



Assembly, operating and maintenance instructions

JASTA-pneumatic drives
JA032-JA160, JA190NPT-JA400NPT

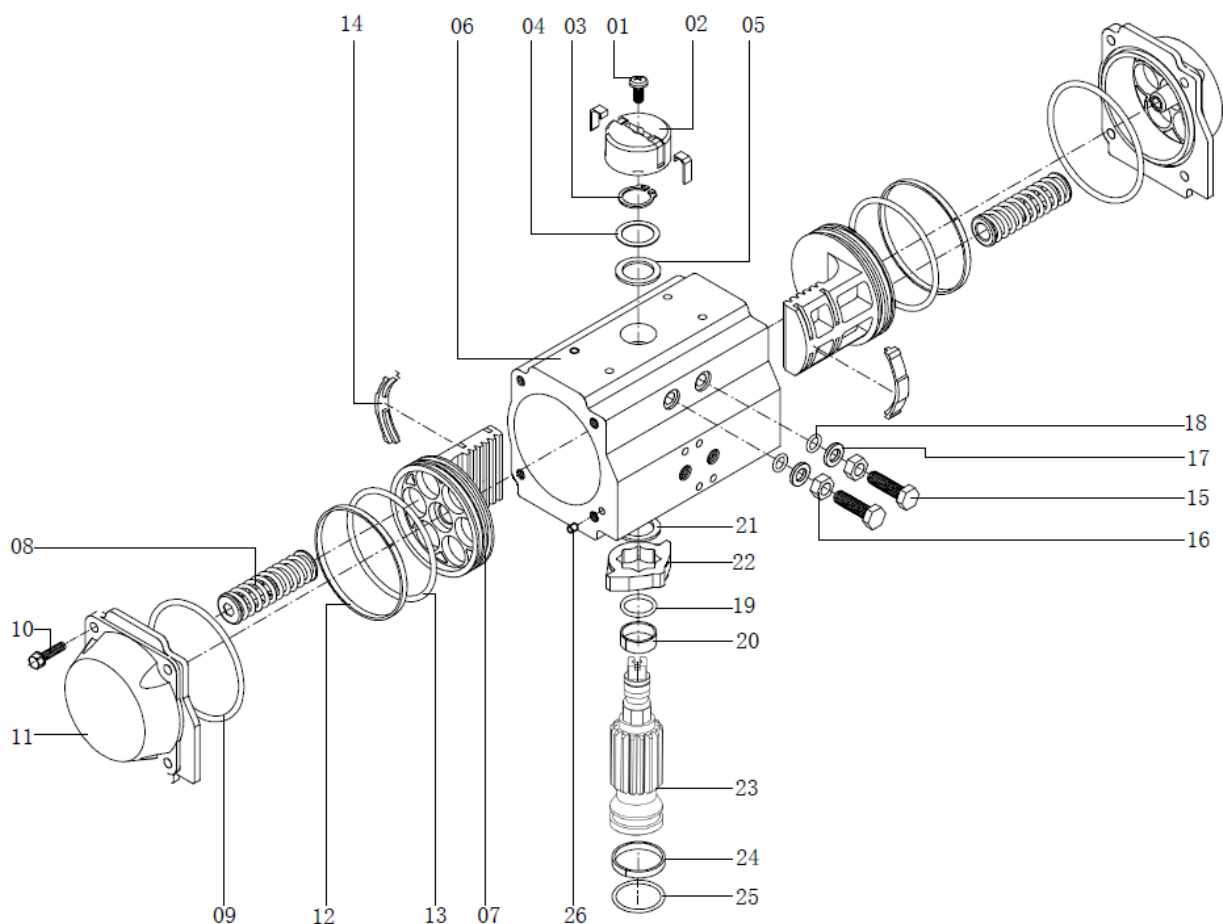
JASTA



*Throttle and control valves for industrial ventilation systems
for all temperature and pressure ranges*

A. Overview drawing

Part	Unit/Quantity	Description
01	1	Screw plug
02	1	Position indicator
03	1	Spring clamp
04	1	Thrust washer
05	1	Thrust bearing
06	1	Housing
07	2	Piston
08	0-12	Spring
09	2	"O" ring (end closure)
10	8	Screw plug (end closure)
11	2	End cap
12	2	Bearing (piston crown)
13	2	"O" ring (pinion)
14	2	Wear band
15	2	Stop screw
16	2	Nut (stop screw)
17	2	Washer (stop screw)
18	2	"O" ring (stop screw)
19	1	"O" ring (pinion top)
20	1	Bearing (piston top)
21	1	Thrust bearing (pinion top)
22	1	OCTI-CAM
23	1	Drive shaft
24	1	Bearing (pinion bottom)
25	1	"O" ring (pinion underside)
26	2	Plug



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1. General Instructions

These instructions contain important information on the assembly, operation, maintenance and storage of JA pneumatic actuators. Please read these instructions carefully and keep them for future reference. It is important that the actuator is mounted, operated and disassembled by properly trained personnel only.

2. Warning



Do not operate the actuator with flammable, oxidizing, corrosive, explosive and unstable gases or liquids. For actuators mounted in potentially explosive atmospheres, ensure that the internal parts of the actuator cannot come into contact with the outside atmosphere.

