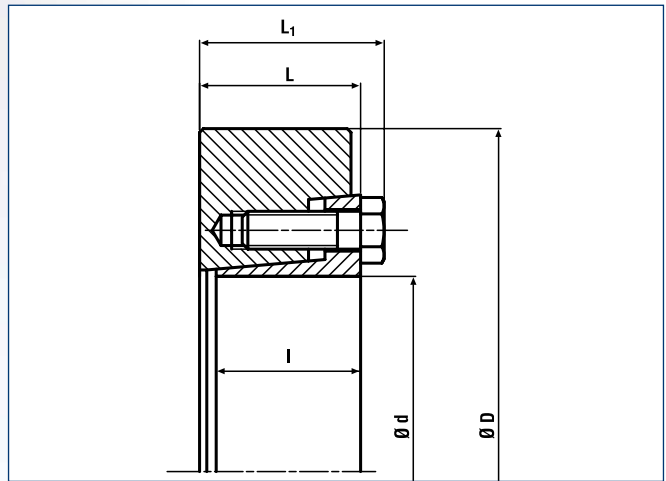


Shrink Disc® RINGFEDER® RfN 4181 · Location



Shrink Disc® RINGFEDER® RfN 4181 · Dimensions



Wind turbine

Shrink Disk dimensions						T _A	Transmissible torques or axial forces		Locking screws 12.9	Weight	T _{max}
d	d _w	D	L ₁	L	I		T	F _{ax}			
mm	Inch					lb-ft	lb-ft	lbs	lbs	lb-ft	
50	1.496	3.54	1.24	1.02	0.87	26	1180	18933	M8	1.8	1298
	1.654						1475	21412			1623
	1.654						1254	18201	M8		1379
55	1.890	3.94	1.36	1.14	0.96	26	1844	23420		2.4	2028
	1.890						1697	21546	M8		1866
60	2.047	4.33	1.36	1.14	0.96	26	2139	25077		2.9	2353
	1.890						1697	21546	M8		1866
62	2.047	4.33	1.36	1.14	0.96	26	2139	25077		2.9	2353
	1.969						1770	21584	M8		1947
68	2.362	4.53	1.38	1.16	0.96	26	2951	29977		2.9	3246
	2.165						2803	31068	M10		3083
75	2.559	5.43	1.50	1.22	0.98	52	4426	41507		5.1	4868
	2.362						3172	32226	M10		3489
80	2.756	5.55	1.50	1.22	0.98	52	4795	41754		5.1	5274
	2.559						4426	41507	M10		4868
85	2.953	6.10	1.77	1.50	1.24	52	6344	51561		7.1	6978
	2.559						4426	41507	M10		4868
90	2.953	6.10	1.77	1.50	1.24	52	6344	51561		7.1	6978
	2.756						5532	48178	M10		6085
95	3.150	6.69	1.99	1.71	1.44	52	7819	59580		9.5	8601
	2.756						5532	48178	M10		6085
100	3.150	6.69	1.99	1.71	1.44	52	7819	59580		9.5	8601
	3.150						9442	71946	M12		10386
105	3.543	7.28	2.24	1.93	1.59	89	12540	84936		12.8	13794
	3.150						9442	71946	M12		10386
110	3.543	7.28	2.24	1.93	1.59	89	12540	84936		12.8	13794
	3.346						10106	72475	M12		11116
115	3.740	7.76	2.40	2.09	1.77	89	13425	86146		15.2	14767
	3.346						10106	72475	M12		11116
120	3.740	7.76	2.40	2.09	1.77	89	13425	86146		15.2	14767
	3.543						12245	82938	M12		13469
125	3.937	8.46	2.42	2.11	1.77	89	15859	96677		19.2	17445
	3.740						15122	97032	M14		16634
130	4.331	9.06	2.62	2.26	1.85	140	21760	120591		23.8	23936
	3.740						15122	97032	M14		16634
135	4.331	9.06	2.62	2.26	1.85	140	21760	120591		23.8	23936
	3.937						17334	105671	M14		19068
140	4.528	9.06	2.64	2.28	1.85	140	23973	127078		22.7	26370
	4.331						23235	128767	M14		25559
150	4.921	10.35	2.83	2.48	2.01	140	31718	154684		33.5	34890
	4.331						23235	128767	M14		25559
155	4.921	10.35	2.83	2.48	2.01	140	31718	154684		33.5	34890
	4.724						33194	168623	M16		36513
160	5.315	11.42	3.11	2.68	2.20	214	43520	196519		47.4	47873
	4.724						33194	168623	M16		36513
165	5.315	11.42	3.11	2.68	2.20	214	43520	196519		47.4	47873
	5.118						40570	190242	M16		44627
170	5.709	11.81	3.15	2.72	2.20	214	52372	220179		49.6	57609
	5.118						40570	190242	M16		44627
175	5.709	11.81	3.15	2.72	2.20	214	52372	220179		49.6	57609
	5.512						59748	260162	M16		65723
180	6.102	12.60	3.80	3.37	2.81	214	74501	293006		72	81951
	5.512						59748	260162	M16		65723
185	6.102	12.60	3.80	3.37	2.81	214	74501	293006		72	81951
	5.906						71551	290782	M16		78706
190	6.496	13.39	3.80	3.37	2.81	214	88516	327027		80	97368

