

Masoneilan

a Baker Hughes business

Type 4200P

Pneumatic Positioner

Instruction Manual (Rev. B)



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Safety Information

Important! Read before installation

These instructions contain the labels "DANGER!", "WARNING!" and "CAUTION!" in certain places to inform you about safety precautions or indicate other important information. Please read the instructions carefully before installing and maintaining the control valve. Hazardous factors marked with the labels "DANGER!" And "WARNING!" are associated with the possibility of injury to personnel. Hazardous factors marked with the label "CAUTION!" are associated with the possibility of damage to equipment or property. Operation of **damaged equipment under certain operating conditions may result in reduced performance of the process system, which may result in injury or death of personnel.** To ensure safety at work, **full compliance with all warning signs "DANGER!", "WARNING!" and "CAUTION!"** is compulsory.



This symbol indicates a danger warning. It alerts you to potential injury hazards. Observe all safety instructions after this symbol to avoid possible injury or death.



Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.



Indicates a potentially hazardous situation which, if not avoided, could result in serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



When used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, may result in property damage.

Note. Indicates important facts and conditions.

About this manual

- The information contained in this manual is subject to change without notice.
- The information contained in this manual may not be reproduced or copied, in whole or in part, without the written permission of Baker Hughes.
- Please report any errors or questions regarding the information contained in this manual to your local supplier.
- This manual has been written specifically for **Masoneilan™** Type 4200P pneumatic valve positioner and is not valid for other product not included in this product line.

Service life

The 4900P valves have an expected service life of over 25 years. To maximize the life of the product, it is essential to perform annual inspection, routine maintenance and ensure proper installation to avoid any unexpected stress on the product. Specific operating conditions also affect the service life of the product. If necessary, consult with a factory representative before beginning installation and obtain recommendations for special applications.

Guarantee

Products sold by Baker Hughes are warranted to be free from defects in materials and workmanship for one year from the date of shipment when used in accordance with Baker Hughes' recommended application methods. Baker Hughes reserves the right to discontinue production of any product or to change the materials, design or specifications of a product without notice.

Note: Prior to installation

- The valve must be installed, commissioned and maintained by suitably trained and qualified personnel.
- All adjacent piping must be thoroughly flushed to remove any foreign material that has entered the system.
- Under certain operating conditions, use of damaged equipment may cause reduced system performance, which could result in injury or death.
- If changes are made to the specifications, design and components, this manual may remain unchanged unless such changes affect the functionality and performance of the product.

Storage

CAUTION

- Store the product in a place protected from rainwater.
- Storage in places with slight vibration or impact is permitted.
- Store the equipment in places with normal temperature and humidity (i.e. approximately 23°C and 65%).
- When re-storing a previously used product, use a plug on the air connection hole to prevent foreign objects from entering.

Installation

CAUTION

- **Do not remove the plug attached to the connection socket until installation.**
Foreign objects may get inside, which may cause malfunction.
- **Set the instrument air so that it flows in the direction of the arrow displayed on the device.**
Installation in the opposite direction may cause malfunction.

Air source

CAUTION

- **Please use clean air.**
Do not use compressed air if it contains chemicals, organic solvent-based synthetic oil, corrosive gas, etc., as this may cause destruction or malfunction.
- **If the air contains a lot of moisture, use a dehumidifier or aftercooler.**
This may cause failure of pneumatically driven equipment.

Air duct

CAUTION

- **When laying pipes, thoroughly flush the pipeline from the inside to remove shavings and foreign objects.**
- **The air duct diameter must be sufficient to operate the equipment.**
- **For air duct connections, leave 1 to 1.5 inches of overhang at the end of the connection and apply Loctite 577 or similar. Do not use sealing tape.**
A piece of tape getting stuck may cause a malfunction.

Maintenance

DANGER

- **Isolate the valve from the control system when performing maintenance.**
- **Ensure that valves, actuators and devices do not operate unexpectedly.**
- **Gradually release air pressure in all working lines and remove working lines after they have been completely released.**
Sudden activation may result in an accident resulting in injury or death.

CAUTION

- **Please only use genuine Masoneilan spare parts,** otherwise malfunctions and/or leakage of the medium are possible.

1. Features

- Lightweight and compact design
- Built-in four-sided solid cam (linear cam)
- Multifunctional pilot relay
- Unique range adjustment mechanism
- Adjustment in the range of 1/2 division is possible without replacing the spring

- Durable cast aluminum cover
- Input chamber/pilot as single piece construction
- Direct/reverse action and left/right installation
- Pilot valve for air saving
- Wide range of set temperatures

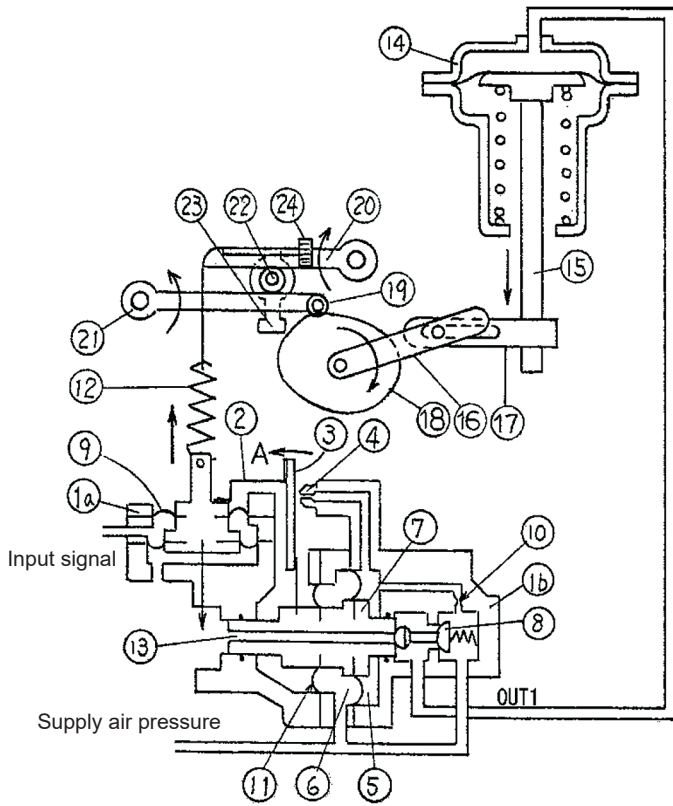
2. Technical specifications

Table 2.1 Specification

Technical specifications	Standard version	Option	Technical specifications	Performance	
				Single-action positioners	Dual-action positioners
Action type	Normal mode	Reverse mode	Linearity (%)	±1.5%	±2.0%
Input signal	20 – 100 kPa 20 – 60 kPa 60 – 100 kPa	-	Hysteresis (%)	1.0%	1.0%
Incoming air pressure	130 - 700 kPa	-	Repeatability (%)	0.3%	0.5%
Movement (stroke)	12 - 50 mm	40 - 100 mm	Sensitivity (%)	0.2%	0.5%
Air connection	Rc1/4 (pressure gauge NPT1/8)	NPT1/4 (pressure gauge NPT1/8)	Influence of supply pressure (%/kPa)	0.2 / 10	0.3 / 10
Ambient temperature	-20°C to +83°C	For low temperature execution (L): -50°C to +60°C	Influence of the degree of orientation 10° / 90° (%)	0.2 / 4.0	
Material	Frame / cover: Cast aluminum (alumite treatment)		Air flow	5 l/min (norm) at supply air pressure 140 kPa (at 50% outlet pressure)	10 l/min (norm) at supply air pressure 400 kPa (at 75% outlet pressure (in balance))
Rotation	50°, 75°, 36°				
Weight	approx. 1.1 kg				
Pressure gauge (only for inlet and outlet)	0 - 200 kPa 0 - 400 kPa	0 - 1000 kPa unit psi, MPa, bar	Maximum throughput	60 l/min (norm) (at supply air pressure 140 kPa)	140 l/min (norm) (under supply air pressure 400 kPa)
Cam	Linear	EQ%			
			Vibration resistance	1%/ 1G (10 - 200 Hz)	

3. Operating principle

3.1 Single-action positioners



1a	Input chamber / Pilot relay
2	Return plate spring
3	Damper
4	Nozzle
5	Nozzle backpressure chamber
6	Pressure chamber
7	Relay coil
8	Pilot plug
9	Diaphragm
10	Hole
11	Diaphragm
12	Feedback spring
13	Discharge port
14	Drive
15	Drive rod
16	Lever A
17	Lever B
18	Cam
19	Bearing
20	Zero lever
21	Range lever
22	Roller shaft
23	Range regulator
24	Zero adjustment knob

Figure 3.1: Operating principle - single-action positioners

Normal operation (output pressure increases as signal pressure increases) --- standard version

When an input signal is applied to the input chamber (1a), the damper (3) rotates in the direction of arrow A around the return plate spring (2).

As a result of the movement, the damper (3) is separated from the nozzle (4), the pressure in the chamber (5) drops, losing equilibrium with the pressure chamber (6), and the relay coil (7) presses on the pilot plug (8), opening it to supply output pressure to the actuator (14).

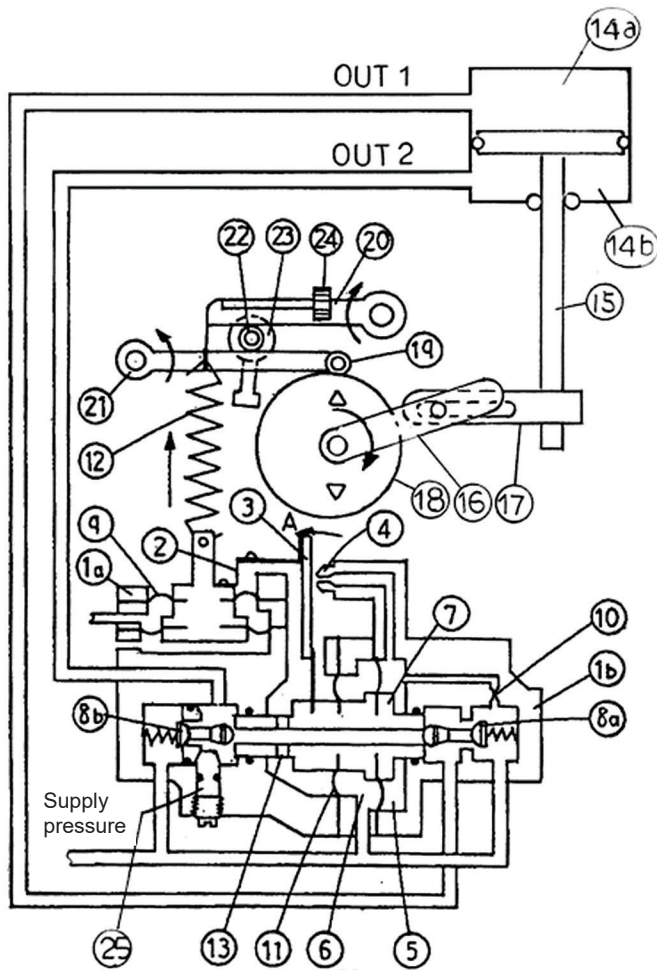
As a result, the drive current (15) moves downwards. The movement is then transmitted to the feedback levers A (16) and B (17), the cam (18), the zero lever (20) and the range lever (21), and the feedback spring (12) is stretched until the spring tension is balanced by the output force from the input chamber.

