

## Autogard Torque Limiter 200 Series







## Autogard Torque Limiter 200 Series

For more than 80 years, Autogard<sup>®</sup> 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 "fuse" 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 robust 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'.

### **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.

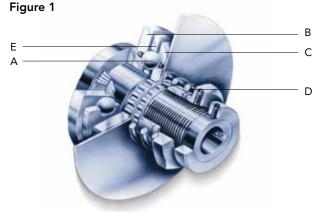
### Type AC — Automatic Random Reset

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.



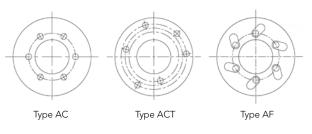




### Type AF — Free Wheeling Disengagement

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.







#### **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) and rpm of the driver
- Shaft details of the driving and driven equipment
- (1) Calculate the nominal torque.

Torque (Nm) = Kw x 9550 / 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 / S1-60mm / S2-90mm

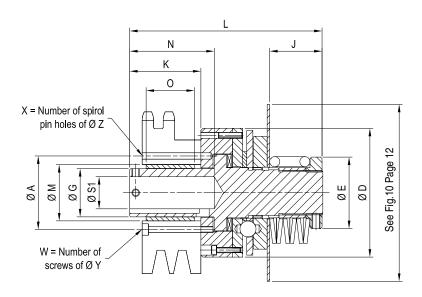
Refers to Model 205, Size 5, Automatic Random Reset S1 Bore = 60mm S2 Bore = 90mm Also specify setting torque is required.

The specifications contained within this brochure are correct at the time of going to print. Rexnord is continually reviewing and updating the specifications on its entire Autogard product offering and therefore reserve the right to change any detail.



Model 221, for use with sprockets, pulleys or gears. Supplied complete with bearing and suitable mounting holes.

### Figure 3



### Table1

|      | Torq                  | ue 🛈           |                | Speed ②         |                | Mass  | Mass Moment of   |
|------|-----------------------|----------------|----------------|-----------------|----------------|-------|--|
| Size | Type AC or AF<br>Nm   | Type ACT<br>Nm | Type AC<br>rpm | Type ACT<br>rpm | Type AF<br>rpm | Kg    | Inertia MR <sup>2</sup> <sup>(a)</sup><br>Kgm <sup>2</sup> |
| 1    | 1-44                  | 3-69           | 200            | 500             | 2,000          | 1.5   | 0.0005   |
| 2    | 6-226                 | 9-384          | 200            | 500             | 2,000          | 4.5   | 0.0049   |
| 3    | 6-678                 | 9-854          | 200            | 500             | 2,000          | 9.9   | 0.0150   |
| 4    | 90-1,130              | 113-1,774      | 200            | 500             | 2,000          | 21.6  | 0.0600   |
| 5    | 141-2,540             | 158-2,937      | 200            | 500             | 2,000          | 50.0  | 0.2100   |
| 5S ③ | 938-7,627 1,130-8,474 |                | 200            | 500             | -              | 106.0 | 0.7300   |

See page 13, Table 19 for spring selection and torque range with specific springs
 Higher speeds may be allowed under certain conditions. Please 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

| Size | Max. Bore<br>S1 ①<br>mm | D<br>mm | E<br>mm | Min. G <sup>②</sup><br>mm | Max. G <sup>②</sup><br>mm | J<br>mm | K<br>mm | L<br>mm | Min. M <sup>②</sup><br>mm | Max. M <sup>②</sup><br>mm | N <sup>3</sup><br>mm |
|------|-------------------------|---------|---------|---------------------------|---------------------------|---------|---------|---------|---------------------------|---------------------------|----------------------|
| 1    | 12.7                    | 60      | 33      | 22.225                    | 22.253                    | 42      | 50      | 140     | 25.400                    | 25.430                    | 51                   |
| 2    | 25.4                    | 102     | 57      | 38.100                    | 38.136                    | 42      | 56      | 153     | 44.450                    | 44.475                    | 67                   |
| 3    | 38.1                    | 127     | 80      | 50.800                    | 50.838                    | 76      | 78      | 216     | 57.175                    | 57.201                    | 89                   |
| 4    | 50.8                    | 159     | 108     | 71.476                    | 71.501                    | 96      | 117     | 287     | 77.788                    | 77.818                    | 127                  |
| 5    | 76.2                    | 216     | 153     | 101.727                   | 101.752                   | 121     | 148     | 368     | 114.300                   | 114.336                   | 165                  |
| 5S   | 102                     | 267     | 178     | 152.400                   | 152.464                   | 121     | 166     | 426     | 171.450                   | 171.491                   | 178                  |

