Breitbach Antriebstechnik

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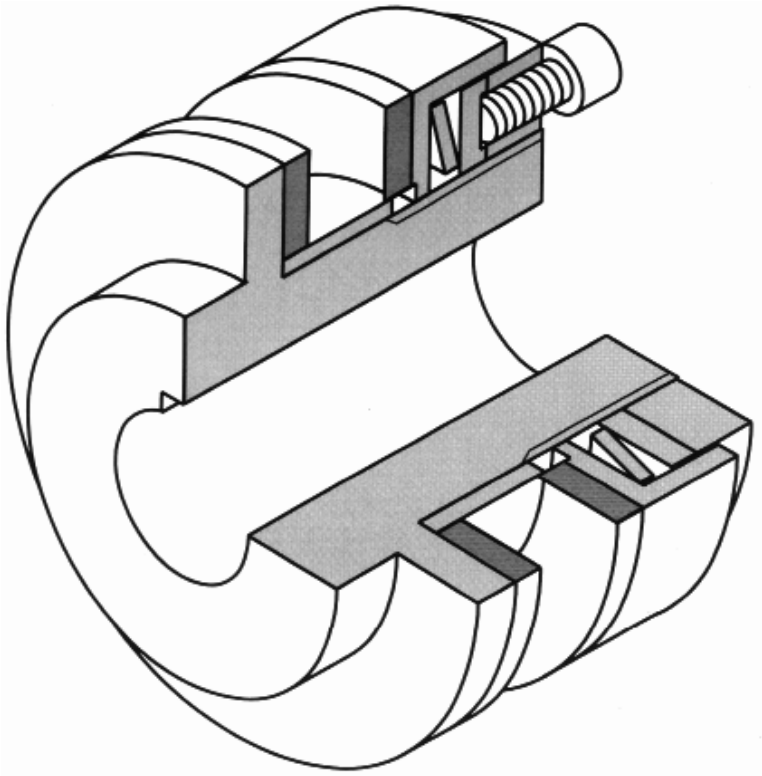
TORQUE LIMITERS SERIES



