



**库威得**  
KUDOSWORLD



# TORQUE LIMITER

TOLM-N

KWN 22190

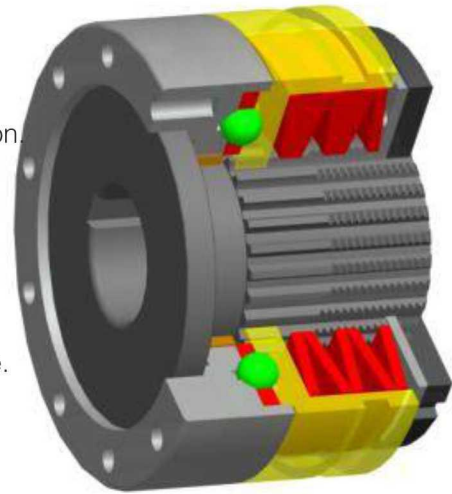


**Product | Engineering Services**  
**Maintenance**

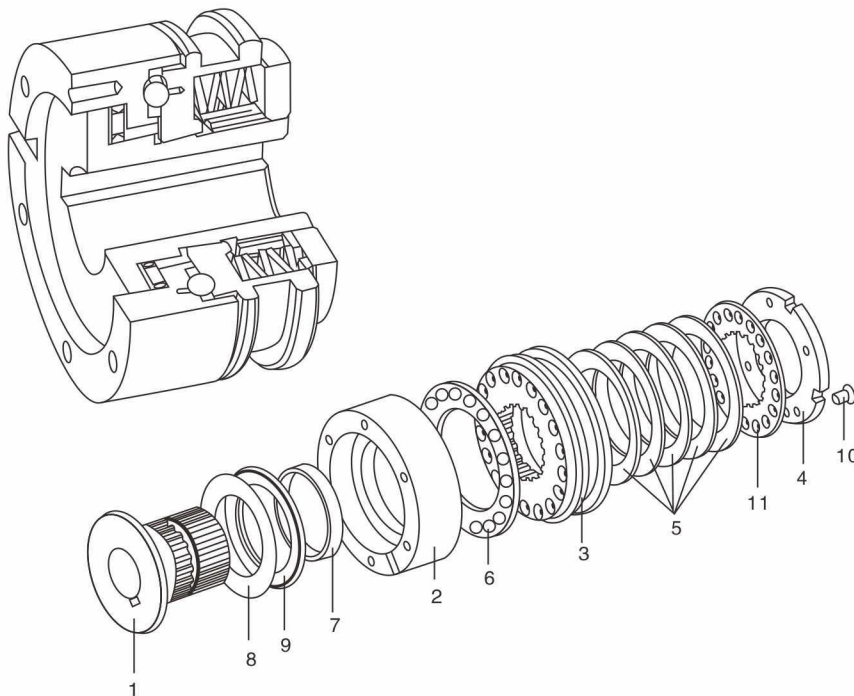
## RB Type -- Precision Ball and Roller Type

RB safety coupling realizes movement transmission through balls or rollers, which can provide overload protection and has the following Characteristics:

- Various types of structure, suitable for different occasions.
- The slip moment can reach 8200Nm.
- It can provide step-by-step, synchronous and failure protection.
- Easy installation and adjustment of torque.
- The peak value of torque can be reduced.
- High repeatability.
- Suitable for wet and oily environment.
- High performance materials are used to prolong the service life.
- The power source can be cut off in case of overload.
- Automatic clutch.
- There is no backlash between the shaft and the shaft sleeve.



