REXNORD

Torque Limiter 200 Series

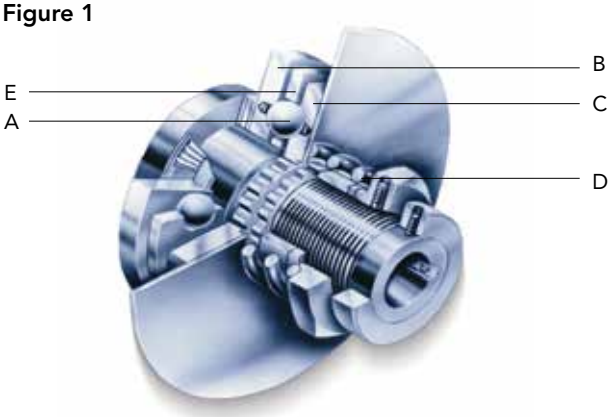
Torque Limiter 200 Series

For more than 80 years, Autogard® products have led the industry in overload protection with high-quality products, design innovation and production. Autogard products are manufactured to meet ISO 9001 using the latest machine tools and high-quality materials.

Acting like a mechanical "circuit breaker" to protect the weakest member of the drive train, the most effective location for Autogard Torque Limiters is as close as possible to the component being protected. The 200 Series is a state-of-the-art mechanical device that will disengage at a preset torque value. The trip torque is set above the normal startup and operating torque, but below a torque setting that would normally damage the driving and/or driven equipment. In the event of a jam, the 200 Series eliminates the threat of damage by disconnecting the inertia in the drive train.

In the normal drive condition, torque is transmitted through the drive balls 'A' which are seated in detents in the drive plate 'B' and the slide plate 'C', These are all held together under pressure from spring 'D'.

Figure 1



Letters above correspond to paragraphs on the left and below.

Disengagement on Overload
When the driven machine either jams or an overload occurs that is greater than the torque setting, the balls roll out of their seats and force apart the drive plate 'B' and the slide plate 'C'. The balls are retained by the cage plate 'E' and roll freely on the flat surface of the drive plate 'B' and slide plate 'C'.

Re-engagement
Re-engagement occurs in one of three ways depending upon which reset type is selected.

Type AC — Automatic Random Reset
The ball detents in the drive plate 'B' and the slide plate 'C', as well as the retaining holes in cage plate 'E' are equally spaced on the same pitch circle diameter so that the balls will roll into the next detents after tripping in either direction. Immediate shutdown is required to prevent wear of the detents.

Type ACT — Automatic Single Position Reset
The ball detents are positioned in a scattered pattern so that the balls must return to their original position before they can reset. Re-engagement will occur within two revolutions in either direction. Immediate shutdown is required to prevent wear of the detents.

Type AF — Free Wheeling Disengagement
As with Type AC, the detents in drive plate 'B' and slide plate 'C' are equally spaced. The retaining holes in the engagement plate 'E' are elongated so that, as the balls roll from the detents, they can follow a cam profile onto a different running track away from the detents. Type AF can run at higher speeds as the balls will not ratchet in the detents. Resetting is achieved by manually locking the plates and reversing the drive.

Figure 2

Features and Benefits:

- Proven design with thousands of units successfully in operation
- Accurate torque limitation prevents costly downtime
- Cost-effective design
- Standard designs can accommodate large torque ranges
- Instantaneous disengagement protects equipment from damaging inertias
- Bi-directional protection
- Easy to adjust to desired allowable torque
- Three reset types offered:
  - Type AC — Automatic Random Reset
  - Type ACT — Automatic Single Position Reset
  - Type AF — Freewheeling, Manual Reset for high speeds
- Wide range of mounting configurations ensures the right solution for any problem:
  - Timing, HTD and V-Belt drives
  - Chain and sprocket drives
  - Gear drives
  - Flexible or rigid couplings
  - Flywheel or large gear mounting

Selection:

Data required for torque limiter selection:

- Application details for service factors
- Kilowatt (kW) or horsepower (hp) and rpm of the driver
- Shaft details of the driving and driven equipment

(1) Calculate the nominal torque.

Torque (lb-in) = hp x 63025 / rpm

Consideration should then be given to start torque or other special circumstances depending on the position chosen in the drive system. Choose a set torque with a suitable margin over nominal. Select the torque limiter which has a higher torque rating.

(2) Check limiting conditions:

(a) Check hub bore capacity

(b) Check the torque limiter dimensions such as the overall length and outside diameter

(3) Select and specify the appropriate drive medium or coupling.

All 200 Series units may be supplied from the factory at a pre-set torque and with the required drive medium assembled to the unit.

Ordering the 200 Series Torque Limiter

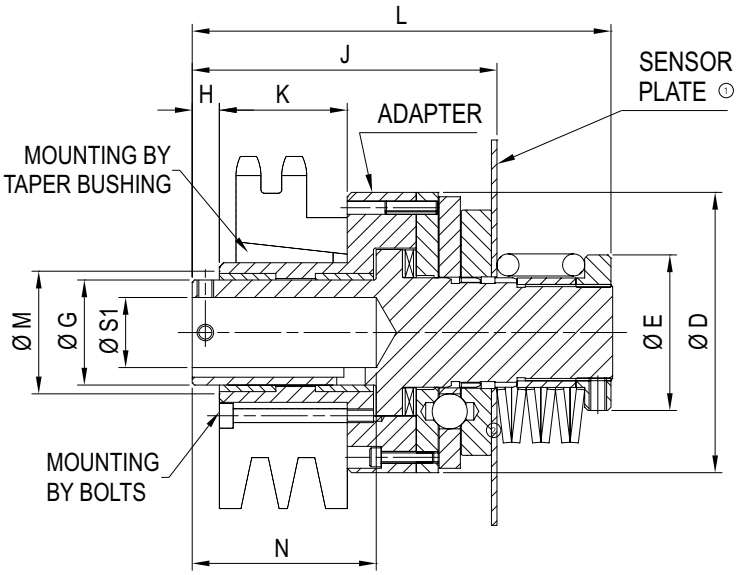
When ordering, please provide the following designation:
Model and Size / Type / S1 bore / S2 bore
Standard bore tolerance = H8 + normal fit key

Example: 205-5 / AC / S1-1.000 in / S2-2.125 in

Refers to Model 205, Size 5, Automatic Random Reset
S1 Bore = 1 in S2 Bore = 2.125 in
Also specify setting torque is required.

Model 201

Figure 3



① See page 17, Table 24 for dimensions and movement on disengagement.
② Drilled and tapped holes, if required must be specified when ordering.