0 Bores are furnished for clearance fit unless otherwise specified by customer. Please consult Rexnord.

The drive medium may be mounted onto the adapter with screws and dowels and must be bored to dimension "M". The supplied bearing may then be press fitted into the drive medium. Finally, the bearing should then be bored to dimension "G" as shown. 2

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. 3



### Table 3

|      |            | Small      | est Sprocket (No. of | Teeth)     |          | Smallest Sheave   |
|------|------------|------------|----------------------|------------|----------|-------------------|
| Size | 3/8" pitch | 1/2" pitch | 5/8" pitch           | 3/4" pitch | 1" pitch | Diameter ()<br>mm |
| 1    | 19         | 15         | 12                   | -          | -        | 44                |
| 2    | 26         | 21         | 17                   | 15         | 12       | 67                |
| 3    | 31         | 24         | 20                   | 17         | 13       | 80                |
| 4    | -          | 31         | 25                   | 21         | 17       | 109               |
| 5    | -          | 41         | 33                   | 28         | 22       | 149               |
| 5S   | -          | 60         | 48                   | 41         | 31       | 230               |

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.

### Table 4

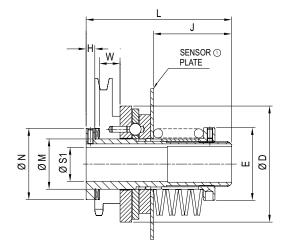
|      |               | Standard Mounting Hole Patterns (Min. Diameters) 📀 |               |            |         |     |  |  |  |  |  |  |
|------|---------------|--|---------------|------------|---------|-----|--|--|--|--|--|--|
| Size | Dowel         | Is (X) ①   | Screw         | s (W) ①    | A (PCD) | 0   |  |  |  |  |  |  |
|      | No. of dowels | Dowel dia.   | No. of Screws | Screw Size | mm      | mm  |  |  |  |  |  |  |
| 1    | 3             | 4  | 3             | M4         | 36      | 38  |  |  |  |  |  |  |
| 2    | 3             | 5  | 3             | M5         | 58      | 38  |  |  |  |  |  |  |
| 3    | 3             | 6  | 3             | M6         | 70      | 63  |  |  |  |  |  |  |
| 4    | 6             | 8  | 3             | M8         | 95      | 75  |  |  |  |  |  |  |
| 5    | 6 10          |  | 3             | M10        | 135     | 100 |  |  |  |  |  |  |
| 6    | 3             | 12   | 3             | M12        | 205     | 135 |  |  |  |  |  |  |

③ Bolt holes to be equally spaced on bolt circle diameter specified. Care must be taken not to drill into other mounting holes in adapter.
 ③ Standard mounting holes furnished for a standard price adder. Special mounting holes quoted upon request. Please consult Rexnord.



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

### Figure 4



 $\odot\,$  See page 12, Table 18 for dimensions and movement on disengagement.

