

Shrink Disc® RINGFEDER® RfN 4051 split · Location

### Split Shrink Discs®

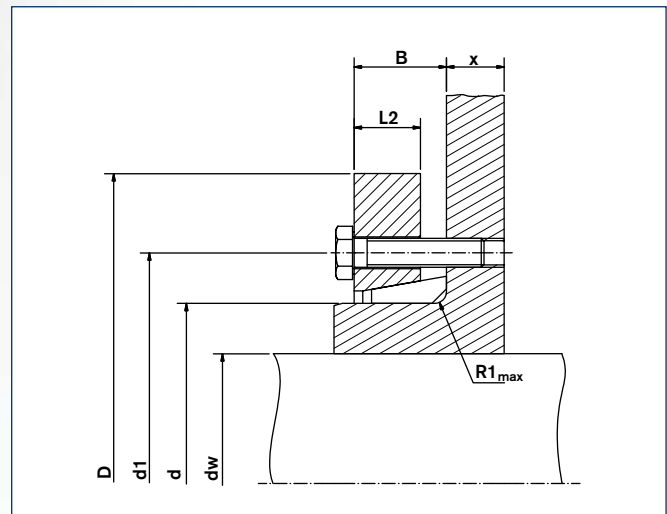
In the application shown above special screws according to the dimension X are required, which have to be ordered accordingly. If the dimension X is above  $2 \times L$  (L taken from the Standard and the Light Duty Series) or above  $1 \times L$  (taken from the Heavy Duty Series) the transmissible torque may be reduced by up to 50%.

### Half Shrink Discs®

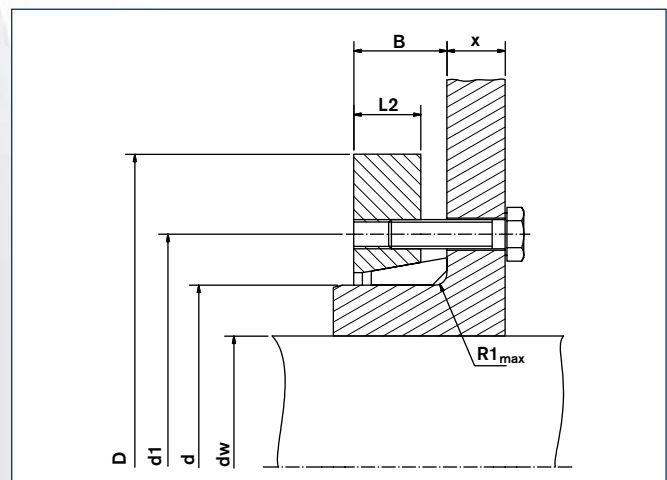
With half shrink discs® HC/HT only 50% of stated T is transmitted.

type HT (Threaded holes in thrust ring)

type HC (Clearance holes in thrust ring)



Shrink Disc® RINGFEDER® RfN 4051 HC · Dimensions



Shrink Disc® RINGFEDER® RfN 4051 HT · Dimensions

Size	Shrink Disc® dimensions									Transmissible torques or axial forces		Locking screws DIN EN ISO 4014-10.9		Weight
	d <sub>w</sub>	C <sub>w</sub>	d	Ch	D	d <sub>1</sub>	B±0.039	R1 max	T <sub>A</sub>	T	F <sub>ax</sub>	Quantity	Thread	WT
	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	lb-ft	lb-ft	lbs	n		lbs
125	3.740	0.0027	4.921		7.283	6.220	1.201	0.189	44	7781	49456	8	M10	13
	4.134									10178	58448			
140	4.331		5.512		8.661	6.890	1.215	0.189	44	10916	59572	9	M10	18
155	4.921	0.0031	6.102	+0 -0.0025	9.646	7.559	1.201	0.189	44	15120	73060	11	M10	22
	5.118									17701	82052			
165	5.315		6.496		10.236	8.268	1.417	0.189	74	23602	106780	10	M12	31
175	5.709	0.0035	6.890		10.827	8.661	1.417	0.189	74	28396	119144	11	M12	35
	5.709									28765	120268			
185	6.102		7.283		11.614	8.858	1.417	0.189	74	33928	132632	12	M12	44
195	6.102	0.0028	7.677	+0 -0.0028	12.402	9.331	1.614	0.189	74	34370	134880	15	M12	60
	6.496									39828	146120			
200	6.496		7.874		12.992	9.528	1.614	0.189	74	46466	170848	16	M12	66
220	6.890	0.0032	8.661		13.583	10.433	1.850	0.189	184	53473	185460	16	M12	66
	6.890									61070	206816			
240	7.087		8.661		15.551	12.205	2.067	0.252	184	62324	205692	10	M16	77
260	7.874	0.0035	9.449	+0 -0.0032	14.567	11.417	1.850	0.189	184	77444	237164	12	M16	97
	7.874									83344	255148			
280	8.465		10.236		16.732	13.110	2.343	0.252	184	99202	281000	14	M16	106
300	8.661	0.0040	11.024		15.551	12.205	2.067	0.252	184	109896	303480	16	M16	132
	9.252									127598	331580			
320	9.055		11.811		16.732	13.110	2.343	0.252	184	126123	333828	16	M16	132
340	9.843	0.0032	11.024	+0 -0.0032	18.110	14.094	2.343	0.252	184	153412	373168	18	M16	165
	9.843									158575	386656			
360	10.630		12.598		19.488	14.882	2.382	0.252	184	188078	424872	20	M16	185
380	10.630	0.0040	12.598		19.488	14.882	2.382	0.252	184	191766	436112	20	M16	185
	11.417									225693	477700			
400	11.417		13.386		21.063	15.827	2.382	0.252	184	221268	465336	21	M16	221
350	12.008	0.0040	13.386		21.063	15.827	2.382	0.252	184	248558	496808	21	M16	221
	11.811									274372	558628			
360	12.205		13.780		21.457	16.260	2.697	0.252	361	295024	582232	16	M20	265
380	11.811	0.0035	14.173	+0 -0.0035	21.850	16.654	2.697	0.252	361	265522	539520	16	M20	276
	12.598									306087	582232			
390	12.598		14.961		23.031	17.402	2.972	0.252	361	320839	611456	18	M20	331
400	12.992	0.0044	15.354		23.031	17.402	2.972	0.252	361	344441	637308	20	M20	344
	12.992									372468	687888			
420	13.780		15.748		23.425	17.795	3.071	0.331	361	425572	740716	20	M20	344
400	13.386	0.0044	15.748		24.213	18.189	3.071	0.331	361	405658	727228	21	M20	375
	14.173									461713	782304			
420	13.780		16.535		24.803	19.094	3.228	0.331	361	426310	741840	22	M20	408
	14.567	16.535	24.803	19.094	3.228	0.331	361	483102	796916	22	M20	408		

