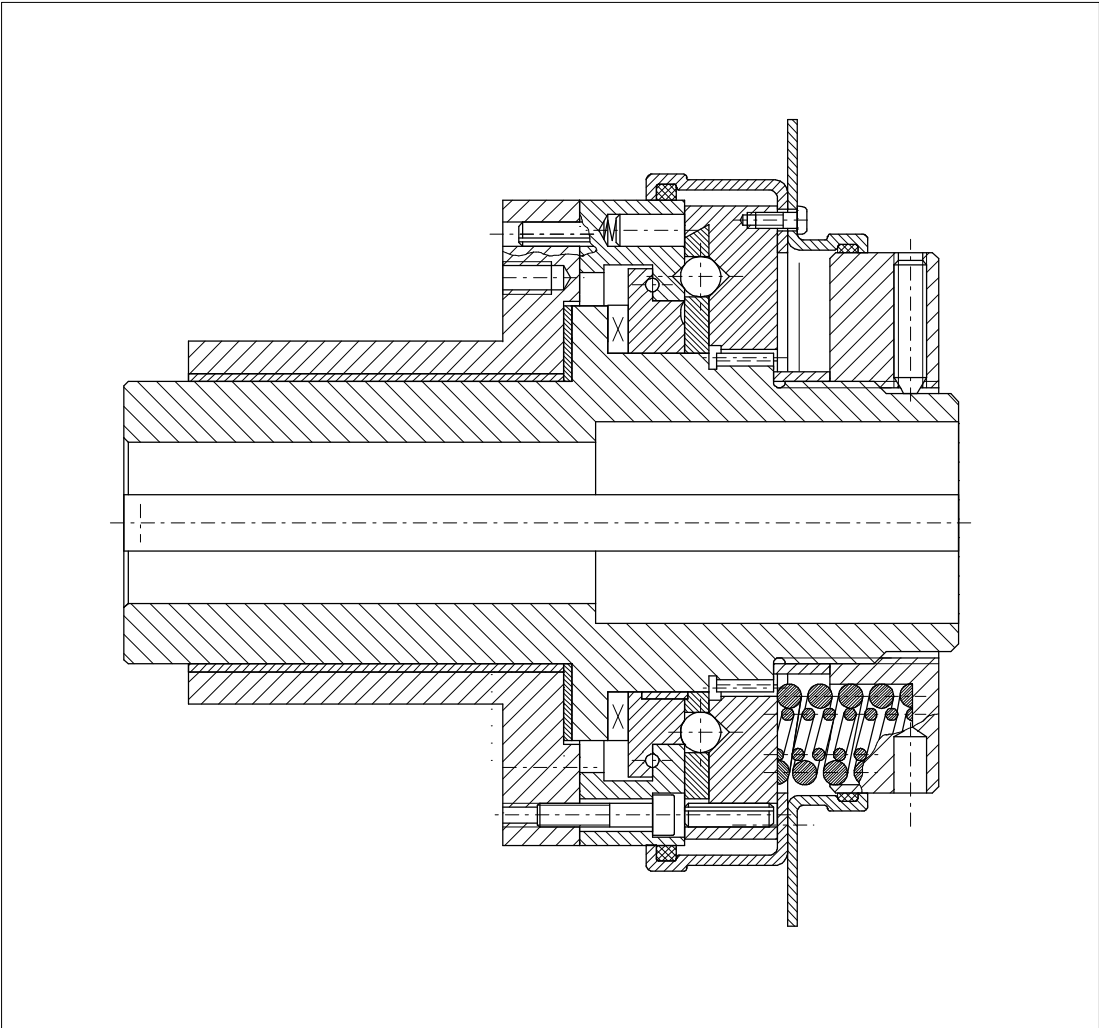


Operating Instructions

BA 8403 EN 10.95

for **AUTOGARD Series 400** Couplings, Types **ARRZ** and **ARSZ**
Size 1-5



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1. Technical Data

1.1 Coupling-specific data

Order No.: _____

Serial No.: _____

Type: _____

Size: _____

Design data:

