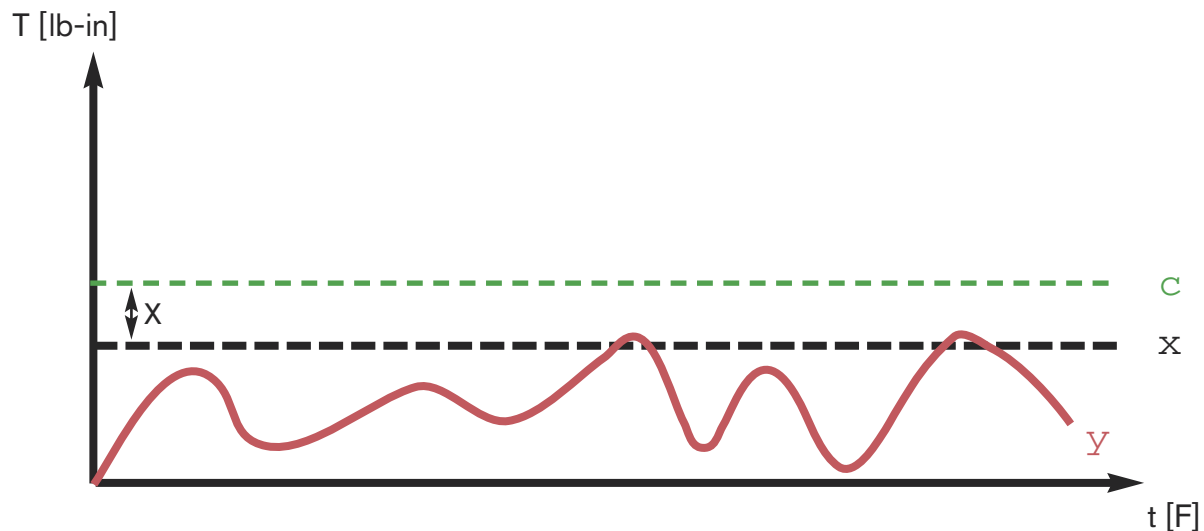


### Torque limiter selection tips

- 1 Contact KTR for specific applications using advanced selection and simulation tools. Let us know your drive specifications. The more information we have, the more precise the selection will be.
- 1 Please note: High masses on the drive or driven side can result in long slow-down times. This can cause increased wear of the coupling. When high speeds are encountered, we recommend using a free-rotating (load-separating) safety clutch (KTR-SI idle rotation coupling). Please contact KTR's engineering department for more information.
- 1 Proper operation is possible only if the overload torque setting exceeds the maximum normal operating torque of the machine. The torque limiter setting should be set 30% higher than the maximum operating torque of the drive (see chart below).
- 1 For all torque limiters, an electrical shutdown of the drive should be used. Continuous slipping can destroy the torque limiter. We can assist in selecting proximity / limit switches or speed controls.

### Important factors for the selection of torque limiters:

The overload torque setting must exceed the maximum operating torque of the application (see diagram below).



- y Torque curve of the system
- x Maximum operating torque of the system
- c Torque limiter setting
- X Safety factor between x and c (should be at least 30% of the maximum operating torque of the system).

