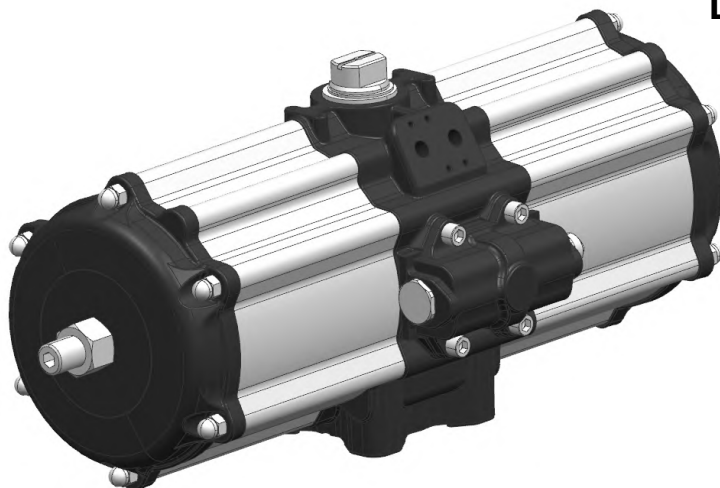


Part turn pneumatic actuator
ACTAIR NG240 to 700
DYNACTAIR NG120 to 350



**INSTRUCTION
MANUAL**

CONTENTS

- 1) GENERAL FEATURES**
- 2) WORKING CONDITIONS**
- 3) OPERATION AND ROTATION DIRECTION**
- 4) SAFETY NOTICE**
- 5) INSTALLATION INSTRUCTION**
- 6) MAINTENANCE AND MATERIALS SPECIFICATION**
- 7) ATEX 2014/34/EU**
- 8) ACTUATORS SPECIAL VERSIONS**
- 9) STORAGE**
- 10) TROUBLESHOOTING GUIDE**
- 11) DISPOSAL**

1) GENERAL FEATURES

KSB manufacture a wide range of part turn pneumatic actuators for valve remote control. The actuators are available on Double Acting “ACTAIR NG” and Spring Return “DYNACTAIR NG” versions.

- The principle of the actuator application is to open and close the connected valve, without the manual operation with lever or hand wheel, by means of an electric-pneumatic connection on remote control.

The maintenance should be done by KSB trained personnel only.

This instruction manual contains important information regarding the KSB pneumatic actuator operation, installation, maintenance and storage.

Please read carefully before installation and keep it in a safe place for further reference.

2) WORKING CONDITIONS

a) Construction.

Standard actuators are suitable for indoor and outdoor installation.

The laser marking or a printed label on the actuator body gives the actuator technical characteristics: type, size, operating pressure, output torque, operating temperature, flange connection, product code and production date. (See drawing pag.4).

b) Motive energy

The operating media should be dry and filtered compressed air not necessarily lubricated or inert gases compatible with internal actuator parts and lubricants.

The operating medium shall have a dew point equal to -20°C or, to be at least, 10°C below the ambient temperature (ISO 8573-1, Class 3).

The maximum particle size shall not exceed $40\text{ }\mu\text{m}$ (ISO 8573-1, Class 5).

In the case of lubrication, the amount of lubricant will not exceed 25 mg/m^3 (ISO 8573-1, Class 5).

c) Supply operating media pressure.

The maximum supply pressure is 8,4 bar (120 psi) (7 bar for NG700)

Nominal supply pressure is 5,6 bar (80 psi)

Working pressure range from 2.5 bar (36 psi) up to 8,4 bar (120 psi).

d) Operating temperature.

Actuator standard working temperature range: -20°C (-4°F) to 80°C (176°F)

For High temperature range: -20°C (-4°F) to $+150^{\circ}\text{C}$ (302°F) please contact KSB

For low temperature range: -50°C (-58°F) to $+60^{\circ}\text{C}$ (140°F) please contact KSB.

For high humidity and low temperature application are recommended to use a supplementary protection (e.g. screens, sheds or integral painting) please contact KSB.

e) Operating drive rotation.

The part turn actuator rotation angle is nominally 90° . KSB actuator provides a stroke of 92° rotation, from -1° to 91° , with standard stroke adjustment of -10° .

f) Cycle time.

The cycle time is dependent on different operating and installation factors such as the supply pressure, the flow capacity, the connection pipe size, the solenoid valve performance, the valve torque and characteristics, environmental temperature condition

Actuator opening, closing and open/close cycle times (sec.).

Actuator size	0°-90° cycle time	90°-0° cycle time
	SEC	SEC
NG 240	1,77	1,41
NG 340	2,09	1,68
NG 500	3,12	2,52
NG 700	3,91	3,4

Actuator size	0°-90° cycle time	90°-0° cycle time
	SEC	SEC
NG 120	1,37	1,4
NG 160	1,62	2,03
NG 240	2,17	2,42
NG 350	3,83	3,97

The above time table is referred to a standard actuator working cycle at the following tests conditions:

Ambient temperature: 18°C – 25°C

Motive energy operating medium: compressed air at 5,6 bar

Nominal cycle: 90° in both directions

Load: free

ACTAIR NG actuators operate with solenoid valve 5/2 ISO 1-2. While the DYNACTAIR NG actuators with solenoid valve 3/2.

Time tested with Electronic Timer device.

NOTE: different working condition such as air pressure, piping connection, filters or solenoid valves, could change the timing of the operations.

g) Lubrication.

The actuators are factory lubricated for the standard working condition life.

During maintenance and reassembling KSB recommends to use:

TECNOLUBE SYNTHY POLYMER 402, or equivalents.

h) Internal wear protection

The cylinder is lapped to obtain a surface with fine roughness and is protected with 20 µm technical oxidation. The pistons slide supports are in P.T.F.E. The use of steel bearings on the Scotch-Yoke system ensures no play and low friction during operation.

i) External protection

KSB standard actuators are suitable for indoor and outdoor installation. The aluminium body and caps are external protected from corrosion and wear with 20 µm technical oxidation. Driving shaft and caps screws are in stainless steel.

For aggressive atmosphere and severe environmental condition select the required protection from the external finishes please contact KSB.

I) Marking and classification

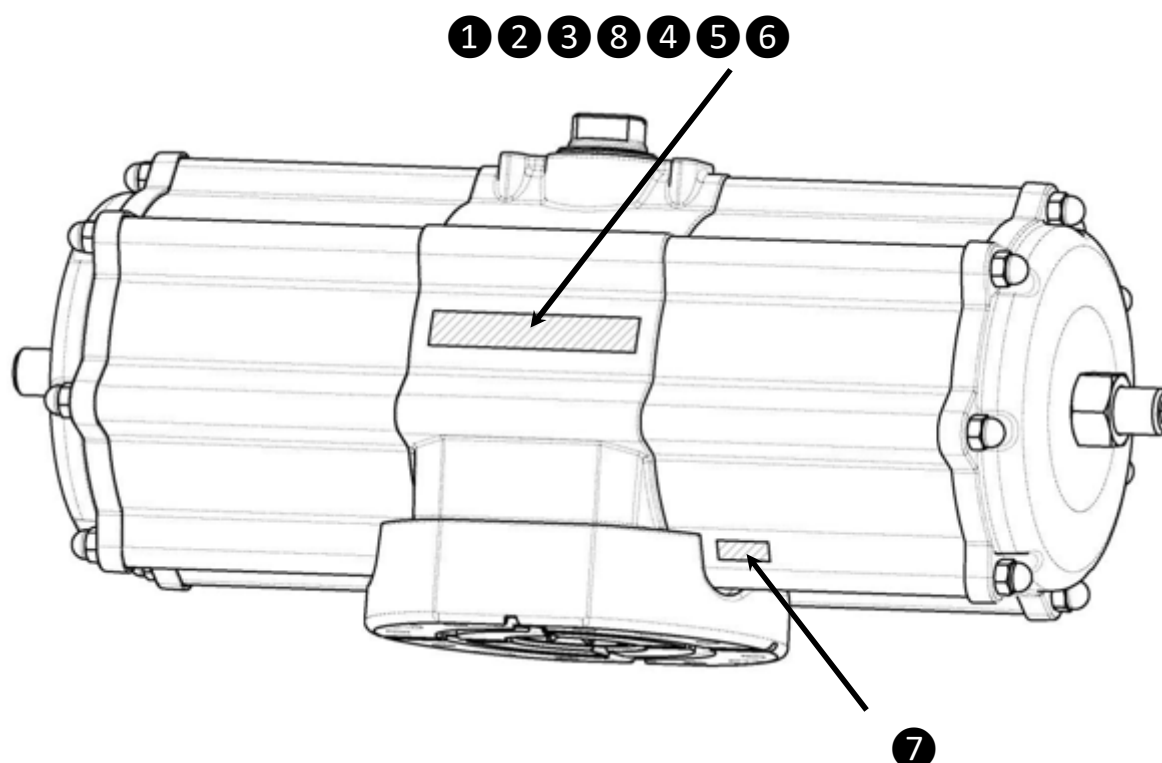
All KSB actuators bodies are marked with the Manufacturer name and address, the actuator Type code including the Series and Size, and its range of Pressure and Temperatures working conditions and limits.

Laser printings on actuators:

- ① - KSB logo
- ② - KSB actuator name and size + ISO flange dimension + Outside drive dimension
- ③ - NC or NO function (for Single acting actuator)
- ④ - Nominal air pressure: 5.6 bar or 4.2 bar (for Single acting actuator)
- ⑤ - Allowed temperature (Ex: -20°C to + 80°C) and max air pressure 8.4 bar
- ⑥ - Class of compliance with the rules and level of protection
 Name of technical File deposited with a Notified Body
- ⑦ - Production date (code marked by hand after the test)
- ⑧ - Special versions

