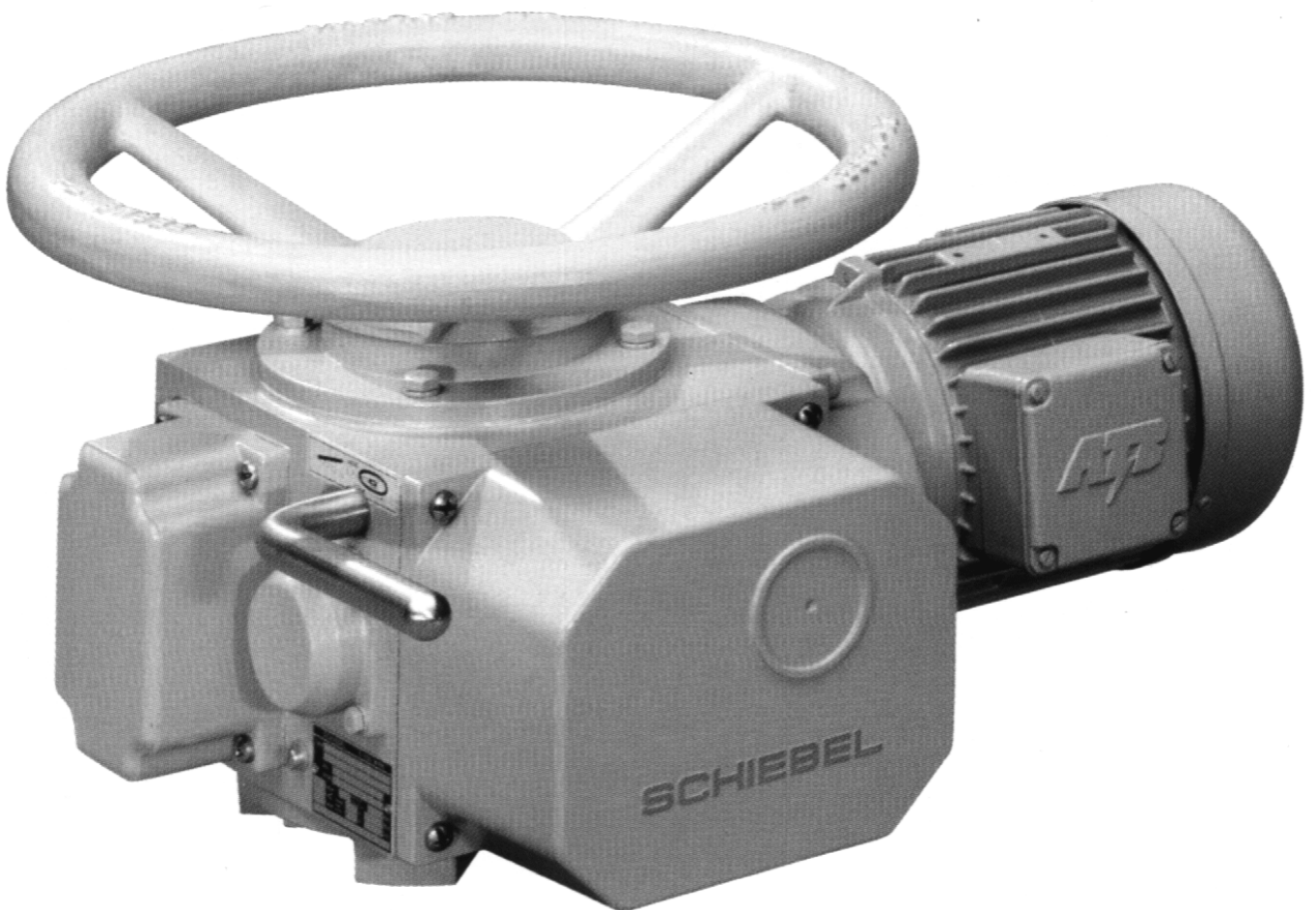


Operating instructions for actuators type AB



Contents

Contents	2
Operating instructions for actuators type AB	3
1 Introduction/Notes	3
1.1 Serial number and nameplater	3
1.2 Operational Mode	4
1.3 Protection class	4
1.4 Mounting Position	4
1.5 Direction of rotation	4
1.6 Protection devices	5
1.6.1 Mechanical protection devices	5
1.6.2 Electrical protection devices	5
1.7 Ambient temperature	5
1.8 Delivery condition of the actuators	5
1.9 Information notice (tag)	6
2 Packaging, transport and storage	7
2.1 General	7
2.2 Storage	7
2.3 Long-term Storage	7
3 Installation Instructions	8
3.1 Mechanical Connection	8
3.2 Electrical Connection	8
3.2.1 Motor connection	10
4 Commisioning	11
4.1 Switching the actuator to manual operation	11
4.2 Monitoring the Rotating Direction	11
4.3 Setting of the Travel Switch	11
4.3.1 Roller-type Counter (operational range starting at 1 rev. at the output)	11
4.3.2 Camshaft Gear (operational range starting at 0.25 rev. at the output)	12
5 Maintenance	13
6 Spare parts	13
7 Recommendations of Lubricants (for all manufactures)	13
7.1 Main Casing	13
7.1.1 Application temperature from -35°C to +100°C	13
7.1.2 Application temperature from -50 to +100 °C	14
7.1.3 Application temperature from -60 to +100 °C	14
7.2 Spur Gears (actuator size AB8 - AB80)	14
7.3 Output Drive Type A and Spindle Drive (Linear Actuators)	14
7.4 Precision Components	14
7.5 Basic Lubricant Service Interval	14
7.6 Lubricant Requirements	15
8 Training	16
9 Original Declaration of Incorporation of Partly Completed Machinery	17
10 Declaration of Conformity	18
11 Declaration of Conformity	19

Operating instructions for actuators type AB

1 Introduction/Notes

These operating instructions apply to SCHIEBEL actuators of the AB series.