## Designs and Applications

Design	Characteristics	Applications
 <p>RUFLEX® standard</p>	<ul style="list-style-type: none"> <li>1 Torque Limiter, high-capacity, high quality materials</li> <li>1 Overload protection up to 60180 [lb-in]</li> <li>1 High-capacity wear for long service life</li> <li>1 Zinc, yellow chromated coating</li> <li>1 Economical</li> </ul> <p>See page 170</p>	<ul style="list-style-type: none"> <li>1 Conveyors</li> <li>1 Packaging machines</li> <li>1 Textile machines</li> <li>1 Gear motors</li> </ul>
 <p>RUFLEX® with sprocket</p>	<ul style="list-style-type: none"> <li>1 Torque limiter with sprocket</li> <li>1 Design ready for assembly</li> <li>1 Torque pre-set to customer specifications</li> <li>1 Available from stock with standard sprockets</li> <li>1 Other sprockets available on request</li> </ul>	<ul style="list-style-type: none"> <li>1 Conveyors</li> <li>1 Automation systems</li> <li>1 Actuators</li> </ul>
 <p>RUFLEX® max.</p>	<ul style="list-style-type: none"> <li>1 Torque limiter in a lengthened design for assemblies with wide driving elements (i.e. double or triple sprockets)</li> <li>1 Detailed adjustment to customers' mounting dimensions</li> <li>1 Also available with a sprocket</li> </ul> <p>See page 171</p>	<ul style="list-style-type: none"> <li>1 Multiple sprocket drives</li> <li>1 Multiple groove V-belt pulleys</li> <li>1 Conveyors</li> <li>1 Packaging machines</li> </ul>
 <p>RUFLEX® with ROTEX®</p>	<ul style="list-style-type: none"> <li>1 Torque limiter for shaft-to-shaft connection</li> <li>1 Torsionally flexible torque limiter able to compensate for misalignment</li> <li>1 Axial plug-in</li> <li>1 Various elastomers available, each adjusted to the application</li> </ul> <p>See page 172</p>	<ul style="list-style-type: none"> <li>1 Gear motors</li> <li>1 Axle drives</li> <li>1 High-quality pumps</li> <li>1 Printing machines</li> </ul>
 <p>RUFLEX® with BoWex®</p>	<ul style="list-style-type: none"> <li>1 Torque limiter, torsionally rigid, double-cardanic shaft-to-shaft design</li> <li>1 Low cost</li> <li>1 Axial plug-in</li> <li>1 Double-cardanic design compensates for high misalignment</li> </ul> <p>See page 173</p>	<ul style="list-style-type: none"> <li>1 General equipment</li> <li>1 Low speeds</li> <li>1 High misalignment</li> <li>1 Conveyors</li> </ul>

Function and design

RUFLEX® standard




RUFLEX® with sprocket



RUFLEX® with ROTEX®



- 1 Overload protection up to 60,180 lb-in (standard)
- 1 Adaptable to standard PT components (e.g. sprockets, pulleys)
- 1 Dry running asbestos-free and rust-resistant friction lining  (ATEX approved on request)
- 1 High quality materials for durability and long life
- 1 High quality slip bushing with dry-film lubricant
- 1 Torque can be adjusted while assembled



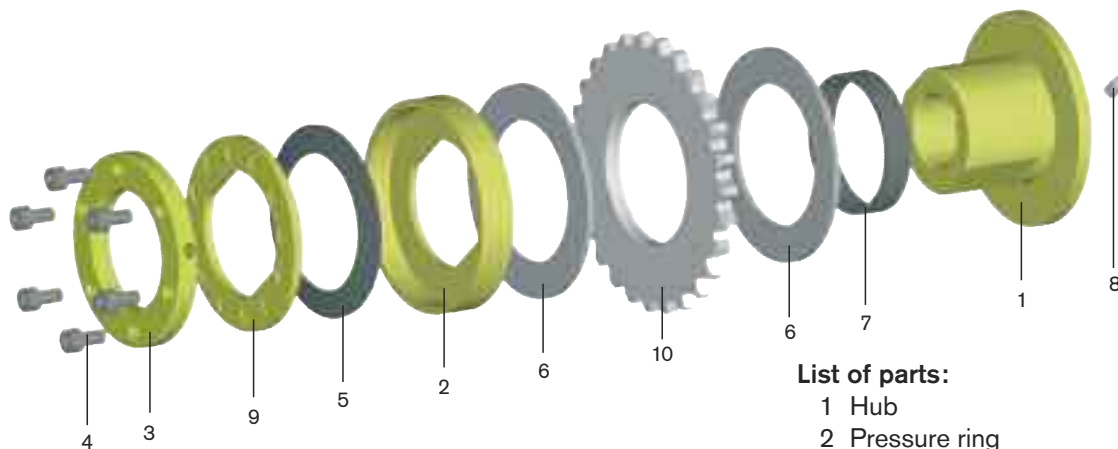
- 1 Easy assembly and torque setting
- 1 Economical, high-capacity friction disc design
- 1 High grade steel components
- 1 Yellow Zinc Dichromate corrosion protection
- 1 Corrosion and acid-proof design available on request
- 1 High quality disc springs and friction linings

The combination of RUFLEX® and customer-specific drive components (e.g. sprockets) provides overload protection for every application.

Different combinations of disc springs and high quality friction linings ensure optimum capacity - even in tight areas.