→   II 2G Ex h IIC T6..T3 Gb X
 II 2D Ex H IIIC T85°C..T175°C Db X

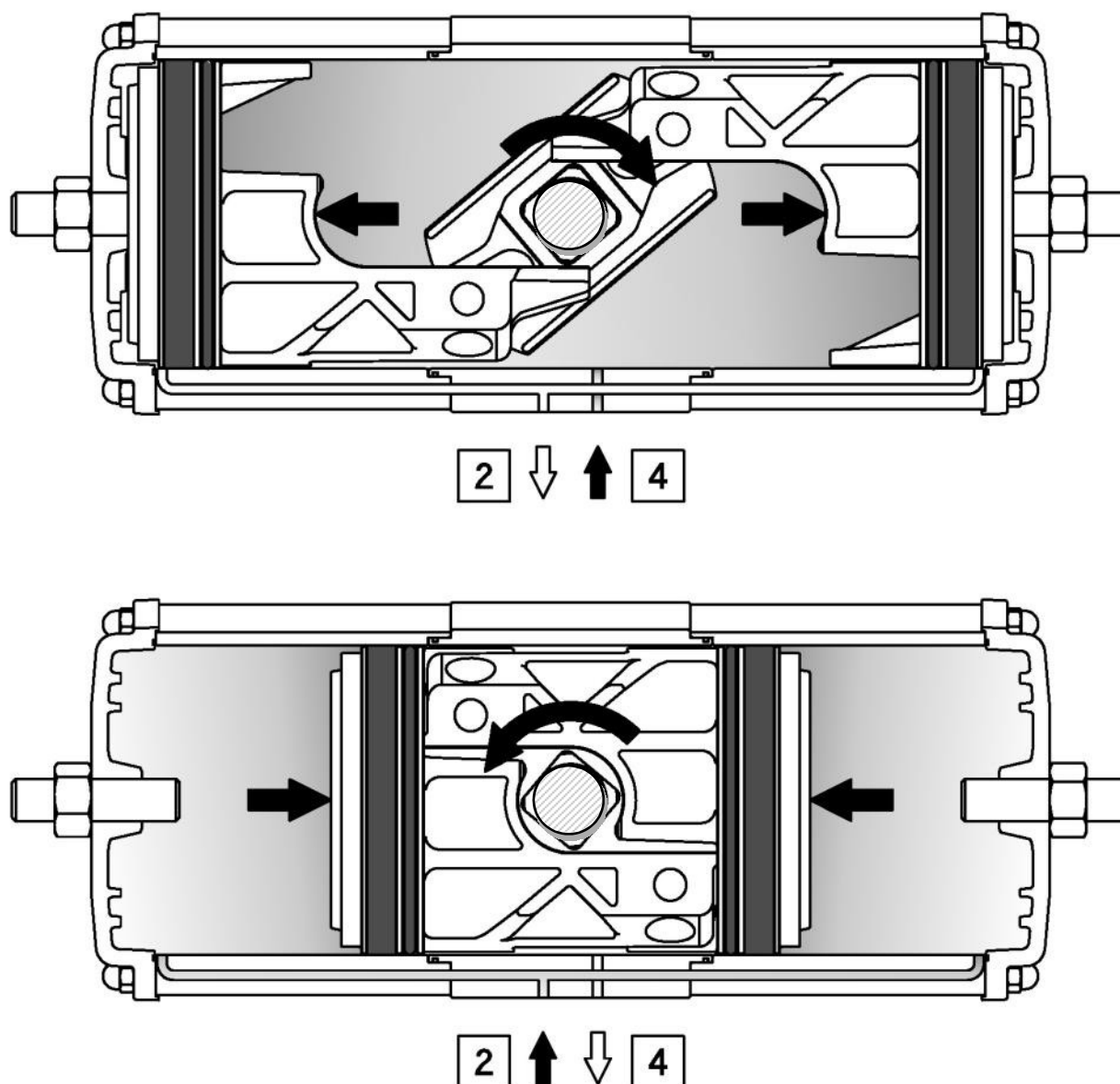
Tech File: R355-010073



3) OPERATION AND ROTATION DIRECTION

Double Acting (ACTAIR NG).

The pistons of standard ACTAIR NG actuators are mounted as shown below. This provides the highest torque at the valve start opening for valve clockwise to close. Both limit positions of the pistons travel can be fine adjusted (see pg10).

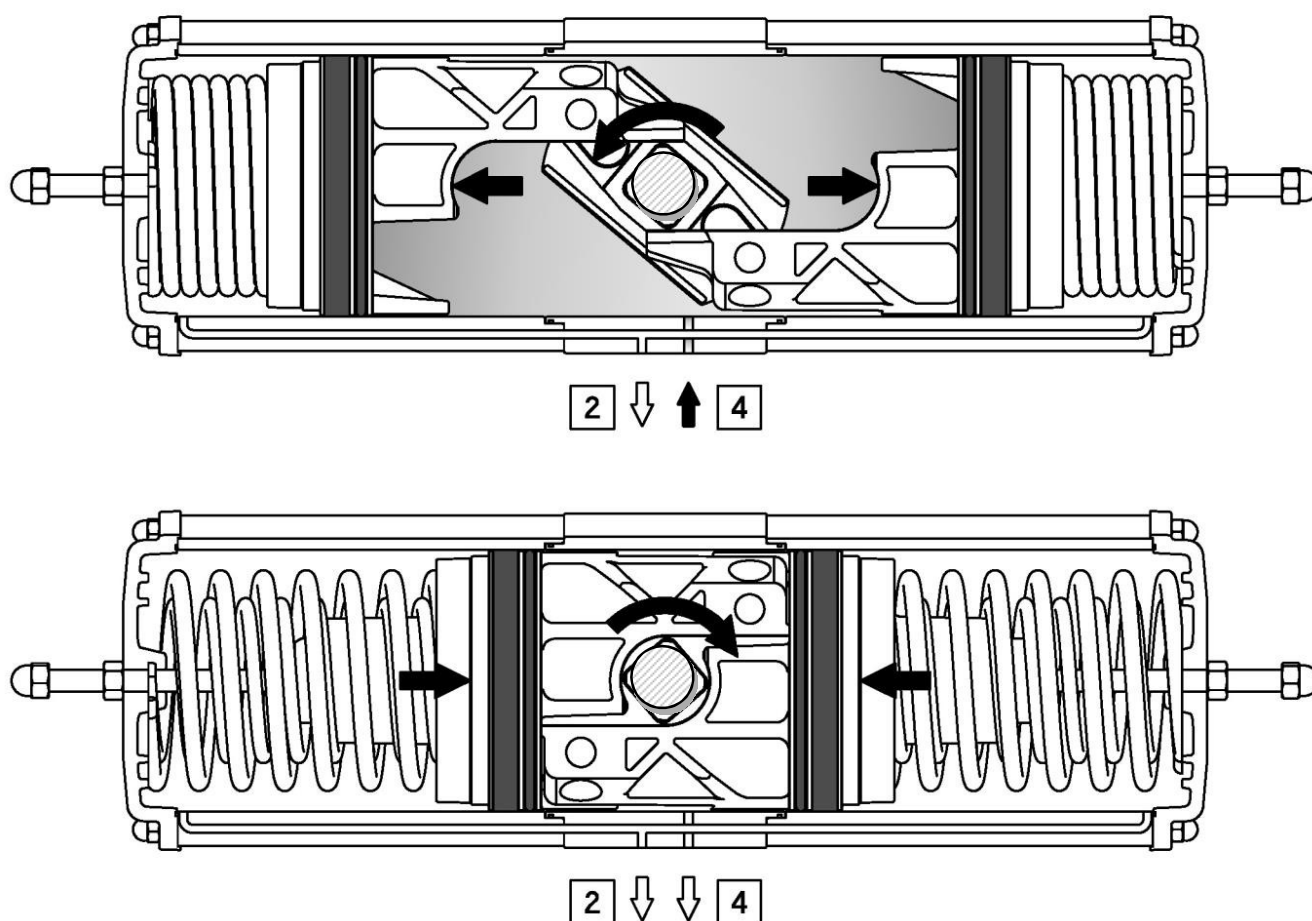


The port 2 is in connection with the cylinder side chambers, supplying the pressurised air in port 2 the standard Double Acting actuator drive shaft rotates counter clockwise to open , while the port 4 is in connection with the intermediate chamber and when pressurised the drive shaft rotates clockwise to close.

Single Acting (DYNACTAIR NG), Spring Return fail to Close.

The pistons of standard DYNACTAIR NG actuators are mounted as shown below. Although spring force is diminished, the geometry of the mechanism provides a greater torque at the end of the spring stroke. Both limit positions of the pistons travel can be fine adjusted (see page 10).

Caution. In order to avoid suction of dust or dirt inside of the actuator chambers during the spring action, install a regulator-filter on the port 2.



The port 4 is in connection with the intermediate chamber and when pressurized the drive shaft rotate counter clockwise to open.

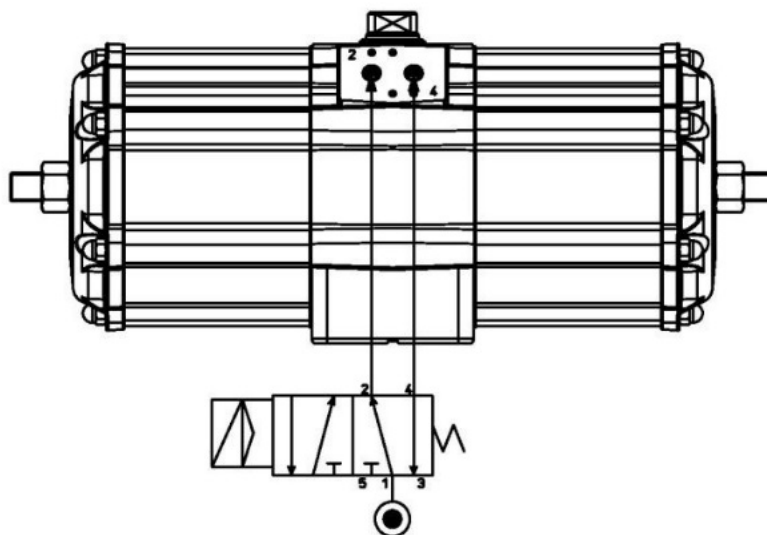
Important:

Special Double Acting version and Spring Return fail to open actuators with different piston positions have different rotation to close and to open: please follow their special instructions.

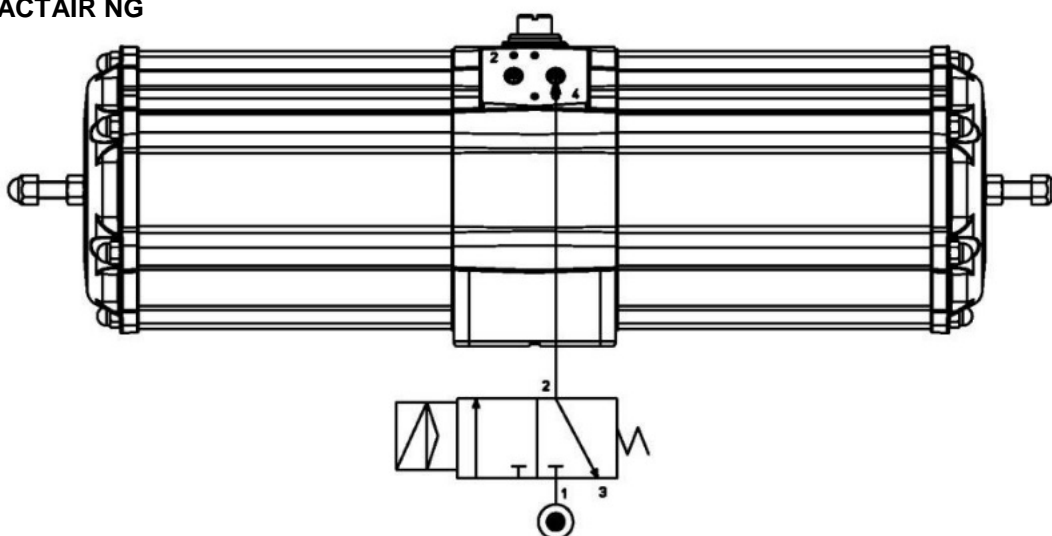
Actuator operation functionality remote control should be done by means of direct solenoid valve connection to the actuator standard interface VDE/VDI 3845 NAMUR, or by means of pipes screwed on the ports marked with the numbers 2 and 4 and connected to a separate control cabinet.