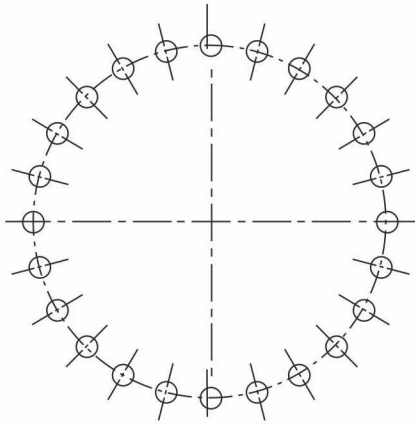
## Structural Design



### Parts List:

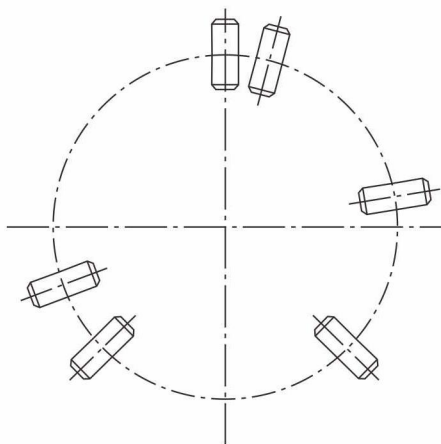
1. Shaft sleeve
2. Flange ring
3. Mobile ring
4. Adjusting nut
5. Butterfly spring
6. Holder
7. Sliding sleeve
8. Bearing end cover
9. Axial needle bearing
10. Locking screw
11. Locking plate

## Working Principle of Three Kinds of Moment Limiters



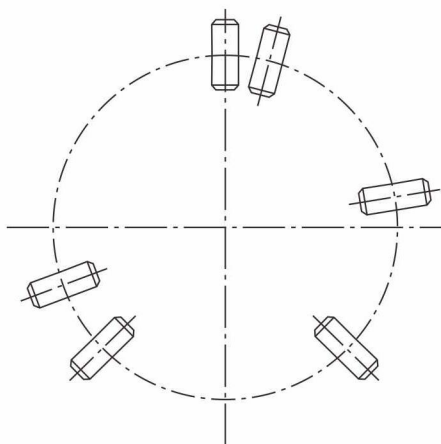
After the overload is eliminated, the steel ball will automatically reset in the next groove after turning an angle.

- Ball drive
- High sensitivity and direct intervention in minimum torque change
- Automatic re engagement with equal spacing
- The interference torque in both directions is the same
- Torque range: 2.5–3600Nm, maximum opening  $\Phi$  100mm



After the overload is eliminated, the roller rotates  $360^\circ$ . After automatic reset, the relative position of the driving end part and the driven end part remains unchanged (other angles can also be changed as required, such as  $180^\circ$  )

- Rotation of roller
- Equal spacing or  $360^\circ$  .Automatic re engagement
- Compact size, high torque design value
- The interference torque in both directions is the same
- Torque range: 5–8200Nm, maximum opening  $\Phi$  100mm



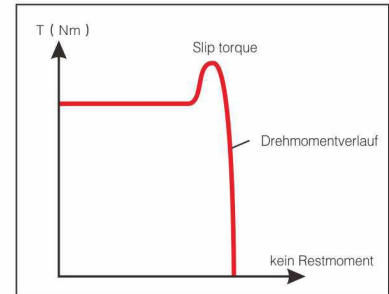
Failsafe is a pure moment measuring device without any stepping function. The overload time limit switch sends a signal to separate the driving end and the driven end, but does not slip.

- Rotation of roller
- After overload, the driving end and the driven end are completely separated
- It needs to be reset manually and knock the moving ring with tools
- Compact structure
- Torque range: 5–8000Nm, maximum opening  $\Phi$  100mm