To continue see next page

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 – minimizing installation errors 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 quantity production.

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.

Easy adjustability – No stops, steps, key-ways, splines etc. are required therefore, hubs can be located and locked at any point or angle on the shaft.

Shrink Disk dimensions						T _A	Transmissible torques or axial forces		Locking screws 12.9	Weight	T _{max}
d	dw	D	L ₁	L	l		T	F _{ax}			
mm			Inch			lb-ft	lb-ft	lbs	lbs	lb-ft	
	5.906						71551	290782		78706	
195	6.496 5.906	13.39	3.80	3.37	2.81	214	88516 71551	327027 290782	M16	80	97368 78706
200	6.496 6.299	13.39	3.80	3.37	2.81	214	88516 95893	327027 365351	M16	80	97368 105482
220	7.087 6.693	14.57	4.65	4.13	3.46	420	125398 112121	424681 402051	M20	117	137938 123333
240	7.874 7.480	15.94	4.80	4.29	3.62	420	161542 158592	492380 508828	M20	146	177696 174451
260	8.661 8.268	16.93	5.24	4.72	4.06	420	221290 208013	613176 603832	M20	181	243420 228814
280	9.449 8.661	18.11	5.83	5.31	4.49	420	280301 250796	711965 694933	M20	227	308331 275875
300	9.843 9.449	19.09	6.18	5.59	4.80	738	324559 302430	791406 768173	M24	265	357015 332673
320	10.630 9.843	20.47	6.18	5.59	4.80	738	390946 383570	882670 935297	M24	304	430041 421927
340	11.024 10.630	22.44	6.73	6.14	5.28	738	486839 435205	1059918 982595	M24	417	535523 478725
350	11.417 10.630	22.83	7.01	6.42	5.51	738	516344 464710	1085392 1049212	M24	417	567979 511181
360	11.811 11.417	23.23	7.09	6.50	5.51	738	590108 516344	1199099 1085392	M24	456	649119 567979
380	12.205 11.417	25.20	7.17	6.50	5.67	1070	612237 582732	1203934 1224942	M27	518	673461 641005
390	12.598 11.811	25.59	7.24	6.57	5.67	1070	722882 590108	1377091 1199099	M27	549	795170 649119
400	12.598 12.598	25.98	7.99	7.32	6.61	1070	663871 714768	1264675 1361633	M27	562	730259 786245
420	13.780 13.386	26.38	7.99	7.32	6.61	1070	872622 894013	1519858 1602914	M27	628	959884 983415
440	14.567 14.173	29.13	8.31	7.64	6.77	1070	1076947 1027525	1774343 1739943	M27	867	1184642 1130278
460	15.354 14.961	30.31	8.31	7.64	6.77	1070	1224474 1222261	1913947 1960764	M27	924	1346921 1344487
480	16.142 15.748	31.50	9.13	8.39	7.40	1453	1442814 1391917	2145218 2121282	M30	1085	1587095 1531109
500	16.929	33.46	9.13	8.39	7.40	1453	1630911	2312100	M30	1250	1794002

Explanations to tables

d, D, L, l, L₁, L₂, d₁ = Basic dimensions

d_w = solid shaft diameter (provided by the customer)

T = transmissible torque

F_{ax} = transmissible axial force

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

T_A = required tightening torque per screw (Screws greased with molykote or equivalent!)

n = quantity of screws

T_{max} = maximum theoretical transmissible torque

C_w = shaft clearances

C_n = hub tolerances

C_d = shaft tolerances

|l₁ = Inner ring centering shoulder length

d₂ = clamped component bore

x = clamped component thickness

B = width dimension, relaxed condition

R₁ = hub max. radius (split Shrink Disc®)

s_v = 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 MoS₂ (μ_{tot} = 0.1).

The tapered cones are lubricated using MoS₂ (μ = 0.05).

The contact surfaces (d_w) are in lightly oiled condition with coefficient of friction μ = 0.12.

The hub and shaft materials have a modulus of elasticity of 30 x 10⁶ 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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