Helical spring set: _____

Actuating torque set T_e : _____ Nm

Calibration sleeve length (for T_{max}) : _____ mm

Maximum actuating torque T_{max} : _____ Nm

Bore: \varnothing _____ H7

Keyway acc. DIN 6885/1

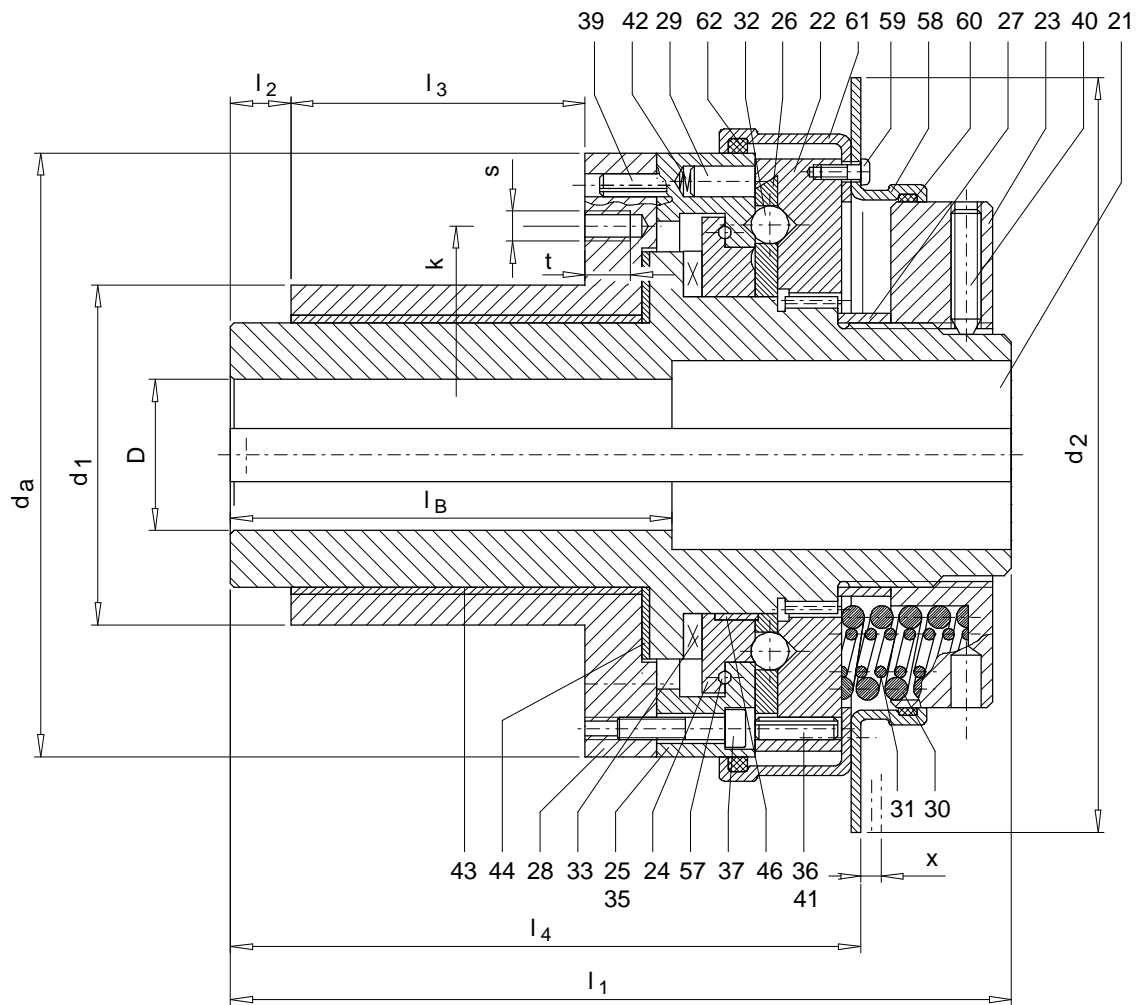
Keyway _____ wide x _____ deep

Special features: _____

1.2 General Technical Data

- In the case of Type ARRZ, Parts 35 and 57 are omitted
- Locating key (46) is only present in the case of Type ARSZ Sizes 1 and 2
- Protective housing (60, 61, 62) is special equipment

ARRZ



ARSZ

Size	Actuating torque T_{max} Nm	Speed n_{max} 1/min	D_{max} 1) mm	d_a mm	d_1 k7 mm	d_2 mm	x mm	k mm	s	t mm	l_B mm	l_1 mm	l_2 mm	l_3 mm	l_4 mm	Weight 2) kg
1	28	3000	16	62	40	110	1.5	51	3 x M 6	9	50	83	8.0	25.4	68.8	1.1
2	225	3000	28	112	60	140	2.8	95	6 x M 8	12	67	148	12.7	44.5	111.3	6.9
3	680	3000	40	146	80	184	3.5	127	6 x M10	12	89	160	12.7	50.8	124.2	11.0
4	1130	2000	50	168	95	203	3.5	140	6 x M12	16	127	212	15.9	88.9	175.7	16.5
5	2540	2000	75	222	135	280	4.4	185	8 x M16	16	165	284	19.0	127.0	229.4	38.0

Table 1.1 : Maximum actuating torque T_{max} , speeds n_{max} , weights and dimensions

1) Bore see 1.1

2) Weights apply to maximum hole sizes

The actuating torques are applicable to:

- Daily operating period up to 24 hours
- Operation in the temperature range from -30 °C to +80 °C (ambient temperature or temperature of shaft ends)

Caution!

- Note the effect of the starting torque on the actuating torque
- Autogard torque limiters are supplied with a durable surface protection, so that no painting is necessary. If however, paint is applied by the customer, the following points should be observed:
 - Do not wash the coupling completely before priming. Grease and oil might be washed off which can only be replaced by disassembly of the coupling.
 - The coupling may only be painted on its outer surfaces. When doing so, ensure that no paint is allowed to penetrate into the interspaces.
- **To ensure sustained trouble-free operation, the torque limiter must be designed for the application involved. In the event of any change in the operating conditions (power, speed, modifications to prime mover and driven machine), it is essential to check the design.**

2. General Notes

2.1 General

These Operating Instructions constitute part of the coupling supply. They should be kept in the vicinity of the coupling at all times.

Only precise knowledge of the Operating Instructions will ensure trouble-free operation of the coupling. It is therefore in the interest of the customer for the Operating Instructions to be read, understood and observed in all respects by the persons responsible for handling, assembly and operation.

Note: We assume no liability for damage resulting from non-observance of the Operating Instructions.

The "**Coupling**" dealt with in these Operating Instructions has been designed for stationary use in general engineering.

The coupling is only suitable for the application specified in Section 1: Technical Data. Operating conditions differing therefrom will require fresh contractual agreements.

The coupling described here is in accordance with the state of the art at the time of printing these Operating Instructions.

In the interest of further development, we reserve the right to introduce modifications which we consider appropriate, while retaining the essential features, to increase efficiency and reliability.

The copyright of these Operating Instructions remains the property of **FLENDER AG**.

Without our express agreement, these Operating Instructions may not be duplicated in part or whole, utilized for the purpose of competition or made available to third parties.

All technical questions should be referred to our works:

FLENDER AG
D 46393 Bocholt

Telefon: 02871/92-2800
Telex: 813841
Telefax: 02871/92-2801

or to one of our Service Facilities. A list of these Service Facilities will be found in Section 11: Stocking Spare Parts, Service Facility Addresses.

3. Safety Notes

3.1 Safety Notes

- The coupling is constructed in accordance with the state of the art and is reliable in the state as shipped. Unauthorized modifications which impair reliability are not permissible. This also applies to safety devices which are fitted as protection against accidental contact.
- The coupling may only be used and operated under the conditions specified in the performance and supply contract.
- The customer has to ensure that the persons entrusted with installation, operation care and maintenance, as well as repair, have read and understood these Operating Instructions and observe them in all respects in order:
 - To prevent hazard to life and limb on the part of the user and third parties
 - To ensure the reliability of the coupling

and

- To prevent failure and environmental contamination resulting from improper handling.
- During the course of handling, assembly and disassembly, operation, as well as care and maintenance, the relevant regulations regarding industrial safety and pollution control are to be observed.
- The coupling may only operated, maintained and repaired by authorized, trained and suitably instructed personnel.
- All work should be carried out with due care with the safety aspect in mind.
- Work on the coupling may only be carried when it is stationary.
The drive unit must be secured to prevent accidental startup (for example by locking the key switch or removing the fuses from the power supply). A notice should be affixed to the startup point stating that work on the coupling is in progress.
- During operation, the drive unit should be shut off immediately if changes in the coupling are detected, such as for example changes in operating noises.
- The coupling must be protected by means of suitable guards to prevent accidental contact.
- When the coupling is installed in equipment or systems, the manufacturer of the equipment or systems is obliged to include the instructions, notes and descriptions contained in these Operating Instructions in his own Operating Instructions.