#### Table 5

|      | Torq                | ue 🕦           |                | Speed ②         |                | Mass <sup>3</sup> | Mass Moment <sup>③</sup>                       |  |
|------|---------------------|----------------|----------------|-----------------|----------------|-------------------|--|--|
| Size | Type AC or AF<br>Nm | Type ACT<br>Nm | Type AC<br>rpm | Type ACT<br>rpm | Type AF<br>rpm | Kg                | of Inertia MR <sup>2</sup><br>Kgm <sup>2</sup> |  |
| 1    | 1-44                | 3-69           | 200            | 500             | 2000           | 1.0               | 0.0003   |  |
| 2    | 6-226               | 9-384          | 200            | 500             | 2000           | 2.9               | 0.0030   |  |
| 3    | 6-678               | 9-854          | 200            | 500             | 2000           | 6.4               | 0.0090   |  |
| 4    | 90-1,130            | 113-1,774      | 200            | 500             | 2000           | 15.4              | 0.0460   |  |
| 5    | 141-2,540           | 158-2,937      | 200            | 500             | 2000           | 33.4              | 0.1400   |  |
| 5S ④ | 938-7,627           | 1,130-8,474    | 200            | 500             | -              | 67.0              | 0.4700   |  |

① See page 13, Table 19 for spring selection and torque range with specific springs.

② Higher speeds may be allowed under certain conditions. Please 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 6

| Size | Max. Bore S1<br>mm | ② D<br>mm | E<br>mm | H<br>mm | J<br>mm | L<br>mm   | M<br>mm | N<br>mm | W<br>mm      |
|------|--------------------|-----------|---------|---------|---------|-----------|---------|---------|--------------|
| 1    | 12.7               | 60        | 33      | 7.9     | 42      | 102       | 22      | 37.00   | 19.00        |
| 2    | 25.4               | 102       | 57      | 9.6     | 42      | 111       | 40      | 60.00   | 25.40        |
| 3    | 38.1               | 127       | 80      | 9.6     | 73      | 149       | 55      | 78.00   | 25.40        |
| 4    | 50.8               | 159       | 108     | 9.6     | 94      | 197       | 76      | 95.00   | 44.40        |
| 5    | 76.2               | 216       | 153     | 12.7    | 121     | 267       | 110     | 145.00  | 63.50        |
| 5S34 | 102.0              | 267       | 178     | 19.1    | 121     | 279 / 337 | 140     | 180.00  | 44.4 / 101.6 |

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

② Rectangular keys must be used for maximum bore diameters.

③ Size 5S is supplied in two lengths.

③ Special hubs can be supplied with dimension W increased to accommodate larger size drive media.

### Table 7

| Size |            | Smallest   | sprocket (No. | of Teeth)  |          | Smallest Pulley Diameter 🕦 |
|------|------------|------------|---------------|------------|----------|----------------------------|
| 5120 | 3/8" pitch | 1/2" pitch | 5/8" pitch    | 3/4" pitch | 1" pitch | mm                         |
| 1    | 16         | 13         | 11            | -          | -        | 42                         |
| 2    | 24         | 19         | 16            | 14         | 11       | 67                         |
| 3    | 30         | 23         | 19            | 17         | 13       | 86                         |
| 4    | -          | 27         | 22            | 19         | 15       | 115                        |
| 5    | -          | 40         | 32            | 28         | 22       | 169                        |
| 5S   | -          | 49         | 39            | 34         | 26       | 261                        |

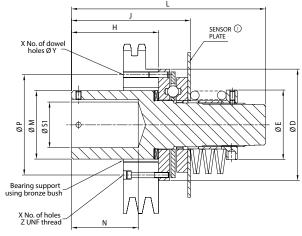
① The pulley diameter quoted is to the bottom of the V-sheave groove or the inisde diameter for the flange of the timing pulley. For multiple strand sprockets contact Rexnord Autogard.



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

#### Figure 5



① See page 12, Table 18 for dimensions and movement on disengagement.

### Table 8

|      | Torq                | ue 🛈           |                | Speed ②         |                | Mass ③ | Mass Moment of                                |  |
|------|---------------------|----------------|----------------|-----------------|----------------|--------|---|--|
| Size | Type AC or AF<br>Nm | Type ACT<br>Nm | Type AC<br>rpm | Type ACT<br>rpm | Type AF<br>rpm | Kg     | Inertia MR <sup>2</sup> ③<br>Kgm <sup>2</sup> |  |
| 1    | 1-44                | 3-69           | 200            | 500             | 1800           | 1.0    | 0.0005  |  |
| 2    | 6-226               | 9-384          | 200            | 500             | 1800           | 2.9    | 0.0049  |  |
| 3    | 6-678               | 9-854          | 200            | 500             | 1800           | 7.0    | 0.0150  |  |
| 4    | 90-1,130            | 113-1,774      | 200            | 500             | 1800           | 16.8   | 0.0600  |  |
| 5    | 141-2,540 158-2,9   |                | 200            | 500             | 1800           | 42.2   | 0.2100  |  |