Assembly and operation

RUFLEX® consists of the following components:



List of parts:

- 1 Hub
- 2 Pressure ring
- 3 Setting nut
- 4 Torque setting fasteners
- 5 Disc spring
- 6 Friction lining
- 7 Slip bushing
- 8 Setscrew
- 9 Lock washer
- 10 Drive component (e.g. sprocket – customer supplied)

Combinations of disc springs:



- 1 TF**
- Light load on friction linings
  - For small to average torque
  - High service life of friction linings



- 1 TFD**
- Light load on friction linings
  - Same torques as design 1TF
  - Insignificant decrease of torque even during extended periods of disengagement
  - Precise torque adjustment with double spring arrangement



- 2 TF**
- Average load on friction linings
  - Average wear and decrease of torque with longer slipping periods
  - Double the torque with a double layer disc spring design

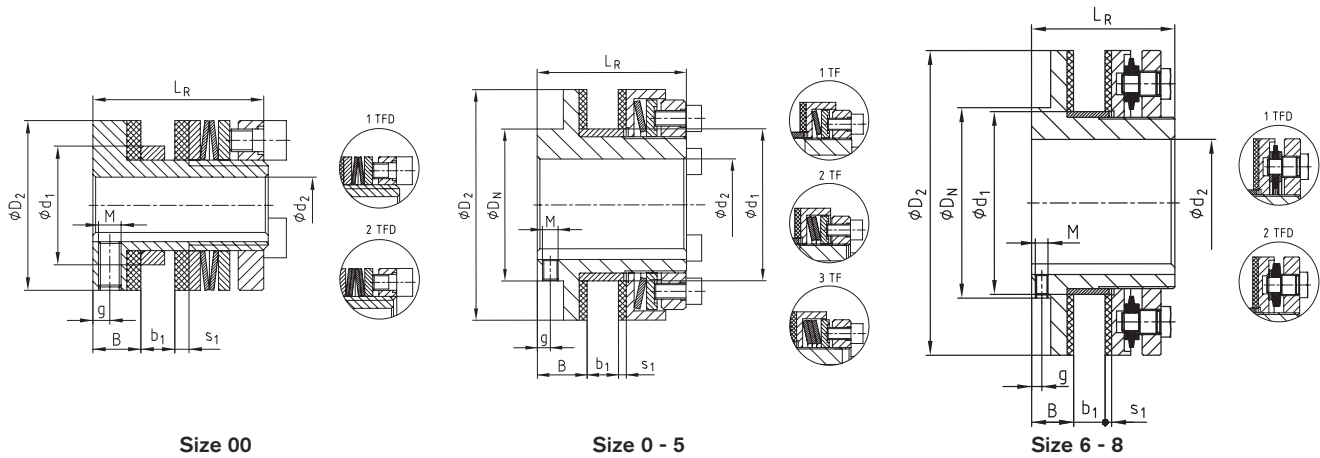


- 3 TF**
- High load on friction linings
  - High wear and decreased torque with longer slipping periods
  - Not available in all sizes

## Standard RUFLEX®



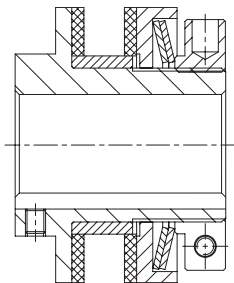
- 1 Torque settings up to 60,180 lb-in
- 1 Easy slip torque adjustment
- 1 Torque setting adjustable while installed
- 1 Asbestos-free and rust-resistant friction linings
- 1 All components are made from high quality steel
- 1 Standard RUFLEX® coated with zinc yellow dichromate



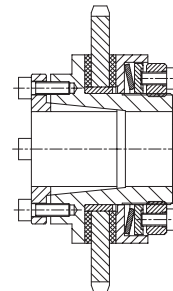
Technical Data																
Size	Max. speed [rpm]	Torques [lb-in]			Dimension [in]											
		1TF	2TF	3TF <sup>3)</sup>	Bore $d_2$		$D_2$	$D_N$	$d_1$ <sup>2)</sup>	B	Driving component $b_1$		$S_1$	$L_R$	Setscrew	
					Pilot bore	max.					min.	max.			g	M
00	10,000	4.4-27	8.9-44	–	–	0.375	1.18	1.18	0.83	0.33	0.08	0.24	0.10	1.22	0.12	M4
0	8,500	18-89	35-177	–	–	0.750	1.77	1.77	1.38	0.33	0.08	0.24	0.10	1.30	0.12	M4
01	6,600	44-310	89-620	–	–	0.875	2.28	1.57	1.57	0.63	0.12	0.31	0.12	1.77	0.16	M5
1	5,600	170-660	350-1,320	1,150-1,770	–	1.000	2.68	1.77	1.73	0.67	0.12	0.39	0.12	2.05	0.20	M5
2	4,300	220-1,230	440-2,470	2,210-3,540	–	1.313	3.46	2.28	2.28	0.75	0.16	0.47	0.12	2.24	0.20	M6
3	3,300	440-2,650	880-5,310	4,860-7,080	–	1.688	4.53	2.95	2.83	0.83	0.20	0.59	0.16	2.68	0.20	M6
4	2,700	790-5,310	1,590-10,620	9,370-14,160	–	2.125	5.51	3.54	3.35	0.91	0.24	0.71	0.16	3.07	0.20	M8
5	2,200	3,540-7,080	7,080-14,160	12,390-18,580	–	2.500	6.69	4.02	3.86	1.14	0.31	0.79	0.20	3.62	0.31	M8
6	1,900	2,650-10,620	5,310-21,240	–	1.496	3.000	7.87	4.72	4.57	1.22	0.31	0.91	0.20	4.02	0.31	M8
7	1,600	5,310-19,470	10,620-38,940	–	1.772	3.875	9.45	5.91	5.67	1.30	0.31	0.98	0.20	4.45	0.31	M10
8	1,300	7,960-30,090	15,930-60,180	–	2.283	4.625	11.22	7.09	6.69	1.38	0.31	0.98	0.20	4.53	0.31	M10