- It is important that the actuator is only operated within the pressure limits given in our technical specifications.
- Operating the actuator beyond the pressure limits will damage the internal parts and cause damage to the housing.
- Operating the actuator above the temperature limits will damage the internal components (disassembly of the spring return actuator may become dangerous).
- Operating the drive in a corrosive environment with inadequate protection can damage the internal and external parts.
- Do not disassemble the individual spring cartridges. Disassembly may result in injury. For additional information, please contact JASTA.
- Disconnect all compressed air lines and ensure that the actuator is not pressurized during disassembly.
- While the actuator is pressurized, do not remove the end caps or disassemble the actuator.
- Before mounting on a valve, make sure that the valve and the actuator have the same direction of rotation and that the orientation of the position indicator is also correct.
- If the actuator is integrated into a system or used within safety equipment or circuits, the customer must ensure that the national and local safety regulations are observed.

3. Working conditions and technical data

- Operating fluids: Dry or lubricated air or inert/non-corrosive gases, provided they are compatible with the internal parts of the drive and the lubricant. The operating fluids must have a dew point of -20°C or at least 10°C below ambient temperature. The max. particle size must not exceed 30 µm.
- Supply pressure: In general, the supply pressure for double-acting as well as spring return actuators is: from a min. of 2.5 bar to a max. of 8 bar.
- Operating temperature: Standard product from -15°C to +80°C. The LT low temperature actuator with silicone O-rings from -40°C to +80°C. The HT high temperature actuator with FPM O-rings from -15°C to +150°C.



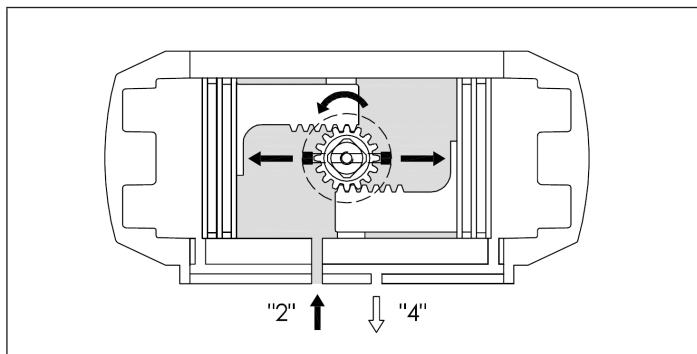
Caution: Special grease is required for low and high operating temperatures. Please contact JASTA for each of these applications. High and low temperatures will cause variations in the output torque of the drive.

- Stroke: The stroke of JA actuators is as follows (see technical data): Standard design: 90° rotation with stroke adjustment at 0° and 90°±5°.
- Lubrication: The actuators are factory lubricated for the life of the actuator under normal operating conditions. The standard lubricant is suitable for operation from -15°C to +80°C.
- For low (LT) and high (HT) operating temperatures requiring special lubricants, please contact JASTA.
- Assembly of the valve: pneumatic actuators can be connected directly to the valve, but the valve can also be connected via a bracket and the manual mechanism can be mounted between the valve and the pneumatic actuator. The bottom of the actuator has standard threaded holes for mounting according to ISO5211, two standard dimensions are available. The adjusting screw must be tightened to prevent loosening. The bottom end of the actuator shaft has two square openings for the valve shaft side in both directions. The connection gap should be as small as possible to increase sensitivity and reduce hysteresis.
- The air supply port of the pneumatic actuator has a threaded opening with 3 standard sizes: 1 / 8 „NPT, 1/ 4 „NPT, 1/ 2 „NPT, detailed specifications can be found in the relevant information sections of the technical manuals.
- Ensure good ventilation.
- Determine if the direction of rotation of the drive shaft is clockwise or counterclockwise. Under normal circumstances, the valve should be closed clockwise, and the valve should be opened counterclockwise.
- Pneumatic Actuator Adjustment: Each pneumatic actuator is normally accurately adjusted at the factory and undergoes rigorous pressure and performance testing; user adjustment and testing is not required. If adjustment of the open or closed position is required in conjunction with the valve, two adjustment screws are provided at the top of the cylinder for this purpose, allowing the 0° and 90° positions to be adjusted to ±4°.

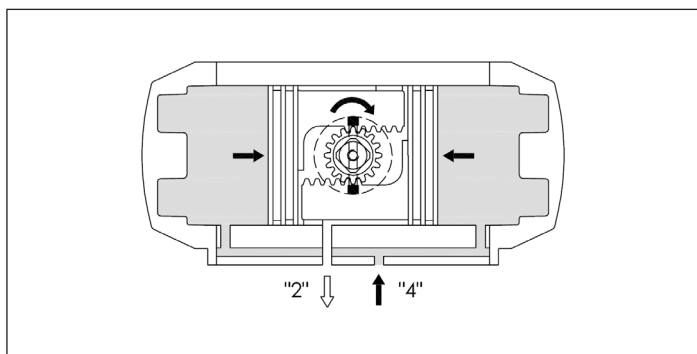
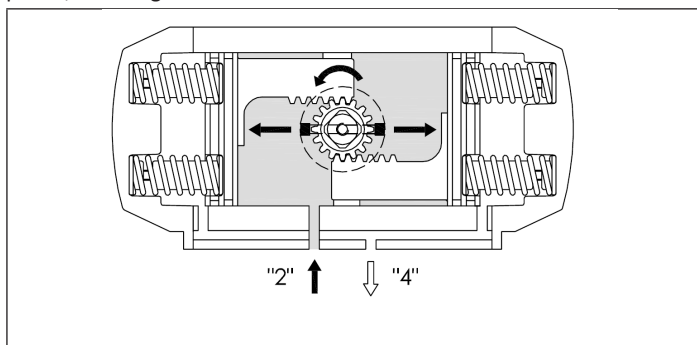
4. Operating function and direction of rotation

The JA actuator is a pneumatic device for remote control of industrial valves.