Fig 3.1 – Typical air connection schema.

ACTAIR NG



DYNACTAIR NG



A) Rotation direction.

In accordance with the international standard ISO 5599-2 the actuator air ports connection position, location, orientation and form shall be clearly identified and marked with the numerate 2 and 4.

Standard Double Acting and Simple Acting Spring Return actuators shall be Clockwise (CW) direction to valve Close, and Counter Clockwise (CCW) direction to valve Open.

4) SAFETY NOTICE

- The actuator should be used within the pressure mentioned limits only, operating the actuator over the pressure limit will damage the internal actuator parts.
- Operating the actuator over or under the temperature limits will damage the internal and external parts.
- Operating the actuator in corrosive environments without the required external protection will damage the actuator.
- Before installation, service or maintenance verify that the actuator is not pressurised, disconnect the air lines and make sure that the air ports are vented
- Do not remove the end caps while the actuator is installed in the line, or while the actuator is under pressure.
- Do not disassemble the caps end spring cartridge, this operation should be done by KSB trained personnel only, this operation could causes personal injury.
- Before mounting the actuator onto the valve make sure that the valve rotation is according with the actuator operating rotation, and the upper shaft slot orientation is also correct.
- Before installing the actuated valve do cycling test for a while to ensure the correct mechanical mounting and actuator/valve operations.
- The actuator installation shall be done according to and in observance with the local and national laws regulation.

KSB cannot be responsible for any damage to people, animals or things due to an improper use of the product.

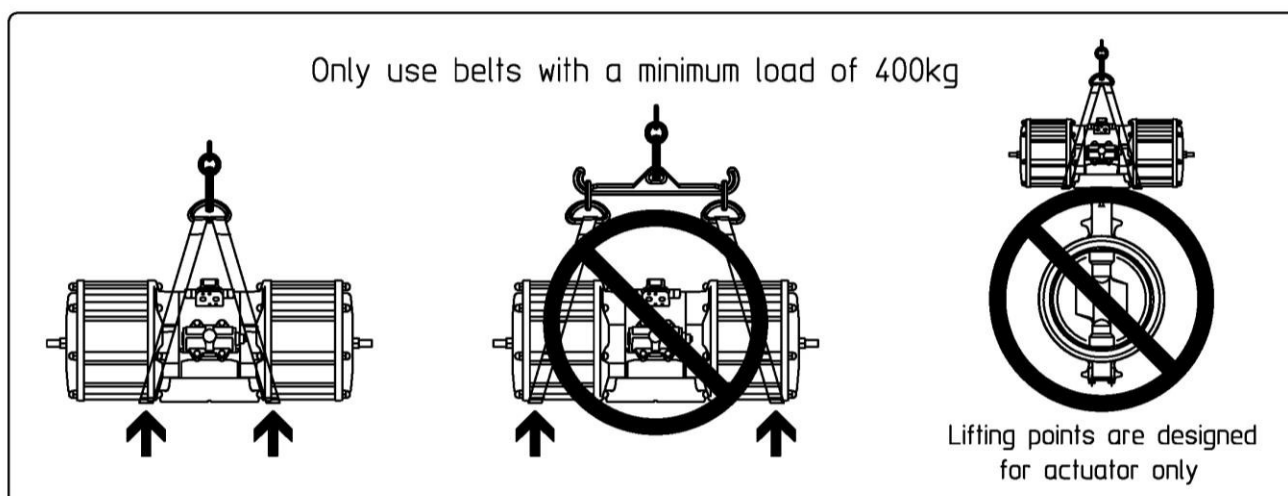
5) INSTALLATION INSTRUCTIONS

The principle of the actuator application is to open and close the connected part turn valve installed in a plant, without the manual operation, by remote control by means of an electric-pneumatic connection.

The normal sizing of actuators require a 20%-30% safety margin over the valve breakaway torque to handle valves.

Plant design, chemical and physical flow characteristics and environmental condition could increase the safety factor to apply to actuator sizing.

To lift the actuator using the right belts, see drawing below



Before performing any installation operation, verify the actuator and valve conditions according to the safety notice above described.

Moreover the utmost clearness is required during valve installation of the air supply connection to the actuator. All the connection parts such as reductions, joints, plates, brackets and equipment must be clean and dirty free.

-Before assembling the actuator onto the valve make sure that both items are correctly oriented, depending upon which direction of rotation is required.

-Before starting the actuator installation, should be done a visual actuator control to verify its physical condition after transportation and storage.

-Control through the shaft slot or caps the actuator position

- Read carefully the KSB instruction sheet included in the cardboard box

-Read the actuator limits and performances marked on the actuator body to verify its suitability

-Remove the protection label stickers from the ports

Before fitting the actuator on the valve, clean the valve and the actuator from the dust and dirt.

- Verify the valve position, close or open, and the rotation direction.

-Verify the actuator position and rotation according with the valve requirement and operation, especially for Spring Return installation Fail to Close or Fail to Open.

-Spring Return Fail to Close actuators are always supplied in the close position.

-While Spring Return Fail to Open are always supplied in the open position.

Fig 5.1 – Valve/Actuator assembly:

A) -Direct mounting.

Valve actuator Direct mounting is the best solution to avoid plays between valve stem and actuator drive shaft. For a direct mounting you should have the same standard flange connection on valve and actuator as well as the valve stem dimensions that fit perfectly with the actuator drive. Before installation please verify that the actuator and valve flange ISO connections are the same size; verify that the valve stem size and shape is suitable for direct mounting, if necessary use a drive reduction. Fit the valve stem into the actuator drive shaft connection, and bolt together the two ISO flanges.

B) -Mounting plate connection.

In case direct mounting is not possible cause of little differences in actuator/valve flanges or drives sizes, mounting plate's adapters with suitable flanges dimensions allows an easy connection living a sufficient space for the valve/actuator drive adapter.

C) -Bracket & Joint connection.

Wherever for technical reason the plant installation requires a distance between actuator and valve, or the valve flange and/or stem are not standard, and in any case, where the valve/actuator connection could not be possible, a bracket and joint is the right answer. The Bracket is a steel bridge that allows to connect the valve with its own flange connection in one side and with the suitable actuator connection onto the opposite side, living a space in between for a steel joint connection. The joint allows a drive connection between the actuator and the valve stem indispensable in case of stem key drive and flat head.

Choose the suitable flange bracket and the required joint connections to fix the actuator onto the valve very tight without any plays.

KSB actuator with its draining channels system on the flange connection pattern is especially designed for valve direct mounting. This system allows to drop away any possible flow coming from the valve stem that with valve/actuator direct mounting could damage the actuator.

Screw torque wrench setting

SIZE	TORQUE Nm
M10	45 to 50
M12	80 to 85
M14	125 to 135
M16	190 to 200
M20	370 to 390

Mounting on the valve

The actuator can be positioned in 4 positions at 90° intervals.
The standard arrangement is the N position 1.

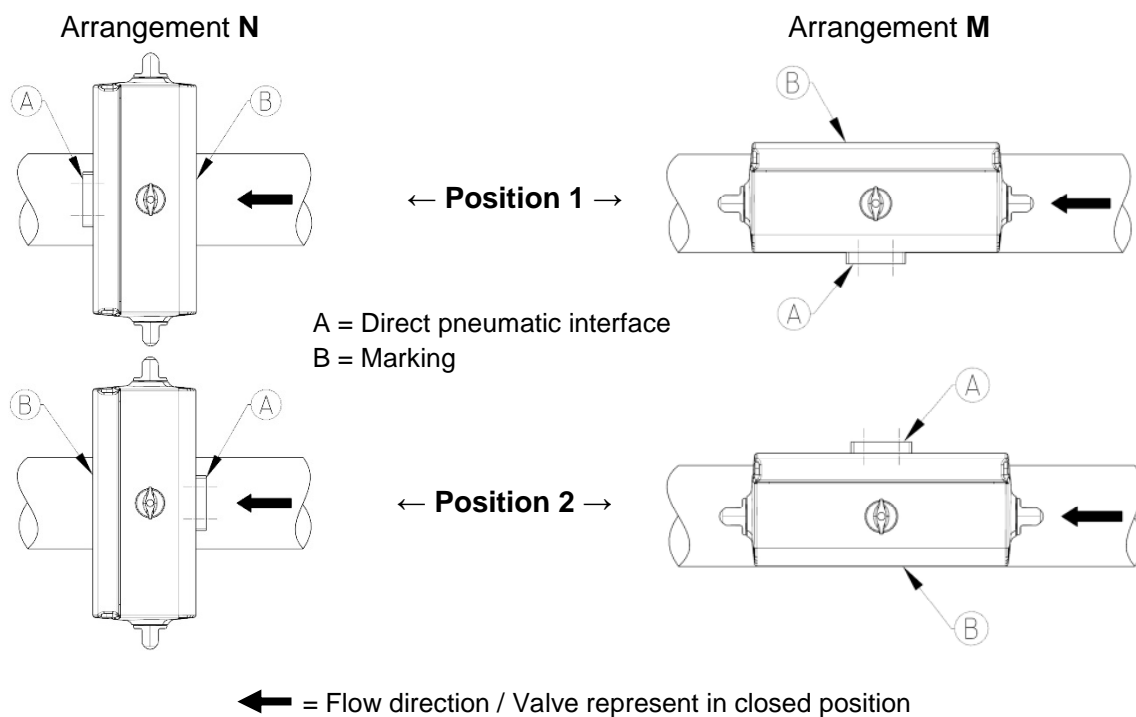


Fig 5.2 Stroke adjustment.

Both actuator versions, Double Acting and Spring Return, are provided as standard with 10° stroke adjustment.

5.2-1) ACTAIR NG 240

The actuator in object is designed to limit the piston stroke in both direction, sideward and inward, for valve close and open positions adjustment.

By means of the side end-cap screw (A) is possible to adjust the (valve) Open position; the end-cap screw (B) allow to adjust the (valve) Close position.