Thus, the change in the actuator rod (15) is proportional to the input signal.

Reverse mode (output pressure decreases as signal pressure increases) --- optional

Plug (8) is installed in position (13) and output as OUT2. OUT1 is closed with a plug. The basic operating principle is the same as normal operation, but the output pressure is reduced compared to the signal pressure.

3.2 Dual-action positioners



1a	Input chamber / Pilot relay
2	Return plate spring
3	Damper
4	Nozzle
5	Nozzle backpressure chamber
6	Pressure chamber
7	Relay coil
8a, b	Pilot plugs
9	Diaphragm
10	Hole
11	Diaphragm
12	Feedback spring
13	Discharge port
14a, b	Upper and lower chambers
15	Drive rod
16	Lever A
17	Lever B
18	Cam
19	Cam
20	Zero lever
21	Range lever
22	Roller shaft
23	Range regulator
24	Zero adjustment knob
25	Seat position regulator

Figure 3.2: Operating principle - dual-action positioners

When an input signal is applied to the input chamber (1a), the damper (3) rotates in the direction of arrow A around the return plate spring (2).

As a result of the movement, the damper (3) is separated from the nozzle (4), the pressure in the chamber (5) drops, losing equilibrium with the pressure chamber (6), and the relay coil (7) presses on the pilot plug A (8a), opening it to supply outlet pressure to the upper chamber (14a) and at the same time keeping the pilot plug B (8b) close to release the pressure in the lower chamber (14b).

As a result, the drive rod (15) moves downwards. This movement is transmitted to the feedback levers A (16) and B (17), the cam (18), the zero lever (20) and the range lever (21), and the feedback spring (12) is stretched until the spring tension is balanced by the output force from the input chamber.

This results in a change in the spring current (15) proportional to the input signal.

4. Installation - linear movement

4.1 Installation method

A. Single-action positioners

Below is an example of installation on a Series 87/88 spring diaphragm actuator. The standard mounting method is from the left-hand side.

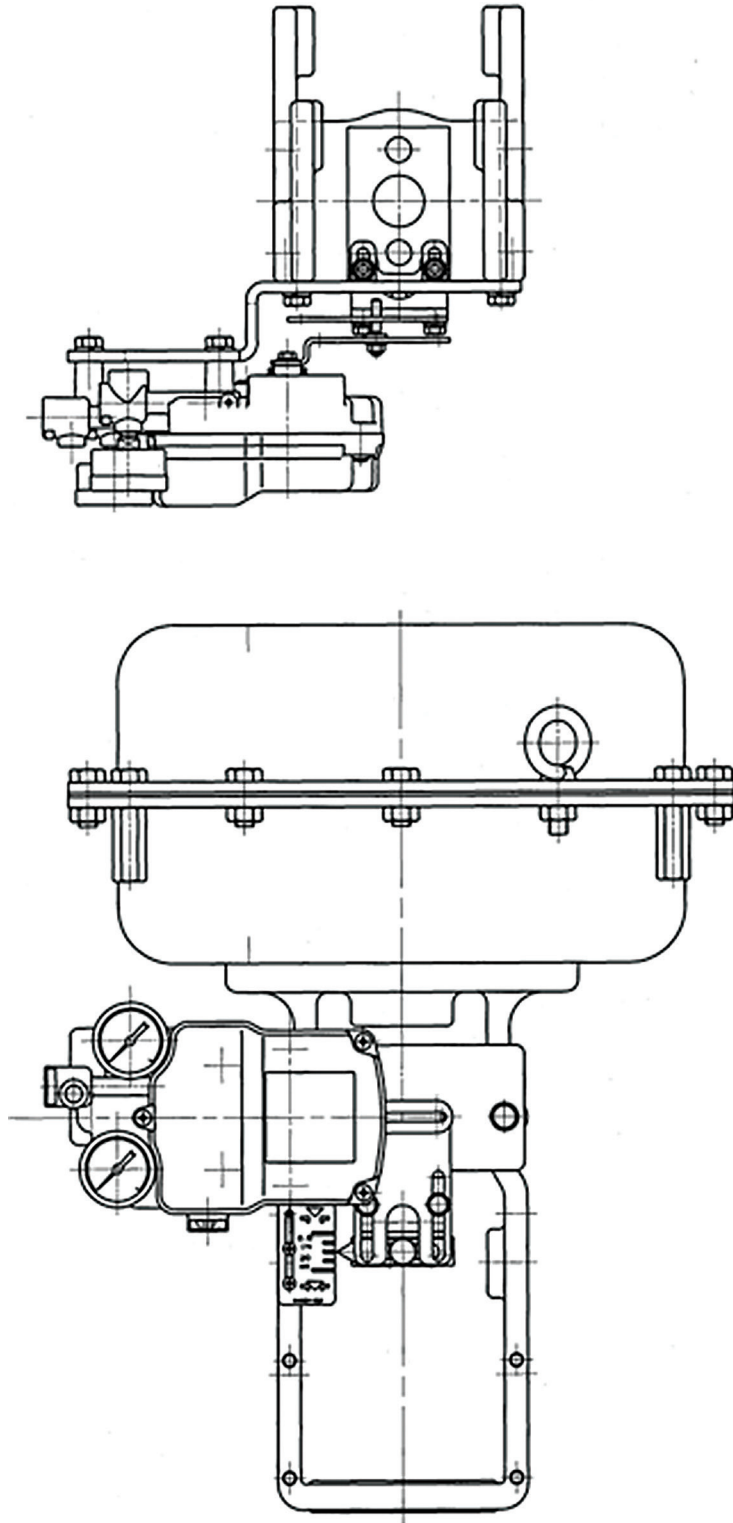


Figure 4.1.1: Example of installation of pneumatic positioner type 4200P (single-action)

B. Single-action positioners

Below is an example of installing a positioner on a Series 51 dual-action cylindrical actuator.

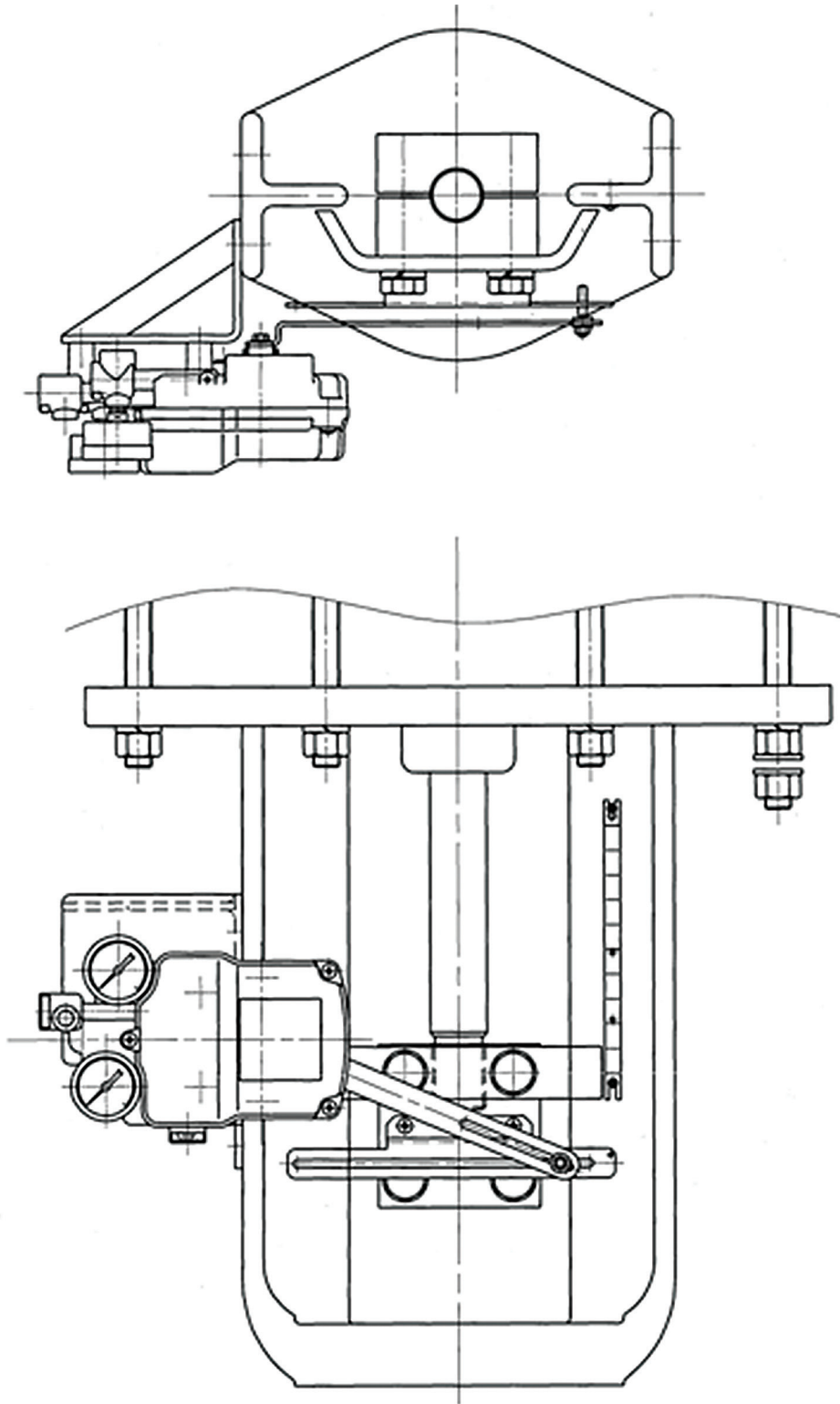


Figure 4.1.2: Example of installation of pneumatic positioner 4200P (dual-action)

4.2 Installation process

The installation procedure includes adapter/plate installation, bracket installation, as well as installation of the positioner and adjustment.

A. Installing the adapter/plate

- Secure the adapter to the rod connector using the washer and Allen screws. Do not tighten the bolt fully at this step.
- Install the plate onto the adapter using the washer and bolt. To allow for subsequent adjustment of the plate position, do not tighten the bolt completely.

B. Installing the bracket

- The bracket is required to install the positioner on the drive. Design the bracket according to the installation diagram. Securely attach the bracket to the drive yoke using bolts and washers.