The scope of application covers the operation of industrial valves, e.g., globe valves, gate valves, butterfly valves and ball valves. For other applications please consult with the factory.

The manufacturer shall not be liable for incorrect use and possible damage arising thereof. The risk shall be borne solely by the user.

Using the unit as intended also entails the observance of these operating instructions!



When operating electrical equipment, certain parts inevitably carry hazardous voltage levels. Work on the electrical system or equipment must be carried out only in accordance with electrical regulations by a qualified electrician himself or by specially instructed personnel under the control and supervision of a qualified electrician.

Maintenance instructions must be observed as otherwise the safe operation of the actuator cannot be guaranteed.

Failure to follow the warning information may result in serious bodily injury or property damage. Qualified personnel must be thoroughly familiar with all warnings contained in this operating manual.

Proper transport, storage, installation, assembly and careful commissioning are essential to proper and safe operation.

When working in potentially explosive areas, observe the European Standards EN 60079-14 "Electrical Installations in Hazardous Areas" and EN 60079-17 "Inspection and Maintenance of Electrical Installations in Hazardous Areas".



Maintenance work on open actuators may only be conducted if these are de-energized. Reconnection during maintenance is strictly prohibited.



1.1 Serial number and nameplate

Each actuator carries a serial number. The serial number is a 8-digit number that begins with the year and that can be read from the nameplate (see Figure 1) of the actuator (the nameplate is located under the hand lever).

Using this serial number, SCHIEBEL can uniquely identify the actuator (type, size, design, options, technical data and test report).

Actuators which are suitable for operation in explosive atmosphere (see EU-Richtlinie 2014/34/EU and EN60079-0 Standard) are separately designated by a special model plate (Ex, TÜV-Standard Figure 2).

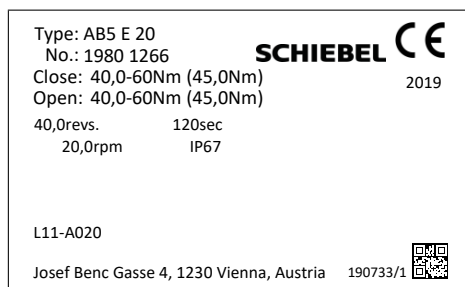


Figure 1

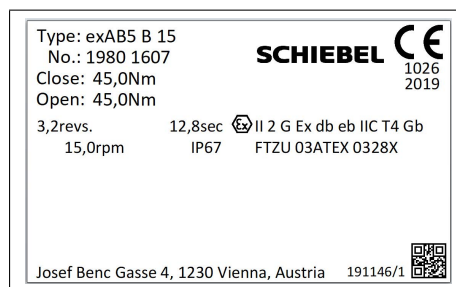


Figure 2

1.2 Operational Mode

There are two distinct modes of operation: open-loop control operation (operational mode S2 for ON-OFF) and closed-loop control operation (operational mode S4) according to EN 60034-1. But since there is a great number of varying and special models made to order, it is recommended to consult the motor model plate for the mode of operation and the running time.

1.3 Protection class

Actuators with three-phase motors are standardly equipped with the IP 66 protection system (according to EN 50629). **Explosion-proof** actuators and actuators with plugs are furnished with the IP 65 protection system. Exceptions are the AC, DC and brake-motor actuators as well as those for other protection systems made to special order.

WARNING: The protection system imprinted on the model plate only applies if the cable screwing likewise corresponds to the requisite protection system, the lids are properly closed and the fitting position according to section 1.4 is observed.



We recommend metallic screwed cable glands with a metrical thread. Furthermore, cable inlets not be needed must be closed with screw plugs.

On explosion-proof actuators cable glands with protection class

Ex e according EN60079-7 must be used. **After removing covers** for assembly purposes or adjustment work, take special care upon reassembly so that seals are not damaged and remain properly fastened. Improper assembly may lead to water entrances and to failures of the actuator.

Allow a certain sag in the connector cables before reaching the screwed cable glands so that water can drip off from the connector cables without running to the screwed cable glands. As a result, forces acting on the screwed cable glands are also reduced (see section 1.4).



1.4 Mounting Position

In principle, the installation position is irrelevant. However, based on practical experience, it is advisable to consider the following for outdoors use or in splash zones:

- Mount actuators with cable inlet facing downwards
- Do not arrange the motor so that it hangs downwards
- Ensure that sufficient cable slack is available

1.5 Direction of rotation

Unless specifically ordered otherwise, the standard direction is (see Figure 3 and Figure 4):

Clockwise rotation = Close

Counter-clockwise rotation = Open

Clockwise rotation of the actuator is given when the output shaft turns counter clockwise when looking on the output shaft.

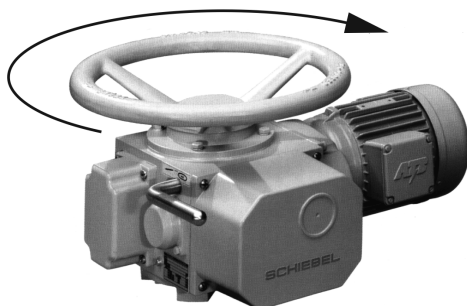


Figure 3: AB3 - AB80

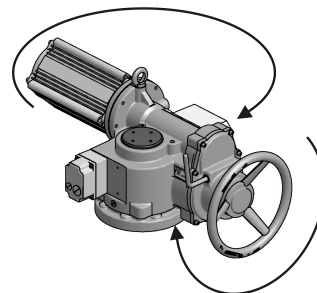


Figure 4: AB100 - AB500

All data in these operating instructions refer to the standard rotating direction.