## Zero Residual Moment After Overload and Slipping

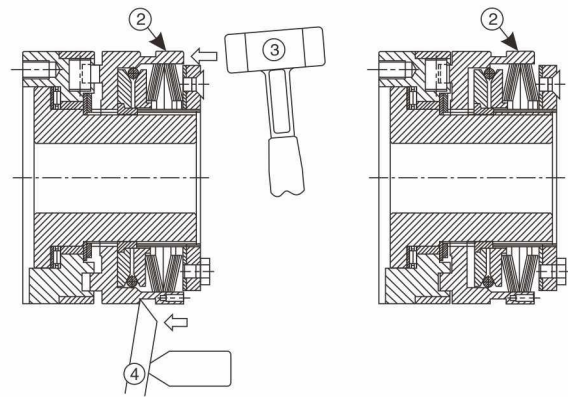
- 1) The maximum slip moment can reach 8200nm.
- 2) Allowable maximum speed is 5000rpm.
- 3) Driving end and driven end can be kept completely disconnected.
- 4) When the overload reaches the set slip, the slip will occur immediately.
- 5) In case of slipping, limit switch or electronic sensor can be used to send out signal.
- 6) The re engagement after slipping can be operated manually or mechanically.
- 7) The type with elastic coupling can be used for shaft to shaft connection.
- 8) Easy installation and debugging.



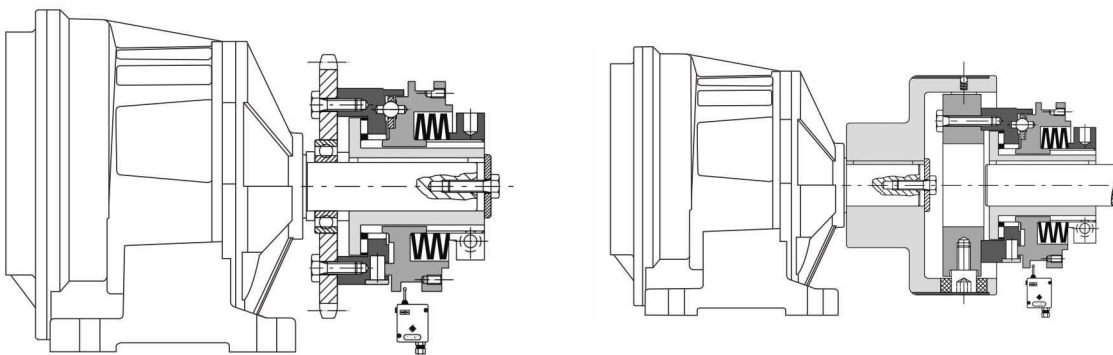
## Fail Safe Reengage Instructions

After the moment limiter slips, it only needs to apply an axial force on the moving ring ② to engage again. The operation can be completed with various tools.

- Use rubber hammer ③ to directly knock the moving ring axially (see Figure)
- Using a lever ④
- Use pneumatic or hydraulic engagement device (automatic engagement)