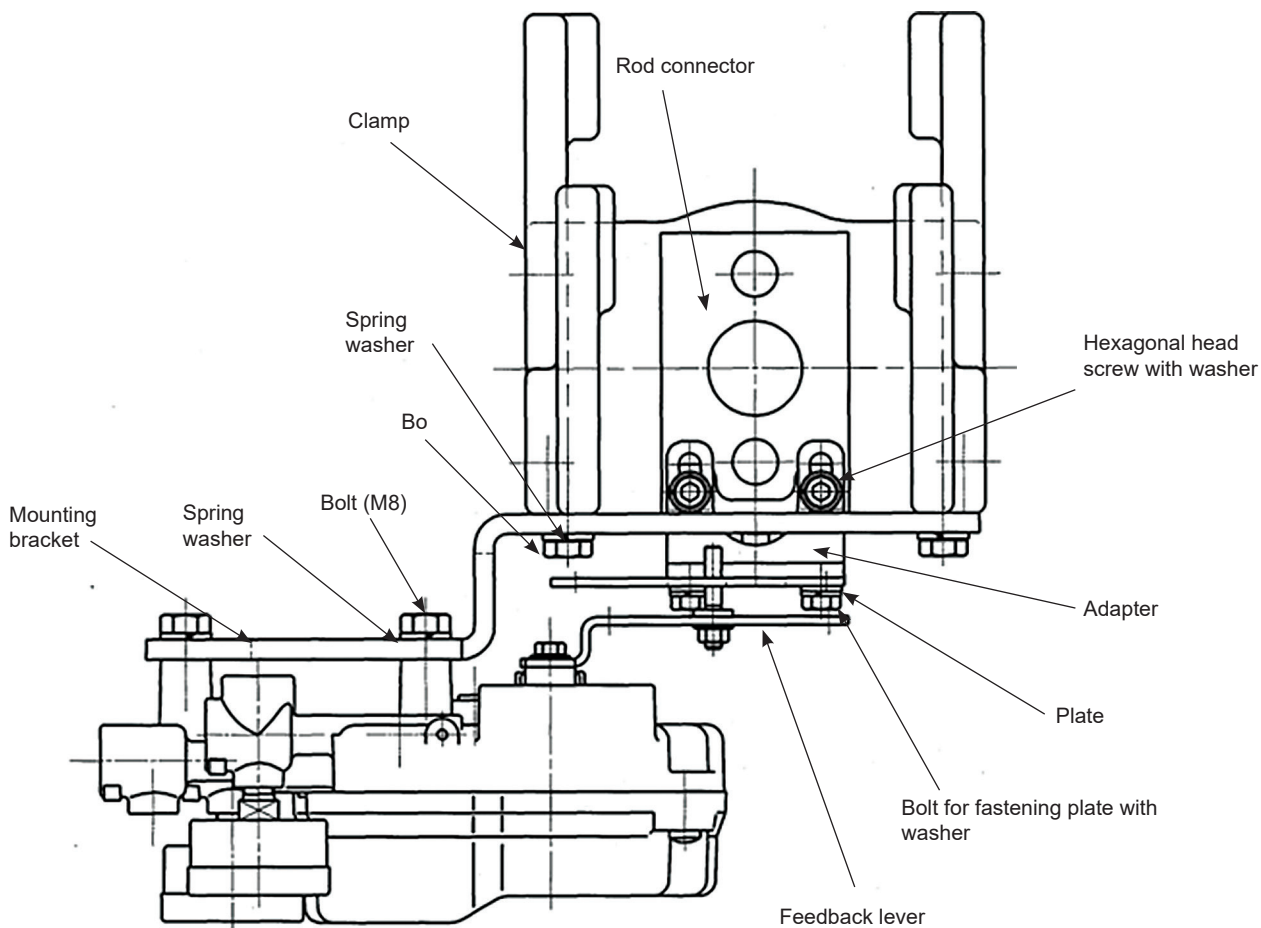


Figure 4.2.1

C. Action selection/positioner installation

- The feedback lever has a stroke scale marked on it. Fix the transmission pin in the position corresponding to the stroke.
- When inserting the feedback lever into the square lug of the positioner camshaft, select the stamped cam characteristic position mark according to the installation direction of the positioner and the actuator operation.

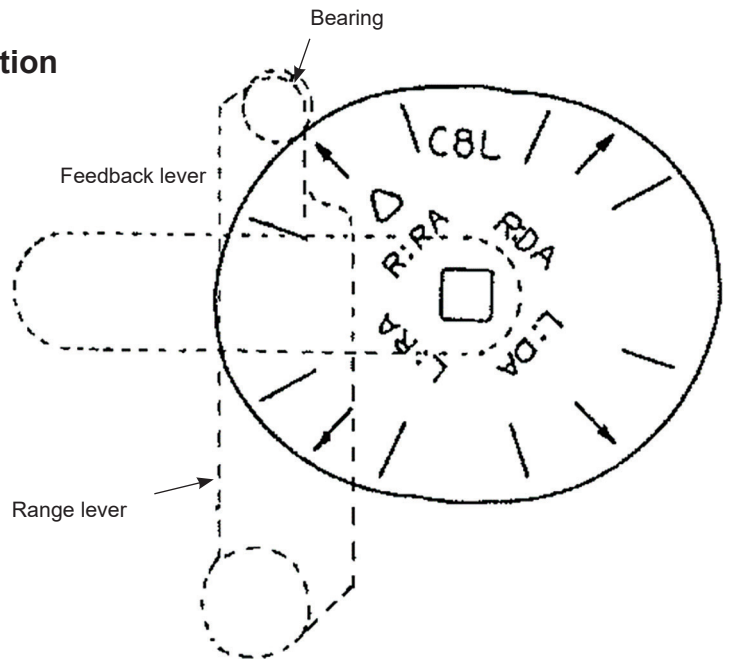


Figure 4.2.2: Cam and lever positions

Table 4.2.1: Symbols on the linear cam (C8L)

Symbol on the cam	Installation direction of the positioner	Activation of the drive
R:RA (R:DA)	Right-side installation	Air to open
R:DA (R:RA)	Right-side installation	Air to close
L:RA (L:DA)	Left-side installation	Air to open
L:DA (L:RA)	Left-sided installation	Air to close

- The "↑" arrows indicate 50% of each cam characteristic.
- With the feedback lever in the horizontal position, set the feedback lever so that the center of the range lever support is at the "↑" mark of the desired cam characteristic.
- The symbol in () shows the position of the cam characteristic of the cam during the pilot operation in the reverse direction.

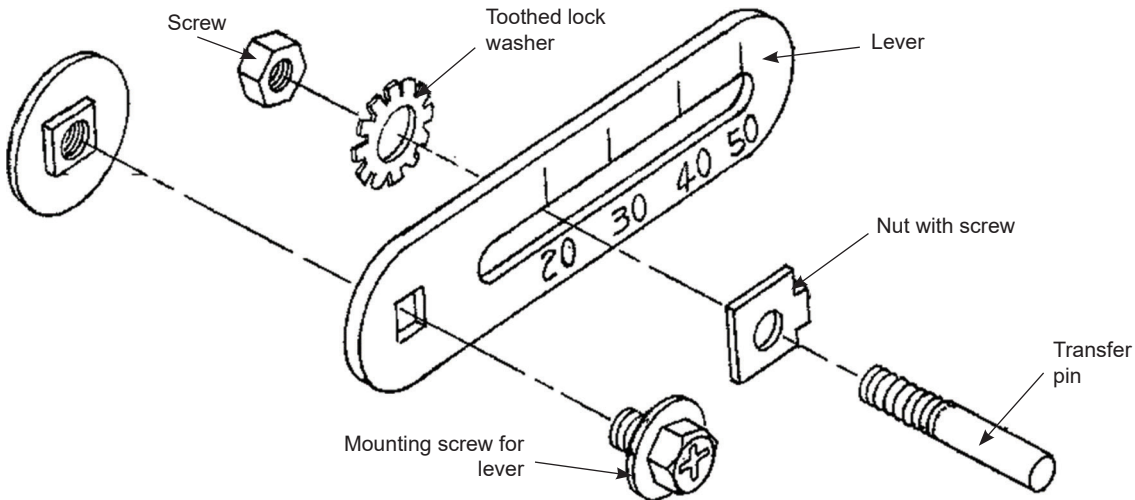


Figure 4.2.3: Example of installation of the transfer pin (for a stroke of 20 mm)

- The cam is stamped "C8L" and is secured to the shaft with a nut. Therefore, the cam does not need to be removed.
- Install the positioner by inserting the transfer pin into the slot in the plate and securing it to the bracket with three M8 hexagonal bolts and spring washers.
- Adjust the position of the adapter so that the feedback lever does not touch the plate and the transfer pin does not come off the plate. After this, tighten the Allen screws.

4.3 Correcting the installation

- After connecting the air that has passed through the pressure reducing valve, adjust the air pressure using the pressure reducing valve so that the actuator stroke is 50%.
- With the plate raised or lowered so that the feedback lever is parallel to the plate, tighten the bolts securely and tightly.
- Check if 50% of the cam base line is aligned with the bearing center.

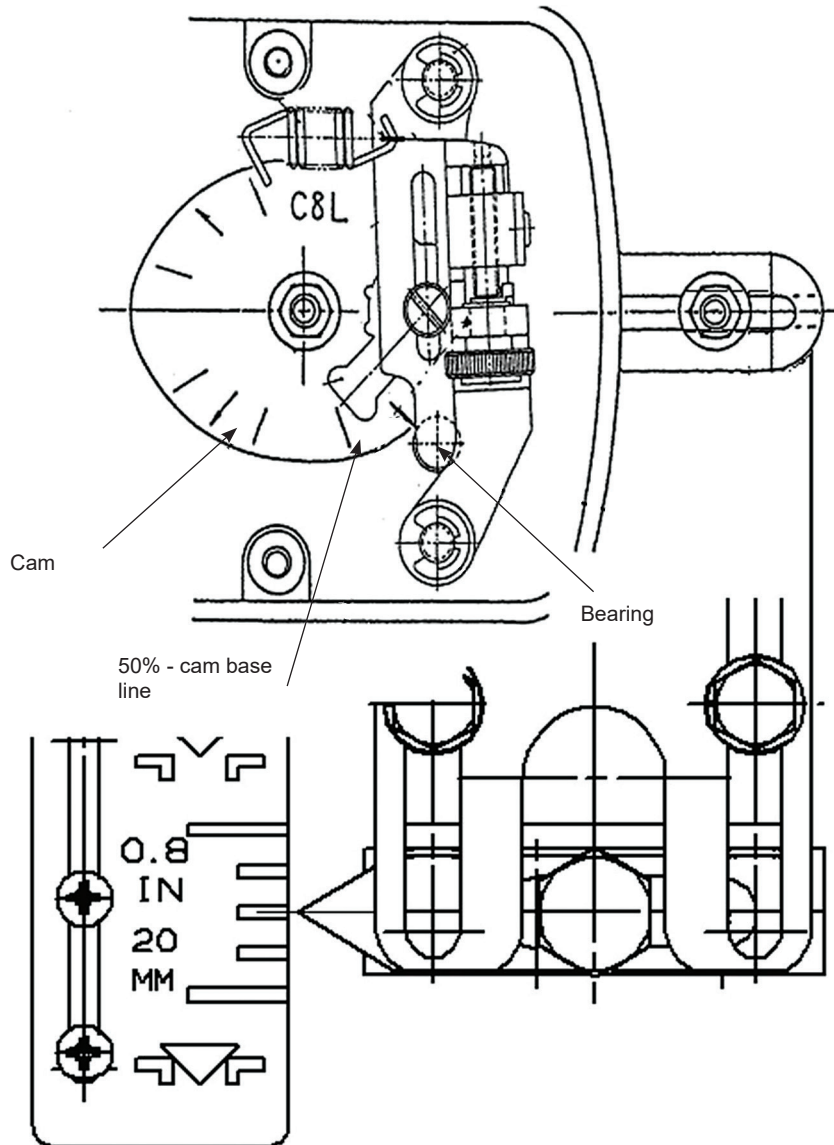


Figure 4.3.1: Positional relationship between cam base line and bearing (at intermediate stroke)

5. Installation - rotary movement

5.1 Installation method

- When installing on the Camflex™ II actuator, please note the positioner direction as shown below according to valve type and actuator.
- At this time, if the drainage hole of the outlet cover of the positioner rear part faces upwards when installing it, change the direction of the drainage hole according to Section 7 (Page 16).