Table1

Size	Torque ①		Speed ②				Mass Moment of Inertia MR² ④
	Type AC or AF	Type ACT	Type AC	Type ACT	Type AF	Weight ④	
	lb-in	lb-in	rpm	rpm	rpm	lb	lb-in²
1	10-350	20-500	200	500	2,000	2.4	2
2	50-2,000	90-3,400	200	500	2,000	7.3	17
3	60-6,000	100-7,600	200	500	2,000	19.4	51
4	800-10,000	1,000-15,000	200	500	2,000	44	205
5	1,000-22,500	1,500-26,000	200	500	2,000	114.4	718
5S ③	10,000-67,500	12,000-75,000	200	500	-	198	2,494

① See page 16, Table 23 for spring selection and torque range with specific springs.
② Higher speeds may be allowed under certain conditions. Consult Rexnord.
③ 5S is available in Type AC and ACT resets only.
④ Weights and moments of inertia apply to maximum S1 bores and exclude sprockets, etc.

Table 2

Model 201 facilitates mounting of standard sprocket, sheave, etc., by means of a Taper-Lock™ bushing or bolting.

Size	Max. Bore S1 ①	D	E	G	H	J	K	L	M ②	N ④
	in	in	in	in	in	in	in	in	in	in
1	0.625	2.37	1.30	0.87	0.33	3.79	1.62	5.50	1.250	2.00
2	1.125	4.00	2.22	1.50	0.51	4.20	1.87	6.00	2.000	2.63
3	1.625	5.00	3.13	2.00	0.45	5.39	2.62	8.50	2.500	3.50
4	2.125	6.25	4.25	2.81	0.50	7.37	4.12	11.31	3.500	5.00
5	3.125	8.50	6.00	4.00	0.62	9.59	5.25	14.50	5.000	6.50
5S	4.500	10.50	7.00	6.00	0.64	11.88	5.88	16.75	6.750 ③	7.00

① Bores are furnished for clearance fit unless otherwise specified by customer. Consult Rexnord.
② Tolerance for M diameter is K7.
③ For size 5S only the drive medium is mounted on bronze bushing and must be bored to this diameter.
④ Dimension N is depth of blind bore S1 as normally furnished, unless otherwise specified. For through-shaft applications or for weight reduction, through-bore can be furnished for an extra charge. The bore beyond depth N will be to a dimension larger than the finish bore of length N.

Table 3

Size	Smallest Sprocket (No. of Teeth - See ①)					Smallest Sheave Diameter in
	3/8 in pitch (#35)	1/2 in pitch (#40)	5/8 in pitch (#50)	3/4 in pitch (#60)	1 in pitch (#80)	
1	20	16	13	12	10	1.94
2	26	20	17	15	12	2.65
3	32	25	21	18	14	3.38
4	42	32	27	23	18	4.59
5	-	43	35	30	23	6.25
5S	-	-	48	40	31	8.50

① The diameter quoted is to the bottom of a V-sheave groove or to the inside diameter of the flange of a timing belt pulley. For sprockets, the above information applies only to a single strand chain. For multiple strand chain, consult Rexnord.

Table 4

Size	Standard Mounting Hole Patterns (Min. Diameters - See ②)				
	No. of Bolts ①	Bolt Size	Max. Bolt Depth Adapter in	Bolt Circle Diameter in	Sprocket Bore
1	6	#8-32	0.267	1.625	1.252/1.254
2	6	#8-32	0.194	2.375	2.002/2.004
3	6	1/4-20	0.360	3.000	2.502/2.504
4	6	5/16-18	0.479	4.125	3.502/3.504
5	6	3/8-16	0.610	5.687	5.002/5.004

① Bolt holes to be equally spaced on bolt circle diameter specified. Care must be taken not to drill into other mounting holes in adapter.
② Standard mounting holes furnished for a standard price adder. Special mounting holes quoted upon request. Consult Rexnord.

Covers

All 200 Series Torque Limiters with Type ACT reset can accommodate a cover that is suitable for use in moderately dusty or dirty conditions. See page 17, Table 25 for more information.

Model 201 can utilize a stainless steel cover (Style B) that provides a more complete enclosure.

Figure 4/Style B

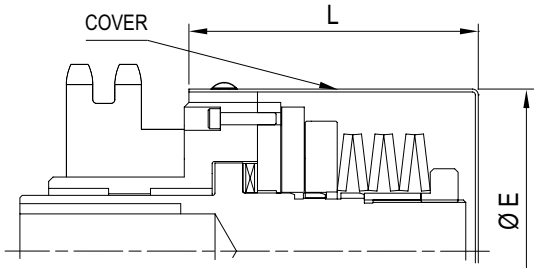


Table 5

Size	1	2	3	4	5
E	2.53	4.37	5.37	6.62	8.81
L	3.75	4.50	5.75	7.00	8.87

Mounting Information for Model 201

Mounting with tapered bushings (Taper-Lock, Q-D™, etc)

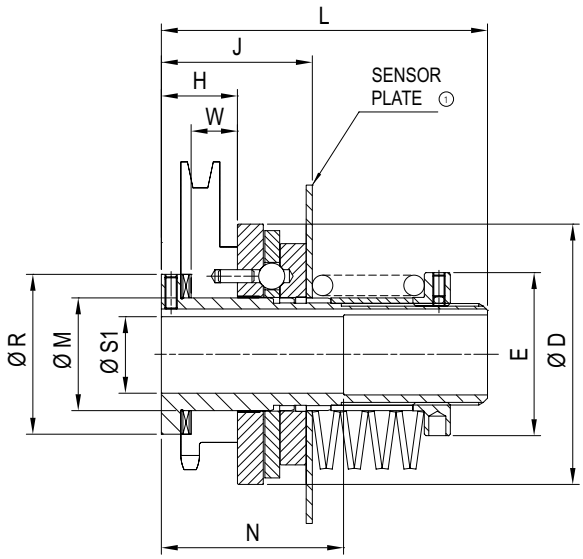
Sprockets, sheaves and timing belt pulleys may be mounted directly on Model 201 using tapered bushings. Select a sprocket with a bushing to fit the 'M' diameter of the 200 Series. No key is used for these bushings when mounting on the 200 Series. If a key is desired, a shallow keyway can be furnished. Consult Rexnord. Be certain that the bushings are properly mounted and tightened per the instructions accompanying each bushing. Thoroughly clean all grease and oil from the 'M' diameter with solvent prior to mounting on the bushing. **NOTE: Over-tightening the bushing may collapse the adapter. After fully tightening the bushing, check that the adapter and bushing assembly is free to turn on hub with torque limiter disengaged.**

Mounting with bolts

Where tapered bushing mounting is not possible, sprockets, flat sheaves, etc., may also be mounted on Model 201 by bolting. A B-Type sprocket is recommended. The adapter must be removed for drilling and tapping the mounting holes if they were not ordered with the unit. See Table 4 above for recommended hole patterns.

