

# TORQUE LIMITER

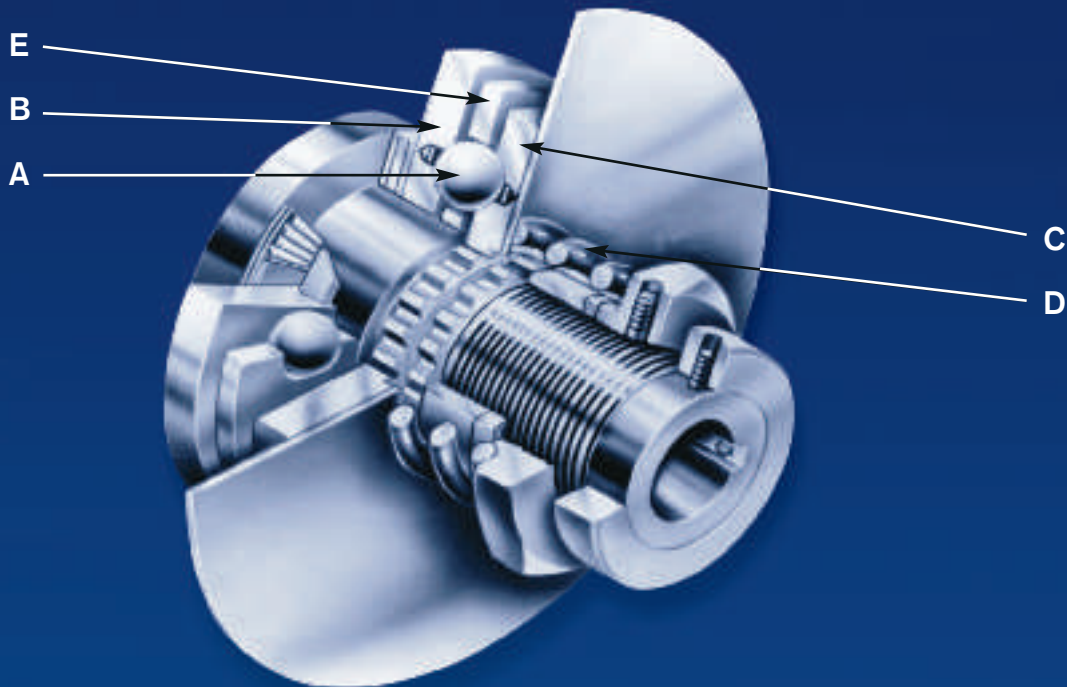
## SERIES 200

# 2000



# TORQUE LIMITER SERIES 200

Quality and Autogard are synonymous with overload protection. The company's reputation for high quality products is derived from over 40 years of design innovation and production. Autogard products are manufactured to meet ISO 9001 using the latest machine tools and high quality materials.



The Series 200 torque limiter is a state of the art mechanical device that will disengage at a pre-set torque value. The trip torque is set above the normal start-up and operating torque, but below a torque setting which would normally damage the driving and / or driven equipment. In the event of a jam, the torque limiter 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 which 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

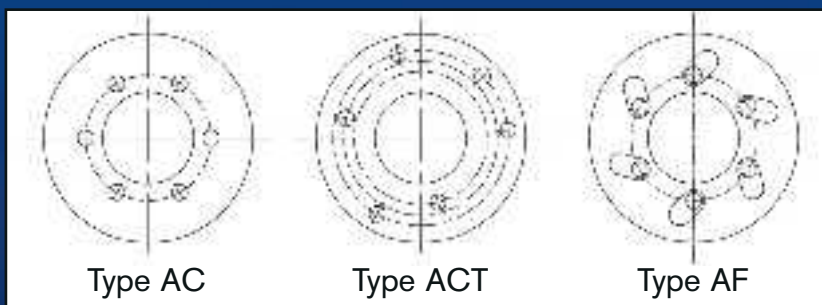
The ball detents in the drive plate (B) and the slide plate (C), as well as the retaining holes in cage plate (E) are equally spaced on the same pitch circle diameter so that the balls will roll into the next detents after tripping in either direction. Immediate shutdown is required to prevent wear of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

## Type ACT - Automatic Synchronous 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.

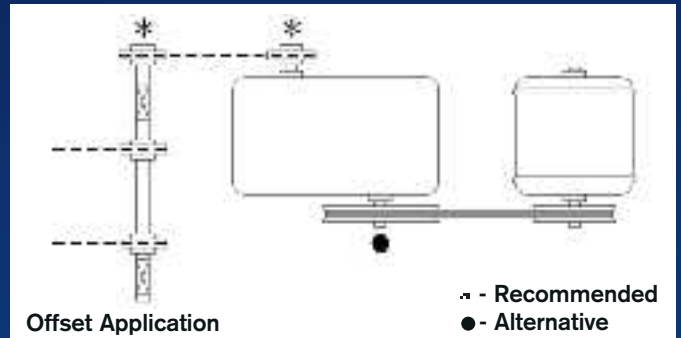
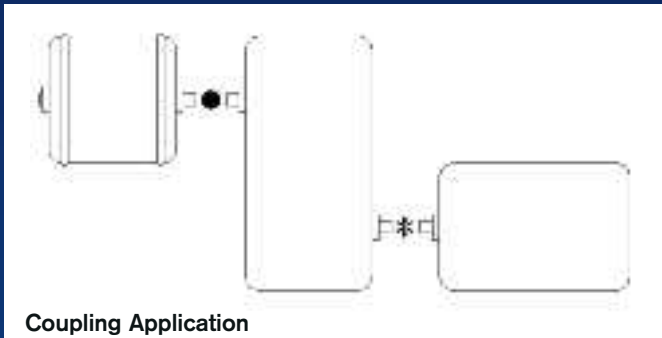
## Type AF - Free Wheeling Disengagement

As with the AC the detents in drive plate (B) and slide plate (C) are equally spaced. The retaining holes in the engaging 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. The AF can run at higher speeds as the balls will not ratchet in the detents. Re-setting is achieved by manually locking the plates and reversing the drive.



# TORQUE LIMITER SERIES 200

The Autogard torque limiter acts like a mechanical "circuit breaker" to protect the weakest member of the drive train. The most effective location for the torque limiter would be as close as possible to the component being protected. Drive trains having large reduction ratios should be given special consideration if the torque limiter is to be mounted at the high speed end. Consult Autogard for final drive with 300:1 reduction or higher. When locating the torque limiter on the high speed side of the drive, allow for starting torque. The Autogard torque limiter is suitable for chain, belt and gear drives and is also available with flexible couplings.