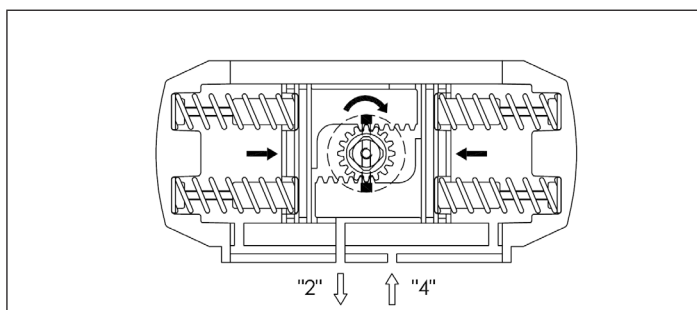
The direction of rotation of the „D“ type actuator is clockwise for closing, a counterclockwise rotation is achieved by pressurizing port 2. The direction of rotation of type „S“ is clockwise for closing, a counterclockwise rotation is achieved by pressurizing port 2.



The supply air on port 2 drives the pistons apart and towards the end position, compressing the spring (see below). Exhaust air flows out of port 4, resulting in counterclockwise rotation.



The supply air on port 4 drives the pistons together and towards the center position, relaxing the spring (see below). Exhaust air flows out of port 2, resulting in clockwise rotation.



In the event of a pressure loss (power failure or hydraulic damage), the compressed air escapes from the system and the springs push the pistons together. This results in counterclockwise rotation and the valve falls back to its original position.

5. Mounting instructions for the drive



Carefully read all the necessary information for correct and safe mounting of the actuator on a valve, i.e. model/type, ENISO 5211, max. operating pressure, torque at 5.5 bar, operating temperature and pressure connection, before starting to mount the actuator.

5.1 Important safety note



The actuator must never be pressurized during installation, otherwise there is a risk of injury.

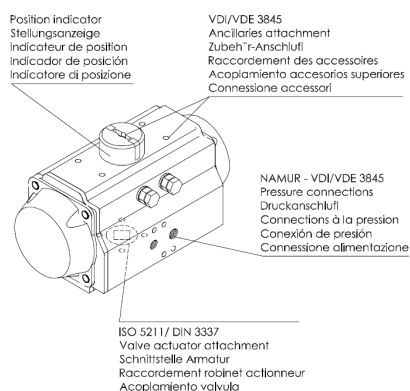


Während des Anschlusses der Luftzufuhr an den Antrieb ist äußerste Sauberkeit erforderlich, d. h. das Gewinde des Verbindungsrohrs, die Anschlüsse und Dichtungen müssen frei von Verunreinigungen sein.

Mount the accessories on the drive so that the top of the drive shaft is easily accessible in case manual operation of the drive is required.

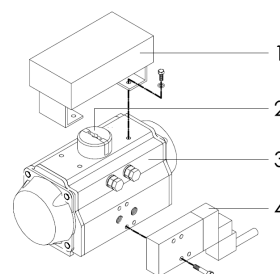
5.2 Control and connections

Fig. A



5.3 Mounting accessories: solenoid valves and switch boxes

Fig. B

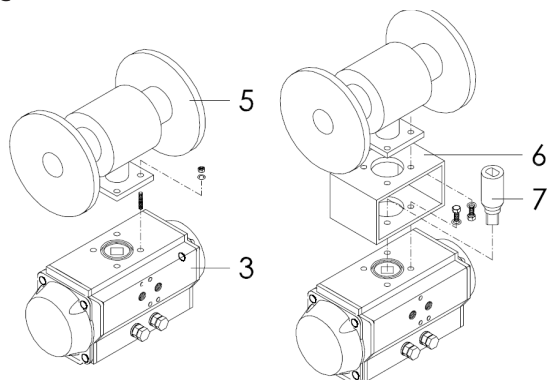


- Installing the solenoid valves: Before installing a solenoid valve, make sure that the actuator is in the normal position (closed position) with the pistons facing each other:
- Place the solenoid valve 4 on the actuator 3 using the enclosed screws (max. tightening torque see table Tightening torque on p. 04).

5.4 Assembly of the fitting

Before starting to mount a valve onto the actuator, make sure that the actuator has the desired direction of rotation and that both actuator and valve are correctly aligned (see Fig. C):

Fig. C



Important: When using a spring return actuator for fail-safe operation, ensure that the direction of rotation is correct for your application in the event of a failure of the compressed air or power supply.

Place the fitting 5 on the actuator 3. Make sure that the actuator is in normal position (closed position).

There are two ways to mount the fittings on the actuator:

- **Direct mounting:** Place the square of the fitting 5 directly on the square of the actuator 3 and screw it through the ISO pad of the fitting (see table below for max. tightening torque).
- **Mounting with bracket:** Mounting with bracket 6 and coupling 7, the bracket is screwed to the actuator/valve to join them together and the coupling is used to connect the actuator shaft to the stem (see tightening torque table below for max. tightening torque).