3.1.1 Notes used in the Operating Instructions

Important instructions contained in these Operating Instructions which concern operating safety are emphasized as follows:



This symbol draws attention to safety measures which **MUST** be observed to prevent **personal injury**.

Caution!

This symbol draws attention to safety measures which **MUST** be observed to prevent **damage to the coupling**.

Note:

This note draws attention to general **operating notes** to which special attention should be given.

4. Handling and Storage

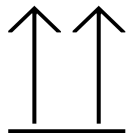
4.1 Scope of supply

The scope of supply of the shipment is listed in the despatch documents. It should be checked for completeness on receipt. Any shipping damage and/or missing parts should be reported immediately in writing. An expert should be engaged after consulting FLENDER.

4.2 Handling

Packing of the coupling will differ, dependent on method of shipment and size. The packing will, unless agreed to the contrary, comply with **HPE Packing Guidelines**.

The symbols applied to the packing should be noted. Their significance is as follows:



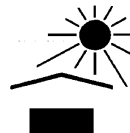
This side up



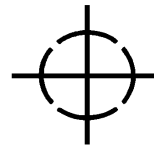
Fragile goods



Keep dry



Protect from heat



Centre of gravity



Use no hooks



Sling here

Caution!

Ensure that a suitable hoist is used

4.3 Storage

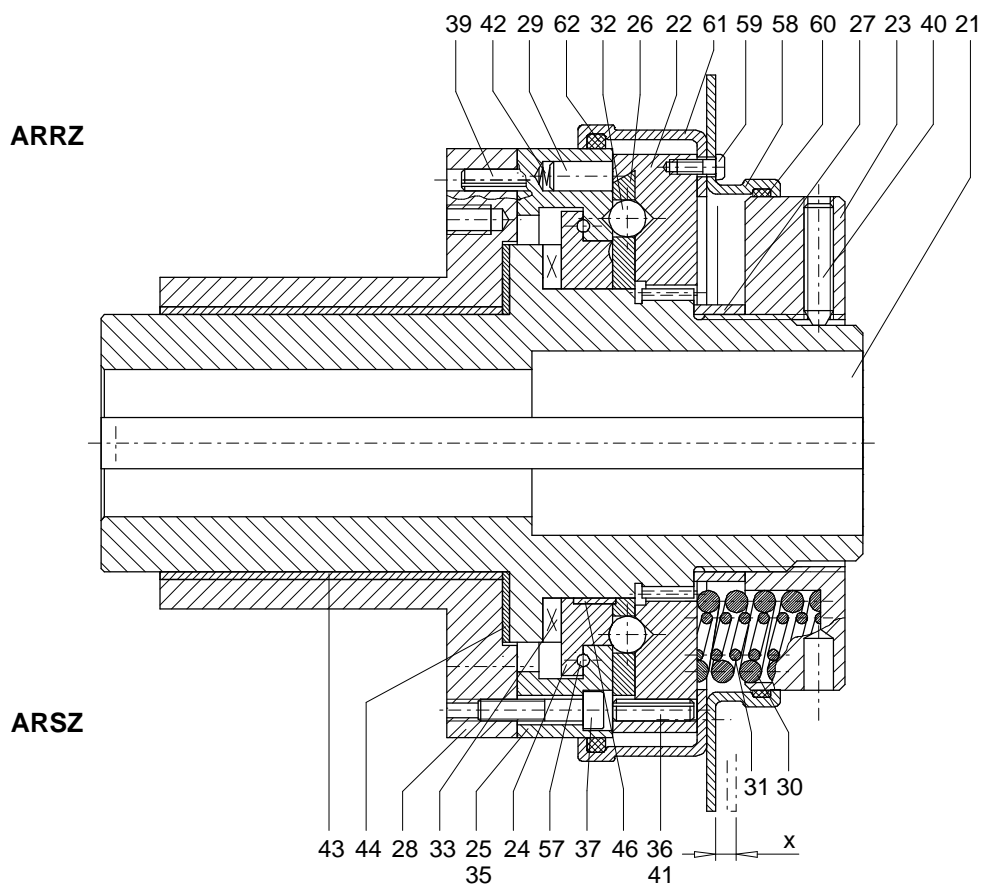
Autogard torque limiters are supplied manganese-phosphated and oiled and can be stored in a dry place for long periods of time. In the case of prolonged storage, the coupling should be covered to prevent excessive contamination. Long-term preservation is only necessary for the finish bore.

Caution!

If dirty, the coupling MUST be cleaned. Complete washing down can wash oil and grease out of the interior of the coupling, necessitating complete disassembly.

5. Technical description

5.1 General description



The Autogard torque limiter is an overload protection coupling which protects motor, gear unit and machine from overload and destruction due to excessive torque and momentarily interrupts the power train when the actuating torque set is exceeded.

The actuating torque is directly dependent on the spring force which can be continuously adjusted by means of adjuster nut (23). Dependent on the size of the torque limiter, either helical springs or laminated cup springs are used.

Types ARRZ and ARSZ are used in combination with a chain sprocket, a pulley, a synchronous pully or another drive unit.

With both types, reengagement is effected automatically by reversal of direction of rotation, manually or by motor.

They differ in their different angles of reengagement.

In the case of Type ARRZ, the reengagement angle is a maximum of 67°, according to size.

The reengagement angle of Type ARSZ is a maximum of 360°. Torque limiters of this type will reengage in every case in the same angular shaft position, this also being termed synchronous reengagement.

Caution!

In the case of motor-operated reengagement, it is essential to ensure low reengagement RPM. This applies particularly to Type ARSZ.

5.2 Torque transmission

The torque is transmitted by means of balls (32) which are located in conical recesses between two disks pressed together by spring pressure (drive disk -25- and sliding disk -22-).