## Features and Benefits

- Proven design with thousands of units successfully in operation.
- Cost effective designs.
- Accurate torque limitation prevents costly downtime.
- 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 types available
  - Type AC - Automatic Rapid Reset
  - Type ACT - Automatic Synchronous Reset
  - Type AF - Freewheeling, Manual Reset for high speed.

Series 200 is offered in a large number of styles ensuring the right solution is available for all applications e.g.

- Timing, HTD & V-Belt drives
- Chain and sprocket drives
- Gear drives
- Flexible or Rigid couplings
- Flywheel or large gear mounting
- Special or unusual drive conditions

## Selection

Data required for torque limiter selection.

- Kilowatt or Horsepower and rpm of the driver
- Shaft details for the driving and driven equipment

(1) Calculate the nominal torque:

$$\text{Torque (Nm)} = \text{Kilowatt (kW)} \times 9550 / \text{rpm} \quad \text{or}$$

$$\text{Torque (lbf-ins)} = \text{Horsepower (HP)} \times 63025 / \text{rpm}$$

Consideration should then be given to start torque or other special circumstances depending on the position chosen in the drive train. Choose a set torque with a suitable margin over nominal.

(2) Check limiting conditions:

- Check hub bore capacity
- Check the torque limiter dimensions such as the overall length and outside diameter.

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

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

## Ordering the Series 200 Torque Limiter

When ordering please provide the following designation

Model / Type / Size / Torque Limiter Bore (S1) / Coupling Bore (S2)

Type: AC - Automatic Rapid Reset (Standard)  
 ACT - Automatic Synchronous Reset (Optional)  
 AF - Freewheeling, Manual Reset (Optional)

S1 Bore & S2 Bore - Please specify metric or imperial dimensions.  
 Standard bore tolerance is H8 with normal fit key Js9

**Example: 205 / ACT / 3 / S1 35 mm / S2 40 mm**

Refers to a model 205 size 3 Torque Limiter designed for Synchronous Reset

Bore S1 = 35 mm      Bore S2 = 40 mm

Also specify :

- Torque setting or range required
- Pulley or sprocket details where required.
- Enclosure where required.

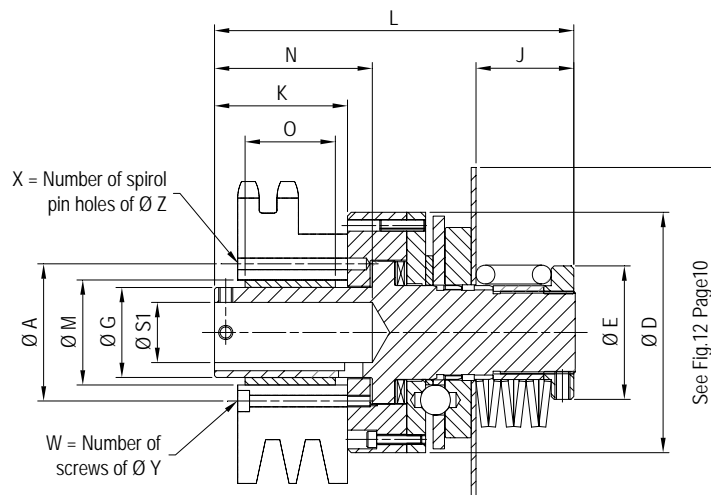
The specifications contained within this brochure are correct at the time of going to print. Autogard is continually reviewing and updating the specifications on all its product ranges and therefore reserves the right to change any details.

# TORQUE LIMITER SERIES 200



## MODEL 221

For use with sprockets, pulleys or gears. Supplied complete with bearing and suitable mounting holes.



### Technical Details

| Size  |       | 1      | 2       | 3       | 4          | 5          | 5S          |
|---|-------|--------|---------|---------|------------|------------|-------------|
| Torque (Nm) ①                                 | AC/AF | 1 - 44 | 6 - 226 | 6 - 678 | 90 - 1130  | 141 - 2540 | 938 - 7627  |
|   | ACT   | 3 - 69 | 9 - 384 | 9 - 854 | 113 - 1774 | 158 - 2937 | 1130 - 8474 |
| Speed (rpm) ②                                 | AC    | 200    | 200     | 200     | 200        | 200        | 200         |
|   | ACT   | 500    | 500     | 500     | 500        | 500        | 500         |
|   | AF    | 2000   | 2000    | 2000    | 2000       | 2000       | -           |
| Weight (kg) ③                                 |       | 1.5    | 4.5     | 9.9     | 21.6       | 50         | 106         |
| Mass Moment of Inertia (Kg m <sup>2</sup> ) ③ |       | 0.0005 | 0.0049  | 0.015   | 0.06       | 0.21       | 0.73        |

- 1) See page 9 for spring selection and torque ranges with specific springs.
- 2) Higher speeds may be allowed under certain conditions. Please consult Autogard
- 3) Weights and moments of inertias apply to maximum (S1) bores and exclude sprockets, etc.

### Dimensional Details – mm

| Size          |     | 1      | 2      | 3      | 4      | 5       | 5S      |
|---------------|-----|--------|--------|--------|--------|---------|---------|
| Max Bore S1 ④ |     | 12.7   | 25.4   | 38.1   | 50.8   | 76.2    | 102     |
| D             |     | 60     | 102    | 127    | 159    | 216     | 267     |
| E             |     | 33     | 57     | 80     | 108    | 153     | 178     |
| G ⑧           | Min | 22.225 | 38.100 | 50.800 | 71.476 | 101.727 | 152.400 |
|               | Max | 22.253 | 38.136 | 50.838 | 71.501 | 101.752 | 152.464 |
| J             |     | 42     | 42     | 76     | 96     | 121     | 121     |
| K             |     | 50     | 56.2   | 78     | 117    | 148     | 166     |
| L             |     | 140    | 153    | 216    | 287    | 368     | 426     |
| M ⑧           | Min | 25.400 | 44.450 | 57.175 | 77.788 | 114.300 | 171.450 |
|               | Max | 25.430 | 44.475 | 57.201 | 77.818 | 114.336 | 171.491 |
| N ⑤           |     | 51     | 67     | 89     | 127    | 165     | 178     |

