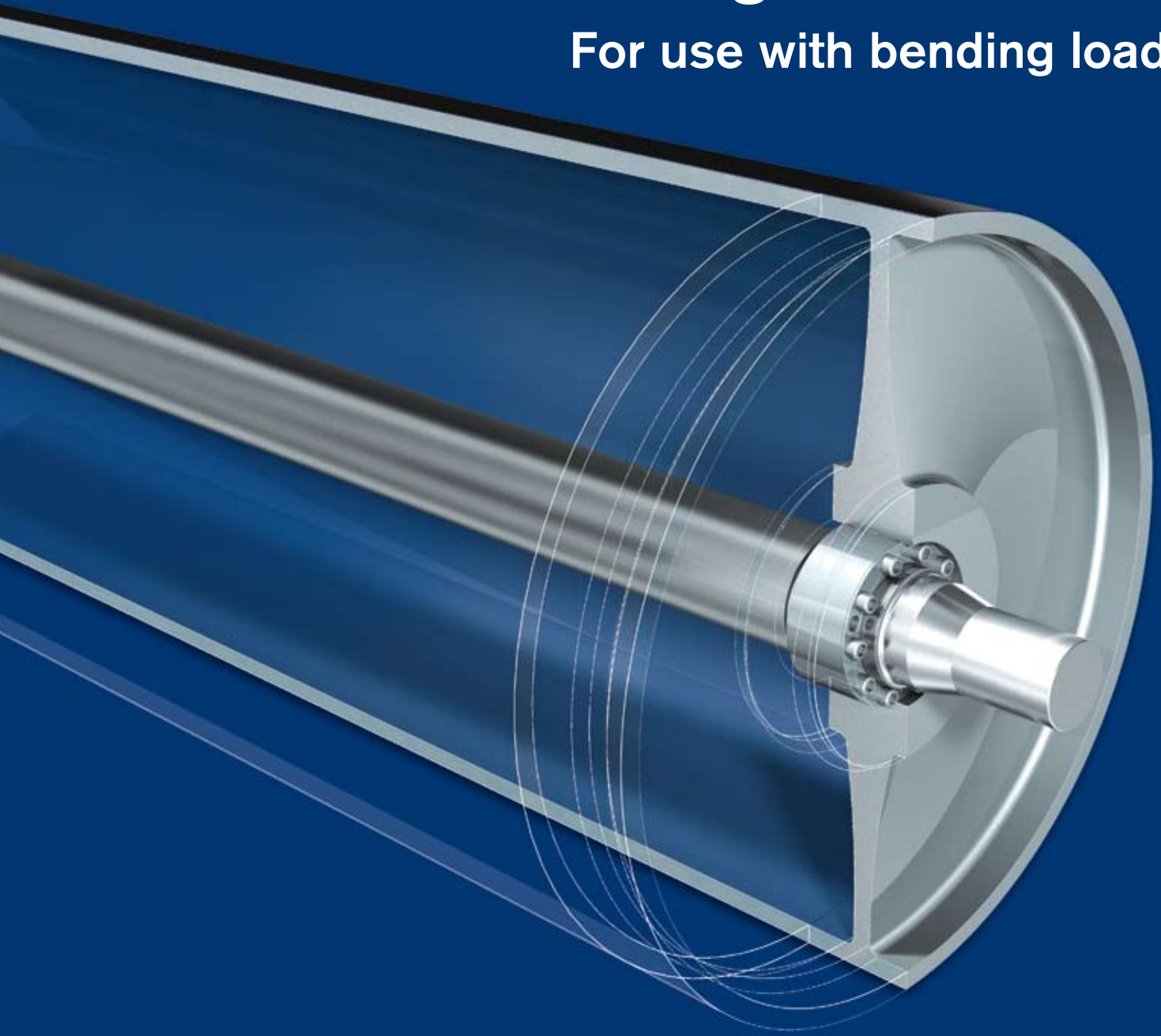


GB
12|2009

RINGFEDER® Locking Assemblies

For use with bending loads



RfN 7012

RfN 7012.2

RfN 7015.0

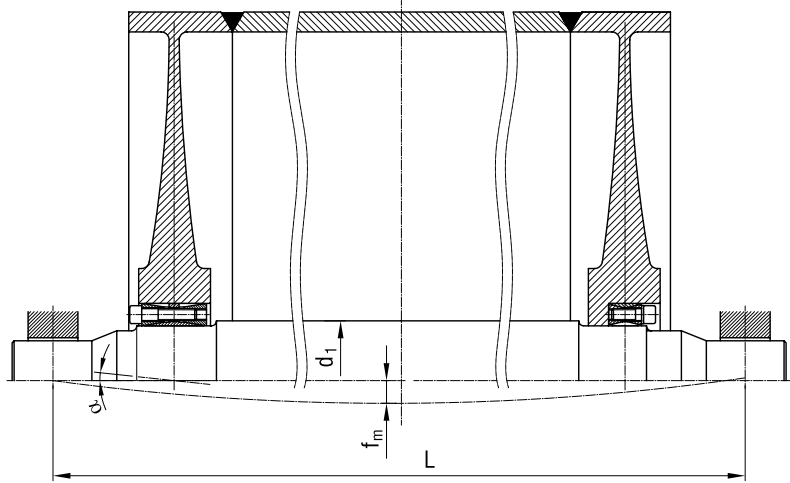
RfN 7015.1