To continue see next page

## Characteristics

**Reduced dimensions with lower transmission values** – especially for applications with restricted space.

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

**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.

**Easy mounting** – RINGFEDER® Shrink Discs® use standard screws and tightened using 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 contact (functional) surfaces are pressed firmly together and prevent contamination by dirt and moisture.

**Highest reliability** – due to the materials chosen and manufacturing processes used, RINGFEDER® Shrink Discs® can be tightened and released as often as required. If locking screws need replacing, they are standard items and thus easily available.

Size	Shrink Disc® dimensions									Transmissible torques or axial forces		Locking screws DIN EN ISO 4014-10.9		Weight
	d <sub>w</sub>	C <sub>w</sub>	d	Ch	D	d <sub>1</sub>	B±0.039	R1 max	T <sub>A</sub>	T	F <sub>ax</sub>	Quantity	Thread	WT
	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	lb-ft	lb-ft	lbs	n		lbs
440	14.567	0.0044	17.323	+0 -0.0038	25.984	19.882	3.228	0.331	361	499328	822768	24	M20	452
	562021									878968				
460	15.354		18.110		26.969	20.748	3.602	0.390	361	619550	971136	28	M20	518
	16.142	689619	1029584											
480	16.142	0.0048	18.898		28.150	21.535	3.602	0.390	361	657166	977880	28	M20	562
	16.732									712483	1022390			
500	16.732		19.685	29.528	22.323	3.602	0.390	361	727234	1044196	30	M20	628	
	17.323	786239	1089156											

## Explanations to tables

d, D, L, l, L<sub>1</sub>, L<sub>2</sub>, d<sub>1</sub> = Basic dimensions

d<sub>w</sub> = solid shaft diameter (provided by the customer)

T = transmissible torque

F<sub>ax</sub> = transmissible axial force

p = approx. surface pressure on the hub extension (diameter d)

T<sub>A</sub> = required tightening torque per screw (Screws greased with molykote or equivalent!)

n = quantity of screws

T<sub>max</sub> = maximum theoretical transmissible torque

C<sub>w</sub> = shaft clearances

C<sub>n</sub> = hub tolerances

C<sub>d</sub> = shaft tolerances

|l<sub>1</sub> = Inner ring centering shoulder length

d<sub>2</sub> = clamped component bore

x = clamped component thickness

B = width dimension, relaxed condition

R<sub>1</sub> = hub max. radius (split Shrink Disc®)

s<sub>v</sub> = calculated combined stress in the hub extension (d/dw) under consideration of the tangential, radial and torsional stresses following the equation:

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

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> ( $\mu_{tot} = 0.1$ ).

The tapered cones are lubricated using MoS<sub>2</sub> ( $\mu = 0.05$ ).

The contact surfaces (d<sub>w</sub>) are in lightly oiled condition with coefficient of friction  $\mu = 0.12$ .

The hub and shaft materials have a modulus of elasticity of 30 x 10<sup>6</sup> PSI. (Lower values result in increased values for T and Fax with reduced tangential stress.)

The maximum clearance 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.



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