- 4) Rectangular keys must be used for maximum bore diameters
- 5) Dimension N is the depth of the blind bore S1 unless specified otherwise.
- 6) For through shaft applications or for weight reduction a through bore can be furnished - consult Autogard.  
Size 5S is available in AC and ACT types only

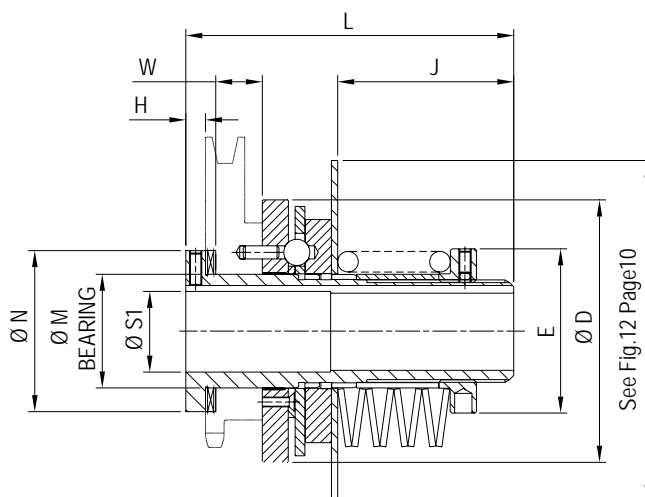
| Size | Smallest Sprocket (Number of Teeth) |            |            |            |          | Smallest Pulley ⑦ Dia. (mm) | Drive Medium Fixing Details |              |            |        |
|------|-------------------------------------|------------|------------|------------|----------|-----------------------------|-----------------------------|--------------|------------|--------|
|      | 3/8" Pitch                          | 1/2" Pitch | 5/8" Pitch | 3/4" Pitch | 1" Pitch |                             | X - Z Dowels                | W - Y Screws | A pcd (mm) | O (mm) |
| 1    | 19                                  | 15         | 12         | -          | -        | 44                          | 3 - 4                       | 3 - M4       | 36         | 38     |
| 2    | 26                                  | 21         | 17         | 15         | 12       | 67                          | 3 - 5                       | 3 - M5       | 58         | 38     |
| 3    | 31                                  | 24         | 20         | 17         | 13       | 80                          | 3 - 6                       | 3 - M6       | 70         | 63     |
| 4    | -                                   | 31         | 25         | 21         | 17       | 109                         | 6 - 8                       | 3 - M8       | 95         | 75     |
| 5    | -                                   | 41         | 33         | 28         | 22       | 149                         | 6 - 10                      | 3 - M10      | 135        | 100    |
| 5S   | -                                   | 60         | 48         | 41         | 31       | 230                         | 3 - 12                      | 3 - M12      | 205        | 135    |

- 7) The pulley diameter quoted is to the bottom of the V-pulley groove or the inside diameter for the flange of the timing pulley
- 8) 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.

# TORQUE LIMITER SERIES 200

## MODEL 202

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



### Technical Details

| Size  |       | 1      | 2       | 3       | 4          | 5          | 5S          |
|---|-------|--------|---------|---------|------------|------------|-------------|
| Torque (Nm) ①                                 | AC/AF | 1 - 44 | 6 - 226 | 6 - 678 | 90 - 1130  | 141 - 2540 | 938 - 7627  |
|   | ACT   | 3 - 69 | 9 - 384 | 9 - 854 | 113 - 1774 | 158 - 2937 | 1130 - 8474 |
| Speed (rpm) ②                                 | AC    | 200    | 200     | 200     | 200        | 200        | 200         |
|   | ACT   | 500    | 500     | 500     | 500        | 500        | 500         |
|   | AF    | 2000   | 2000    | 2000    | 2000       | 2000       | -           |
| Weight (kg) ③                                 |       | 1.0    | 2.9     | 6.4     | 15.4       | 33.4       | 67          |
| Mass Moment of Inertia (Kg m <sup>2</sup> ) ③ |       | 0.0003 | 0.003   | 0.009   | 0.046      | 0.14       | 0.47        |

- 1) See page 9 for spring selection and torque ranges with specific springs.
- 2) Higher speeds may be allowed under certain conditions. Please consult Autogard
- 3) Weights and moments of inertias apply to maximum (S1) bores and exclude sprockets, etc.

### Dimensional Details – mm

| Size          |  | 1    | 2    | 3    | 4    | 5    | 5S         |
|---------------|--|------|------|------|------|------|------------|
| Max Bore S1 ④ |  | 12.7 | 25.4 | 38.1 | 50.8 | 76.2 | 102        |
| D             |  | 60   | 102  | 127  | 159  | 216  | 267        |
| E             |  | 33   | 57   | 80   | 108  | 153  | 178        |
| H             |  | 7.9  | 9.6  | 9.6  | 9.6  | 12.7 | 19.1       |
| J             |  | 42   | 42   | 73   | 94   | 121  | 121        |
| L ⑤           |  | 102  | 111  | 149  | 197  | 267  | 279/337    |
| M             |  | 22   | 40   | 55   | 76   | 110  | 140        |
| N             |  | 37   | 60   | 78   | 95   | 145  | 180        |
| W ⑤ ⑥         |  | 19   | 25.4 | 25.4 | 44.4 | 63.5 | 44.4/101.6 |

- 4) Rectangular keys must be used for maximum bore diameters
- 5) Size 5S is supplied in two lengths.
- 6) Special hubs can be supplied with dimension W increased to accommodate larger size drive media. Size 5S is available in AC and ACT types only.

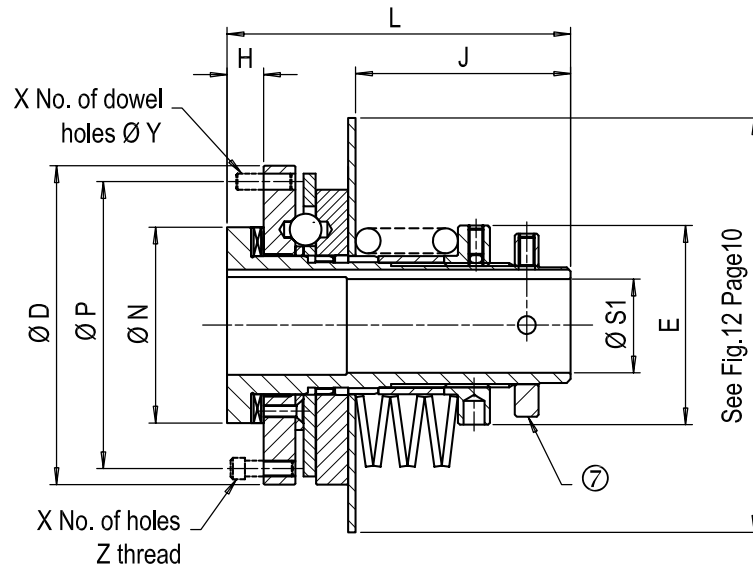
| Size | Smallest Sprocket (Number of Teeth) |            |            |            |          | Smallest Pulley ⑦ Dia. (mm) |
|------|-------------------------------------|------------|------------|------------|----------|-----------------------------|
|      | 3/8" Pitch                          | 1/2" Pitch | 5/8" Pitch | 3/4" Pitch | 1" Pitch |                             |
| 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                         |