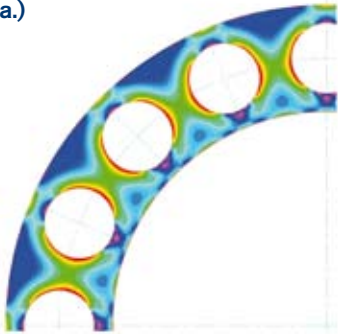
Partner for performance
www.ringfeder.com

 RINGFEDER

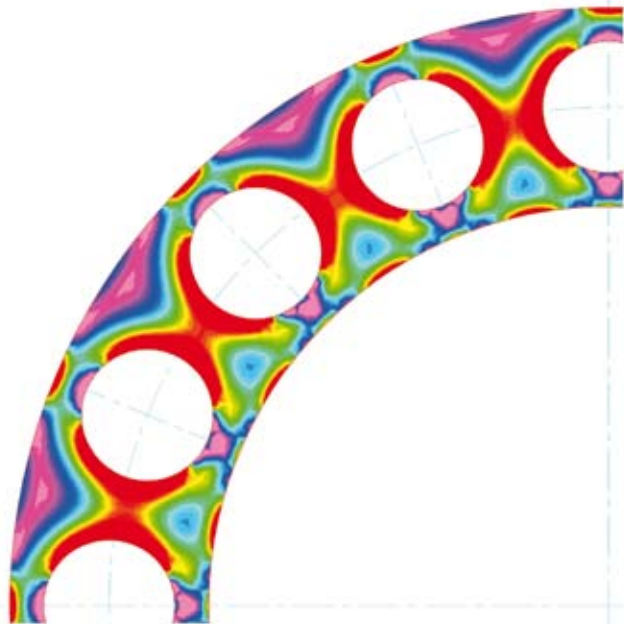
1.)



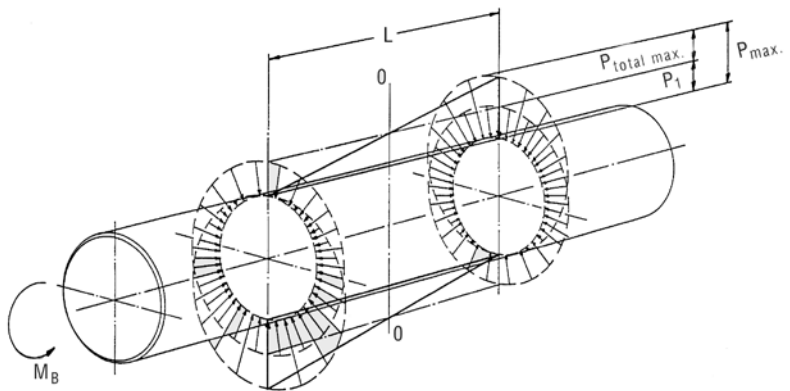
2a.)