1.6 Protection devices

1.6.1 Mechanical protection devices

All actuators have at least one torque switch for clockwise and counter-clockwise rotation. These can be separately adjusted and are preset ex works to the torque required

The adjusting screws are varnish-protected and must not be reset without prior consultation with the Schiebel Company.



However, the torque for the relevant rotating direction can be reduced by means of plastic cams on the torque switch. Counter-clockwise rotation torque is reduced as follows: Using a screwdriver, turn the plastic cam marked "L" in the direction of the decreasing scale markings (clockwise).

To reduce the clockwise rotation torque, turn the plastic cam marked "R" in the direction of the decreasing scale markings (clockwise). See Figure 5.

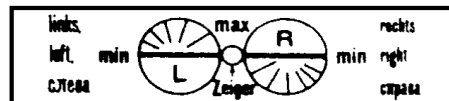


Figure 5

1.6.2 Electrical protection devices

All motors have temperature switches as standard equipment (temperature sensors upon special order), which protect the motor from overheating, if properly wired (see proposed wiring diagram).

WARNING: Please observe the technical data sheet of the built-in electrical components.



Further we recommend the installation of a motor protection circuit breaker on site as additional protection for rapid engine warming up (block). The tripping current must be adjusted to 1.2 ... 1,5- times of the motor current, or at explosion-proof models proceed according to the corresponding guidelines of the National Explosion Protection Authority.

1.7 Ambient temperature

Unless otherwise defined according to special order, the following operational temperature generally applies:

- open-loop control actuators from -25°C to +80°C
- closed-loop control actuators from -25°C to +60°C
- Explosion-proof actuators (according to EN60079-0 Standard):

Type	min. Temp.	max. Temp
Standard	-20°C	+40°C
TT40	-40°C	+40°C
TT50	-50°C	+40°C
HT60	-20°C	+60°C
HT70	-20°C	+70°C

Warning: The maximum operational temperature also depends on the built-in components. Please observe the technical data sheets.

1.8 Delivery condition of the actuators

For every actuator, a test record is drawn up at the final quality control, during which a 100% optical inspection as well as an adjustment of the shutdown torque and a functionality test of the built-in components are carried out.

Adjustment of the travel switch including any ordered supplementary elements must be done after installation on the positioning element.

Warning: The start-up instructions (see Section 4, page 11) absolutely must be followed!

If mounting on a provided valve at our company, the electrical components will be preset and this will be documented by attaching a sticker (see Figure 6) on the indicator lid. On start-up resetting could be necessary.

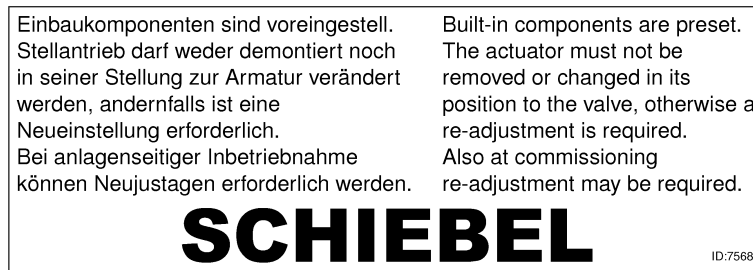


Figure 6: sticker

1.9 Information notice (tag)

Each actuator is provided with a bilingual tag containing key information, which is attached to the handwheel after final inspection. This tag also shows the internal commission registration number (see Figure 7).

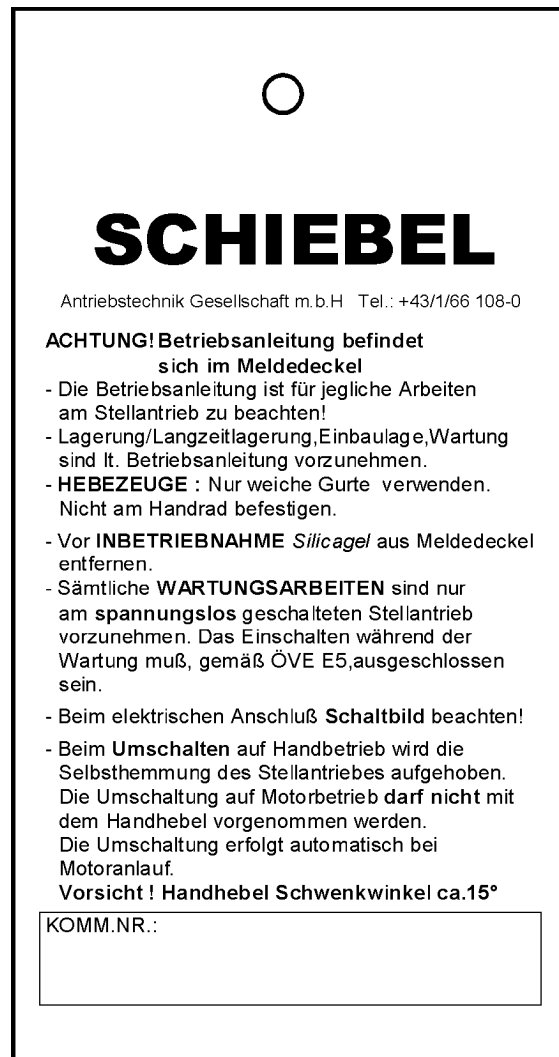


Figure 7: tag

2 Packaging, transport and storage

You can order the actuators to be delivered with or without packing. Special packing requirements must be specified along with your order. Use extreme caution when unpacking or repacking the actuator.