- 7) The pulley diameter quoted is to the bottom of the V-pulley groove or the inside diameter for the flange of the timing pulley

# TORQUE LIMITER SERIES 200

## MODEL 203

For mounting to the face of a flywheel or large gear by means of a suitable adaptor.  
The flywheel or gear must be mounted on its own bearings.



### Technical Details

| Size  |       | 1      | 2       | 3       | 4          | 5          | 5S          |
|---|-------|--------|---------|---------|------------|------------|-------------|
| Torque (Nm) ①                                 | AC/AF | 1 - 44 | 6 - 226 | 6 - 678 | 90 - 1130  | 141 - 2540 | 938 - 7627  |
|   | ACT   | 3 - 69 | 9 - 384 | 9 - 854 | 113 - 1774 | 158 - 2937 | 1130 - 8474 |
| Speed (rpm) ②                                 | AC    | 200    | 200     | 200     | 200        | 200        | 200         |
|   | ACT   | 500    | 500     | 500     | 500        | 500        | 500         |
|   | AF    | 2000   | 2000    | 2000    | 2000       | 2000       | 2000        |
| Weight (kg) ③                                 |       | 1      | 2.4     | 5.4     | 12.7       | 27.9       | 55          |
| Mass Moment of Inertia (Kg m <sup>2</sup> ) ③ |       | 0.0003 | 0.003   | 0.009   | 0.045      | 0.13       | 0.46        |

- 1) See page 9 for spring selection and torque ranges with specific springs.
- 2) Higher speeds may be allowed under certain conditions. Please consult Autogard
- 3) Weights and moments of inertias apply to maximum (S1) bores

### Dimensional Details – mm

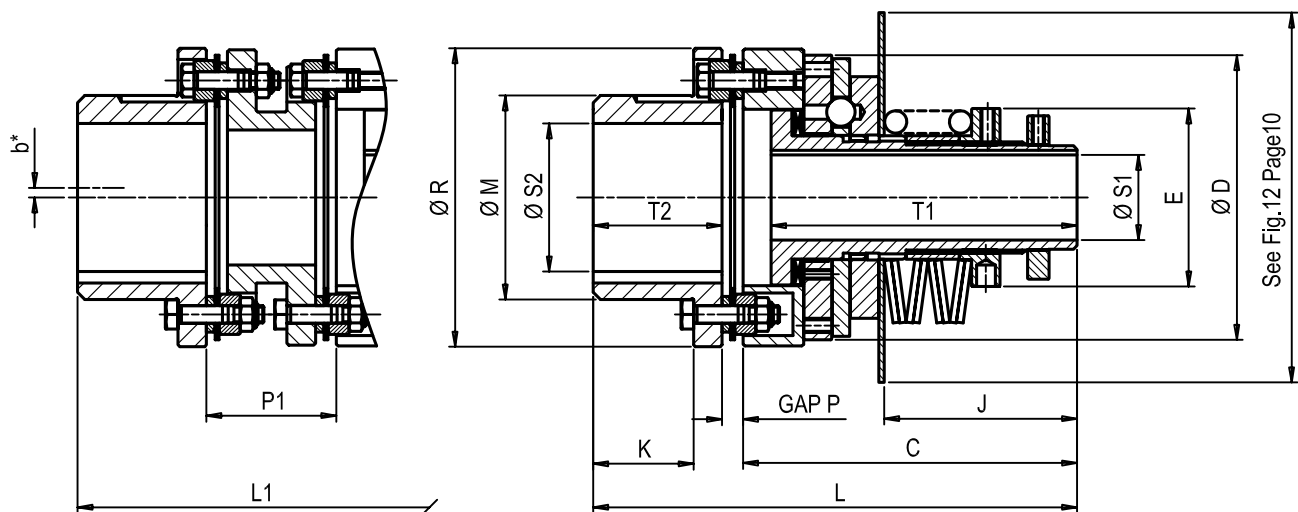
| Size           |       | 1        | 2        | 3       | 4        | 5       | 5S           |
|----------------|-------|----------|----------|---------|----------|---------|--------------|
| Max Bore S1 ④  |       | 12.7     | 25.4     | 38.1    | 50.8     | 76.2    | 102          |
| D              |       | 60       | 102      | 127     | 159      | 216     | 267          |
| E              |       | 33       | 57       | 80      | 108      | 153     | 178          |
| H              |       | 11.5     | 14.4     | 14.4    | 13.2     | 27.9    | 37.1         |
| J              |       | 50       | 52       | 86      | 106      | 135     | 120          |
| L              |       | 91       | 95       | 137     | 165      | 216     | 234.9        |
| N              |       | 37       | 60       | 78      | 95       | 145     | 180          |
| P              |       | 47.625   | 90.475   | 114.300 | 144.450  | 196.850 | (See Note 6) |
| X              |       | 3        | 3        | 6       | 6        | 6       | 6            |
| Y (Dowel Hole) | (ins) | 3/16     | 3/16     | 1/4     | 5/16     | 3/8     | 5/8          |
| Z              | (ins) | 8-32 UNC | 8-32 UNC | 1/4 UNF | 5/16 UNF | 3/8 UNF | 1/2 UNF      |

- 4) Rectangular keys must be used for maximum bore diameters
- 5) Size 5S is available in AC and ACT types only
- 6) 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
- 7) Collars containing set screws to secure the S1 hub to the shaft can be supplied on request