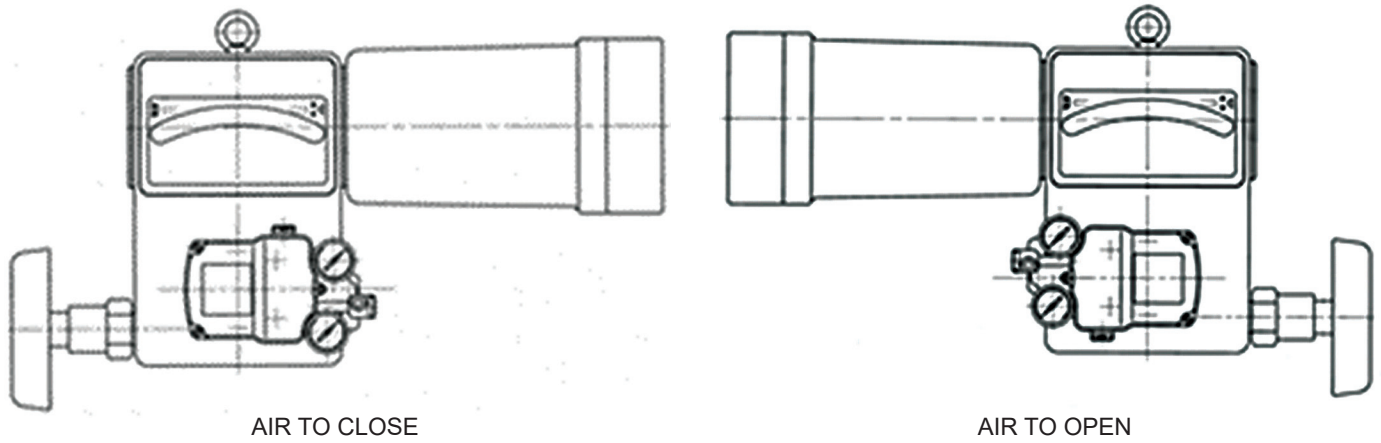


Figure 5.1 Example of installation on Camflex II

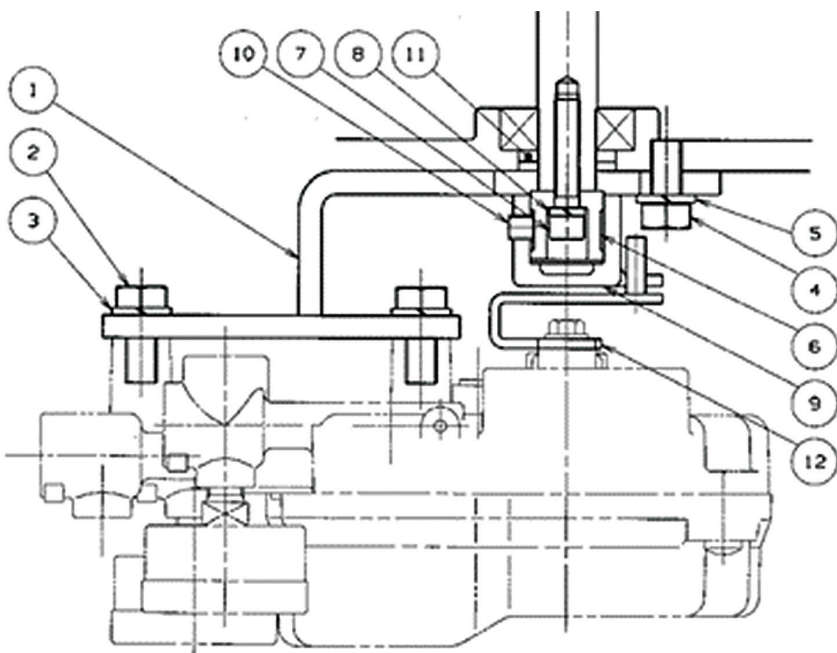
5.2 Installation process

The installation procedure includes the installation of the coupling and positioner, as well as the adjustment of the positioner mount.

A. Installing the coupling

- Install the coupling (6) onto the valve shaft using the spring washer (8) and hexagonal head screw (7).
- Install the lever clutch (9) onto the shaft clutch using the KCP set screw (10).

The figure below shows the installation in AIR TO OPEN mode, looking at the positioner from above. The figure shows how the components are installed, the actual angle of the lever clutch (9) and the installation position of the bolt (4) are different.

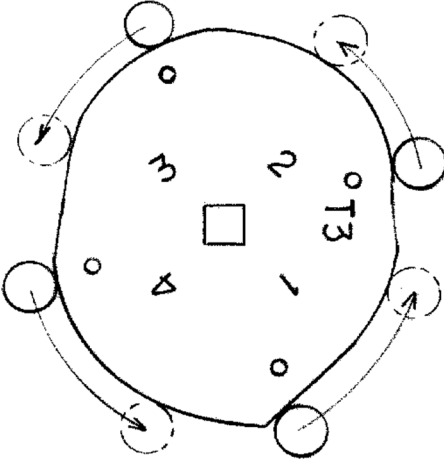


	Description	Quantity
1	Positioner bracket	1
2	Bolt (M8 x 20L)	3
3	Spring washer (M8)	3
4	Bolt (UNC5/16 x 16L)	2
5	Spring washer (M8)	2
6	Shaft coupling	1
7	Hexagonal head screw (UNF1/4 x 30L x 25S)	1
8	Spring washer (9.27OD x 6.52 ID x 1.98T)	1
9	Lever clutch	1
10	KCP set screw	1
11	Dustproof seal (used up to 8B)	1
12	Concentric lever	1

B. Action selection/positioner installation

- Determine the cam number according to the valve characteristic and action. Adjust the cam position so that the bearing center is on the extension that connects the cam center to the 1.5 diameter hole when the valve is closed.
- Set the lever to the position selected from the installation direction of the positioner and the valve action when installing the lever into the square bushing of the camshaft.

Table 4.2.1: Camflex II cam characteristics and installation position

Cam for Camflex II (part number: T3)	No.	Characteristic	Valve action
	1	EQ%	AIR TO CLOSE
	2	EQ%	AIR TO OPEN
	3	Linear	AIR TO CLOSE
	4	Linear	AIR TO OPEN

- Install the bracket (1) on the positioner. Install the positioner on the installation plate (4) using the flat washer (12) and spring washer (13).

Note: Installation is essential in order to align the centers of the valve shaft and the camshaft installed with the lever.

6. Air duct

- The air duct connections are PT1/4 (optional NPT1/4), and they are designed for 3 positions such as supply air (SUPPLY), input signal (INSTR) and output (OUTPUT1).
- Thoroughly blow out the inside of the pipe to ensure that no metal shavings or foreign objects remain in it.
- The supplied air must be clean, dried and dust-free.
- Use an air kit or other device to supply air at the required working pressure.

7. Position of the drain hole

A drip-proof outlet lid is installed on the outlet port on the rear side of the positioner. Another drain hole is made for the exhaust cover. If the drain hole faces upwards when installing the positioner on the actuator, change the direction of the outlet cover by loosening the screw.

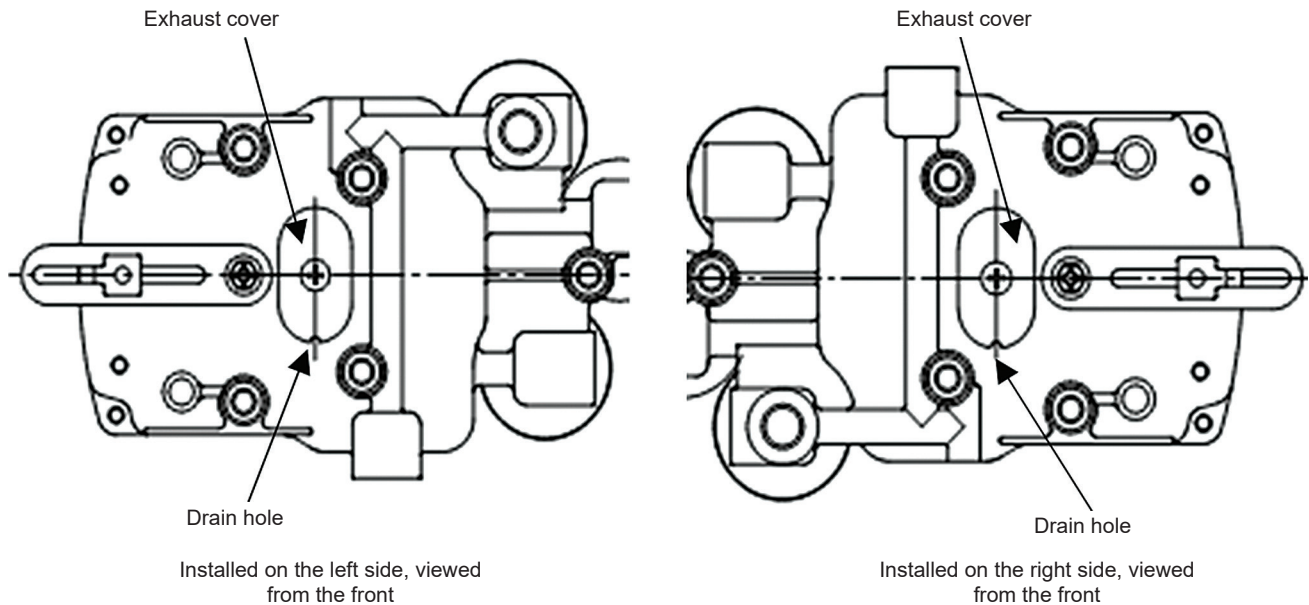


Figure 7.1: Direction of installation of the positioner and position of the drain hole

8. Zero adjustment

- If the movement is linear, recheck that the feedback lever is parallel to the plate and the 50 cam base line touches the bearing center when the actuator stroke is 50%. Correct the positions according to the instructions given in the Installation section if the installation is incorrect.
- After supplying air, set the input signal to 20 kPa and turn the zero adjustment knob. Adjust the starting point where the drive current starts to move.