Use soft belts for hoisting equipment. Do not attach hoisting belts to the handwheel.



2.1 General

The indicator lids of all actuators contain a minimum of 5 g of silica gel ex factory.

WARNING! Prior to start-up of the actuator (refer to Section 4, page 11) all of the silica gel must be removed!



2.2 Storage

CAUTION

Observing the following precautions will help to avoid damage when storing actuators:

- Store actuators in well-ventilated, dry premises
- Protect against floor dampness by storing actuators on wooden grating, pallets, mesh boxes or shelves
- Protect the actuators against dust and dirt with plastic foil
- Actuators must be protected against mechanical damage. It is not necessary to open the controller of the actuator for servicing batteries or similar operations.
- The storage temperature must be between -20°C bis +40°C

2.3 Long-term Storage

CAUTION: If you intend to store the actuator for over 6 months, follow additionally the instructions below:



- **CAUTION:** The silica gel in the connection compartment must be replaced after 6 months of storage (from date of delivery from SCHIEBEL's factory in Vienna)
- After replacing the silica gel, brush with glycerine the connection cover seal. Then, carefully close again the connection compartment
- Coat screw heads and bare spots with neutral grease or long-term corrosion protection
- Wrap the motor (especially the brake motor) with oiled paper.
- Renovate damaged paintwork arising from transport, improper storage, or mechanical influences.

CAUTION: For explosionproof actuators it is not allowed to overlacquer the actuator extensive. According to the standard, to avoid electrostatic charge, the maximal thickness of the varnish is limited with 200 μm .



- Every 6 months. all measures and precautions for long term storage must be checked for effectiveness and corrosion protection and silica gel renewed.
- Failure to follow the above instructions may lead to condensation which can damage to the actuator.



3 Installation Instructions

Installation work of any kind of actuator may only be performed by qualified personnel.

3.1 Mechanical Connection

Make sure that the fitting flanges and the actuator flanges match each other, and that the borehole matches the shaft or, in the case of actuator model "A" (threaded bushing), that the actuator and fitting threads match each other.

- Grease the spindle.
- Clean all exposed parts which have been coated with anti-corrosive.
- Thoroughly clean the bolting surfaces of the fittings.
- Lightly grease the connecting joints between the actuator and the fittings.
- Place the actuator on the fittings or the gear.
- Tighten the fastening screws crosswise (torque acc. below table).

size	torque [Nm] for screws 8.8
M6	10
M8	25
M10	48
M12	84
M16	206
M20	415

For output type A (unbored threaded bushing), you must sufficiently lubricate both needle bearings in the output form after processing and cleaning the spindle nut.

For this purpose, use the optional SCHIEBEL grease lubricant or a grease lubricant according to our recommendation (chapter 7, page 13).

3.2 Electrical Connection

Electrical connections may only be carried out by qualified personnel. Please observe all relevant national security requirements, guidelines, and regulations. The equipment should be de-energized before working on electrical connections. Furthermore, confirm the absence of electrostatic discharges during the connection. First of all, connect the ground screw.



The line and short circuit protection must be done on the system side. The ability to unlock the actuator is to be provided for maintenance purposes. For the dimensioning the rated current is to be used (see Technical Data).



Check whether the power supply (voltage, frequency) is consistent with the connection data (see name plate of the motor)

The connection of electrical wiring must follow the circuit diagram.

This can be found in the appendix of the documentation. The circuit diagram can be ordered from SCHIEBEL by specifying the serial number.



The standard model can be ordered with the following connection options:

- Electrical connection of the controlsignals and the motor via the terminal box on the actuator for non explosion-proof actuators - **AK40**

connection	size	tightening torque	wire stripping length
controlsignal motor	0,25...2,5mm ²	0,5Nm	7mm
PE	grounding screw / Protective conductor terminals with M4 ring cable bracket	1...1,2Nm	—

- **explosion-proof actuators** - electrical connection of the controlsignals and the motor via the terminal box on the actuator - **AK36**

connection	size	tightening torque	wire stripping length
motor PE	1 x 0,2...6mm ² solid 1 x 0,25...4mm ² finely stranded with wire-end ferrules 2 x 0,2...1,5mm ² solid (the two wires need to be of the same gage and nature) 2 x 0,25...1,5mm ² finely stranded with wire-end ferrules (the two wires need to be of the same gage and nature) 2 x 0,5...2,5mm ² finely stranded with twin wire-end ferrules (the two wires need to be of the same gage and nature)	0,6...0,8Nm	8mm
controlsignal	1 x 0,2...4mm ² solid 1 x 0,25...2,5mm ² finely stranded with wire-end ferrules 2 x 0,2...1mm ² solid (the two wires need to be of the same gage and nature) 2 x 0,25...1mm ² finely stranded with wire-end ferrules (the two wires need to be of the same gage and nature) 2 x 0,5...1,5mm ² finely stranded with twin wire-end ferrules (the two wires need to be of the same gage and nature)	0,6...0,8Nm	7mm

If ordered (or because of high currents) also terminals with larger wire cross-section can be used.