Type RBS

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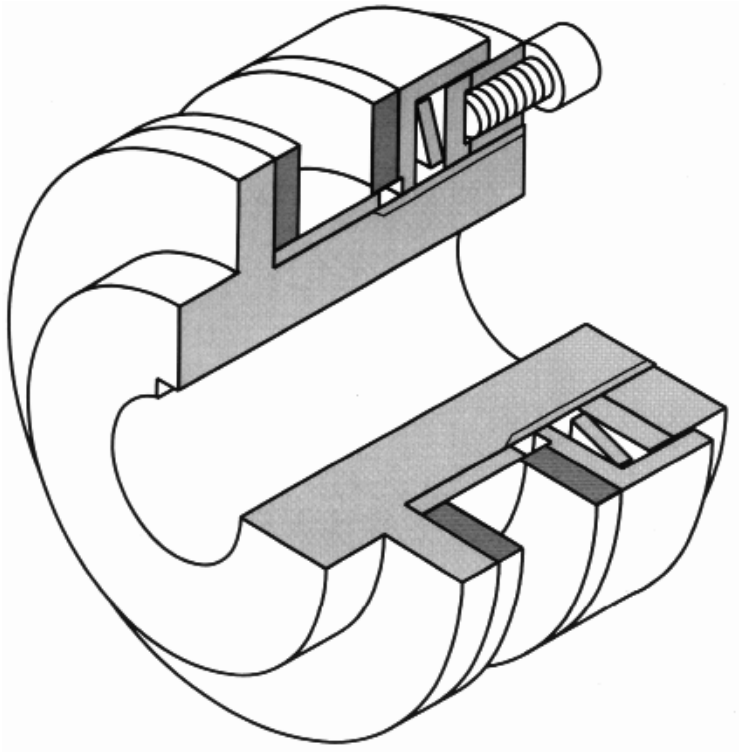
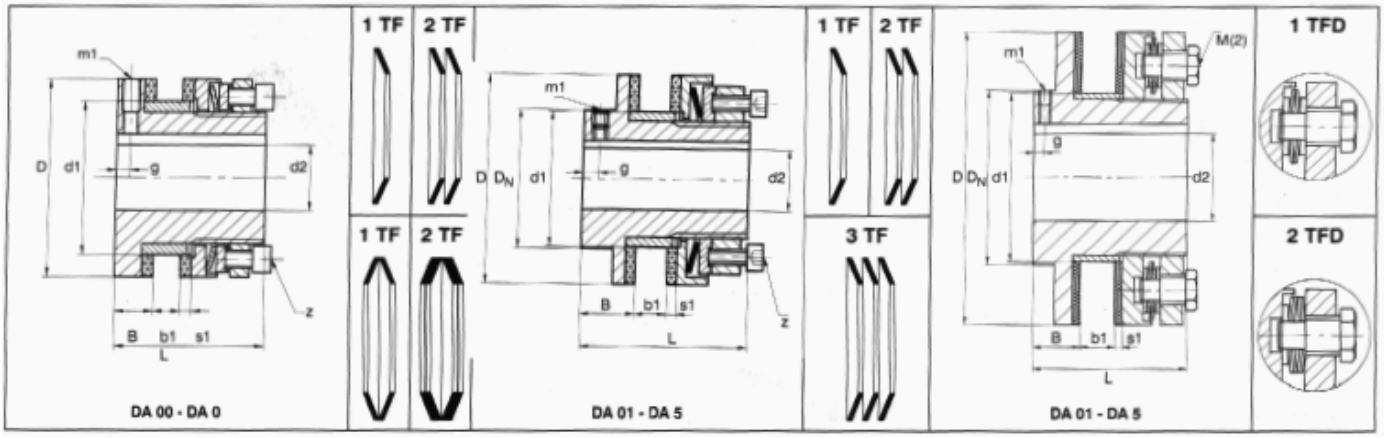
- **Up to 6800 Nm torque**



- **All steel parts zink plated and chromated**
- **Torque setting infinitely adjustable**
- **Friction disks free of asbestos**
- **Bronze bushings standard equipment**
- **Torque setting can be changed in installed position**
- **Stainless steel version available**
- **Also available equipped with needle bearings**
- **Friction disks with stainless steel inserts available**



		Torque (Nm)			Dimensions (mm)													
	max.	single	double	triple [2]	BORE						WIDTH CENTER MEMBER b_1							
	RPM	1	2	3	d_2		D	D_N	d_1 [1]	B	min.	max.	s_1	L	g	m_1	M	Z
Type					min.	max												
00	10000	0,5-2,5	1-5	-	4,8	10	30	30	21	8,5	2	6	2,5	31	3	M4	M4	3
0	8500	2-10	4-20	-	5,7	20	45	45	35	8,5	2	6	2,5	33	3	M4	M4	6
01	6600	6-30	12-60	-	10	22	58	40	40	16	3	8	3	45	4	M5	M4	6
1	5600	14-70	28-130	130-200	10	25	68	45	44	17	3	10	3	52	6	M5	M5	6
2	4300	26-130	52-250	250-400	14	35	88	58	58	19	4	12	3	57	6	M6	M6	6
3	3300	50-250	100-550	550-800	18	45	115	75	72	21	5	15	4	58	6	M6	M8	6
4	2700	110-550	220-1100	1100-1600	24	55	140	90	85	23	6	18	4	78	6	M8	M8	6
5	2200	140-700	280-1400	1400-2100	28	65	170	102	98	29	8	20	5	92	8	M8	M8	6
6	1900	240-1200	480-2400	-	38	80	200	120	116	31	8	23	5	102	8	M8	M20	8
7	1600	400-2000	800-4000	-	45	100	240	150	144	33	8	25	5	113	8	M10	M20	12
8	1300	680-3400	1360-6800	-	58	120	285	180	170	35	8	25	5	115	8	M10	M20	16