9. Range adjustment

- When the input signal is 100%, check whether the actuator stroke is 100%.
- If there is no stroke, loosen it to the extent that the roller shaft moves and move it left or right.

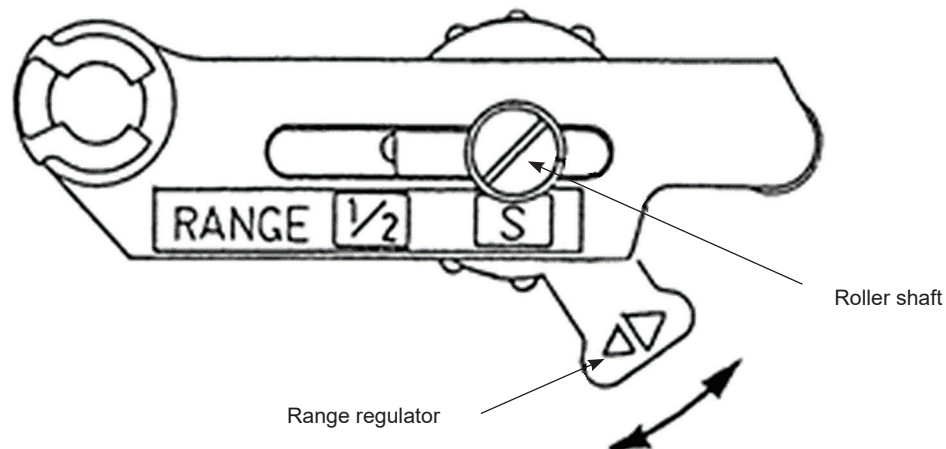


Figure 9.1: Range regulator

- There is an arrow on the range regulator. The large arrow indicates the direction of increasing range, and the small arrow indicates the direction of decreasing range.
- The range adjustment is repeated alternately with the zero adjustment, and the adjustment is executed so that it is within the acceptable linearity range.
- Be sure to tighten the roller shaft after adjustment.

10. 1/2 split range

- If the range is split, loosen the roller shaft and turn the range regulator gears to the engagement position up to the 1/2 mark and make the zero/range adjustment.

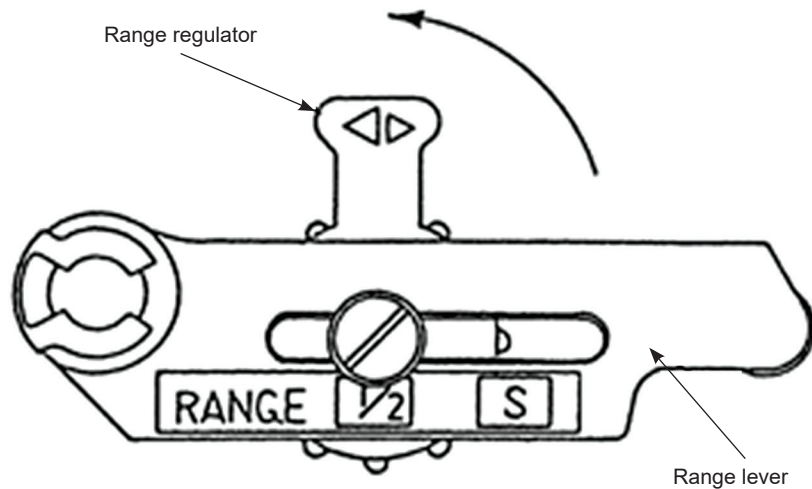


Figure 10.1: Range regulator (1/2 range)

11. Seat position regulator (dual-action positioners)

- The seat position regulator regulates the equalizing pressure of the outlet pressure. The balancing pressure is adjusted to approximately 75% of the supply pressure during loading, so there is usually no need to adjust it.

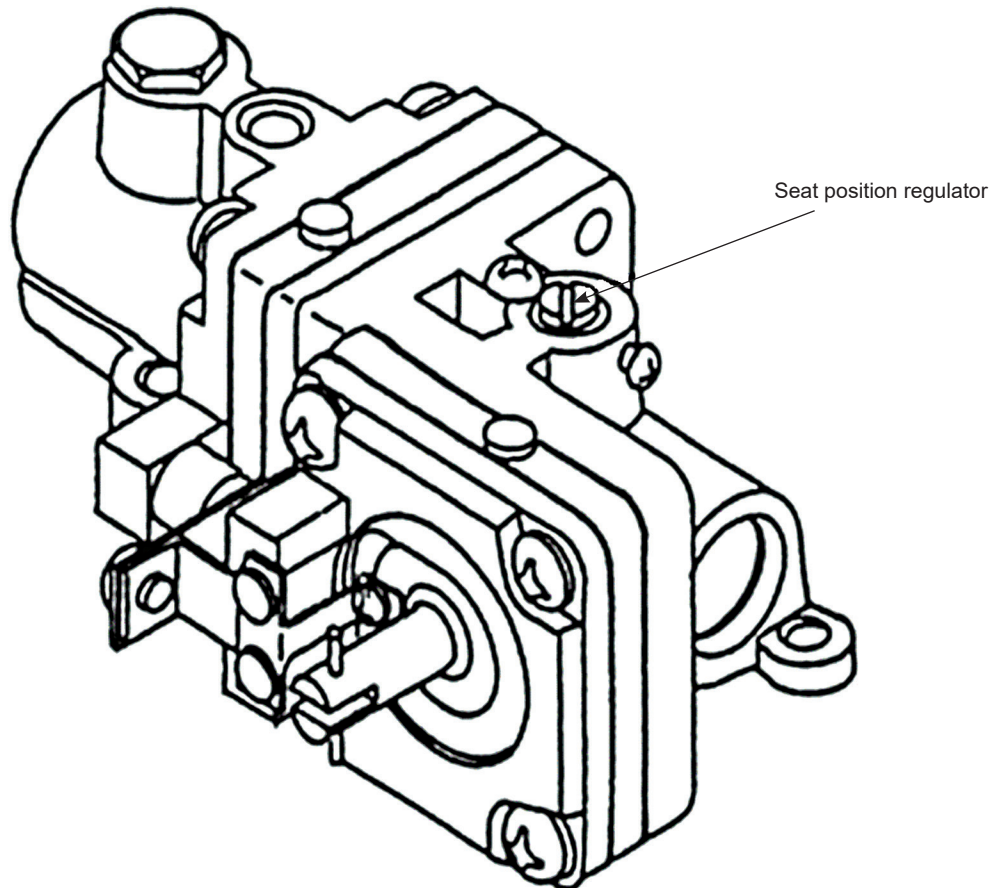


Figure 11.1: Seat position regulator

12. Maintenance

12.1 Test cycle and checkpoints

- Perform periodic maintenance to ensure long service life and proper operation.
- The table below serves as a periodic inspection guide to be used when establishing criteria for maintenance inspections.

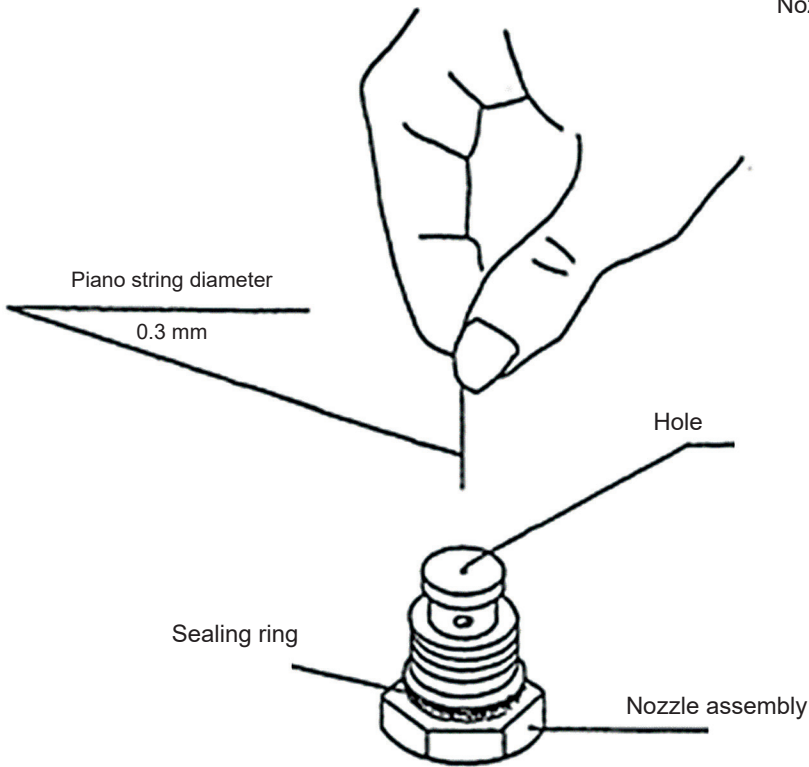
Table 12.1.1: Periodic maintenance criteria

Period	Part being checked	Inspection sites	Contents of the inspection	Verification method	Evaluation standard	Measures to take when deviations are detected	Notes
5 years	Frame	Contact surface	Damage	Visual	No damage	Replacement	-
	Cover	Replaceable rubber seal	Damage, spoilage	Visual	No damage	-	Part with limited service life (5 years)
	Relay	Replaceable: Hole Nozzle Damper Lamellar spring	Clogging Deposit of foreign objects Damage Deformation	-	-	-	Part with limited service life (5 years)
	Feedback spring	Hook part Spiral part	Cracks, wear and tear	Visual	No abnormal wear or cracks	Replacement	-
	Feedback lever	Movable part	Damage, wear and tear	Visual	Must be smooth Absence of abnormal wear and tear	Replacement	-
	Cam follower bearing	Bearing	Movement Deposit of foreign objects	Visual Tactile	Smooth No foreign objects	Cleaning, replacement	-
	Range regulator	Contact part	Wear	Visual	Absence of abnormal wear and tear	Replacement	-
	Zero regulator	Surface	Damage Deformation	Visual	No damage No deformation	Replacement	-
	Pressure gauge	Pointer	Pointer gives incorrect information	Visual	Less than 3%FS	Replacement	-

Note: Never disassemble parts (A), (B) and (C) of the control relay as described in the Maintenance Precautions (page 19).