Model 202

Figure 5



① See page 17, Table 24 for dimensions and movement on disengagement.

Table 6

Size	Torque ①		Speed ②			Weight ③	Mass Moment of Inertia MR²
	Type AC or AF	Type ACT	Type AC	Type ACT	Type AF		
	lb-in	lb-in	rpm	rpm	rpm	lb	lb-in²
1	10-350	20-500	200	500	2,000	2.0	1
2	50-2,000	90-3,400	200	500	2,000	5.0	10
3	60-6,000	100-7,600	200	500	2,000	12.0	31
4	800-10,000	1,000-15,000	200	500	2,000	27.0	157
5	1,000-22,500	1,500-26,000	200	500	2,000	72.0	478
5S ④	10,000-67,500	12,000-75,000	200	500	-	154.0	1,606

① See page 16, Table 23 for spring selection and torque range with specific springs.
② Higher speeds may be allowed under certain conditions. Consult Rexnord.
③ Weights and moments of inertias apply to maximum S1 bores and exclude sprockets, etc.
④ 5S is available in Type AC and ACT resets only.

Table 7

Model 202 supplied with a sprocket, pulley or gear as an integral part of the unit to give the shortest overall length.

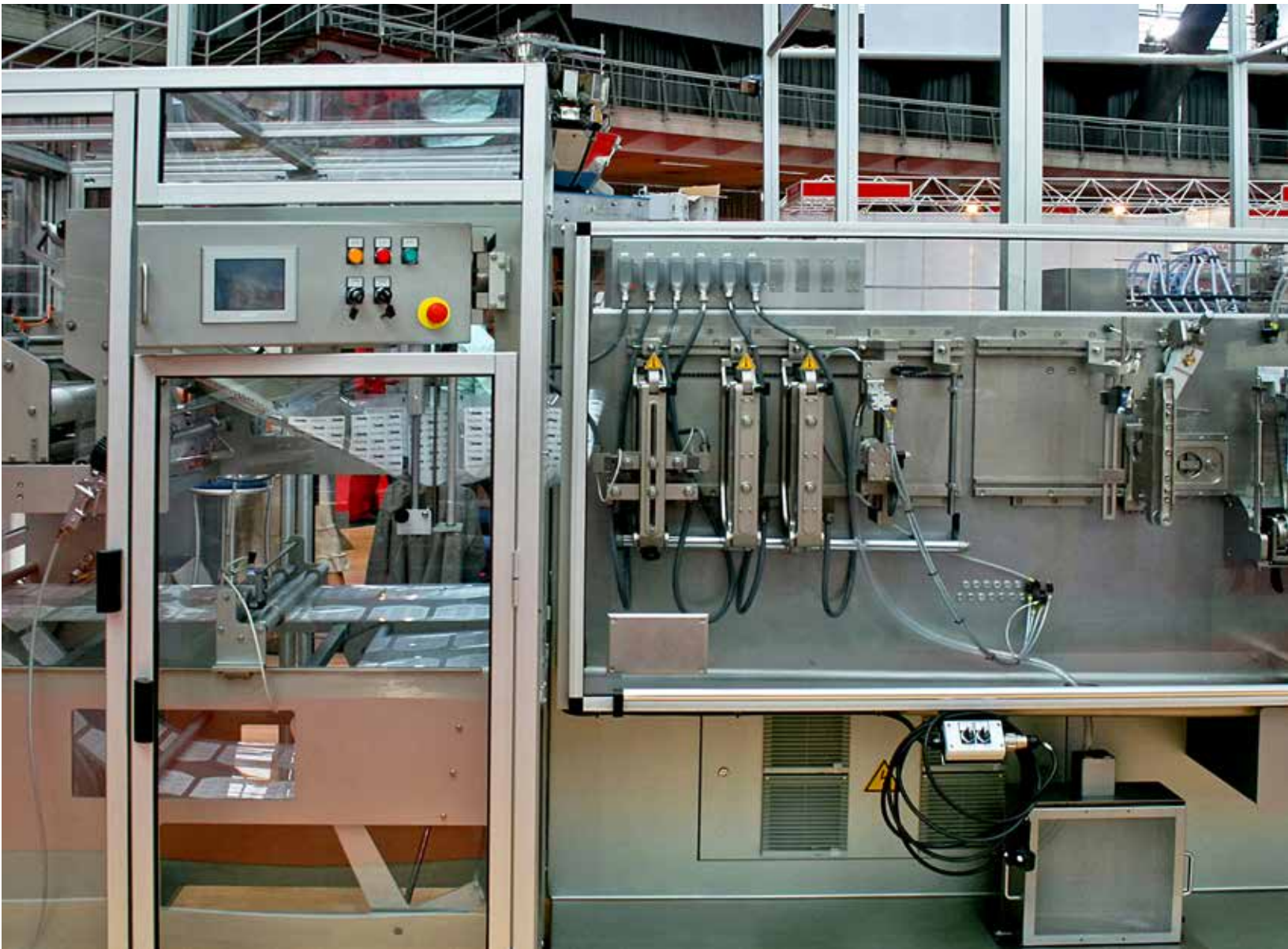
Size	Max. Bore S1 ①	D	E	H	J	L	M	N	R	W
	in	in	in	in	in	in	in	in	in	in
1	0.500	2.37	1.30	1.20	2.36	4.00	0.863	2.00	1.44	0.75
2	1.000	4.00	2.22	1.57	2.72	4.37	1.562	2.62	2.36	1.00
3	1.500	5.00	3.13	1.57	2.99	5.87	2.166	3.50	3.07	1.00
4	2.000	6.25	4.25	2.27	4.06	7.76	2.999	5.00	3.74	1.75
5	3.000	8.50	6.00	3.59	5.71	10.5	4.330	6.50	5.72	2.50
5S	3.500	10.50	7.00	3.21	6.26	11	5.512	7.50	7.09	1.75

① Bores are furnished for clearance fit unless otherwise specified by customer. Consult Rexnord.