# TORQUE LIMITER SERIES 200

## MODEL 205

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



### Technical Details

| Size  |                    | 205-1 / 8HVII | 205-2 / 35HVII | 205-3 / 70HVII | 205-4 / 150HVII | 205-5 / 480HVII |
|---|--------------------|---------------|----------------|----------------|-----------------|-----------------|
| Torque (Nm) ①                               | AC/AF              | 1 - 44        | 6 - 226        | 6 - 678        | 91 - 1130       | 141 - 2540      |
|   | ACT                | 3 - 69        | 9 - 384        | 9 - 854        | 113 - 1774      | 158 - 2937      |
| Speed (rpm) ②                               | AC                 | 200           | 200            | 200            | 200             | 200             |
|   | ACT                | 500           | 500            | 500            | 500             | 500             |
|   | AF                 | 2000          | 2000           | 2000           | 2000            | 2000            |
| Weight (kg) ③                               |                    | 2.0           | 5.5            | 10.5           | 23              | 51              |
| Mass Moment of Inertia (Kg m <sup>2</sup> ) |                    | 0.00108       | 0.00607        | 0.01562        | 0.07650         | 0.27330         |
| Max Coupling Misalignments                  | Axial (mm)         | 0.3           | 0.5            | 0.6            | 0.8             | 1.0             |
|   | Angular (°)        | 0.5           | 0.5            | 0.5            | 0.5             | 0.5             |
|   | Parallel b* (mm) ④ | 0.6           | 0.7            | 0.7            | 0.8             | 1.3             |

- 1) See page 9 for spring selection and torque ranges with specific springs.
- 2) Higher speeds may be allowed under certain conditions. Please consult Autogard
- 3) Weights and moments of inertia apply to maximum (S1 and S2) bores
- 4) Parallel offset misalignment applies only to ES-HVII spacer couplings and is based on minimum DBSE

### Dimensional Details – mm

| Size          | 205-1 / 8HVII | 205-2 / 35HVII | 205-3 / 70HVII | 205-4 / 150HVII | 205-5 / 480HVII |
|---------------|---------------|----------------|----------------|-----------------|-----------------|
| Max Bore S1 ⑤ | 12.7          | 25.4           | 38.1           | 50.8            | 76.2            |
| Max Bore S2   | 30            | 50             | 66             | 90              | 110             |
| C             | 99            | 108            | 149            | 179             | 231             |
| D             | 60            | 102            | 127            | 159             | 216             |
| E             | 33            | 57             | 80             | 108             | 153             |
| J             | 50            | 52             | 86             | 106             | 135             |
| K             | 23            | 33             | 45             | 60              | 75              |
| L             | 139           | 164            | 216            | 263             | 341             |
| L1            | 180           | 212            | 265            | 318             | 435             |
| M             | 43.7          | 70.6           | 91             | 123             | 150             |
| P             | 7.4           | 9.4            | 9.4            | 8.8             | 15              |
| P1 ⑥          | 48            | 58             | 58             | 64              | 109             |
| R             | 80            | 110            | 133            | 170             | 230             |
| T1            | 90.4          | 95.3           | 136.6          | 165.1           | 215.9           |
| T2            | 32.5          | 46             | 57.5           | 74.6            | 95              |

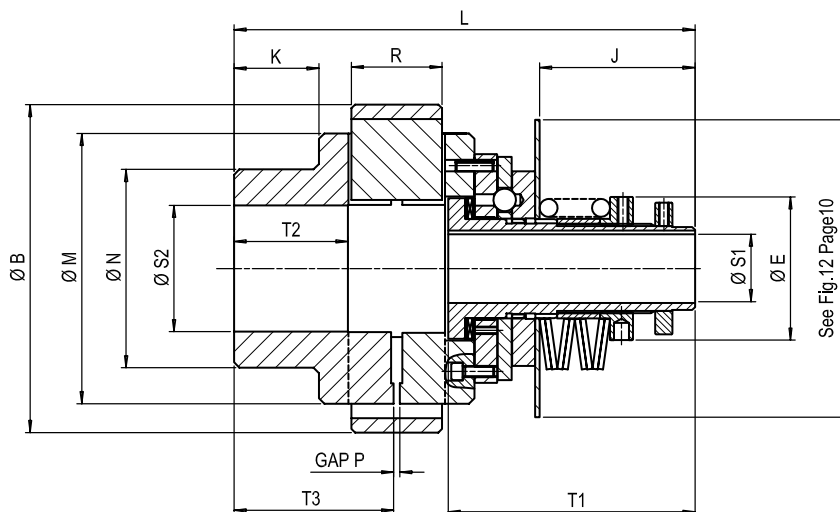
- 5) Rectangular keys must be used for maximum bore diameters
- 6) P1 dimension is a minimum value. Longer spacers available on request - consult Autogard.
- 7) Collars containing set screws to secure the S1 hub to the shaft can be supplied on request

# TORQUE LIMITER SERIES 200



## MODEL 206S

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



### Technical Details

| Size  |               | 1 / A1 | 2 / A3B | 3 / A4  | 4 / A45    | 5 / A6     | 5S / A8     |
|---|---------------|--------|---------|---------|------------|------------|-------------|
| Torque (Nm)                                 | ① AC/AF       | 1 - 44 | 6 - 226 | 6 - 678 | 90 - 1130  | 141 - 2540 | 938 - 7627  |
|   | ACT           | 3 - 69 | 9 - 384 | 9 - 854 | 113 - 1774 | 158 - 2937 | 1130 - 8474 |
| Speed (rpm)                                 | ② AC          | 200    | 200     | 200     | 200        | 200        | 200         |
|   | ACT           | 500    | 500     | 500     | 500        | 500        | 500         |
|   | AF            | 2000   | 2000    | 2000    | 2000       | 2000       | -           |
| Weight (kg)                                 | ③             | 1.9    | 6.3     | 12.8    | 24.7       | 55.9       | 139         |
| Mass Moment of Inertia (Kg m <sup>2</sup> ) | ④             | 0.0011 | 0.0180  | 0.0520  | 0.13       | 0.50       | 2.40        |
| Max Coupling Misalignments                  | Axial (mm)    | 0.5    | 0.7     | 0.8     | 1.0        | 1.0        | 1.5         |
|   | Parallel (mm) | 0.3    | 0.5     | 0.7     | 0.7        | 0.8        | 1.0         |
|   | Angular (°)   | 2.0    | 2.0     | 1.3     | 1.3        | 1.3        | 1.0         |

- 1) See page 9 for spring selection and torque ranges with specific springs.
- 2) Higher speeds may be allowed under certain conditions. Please consult Autogard
- 3) Weights apply to maximum (S1 and S2) bores
- 4) Moments of inertia apply to maximum bores (S1 and S2)