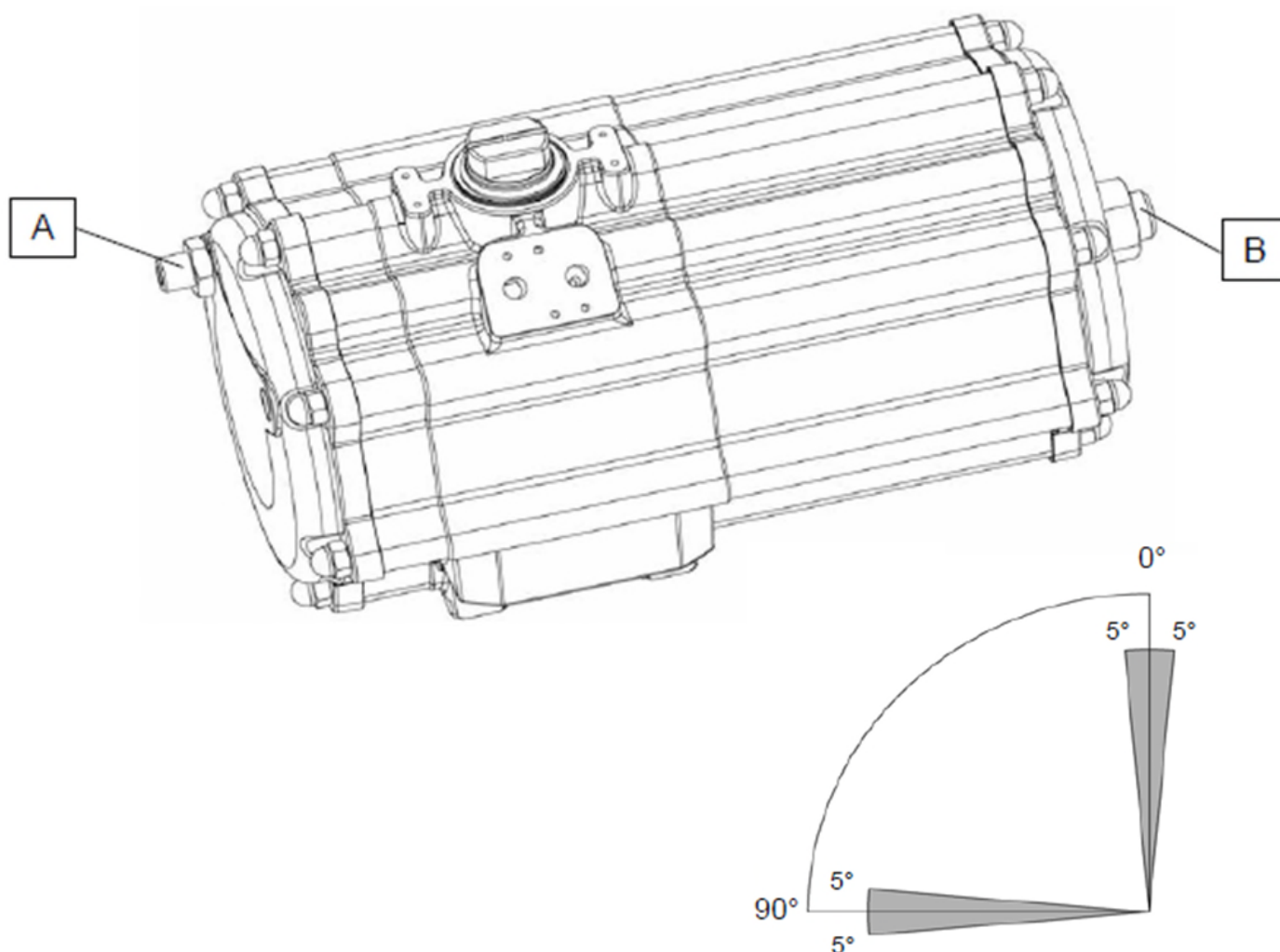
The actuators are provided with standard rotation from 0° (valve Close) to 90° (valve Open).

Standard stroke regulations allow the setting of -5° & +5° for both open and close positions.

WARNING and SAFETY

Do not adjust the actuator stroke regulation when pressurized.

Adjustement test with air supply can be carried out only after both regulation system (A & B) are well fixed.

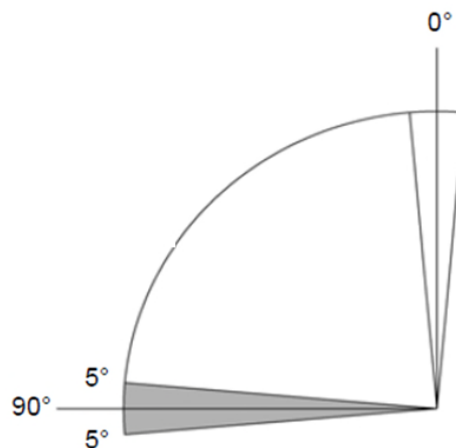
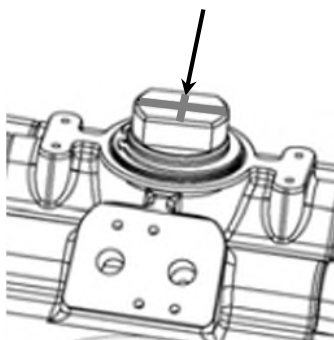


NOTE: Both adjustment systems A & B are designed to stop directly the piston stroke. This solution allows an easier and more perfect angle setting of valve rotation. The mechanical piston stops avoid any dangerous torques and stress on the drive shaft.

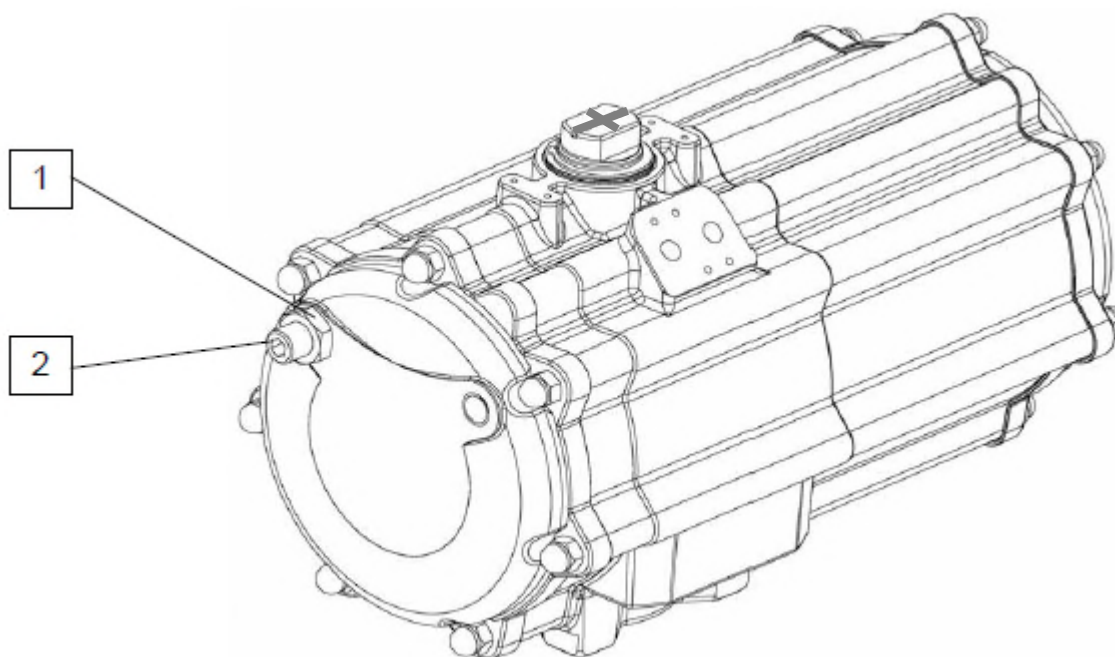
VALVE OPEN POSITION ADJUSTMENT

Put the actuator and valve in open position

The slot without balls on the shaft shows the position of the valve



90° valve Open
 10° stroke adjustment from 95° to 85°
 Shaft rotation

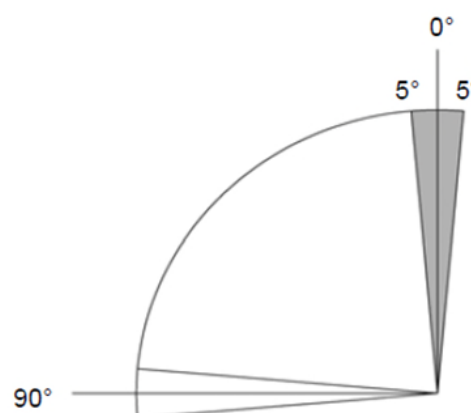
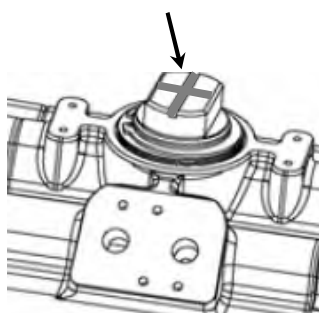


- 1) Before start the adjustment check that the actuator is not pressurized.
- 2) Unscrew the nut (1). Use key 36mm.
- 3) Rotate the screw (2) clockwise direction for less open angle setting <90°.
- 4) Rotate the screw (2) counter-clockwise direction for more angle setting >90°.
- 5) When the setting has been carried out, fix the adjustment with its nut (1) well tight.
- 6) Supply the compressed air in order to open the valve.
- 7) Check the valve setting and if the regulation is not as desired start again from the first operation.

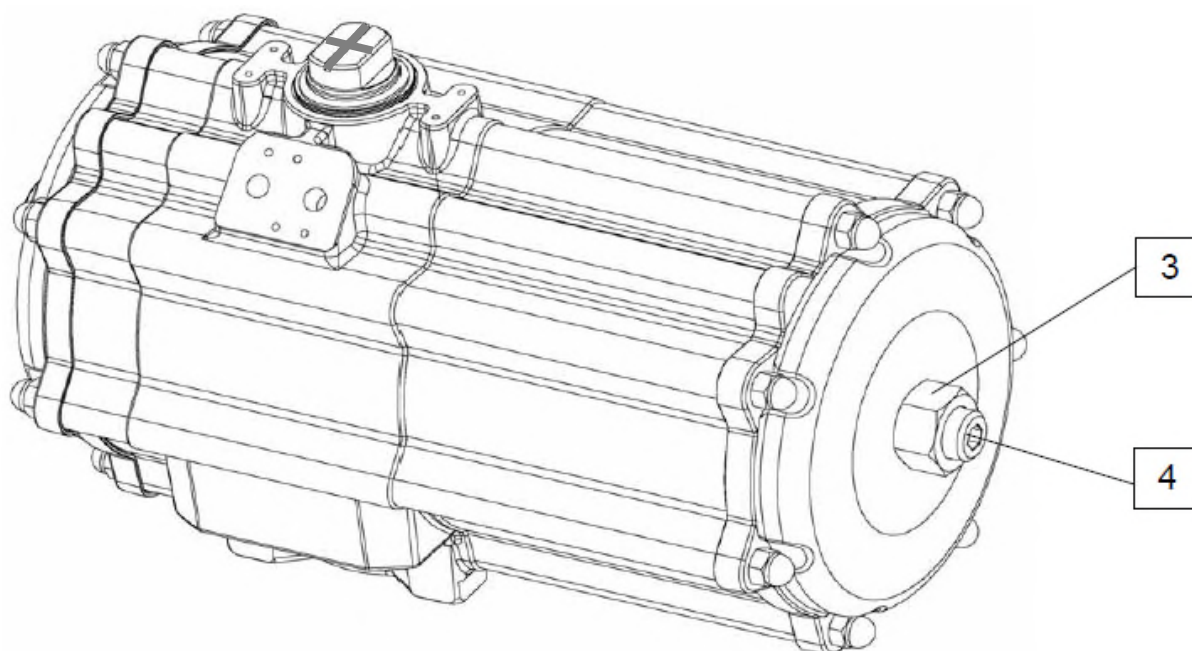
VALVE CLOSE POSITION ADJUSTMENT

Put the actuator and valve in close position

The slot without balls on the shaft shows the position of the valve



0° valve Close
 10° stroke adjustment from +5° to -5°
 Shaft rotation



- 1) Before start the adjustment check that the actuator is not pressurized.
- 2) Unscrew the nut (3). Use key 50mm.
- 3) Rotate the screw (4) clockwise direction for less open angle setting .
- 4) Rotate the screw (4) counter-clockwise direction for more angle setting .
- 5) When the setting has been carried out, fix the adjustment with its nut (3) well tight.
- 6) Supply the motive energy, compressed air, to move the piston partside.
- 7) Check the valve setting and if the regulation is not as desired start again from the first operation.
- 8) Supply the motive energy, compressed air, and cycle for few time.
- 9) Check the valve setting and if the regulation is not as desired start again from the first operation.