- Electrical connection of the controlsignals and the motor via modular-plug with crimp-contacts - **SMod**

connection	size	tightening torque	wire stripping length
motor	0,5...4mm ² finely stranded (actual allowed wire cross-section depends on used crimp contact)	—	8mm
controlsignal	0,14...1,5mm ² finely stranded (actual allowed wire cross-section depends on used crimp contact)	—	9mm
	2,5mm ² finely stranded (actual allowed wire cross-section depends on used crimp contact)	—	7mm
PE	0,5...4mm ² finely stranded with wire-end ferrules	—	9mm
	6...10mm ² with M4 ring cable bracket	1,2...1,5Nm	—

- Electrical connection of the controlsignals and the motor via plug with crimp-contacts - **Han64D / SHan64D**

connection	size	tightening torque	wire stripping length
controlsignal motor	0,14...2,5mm ² finely stranded (actual allowed wire cross-section depends on used crimp contact)	—	8mm
PE	0,5...2,5mm ² solid 0,5...2,5mm ² finely stranded with wire-end ferrules	1,2...1,5Nm	10mm

If ordered (or because of high currents) also other plugs can be used.

- Electrical connection of the controlsignals and the motor via plug with screw connection - **Han24E / SHan24E / SH32**

connection	size	tightening torque	wire stripping length
controlsignal motor	0,5... 2,5mm ² solid 0,5... 2,5mm ² finely stranded with wire-end ferrules	0,5... 0,55Nm	9mm
PE	0,5... 4mm ² solid 0,5... 4mm ² finely stranded with wire-end ferrules	1,2... 1,5Nm	10mm

For the labeling on the terminals see the wiring diagram (located in the indicator lid).

3.2.1 Motor connection

Please also note the information about the installation of an external motor protection circuit breaker - see Section 1.6.2, Seite 5.

- *Three-phase motor:* Connection of the three-phase system with positive phase sequence (L1, L2, L3)

Clockwise rotation of the actuator:

- Phase **L1** to **U1**
- Phase **L2** to **W1**
- Phase **L3** to **V1**

Counterclockwise rotation of the actuator:

- Phase **L1** to **U1**
- Phase **L2** to **V1**
- Phase **L3** to **W1**

Caution: Before starting up the actuator it is absolutely necessary to check the phase sequence of the three-phase system on correctness and if necessary to correct it!

Caution: When connecting the motor via the motor clamping board or the terminal-strip wiring, the clamps are labelled with U1, V1, W1. With plug connection, refer to the inscription on the wiring diagram.

- *One-phase motor* These motors are standardly wired to the terminal strip with the labeling R, N, L

Clockwise rotation of the actuator:

- neutral conductor to N
- phase to R

Counterclockwise rotation of the actuator:

- neutral conductor to N
- phase to L

Caution: With plug connection, refer to the inscription on the wiring diagram.

WARNING: Observe the technical data sheets of the built-in components.

Note: Actuators with an output speed of less than 120 rpm interlock automatically. Whenever switched off, actuators not equipped with automatic interlock (≥ 120 rpm), will relieve stress via the torque. The torque switch will then return to its neutral position.

To prevent undesired re-start in the same direction, **the torque switches of actuators with no automatic interlock must be locked electrically.**

If electrical connection is not immediately followed by start-up and if the unit is located outdoors, the heating resistor should be promptly activated (Be sure the voltage is in accordance with the proposed wiring diagram!) or the silica gel should be left in the indicator unit **Caution:** See Section 2, page 7 of the operating instructions.

4 Commissioning

It is assumed that the actuator has been correctly assembled and electrically connected (see Section 3, page 8).

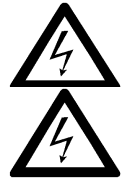
Caution: Remove silica gel from the indicator lid.

4.1 Switching the actuator to manual operation

The actuator is switched to manual operation by moving the hand lever (see Figure 8 u. 9) by approximately 15°, and by simultaneously turning the hand wheel. The lever remains in this position and will be switched back automatically as the motor starts up.

WARNING:

- When switching to manual operation, the actuator's **automatic interlock is deactivated**, that means that the driven valve must not initiate reverse torque to the output shaft of the actuator!
- Switching back to motor operation is made **automatically** as the motor starts up. It **must not** be undertaken with the hand lever!
- Only switch to manual operation when the motor is idle!
 - Hand lever has a slewing angle of approximately 15°, therefore release the hand lever immediately upon activation!



Labels on the actuator:

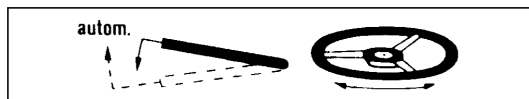


Figure 8: AB3, 5, 100, 200, 500

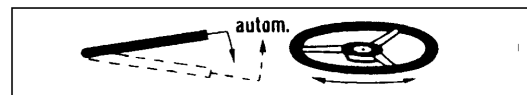


Figure 9: AB8, 18, 40, 80

4.2 Monitoring the Rotating Direction

Move the actuator with coupled fittings to the middle position by hand. Give the actuator the short electrical command "CLOSE".

Caution: The motor couples in automatically. **Monitoring** The output shaft must be rotating in a clockwise direction (see direction arrows on the hand-wheel).

In the case of incorrect rotating direction:

- With three-phase current, exchange L1 and L2.
- With one-phase motor, exchange connections at R and L.

Warning:

The travel and torque switches do not operate if rotating direction is incorrect. The result is destruction of the actuator and/or the fittings!!!



4.3 Setting of the Travel Switch

Caution: : Depending on the load intensity, special actuators with high output speed display a trailing effect when switched off. This must be taken into consideration accordingly when adjusting the travel switches. The actuator can use either a roller-type counter or a camshaft gear for travel determination, as need be.