12.2 Maintenance Precautions

- Disassembling the control relay parts (A), (B) and (C) separately will make their reassembly and adjustment extremely difficult. Never try to take them apart. Clean the hole and port by pulling them out of the assembly at appropriate intervals.
- Check if the incoming air is clean air supplied through a filter. If the filter is clogged or dirty, clean or replace it. A filter with a mesh size of 5 microns is recommended.
- Clean the hole periodically. A clogged hole is suspected if the nozzle backpressure does not increase.



Clean it with a 0.3 mm piano wire. After cleaning, blow with clean air.

Figure 12.2.1: Cleaning the fixed diaphragm

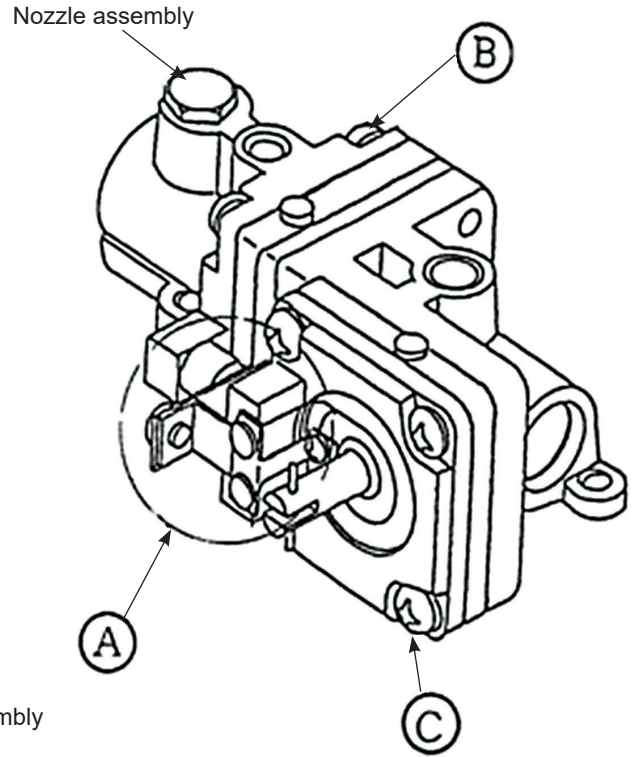


Figure 12.2.2: Prohibited disassembly

- Air is always supplied to the damper through the nozzle. Black sooty dust accumulates on it for a long time. Check the damper periodically and remove any accumulated dust with a thin, soft paper. Contact between the nozzle and the damper may be broken if force is applied to them.

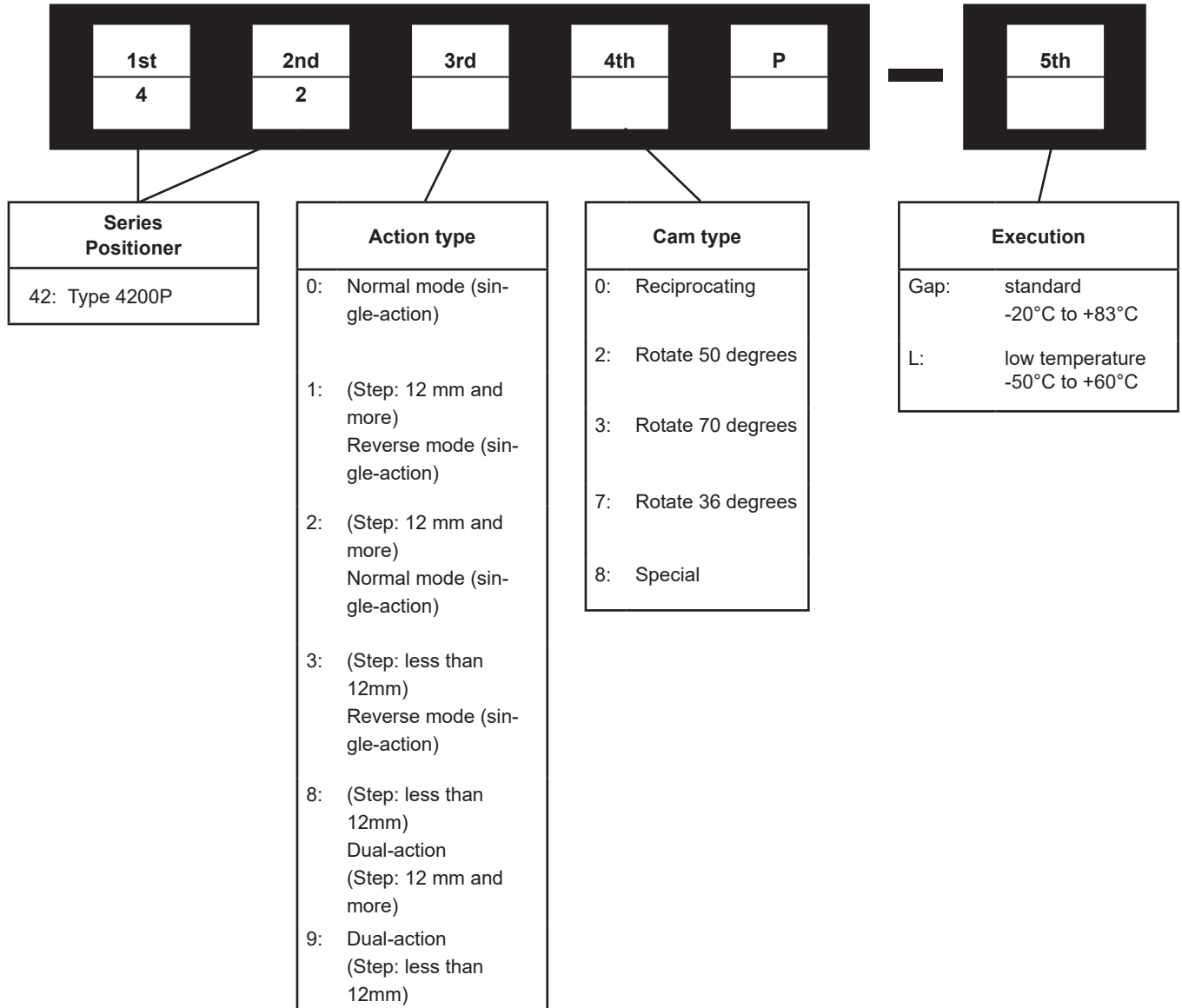
13. Troubleshooting

If any malfunctions occur, take corrective measures according to the table below.

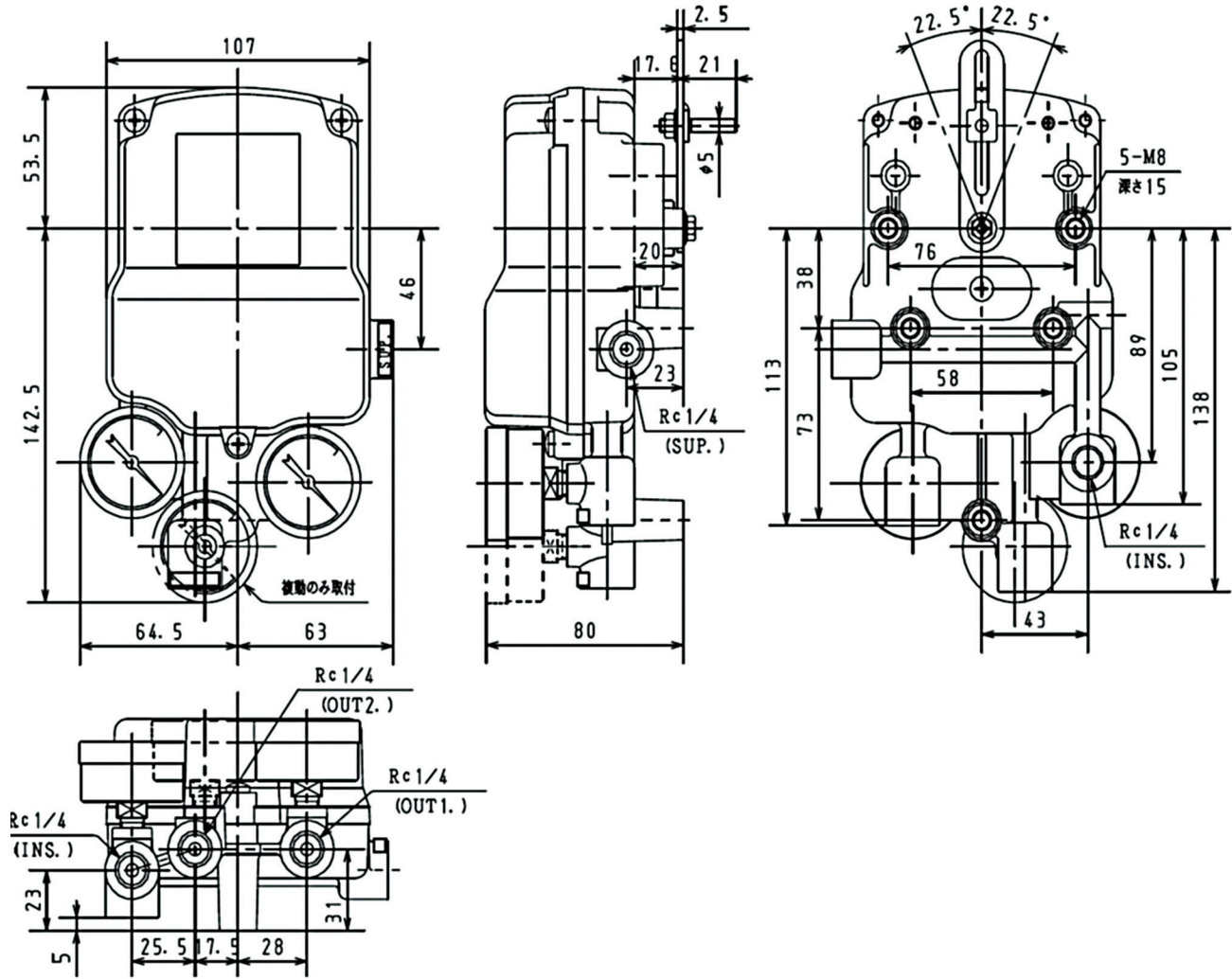
Table 13.1: Troubleshooting

	Symptoms	Cause	Elimination
Not working at input signal change	When the damper is moved with a finger, the pressure at the outlet will be normal	• Damaged diaphragm in the input chamber	• Replace block
		• Feedback lever loosened or incorrectly installed	• Tighten • Install correctly
	Even if the damper is moved manually and the flap is closed, the pressure on OUT1 remains high and does not drop	• Fixed diaphragm is clogged	• Clean or replace
		• Poor contact of the damper or damage to the damper	• Replace block
	Even if you move the damper manually and open it, pressure on OUT1 does not increase	• Supply pressure is low or absent	• Replace the pressure gauge if the readings are incorrect.
		• Pilot relay failure	• Check the pressure reducing valve • Replace block
Does not function as intended	Works with offset zero position	• Feedback lever connection loose	• Tighten and adjust
		• Bearing damage	• Adjust after replacing the block
	Works with wrong stroke	• Transmission pin misalignment	• Tighten and adjust
		• Cam misalignment	
		• Loosening of the range regulator roller shaft	
	Work not smooth	• Loose tie rods	• Tighten and adjust
		• Bearing damage	• Adjust after replacing the block
		• Camshaft wear	• If there is a lot of play due to wear, replace the cam shaft.
Bad linearity	• Shift in the installation position of the feedback lever	• Remount correctly	
	• Cam wear	• Replace cam and adjust	
Speed response is low (both directions there and back slow)	• Clogged air supply inlet, filter mesh	• Wash	
	• The pressure reducing valve filter with filter is clogged	• Replace filter	

14. Numbering System



15. Dimensions



16. Information on 4200P related to the Customs Union

The Pneumatic Positioner type 4200P you recently purchased has been designed, manufactured and tested in accordance with the basic safety requirements of TR CU 012/2011.