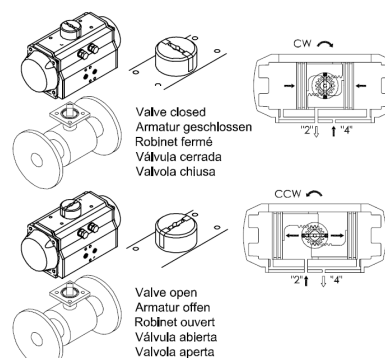
Table tightening torque

M...	Nm
M5	5-6
M6	10-11
M8	23-25
M10	48-52
M12	82-86
M14	132-138
M16	200-210
M20	390-410
M24	675-705
M30	1340-1400

5.5 Alternative mounting options

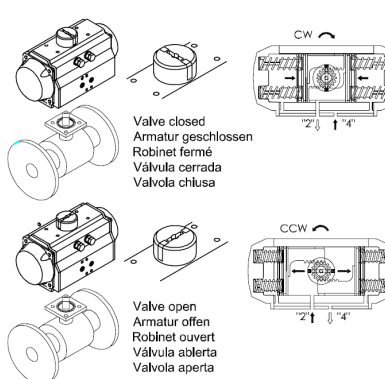
Mounting the fitting with a JASTA type D (clockwise closing), see Fig. D:

Fig. D



Mounting the fitting with JASTA type S (clockwise closing), see figure E:

Fig. E

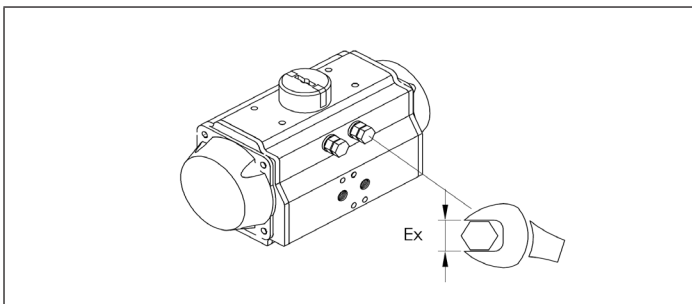


6. Maintenance manual

The information below provides you with all the information required for maintenance by JASTA. Under normal operating conditions, the drive only requires periodic monitoring to ensure proper adjustment. Modification of the JASTA drives is only permitted to JASTA employees or appropriately trained personnel. Failure to do so will void the warranty!

Spare parts sets for maintenance are available for the replacement of seals and bearings (for soft components see table below). This may be required between 300,000 and 1,000,000 cycles depending on operating and/or environmental conditions and drive size.

Size EX depending on actuator size	
Model	EX mm
JA032	8
JA050	10
JA065	10
JA075	13
JA085	13
JA095	16
JA110	16
JA125	18
JA140	18
JA160	21
JA190	21
JA210	24
JA240	30
JA270	30
JA300	36
JA350	46
JA400	55

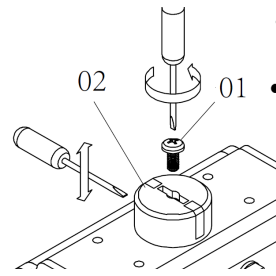


6.1 Disassembly

An overview drawing of all named parts of the actuator can be found in section A on page 02.

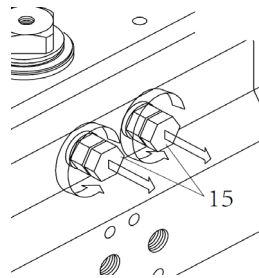
- When disassembling the actuator for maintenance purposes, first detach the actuator from the valve.
- Before starting disassembly, make sure that the actuator is not under pressure.
- Always work carefully and check that ports 2 and 4 are vented and free of accessories and/or other devices. If the actuator is a spring return device, make sure that the actuator is in the fail-safe position before disassembly.

A) Removing the position indicator (02)



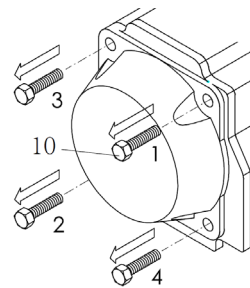
- Remove the screw plug (01), if present.
- Pull the position indicator (02) off the shaft, it may be necessary to pry it open slightly with a screwdriver.

B) Removing the stop screw (15)



- Remove both stop plugs (15) as well as nut (16) and washer (17).
- Remove the O-rings of the stop screw (18) and dispose of them if you replace all soft components.

C) Disassembly of the closing caps (11)



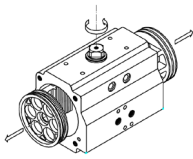
- Remove the screw plug (screw plug 10) in the sequence shown in Figure 03. Caution: when disassembling a spring return actuator, the closing cap should be loose after about four to five turns of the closing cap screws (10).



If, after four to five turns of the screw plugs, tension can still be felt on the screw plugs, this may indicate damage to a spring cartridge. In this case, the disassembly must be aborted. Further disassembly of the sealing cap can lead to injuries. Send the actuator to JASTA for maintenance.

- Always remove the spring cartridge from spring return actuators.
- Remove the O-rings of the sealing cap (09) and dispose of them when all soft components are replaced.

D) Disassembly of the pistons (07)



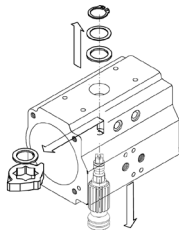
- Holding the housing (06) with the help of a vice or similar, turn the drive shaft (23) until the pistons (07) release.



Caution: Never use compressed air to release the pistons from the housing.

- Using a small screwdriver, remove the „O“ rings (13) of the piston. Remove the bearings of the rear part of the piston (14) and the piston crown (15). Discard the bearings when they replace all soft components.

E) Disassembly of the pinion shaft (23)



Carefully remove the spring clamp (03) using circlip pliers and then remove the thrust bearing (05) and thrust washer (04). Push the upper part of the drive shaft (23) downwards until it partially protrudes from the bottom part of the housing and it is possible to remove the Octi-Cam (22) and the inner thrust bearing (05). Then push the pinion (23) completely out of the lower part of the housing. If the pinion cannot be removed, gently tap the upper part of the shaft with a plastic hammer.