4.3.1 Roller-type Counter (operational range starting at 1 rev. at the output)

- Setting the position „CLOSE“:
Move the actuator into the position „CLOSE“by hand. To set the final position, push the flasher shaft with square cam (see Figure 10) downwards with the finger. Using a screwdriver, turn the slotted shaft of the “R“rollers in the direction of the arrow, until the corresponding counter-clockwise trip cam activates the travel switch (see Figure 11). Release flasher shaft and be sure that the toothed roller locks in.

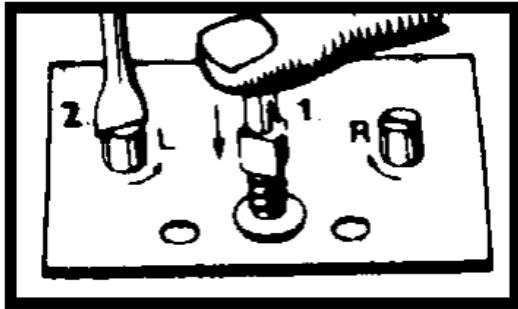


Figure 10

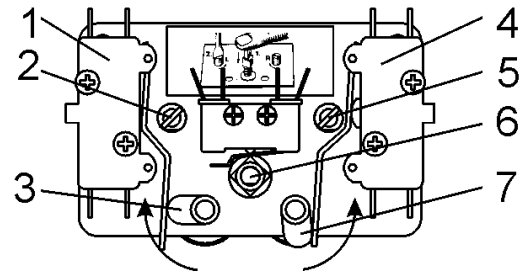


Figure 11: 1...switch S4, 2...L, 3...trip cam for counter-clockwise (OPEN), 4...switch S3, 5...R, 6...flasher shaft, 7...trip cam for counter-clockwise (CLOSE)

- Setting the position „OPEN“:
Move the actuator into the position „OPEN“ by hand. To set the final position, push the flasher shaft with square cam (see Figure 10) downwards with the finger. Using a screwdriver, turn the slotted shaft of the “L” rollers in the direction of the arrow, until the corresponding clockwise trip cam activates the travel switch (see Figure 11). Release flasher shaft and be sure that the toothed roller locks in.

4.3.2 Camshaft Gear (operational range starting at 0.25 rev. at the output)

General: Camshaft gears are also used if more than two positions, adjustable independently from one another, are required.

- Setting the position „CLOSE“:
Move the actuator into the position “CLOSE” by hand.
Loosen the safety screw and the knurled nuts until the cam disc is turnable by hand. Set the lowest cam disc (while observing the rotating direction), until the travel switch is activated. Fasten the knurled nuts slightly so that the adjusted final position will not be changed during subsequent driveup.
- Setting the position „OPEN“:
Move the actuator into the position “OPEN” by hand.
Loosen the knurled nuts again. Set the upper (second-lowest) cam disc (while observing the rotating direction), until the travel switch is activated. Fasten the knurled screws by hand and secure with a threaded pin.

Warning: If additional intermediate position switches have been ordered, these are arranged via the travel switch and must be set accordingly. **An additional hexagon nut (13mm)** is placed between the travel switches and the intermediate-position switches. This nut must be loosened before setting the final-position switch and tightened thereafter. (Then, proceed as above described).



Any built-in components ordered are to be put into operation according to the attached data sheets.

Following completed start-up, be sure to properly seal the lids to be closed and check the cable input once again (see section 1.3, page 4).

Check the actuators for varnish damage (caused by transport or assembly) and repair them as necessary.

5 Maintenance

No maintenance work must be undertaken unless the actuator has been switched to IDLE.

(Switching on during maintenance must be rendered impossible.) Following start-up, the actuators are ready for use. The actuator is standardly filled with grease (oil filling upon customer's request).



Regular Maintenance Inspection:

- Beware of increased running noises. After every three months of non-operation, activate the actuator.
- With actuators having output types A, B and C according to DIN 3210-Standard (types A, B1, B2 and C according to DIN ISO 5210-Standard), re-grease them at the lubricator nipple at least every six months (see section 7.3, page 14).

As there is no specific restriction on the installation position (see section 1.4, page 4), there is no oil gauge and no oil drain plug in the main casing.

The lubricant changing of the main casing must be made about the hand wheel.

Depending on the frequency of operation,

- change the grease (oil),
- renew the seals and
- check all roller bearings and the worm-wheel unit and replace them, if necessary.

after every 10,000 to 20,000 hours of operation (approximately every five years - see section 7.5, page 14).

See the Table of Lubricants (see section 7, page 13) for the types of oil and grease to be used.

Check the cable glands at regular intervals (annually) for tightness of the cables and retighten if necessary.



If the visual inspection (eg. dust or water penetration) indicates that the effectiveness of the Sealing elements of the cable entry has suffered damage or aging, such elements have to be replaced preferably by using the original spare parts from the manufacturer of the equipment or through cable entries of comparable quality as well as the same ex- or IP protection class.

6 Spare parts

When ordering replacement parts, the fabrication number of the actuator must be given (see section 1.1, page 3). For actuator replacement parts use our exploded diagram 80.B.1.6. and our Replacement Parts List 80.B.1.7. Replacement parts lists for other structural components upon request.