Table 8

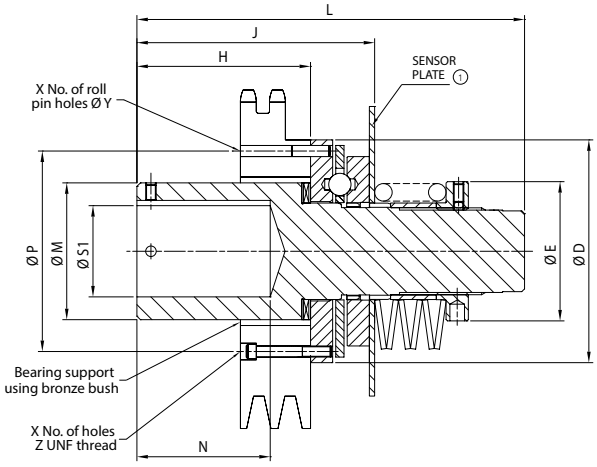
Size	Type	Smallest Sprocket (No. of Teeth)					Smallest Sheave Diameter ① in
		3/8 in pitch (#35)	1/2 in pitch (#40)	5/8 in pitch (#50)	3/4 in pitch (#60)	1 in pitch (#80)	
1	ACT	16	13	11	10	-	1.38
	AC	16	13	11	10	-	1.38
2	ACT	24	19	16	14	11	2.25
	AC	25	19	17	14	12	2.56
3	ACT	30	23	19	17	14	2.94
	AC	31	24	20	18	14	3.31
4	ACT	35	28	23	20	16	3.81
	AC	40	31	26	22	17	4.63
5	ACT	-	40	33	28	22	5.56
	AC	-	44	36	31	24	6.44
5S	ACT	-	49	48	41	32	8.81
	AC	-	49	48	41	32	8.94

① The sheave diameter quoted is to the bottom of the V-sheave groove or the inisde diameter for the flange of the timing sheave. For multiple strand sprockets, consult Rexnord.



Model 209

Figure 6



① See page 17, Table 24 for dimensions and movement on disengagement.

Table 9

Size	Torque ①		Speed ②			Weight ③	Mass Moment of Inertia MR² ③
	Type AC or AF	Type ACT	Type AC	Type ACT	Type AF		
	lb-in	lb-in	rpm	rpm	rpm	lb	lb-in²
1	10-350	20-500	200	500	2,000	2.2	2
2	50-2,000	90-3,400	200	500	2,000	6.4	17
3	60-6,000	100-7,600	200	500	2,000	15.4	51
4	800-10,000	1,000-15,000	200	500	2,000	37.0	205
5	1,000-22,500	1,500-26,000	200	500	2,000	92.8	718

① See page 16, Table 23 for spring selection and torque range with specific springs.
② Higher speeds may be allowed under certain conditions. Consult Rexnord.
③ Weights and moments of inertia apply to maximum S1 bores.

Table 10

Model 209 accomodates applications requiring relatively large "blind" bore and light torque setting.
Can be suppplied by factory with a bearing-supported sprocket, sheave, etc.

Size	Max Bore S1 ①	D	E	H	J	L	M	N ②	P
	in	in	in	in	in	in	in	in	in
1	1.000	2.37	1.30	2.69	3.79	5.50	1.438/1.439	2.25	1.875
2	1.625	4.00	2.22	3.19	4.20	6.00	2.374/2.375	2.63	3.562
3	2.250	5.00	3.13	4.13	5.39	8.38	3.090/3.092	3.62	4.500
4	2.750	6.25	4.25	5.82	7.38	11.32	3.748/3.750	5.12	5.687
5	4.000	8.50	6.00	7.62	9.59	14.50	5.718/5.720	6.38	7.750

① Bores are furnished for clearance fit unless otherwised specified by customer.
② Dimension N is depth of blind bore S1 as normally furnished, unless otherwise specified. For through-shaft applications or for weight reduction, a through bore can be furnished at extra charge if clearance permits.

Table 11

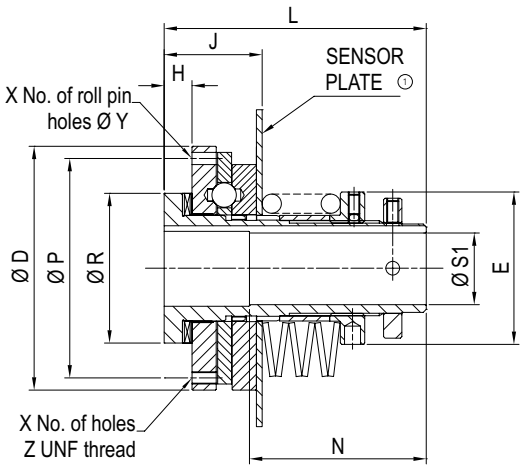
Mounting information for sprocket, sheave, etc.

Size	Dimensions in			
	X	Y	Z	I.D. of Bearing if Bronze is Utilized
1	3	3/16	#8-32	1.441/1.442
2	3	3/16	#8-32	2.378/2.380
3	①	1/4	1/4-28	3.095/3.097
4	6	5/16	5/16-24	3.754/3.756
5	6	3/8	3/8-24	5.726/5.728

① Size 3 has 6 tapped holes 60° apart and 3 roll pin holes 120° apart spaced 30° between tapped holes.

Model 203

Figure 7



① See page 17, Table 24 for dimensions and movement on disengagement.

Table 12

Size	Torque ①		Speed ②			Weight ③	Mass Moment of Inertia MR² ④
	Type AC or AF	Type ACT	Type AC	Type ACT	Type AF		
	lb-in	lb-in	rpm	rpm	rpm	lb	lb-in²
1	10-350	20-500	200	500	2,000	2.2	1
2	50-2,000	90-3,400	200	500	2,000	5.3	10
3	60-6,000	100-7,600	200	500	2,000	11.9	31
4	800-10,000	1,000-15,000	200	500	2,000	27.9	154
5	1,000-22,500	1,500-26,000	200	500	2,000	61.4	444
5S ③	10,000-67,500	12,000-75,000	200	500	-	121	1,572

① See page 16, Table 23 for spring selection and torque range with specific springs.
② Higher speeds may be allowed under certain conditions. Consult Rexnord.
③ Size 5S is available in Type AC and ACT resets only.
④ Weights and moments of inertia apply to maximum S1 bores.

Table 13

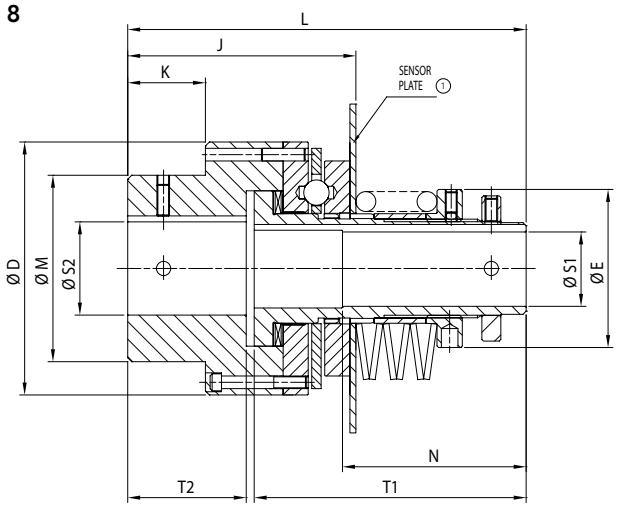
Model 203 mounts to the face of a flywheel or large gear by means of a suitable adapter.
The flywheel or gear must be mounted on its own bearings.