## Assembly Example Drawing



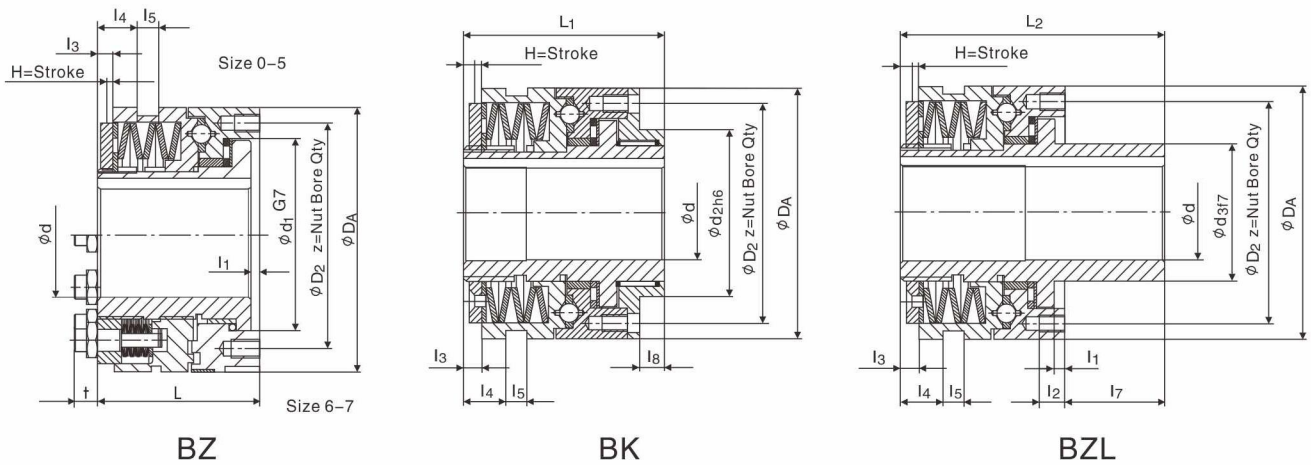
## Main Applications

The safety coupling moves through rollers or balls to achieve full disengagement when the torque is calibrated. It is suitable to work under the condition of high torque with high stability and compact structure.

Main applications: packaging and packaging machinery, labeling machinery, bottling machinery, conveyor, rolling mill, scraper, straightener, ship loader, etc.

## RB Standard Structure

- Standard RB torque limiter torque range 2.5 –8200Nm, maximum opening  $\Phi$  100mm.
- Standard single point reset, according to requirement 15° 30° 4° And 60° etc.
- It can be equipped with spiral spring, with high sensitivity of torque setting.
- There are three reset modes: step, synchronous and fail safe
- It can be installed on the equipment for torque setting, with high stability.
- The tolerance of finished hole diameter is H7 according to ISO standard, and the tolerance of keyway width is JS9 according to DIN6885/1.
- The surface is treated with anti-corrosion.



## Technical Details and Overall Dimensions

Size	Torque(Nm)								(Kg)
	Disc Spring BZ Arrangement				Arrangement of Belleveille Spring BK and BZL				
	T1	T2	T3	T4	T1	T2	T3	T4	
0	2.5-5	5-20	-	20-40	5-10	10-40	-	-	0.41
1	6-12	12-25	25-55	55-100	12-25	25-50	50-100	-	1.3
2	12-25	25-50	50-120	120-200	25-50	50-100	100-200	-	2.27
3	25-50	50-100	100-250	200-450	50-100	100-200	200-450	-	3.88
4	50-100	100-200	200-500	500-1000	100-200	200-400	400-800	800-2000	8.34
5	85-250	230-600	300-1000	600-2000	170-450	350-900	600-1800	1200-3400	13.51
6	180-480	360-960	720-1950	1600-3300	300-750	600-1500	1200-3000	2900-5800	21
7	250-520	500-1050	1000-2100	2000-3600	550-1100	1100-2200	2200-4000	3000-8200	37

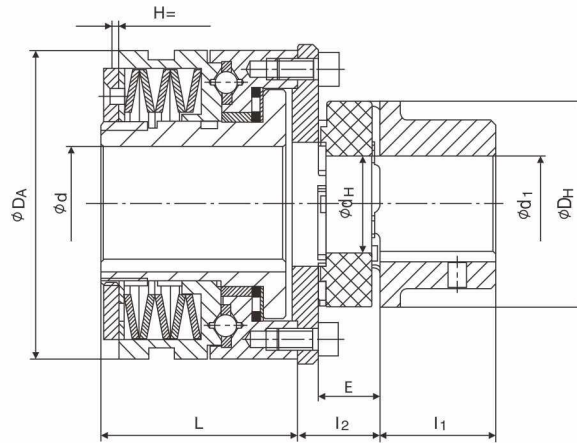
Size	Size ( mm )																		
	d1	D2	DA	d H7 MAX	d2	d3	l1	l2	l3	l4	l5	l7	l8	L	L1	L2	Z	H	
																		BZ	BK
0	41	48	55	20	38	28	4	6.5	3	7.5	9	27.5	8	38.5	51	66	6XM5	1.4	1.2
1	60	70	82	25	50	38	4	8	6	11.5	9	33	10	52	70	85	6XM5	2.3	1.8
2	78	89	100	35	60	52	5	10	5	12	9	39	12	61	78	100	6XM6	2.4	2
3	90.5	105	120	45	80	65	5	12	8.5	21	10	47	12	78	96	125	6XM8	2.7	2.2
4	105	125	146	55	100	78	6.5	15	11	27	9	52	16	100	124	152	6XM10	3.7	2.5
5	120	155	176	65	120	90	6.5	17	12	33	9	57	18	113	140	171	6XM12	4.6	3
6	136	160	200	80	130	108	7	20	14	39	9	64	20	119	150	183	6XM12	5	3.5
7	168	200	240	100	160	135	8	25	15	46	9	72	25	141	175	213	6XM16	5.5	4