[1] d_1 finished bore tolerances according to ISO H8
[2] width of powertransmission-part is reduced

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Introduction

The TORQUE LIMITER is a protective device that limits torque transmitted in a drive system by slipping when the torque demand exceeds a pre-set value as a result of shock loads, over loads or machine jams. It automatically reengages when the overload torque has passed; no resetting is required. The TORQUE LIMITER prevents machine damage and eliminates costly downtime. The TORQUE LIMITER utilizes spring loaded friction surfaces for its operations; slip torque is pre-set by adjustment of the spring force. The TORQUE LIMITER can be used with a sprocket, gear, sheaves, or flange plate as the centre member that is clamped between two friction facings.

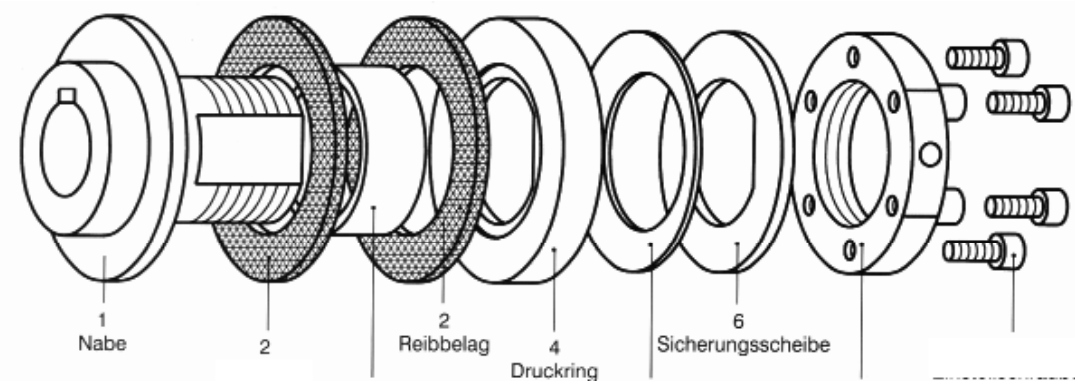
Design Features

The TORQUE LIMITER program consists of 11 sizes; larger sizes or special designs are available on request. The parts that make up a TORQUE LIMITER consists of the following:

- **Integral Hub and pressure plate (1) is made of high grade cast iron steel depending on the size.**
- **High resistance friction facings (2), unbound, free of asbestos.**
- **Free floating bronze bushing (3) on which the centre member and the friction facings will ride.**
- **The pressure ring (4) designed with flats to fit securely on the hub.**
- **The disk spring (or Belleville spring)(5)provides the axial load to the pressure ring, friction facings and the centre member.**
- **Safety plate (6) which assures that the load does not change.**
- **The 6 bolt (8) adjustment nut (7) which allows adjustment in 30°increments.**

The adjustment nut of the sizes 6 to 8 and up is of a different design, but also easily and infinitely adjustable.

The TORQUE LIMITERS consists of the following parts:



3 5 7 8

1- hub
2- friction disk
3 - bushing
4- pressure ring
5- disk spring
6- safety plat
7- adjustment nut
8- adjustment bolts

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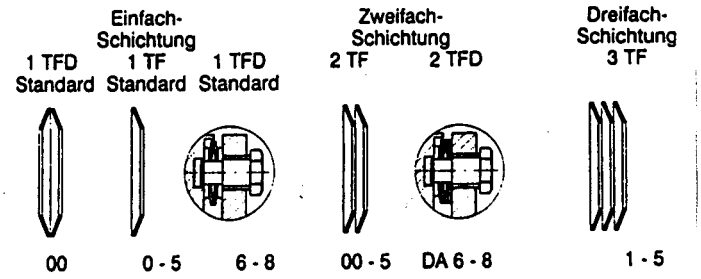
Disk Spring Mountings

Standard TORQUE LIMITERS are available in three versions:

- **For small torque requirements with one disk spring in sizes 0-5**
- **For medium torque applications with two disk springs in sizes 0-5**
- **For large torque requirements with three disk springs in sizes 1-5**
- **In sizes 6-8 small and medium torque requirements also have one or two springs respectively, however all springs are double, facing one another. Details on request.**



Friction Facings

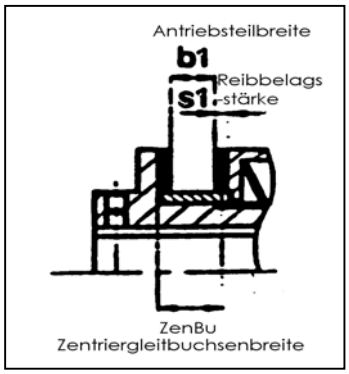
Friction disks are free of asbestos and are suitable for permanent slippage at low speeds. Available are also friction disks paired with stainless steel sheaves for protection in damp surroundings. Details on request. Basically it should be understood, that the lifetime of the friction disks depends on the torque applied, the turning speed, the duration and the frequency of slippage.

Bushings

The bushing supplied with the TORQUE LIMITER is made of high quality bearing bronze. If not otherwise specified the bushing will be supplied at length b1, for maximum width of centre member. The calculation of the bushing length is as follows: 1.5 x s1 + b

Example:

TORQUE LIMITER size 3
Centre member i.e. = 12mm
Friction disk thickness s1 = 4mm
1.5 x 4 + 12 = 18mm length of bushing. Standard maximum length of bushings will be supplied, unless otherwise specified.



Size	00	0	01	1	2	3	4	5	6	7	8
Bush Length	4,2	10	13	15	17	21,5	24,5	28	31	33	33

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Areas of Application:

The main applications are with chain sprockets, gear, sheaves, or flange plates in various types of machines, such as:

- **Textile machines**
- **Packaging machines**
- **Conveyor systems**
- **Machines for the building industry**
- **Automation and machine feeding equipment**
- **Machine tools**
- **Food processing equipment**
- **Wood working machines**

With one spring there is little wear of the friction disk, with two springs wear is somewhat more, whereas with a three spring configuration wear is considerable.

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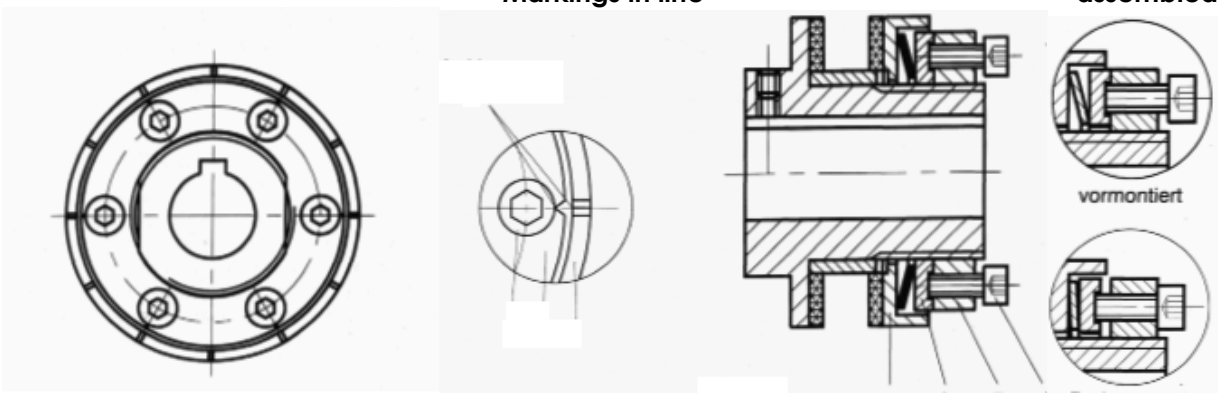
Installation of Torque Limiters