2b.)



3.)



1.) **Typical belt drum application. Left-hand side shows Locking Assembly RfN 7015, right-hand side shows Locking Assembly RfN 7012.**

The bending moment related load creates stresses in the hub/shaft connection and is the main load to be considered in belt drum or similar applications.

High bending moments can create overstresses in the webs between the screw holes of the Locking Assembly (see fig. 2b). In case of additional loads (bending moments plus radial loads), the screw tightening torques have to be reduced.

To limit the influence of the bending load on the Locking Assembly connection, we use the following two criteria during the end disc/shaft connection design of the belt drum.

a) **The shaft deflection resulting from the bending moments has to be limited $< 1/2000 * L$ (bearing centre distance).**

b) **The permissible bending load as shown in the following tables.**

2a.) **Stresses in the Locking Assembly**

2b.) **Overstress in the Locking Assembly under too high bending moment**

3.) **Distribution of surface pressure**

This diagram shows the correlation between the surface pressures created by the clamping and the bending moments. Basic limitations for the superposition of these surface pressures are additionally shown.



Patent pending!

New Locking Assembly RINGFEDER® RfN 7012.2

The new Locking Assembly series RINGFEDER® RfN 7012.2 is specially designed to fulfill the requirements of constantly increasing bending moment for conveyor pulleys.

The challenge was, to develop a product with the same dimensions as the standard RINGFEDER® RfN 7012, to fit into existing end discs – ⚠ *yield point of end disc has to be checked* – so that also existing material handling equipment can be upgraded. At the same time the Locking Assembly should absorb a multiple of the bending moment capacity of the standard RINGFEDER® RfN 7012.

To comply with these requirements, we combined the knowledge of our customers as well as our own experience in supplying the heavy industry market area for more than 80 years. The result is the brand new RINGFEDER® RfN 7012.2 (table page 4), which we have filed for patent.

Technical data and information



Patent pending!



RfN 7012

RfN 7012.2

d x D	T _A red.	M _b	T	P _W	P _N
mm	Nm	kNm	kNm	N/mm ²	
100 x 145	125	2,6	9,2	254	175
110 x 155	125	2,7	10,1	234	166
120 x 165	125	3,0	12,7	241	175
130 x 180	125	5,0	16,9	215	155
140 x 190	125	5,3	20,2	215	158
150 x 200	125	5,9	23,5	221	166
160 x 210	125	6,2	27,3	221	168
170 x 225	190	7,8	31,8	208	157
180 x 235	190	8,6	36,8	214	164
190 x 250	190	12,0	44,9	195	148
200 x 260	190	12,7	50,9	195	150
220 x 285	295	16,5	66,0	194	150
240 x 305	295	15,6	84,1	198	156
260 x 325	295	13,4	103	196	157
280 x 355	405	28,9	125	188	148
300 x 375	405	20,2	152	178	142
320 x 405	580	31,0	208	177	140
340 x 425	580	48,2	219	186	149
360 x 455	780	62,4	287	182	144
380 x 475	780	72,4	299	175	140
400 x 495	780	73,4	314	168	136
420 x 515	780	73,1	367	172	140
440 x 545	1000	94,6	445	165	133
460 x 565	1000	106	458	162	132
480 x 585	1000	111	503	162	133
500 x 605	1000	108	550	160	132
520 x 630	1000	120	588	162	134
540 x 650	1000	120	619	157	130
560 x 670	1000	124	669	156	130
580 x 690	1000	128	724	156	131
600 x 710	1000	133	764	156	132
620 x 730	1000	137	814	155	132
640 x 750	1000	136	654	151	129

