016	11.811	8.976	2.835	9.449	0.197	23,197	8	M24	531	165x290	8	M 16	184	265
	4.921	4.921								29,060				165x290	8	M 16	184	
	5.315	5.315								36,473				165x290	8	M 16	184	
	>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	18.701	16.535	13.780	10.945	3.543	11.417	0.236	27,032	10	M30	1,069	175x300	8	M 16	184	474
	5.118	5.118								30,646				175x300	8	M 16	184	
	5.512	5.512								36,657				175x300	8	M 16	184	
	>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	20.079	17.323	14.567	12.362	3.543	12.835	0.236	48,643	14	M30	1,069	195x350	12	M 16	184	595
	5.906	5.906								57,235				195x350	12	M 16	184	
	6.496	6.496								71,471				195x350	12	M 16	184	
	>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	21.260	18.701	15.945	12.677	3.465	13.346	0.236	70,807	16	M30	1,069	220x370	15	M 16	184	683
	6.693	6.693								81,612				220x370	15	M 16	184	
	7.087	7.087								93,266				220x370	15	M 16	184	
	>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	22.047	19.685	16.929	14.488	4.331	15.079	0.315	91,311	16	M30	1,069	240x405	12	M 20	361	871
	7.283	7.283								111,189				240x405	12	M 20	361	
	7.874	7.874								133,168				240x405	12	M 20	361	
	>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	23.228	20.866	18.110	15.433	4.094	16.024	0.315	124,649	18	M30	1,069	260x430	14	M 20	361	981
	8.071	8.071								148,547				260x430	14	M 20	361	
	8.661	8.661								174,693				260x430	14	M 20	361	
	>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			
	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
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
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

Clearances considered for the calculation of the function values

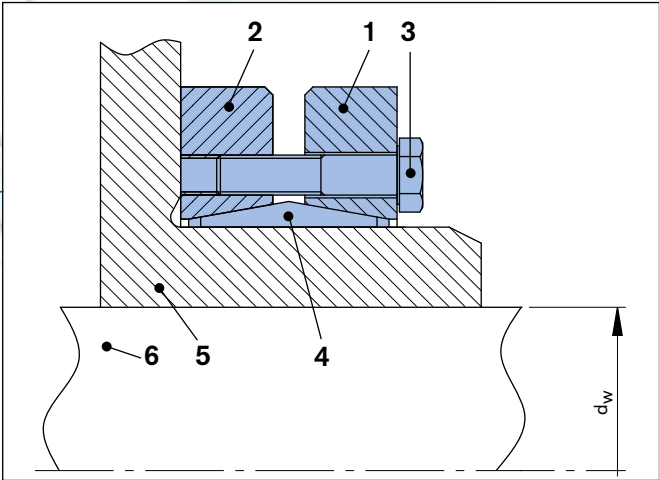


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## Part description

### 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

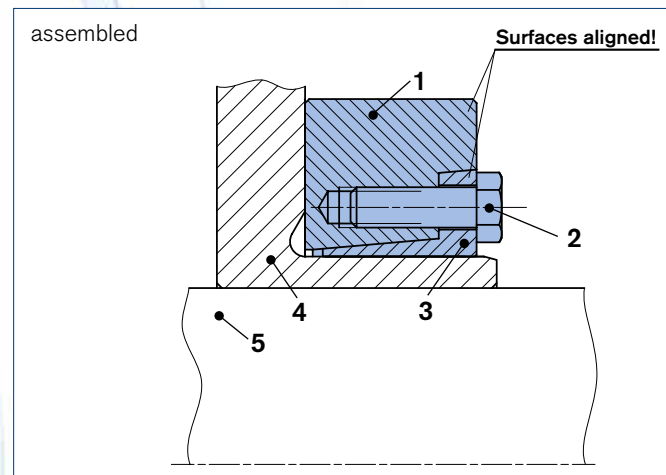
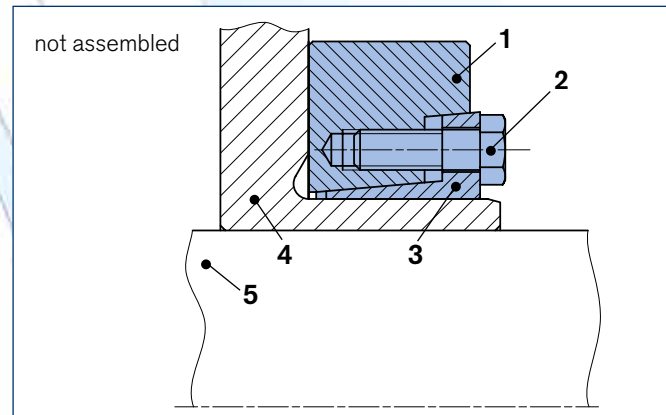
1. Clean the area on the hub where the shrink disc will be seated and oil to ease assembly, if necessary.
2. Removing spacers which may be present between the tensioning discs for transport purposes.
3. Sliding the shrink disc onto the hub.  
Attention: Do not start tensioning before the shaft is in 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.