Size	Max. Bore S1 ① ②	D	E	H	J	L	N	P	R	X	Y	Z
	in	in	in	in	in	in	in	in	in	# of holes	in	in
1	0.500	2.37	1.30	0.45	1.54	3.56	2.00	1.875	1.44	3	3/16	8/32 UNC
2	1.000	4.00	2.22	0.57	1.59	3.75	2.62	3.562	2.36	3	3/16	8/32 UNC
3	1.500	5.00	3.13	0.57	1.89	5.38	3.50	4.500	3.07	6 ④	1/4	1/4 UNF
4	2.000	6.25	4.25	0.52	2.18	6.50	5.00	5.687	3.74	6	5/16	5/16 UNF
5	3.000	8.50	6.00	1.10	3.09	8.50	6.50	7.750	5.72	6	3/8	3/8 UNF
5S	3.500	10.50	7.00	1.46	4.39	9.25	7.50	③	7.09	③	5/8	1/2 UNF

① Bores are furnished for clearance fit unless otherwised specified by customer. Rectangular keys must be used on larger bore diameters. Consult Rexnord.
② Collars containing set screws to secure the S1 hub to the shaft can be supplied on request. Consult Rexnord.
③ Consult Rexnord.
④ Size 3 has 6 tapped holes 60° apart and three roll pin holes 120° apart spaced 30° between tapped holes.

Model 204

Figure 8



① See page 17, Table 24 for dimensions and movement on disengagement.

Table 14

Size	Torque ①		Speed ②				Mass Moment of Inertia MR²
	Type AC or AF	Type ACT	Type AC	Type ACT	Type AF	Weight	
	lb-in	lb-in	rpm	rpm	rpm	lb	lb-in²
1	10-350	20-500	200	500	2,000	3.1	4
2	50-2,000	90-3,400	200	500	2,000	9.5	21
3	60-6,000	100-7,600	200	500	2,000	21.3	53
4	800-10,000	1,000-15,000	200	500	2,000	46.6	261
5	1,000-22,500	1,500-26,000	200	500	2,000	106.3	934
5S ③	10,000-67,500	12,000-75,000	200	500	-	211.2	1,606

① See page 16, Table 23 for spring selection and torque range with specific springs.
② Higher speeds may be allowed under certain conditions. Consult Rexnord.
③ Size 5S is available in Type AC and ACT resets only.

Table 15

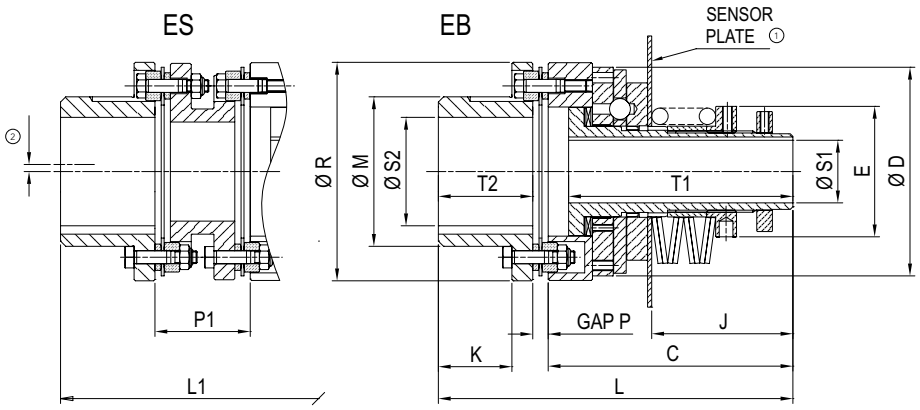
Model 204 uses basic Model 203 and includes a non flexible coupling that does not allow for either angular or parallel misalignment. CAUTION: For use only when attached unit is self aligning.

Size	Max. Bore S1 ①	Max. Bore S2 ①	D	E	J	K	L	M	N	T1	T2
	in	in	in	in	in	in	in	in	in	in	in
1	0.500	1.000	2.37	1.30	2.77	0.62	4.81	1.50	2.00	3.56	1.22
2	1.000	2.000	4.00	2.22	3.49	1.25	5.68	2.87	2.62	3.75	1.77
3	1.500	2.125	5.00	3.13	4.81	2.25	8.31	3.50	3.50	5.38	2.78
4	2.000	3.000	6.25	4.25	5.91	3.00	10.24	4.50	5.00	6.50	3.58
5	3.000	4.500	8.50	6.00	7.00	2.50	12.41	6.50	6.50	8.50	3.69
5S	3.500	6.000	10.50	7.00	9.37	3.50	14.23	8.25	7.50	9.25	4.91

① Bores are furnished for clearance fit unless otherwised specified by customer. Rectangular keys must be used for maximum bore diameters.

Model 205

Figure 9



① See page 17, Table 24 for dimensions and movement on disengagement.
② Parallel offset misalignment applies only to ES-HV11 spacer couplings and is based on minimum DBSE.

Table 16

Size	Torque ①		Speed ②			Weight ③	Mass Moment of Inertia MR² ③	Max. Coupling Misalignments		
	Type AC or AF	Type ACT	Type AC	Type ACT	Type AF			Axial	Angular	Parallel ④
	lb-in	lb-in	rpm	rpm	rpm	lb	lb-in²	in	degree	in
1/8HVII	10-350	20-500	200	500	2,000	4.40	4	0.012	0.5	0.024
2/35HVII	50-2,000	90-3,400	200	500	2,000	12.10	21	0.020	0.5	0.028
3/70HVII	60-6,000	100-7,600	200	500	2,000	23.10	53	0.024	0.5	0.028
4/150HVII	800-10,000	1,000-15,000	200	500	2,000	50.60	261	0.031	0.5	0.031
5/480HVII	1,000-22,500	1,500-26,000	200	500	2,000	112.20	934	0.039	0.5	0.051

① See page 16, Table 23 for spring selection and torque range with specific springs.
② Higher speeds may be allowed under certain conditions. Consult Rexnord.
③ Weights and moments of inertia apply to maximum (S1 and S2) bores.
④ Parallel offset misalignment applies only to ES-HV11 spacer couplings and is based on minimum DBSE.