1) Finish bores greater than  $\phi 0.813$  in will have shallow keyway (consult KTR)  
3) Use only for compact applications

2) Dimension  $d_1$  is machined to accept components with an F8 bore tolerance



– Cross clamping nut for limited axial space applications



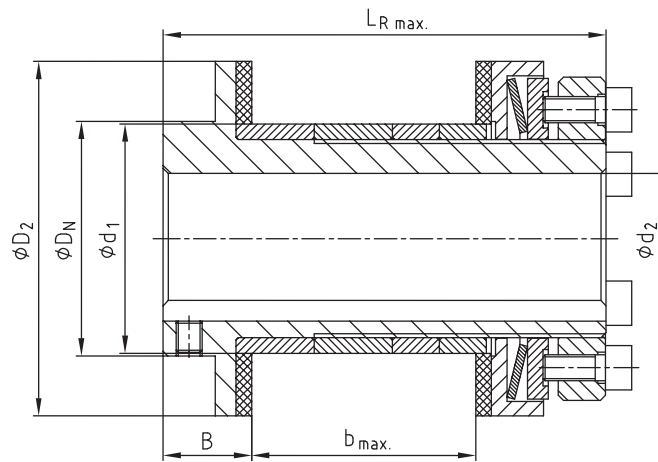
– Keyless clamping ring (hub design 4.5) friction connection

Order form:	RUFLEX®	1	2TF	10	$\phi 20$
	Coupling type	Size	Disc spring layer	Width of driving components	Bore

## RUFLEX® max.



- 1 Torque settings up to 14,162 lb-in
- 1 Accepts wide driving components
- 1 Easy slip torque adjustment
- 1 Torque setting adjustable while installed
- 1 Asbestos-free and rust-resistant friction linings
- 1 All components are made from high quality steel
- 1 Standard RUFLEX® coated with zinc yellow dichromate
- 1 Installation instructions available at [www.ktr.com](http://www.ktr.com)

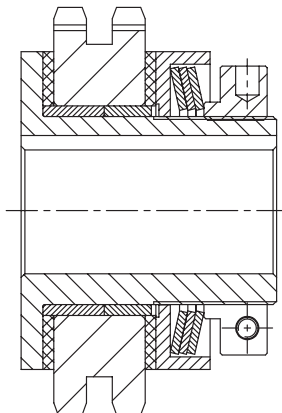


### Technical Data

Size	Max. speed [rpm]	Torques [lb-in]			Dimensions [in]							
		1TF	2TF	3TF <sup>2)</sup>	Bore $d_2$		$D_2$	$D_N$	B	$b_{\max.}$	$d_1$ <sup>1)</sup>	$L_{R \max.}$
					Pilot bore	max.						
01	6,600	44-310	89-620	–	–	0.875	2.28	1.57	0.63	1.30	1.57	2.76
1	5,600	170-610	350-1,320	1,150-1,770	–	1.000	2.68	1.77	0.67	1.69	1.73	3.35
2	4,300	220-1,230	440-2,470	2,210-3,540	–	1.313	3.46	2.28	0.75	2.13	2.28	3.94
3	3,300	440-2,650	880-5,310	4,860-7,080	–	1.688	4.53	2.95	0.83	2.44	2.83	4.53
4	2,700	797-5,311	1,593-10,621	9,736-14,162	–	2.17	5.51	3.54	0.91	3.60	3.35	6.06