7 Recommendations of Lubricants (for all manufactures)

Please note, that safety precautions such as the use of personal protective equipment (PPA) may have to be followed! Please consult the safety datasheet (in section 8) of the product in question



7.1 Main Casing

7.1.1 Application temperature from -35°C to +100°C

Lubricating grease DIN 51826 - GP 00 P-30

i.e. High pressure (EP), complex grease on Li soap basis:

work penetration 0.1 mm:	355 - 430
Dripping temperature:	about 200°C
NLGI grade:	00
Acid-free, not or only marginally reacting with water	

7.1.2 Application temperature from -50 to +100 °C**Lubricating oil DIN 51 502 CLP-HC**

i.e. fully synthetic high-performance industrial gear oil based on poly alpha olefins (PAOs):

Viscosity class:	ISO VG 68
Pour point:	<-55°C
Compatibility with conventional coatings and sealants	

7.1.3 Application temperature from -60 to +100 °C**Lubricating oil DIN 51 502 CLP-HC**

i.e. fully synthetic high-performance industrial gear oil based on poly alpha olefins (PAOs):

Viscosity class:	min ISO VG 32
Pour point:	<-60°C
Compatibility with conventional coatings and sealants	

7.2 Spur Gears (actuator size AB8 - AB80)**Lubricating grease DIN 51825 - KPF -1/2 G-20**

i.e. High-graphite, bitumen-free permanent lubricant with outstanding EP properties:

Work penetration 0.1 mm:	265 - 340.
Observe operating temperature range!	

7.3 Output Drive Type A and Spindle Drive (Linear Actuators)**Lubricating grease DIN 51825-K(P) R -40**

i.e. Water-repellent complex grease based on Al-soap with high resistance to acids and alkalis:

Ambient temperature:	-40 to +85 °C
Worked penetration 0,1 mm:	310 - 340
Dripping point:	approximately 260 °C
NLGI-Class:	1
acid-free, not or only slightly reactive with water	
Observe operating temperature range!	

7.4 Precision Components**Lubricating grease (or spray) DIN 58396- S1**

i.e. High-creeping, water-displacing, low-viscosity grease chemically neutral to copper and plastics:

Work penetration 0.1 mm:	175 to 385
Dripping temperature:	over 150°C
Evaporation loss:	max. 1%
Water resistance:	Evaluation grade DIN 51807-1-40

Observe operating temperature range!

7.5 Basic Lubricant Service Interval

On actuator maintenance, the old grease must be removed completely and replaced by a new one.

**The service interval for Schiebel actuators is 10 years from the date of delivery
by Fa. SCHIEBEL Antriebstechnik Gesellschaft m.b.H, A-1230 Vienna**

The functionality and operating life of the lubricants is, however, dependent upon operational



conditions. It may be necessary to take reduction factors into account.

Operational condition(s)	Definition	Reduction Factor(Multiplier)
On-period (OP)	(Total of motor running time)	
Extremely high OP	over 1,250 hours/year	0,5
High OP	over 500 hours/year	0,7
Extremely low OP	less than 0.5 hours/year	0,8
Ambient temperature	(Permanent or long-term)	
Extremely changing	between -10 and +50°C	0,5
Extremely high	over +50°C	0,7
Extremely low	below -25°C	0,9
Output speed	(at main shaft of actuator)	
High revolution	over 80 rev./min	0,8
Utilization factor	(with respect to nominal performance)	
Very high	over 90%	0,8
High	between 80 and 90%	0,9

Example:

Extremely low OP + extremely low ambient temperature + high revolution + utilization factor 87%

⇒ 0.8 x 0.9 x 0.8 x 0.9 = 0.51 reduction factor.

Lubricant maintenance interval ⇒ 10 years x 0.51 = 5.1 years (62 months).

WARNING: A thusly calculated maintenance interval does not apply to the maintenance of the output type A (threaded bushing), nor to the maintenance of the linear and spindle actuator units. These must be regularly re-greased (at least once every six months) at the lubricating nipples (see section 7.3, page 14)!



During actuator maintenance, the old lubricants must be thoroughly removed and replaced by fresh ones. **No mixing of different makes of lubricant is permitted!**

The quantities needed for lubricant service can be seen from the table below.

7.6 Lubricant Requirements

Type of actuator	Main gear	Spur gears	Output form A (Threaded bushing)	Output form B (Plug bushing)	Output form C (Claw coupling)
AB3/5	1kg (1l oil)	—	5cm ³	3cm ³	3cm ³
AB8	1kg (1l oil)	1cm ³	5cm ³	3cm ³	3cm ³
AB18	1kg (1l oil)	1cm ³	8cm ³	5cm ³	5cm ³
AB40/80	1,5kg (1,5l oil)	1,5cm ³	9cm ³	6cm ³	6cm ³
AB100/200	3,5kg (3,5l oil)	1,5 kg (1,5l oil)	23cm ³	20cm ³	20cm ³

When lubricating precision components, such quantities of lubricant are to be used as to ensure fine moistening of the sliding surfaces.

8 Training

Warning: Should problems arise on site in connection with assembly or adjustment, please contact the SCHIEBEL Antriebstechnik Gesellschaft m.b.H, Josef-Benc Gasse 4, A-1230 Vienna, Telephone +43 (1) 66 108 or by internet www.schiebel-actuators.com, in order to avoid any incorrect operations or damage to the actuators. The Schiebel Company recommends to recruit only qualified personnel for assembly of Schiebel actuators. Upon special request by the ordering party, personnel can be trained on the premises of the Schiebel Company according to the operations listed in the instructions for use.



