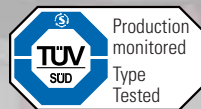




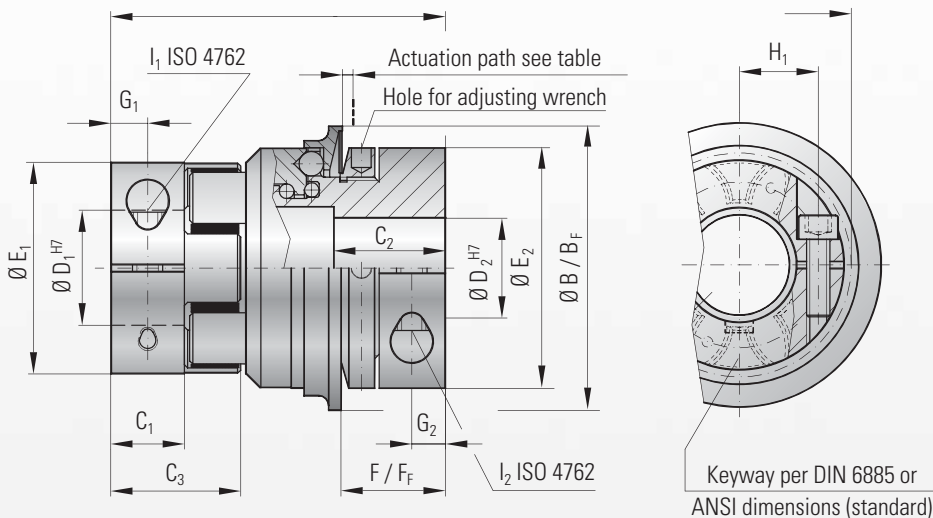
single-position
multi-position
load holding
full disengagement



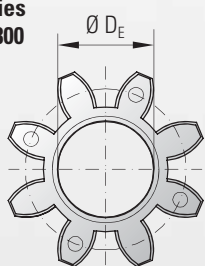
MODEL ES2

BACKLASH FREE TORQUE LIMITERS

with clamping hubs

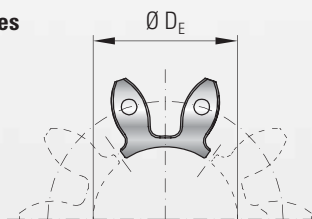


Series 5 - 800



Elastomer insert Type A / B

Series 1500



Elastomer insert consists of 5 individual segments A / B

Properties:

- reliable torque overload protection
- short compact design
- backlash free due to patented R+W design
- disengagement within msec.
- large actuation path when disengaging
- electrically isolating
- press fit design

Material:

Torque limiter: high strength hardened steel with rust protected surface (nitrocarburized)
Clamping hub D₁: up to series 450 high strength aluminum, series 800 and up steel
Clamping hub D₂: up to series 60 high strength aluminum, from series 150 and up steel
Elastomer insert: precision molded, wear resistant, and thermally stable polymer

Design:

Two coupling hubs are concentrically machined with curved jaws, one side with an integral torque limiter. The torque limiter is available in single position, multi position, load holding or full-disengagement versions.

Tolerance:

Overall clearance between shaft and hub 0.01 to 0.05 mm

W = Single position re-engagement

- After the overload has been eliminated, the coupling will automatically reengage precisely 360° from the original disengagement position
- Highly precise synchronous engagement made possible by R+W patented preload design
- Signal at overload with mechanical switch or proximity sensor

D = Multi position re-engagement

- Coupling re-engages at multiple set angular intervals.
- Immediate availability of the machine as soon as the overload has been eliminated.
- Signal at overload with mechanical switch or proximity sensor
- Standard engagement every 60°
- Engagement at 30, 45, 90 and 120 degrees are optional.

G = Load holding version

- Mechanical overload detection device
- In the event of a torque overload the driving and driven ends are not fully separated, and allow only for enough free rotation to trigger the actuation ring. Full torque is then transmittable once again.
- Guaranteed to hold the load and signal an overload.
- Automatic engagement after the torque level has dropped.
- Signal at overload to detect with mechanical switch or proximity sensor.

F = Full disengagement

- Complete separation of the drive and driven ends in the event of a torque overload
- No residual spring pressure
- Signal at overload
- Rotating elements slow down freely
- Coupling must be re-engaged manually (Engagement every 60°)

Ordering example

ES2 / 10 / A / W / 14 / 12 / 8 / 4-12 / XX

Model	ES2
Series	10
Type Elastomer insert	A
Function system	W
Bore Ø D1 H7	14
Bore Ø D2 H7	12
Disengagement torque	8
Adjustable range	4-12
Non standard (e.g. stainless steel)	XX

All data is subject to change without notice.

The selection of torque limiters

In general the torque limiters are sized according to the necessary disengagement torque. This torque must exceed the torque required to accelerate and decelerate the machine drive during normal operation.

For more information see page 22.