1) Dimension  $d_1$  is machined to accept components with an F8 bore tolerance

2) Use only for compact applications



– RUFLEX® max. with sprocket

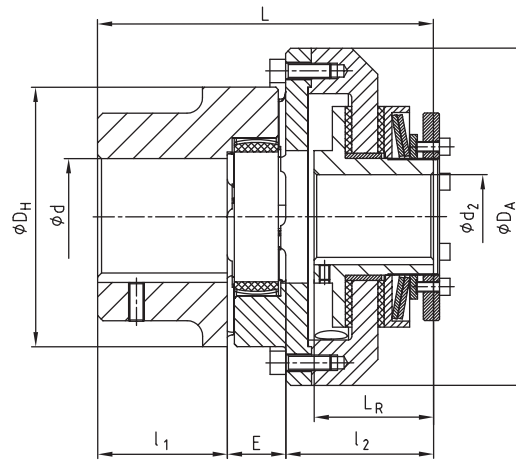
Order form:

RUFLEX® max.	1	2TF	35	Ø 20
Coupling type	Size	Disc spring layer	Width of driving components "b"	Bore

**RUFLEX® with torsionally flexible ROTEX® coupling**



- 1 Torque settings up to 60,180 lb-in, axial plug-in
- 1 Integrated with torsionally flexible ROTEX® coupling
- 1 Easy slip torque adjustment
- 1 Torque setting adjustable while installed
- 1 Asbestos-free and rust-resistant friction linings
- 1 All components are made from high quality steel
- 1 Standard RUFLEX® coated with zinc yellow dichromate
- 1 Installation instructions available at [www.ktr.com](http://www.ktr.com)

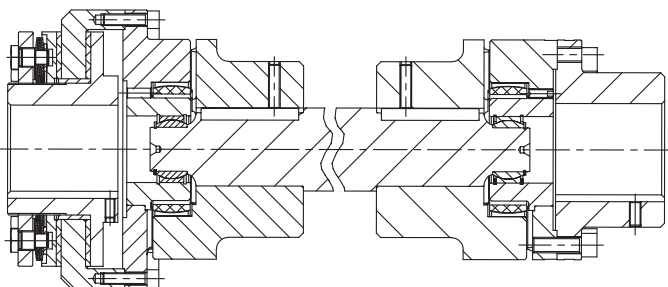


Technical Data																
RUFLEX® size	ROTEX® size	RUFLEX® torques [lb-in]			ROTEX® torques [lb-in]		Dimension [in]									
		1TF	2TF	3TF <sup>2)</sup>	95/98 Shore A		Bore d <sub>2</sub>		L	D <sub>A</sub>	L <sub>R</sub>	E	l <sub>1</sub>	l <sub>2</sub>	D <sub>H</sub>	
					T <sub>KN</sub>	T <sub>K max.</sub>	Pilot bore	max.								Bore d <sub>max.</sub>
00	14	4.4-27	8.9-44	–	111	221	–	0.375	0.625	2.32	1.73	1.22	0.51	0.43	1.38	1.18
0	19	18-89	35-177	–	150	301	–	0.750	1.000	3.07	2.48	1.30	0.63	0.98	1.46	1.57
01	24	44-310	89-620	–	531	1,062	–	0.875	1.313	3.86	3.15	1.77	0.71	1.18	1.97	2.17
1	28	170-660	350-1,320	1,150-1,770	1,416	2,832	–	1.000	1.500	4.45	3.86	2.05	0.79	1.38	2.28	2.56
2	38	220-1,230	440-2,470	2,210-3,540	2,877	5,753	–	1.313	1.813	5.24	4.72	2.24	0.94	1.77	2.52	3.15
3	48	440-2,650	880-5,310	4,860-7,080	4,647	9,294	–	1.688	2.375	6.54	6.38	2.68	1.10	2.20	3.23	4.13
4	75	790-5,310	1,590-10,620	9,730-14,160	12,967	25,933	–	2.125	3.625	8.07	7.28	3.07	1.57	3.35	3.15	6.30
5	90	3,540-7,080	7,080-14,160	12,390-18,580	31,864	63,727	–	2.500	4.250	10.20	10.24	3.62	1.77	3.94	4.49	7.87
6	100	2,650-10,620	5,310-21,240	–	43,812	87,625	1.496	3.000	4.375	11.42	11.22	4.02	1.97	4.33	5.12	8.86
7	110	5,310-19,470	10,620-38,940	–	53,106	106,212	1.772	3.875	4.813	12.48	12.99	4.45	2.17	4.72	5.59	10.04
8	140	7,960-30,090	15,930-60,180	–	97,361	194,722	2.283	4.625	6.188	14.65	16.14	4.53	2.56	6.10	5.98	12.60