### Dimensional Details – mm

| Size        | 1 / A1 | 2 / A3B | 3 / A4 | 4 / A45 | 5 / A6 | 5S / A8 |
|-------------|--------|---------|--------|---------|--------|---------|
| Max Bore S1 | ⑤ 12.7 | 25.4    | 38.1   | 50.8    | 78     | 102     |
| Max Bore S2 | 41.3   | 69.8    | 70     | 82.5    | 114.3  | 150     |
| B           | 83     | 144     | 182    | 202     | 265    | 363     |
| E           | 33     | 57      | 80     | 108     | 153    | 178     |
| J           | 50     | 52      | 86     | 106     | 135    | 120     |
| K           | -      | 45      | 47     | 52      | 70     | 114     |
| L           | 154.2  | 200.0   | 254.4  | 297.4   | 390.0  | 465.4   |
| M           | 65     | 116.2   | 150    | 170     | 233    | 326     |
| N           | -      | 105     | 110    | 125     | 180    | 242     |
| P           | 1.5    | 2.5     | 3.5    | 3.5     | 3.5    | 5       |
| R           | 22     | 42      | 51     | 56      | 67     | 85      |
| T1          | 90.4   | 95.3    | 136.6  | 165.1   | 215.9  | 234.95  |
| T2          | 34     | 56      | 63     | 70      | 95     | 147     |
| T3          | 44.8   | 76.3    | 88     | 97      | 127.8  | 188.5   |

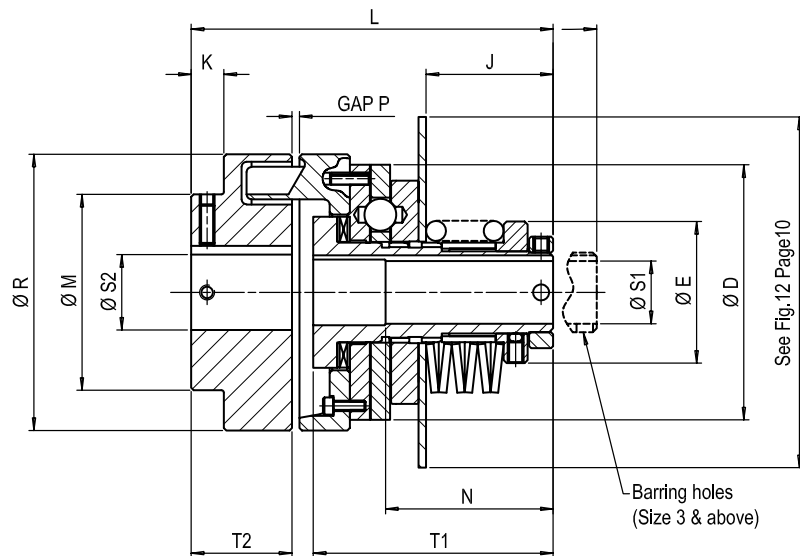
- 5) Rectangular keys must be used for maximum bore diameters.  
Size 5S is available in AC and ACT types only.



# TORQUE LIMITER SERIES 200

## MODEL 206N

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



### Technical Details

| Size                             |               | 1 / 80 | 2 / 110 | 3 / 140 | 4 / 160    | 5 / 250    | 5S / 350    |
|----------------------------------|---------------|--------|---------|---------|------------|------------|-------------|
| Torque (Nm) ①                    | AC/AF         | 1 - 44 | 6 - 226 | 6 - 678 | 9 - 1130   | 141 - 2540 | 938 - 7627  |
|                                  | ACT           | 3 - 69 | 9 - 384 | 9 - 854 | 113 - 1774 | 158 - 2937 | 1130 - 8474 |
| Speed (rpm) ②                    | AC            | 200    | 200     | 200     | 200        | 200        | 200         |
|                                  | ACT           | 500    | 500     | 500     | 500        | 500        | 500         |
|                                  | AF            | 2000   | 2000    | 2000    | 2000       | 2000       | -           |
| Weight (kg) ③                    |               | 1.7    | 6.8     | 11.5    | 22         | 56         | 120         |
| Mass Moment of Inertia (Kg m2) ④ |               | 0.0007 | 0.0050  | 0.0170  | 0.07       | 0.27       | 1.50        |
| Max Coupling Misalignments       | Axial (mm)    | 4.0    | 4.0     | 4.0     | 6.0        | 8.0        | 8.0         |
|                                  | Parallel (mm) | 0.13   | 0.18    | 0.23    | 0.28       | 0.43       | 0.43        |
|                                  | Angular (°)   | 0.09   | 0.09    | 0.1     | 0.1        | 0.1        | 0.1         |

- 1) See page 9 for spring selection and torque ranges with specific springs.
- 2) Higher speeds may be allowed under certain conditions. Please consult Autogard
- 3) Weights apply to maximum (S1 and S2) bores
- 4) Moments of inertia apply to maximum bores (S1, S2)

### Dimensional Details - mm

| Size          | 1 / 80 | 2 / 110 | 3 / 140 | 4 / 160 | 5 / 250 | 5S / 350 |
|---------------|--------|---------|---------|---------|---------|----------|
| Max Bore S1 ⑤ | 12.7   | 25.4    | 38.1    | 50.8    | 78      | 102      |
| Max Bore S2   | 30     | 48      | 60      | 65      | 100     | 140      |
| D             | 60     | 102     | 127     | 159     | 216     | 267      |
| E             | 33     | 57      | 80      | 108     | 153     | 178      |
| J             | 50     | 52      | 86      | 106     | 135     | 120      |
| K             | 9.53   | 6       | 21      | 21      | 40      | 66       |
| L             | 118.9  | 143.8   | 208     | 243.8   | 335.8   | 422.3    |
| M             | 50     | 86      | 100     | 108     | 165     | 230      |
| N             | 50.8   | 66.55   | 88.9    | 127     | 165.1   | 190.5    |
| P             | 3      | 3       | 3       | 4       | 5.5     | 5.5      |
| R             | 80     | 110     | 140     | 160     | 250     | 350      |
| T1            | 90.4   | 95.3    | 136.6   | 165.1   | 215.9   | 234.9    |
| T2            | 30     | 40      | 55      | 60      | 100     | 140      |