MODEL ES2

BACKLASH FREE TORQUE LIMITERS

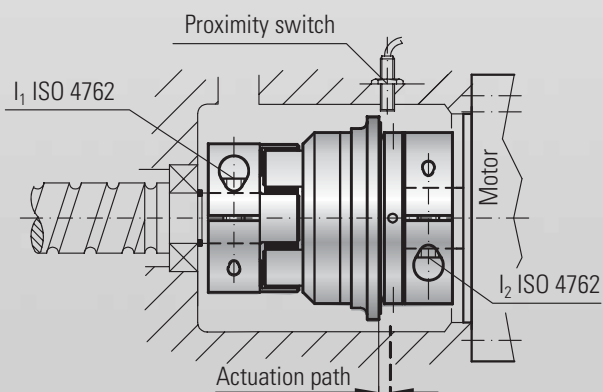
Model ES 2		Series																	
		5		10		20		60		150		300		450		800		1500	
Type (Elastomer insert)		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Rated torque (Nm)	T_{KN}	9	12	12.5	16	17	21	60	75	160	200	325	405	530	660	950	1100	1950	2450
Max. torque* (Nm)	T_{Kmax}	18	24	25	32	34	42	120	150	320	400	650	810	1060	1350	1900	2150	3900	4900
Available torque adjustment ranges (approx. values) (Nm)	T_{KN}	1-3 or 3-6		2-6 or 4-12		10-25 or 20-40		10-30 or 25-80		20-70 45-150 80-180		100-200 150-240 200-320		80-200 200-350 300-500		400-650 500-800 600-900		600-850 700-1200 1000-1800	
Available torque adjustment ranges (approx. values) full disengagement version (Nm)	T_{KN}^F	2.5-4.5		2-5 or 5-10		8-20 or 16-30		20-40 or 30-60		20-60 40-80 80-150		120-180 or 180-300		60-150 100-300 250-500		200-400 or 450-800		1000-1250 or 1250-1500	
Overall length (mm)	A	50		60		86		96		106		140		164		179		245	
Overall length (full disengagement version) (mm)	A_F	50		60		86		96		108		143		168		190		257	
Outside diameter of actuation ring (mm)	B	35		45		65		73		92		120		135		152		174	
Outside diameter of actuation ring (full disengagement version) (mm)	B_F	42		51.5		70		83		98		132		155		177		187	
Fit Length (mm)	C_1	8		10.3		17		20		21		31		34		46		88	
Fit Length (mm)	C_2	14		16		27		31		35		42		51		45		86	
Length of hub (mm)	C_3	16.7		20.7		31		36		39		52		57		74		120	
Inside diameter range H7 (mm)	D_1	4-12.7		5-16		8-25		12-32		19-36		20-45		28-60		35-80		35-90	
Inside diameter range H7 (mm)	D_2	6-14		6-20		12-30		15-32		19-42		30-60		35-60		40-75		50-80	
Inside diameter of elastomer (mm)	D_E	10.2		14.2		19.2		26.2		29.2		36.2		46.2		60.5		79	
Diameter of the hub (mm)	E_1	25		32		42		56		66.5		82		102		136.5		160	
Diameter of the hub (mm)	E_2	19		40		55		66		81		110		123		132		157	
Distance (mm)	F	15		17		24		28		31		35		45		50		63	
Distance (full disengagement version) (mm)	F_F	14		16		22		29		30		35		43		54		61	
Distance (mm)	G_1	4		5		8.5		10		11		15		17.5		23		36	
Distance (mm)	G_2	5		5		7.5		9.5		11		13		17		18		22.5	
Distance between centers (mm)	H_1	8		10.5		15		21		24		29		38		50.5		2x 57	
Clamping screw (ISO 4762)	I_1	M3		M4		M5		M6		M8		M10		M12		M16		2x M16	
Tightening torque of the clamping screw (Nm)		2		4.5		8		15		35		70		120		290		290	
Distance between centers D2 side (mm)	H_2	10		15		19		23		27		39		41		48		2x 55	
Clamping screw (ISO 4762)	I_2	M4		M4		M6		M8		M10		M12		M16		2x M16		2x M20	
Tightening torque of the clamping screw (Nm)		4		4.5		15		40		70		130		200		250		470	
Diameter with screwhead (mm)	K_S	25		32		44.5		57		68		85		105		139		155	
Approx. weight (kg)		0.2		0.3		0.6		1.0		2.4		5.8		9.3		14.3		26	
Moment of inertia (10^{-3} kgm ²)	J_{ges}	0.02		0.06		0.25		0.7		2.3		11		22		33.5		185	
Actuation path (mm)		0.8		1.2		1.5		1.7		1.9		2.2		2.2		2.2		3.0	

Information about static and dynamic torsional stiffness as well as max. possible misalignment see page 5

1 Nm = 8.85 in lbs

* Maximum transmittable torque depends on the bore diameter (overall clearance between shaft and hub 0.01 to 0.05 mm; shaft oiled) see page 8

Mounting instructions



Mounting: Slide the coupling onto the respective shafts to the desired axial position. Using a torque wrench, tighten the clamp screws to the correct tightening torque as indicated in the table.

CAUTION! Both clamping hubs have different screws and different tightening torques.