## Structural Form of RB-G Elastic Coupling

- RB-G moment limiter with shaft to shaft connection
- Axial insertion, easy to install
- Can compensate installation deviation
- There are three reset modes, step-by-step, synchronous and fail safe
- Can be installed on the equipment for torque setting
- A variety of elastomers to choose from
- The tolerance of finished hole diameter is H7 according to ISO standard, and The tolerance of keyway width is Js9 according to DIN6885 / 1 standard



## Technical Details and Overall Dimensions



Size	Torque(Nm)								(Kg)
	Disc spring BZ arrangement				Arrangement of Belleville spring BK and BZL				
	T1	T2	T3	T4	T1	T2	T3	T4	
0	2.5-5	5-20	-	20-40	5-10	10-40	-	-	0.83
1	6-12	12-25	25-55	55-100	12-25	25-50	50-100	-	2.11
2	12-25	25-50	50-120	120-200	25-50	50-100	100-200	-	3.17
3	25-50	50-100	100-250	200-450	50-100	100-200	200-450	-	5.10
4	50-100	100-200	200-500	500-1000	100-200	200-400	400-800	800-2000	11.31
5	85-250	230-600	300-1000	600-2000	170-450	350-900	600-1800	1200-3400	18.56
6	180-480	360-960	720-1950	1600-3300	300-750	600-1500	1200-3000	2900-5800	28.6
7	250-520	500-1050	1000-2100	2000-3600	550-1100	1100-2200	2200-4000	3000-8200	46.1

Size	Size ( mm )										
	$D_A$	$d$ H7	$d_1$ H7	$D_H$	$d_H$	E	$l_1$	$l_2$	L	H	
		MAX	MAX							BZ	BK
0	55	20	38	65	30	20	35	28.5	38.5	1.4	1.2
1	82	25	45	80	38	24	45	32.5	52	2.3	1.8
2	100	35	60	105	51	28	56	38	61	2.4	2
3	120	45	70	120	60	30	65	43	78	2.7	2.2
4	146	55	95	160	80	40	85	56.5	100	3.7	2.5
5	176	65	110	200	100	45	100	62	113.5	4.6	3
6	200	80	115	225	113	50	110	72	119	5	3.5
7	240	100	125	225	127	55	120	78	141	5.5	4