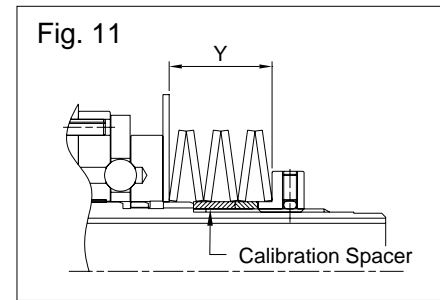
- 5) Rectangular keys must be used for maximum bore diameters  
Size 5S is available in AC and ACT types only

# AUTOGARD SERIES 200

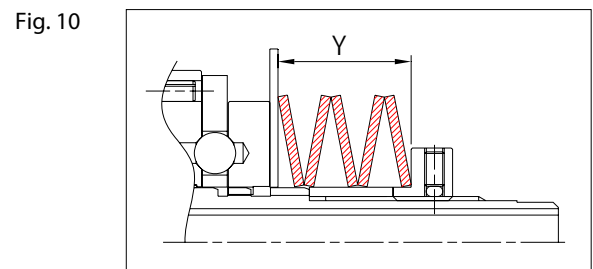
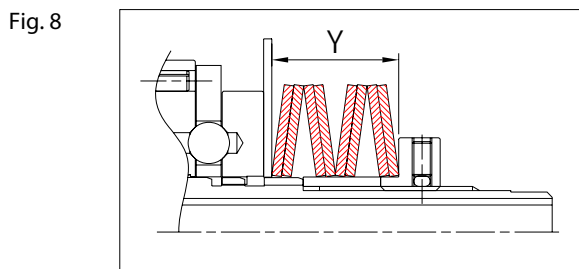
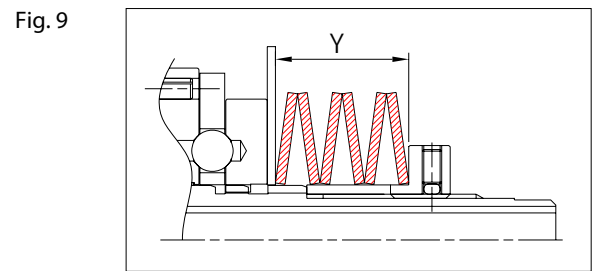
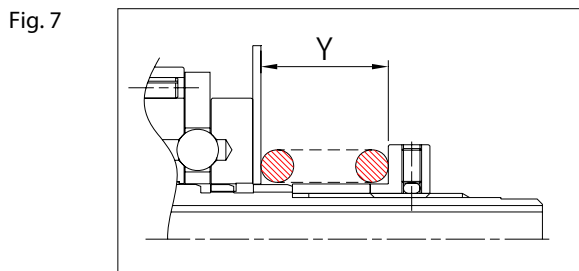


## TORQUE ADJUSTMENT

The Autogard torque limiter can be despatched 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 Fig. 11) 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 would be to try to start the drive with a low torque setting, progressively tightening the adjustment nut until the torque limiter will start the mechanism without disengaging. Before attempting to turn the adjusting nut, ensure that the locking screw is loosened and is relocked after final adjustment.



| Size | Type | Spring Code | Colour         | Qty | Stack as | AC /AF Torque Range |   | ACT Torque Range |   | Min. Allowable Spring Length Y (mm) |
|------|------|-------------|----------------|-----|----------|---------------------|---|------------------|---|-------------------------------------|
|      |      |             |                |     |          | (Nm)                | Min. for unit without clamp collar (Nm) | (Nm)             | Min. for unit without clamp collar (Nm) |                                     |
| 1    | Disc | 1D1S        | Natural        | 6   | Fig. 9   | 8 – 44              |   | 13 – 68          |   | 24.1                                |
|      | Coil | 1C1         | White / Red    | 1   | Fig. 7   | 9 – 28              | 4.5                                     | 10 – 37          | 3.4                                     |                                     |
|      | Coil | 1C2         | White / Green  | 1   | Fig. 7   | 5 – 14              | 3.1                                     | 7 – 21           | 1.8                                     |                                     |
|      | Coil | 1C3         | White / Yellow | 1   | Fig. 7   | 1 – 6               | 0.6                                     | 3 – 11           | 0.9                                     |                                     |
| 2    | Disc | 2D1S        | Blue           | 6   | Fig. 9   | 130 – 226           | 64.4                                    | 209 – 384        | 94.9                                    | 25.4                                |
|      | Disc | 2D2S        | Blue           | 5   | Fig. 10  | 72 – 203            |   | 102 – 328        |   |                                     |
|      | Coil | 2C1         | Blue / Red     | 1   | Fig. 7   | 54 – 88             | 14.1                                    | 102 – 133        | 23.2                                    |                                     |
|      | Coil | 2C2         | Blue / Green   | 1   | Fig. 7   | 21 – 61             | 7.2                                     | 40 – 90          | 13.6                                    |                                     |
| 3    | Coil | 2C3         | Blue / Yellow  | 1   | Fig. 7   | 6 – 19              | 4.1                                     | 10 – 25          | 5.1                                     | 19.1                                |
|      | Disc | 3D1D        | Brown          | 8   | Fig. 8   | 136 – 678           |   | 157 – 854        |   |                                     |
|      | Disc | 3D1S        | Brown          | 6   | Fig. 9   | 72 – 407            |   | 95 – 542         |   |                                     |
|      | Coil | 3C1         | Brown / Red    | 1   | Fig. 7   | 37 – 282            | 27.6                                    | 57 – 406         | 43.5                                    |                                     |
| 4    | Coil | 3C2         | Brown / Green  | 1   | Fig. 7   | 15 – 135            | 13.2                                    | 23 – 132         | 18.3                                    | 33.0                                |
|      | Coil | 3C3         | Brown / Yellow | 1   | Fig. 7   | 6 – 56              |   | 9 – 80           |   |                                     |
|      | Disc | 4D1S        | Orange / Black | 5   | Fig. 10  | 222 – 1130          |   | 269 – 1774       |   |                                     |
|      | Disc | 4D2S        | Orange         | 6   | Fig. 9   | 145 – 847           |   | 171 – 1073       |   |                                     |
| 5    | Coil | 4C1         | Orange / Red   | 1   | Fig. 7   | 90 – 316            | 36.7                                    | 113 – 395        | 47.5                                    | 49.5                                |
|      | Disc | 5D1S        | Grey / Black   | 6   | Fig. 9   | 497 – 2540          |   | 543 – 2937       |   |                                     |
|      | Disc | 5D2S        | Grey           | 6   | Fig. 9   | 226 – 2260          |   | 272 – 2655       |   |                                     |
| 5S   | Coil | 5C1         | Grey / Red     | 1   | Fig. 7   | 142 – 350           |   | 159 – 531        |   | 48.3                                |
|      | Disc | 5SD1        | Natural        | 5   | Fig. 10  | 938 – 5650          |   | 1130 – 6440      |   |                                     |
|      | Disc | Hi-Torq     | Natural        | 5   | Fig. 10  | 1413 – 7627         |   | 1582 – 8474      |   | 50.8                                |