③ See page 13, Table 19 for spring selection and torque range with specific springs.
 ④ Higher speeds may be allowed under certain conditions. Please consult Rexnord.
 ④ Weights and moments of inertia apply to maximum S1 bores.

### Table 9

| Size | Max Bore S1<br>mm | D<br>mm | E<br>mm | H<br>mm | J<br>mm | L<br>mm | M<br>mm         | N ②<br>mm | P<br>mm |
|------|-------------------|---------|---------|---------|---------|---------|-----------------|-----------|---------|
| 1    | 25.4              | 60.5    | 32.8    | 68.3    | 96.3    | 139.7   | 36.53 / 36.55   | 57.2      | 47.63   |
| 2    | 41.3              | 101.6   | 56.4    | 81.0    | 106.7   | 152.4   | 60.30 / 60.33   | 66.7      | 90.47   |
| 3    | 57.2              | 127.0   | 79.5    | 104.9   | 136.9   | 215.9   | 78.49 / 78.54   | 92.0      | 114.30  |
| 4    | 69.8              | 158.8   | 108.0   | 147.8   | 187.5   | 287.5   | 95.20 / 95.25   | 130.0     | 144.45  |
| 5    | 101.6             | 215.9   | 152.4   | 193.5   | 243.6   | 368.3   | 145.24 / 145.29 | 162.0     | 196.85  |

O Bores are furnished for clearance fit unless otherwised specified by customer.
 O 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 10

Mounting information for sprocket, sheave, etc.

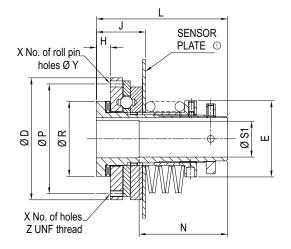
| Size | X<br># of holes | Y<br>in | Z<br>in  | I.D. of Bearing if Bronze is utilized mm |
|------|-----------------|---------|----------|--|
| 1    | 3               | 3/16    | 8/32 UNC | 36.60 / 36.63                            |
| 2    | 3               | 3/16    | 8/32 UNC | 60.40 / 60.45                            |
| 3    | ()              | 1/4     | 1/4 UNF  | 78.61 / 78.66                            |
| 4    | 6               | 5/16    | 5/16 UNF | 95.35 / 95.40                            |
| 5    | 6               | 3/8     | 3/8 UNF  | 145.44 / 145.49                          |

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



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.

### Figure 6



### Table 11

|      | Torq                | ue 🕦           |                | Speed ②         |                | Mara         | Mass Moment of                                |
|------|---------------------|----------------|----------------|-----------------|----------------|--------------|---|
| Size | Type AC or AF<br>Nm | Type ACT<br>Nm | Type AC<br>rpm | Type ACT<br>rpm | Type AF<br>rpm | Mass ③<br>Kg | Inertia MR <sup>2 ④</sup><br>Kgm <sup>2</sup> |
| 1    | 1-44                | 3-69           | 200            | 500             | 2000           | 1.0          | 0.0003  |
| 2    | 6-226               | 9-384          | 200            | 500             | 2000           | 2.4          | 0.0030  |
| 3    | 6-678               | 9-854          | 200            | 500             | 2000           | 5.4          | 0.0090  |
| 4    | 90-1,130            | 113-1,774      | 200            | 500             | 2000           | 12.7         | 0.0450  |
| 5    | 141-2,540           | 158-2,937      | 200            | 500             | 2000           | 27.9         | 0.1300  |
| 5S 3 | 938-7,627           | 1,130-8,474    | 200            | 500             | -              | 55.0         | 0.4600  |

① See page 12, Table 18 for dimensions and movement on disengagement.