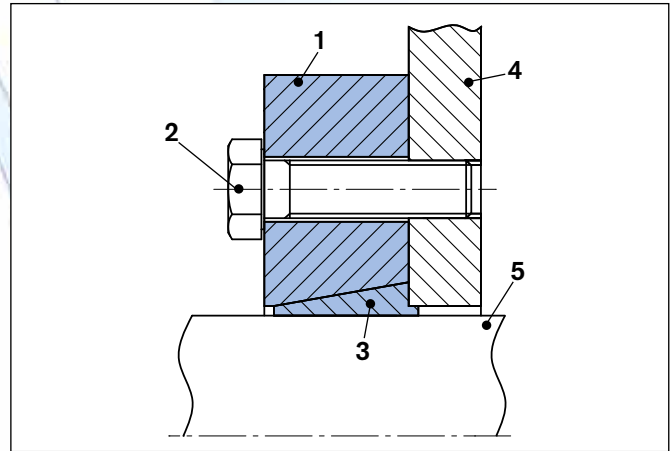


## Part description

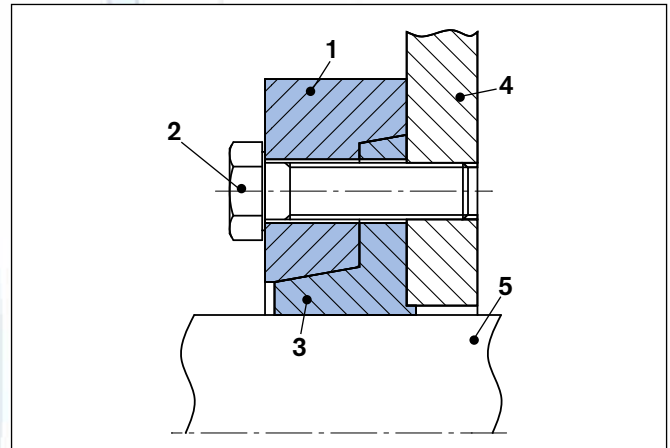
- 1 Outer ring
- 2 Locking screw
- 3 Inner ring
- 4 Attachment part
- 5 Shaft

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

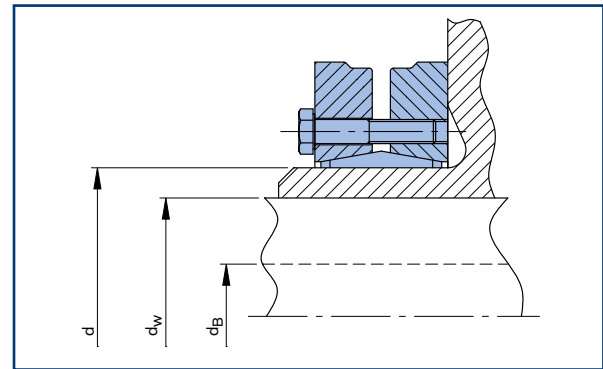
We ask for a consulting discussion. Please call us back under

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

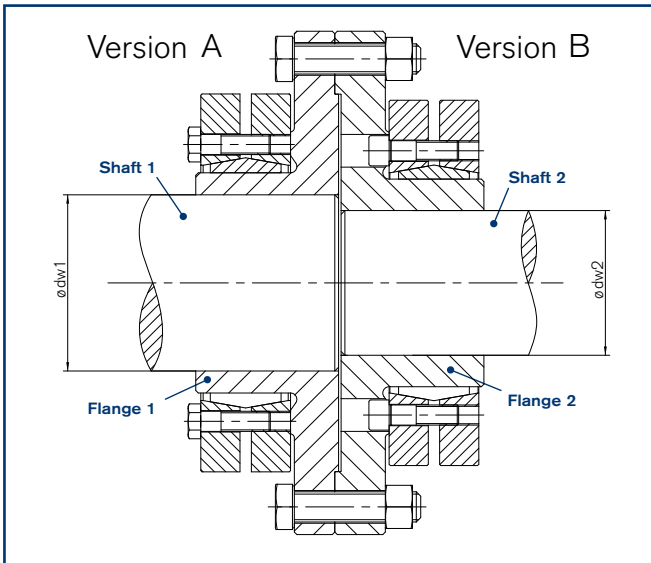
Attn.  Dept.

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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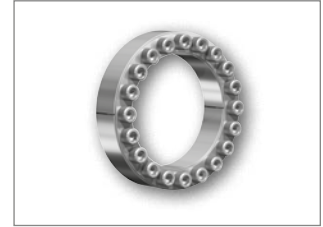
## Locking Devices



Locking Assemblies



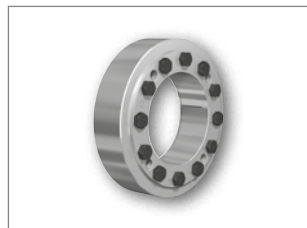
Locking Assemblies for bending moments



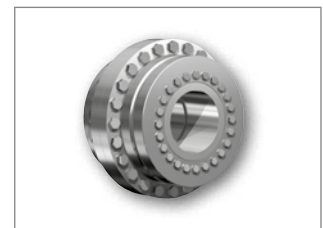
Locking Assemblies – Stainless steel



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

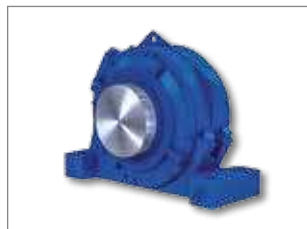


Hydrodynamic Couplings Henfluid



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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**HENFEL INDÚSTRIA METALÚRGICA LTDA.**

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**KUNSHAN RINGFEDER POWER TRANSMISSION COMPANY LIMITED**

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