MARKING

DRESSER JAPAN, LTD.
800 Tokaichi, Kariwa-mura, Kariwa-gun,
Niigata-pref., 945-0395 JAPAN



II Gb c IIC T6 X

42**P : $-20^{\circ}\text{C} \leq \text{Tamb} \leq +83^{\circ}\text{C}$

42**P-L: $-50^{\circ}\text{C} \leq \text{Tamb} \leq +60^{\circ}\text{C}$

Equipment type designation

Serial number,

Year of manufacture

Name or sign of the certification body and the number of the certificate of conformity.

WARNING

The "X" sign after the Ex marking indicates special conditions of use: – ensuring reliable grounding at the place of operation.

List of standards, the voluntary application of which ensures compliance with the requirements of TR CU 012/2011:

State Standard (GOST) 31438.1-2011 (EN 1127-1:2007) Explosive atmospheres. Explosion protection and explosion prevention. Part 1. Fundamental concept and methodology.

State Standard (GOST) 31441.1-2011 (EN 13463-1:2001) Non-electrical equipment intended for use in potentially explosive atmospheres. Part 1. General requirements.

State Standard (GOST) 31441.5-2011 (EN 13463-5:2003) Non-electrical equipment intended for use in potentially explosive atmospheres. Part 5. Structural safety protection "c".

The specified service life of the product is indicated in the technical data sheet.

TRAINING

Installation, commissioning, maintenance and disposal of products must be performed by qualified and competent personnel who have undergone appropriate training in the use of equipment in potentially explosive atmospheres.

Under certain circumstances, use of damaged equipment may impair system performance and result in injury or death of personnel.

CORRECT USE AND PREVENTION OF CRITICAL FAILURES

Use the valve within the manufacturer's recommended temperature range (see below).

- Use the positioner only for its intended purpose.
- Avoid impacts to the aluminum alloy body.
- Do not rub the paintwork of the valve during use in a gas group IIC environment; there is a risk of electrostatic discharge, which may lead to an explosion.
- Check the correctness of the installation of the positioner (calibration, operation, feedback signal, etc.).
- The power supply, instrument signal and output signal connections must be correct for the positioner to operate correctly (i.e. in forward or reverse direction).
- Check for leaks in the pneumatic connections.
- Check the correct position of the bypass, if any.

MAXIMUM PERMISSIBLE PARAMETERS

Check for any damage to flameproof connections or housing, cracks in housing or connection holes. In case of any damage, notify the manufacturer.

Do not exceed the maximum pressure indicated on the nameplate of valves and pneumatic positioners, as this may result in personal injury and equipment failure.

PROTECTION, STORAGE, TRANSPORTATION, DISPOSAL

Products are tested and adjusted at the factory before shipment. The period from shipment from the manufacturer to installation includes significant adverse effects due to impact, drops or corrosion. Such impact may have a negative impact on the operation of the products during use, but this can be easily avoided by following simple rules.

- **Protection**

At a minimum, all positioners are shipped dry, covered and equipped with protective features such as air connection covers, in crates to protect the individually shipped positioner during shipment, or in a waterproof wrapper complete with valve prior to shipment. This protection must remain in place until immediately prior to installing the positioner on the valve.

- **Storage and preservation**

Storage conditions for the products are given in the preface to this instruction, as well as in the technical data sheet for the product.

The designated shelf life is 2 years, subject to compliance with storage conditions.

The equipment must be stored in its original packaging in places protected from atmospheric precipitation.

- **Transportation and loading**

Use caution when loading products; careless loading may damage the air filter and NPT connection. Care must be taken not to damage the protection. Use caution when unpacking the control valve and its installation accessories.

- **Disposal**

The equipment is decommissioned upon expiration of the established service life specified in the technical data sheet for the product. After decommissioning, the equipment is transferred to a recycling organization. Equipment must be isolated before being transferred to a recycling company.

Contact your local environmental, health or waste disposal authority for more information on disposal options.

OFFICIAL CONTACTS (AUTHORIZED PERSON OF THE MANUFACTURER)

Baker Hughes Rus Infra LLC,

location and address of the place of business: 123112, Russia, Moscow, Presnenskaya Embankment, Building 10, Room III, Floor 3, Room 22.

Primary State Registration Number 5077746899687.

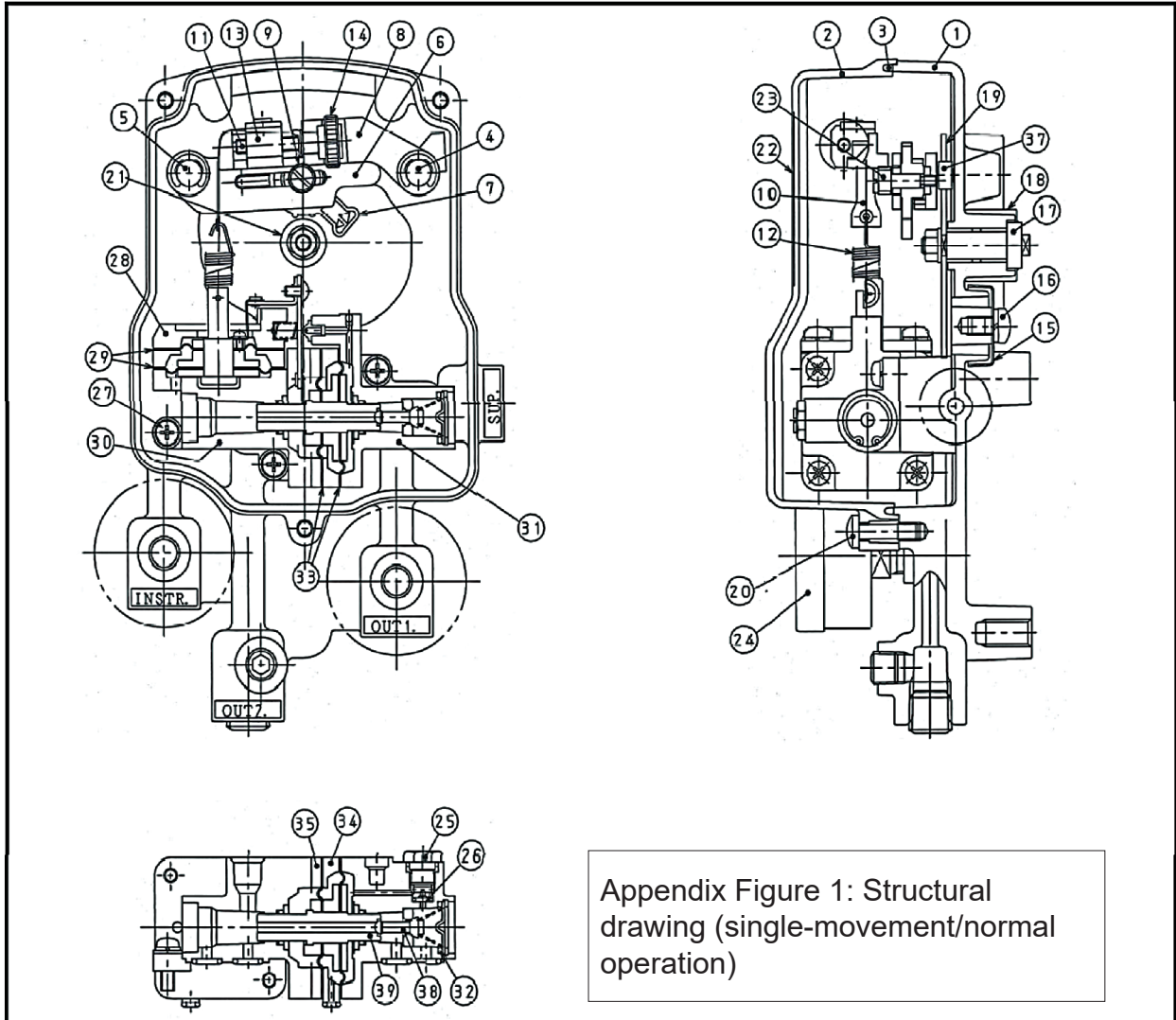
Telephone: +7 (495) 739-68-11

Email address: MoscowHelpDesk@bakerhughes.com

MANUFACTURER

DRESSER JAPAN, LTD.