d x D	T _A red.	M _b	T	P _W	P _N
mm	Nm	kNm	kNm	N/mm ²	
100 x 145	125	10,0	2,5	400	280
110 x 155	125	10,3	4,4	370	260
120 x 165	125	11,8	7,7	390	280
130 x 180	125	15,2	11,9	350	250
140 x 190	125	16,3	16,0	350	260
150 x 200	125	17,3	20,3	350	270
160 x 210	125	16,1	26,3	330	250
170 x 225	190	25,9	24,9	340	260
180 x 235	190	28,5	30,2	350	270
190 x 250	190	38,8	33,5	320	250
200 x 260	190	40,0	38,9	310	240
220 x 285	295	51,0	53,6	310	240
240 x 305	295	51,9	65,4	300	230
260 x 325	295	55,3	87,9	300	240
280 x 355	405	82,0	101	290	230
300 x 375	405	83,0	117	270	220
320 x 405	580	126	155	270	220
340 x 425	580	132	174	270	220
360 x 455	780	189	221	270	220
380 x 475	780	194	248	270	210
400 x 495	780	202	275	260	210
420 x 515	780	216	323	270	220
440 x 545	1000	280	417	260	210
460 x 565	1000	290	417	260	210
480 x 585	1000	295	456	250	210
500 x 605	1000	311	505	250	210
520 x 630	1000	315	546	250	210
540 x 650	1000	324	585	240	200
560 x 670	1000	339	640	250	210
580 x 690	1000	353	697	250	210
600 x 710	1000	366	738	250	210
620 x 730	1000	365	787	240	210
640 x 750	1000	388	865	250	210

Explanation to tables RfN 7012/7012.2 and RfN 7015.0/7015.1

A bending moment, created by radial forces, results in an additional load for the Locking Assembly, shaft and hub. This additional load works in rotation and has to be added to the loads resulting from the Locking Assembly pressure.

For a viable connection, a minimum surface pressure at the contact areas between Locking Assembly, shaft and hub must be maintained.

Additionally, the above listed torque values (T) have been reduced due to the additional bending moments. To achieve lower stresses for the Locking Assemblies RfN 7015.0, the screw tightening torques (T_A) have also been reduced.

Technical data and information



RfN 7015.0



RfN 7015.1

d x D	T _A red.	M _b	T	P _W	P _N
mm	Nm	kNm	kNm	N/mm ²	
100 x 145	115	10,9	3,7	199	137
110 x 155	115	10,9	6,2	180	128
120 x 165	115	13,0	10,0	198	144
130 x 180	115	18,0	13,1	199	144
140 x 190	115	19,0	21,4	214	158
150 x 200	115	21,5	22,2	207	155
160 x 210	115	20,0	32,8	215	164
170 x 225	185	32,0	36,7	224	169
180 x 235	185	32,5	40,0	213	163
190 x 250	185	41,5	44,0	186	141
200 x 260	185	25,0	72,2	187	144
220 x 285	285	61,0	62,7	190	147
240 x 305	285	45,0	119	208	164
260 x 325	285	42,5	136	199	159
280 x 355	390	120	133	197	155
300 x 375	390	126	154	191	153
320 x 405	550	155	226	194	153
340 x 425	550	177	230	188	150
360 x 455	745	250	292	183	145
380 x 475	745	249	321	173	138
400 x 495	745	250	348	165	133
420 x 515	745	300	448	189	154
440 x 545	960	370	536	186	150
460 x 565	960	370	572	178	145
480 x 585	960	395	647	182	149
500 x 605	960	395	684	174	144
520 x 630	1440	530	861	187	154
540 x 650	1440	530	906	179	149
560 x 670	1440	530	951	173	145
580 x 690	1440	532	994	168	141
600 x 710	1440	566	1106	172	145
620 x 730	1440	573	1150	167	143
640 x 750	1440	576	1195	163	138