① See page 13, Table 19 for spring selection and torque range with specific springs.

<sup>(2)</sup> Higher speeds may be allowed under certain conditions. Please 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 12

| Size | Max. Bore<br>S1 ① ②<br>mm | D<br>mm | E<br>mm | H<br>mm | J<br>mm | L<br>mm | N<br>mm | P<br>mm | R<br>mm | X<br># of holes | Y<br>in | Z<br>in  |
|------|---------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-----------------|---------|----------|
| 1    | 12.7                      | 60      | 33      | 11.5    | 39.1    | 91      | 50.80   | 47.625  | 37      | 3               | 3/16    | 8/32 UNC |
| 2    | 25.4                      | 102     | 57      | 14.4    | 40.3    | 95      | 66.55   | 90.475  | 60      | 3               | 3/16    | 8/32 UNC |
| 3    | 38.1                      | 127     | 80      | 14.4    | 47.9    | 137     | 88.90   | 114.300 | 78      | 6 3             | 1/4     | 1/4 UNF  |
| 4    | 50.8                      | 159     | 108     | 13.2    | 55.4    | 165     | 127.00  | 144.450 | 95      | 6               | 5/16    | 5/16 UNF |
| 5    | 76.2                      | 216     | 153     | 27.9    | 78.5    | 216     | 165.10  | 196.850 | 145     | 6               | 3/8     | 3/8 UNF  |
| 5S   | 102                       | 267     | 178     | 37.1    | 111.5   | 234.9   | 190.50  | 4       | 180     | 6               | 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.

② Collars containing set screws to secure the S1 hub to the shaft can be supplied on request. Please consult Rexnord.

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

③ For AC type, P = 235 mm for 1/2" UNF threaded holes and P=209.55 mm for the 5/8" dowel holes; For ACT type, P = 251.46 mm.





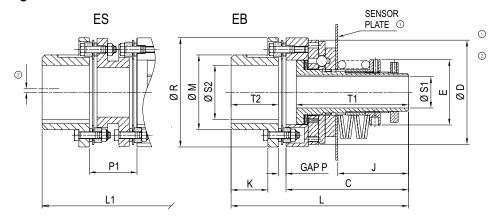
### Series 200 Applications

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

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.

### Figure 7



- See page 12, Table 18 for dimensions and movement on disengagement.
- Parallel offset misalignment applies only to ES-HV11 spacer couplings and is based on minimum DBSE.

### Table 13

|           | Torque ①               |                   |                   | Speed ②            |                   |                     | Mass Moment   | Max. Coupling Misalignments |                   |               |  |
|-----------|------------------------|-------------------|-------------------|--------------------|-------------------|---------------------|---|-----------------------------|-------------------|---------------|--|
| Size      | Type<br>AC or AF<br>Nm | Type<br>ACT<br>Nm | Type<br>AC<br>rpm | Type<br>ACT<br>rpm | Type<br>AF<br>rpm | ີ Weight<br>Kg<br>③ | of Inertia MR <sup>2</sup><br>③<br>Kgm <sup>2</sup> | Axial<br>mm                 | Angular<br>degree | Parallel ④ mm |  |
| 1/8HVII   | 1-44                   | 3-69              | 200               | 500                | 2000              | 2                   | 0.00108   | 0.3                         | 0.5               | 0.6           |  |
| 2/35HVII  | 6-226                  | 9-384             | 200               | 500                | 2000              | 5.5                 | 0.00607   | 0.5                         | 0.5               | 0.7           |  |
| 3/70HVII  | 6-678                  | 9-854             | 200               | 500                | 2000              | 10.5                | 0.01562   | 0.6                         | 0.5               | 0.7           |  |
| 4/150HVII | 90-1,130               | 113-1,774         | 200               | 500                | 2000              | 23                  | 0.07650   | 0.8                         | 0.5               | 0.8           |  |
| 5/480HVII | 141-2,540              | 158-2,937         | 200               | 500                | 2000              | 51                  | 0.27330   | 1.0                         | 0.5               | 1.3           |  |

① See page 13, Table 19 for spring selection and torque range with specific springs.