5.2-2) ACTAIR NG 340 / 500 / 700

The actuator in object is designed to limit the piston stroke in both direction, sideward and inward, for valve close and open positions adjustment.

By means of the central system (A) is possible to adjust the (valve) Open position; the end-cap screw (B) allow to adjust the (valve) Close position.

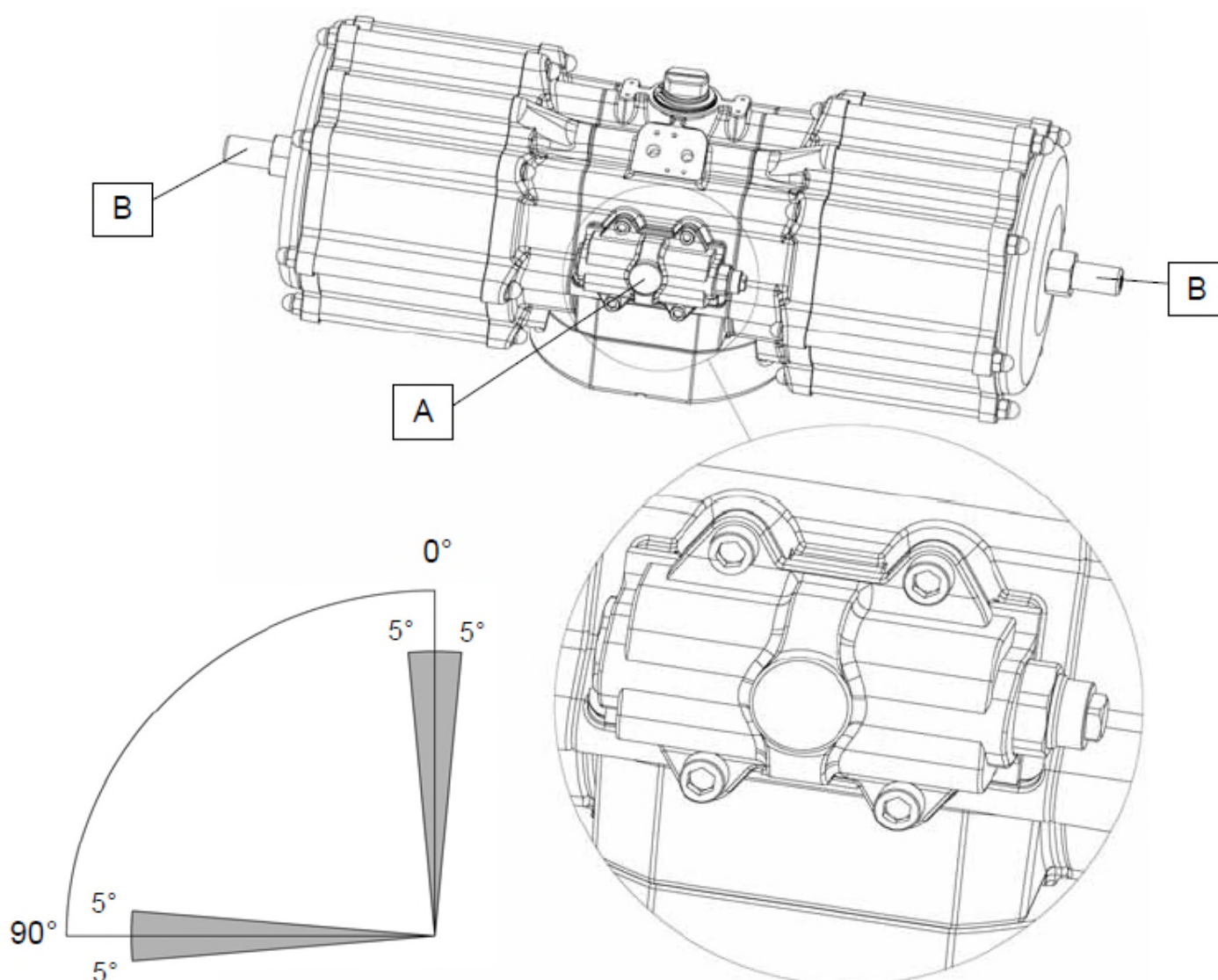
The actuators are provided with standard rotation from 0° (valve Close) to 90° (valve Open).

Standard stroke regulations allow the setting of -5° & +5° for both open and close positions.

WARNING and SAFETY

Do not adjust the actuator stroke regulation when pressurized.

Adjustment test with air supply can be carried out only after both regulation system (A & B) are well fixed.

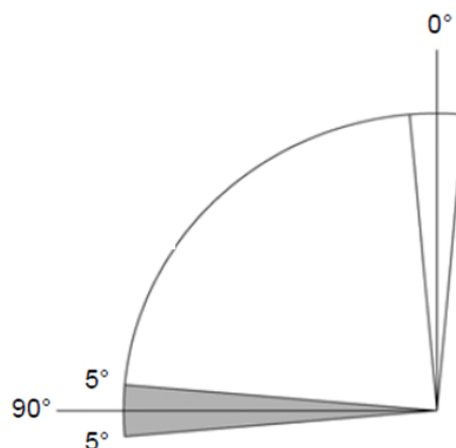
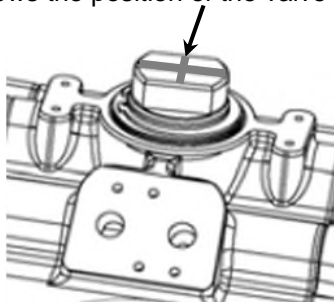


NOTE: Both adjustment systems A & B are designed to stop directly the piston stroke. This solution allows an easier and more perfect angle setting of valve rotation. The mechanical piston stops avoid any dangerous torques and stress on the drive shaft.

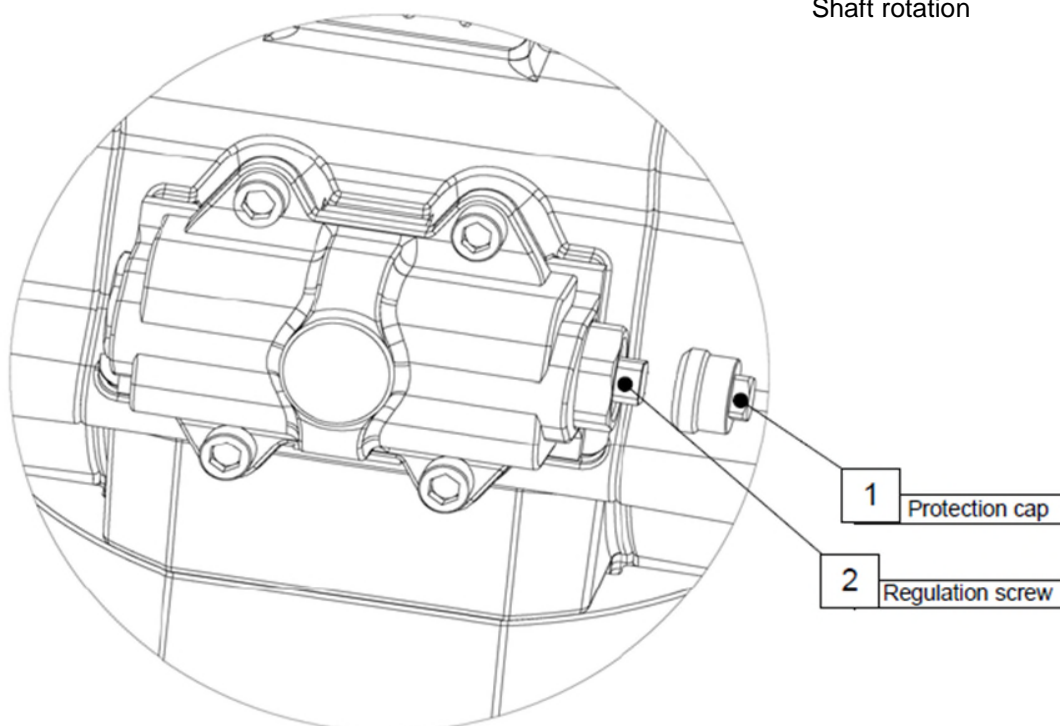
VALVE OPEN POSITION ADJUSTMENT

Put the actuator and valve in open position

The slot without balls on the shaft shows the position of the valve


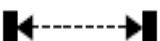


90° valve Open
10° stroke adjustment from 95° to 85°
Shaft rotation



- 1) Before start the adjustment check that the actuator is not pressurized.
- 2) Unscrew and remove the protection cap (1). Use key 15mm.
- 3) Rotate the screw (2) clockwise direction for close more angle setting >90°. Use key 15mm.
- 4) Rotate the screw (2) counter-clockwise direction for less close angle setting <90°. Use key 15mm.
- 5) When the setting has been carried out cover the adjustment with its protection cap (1) well tight. The cap, thanks to a special washer keep stop the adjusting screw.
- 6) Supply the motive energy, compressed air and cycle for few time
- 7) Check the valve setting and if the regulation is not as desired start again from the first operation.