A second set of balls (32) on a smaller pitch circle lies only in recesses in the sliding disk (22) and is unloaded when the coupling is ready for operations. The guide disk (26) has the function of retaining the balls in position in relation to one another after disengagement of the coupling. Thus, it assumes a function similar to that of the cage of a ball bearing.

5.3 Disengagement process

When the running torque reaches a value which exceeds the set actuating torque, the balls (32) of the outer pitch circle roll under load out of their recesses. The pure disengagement process is now completed and the drive path between input drive and output drive sides is completely interrupted.

At the same time, the balls of the inner pitch circle are also rolled out of their recesses by the common guide disk (26). Then, the sliding disk (22) and the drive disk (25) rotate in relation to one another until the outer balls (32) engage in recesses (called positions of rest) which are only to be found in the sliding disk. Apart from any minimal residual torque, caused by the friction in the journal bearings (43 and 44), no further torque is transmitted.

The balls (32) of the inner pitch circle are now located between their ball seats and take up the force generated by the springs (30 and 31). They maintain the sliding disk (22) and the drive disk (25) at a distance by resting against the support ring (24).

The balls on the outer pitch circle, previously responsible for torque transmission, are at this moment unloaded.

A pin (36, 41) in the sliding disk (22) prevents any further rotation of the sliding disk in relation to the guide disk (26) in this position and thus reengagement of the outer balls in their recesses, as a result of which the drive disk (25) can rotate freely on the hub.

As a result of the disengagement of the torque limiter, the sliding disk (22) moves, and with it the actuator disk (58), in axial direction. This axial disengagement movement (x) should be monitored with a limit switch or a proximity switch.

Caution!

Series 400 Autogard torque limiters should be monitored with a limit switch or a proximity switch in order to prevent unnecessary wear. Although these couplings can also run for some time in disengaged state, no-load periods exceeding several minutes should be avoided (particularly with high-speed drive units).

5.4 Reengagement

Reengagement takes place automatically as a result of reversal of direction of rotation of the drive unit or of the output drive continuing to rotate with the drive motor stationary. When this happens, one of the spring-loaded pawls (29) slides over a ramp of the sliding disk (22) into a recess of the guide disk (26) and turns the latter back until the balls (32) return to their original recesses. Exactly at this point, the pawl is forced back into its hole in the drive disk (25) by a second ramp of the sliding disk (22).

6. Assembly

6.1 Notes on provision of the finished bore, securing axially, balancing

6.1.1 Finish boring

Autogard torque limiters are always supplied bored and keywayed. Couplings without bore and keyway cannot be set to an exact actuating torque. In the case of queries, please contact FLENDER AG.

6.1.2 Securing axially

The coupling halves are secured by means of setscrews or with end plate and central locking screw.

When replacing the setscrews, setscrews with cup point acc. to DIN 916 should be used.



The length of the setscrews should be such that it fills the tapped hole, but does not project past the outside diameter ($L_{min.} = \text{setscrew diameter} \times 1.2$).

6.1.3 Balancing

Autogard torque limiters are generally supplied without special balancing. If a special application (for example high RPM and large coupling size) necessitates balancing or it is required by the customer, this balancing will be carried out at the works.

6.2 General installation notes

During installation, the Safety Notes in Section 3 should be observed.

Installation should be carried out with extreme care by specialist personnel.

Ensure right at the planning stage that there is adequate space is available for installation and subsequent care and maintenance.

Adequate hoists must be available when installation is commenced.

6.3 Fitting the coupling

Before commencing installation, the shaft end and the coupling bore should be carefully cleaned. Cleaning the complete coupling can result in oil and grease being washed out of the interior of the coupling; this will necessitate complete disassembly of the coupling.



Observe the manufacturer's instructions when handling the solvent!

Caution!

The coupling should be fitted with the aid of suitable equipment to prevent damage to the shaft bearings resulting from the axial fitting force. Ensure that suitable hoists are used.

The coupling halves should be secured axially by means of the setscrew or end plate.

Caution!

The setscrews should only be tightened using an Allen key in accordance with DIN 911, without the use of any pipe extension.



Nonobservance of these notes can lead to the coupling exploding. Flying fragments will cause hazard to life and limb!!

6.4 Attachment of drive units

When attaching drive units to the Autogard torque limiter, the instructions concerning alignment, misalignment and range of application should be noted.

7. Startup

7.1 Measures prior to startup

Before startup, the tightness of the setscrews should be checked and the coupling guard fitted to prevent accidental contact.

7.2 Actuating torque adjustment

Autogard torque limiters are supplied set to a fixed torque value in accordance with the customer's requirements.

If the exact actuating torque cannot be determined beforehand, an actuating torque range can also be stated.

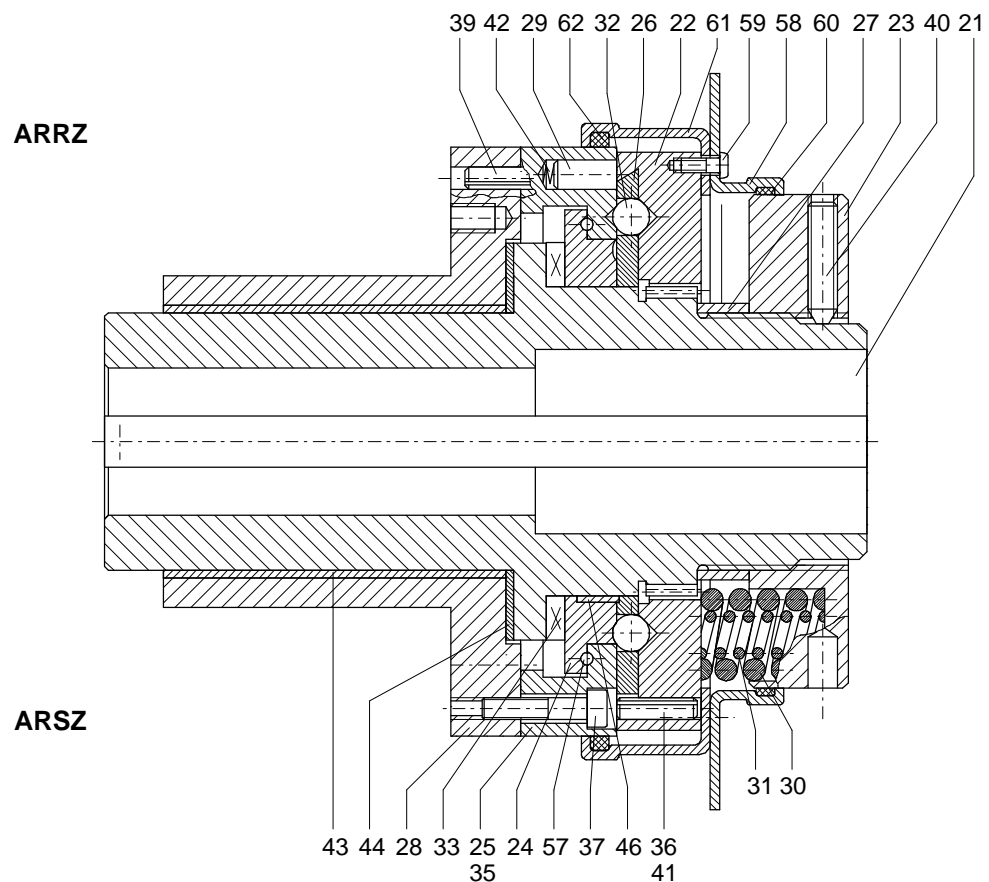
In the case, the coupling can then be set to the lower actuating torque, but a calibration sleeve (27) designed for the higher torque will be fitted. This will make it possible to increase the actuating torque (or to reduce it as well) without the necessity for removing the coupling from the shaft. The calibration sleeve restricts the adjustment possible with the adjuster nut (23) to a predetermined maximum actuating torque.