Higher speeds may be allowed under certain conditions. Please consult Rexnord.
 Weights and moments of inertia apply to maximum (S1 and S2) bores.

② Parallel offset misalignment applies only to ES-HVII spacer couplings and is based on minimum DBSE.

#### Table 14

| Size      | Max.<br>Bore<br>S1①②<br>mm | Max.<br>Bore<br>S2<br>mm | C<br>mm | D<br>mm | E<br>mm | J<br>mm | K<br>mm | L<br>mm | L1<br>mm | M<br>mm | P<br>mm | P1③<br>mm | R<br>mm | T1<br>mm | T2<br>mm |
|-----------|----------------------------|--------------------------|---------|---------|---------|---------|---------|---------|----------|---------|---------|-----------|---------|----------|----------|
| 1/8HVII   | 12.7                       | 30                       | 99      | 60      | 33      | 50      | 23      | 139     | 180      | 43.7    | 7.4     | 48        | 80      | 90.4     | 32.5     |
| 2/35HVII  | 25.4                       | 50                       | 108     | 102     | 57      | 51      | 33      | 163     | 212      | 70.6    | 9.4     | 58        | 110     | 95.3     | 46       |
| 3/70HVII  | 38.1                       | 66                       | 149     | 127     | 80      | 86      | 45      | 216     | 265      | 91      | 9.4     | 58        | 133     | 136.6    | 57.5     |
| 4/150HVII | 50.8                       | 90                       | 179     | 159     | 108     | 106     | 60      | 263     | 318      | 123     | 8.8     | 64        | 170     | 165.1    | 74.6     |
| 5/480HVII | 76.2                       | 110                      | 231     | 216     | 153     | 135     | 75      | 341     | 435      | 150     | 15      | 109       | 230     | 215.9    | 95       |

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

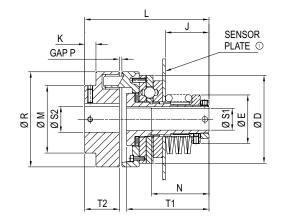
Collars containing set screws to secure the S1 hub to the shaft can be supplied upon request. Please consult Rexnord.
 P1 dimension is a minimum value. Longer spacers available upon request. Please consult Rexnord.



### Model 206N

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

### Figure 8



 $\odot$  See page 12, Table 18 for dimensions and movement on disengagement. Note: Temperature range of elastomer bushing is -30°C to 80°C (-22°F to 176°F).

### Table 15

|          | Torq                            | ue 🛈        |  | Speed ② |      | Mass Moment  |  |  |
|----------|---------------------------------|-------------|--|---------|------|--------------|--|--|
| Size     | Type AC or AF Type ACT<br>Nm Nm |             | Type AC Type ACT Type /<br>rpm rpm rpm |         |      | Mass ④<br>Kg | of Inertia MR <sup>2</sup><br>Kgm <sup>2</sup> |  |
| 1/80     | 1-44                            | 3-69        | 200                                    | 500     | 2000 | 1.7          | 0.0007   |  |
| 2/110    | 6-226                           | 9-384       | 200                                    | 500     | 2000 | 6.8          | 0.0050   |  |
| 3/140    | 6-678                           | 9-854       | 200                                    | 500     | 2000 | 11.5         | 0.017  |  |
| 4/160    | 90-1,130                        | 113-1,774   | 200                                    | 500     | 2000 | 22           | 0.07   |  |
| 5/250    | 141-2,540                       | 158-2,937   | 200                                    | 500     | 2000 | 56           | 0.27   |  |
| 5S/350 3 | 938-7,627                       | 1,130-8,474 | 200                                    | 500     | -    | 120.0        | 1.50   |  |

See page 13, Table 19 for spring selection and torque range with specific springs.
Higher speeds may be allowed under certain conditions. Please consult Rexnord.
Size 5S is available in Type AC and ACT resets only.
Weights and moments of inertia apply to maximum (S1 and S2) bores.