### 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 Autogard torque limiter will result.

It is important that our product is used in the correct manner and that adjustment and setting in relation to a particular function follow recommended procedures

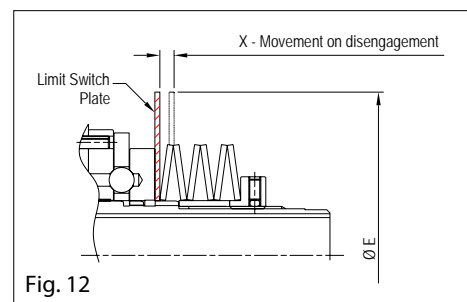
# AUTOGARD SERIES 200

## DRIVE SHUTDOWN ON DISENGAGEMENT

Switching off the drive upon disengagement will prevent unnecessary wear which could shorten the working life of the Autogard torque limiter. The operation of the limit switch is effected by the movement of the slide plate on disengagement. A flat switch plate is attached to the slide plate as shown in Fig. 12.

The following table gives the full details of the plate diameters and movement on disengagement.

| Size   | 1   | 2   | 3   | 4   | 5   | 5S  |
|--------|-----|-----|-----|-----|-----|-----|
| X (mm) | 2.4 | 4.4 | 4.4 | 5.3 | 6.3 | 8.1 |
| E (mm) | 83  | 140 | 165 | 203 | 305 | 305 |



### Protective Finish

The standard phosphate and oil finish provides a high level of corrosive resistance. Units can be supplied with a suitable alternative finish for special machinery requirements, or for adverse environmental conditions. Please consult Autogard to discuss special requirements.

### Maintenance

The Autogard torque limiter uses journal and needle thrust bearings. The latter are packed with grease on assembly as are the driving balls. Under reasonably clean conditions the unit will operate with a minimum of maintenance and re-lubrication. The frequency of maintenance is dependant on many operating factors, but in adverse conditions please consult Autogard.

## AUTOGARD SERIES 200 - ADDITIONAL MODELS

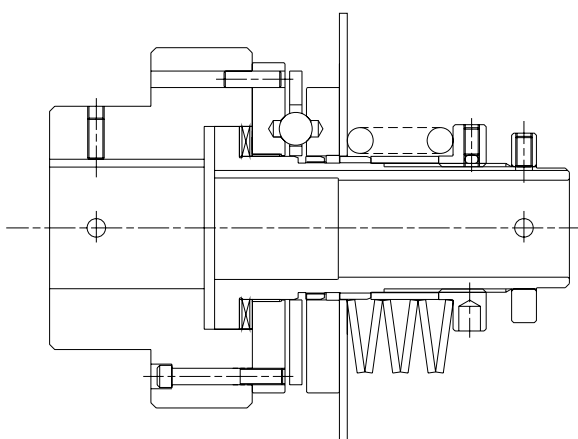
With over 40 years in the torque limiter business, Autogard has designed and supplied a broad range of special units to suit almost any torque limiter application.

Please contact Autogard for more details related to your specific requirements.

### MODEL 204

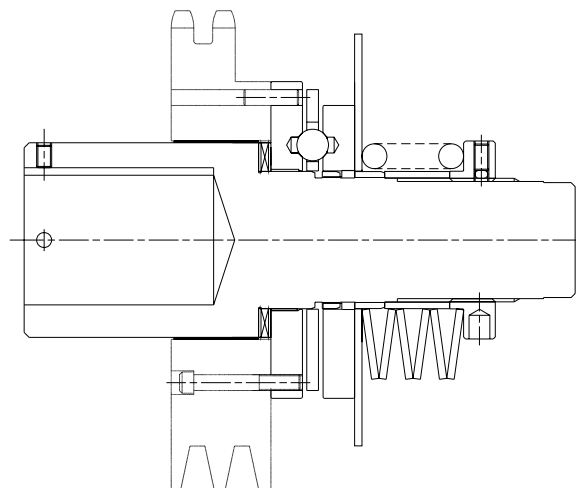
Designed for use with self aligning equipment.

**CAUTION:** The rigid coupling does not allow angular or parallel misalignment.



### MODEL 209

Designed for applications requiring relatively large "blind" bores and light torque settings. The unit can be supplied with a bearing- supported sprocket, pulley, gear, etc.



### GENERAL SAFETY

The Autogard Torque Limiter is a reliable unit, 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 a rotating component, adequate guarding must be provided, in accordance with local codes. Autogard staff are always available to discuss particular applications.

# OTHER AUTOGARD PRODUCTS



Autoflex Couplings



Samiflex Elastic Coupling



Autogard Series 320 Torque Limiters



Autogard Series 400 Torque Limiters



Autogard Series 600 Torque Limiters



Autogard Series 800 Torque Limiters



## Head Office

British Autogard Limited  
Cirencester  
Glos GL7 1YT United Kingdom

Tel +44 (0) 1285 640333

Fax +44 (0) 1285 659476

Email [sales@autogard.co.uk](mailto:sales@autogard.co.uk)

Web [www.autogard.com](http://www.autogard.com)

## American Autogard Corp.

Rockford, Illinois

Tel +1815 633 1441

Fax +1815 633 8488

## Autogard Asia Pacific P/L

Melbourne, Australia

Tel + 613 9532 0901

Fax + 613 9532 1032

## Autogard Kupplungen

Barntrup, Germany

Tel +49 5263 9549 60

Fax +49 5263 9549 69

## Autogard Italy

Milano, Italy

Tel +39 02 92 1700 471

Fax +39 02 92 1700 472

## Autogard South Africa (Pty) Ltd

Johannesburg, South Africa

Tel + 27 11 728 4868

Fax + 27 11 728 5254



Autogard Power Monitors



Monitorq - Torque Sensors



Autogard's modern plant at Cirencester, England

Devoted to the manufacture and distribution of quality power transmission products