<sup>1)</sup> Finish bores greater than Ø 0.813 in will have shallow keyway (consult KTR)

<sup>2)</sup> Use only for compact applications

<sup>3)</sup> Max bore with steel ROTEX® hub 1.0 to size 90, Nodular Iron size 100 and up



Alternative Designs

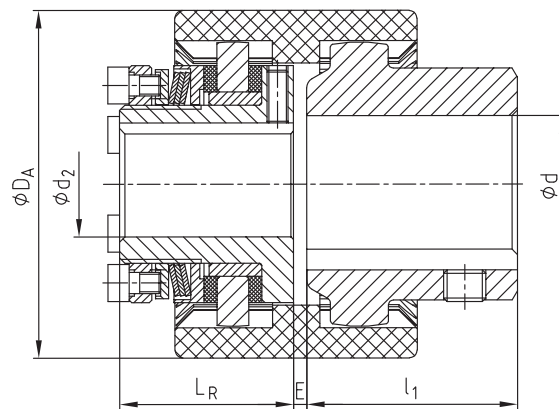
- RUFLEX® with intermediate shaft coupling
- Capable of achieving large shaft gaps
- Available in combination with RADEX-N® and ROTEX® couplings

Order form:	RUFLEX®	1	2TF	Ø 20	ROTEX®	28	98 Sh A	Ø 25	885 [lb-in]
Coupling type	Size	Disc spring layer	RUFLEX® bore	Coupling type	Size	Spider	ROTEX® bore	Torque set	

## RUFLEX® with torsionally rigid BoWex® coupling



- 1 Torque settings up to 3,540 lb-in, axial plug-in
- 1 Integrated with torsionally stiff **BoWex® coupling**
- 1 Easy slip torque adjustment
- 1 Torque setting adjustable while installed
- 1 Asbestos-free and rust-resistant friction linings
- 1 Standard RUFLEX® coated with zinc yellow dichromate
- 1 Installation instructions available at [www.ktr.com](http://www.ktr.com)

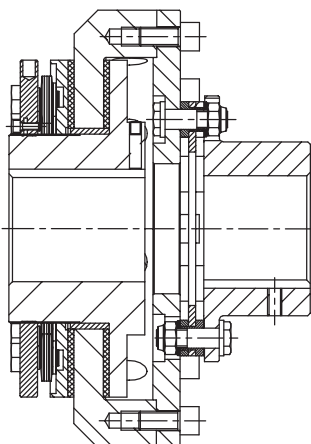


### Technical Data

RUFLEX® size	BoWex® size	RUFLEX® torques [lb-in]			BoWex® torques [lb-in]		Dimensions [in]						
		1TF	2TF	3TF <sup>2)</sup>	T <sub>KN</sub>	T <sub>K max.</sub>	Bore d <sub>2</sub>		Bore d <sub>max.</sub>	D <sub>A</sub>	L <sub>R</sub>	E	l <sub>1</sub>
							Pilot bore	max.					
00	19	4.4-27	8.9-44	–	140	280	–	0.375	0.750	1.89	1.22	0.10	0.98
0	28	18-89	35-170	–	390	790	–	0.750	1.125	2.60	1.30	0.10	1.57
01	38	44-310	89-620	–	700	1,410	–	0.875	1.438	3.27	1.77	0.04	1.40
1	48	170-660	350-1,320	1,150-1,770	1,230	2,470	–	1.000	1.813	3.74	2.05	0.04	1.79
2	65	220-1,230	440-2,470	2,210-3,540	3,360	6,720	–	1.313	2.500	5.20	2.24	0.04	2.52

1) Finish bores greater than Ø 0.813 in will have shallow keyway (consult KTR)

2) Use only for compact applications



### Alternative Designs

- RUFLEX® with torsionally rigid, zero-backlash RADEX®-N steel disc coupling
- Suitable for high operating temperatures (up to 536 °F)
- With spacers for different shaft gaps (DBSE)

### Order form:

RUFLEX®	1	1TF	BoWex®	38	Ø 20	Ø 25	443 [lb-in]
Coupling type	Size	Disc spring layer	Coupling type	Size	RUFLEX® bore	BoWex® bore	Torque set