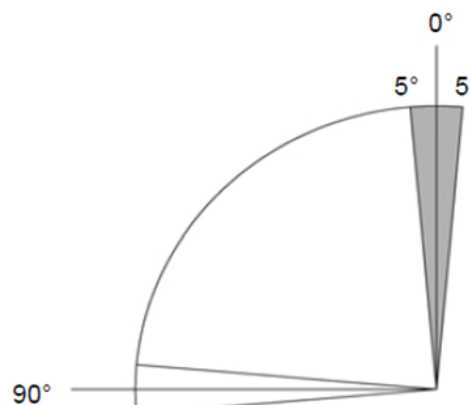
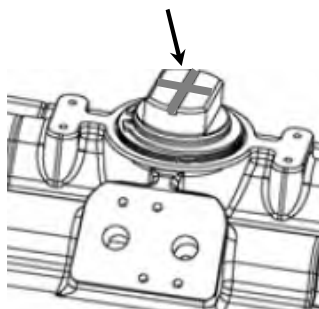
NOTE: The adjustment screw (2) is a double treated left and right directions

That move inward  and side ward  two steel stops that limit both pistons stroke.

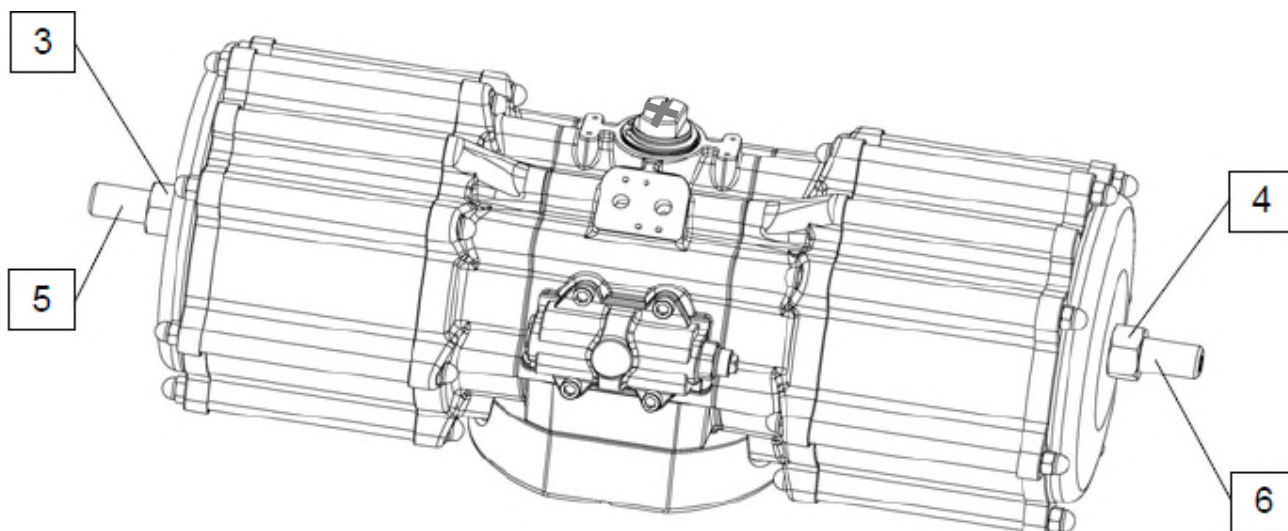
VALVE CLOSE POSITION ADJUSTMENT

Put the actuator and valve in close position

The slot without balls on the shaft shows the position of the valve



0° valve Close
10° stroke adjustment from +5° to -5°
Shaft rotation



- 1) Before start the adjustment check that actuator is not pressurized.
 - 2) Unscrew the security nuts (3 and 4).
 - 3) Rotate clockwise direction the adjustment screws (5 and 6) for less close angle setting.
 - 4) Rotate counter-clockwise the adjustment screws (5 and 6) for more angle setting.
- NOTE:** Both side screws shall be equally rotate to stop together the pistons in the same position.
- 5) Screw the security nuts (3 and 4) well tight.
 - 6) Supply the motive energy, compressed air, to move the pistons partside.
 - 7) Check the valve setting and if the regulation is not as desired start again from the first operation.
 - 8) After the control of the valve close setting is as desired is important to control that both adjustment screws are working properly and stop both pistons as follow.
 - 9) Put the actuator in close position and then take off the air pressure.
 - 10) Unscrew the security nuts (3 and 4).
 - 11) Check that both adjustment screws touch the pistons, if one screw is free means it is not against the piston.
 - 12) In case screw the screws lightly until it stop onto the piston.
 - 13) Screw the nuts well tight (3 and 4) to fix the adjustment.
 - 14) Supply the motive energy, compressed air and cycle for few time.
 - 15) Check the valve setting and if the regulation is not desired start again from the first operation.

5.2-3) DYNACTAIR NG 120

The actuator in object is designed to limit the piston stroke in both direction, sideward and inward, for valve close and open positions adjustment.

By means of the side end-cap screw (A) is possible to adjust the (valve) Close position; the end-cap screw (B) allow to adjust the (valve) Open position.

The actuators are provided with standard rotation from 0° (valve Close) to 90° (valve Open).

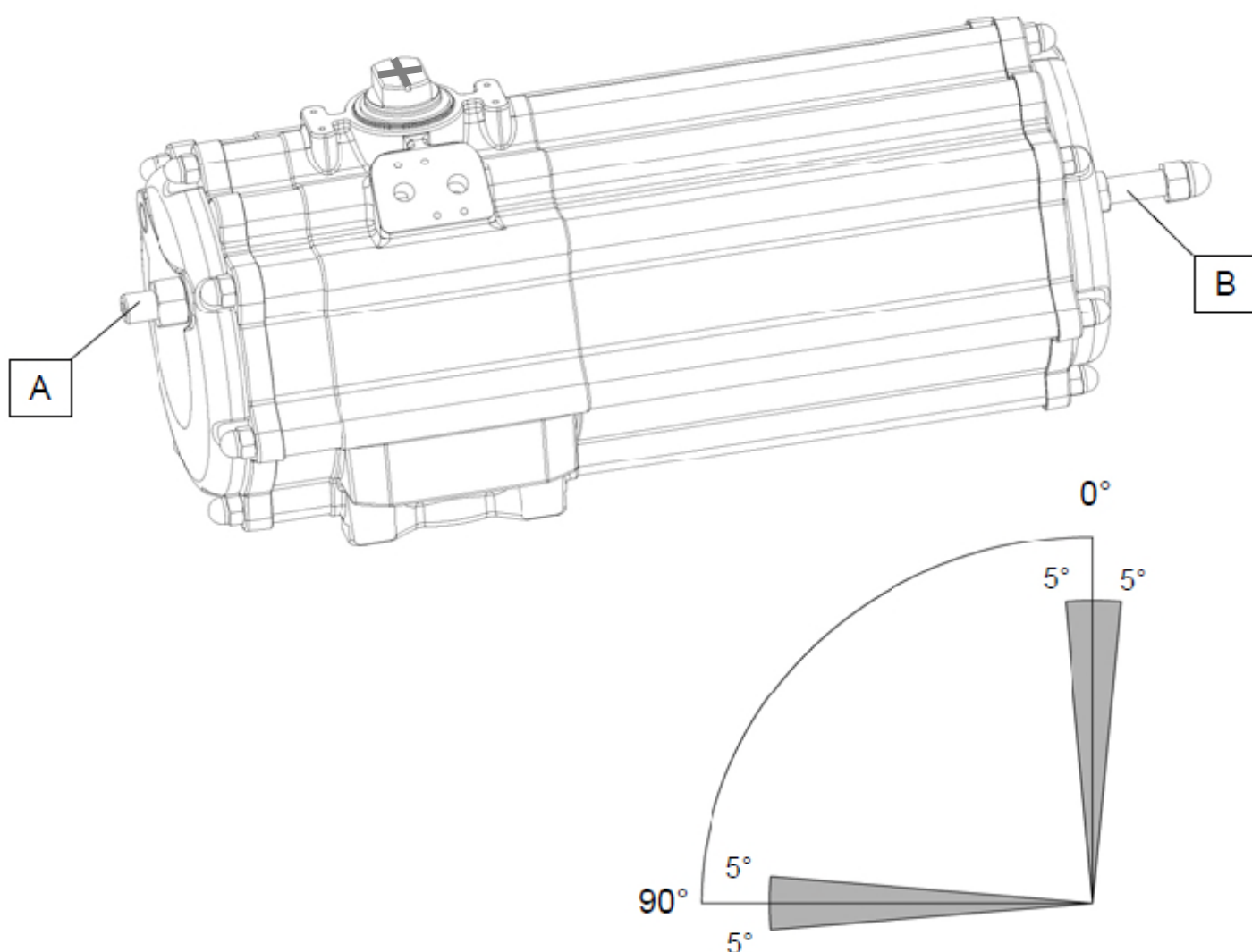
Standard stroke regulations allow the setting of -5° & +5° for both open and close positions.

WARNING and SAFETY

Do not adjust the actuator stroke regulation when pressurized.

Any test for adjustment regulation shall be done with minimum pistons mouvement air supply.

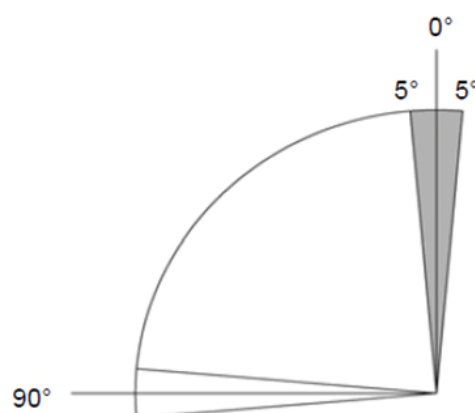
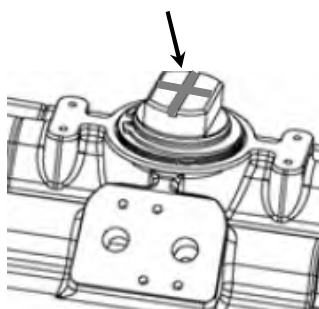
Adjustement test with air supply can be carried out only after both regulation system (A & B) are well fixed.