- Remove the upper and lower pinion bearings (20) and (24) and the upper and lower O-ring (25) and (19).
- Discard the bearings (20) and (24), the inner and outer thrust washers (05), and the O-rings (25) and (19) when replacing all soft components. Once all components are disassembled, the parts that are not replaced should be carefully cleaned and inspected for signs of wear before being greased and reassembled.

6.2 Assembly



The actuator must never be pressurized during installation, otherwise there is a risk of injury.



Do not operate the actuator with flammable, oxidizing, corrosive, explosive and unstable gases or liquids. For actuators mounted in potentially explosive atmospheres, ensure that the internal parts of the actuator cannot come into contact with the outside atmosphere.

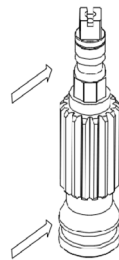


Before assembly, make sure that all components are completely clean and free of damage. Recommended lubricants can be found in section 3.



Caution: Special grease is required for low and high operating temperatures. Please contact JASTA for each of these applications. High and low temperatures will cause variations in the output torque of the drive.

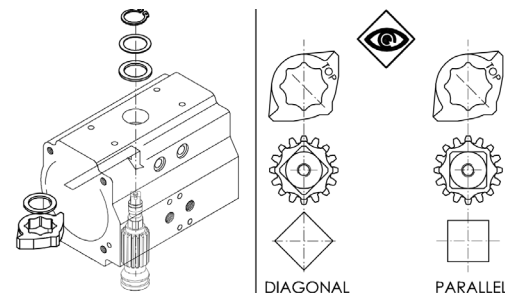
A) Mounting the drive shaft (23)



Install the upper and lower pinion bearings (20) and (24) and the upper and lower O-ring (25) and (19) on the shaft.

- Grease the outer surface of the drive shaft at the top and bottom as shown in Figure 06.
- Partially insert the drive shaft (23) into the housing (26), install the Octi-Cam (22) in the correct position with respect to the drive shaft and the rotation of the drive

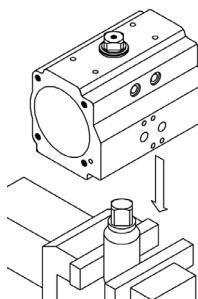
when energized, as shown in Figure 07, and install the inner thrust bearing (05). Then insert the drive shaft fully into the housing.



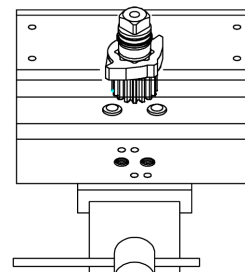
- Using circlip pliers, insert the outer thrust bearing (05), the thrust washer (04), and then the outer spring clamp (03).

B) Assembly of the pistons (07)

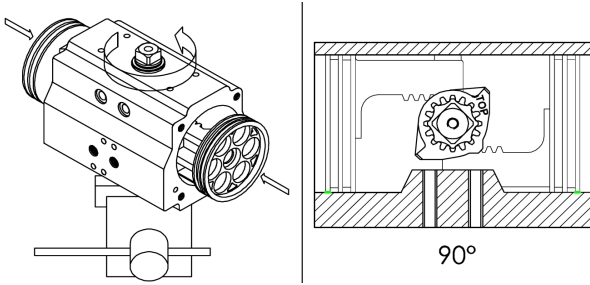
- Install the piston O-rings (13), piston skirt (14), and piston crown bearings (12).
- Grease the inner surface of the housing (06) and the teeth of the piston rod (07).



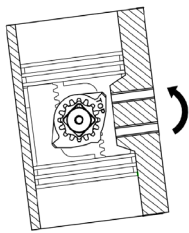
Hold the housing (06) in horizontal positions by fixing the upper part of the shaft in a vice or inserting the lower part of the shaft connection into a connector in a vice, as shown in Figure 08.



- Make sure that the Octi-Cam is in the correct position as shown in Figure 09.
- For mounting with standard rotation (clockwise to close), rotate the housing (06) approximately 0-90° counterclockwise as seen from below or clockwise as seen from above, depending on the direction in which the shaft is connected, as shown in Figure 10.



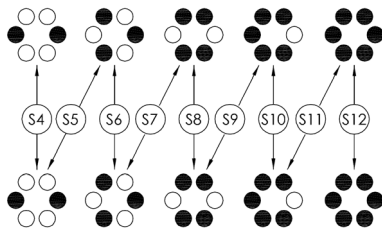
- Push the two pistons (07) simultaneously into the housing (06) until the pistons engage and turn the housing clockwise as seen from below or counterclockwise as seen from above until the stroke is completed.



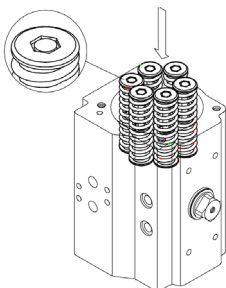
- Make sure that both pistons grip simultaneously during insertion. Check the fully closed and open position as shown in Figure 11.

C) Mounting the end cap (11) and the spring cartridge (08)

Abb. 12

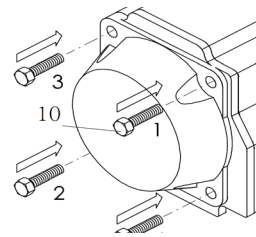


- Grease the housing.



- Bei Federrücklaufantrieben setzen For spring return actuators, insert the correct number of spring cartridges according to the pattern shown in figure 12 (pay attention to the total number of springs). Insert the spring cartridges (08) as shown in Figure 13.