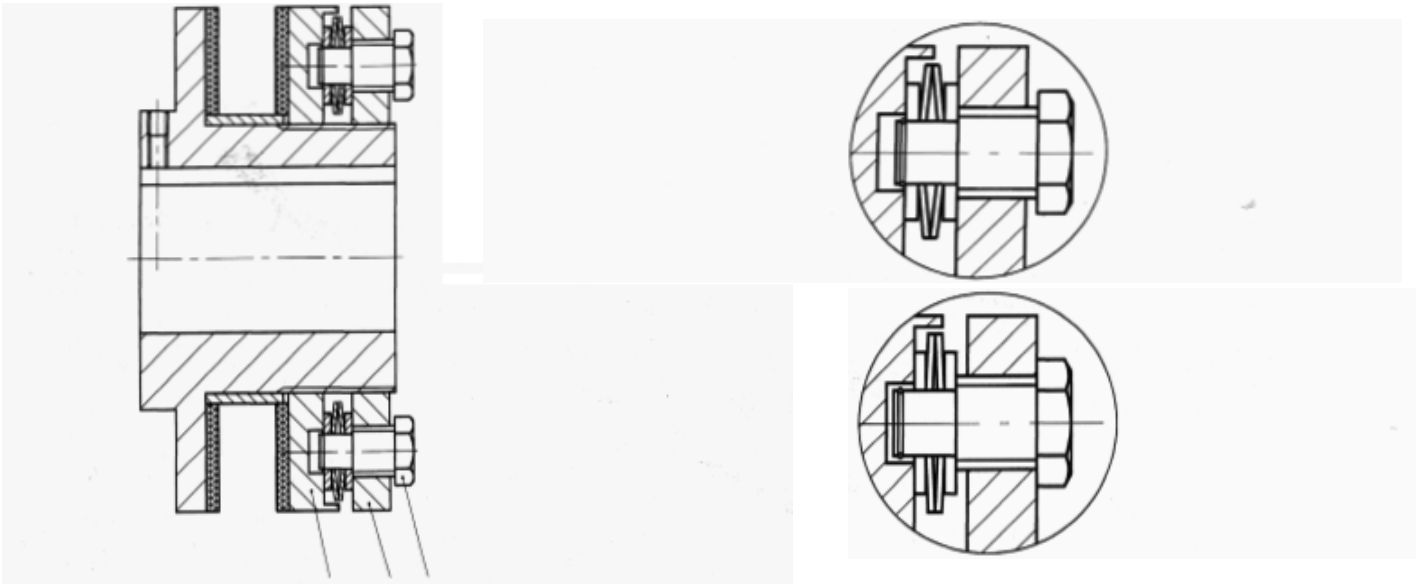
Torque adjustment of torque limiters 00- 5



00-5 4 6 7 8 torque adjusted

TORQUE LIMITERS, Models 00- 5 are adjusted as follows:
The six bolt adjustment nut (7) will be screwed against the safety plate (6) by force of hand and lined up with the nearest adjustment mark. After this the six adjustment screws (8) will be completely tightened . Now the maximum torque setting has been obtained.
A smaller torque setting can be obtained by simply loosening the adjustment screws (8), turning the adjustment nut (7) back by the number of increments required and then retightening the screws (8). The precise setting of the torque is possible because the pressure ring (4) has markings on its edge, which are to be set to the markings on the outside of the adjustment nut (7). Because it is so small, size 00 has no markings. Adjustment of this torque limiter will be obtained by 60° settings. On request clamping version nuts can be supplied.

Torque adjustment of torque limiters 6- 8



Size 6-8 4 7 9 torque adjusted

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The threaded adjustment ring (7) with all screws backed out, will be turned by hand against the pressure ring (4) then all screws (9) holding the springs, will be completely into the adjustment ring. Now the maximum torque has been reached. Changes of the torque setting can be obtained by loosening the screw holding the springs and turning the adjustment ring (7) counterclockwise in accordance with the instructions, then retigthening the screws.

Please note:

The torque obtained depends on the surface quality of the friction disk which has been ground to obtain necessary flatness. Environmental influences such as moisture, oil or other factors will effect the torque!