If it is necessary to alter an actuating torque setting subsequently because the theoretically calculated and the practically necessary actuating torque differ, an increase in actuating torque will usually be necessary. This will be noticed for example by the fact that the Autogard torque limiter engages on startup (for example as a result of the starting torque of a three-phase AC motor).

Caution!

Response of the Autogard torque limiter should never be interpreted as a malfunction, but as an indication of the fact that in fact higher torque values are occurring in practical operation than were previously determined theoretically.

7.3 Actuating torque adjustment



Caution!

ON NO ACCOUNT may calibration sleeves (27) be removed, as otherwise no guarantee can be given of disengagement of the coupling. Replacing a helical spring set with a stronger or weaker helical spring set, and shortening the calibration sleeve are **ONLY** permissible with the **EXPRESS** approval of **FLENDER**.

- First of all, the locking screws (40) of the adjusting nut (23) should be slacked. These locking screws prevent accidental rotation of the adjusting nuts during operation.
- **Increasing the actuating torque**
 - The actuating torque is increased by turning the adjusting nut (23) CW. The calibration sleeve (27) underneath the adjusting nut restricts the maximum actuating torque possible.



When increasing the actuating torque, it is ESSENTIAL to note that the actuating torque may only be increased to the extent that even the weakest component in the drive train is still adequately protected.

- **Reducing the actuating torque**
 - The actuating torque is reduced by turning the adjusting nut (23) CCW. When reducing the actuating torque, a minimum actuating torque should be observed which must be maintained, as otherwise proper actuation of the coupling cannot be ensured. See point 7.3.1.
- After carrying out actuating torque adjustment, the locking screws (40) should be cleaned and smeared with Loctite 243 and then retightened.

7.3.1 Torque ranges, springs

Size	Torque range		Designation of helical spring set	Type of spring
	from Nm	to Nm		
1	15	28	1S8	Helical spring
	11	21	1S6	
	6	14	1S4	
	3	7	1S2	
2	80	225	2S8	Helical spring
	60	170	2S6	
	40	115	2S4	
	20	60	2S2	
3	250	680	3S6/6	Helical spring
	160	450	3S6	
	110	300	3S4	
	60	150	3S2	
4	500	1130	4S8/8	Helical spring
	350	750	4S8	
	260	560	4S6	
	160	375	4S4	
	75	190	4S2	
5	1200	2540	5S8/8	Helical spring
	900	2000	5S8	
	680	1500	5S6	
	450	1000	5S4	
	225	500	5S2	

Table 7.1: Torque ranges, springs

Caution!

Calibration sleeves (27) may NOT ON ANY ACCOUNT be completely removed, as otherwise no guarantee can be accepted for disengagement of the coupling. Replacing a helical spring set with a stronger or weaker spring set, installing additional laminated cup springs or removing laminated cup springs, and shortening a calibration sleeve are ONLY permissible with the EXPRESS approval of FLENDER.

8. Operation

8.1 General data

During operation, the coupling should be checked for:

- Changes in running noises.

Caution!

If irregularities are detected during operation, the drive unit should be shut off at once. The cause of the fault should be located with the aid of the Troubleshooting Table (Section 9).

The Troubleshooting Table lists possible malfunctions, their causes and suggestions for remedying them.

If the cause cannot be established or it is not possible to remedy it with in-house equipment, we recommend that you call in a Service fitters from one of our Service facilities (see Section 11).

9. Troubleshooting

9.1 General

The malfunctions listed below can only serve as a guide to troubleshooting.

With a complex system, all other components must also be included in troubleshooting.

The torque limiter must run silently and vibration-free in all operated stages.

After actuation of the Autogard torque limiter, a noise will be heard which is caused by the sliding disk/guide disk (22/26) travelling over the pawls (29) until the drive is disengaged.

Any deviant behaviour should be regarded as a malfunction which is to be remedied at once.

Caution!

Disengagement of the Autogard torque limiter should be monitored constantly, as otherwise premature wear may occur.



Before carrying out maintenance, repairs or other work, the operator has to ensure that the entire drive train is stationary. In particular, the drive motors should be secured to prevent accidental startup.

In addition, we would drawing attention to the accident prevention regulations applicable on site.

9.2 Possible causes

Malfunctions	Causes	Remedy
Change in noise level during normal operation	Change in alignment of attached coupling	Shut the system down If necessary., remedy reason for changes in alignment (e.g. tighten foundation bolts)
Change in noise level after disengaging the coupling	Bearing(s) damaged	Shut the system down Dismantle the coupling, clean and check; replace damaged coupling parts as described under Section 10.
Coupling cannot be reengaged	Pawls are jamming	Dismantle the coupling, clean and check; replace damaged coupling parts as described under Section 10.