d x D	T _A	M _b	T	P _W	P _N
mm	Nm	kNm	kNm	N/mm ²	
100 x 145	83	6,1	2,8	112	77
110 x 155	83	6,8	4,6	113	80
120 x 165	83	8,1	7,0	124	90
130 x 180	83	11,0	9,4	120	87
140 x 190	83	11,0	11,1	111	82
150 x 200	83	11,7	13,7	111	83
160 x 210	83	13,2	17,6	117	89
170 x 225	145	17,4	21,5	119	90
180 x 235	145	18,2	25,3	119	91
190 x 250	145	24,5	27,8	109	83
200 x 260	145	27,0	34,0	114	88
220 x 285	145	34,6	42,7	108	83
240 x 305	145	39,0	58,1	112	88
260 x 325	145	44,7	78,1	118	94
280 x 355	230	74,0	94,5	120	95
300 x 375	230	74,1	101	113	90
320 x 405	355	113	147	127	100
340 x 425	355	111	166	119	95
360 x 455	485	132	169	96	76
380 x 475	485	149	208	103	82
400 x 495	485	177	267	115	93
420 x 515	485	177	302	110	90
440 x 545	690	206	335	105	85
460 x 565	690	211	353	101	82
480 x 585	690	234	402	107	88
500 x 605	690	236	424	101	86
520 x 630	690	272	464	95	78
540 x 650	690	274	488	93	77
560 x 670	690	309	573	101	84
580 x 690	690	304	604	95	80
600 x 710	690	305	630	92	78
620 x 730	690	307	651	89	76
640 x 750	690	307	679	82	74

Legend

- d, D** = Basic dimensions, Locking Assembly not tightened
- T_A** = maximum tightening torque for the screws considered in order to determine the values T, P_W and P_N
- M_b** = transmissible bending moment

- T** = transmissible torque at max. bending moment
- P_W** = surface pressure between Locking Assembly and shaft at maximum bending moment
- P_N** = surface pressure between Locking Assembly and hub at maximum bending moment



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

Fax Inquiry

+49 (0) 2151 835 - 201

For a design proposal using RINGFEDER® Locking Assemblies in belt drums

To: RINGFEDER POWER TRANSMISSION GMBH

From:

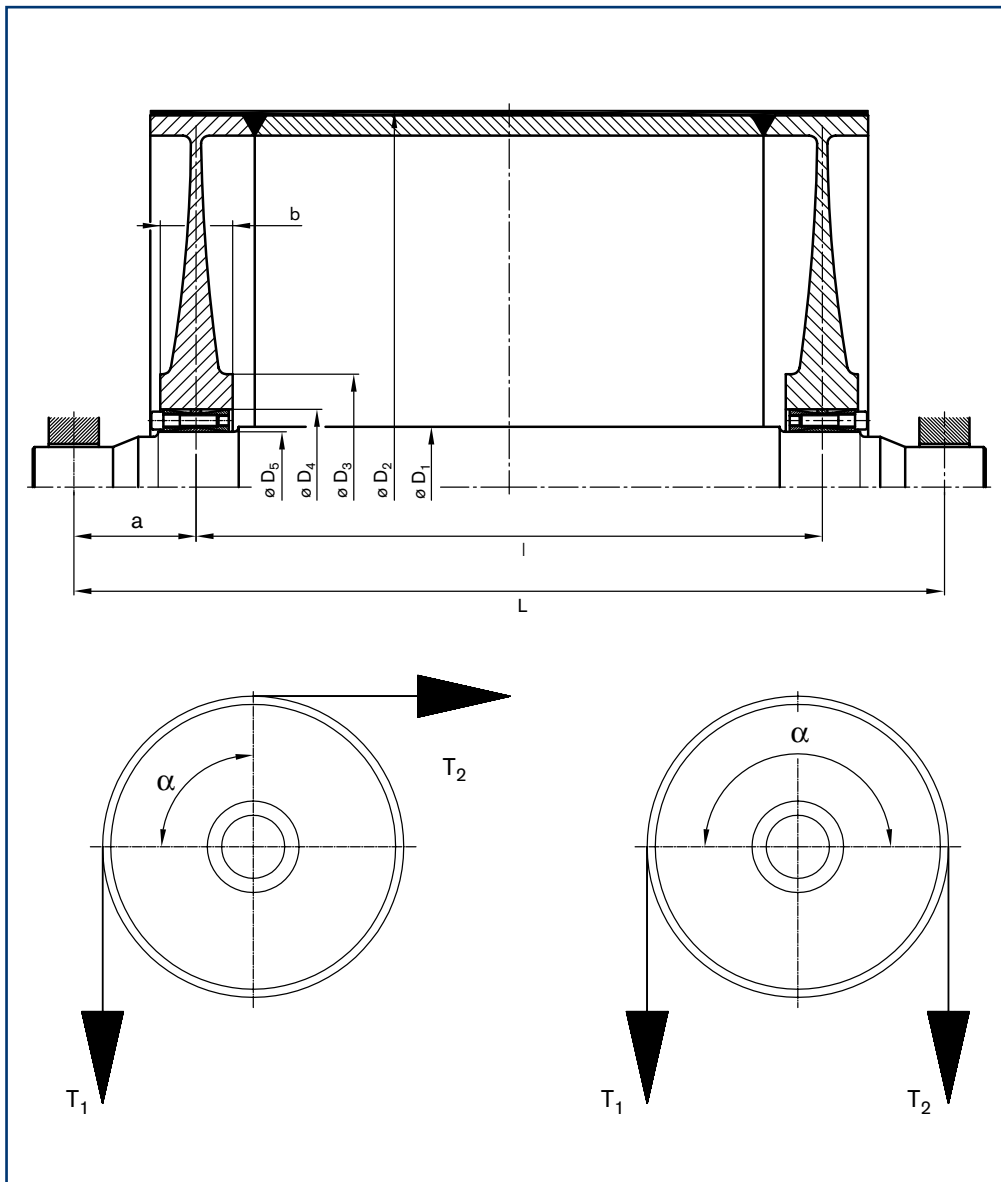
Company:

Phone:

Contact:

Fax:

E-Mail:



Dimensions:

$D_1 = \underline{\hspace{2cm}}$ mm

$D_2 = \underline{\hspace{2cm}}$ mm

$D_3 = \underline{\hspace{2cm}}$ mm

$D_4 = \underline{\hspace{2cm}}$ mm

$D_5 = \underline{\hspace{2cm}}$ mm

$L = \underline{\hspace{2cm}}$ mm

$l = \underline{\hspace{2cm}}$ mm

$a = \underline{\hspace{2cm}}$ mm

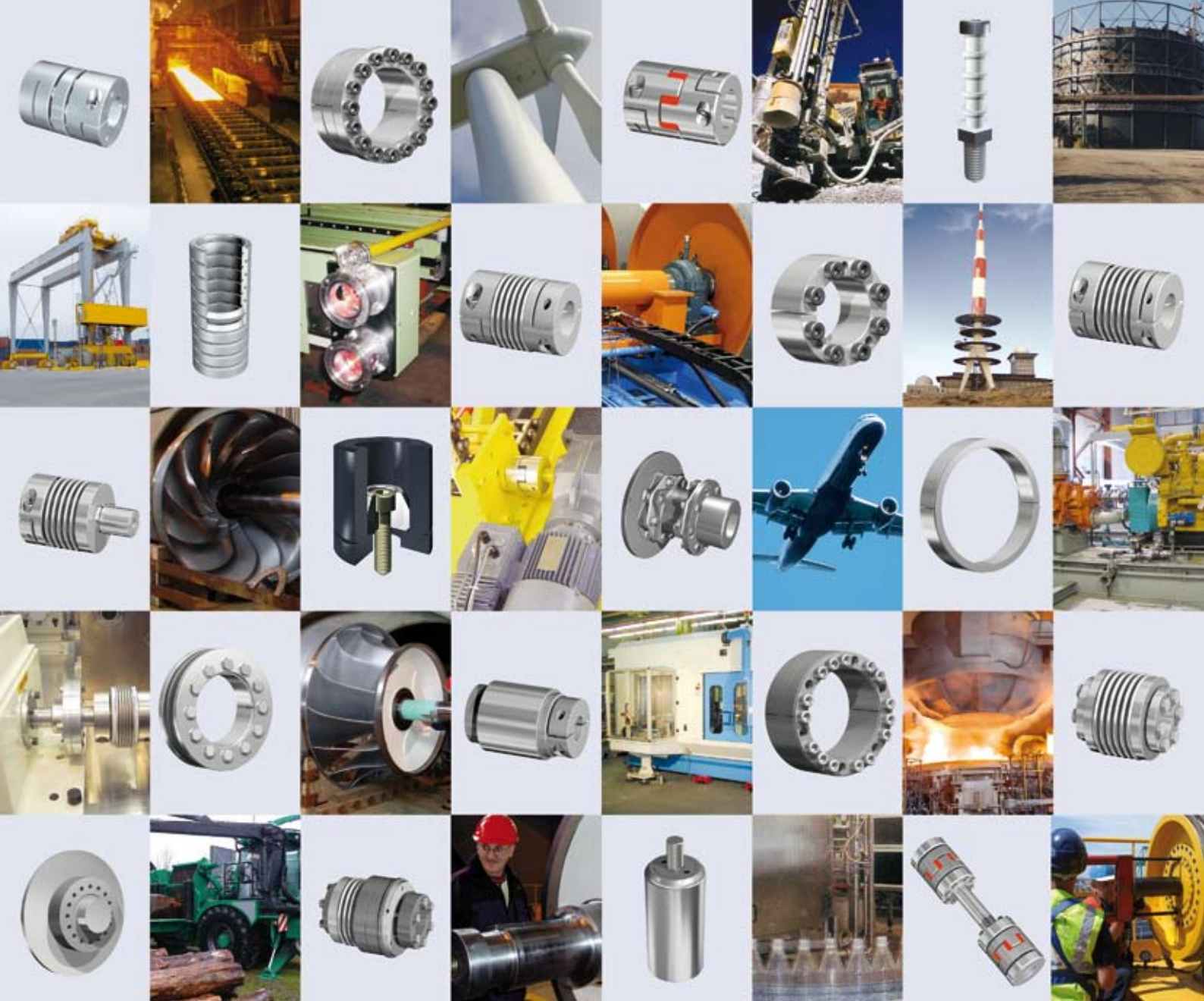
$b = \underline{\hspace{2cm}}$ mm

Loads:

$T_1 = \underline{\hspace{2cm}}$ N

$\alpha = \underline{\hspace{2cm}}^\circ$

$T_2 = \underline{\hspace{2cm}}$ N



RINGFEDER POWER TRANSMISSION GMBH

- Oberschlesienstr. 15, D-47807 Krefeld, Germany · Phone: +49 (0) 2151 835-232 · Fax: +49 (0) 2151 835-19232
E-mail: sales.international@ringfeder.com
- Lützeltaler Str. 5a, D-63868 Großwallstadt, Germany · Phone: +49 (0) 6022 2204-0 · Fax: +49 (0) 6022 2204-11
E-mail: sales.international@gerwah.com

RINGFEDER POWER TRANSMISSION INDIA PRIVATE LIMITED

Plot No. 4, Door No. 220, Mount - Poonamallee Road, Kattupakkam, Chennai – 600 056, India
Phone: +91 (0) 44-2649-6411 · Fax: +91 (0) 44-2649-6422 · E-mail: sales.india@ringfeder.com · E-mail: sales.india@gerwah.com

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 · E-mail: sales.usa@gerwah.com