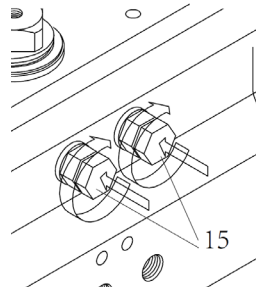
- Insert the end cap O-ring seal (09) into the groove on the end cap in both end caps.



- Place the end caps on the housing (06), making sure that the O-ring remains in the groove.
- Insert all screw plugs (10) and tighten them slightly. To tighten them completely, follow the sequence shown in Figure 14.

D) Mounting the stop plugs (15) and stroke adjustment

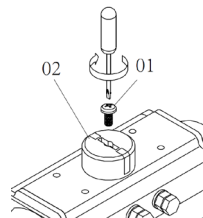
- Place the nut (16), the washer (17) and the O-ring (18) on both stop plugs (15).



- Then insert the stop screw (15) into the housing. Stroke adjustment for the actuator with standard rotation (clockwise to close).
- For stroke setting 0° (locked) with actuator in locked position, screw in or unscrew the right (seen from above) stop screw (15) until the desired stop position is reached. Then tighten the stop adjusting nut (16) until it engages.

- For stroke adjustment in 90° (open) position with actuator in open position, screw in or unscrew the left (seen from above) stop screw (15) until the desired stop position is reached. Then tighten the stop adjusting nut (16) until it engages.

E) Mounting the position indicator (02 and 01)



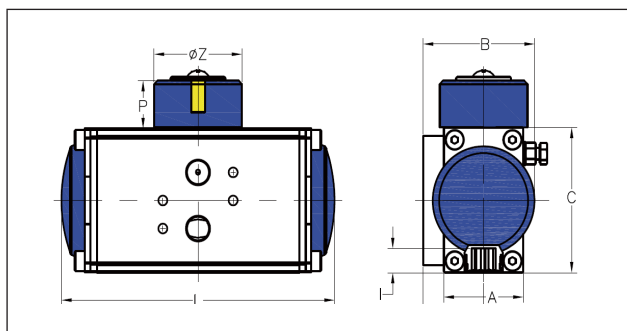
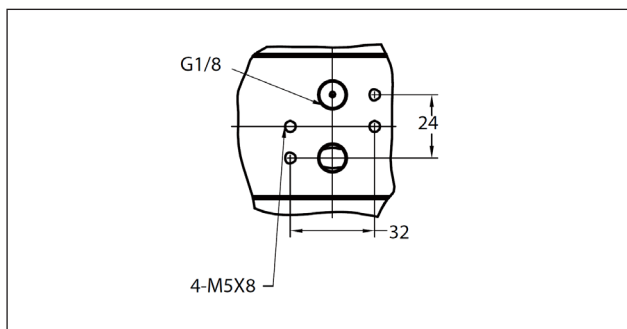
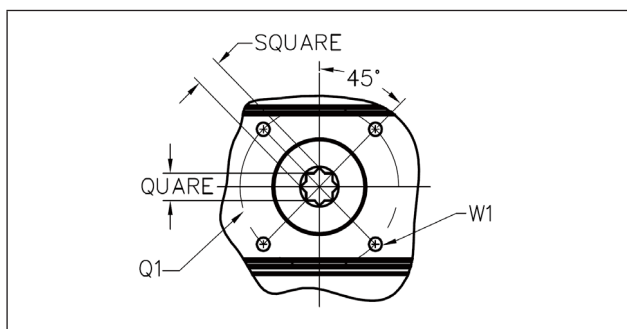
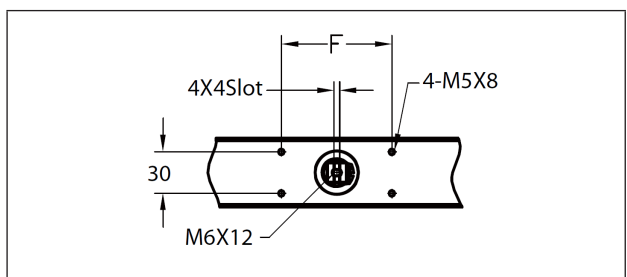
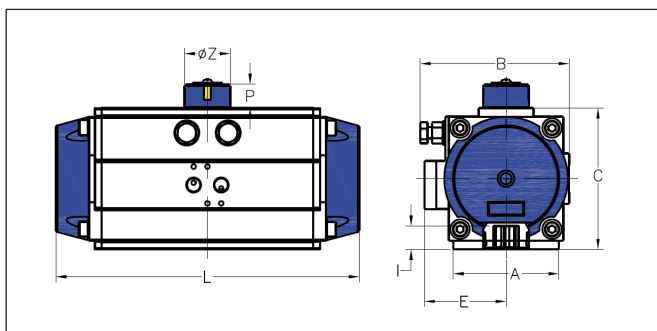
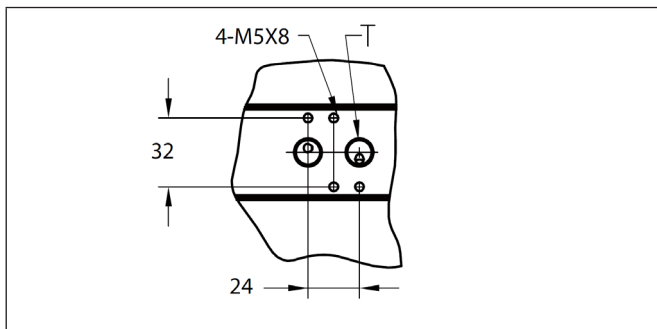
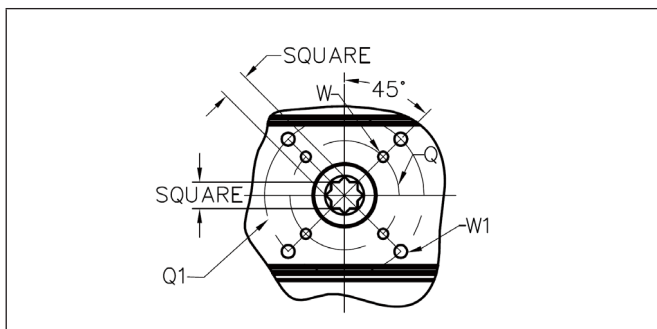
- Place the position indicator (02) on the shaft and make sure that it indicates the correct drive position.
- Then put on the screw plug (01).