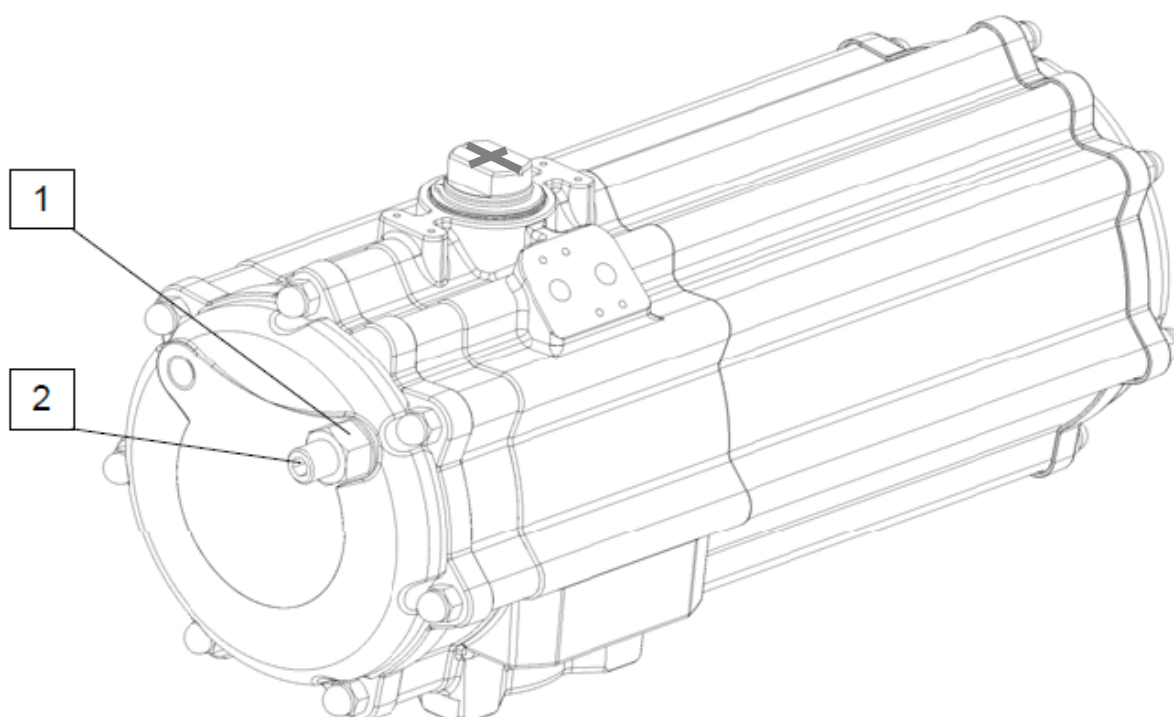
NOTE: Both adjustment systems A & B are designed to stop directly the piston stroke. This solution allows an easier and more perfect angle setting of valve rotation. The mechanical piston stops avoid any dangerous torques and stress on the drive shaft.

VALVE CLOSE POSITION ADJUSTMENT

The slot without balls on the shaft shows the position of the valve



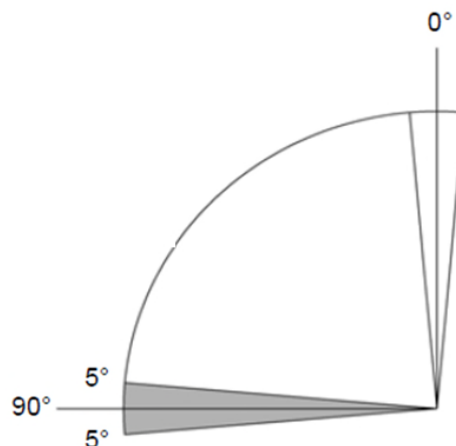
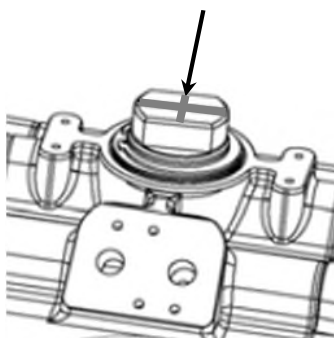
0° valve Close
 10° stroke adjustment from +5° to -5°
 Shaft rotation



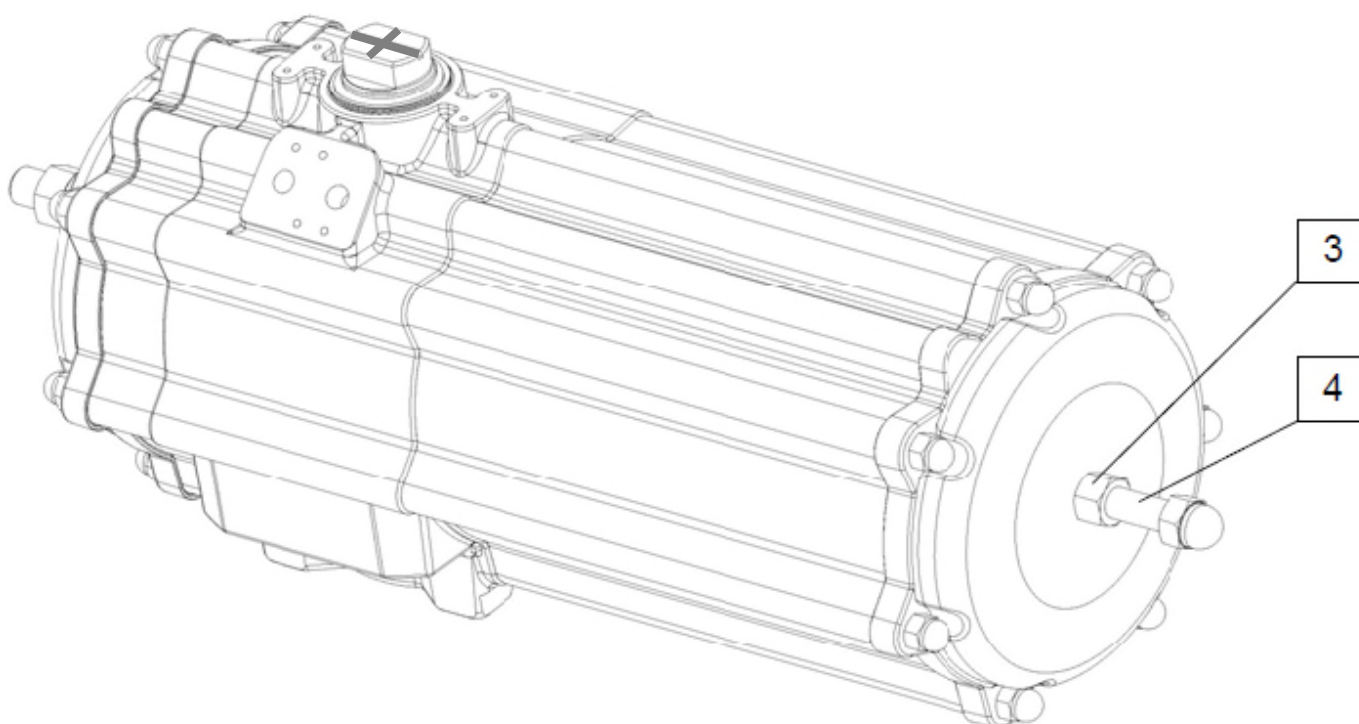
- 1) Before start the adjustment check that the actuator is not pressurized.
- 2) Supply the compressed air sufficient to move the piston on sideward position; the valve opens.
- 3) Unscrew the nut (1). Use key 36mm.
- 4) Rotate the screw (2) clockwise direction for less close angle setting.
- 5) Rotate the screw (2) counter-clockwise direction for more close angle setting.
- 6) When the setting has been carried out, fix the adjustment with its nut (1) well tight.
- 7) Discharge the compressed air in order to close the valve by means of springs and verify the valve close position
- 8) Check the valve setting and if the regulation is not as desired start again from the first operation.

VALVE OPEN POSITION ADJUSTMENT

The slot without balls on the shaft shows the position of the valve



90° valve Open
 10° stroke adjustment from 95° to 85°
 Shaft rotation



- 1) Before start the adjustment check that the actuator is not pressurized.
- 2) Unscrew the nut (3). Use key 30mm.
- 3) Rotate the screw (4) clockwise direction for less open angle setting .
- 4) Rotate the screw (4) counter-clockwise direction for more open angle setting .
- 5) When the setting has been carried out, fix the adjustment with its nut (3) well tight.
- 6) Supply the motive energy, compressed air, to move the piston partside.
- 7) Check the valve setting and if the regulation is not as desired start again from the first operation.
- 8) Supply the motive energy, compressed air, and cycle for few time.
- 9) Check the valve setting and if the regulation is not as desired start again from the first operation.

5.2-4) DYNACTAIR NG 160 / 240 / 350

The actuator in object is designed to limit the piston stroke in both direction, sideward and inward, for valve close and open positions adjustment.

By means of the side end-cap screw (A) is possible to adjust the (valve) Close position; the end-cap screw (B) allow to adjust the (valve) Open position.

The actuators are provided with standard rotation from 0° (valve Close) to 90° (valve Open).

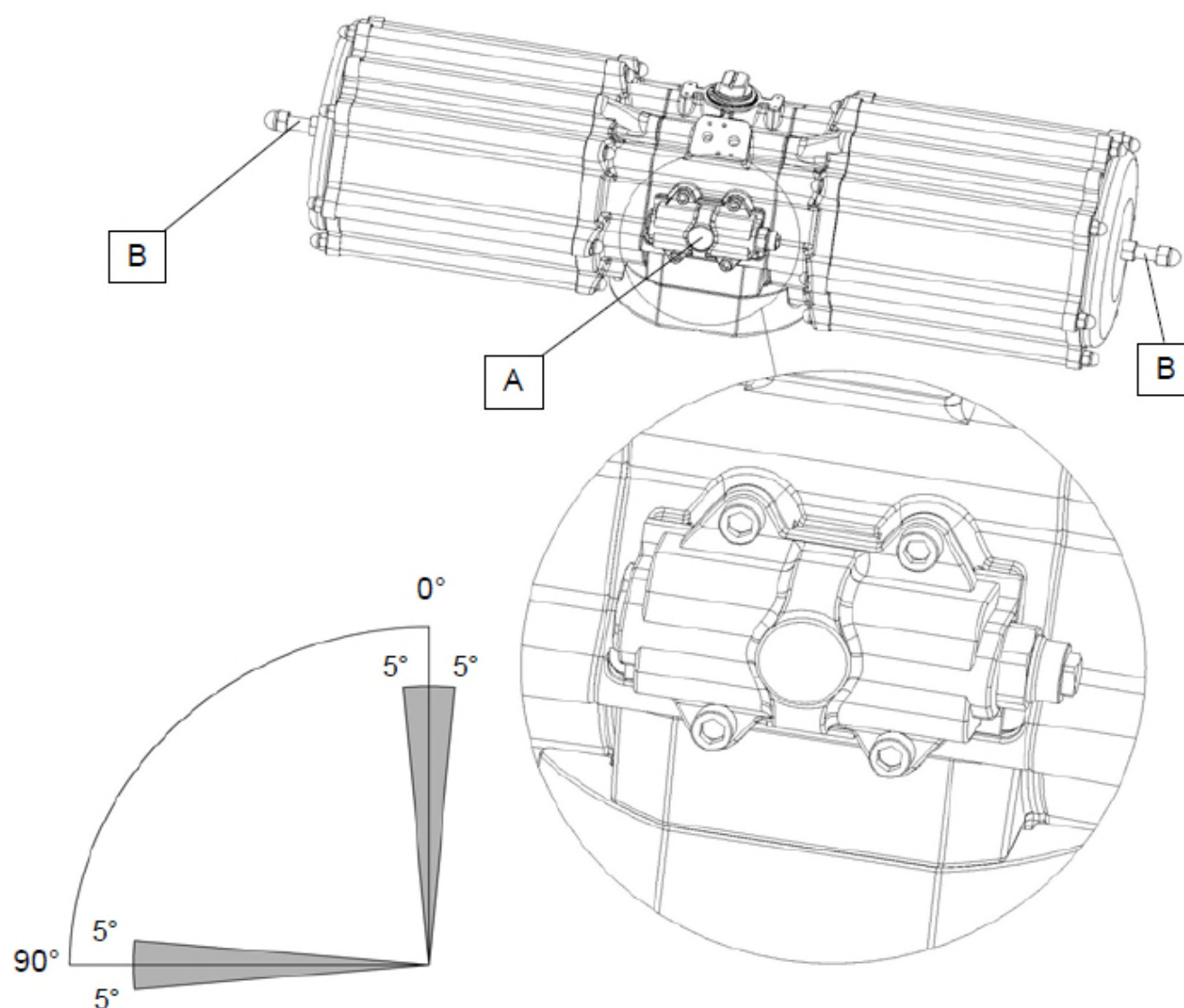
Standard stroke regulations allow the setting of -5° & +5° for both open and close positions.