## RD Multi Disc Friction Type

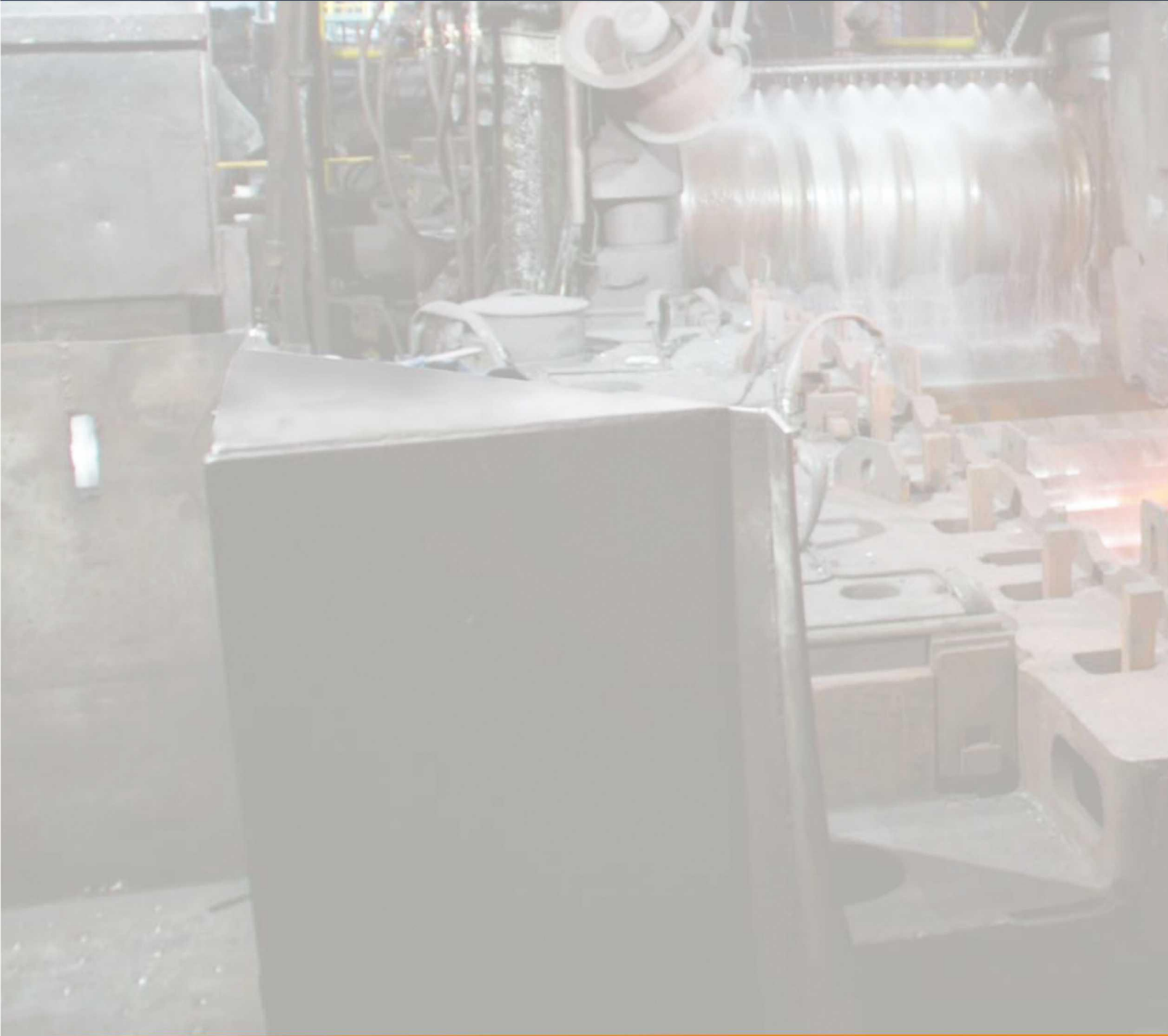
- Friction plate material iron-based powder metallurgy
- High wear resistance
- Large torque adjustment range
- Surface anti-corrosion treatment
- It can be equipped with various types of couplings to facilitate shaft to shaft connection.
- Suitable for heavy industry applications such as fan, coal machine industry, large assembly line, etc.



	<p><b>Standard type</b></p> <p>The body can be lengthened according to the actual requirements          Special anti-corrosion and anti rust treatment can be carried out as required          It can be connected with keyway, expansion sleeve or other locking device as required          Friction plate can be replaced separately</p>
	<p><b>Coupling with elastic coupling</b></p> <p>The body can be lengthened according to working conditions          It can be lengthened according to actual requirements          It can be connected with keyway, expansion sleeve or other locking device as required          Friction plate can be replaced separately</p>
	<p><b>Gear coupling with drum</b></p> <p>Various rigid coupling bodies can be equipped according to working conditions          It can be lengthened according to actual requirements          It can be connected with keyway, expansion sleeve or other locking device as required          Friction plate can be replaced separately</p>



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