7. Storage instructions

If the drives are not used immediately, the following storage precautions must be observed:



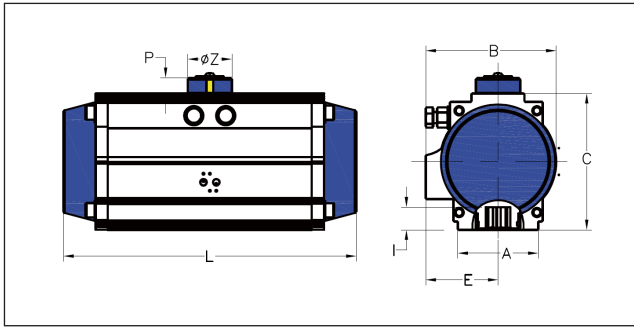
- Store in a dry environment at room temperature.
- It is recommended to store the drive in its original packaging.
- Do not remove the plastic plugs on the air supply ports.

JASTA pneumatic actuator size chart: JA032-JA160
JA032

JA032 Side view

JA032 Bottom view

JA032-JA160 Top view

JA050-JA160

JA050-JA160 Side view

JA050-JA160 Bottom view


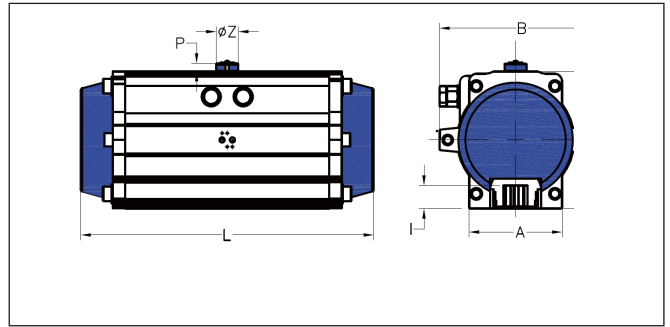
Model	A	B	C	E	F	P	ϕZ	L	I	Flange	Q	Q1	W	W1	cm2	T
	cm	cm	cm	cm	cm	cm	cm	cm	cm	ISO 5211	cm	cm	UNC	UNC		cm
JA032	3,71	4,70	5,00	2,69	5,00	2,00	3,99		1,00	F03	—	3,61	—	#10-24UNC x 0,35	1,01 x 1,01	0,32 cm NPT
JA050	4,50	7,06	7,01	4,14	8,00	2,00	3,99		1,19	F03/05	3,61	5,00	#10-24UNC x 0,29	0,64 cm-20UNC x 0,35	1,01 x 1,01	0,64 cm NPT
JA065	6,20	8,94	8,89	5,16	8,00	2,00	3,99		1,60	F03/07	5,00	7,01	0,64 cm-20UNC x 0,35	0,79 cm-18UNC x 0,47	1,52 x 1,52	0,64 cm NPT
JA075	6,81			5,89	8,00	2,00	3,99		1,60	F03/07	5,00	7,01	0,64 cm-20UNC x 0,35	0,79 cm-18UNC x 0,47	1,52 x 1,52	0,64 cm NPT
JA085	6,81			2,50	8,00	2,00	3,99		1,91	F03/07	5,00	7,01	0,64 cm-20UNC x 0,35	0,79 cm-18UNC x 0,47	1,78 x 1,78	0,64 cm NPT
JA095	9,19			7,11	8,00	2,00	3,99		1,91	F03/07	7,01		0,79 cm-18UNC x 0,35	0,79 cm-18UNC x 0,47	1,78 x 1,78	0,64 cm NPT
JA110	9,30			7,65	8,00	2,00	3,99		1,91	F03/10	7,01		0,79 cm-18UNC x 0,47	0,95 cm-16UNC x 0,59	1,78 x 1,78	0,64 cm NPT
JA125	9,60			8,51	8,00	3,00	5,59		2,49	F03/10	7,01		0,79 cm-18UNC x 0,47	0,95 cm-16UNC x 0,59	2,29 x 2,29	0,64 cm NPT
JA140				9,70	8,00	3,00	5,59		3,10	F03/12			0,95 cm-16UNC x 0,59	1,27 cm-13UNC x 0,71	2,79 x 2,79	0,64 cm NPT
JA160						3,00	5,59		3,10	F03/12			0,95 cm-16UNC x 0,59	1,27 cm-13UNC x 0,71	2,79 x 2,79	0,64 cm NPT