9 Original Declaration of Incorporation of Partly Completed Machinery

According Machinery Directive 2006/42/EC, (Annex II, sub. B)

The manufacturer, the company:

SCHIEBEL Antriebstechnik Gesellschaft m.b.H.
Josef-Benc-Gasse 4
A-1230 Vienna

hereby declares that the partly completed machinery described below:

Electric actuators series:

AB rAB exAB exrAB

with optional additional components:

Smartcon CSC Smartcon exCSC

the following basic requirements of the Machinery Directive (2006/42/EC) are applied and fulfilled:

Annex I, articles 1.1.2, 1.1.3, 1.1.5; 1.2.1, 1.2.1, 1.2.2, 1.2.6; 1.3.1, 1.3.2, 1.3.7;
1.5.1; 1.6.3; 1.7.1, 1.7.3, 1.7.4

The following European harmonized standards have been applied:

EN12100:2010 EN ISO 5210:1996 EN ISO 5211:2001 DIN 3358:1982

The relevant technical documentation for partly completed machinery referred to in Annex VII, Part B has been prepared. The manufacturer commits to submitting the documents for the incomplete machine the competent national authority electronically upon request.

For the preparation of the technical documents is authorized:

Head of mechanical Engineering
Schiebel Antriebstechnik Gesellschaft m.b.H.
Josef-Benc-Gasse 4
A-1230 Vienna

This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC, where appropriate.

The electric actuators as partly completed machinery is in conformity with the relevant regulations of the EU directives:

Directive 2014/30/EU ("EMV-Directive")
Directive 2014/35/EU ("Low voltage directive")
Directive 2014/34/EU ("ATEX-Directive") for correspondingly marked devices

The corresponding separate EC Declarations of Conformity are valid.

Vienna,
(location)

den **14.12.2016**
(date)



.....
(Klaus Schiebel, general manager)

10 Declaration of Conformity (EMV- and Low voltage-directive)

The producer:

SCHIEBEL Antriebstechnik Gesellschaft m.b.H.
Josef-Benc-Gasse 4
A-1230 Wien

herewith confirms, that the equipment

electric actuators with control unit and following types

(r)AB ... CSC

meets the requirement of the EC-directive:

2014/30/EU („EMV-directive“)

in consideration of the respective operating instructions, and the fulfilment of the Directive has been demonstrated by the following standards:

EN 61000-6-2:2005

EN 61000-6-3:2007-01 + A1:2011-03

and are also consistent with the EC-directive:

2014/35/EU („Low-voltage-directive“)

in consideration of the respective operating instructions, and the fulfilment of the Directive has been demonstrated by the following standards:

IEC 60204-1:2005 + A1:2008 EN 60529:1991 + A1:2000

Vienna,
(location)

14.12.2016
(date)



.....
(Klaus Schiebel, general manager)

11 Declaration of Conformity (Ex-, EMV- and Low voltage-directive)

The producer:

SCHIEBEL Antriebstechnik Gesellschaft m.b.H.
Josef-Benc-Gasse 4
A-1230 Wien

herewith confirms, that the equipment

Description	Type	Marking	Certificate-No.
Electric Actuator	ex (r) AB	⊕II2G Ex db eb II C T4(T6) Gb	FTZU03ATEX0328X
Control Unit	CSCex	⊕II2G Ex db eb II C T4(T6) Gb	TÜV-A04ATEX0009X
Control Unit	CSCexFU	⊕II2G Ex db eb II B T4(T6)	TÜV-A08ATEX0006
Flameproof Induction Motor	D(.)()FU Y63/..-	⊕II2G Ex db II C T4 Gb	FTZU03ATEX0330X
Flameproof Induction Motor	D(.)()FU Y80/..-	⊕II2G Ex db II C T4 Gb	FTZU03ATEX0333X
Flameproof Induction Motor	ex DKF .. .X. ..	⊕II2G Ex db II C T4 Gb	TÜV-A03ATEX0016X
Microswitch	d 515U	⊕II2G Ex db II C Gb	FTZU03ATEX0332U
Flameproof Potentiometer	dP1 / dP2	⊕II2G Ex db II C Gb	FTZU03ATEX0387U
Flameproof capacitor	dK .	⊕II2G Ex db II B Gb	FTZU07ATEX0009U

meets the requirement of the EC-directive:

2014/34/EU

EC-Directive for Operation of Equipment in Potentially Explosive Atmospheres

and complies with the following harmonised standards in the version valid at signature date:

EN60079-0:2014	Electrical apparatus for explosive gas atmospheres – General requirements
EN60079-1:2014	Electrical apparatus for explosive gas atmospheres – Flameproof enclosures "d"
EN60079-7:2016	Electrical apparatus for explosive gas atmospheres – Increased safety "e"
EN60079-11:2012	Electrical apparatus for explosive gas atmospheres – Intrinsic safety "i"

Following notified bodies certificate the conform design of the equipment:

FTZU	CZ-716 07 Ostrava Radvanice	NB 1026: Quality system FTZU03ATEXQ019, Type examination certificates
TÜV Austria Services GMBH	A-1230 Wien	NB 0408: Type examination certificates

Furthermore they consistent with the EC-directive:

2014/30/EU („EMV-directive“)

in consideration of the respective operating instructions, and the fulfilment of the Directive has been demonstrated by the following standards:

EN 61000-6-2:2005 EN 61000-6-3:2007-01 + A1:2011-03

and are also consistent with the EC-directive:

2014/35/EU („Low-voltage-directive“)

in consideration of the respective operating instructions, and the fulfilment of the Directive has been demonstrated by the following standards:

IEC 60204-1:2005 + A1:2008 EN 60529:1991 + A1:2000

Vienna,
(location)

25.03.2019
(date)



.....
(Klaus Schiebel, general manager)

SCHIEBEL
www.schiebel-actuators.com

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