Table 17

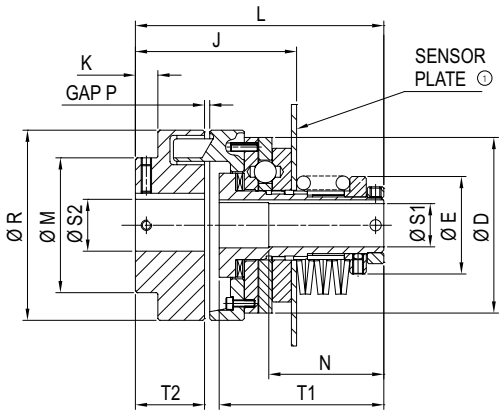
Model 205 includes the Autoflex EB-HVII torsionally rigid metal membrane coupling for angular misalignment.
The Autoflex ES-HVII can be supplied upon request and accommodates angular and parallel offset misalignment.

Size	Max. Bore S1 ① ②	Max. Bore S2 ①	C	D	E	J	K	L	L1	M	P	P1 ③	R	T1	T2
	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in
1/8HVII	0.500	1.18	3.90	2.37	1.30	1.97	0.91	5.47	7.09	1.72	0.29	1.89	3.15	3.56	1.28
2/35HVII	1.000	1.97	4.25	4.00	2.22	2.05	1.30	6.46	8.35	2.78	0.37	2.28	4.33	3.75	1.81
3/70HVII	1.500	2.60	5.87	5.00	3.13	3.39	1.77	8.50	10.43	3.58	0.37	2.28	5.24	5.38	2.26
4/150HVII	2.000	3.54	7.05	6.25	4.25	4.17	2.36	10.35	12.52	4.84	0.35	2.52	6.69	6.50	2.94
5/480HVII	3.000	4.33	9.09	8.50	6.00	5.31	2.95	13.43	17.13	5.91	0.59	4.29	9.06	8.50	3.74

① Bores are furnished for clearance fit unless otherwised specified by customer. Rectangular keys must be used for maximum bore diameters.
② Collars containing set screws to secure the S1 hub to the shaft can be supplied upon request. Consult Rexnord.
③ P1 dimension is a minimum value. Longer spacers available upon request. Consult Rexnord.

Model 206N

Figure 10



① See page 17, Table 24 for dimensions and movement on disengagement.
Note: Temperature range of elastomer bushing is -30°C to 80°C (-22°F to 176°F).

Table 18

Size	Torque ①		Speed ②			Weight ④	Mass Moment of Inertia MR² ④
	Type AC or AF	Type ACT	Type AC	Type ACT	Type AF		
	lb-in	lb-in	rpm	rpm	rpm	lb	lb-in²
1/80	10-350	20-500	200	500	2,000	3.7	2.4
2/110	50-2,000	90-3,400	200	500	2,000	15.0	17.1
3/140	60-6,000	100-7,600	200	500	2,000	25.3	580.9
4/160	800-10,000	1,000-15,000	200	500	2,000	48.4	239.2
5/250	1,000-22,500	1,500-26,000	200	500	2,000	123.2	922.6
5S/315 ③	10,000-67,500	12,000-75,000	200	500	-	225.5	5,125.5

① See page 16, Table 23 for spring selection and torque range with specific springs.
② Higher speeds may be allowed under certain conditions. Consult Rexnord.
③ Size 5S is available in Type AC and ACT resets only.
④ Weights and moments of inertia apply to maximum (S1 and S2) bores.

Table 19

Model 206N includes the traditional torsionally soft flexible coupling for parallel and angular misalignment.

Size	Max. Bore S1	Max. Bore S2	D	E	J	K	L	M	N	P	R	T1	T2
	in ①	in ①	in	in	in	in	in	in	in	in	in	in	in
1/80	0.500	1.250	2.37	1.30	2.66	-	4.68	-	2.00	0.12	3.15	3.56	1.18
2/110	1.000	2.000	4.00	2.22	3.48	0.24	5.66	3.39	2.62	0.12	4.33	3.75	1.57
3/140	1.500	2.375	5.00	3.13	4.70	0.83	8.19	3.94	3.50	0.12	5.51	5.38	2.17
4/160	2.000	2.750	6.25	4.25	5.29	0.83	9.60	4.25	5.00	0.16	6.30	6.50	2.36
5/250	3.000	4.375	8.50	6.00	7.92	1.57	13.22	6.50	6.50	0.22	9.84	8.50	3.94
5S/315	3.500	4.750	10.50	7.00	9.79	2.17	14.87	7.87	7.50	0.22	12.40	9.25	4.92

① Bores are furnished for clearance fit unless otherwise specified by customer.

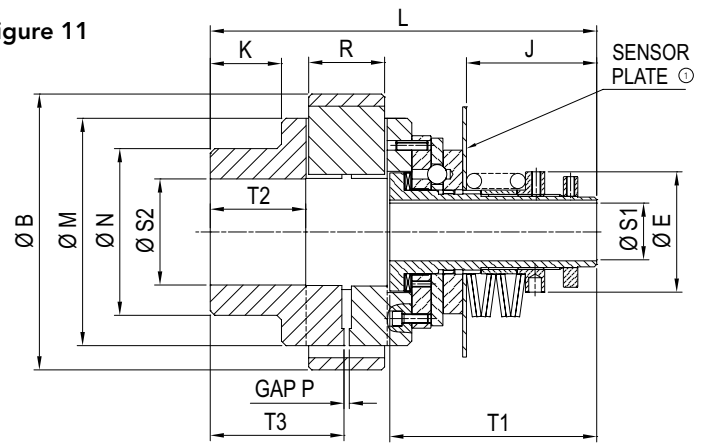
Table 20

Minimum S2 Bore and maximum allowable misalignment.

Size	Allowable Misalignment			Gap Between Hub and Adapter	
	S2 (min)	Angular Degrees	Parallel	Min.	Max.
	in		in	in	in
1/80	0.39	0.09	0.005	0.08	0.16
2/110	0.55	0.09	0.007	0.08	0.16
3/140	0.71	0.10	0.009	0.08	0.16
4/160	0.87	0.10	0.011	0.08	0.24
5/250	1.89	0.10	0.017	0.12	0.31
5S/315	2.56	0.10	0.017	0.12	0.31

Model 206S

Figure 11



① See page 17, Table 24 for dimensions and movement on disengagement.