10. Maintenance and servicing

10.1 General

Maintenance and servicing may ONLY be carried out by the specialist designated for the purpose.

If suitable specialist personnel is not available, the coupling can also be submitted to FLENDER to ensure proper workmanship.

Autogard torque limiters can be used as standard in ambient temperatures of $-30\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$. Outside this temperature range, special greases and oils should be used. It will be necessary to consult FLENDER in this connection.

Under optimum conditions, an Autogard torque limiter is lubricated for life and requires no special maintenance.

The journal bearings used are of high-grade P.T.F.E. or oil-impregnated bronze and are maintenance-free.

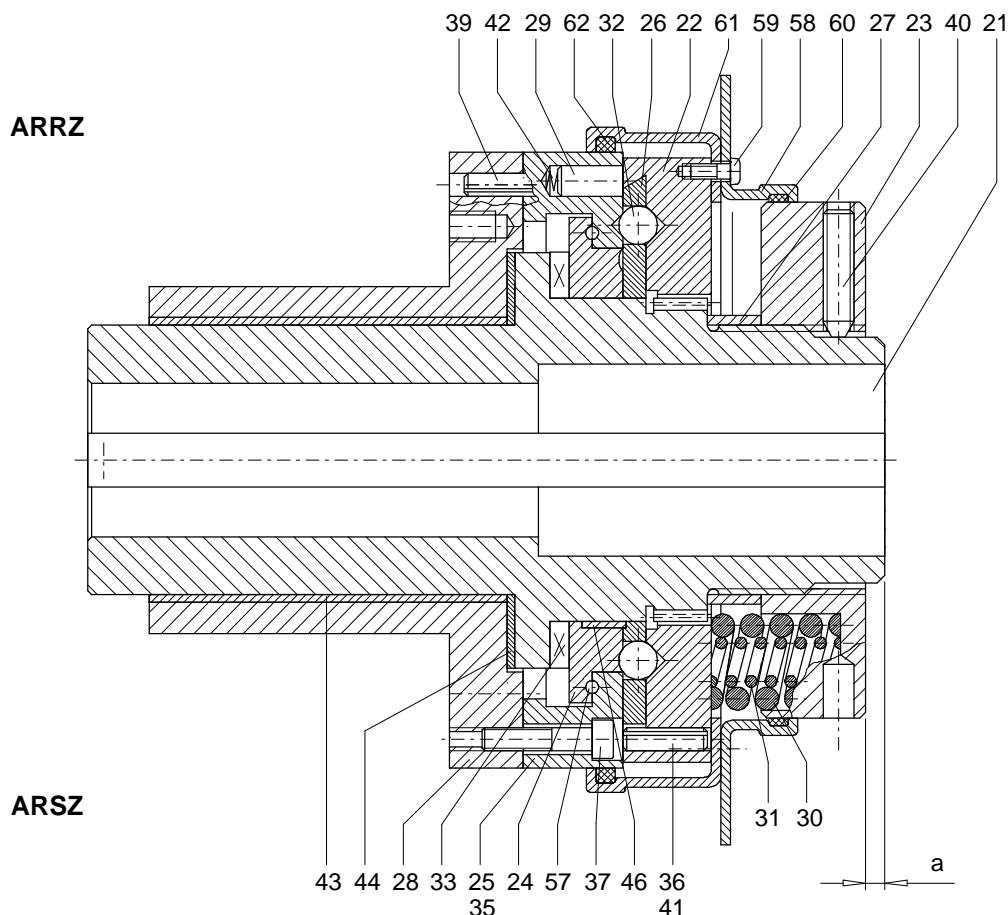
When a machine is subjected to a major overhaul, the Autogard torque limiter should also be checked at the same time.

Under very unfavourable operating conditions, the torque limiter should be checked after 12 - 18 months during a routine machine service.

It should be checked that all components are firmly attached to one another and that all components locate firmly on the coupling hub. For the purpose of checking the lubrication, the adjuster nut (23) and the sliding disk (22) should be removed from the torque limiter. This is best done after extracting the torque limiter from the shaft. If there is any indication that further service operations will be necessary, the complete torque limiter should be removed.

As grease and molykote grease, the lubricants described under Item 10.6 or equivalent products should be used.

10.2 Disassembly



The torque limiter should be placed on a suitable clean work bench such that the hub with the adjuster nut is on top. Scrupulous cleanliness should be observed when working on the torque limiter.

Caution!

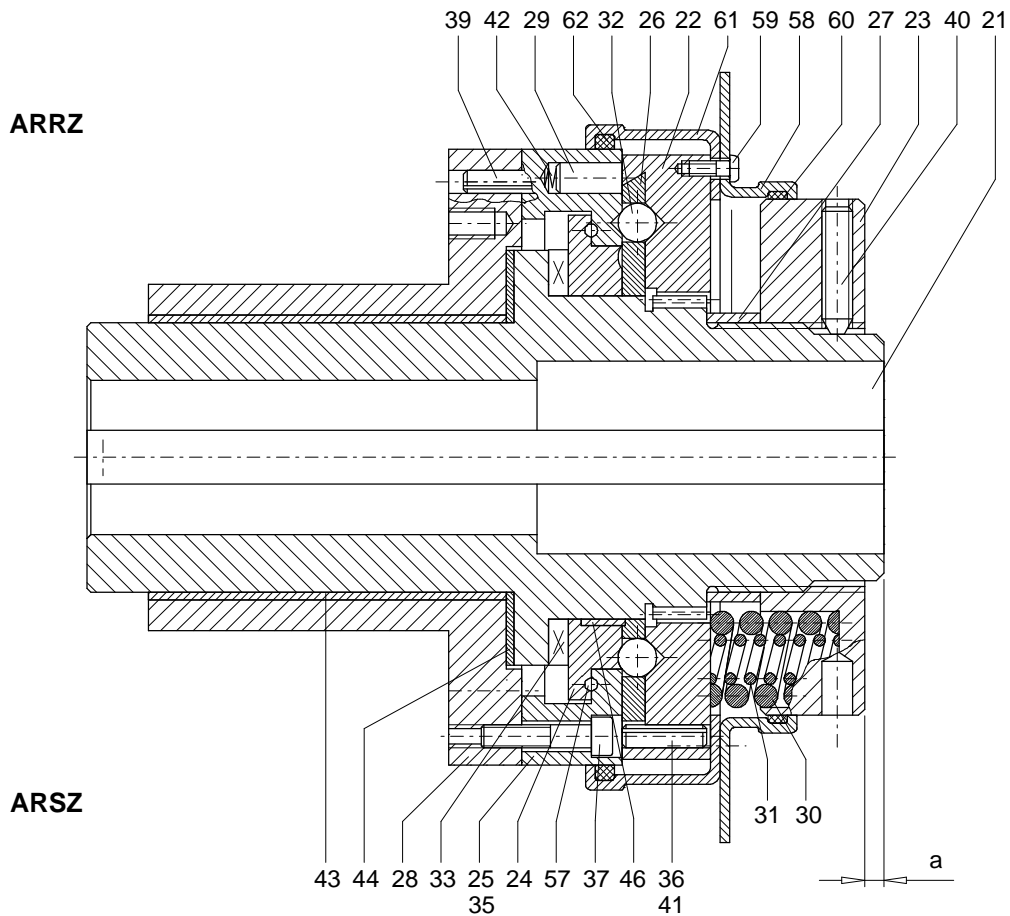
Before the torque limiter is disassembled for cleaning or maintenance, the dimension "a" must be measured and recorded and the position of the adjuster nut marked to permit setting exactly the same actuating torque again after assembly.