### Table 16

|        | Max. Bore S1    | Bore        | S2          | D   | E   |     | к    |       | м   | N      | Р   | R   | T1    | T2  |
|--------|-----------------|-------------|-------------|-----|-----|-----|------|-------|-----|--------|-----|-----|-------|-----|
| Size   | mm <sup>①</sup> | Min<br>mm 🗊 | Max<br>mm 🕦 | mm  | mm  | mm  | mm   | mm    | mm  | mm     | mm  | mm  | mm    | mm  |
| 1/80   | 12.7            | -           | 30          | 60  | 33  | 50  | 9.53 | 118.9 | 50  | 50.80  | 3   | 80  | 90.4  | 30  |
| 2/110  | 25.4            | -           | 48          | 102 | 57  | 51  | 6    | 143.8 | 86  | 66.55  | 3   | 110 | 95.3  | 40  |
| 3/140  | 38.1            | -           | 60          | 127 | 80  | 86  | 21   | 208   | 100 | 88.90  | 3   | 140 | 136.6 | 55  |
| 4/160  | 50.8            | -           | 65          | 159 | 108 | 106 | 21   | 243.8 | 108 | 127.00 | 4   | 160 | 165.1 | 60  |
| 5/250  | 78              | 46          | 100         | 216 | 153 | 135 | 40   | 335.8 | 165 | 165.10 | 5.5 | 250 | 215.9 | 100 |
| 5S/350 | 102             | <b>90</b> ② | 140         | 267 | 178 | 120 | 66.0 | 422.3 | 230 | 190.50 | 5.5 | 350 | 234.9 | 140 |

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

② Smaller bores may be available under certain conditions. Please consult Rexnord.

### Table 17

Minimum S2 Bore and maximum allowable misalignment.

|      |                | A           | llowable Misalignme | Gap Between H  | lub and Adapter |            |
|------|----------------|-------------|---------------------|----------------|-----------------|------------|
| Size | S2 (min)<br>mm | Axial<br>mm | Angular<br>Degrees  | Parallel<br>mm | Min.<br>mm      | Max.<br>mm |
| 1    | 10             | 4           | 0.09                | 0.13           | 2.0             | 4.0        |
| 2    | 14             | 4           | 0.09                | 0.18           | 2.0             | 4.0        |
| 3    | 18             | 4           | 0.10                | 0.23           | 2.0             | 4.0        |
| 4    | 22             | 6           | 0.10                | 0.28           | 2.0             | 6.0        |
| 5    | 48             | 8           | 0.10                | 0.43           | 3.0             | 8.0        |

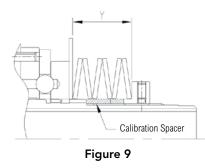


### **Engineering Information**

### **Torque Adjustment**

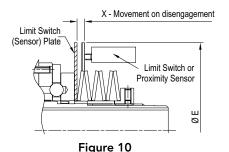
The 200 Series can be shipped from the factory with the torque setting specified at the time of order. Alternatively, the unit can be furnished unset allowing for adjustment at the time of installation. Calibration spacers (see Figure 9) are supplied either to prevent this nominal setting being exceeded 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.



### **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 a remote shutdown control or equivalent shown in Figure 10 using dimensions in Table 18.



| Table ' | 18 |
|---------|----|
|---------|----|

| Size |    | 1   | 2   | 3   | 4   | 5   | 5S  |
|------|----|-----|-----|-----|-----|-----|-----|
| Х    | mm | 2.4 | 4.4 | 4.4 | 5.3 | 6.3 | 8.1 |
| Е    | mm | 83  | 140 | 165 | 203 | 305 | 305 |

### **Protective Finish**

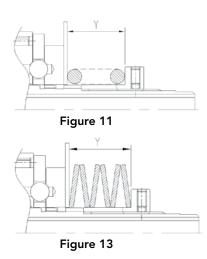
The standard protective finish applied to the 200 Series is manganese phosphate plus oil dip. This treatment provides a high level of protection with good corrosion resistance and is suitable for most environments. Other finishes can be applied for situations where exceptional environments necessitate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