Table 21

Size	Torque ①		Speed ②			Weight ④	Mass Moment of Inertia MR² ④	Max. Coupling Misalignments		
	Type AC or AF	Type ACT	Type AC	Type ACT	Type AF			Axial	Angular	Parallel
	lb-in	lb-in	rpm	rpm	rpm	lb	lb-in²	in	degree	in
1	10-350	20-500	200	500	2,000	4.2	3.8	0.02	0.3	0.08
2	50-2,000	90-3,400	200	500	2,000	13.9	61.5	0.03	0.5	0.08
3	60-6,000	100-7,600	200	500	2,000	28.2	177.7	0.03	0.7	0.05
4	800-10,000	1,000-15,000	200	500	2,000	54.3	444.2	0.04	0.7	0.05
5	1,000-22,500	1,500-26,000	200	500	2,000	123.0	1,708.5	0.04	0.8	0.05
5S ③	10,000-67,500	12,000-75,000	200	500	-	305.8	8,200.8	0.06	1.0	0.04

① See page 16, Table 23 for spring selection and torque range with specific springs.
② Higher speeds may be allowed under certain conditions. Consult Rexnord.
③ Size 5S is available in Type AC and ACT resets only.
④ Weights and mass moment of inertia apply to maximum (S1 and S2) bores.

Table 22

Model 206S includes the Autogard Samiflex torsionally soft flexible coupling for parallel and angular misalignment.

Size	Max. Bore S1	Max. Bore S2	B	E	J	K	L	M	N	P	R	T1	T2	T3
	in ①	in ①	in	in	in	in	in	in	in	in	in	in	in	in
1	0.500	1.626	3.27	1.30	1.97	-	6.07	2.56	-	0.06	0.87	3.56	1.34	1.76
2	1.000	2.748	5.67	2.22	2.05	1.77	7.87	4.57	4.13	0.10	1.65	3.75	2.20	3.00
3	1.500	2.756	7.17	3.13	3.39	1.85	10.02	5.91	4.33	0.14	2.01	5.38	2.48	3.46
4	2.000	3.248	7.95	4.25	4.17	2.05	11.71	6.69	4.92	0.14	2.20	6.50	2.76	3.82
5	3.000	4.500	10.43	6.00	5.31	2.76	15.35	9.17	7.09	0.14	2.64	8.50	3.74	5.03
5S	3.500	5.906	14.29	7.00	4.72	4.49	18.32	12.83	9.53	0.20	3.35	9.25	5.79	7.42

① Bores are furnished for clearance fit unless otherwise specified by customer. Rectangular keys must be used for maximum bore diameters.

Engineering Information

Torque Adjustment

The 200 Series can be shipped from the factory with the torque setting specified at the time of order. Alternatively, the unit can be furnished unset allowing for adjustment at the time of installation. Calibration spacers (see Figure 12) are supplied either to prevent this nominal setting being exceeded or to prevent adjustment over the maximum capacity of the unit. Calibration spacers, which are fitted to prevent adjustment above the nominal setting, must be removed to allow the tightening of the adjustment nut to achieve a higher torque not greater than the maximum for the unit. The spacers also help position disc springs correctly where they are used.

In many cases, the exact torque requirements are difficult to calculate with any reasonable degree of accuracy; therefore, the recommended installation procedure is to start the drive with a low-torque setting, progressively tightening the adjustment nut until the 200 Series starts the mechanism without disengaging. Before attempting to turn the adjusting nut, ensure that the locking screw is loosened and is relocked after final adjustment.

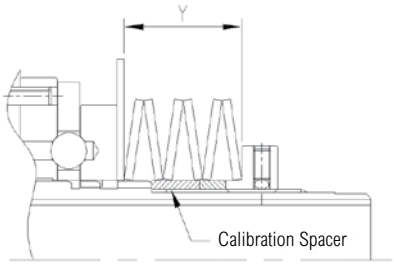


Figure 12

Spring Selection

The full range of torque for each size unit is achieved by a number of positions in which coil springs are located. For these sizes, select the proper spring assembly so that the desired tripping torque will fall approximately in the middle of the torque range for that spring. If the spring length in field adjustment approaches minimum 'Y' dimension, a spring with a higher torque range should be considered.

Calculate theoretical running torque at a chosen location using the following formula: $\text{Torque (lb-in)} = \frac{\text{hp x 63,025}}{\text{RPM}}$

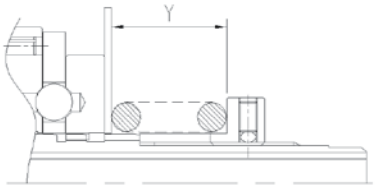


Figure 13

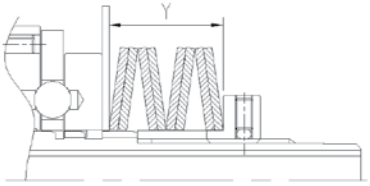


Figure 14

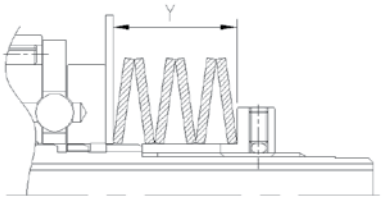


Figure 15

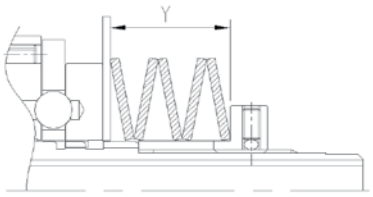


Figure 16

Table 23

Size	Type	Spring Code	Color	Qty.	Stack As	AC/AF Torque Range	ACT Torque Range	Min. Allowable Spring Length Dimension Y
						lb-in	lb-in	in
1	Disc	1D/1/S	Natural	6	Figure 15	150-350	200-500	0.43
	Coil	1C/1	White / Red	1	Figure 13	80-250	120-335	0.96
	Coil	1C/2	White / Green	1	Figure 13	40-130	60-200	0.86
	Coil	1C/3	White / Yellow	1	Figure 13	10-60	20-90	0.71
2	Disc	2D/1/S	Blue / Black	6	Figure 15	1,200-2,000	2,000-3,400	0.98
	Disc	2D/2/S	Blue	5	Figure 16	800-1,800	1,200-2,800	0.88
	Coil	2C/1	Blue / Red	1	Figure 13	450-900	700-1,500	0.98
	Coil	2C/2	Blue / Green	1	Figure 13	150-500	250-800	0.88
	Coil	2C/3	Blue / Yellow	1	Figure 13	50-150	90-250	0.73
3	Disc	3D/1/D	Brown / Black	8	Figure 14	1,500-6,000	2,500-7,600	1.3
	Disc	3D/1/S	Brown	6	Figure 15	1,000-3,600	1,800-4,800	1.1
	Coil	3C/1	Brown / Red	1	Figure 13	600-3,000	1,000-4,000	1.6
	Coil	3C/2	Brown / Green	1	Figure 13	200-1,200	300-1,700	1.3
	Coil	3C/3	Brown / Yellow	1	Figure 13	60-700	100-1,000	1.3
4	Disc	4D/1/S	Orange / Black	5	Figure 16	3,000-10,000	5,000-15,000	1.25
	Disc	4D/2/S	Orange	6	Figure 15	2,000-7,500	3,000-9,500	1.25
	Coil	4C/1	Orange / Red	1	Figure 13	800-4,000	1,000-5,000	1.8
5	Disc	5D/1/S	Gray / Black	6	Figure 15	6,000-22,500	8,000-26,000	2.2
	Disc	5D/2/S	Gray	6	Figure 15	3,000-20,000	4,000-23,500	1.9
	Coil	5C/1	Gray / Red	1	Figure 13	1,000-4,000	1,500-5,000	2.2
5S	Disc	5SD/1	Natural	5	Figure 16	10,000-50,000	12,000-57,000	1.9
	Disc	Hi-Torq	Natural	5	Figure 16	12,000-67,500	14,000-75,000	2.1