All the components of the torque limiter should be kept in a safe place to ensure that none are lost.

Disassembly should be carried out in the following sequence:

- According to the manner of fastening, first the set screws and/or the central securing screw with end plate are removed.
- Slacken the locking screws (40) of the adjuster nut (23) and unscrew the adjuster nut with the torque springs (30, 31) from the hub (21).
- Remove the calibration sleeve(s) (27) from the hub (21).
- After undoing the screws (59), the actuator disk (58) and, if present, the housing section (61) can be lifted off the sliding disk (22). Then, the sliding disk/guide disk (22/26) should be removed from the hub. In the case of Type ARSZ, the Size 1 and 2 torque limiters are fitted with a guide disk spring (46).
- Remove the balls (32) from their conical recesses in the drive disk (25) and from the support ring (24) if they have not lodged in the guide disk.
- Remove the pawls (29) with the pawl springs (42) from their holes.
- The drive disk (25) is attached with screws (37) and dowel pins (39) to the adapter (28). The screws should be slackened and pins tapped out of their holes with a suitable drift.
- Remove the drive disk (25) from the hub (21).
- Remove the support ring (24) from hub (21); in the case of Type ARSZ, the annular groove in the support ring is filled with balls (57).
- Remove the needle roller thrust bearing (33) with the two thrust washers from the hub (21).
- Withdraw the hub (21) from the adapter (28) and from the bronze bearing (43) and remove the strip thrust bearing (44).

Note: Screws and pins which have become unserviceable should be replaced by new ones of the same strength class and type.



Before assembling the torque limiter, ensure that all components to be assembled are clean and in satisfactory condition. ONLY original Autogard components may be used, otherwise any form of warranty will be voided.

Assembly should be carried out in reverse order to disassembly as described under Item 10.2.

- Smear both sides of the strip thrust bearing (44) with oil. Locate the strip thrust bearing against the flange of the hub (21).
- The hub (21) should be pushed carefully into the adapter (28) and into the bronze bearing (43).
- Pack the needle roller thrust bearing (33) with grease and with the thrust washers positioned on both sides, guide over the vertically positioned hub (21) until it abuts on the hub flange.
- Place the support ring (24) on the needle roller thrust bearing. In the case of Type ARSZ, the annular groove should be almost filled with the balls (57). When doing so, ensure that overfilling does not on any account take place.
- Bolt the drive disk (25) to the adapter (28). The screws (37) used for this purpose should be cleaned and lightly smeared with Loctite 243. Before the screws are fully tightened, the dowel pins (39) must be tapped in. When doing so, ensure that the dowels are recessed 3 - 5 mm in the holes.

Caution!

The drive disk (25) must rotate freely on the hub (21). In the same way, the support ring (24) must rotate freely between drive disk and hub.



The dowel pins (39) may NOT stand proud of the drive disk!

- The pawl springs (42) should be inserted with grease in the pawls (29). The pawls with the pawl springs should then be inserted frontwards in the holes of the drive disk (25). Type ARSZ pawls are secured by means of a spiral pin (35), thus preventing incorrect assembly. When this spiral pin is fitted, ensure that the seam of the pin makes contact with the wall of the hole. After assembly, it must be checked whether the pawls can move freely in the hole. Press the pawls into the holes, from which it may only be possible to extract them by means of the springs.
- The calibration sleeve (27) suitable for the actuating torque should be placed over the hub onto the tooth system. On initial assembly, the calibration sleeve can be fitted in one or several sections.

Caution!

Calibration sleeves (27) may NOT ON ANY ACCOUNT be completely removed, as otherwise no guarantee can be accepted for disengagement of the coupling. Replacing a helical spring set with a stronger or weaker spring set, installing additional laminated cup springs or removing laminated cup springs, and shortening a calibration sleeve are ONLY permissible with the EXPRESS approval of FLENDER.

- The guide disk (26) is preassembled with the sliding disk (22) and is retained in position by the dowel pin(s) (36, 41).

The guide disk should be rotated in the sliding disk until the conical recesses of the ball seats are visible through the holes of the smaller pitch circle. The balls (32) should then be inserted in the lightly greased holes. The grease facilitates assembly of the sliding disk (22) on the hub (21).

The tooth systems of the sliding disk and the hub should be smeared with Molykote grease before assembly. After inserting the sliding disk in the tooth system, the hub should be held in position and the drive disk screwed on until the balls engage in the recesses of the drive disk (25).

In the case of Type ARSZ Sizes 1 and 2, the guide disk (26) should be assembled on its own.

There is additionally a guide disk spring (46) which should be inserted in the support ring. The guide disk should be inserted in the sliding disk (22) such that the turned groove for the guide disk spring is visible.

The guide disk should now be rotated until the angular recess is in alignment with the ramp-like milled-out recess of the sliding disk. The balls can then be inserted in the lightly greased holes. The grease facilitates assembly of the sliding disk (22) together with the guide disk (26) on the hub (21). The angular recess in the guide disk must be in alignment with the position of the pawls (29).