800 Tokaichi, Kariwa-mura, Kariwa-gun, Niigata-pref., 945-0395 JAPAN (Japan)



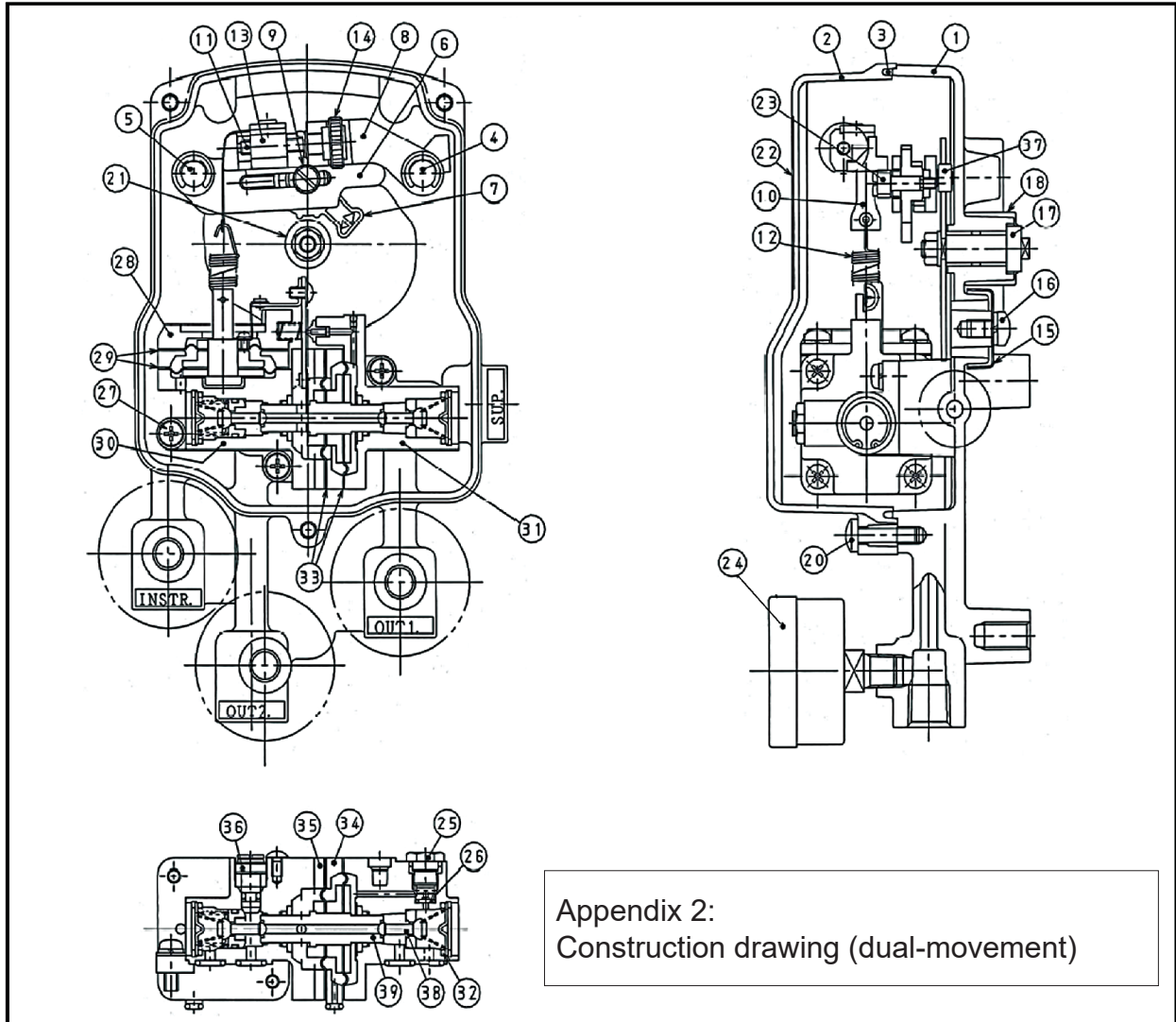
Appendix Figure 1: Structural drawing (single-movement/normal operation)

No.	部品名称 Part Name	材質 Material	No.	部品名称 Part Name	材質 Material	No.	部品名称 Part Name	材質 Material
1	ベース Base	ADC12	15	エキゾーストカバー Exhaust Cover	SUS304	29	ダイヤフラム Diaphragm	NBR / Polyester
2	カバー Cover	ADC12	16	十字穴付ナベ小ネジ Cross Recessed Head Screw	SUS304	30	パイロットリレーボデーⅡ Pilot Relay Body II	ADC12
3	カバーパッキン Cover Packing	CR	17	カムシャフト Cam Shaft	C3604 Ni3	31	パイロットリレーボデーⅠ Pilot Relay Body I	ADC12
4	シャフト B Shaft B	SUS303	18	カムシャフトパッキン Cam shaft Packing	CR	32	Oリング O Ring	NBR
5	シャフト A Shaft A	SUS303	19	カム Cam	SUS304	33	ダイヤフラム Diaphragm	NBR / Polyester
6	レンジアーム Range Arm	ADC12	20	カバー取付ネジ Cover Screw	SUS304	34	センタープレート Center Plate	ADC12
7	レンジアジャスター Range Adjuster	Nylon 6	21	SL ナット SL Nut	SS400 / SWRH	35	センタープレート C Center Plate C	A5052
8	ゼロアーム Zero Arm	ADC12	22	ロゴシール Logo Sticker	テトロン Tetoron			
9	ローラーカラー Roller Collar	SUS303	23	ローラー軸 Roller Shaft	SUS304	37	ベアリング Bearing	SUJ2
10	帯板 Strip Sheet	SUS304	24	小型圧力計 Prsssure Guage	ASSY	38	ポート Port	SUS303
11	ゼロ調整ネジ Zero Adjusting Screw	C2700	25	固定絞り Orifice	A2011 / Zirconium	39	リレースプール Relay Spool	A5056
12	フィードバックスプリング Feedback Spring	SUS304WPB	26	フィルター金網 Filter	SUS304			
13	スライドピース Slide Peace	ZDC2	27	十字穴付ナベ小ネジ(SW 付) Screw (W/SW)	SUS304			
14	ゼロ調整ノブ Zero Adjusting Knob	A2011	28	入力室カバー Input Chamber Cover	ADC12			

4200P 型ポジションナ(正作動)断面図
4200P Positioner (Direct Action)
Sectional Drawing

改訂 REV.	改訂内容 DESCRIPTION	改訂日 DATE	担当 BY	図面番号 DRAWING No.

DRESSER JAPAN, LTD.

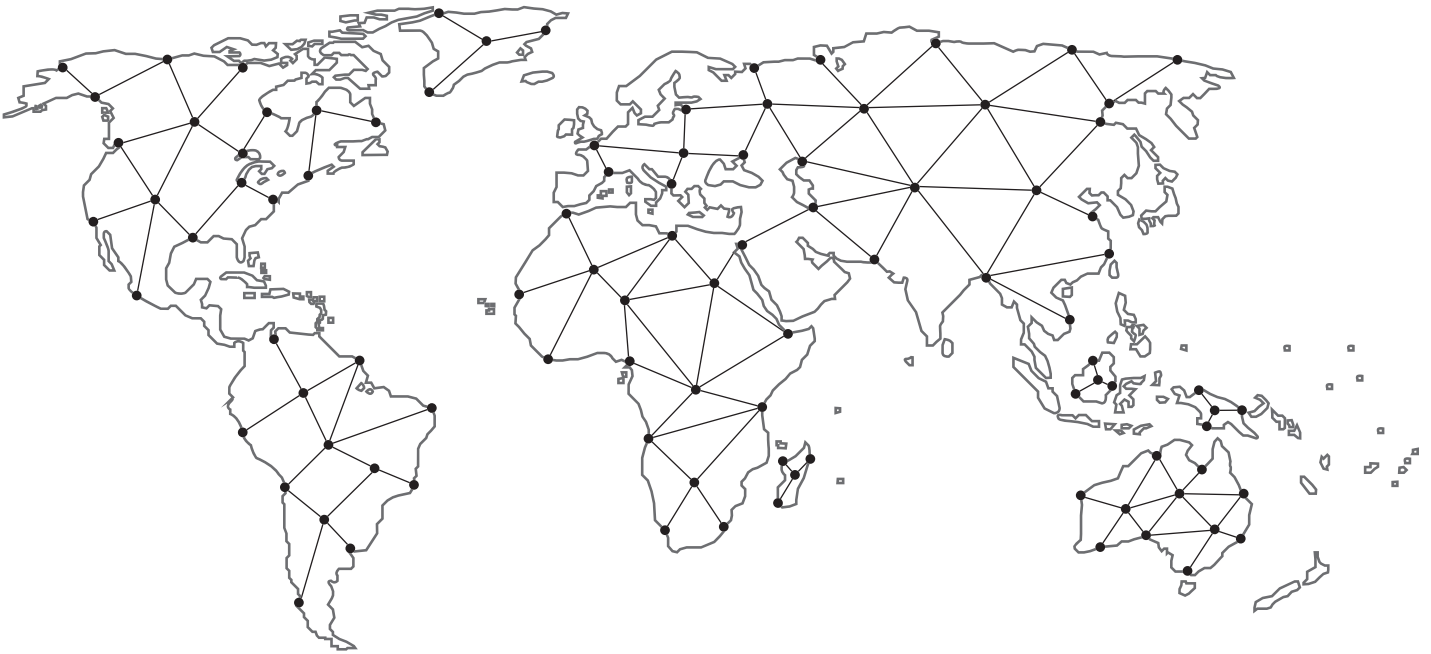


No.	部品名称 Part Name	材質 Material	No.	部品名称 Part Name	材質 Material	No.	部品名称 Part Name	材質 Material
1	ベース Base	ADC12	15	エキゾーストカバー Exhaust Cover	SUS304	29	ダイヤフラム Diaphragm	NBR / Polyester
2	カバー Cover	ADC12	16	十字穴付ナベ小ネジ Cross Recessed Head Screw	SUS304	30	パイロットレレーボデー II Pilot Relay Body II	ADC12
3	カバーパッキン Cover Packing	CR	17	カムシャフト Cam Shaft	C3604 Ni3	31	パイロットレレーボデー I Pilot Relay Body I	ADC12
4	シャフト B Shaft B	SUS303	18	カムシャフトパッキン Cam shaft Packing	CR	32	Oリング O Ring	NBR
5	シャフト A Shaft A	SUS303	19	カム Cam	SUS304	33	ダイヤフラム Diaphragm	NBR / Polyester
6	レンジアーム Range Arm	ADC12	20	カバー取付ネジ Cover Screw	SUS304	34	センタープレート Center Plate	ADC12
7	レンジアジャスター Range Adjuster	Nylon 6	21	SL ナット SL Nut	SS400 / SWRH	35	センタープレート C Center Plate C	A5052
8	ゼロアーム Zero Arm	ADC12	22	ロゴシール Logo Sticker	テトロン Tetoron	36	シートアジャスター Seat Adjuster	C3604 Ni3
9	ローラーカラー Roller Collar	SUS303	23	ローラー軸 Roller Shaft	SUS304	37	ベアリング Bearing	SUJ2
10	帯板 Strip Sheet	SUS304	24	小型圧力計 Prsssure Guage	ASSY	38	ポート Port	SUS303
11	ゼロ調整ネジ Zero Adjusting Screw	C2700	25	固定絞り Orifice	A2011 / Zirconium	39	リレースプール Relay Spool	A5056
12	フィードバックスプリング Feedback Spring	SUS304WPB	26	フィルター金網 Filter	SUS304			
13	スライドピース Slide Peace	ZDC2	27	十字穴付ナベ小ネジ(SW 付) Screw (W/SW)	SUS304			
14	ゼロ調整ノブ Zero Adjusting Knob	A2011	28	入力室カバー Input Chamber Cover	ADC12			
						4280P 型ポジショナ(複動)断面図 4280P Positioner (Double Acting) Sectional Drawing		
改訂 REV.	改訂内容 DESCRIPTION		改訂日 DATE	担当 BY	図面番号 DRAWING No.			

DRESSER JAPAN, LTD.

Find your nearest sales partner in your area:

valves.bakerhughes.com/contact-us



Technical support and warranty:

Phone: +1-866-827-5378

valvesupport@bakerhughes.com

valves.bakerhughes.com

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