### **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: Torque (Nm) =  $\frac{Kw \times 9550}{rpm}$ 



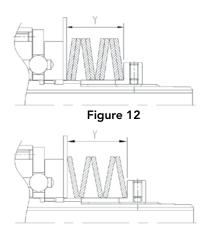


Figure 14

#### Table 19

| Size | Туре | Spring Code | Color          | Qty. | Stack As  | AC/AF Torque<br>Range<br>Nm | ACT Torque<br>Range<br>Nm | Min. Allowable Spring<br>Length<br>Dimension Y<br>mm |
|------|------|-------------|----------------|------|-----------|-----------------------------|---------------------------|--|
|      | Disc | 1D/1/S      | Natural        | 6    | Figure 13 | 8 - 44                      | 13 - 68                   | 13   |
| 1    | Coil | 1C/1        | White / Red    | 1    | Figure 11 | 9 - 28                      | 10 - 37                   | 23   |
| ·    | Coil | 1C/2        | White / Green  | 1    | Figure 11 | 5 - 14                      | 7 - 21                    | 21   |
|      | Coil | 1C/3        | White / Yellow | 1    | Figure 11 | 1 - 6                       | 3 - 11                    | 18   |
|      | Disc | 2D/1/S      | Blue / Black   | 6    | Figure 13 | 130 - 226                   | 209 - 384                 | 24   |
|      | Disc | 2D/2/S      | Blue           | 5    | Figure 14 | 72 - 203                    | 102 - 328                 | 23   |
| 2    | Coil | 2C/1        | Blue / Red     | 1    | Figure 11 | 54 - 88                     | 102 - 133                 | 25   |
|      | Coil | 2C/2        | Blue / Green   | 1    | Figure 11 | 21 - 61                     | 40 - 90                   | 21   |
|      | Coil | 2C/3        | Blue / Yellow  | 1    | Figure 11 | 6 - 19                      | 10 - 25                   | 19   |
|      | Disc | 3D/1/D      | Brown / Black  | 8    | Figure 12 | 136 - 678                   | 157 - 854                 | 30   |
|      | Disc | 3D/1/S      | Brown          | 6    | Figure 13 | 72 - 407                    | 95 - 542                  | 24   |
| 3    | Coil | 3C/1        | Brown / Red    | 1    | Figure 11 | 37 - 282                    | 57 - 406                  | 37   |
|      | Coil | 3C/2        | Brown / Green  | 1    | Figure 11 | 15 - 135                    | 23 - 132                  | 31   |
|      | Coil | 3C/3        | Brown / Yellow | 1    | Figure 11 | 6 - 56                      | 9 - 80                    | 25   |
|      | Disc | 4D/1/S      | Orange / Black | 5    | Figure 14 | 222 - 1130                  | 269 - 1774                | 32   |
| 4    | Disc | 4D/2/S      | Orange         | 6    | Figure 13 | 145 - 847                   | 171 - 1073                | 33   |
|      | Coil | 4C/1        | Orange / Red   | 1    | Figure 11 | 90 - 316                    | 113 - 395                 | 49   |
|      | Disc | 5D/1/S      | Grey / Black   | 6    | Figure 13 | 497 - 2540                  | 543 - 2937                | 57   |
| 5    | Disc | 5D/2/S      | Grey           | 6    | Figure 13 | 226 - 2260                  | 272 - 2655                | 43   |
|      | Coil | 5C/1        | Grey / Red     | 1    | Figure 11 | 142 - 350                   | 159 - 531                 | 48   |
| 5S   | Disc | 5SD/1       | Natural        | 5    | Figure 14 | 938 - 5650                  | 1130 - 6440               | 48   |
| 55   | Disc | Hi-Torq     | Natural        | 5    | Figure 14 | 1413 - 7627                 | 1582 - 8474               | 53   |

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.



### 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 are 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



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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 UK: +44 (0)1285 640333 Germany: +49 (0)5263 954960 Australia: +613 9532 0901 USA: 866-739-6673 China: +86 21 66183070 India: +91 (0) 20 30204513 Customerservice.ba@rexnord.com





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



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