CAUTION! DO NOT TIGHTEN THE ADJUSTING NUT SO THAT THE SPRINGS ARE COMPRESSED BEYOND THEIR MINIMUM OPERATING LENGTH, DIMENSION 'Y' (with the torque limiter engaged) or the springs will not allow sufficient movement of the slide plate to let the balls leave their seat during an overload. Damage to the machinery or to the 200 Series will result. It is important that Autogard products is used in the correct manner and that adjustment and setting in relation to a particular function follow recommended procedures.

Engineering Information

Drive Shutdown on Disengagement

It is necessary to shut down the drive quickly after disengagement upon overload. We recommend all applications use an automatic mechanism to switch off the drive motor. On the 200 Series, a flat limit switch plate for actuating a control to shut down the drive is furnished at no charge. The flat limit switch plate or sensor plate is used to actuate an Autogard remote shutdown control or equivalent shown in Figure 17 using dimensions in Table 24.

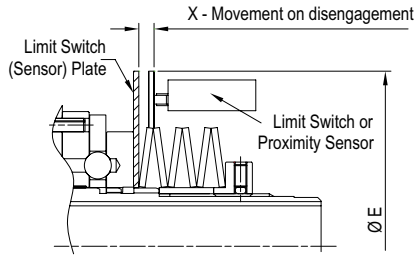


Figure 17

Table 24

Size	1	2	3	4	5	5S
X	0.095	0.173	0.173	0.209	0.248	0.32
E	3.25	5.50	6.50	8.00	10.00	12.00

Covers

Style A

Style A is suitable for use in moderately dusty or dirty conditions. It is available on all models with Type ACT reset.

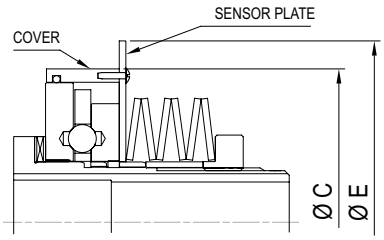


Figure 18

Table 25

Size	1	2	3	4	5
C	2.87	4.69	5.75	7.12	9.5
E	3.25	5.50	6.50	8.00	10.00

Torque Adjustment Wrenches

For all models, unit sizes 1 and 2, the torque adjusting nuts are hexagonal, and a standard open-end wrench may be used. A wrench opening of 1 5/16 in is required for size 1 unit and a 2 1/4 in for size 2 unit. Sizes 3 and up have a circular adjusting nut and require a spanner wrench as shown in Figure 19.

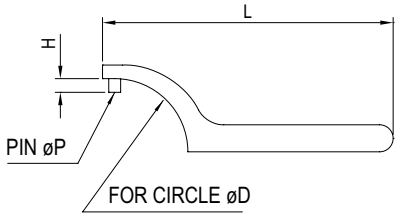


Figure 19

Table 26

Autogard T/L Size	D	L	P	H	Armstrong Tool Co. Part No.
	in				
3	3	8	5/16	9/32	34-225
4	4	10	3/8	11/32	34-237
5	6	14	1/2	9/16	34-243

Protective Finish

The standard protective finish applied to the 200 Series is manganese phosphate plus oil dip. This treatment provides a high level of protection with good corrosion resistance and is suitable for most environments. Other finishes can be applied for situations where exceptional environments necessitate high levels of protection — consult Rexnord.

200 Series Applications

Printing/Book Presses
Mixers
Palletizers
Positive Displacement Pumps
Cartoners/Case Packers
Labeling, Filming Machines
Reel Stands
Conveyors
Bottling/Filling Lines

200 Series Industries

Printing and Packaging
Paper Converting
Food and Beverage
Material Handling
Automotive Manufacturing

Maintenance and General Safety Information

Maintenance

The frequency of maintenance will depend on the operating environment and number of trips, but once every 2,000 operating hours should be adequate in most applications. The amount of maintenance required is dependent upon the operating conditions and should be maintained at least as frequently as the adjacent drive components. In adverse conditions, consult Rexnord.

General Safety

Autogard Torque Limiters are reliable units, built to high standards of workmanship. Similar to all mechanical devices, each application must be considered on its own merits with reference to safety (i.e. lifting equipment, explosive conditions, etc). As rotating components, adequate guarding must be provided, in accordance with local codes. The intended use of torque limiters is for the protection of industrial machinery and should not be regarded as human safety devices. Rexnord staff is always available to discuss particular applications.

Other Autogard Products

Autogard Torque Limiter 320 Series

Autogard Torque Limiter 400 Series

Autogard Torque Limiter 600 Series

Autogard Torque Limiter 820 Series

Autogard Torque Limiter WT Series

To learn more about the Autogard Torque Limiter offering and how it can provide you with high-quality overload protection, go to **www.rexnord.com**, where you'll find:

• Product information • Brochures • Manuals

866-REXNORD/866-739-6673 (toll-free within the U.S.) or 414-643-2366 (Outside the U.S.)

866-REXNORD/866-739-6673 (Within the U.S.)
414-643-2366 (Outside the U.S.)
www.rexnord.com

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When it comes to providing highly engineered products that improve productivity and efficiency for industrial applications worldwide, Rexnord is the most reliable in the industry. Commitment to customer satisfaction and superior value extend across every business function.

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The highest quality products are designed to help prevent equipment downtime and increase productivity and dependable operation.

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Solutions to Enhance Ease of Doing Business

Commitment to operational excellence ensures the right products at the right place at the right time.

REXNORD

Rexnord Company Overview

Rexnord is a growth-oriented, multi-platform industrial company with leading market shares and highly trusted brands that serve a diverse array of global end markets.

Process & Motion Control

The Rexnord Process & Motion Control platform designs, manufactures, markets and services specified, highly engineered mechanical components used within complex systems where our customers' reliability requirements and the cost of failure or downtime are extremely high.

Water Management

The Rexnord Water Management platform designs, procures, manufactures and markets products that provide and enhance water quality, safety, flow control and conservation.

TQ1-003 06/15