Dismounting: Simply loosen the clamp screw I1, I2 and remove the safety coupling.

Emergency cut off: Emergency cut off: The axial movement of the actuation ring activates the mechanical switch or proximity sensor.

CAUTION! A 100% test of the function of the cut off switch is necessary.



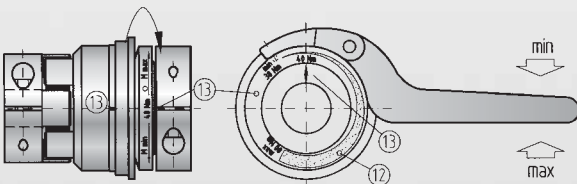
FUNCTION SYSTEMS ES2

BACKLASH FREE TORQUE LIMITERS

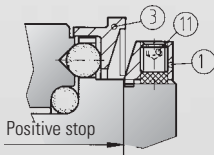
R+W torque limiting couplings are ball detent style overload couplings. They protect drive and driven mechanical components from damage associated with torque overloads.

- Backlash free torque transmission is accomplished by a series of steel balls (4) nested in hardened detents (5).
- Disc springs (2) push against an actuation ring (3) keeping the balls nested.
- The disengagement torque is adjustable by means of a spanner nut (1).
- In the event of an overload, the actuation ring (3) is moved axially by the balls exiting their detents, separating the driving and driven ends.
- The movement of the actuation ring (3) can be sensed by means of a mechanical switch or proximity sensor (6) triggering the drive to shut down.

Disengagement torque setting



On ES 2 couplings, the slot of the clamping hub serves as a reference point (13).



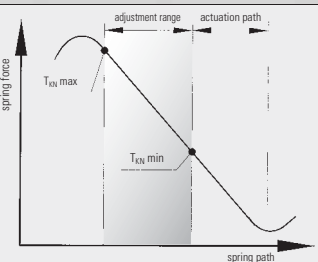
- 1 adjustment nut
- 11 locking screw
- 3 steel actuation ring
- 12 adjustment range
- 13 marking

R+W torque limiters are factory set to the customer specified disengagement torque, which is marked on the coupling. The adjustment range (min/max) is also marked on the adjustment nut (1).

The customer can adjust the disengagement torque as long as it is in the range (12) indicated on the adjustment nut.

The adjustment range must not be exited while re-adjusting.

To adjust the disengagement torque, loosen the locking screws (11) and rotate the adjustment ring using a spanner wrench to the desired new setting. Tighten the 3 locking screws (11) and test the coupling.

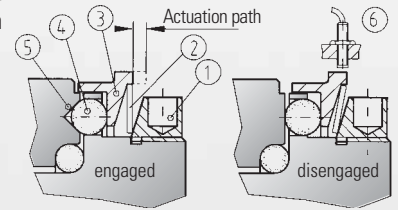


CAUTION!

R+W torque limiters incorporate disc springs that exhibit a special characteristic. It is important to stay within the operating adjustment range indicated on the adjustment nut.

Single Position / Multi Position

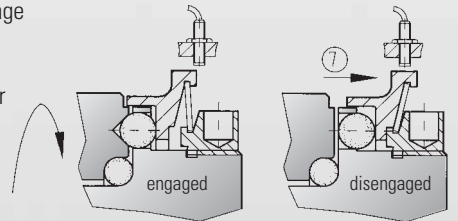
In the case of the standard single position version and the optional multi position version, the spring disengages, allowing the balls to exit their detents, and separating the driving and driven ends of the coupling. A very slight spring pressure remains so that the balls are able to drop back into their detents and re-engage the torque limiter once the torque is reduced below the set disengagement value.



Full Disengage

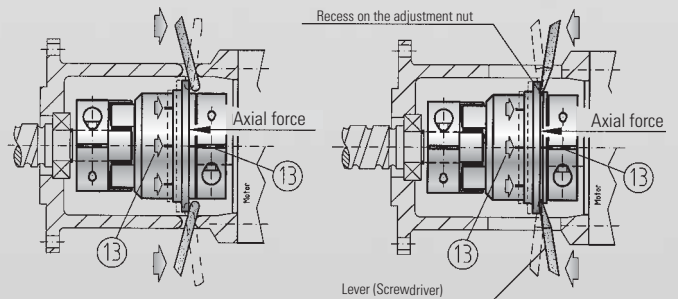
In the case of the optional full disengage version, the spring disengages and completely flips over center, placing zero residual spring pressure on the actuation ring.

The driving and driven ends of the coupling are completely separated.



Re-engagement of the coupling is not automatic and must be performed manually (Picture 3a, 3b).

CAUTION: Re-engagement should only be performed when the coupling is at a stand still, and is not rotating!



Picture 3a

Picture 3b

The R+W full disengage torque limiting coupling can be re-engaged in six different rotational orientations (every 60°) with only a small axial force (E). Marks on the actuation ring and the body (13) of the coupling must be aligned to indicate a re-engagement point.

For size 60 and up, recesses are included on the torque adjustment nut to support re-engagement with 2 levers (picture 3b). Screwdrivers are an acceptable means by which to perform this re-engagement.