The tooth systems of the sliding disk and the hub should be smeared with Molykote grease before assembly. After inserting the sliding disk in the tooth system, the hub should be held in position and the drive disk rotated until the balls engage in the recesses of the drive disk (25).

The sliding disk must be loaded such that it cannot be lifted by the spring pressure until the adjusting nut with the torque springs is screwed on and a corresponding counter-force opposes the small springs.

- The torque springs (30, 31) should be inserted with grease in the adjuster nut (23), ensure that the springs are uniformly distributed. Before the adjuster nut is screwed onto the hub (21), the threads on both components should be smeared with Molykote grease.
- The actuator disk (58) and, if fitted, the housing section (61) should be bolted onto the sliding disk with the screws (59). After cleaning, the screws should be smeared with Loctite 243 and fully tightened. During assembly of the housing section (61) and the actuator disk (58), ensure that if felt washers (60, 62) are inserted, they are not crushed. New felt washers should be soaked in oil before assembly of the housing section.
- If the coupling is being reassembled after a service, ensure that the adjuster nuts (23) are positioned exactly as before disassembly, in order to ensure the same actuating torque (see Item 10.2: Disassembly).
The adjuster nut (23) should now be locked in position by tightening the locking screws (40). The locking screws should be cleaned, smeared with Loctite 243 and fully tightened.
- When assembling the torque limiter on the shaft, the hub (21) should be secured on this shaft by means of the set screws and/or of the central securing screw with end plate.

10.4 Lubricants

Grease: Calypsol Grease H443, or comparable branded products

Molykote grease: Optimoly Paste PL, or comparable branded products

Oil: Lastan X 220, or comparable branded products.

11. Stocking spare parts, Customer facility addresses

A stock of the most essential spare and wearing parts on site is an important precondition for serviceability of the coupling at all times.

Please use the Spare Parts List when ordering spare parts.

Additional information will be found in the Spare Parts Drawing referred to in the Spare Parts List.

Our warranty only covers original spare parts supplied by us.

Caution!

We would expressly point out that spare parts and accessories not supplied by us have not been tested and approved by us either. Installation and/or use of such products can under certain circumstances adversely affect the specified structural properties of the coupling and thus impair its active and/or passive safety. No form of liability or warranty is accepted on the part of FLENDER AG for damage which occurs as a result of the use non-original spare parts and accessories.

Please note that special manufacturing and supply specifications frequently exist for components and that we always supply spare parts in accordance with the state of the art and in accordance with the latest legal requirements.

When ordering spare parts, the following data should be stated:

Order No.	Part No.	Quantity
-----------	----------	----------

11.1 Addresses of spare parts stockists and service facilities

When ordering spare parts or requesting a Service fitter, please contact FLENDER AG first of all.

FLENDER Germany

A. FRIEDR. FLENDER AG

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BREMEN
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VERTRIEBSZENTRUM HERNE

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DÜREN
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Tel.: (0 23 23) 4 97 - 2 22

DUISBURG
Tel.: (0 23 23) 4 97 - 2 15
KÖLN
Tel.: (0 23 23) 4 97 - 2 22
SIEGEN
Tel.: (0 23 23) 4 97 - 2 19
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MANNHEIM
Tel.: (0 62 04) 96 89 - 18

SAARBRÜCKEN
Tel.: (0 62 04) 96 89 - 20
WÜRZBURG
Tel.: (0 62 04) 96 89 - 14

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STUTTGART II
Tel.: (07 11) 7 80 54 - 58
ULM
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ERFURT
Tel.: (0 30) 43 01 - 28 17
LEIPZIG
Tel.: (0 30) 43 01 - 28 17
MAGDEBURG
Tel.: (0 30) 43 01 - 28 13

BABCOCK - ZENTRUM

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 Tel.: (02) 7 90 03 31
 Fax: (02) 7 90 64 44

THAILAND

Smith Technology Co. Ltd. ○
 128/75 Phayathai Plaza Building
 7th Floor, Phayathai Road
 Rajthevee, Bangkok 10400
 Tel.: (02) 2 16 58 31 / 3
 Fax: (02) 2 16 57 99

UNITED ARAB EMIRATES

Ticos International ○
 General Trading Co.
 P.O. Box 2191, Ajman (U.A.E.)
 Tel.: (06) 42 87 16
 Fax: (06) 42 87 30

A U S T R A L I A

Flender (Australia) Pty. Ltd. ●
 9 Nello Place, P.O. Box 6047
 Whetherill Park, N.S.W. 2164
 Sydney
 Tel.: (02) 7 56 23 22
 Tx.: 27 742
 Fax: (02) 7 56 48 92, 7 56 14 92

SALES OFFICES:

Flender (Australia) Pty. Ltd. ●
 20 Eskay Road, Oakleigh South
 Victoria 3167, Melbourne
 Tel.: (03) 95 79 06 33
 Fax: (03) 95 79 04 17

Flender (Australia) Pty. Ltd. ●
 39 Brookes Street, Bowen Hills
 Qld. 4006, Brisbane
 Tel.: (07) 32 52 27 11
 Fax: (07) 32 52 31 50

Flender (Australia) Pty. Ltd. ●
 1 Dampier Road, Welshpool
 W.A. 6106, Perth
 Tel.: (09) 4 51 83 55
 Fax: (09) 4 58 35 82

NEW ZEALAND

Please refer to Flender AG
 D - 46395 Bocholt

■ Subsidiary, Manufacturing,
 Sales and Stock

● Subsidiary,
 Sales and Stock

● Flender Sales Office

⊕ Flender Representative Office

□ Representative with Manufacturing
 Licence, Sales and Stock

○ Manufacturer's Agent

◇ Distributor

12. Declaration by the manufacturer

Declaration by the manufacturer

as defined by machinery directive 89/392/EEC Annex II B

We hereby declare that the

AUTOGARD couplings series 400 types ARRZ and ARSZ

described in these operating instructions are meant for being installed in a machine and that their putting into operation is prohibited until it has been ascertained that the machine, in which these components will be installed, corresponds to the regulations of the EC guideline (original version 89/392/EEC incl. the further amendments).

This declaration by the manufacturer takes into consideration all harmonized standards - as far as applicable to our products - published by the EC Commission in the Official Journal of the European Community.

Bocholt,

30.10.1995

Date



Signature (person responsible for products)