JASTA pneumatic actuator size chart: JA190 NPT-JA400 NPT

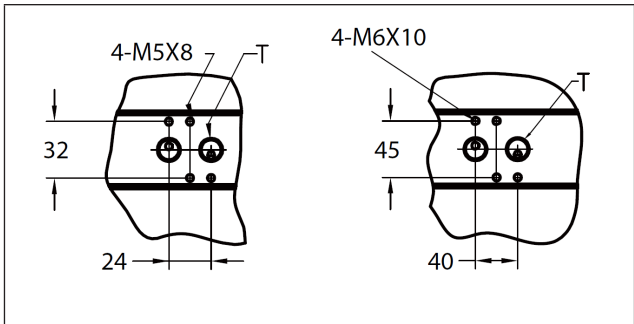
JA190-350



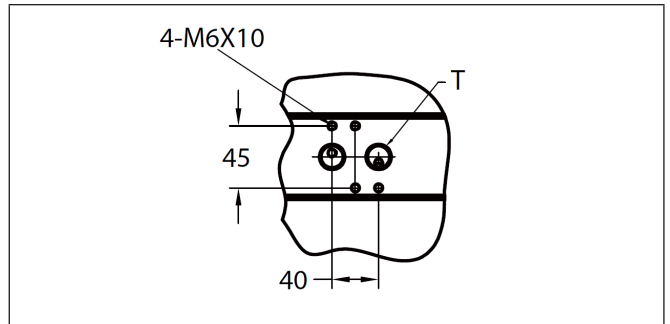
JA400



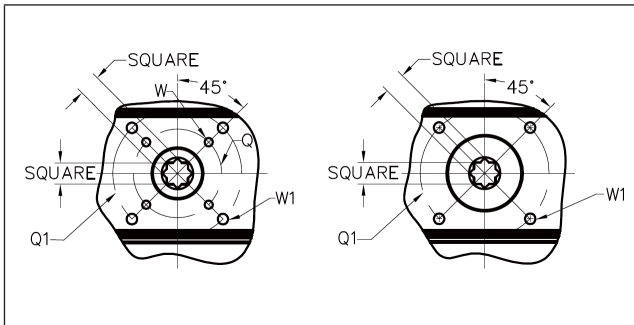
JA190-JA210 / JA240-JA350 Side view



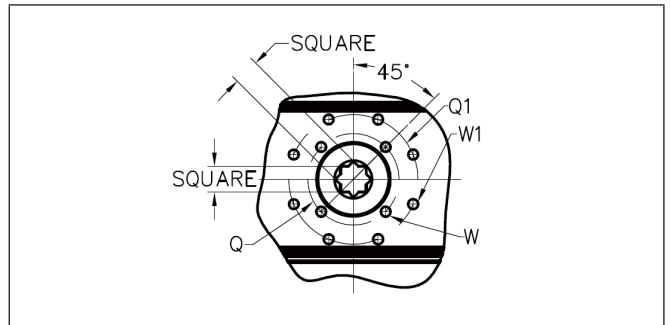
JA400 Side view



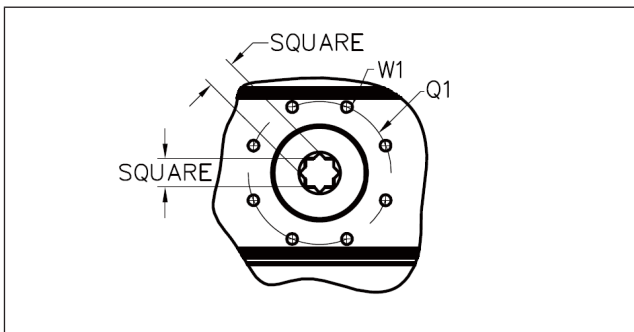
JA210-JA300 Bottom view



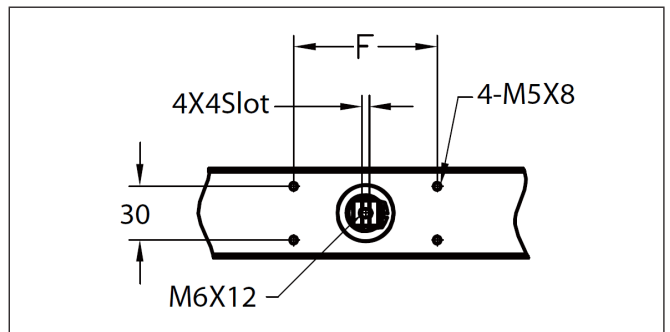
JA350 Bottom view



JA400 Bottom view



JA190-JA400 Top view



Model	A	B	C	E	F	P	ØZ	L	I	Flange	Q	Q1	W	W1	cm2	T
	cm	cm	cm	cm	cm	cm	cm	cm	cm	ISO 5211	cm	cm	UNC	UNC		cm
JA190 NPT						3,00	5,59		4,09	F10/14			4-0,95 cm-16UNC x 0,59	4-1,59 cm-11UNC x 0,94	3,56 x 3,56	0,64 cm NPT
JA210 NPT						3,00	8,00		3,99	F14	-		-	4-1,59 cm-11 UNC x 0,94	3,56 x 3,56	0,64 cm NPT
JA240 NPT						3,00	8,00		5,00	F16	-		-	4-1,91 cm-10UNC x 1,10	4,57 x 4,57	1,27 cm NPT
JA270 NPT						3,00	8,00		5,00	F16	-		-	4-1,91 cm-10 UNC x 1,10	4,57 x 4,57	1,27 cm NPT
JA300 NPT						3,00	8,00		5,00	F16	-		-	4-1,91 cm-10 UNC x 1,10	4,57 x 4,57	1,27 cm NPT
JA350 NPT						3,00	8,00		5,00	F16/25			4-1,91 cm-10UNC x 1,10	8-1,59 cm-11UNC x 1,19	4,57 x 4,57	1,27 cm NPT
JA400 NPT						3,00	8,00		5,99	F25	-		-	8-1,59 cm-11 UNC x 1,19	5,59 x 5,59	1,27 cm NPT