WARNING and SAFETY

Do not adjust the actuator stroke regulation when pressurized.

Any test for adjustment regulation shall be done with minimum pistons mouvement air supply.

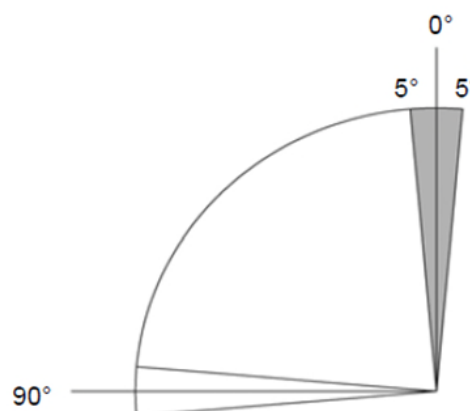
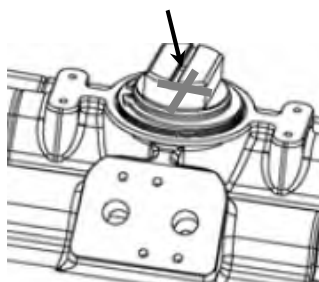
Adjustement test with air supply can be carried out only after both regulation system (A & B) are well fixed.



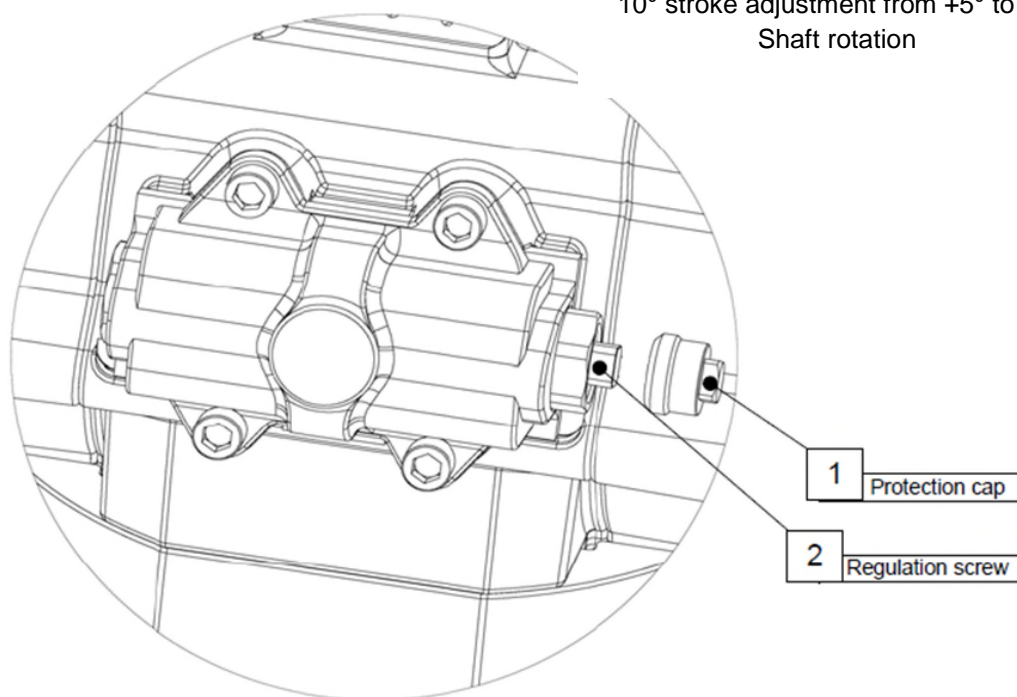
NOTE: Both adjustment systems A & B are designed to stop directly the piston stroke. This solution allows an easier and more perfect angle setting of valve rotation. The mechanical piston stops avoid any dangerous torques and stress on the drive shaft.

VALVE CLOSE POSITION ADJUSTMENT

The slot without balls on the shaft shows the position of the valve


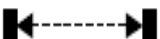


0° valve Close
10° stroke adjustment from +5° to -5°
Shaft rotation



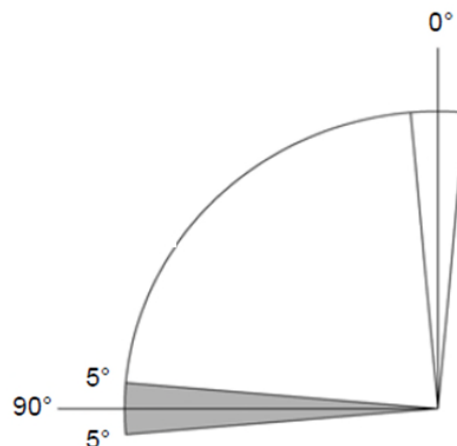
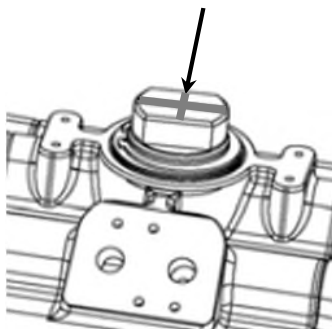
- 1) Before start the adjustment check that the actuator is not pressurized.
- 2) Supply the compressed air sufficient to move the pistons on sideward position; the valve opens.
- 3) Unscrew and remove the protection cap (1). Use key 15mm.
- 4) Rotate the screw (2) clockwise direction for close more angle setting. Use key 15mm.
- 5) Rotate the screw (2) counter-clockwise direction for less close angle setting. Use key 15mm.
- 6) When the setting has been carried out cover the adjustment with its protection cap (1) well tight. The cap, thanks to a special washer keep stop the adjusting screw.
- 7) Discharge the compressed air in order to close the valve by means of springs and verify the valve close position.
- 8) Check the valve setting and if the regulation is not as desired start again from the first operation.

NOTE: The adjustment screw (2) is a double treated left and right directions

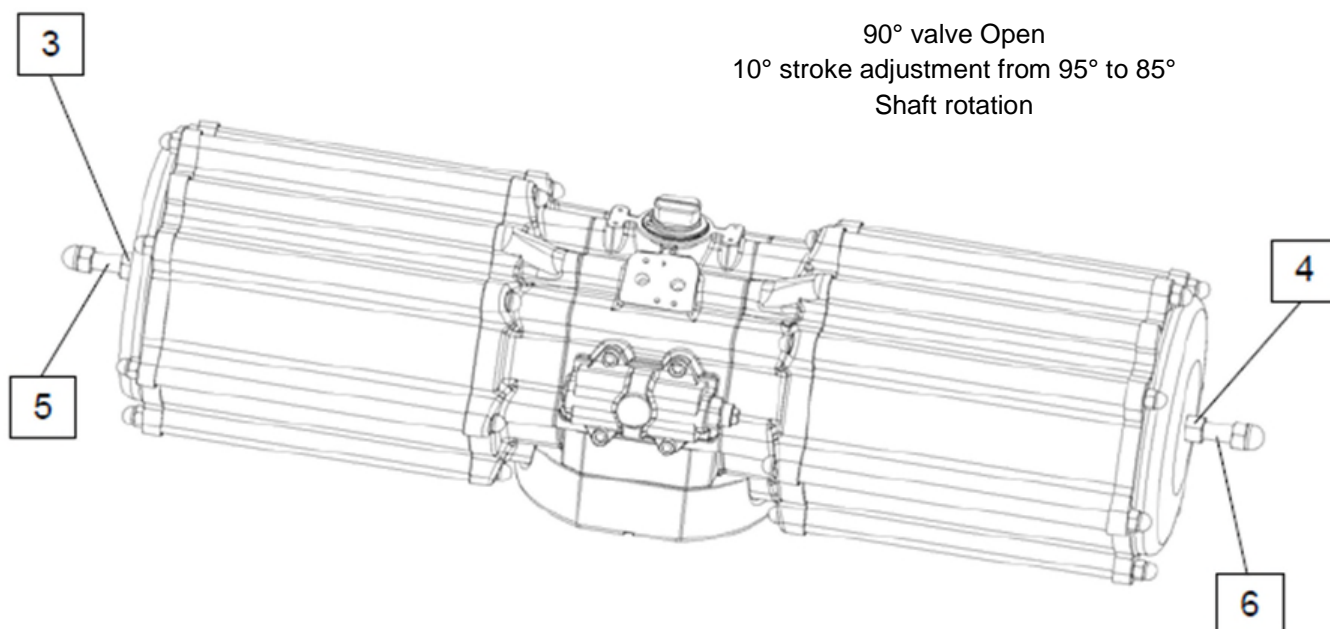
That move inward  and side ward  two steel stops that limit both pistons stroke.

VALVE OPEN POSITION ADJUSTMENT

The slot without balls on the shaft shows the position of the valve



90° valve Open
10° stroke adjustment from 95° to 85°
Shaft rotation



- 1) Before start the adjustment check that the actuator is not pressurized.
 - 2) Unscrew the nut (3 and 4).
 - 3) Rotate clockwise direction the adjustment screw (5 and 6) for less open angle setting .
 - 4) Rotate counter-clockwise direction the adjustment screw (5 and 6) for more open angle setting .
- NOTE:** Both side screws shall be equally rotate to stop together the pistons in the same position.
- 5) Screw the security nuts (3 and 4) well tight.
 - 6) Supply the motive energy, compressed air, to move the pistons partside.
 - 7) Check the valve setting and if the regulation is not as desired start again from the first operation.
 - 8) After the control of the valve open setting is as desired is important to control that both adjustment screws are working properly and stop both pistons together as follow.
 - 9) Put the actuator in open position, supplying compressed air lightly to move the pistons partside..
 - 10) Unscrew the security nuts (3 and 4).
 - 11) Check that both adjustment screws touch the pistons, if one screws is free means is not against the piston.
 - 12) In case screw the screws lightly until it stop onto the piston.
 - 13) Screw the nuts well tight (3 and 4) to fix the adjustment.
 - 14) Supply the motive energy, compressed air and cycle for few time.
 - 15) Check the valve setting and if the regulation is not desired start again from the first operation.

6) MAINTENANCE AND MATERIALS SPECIFICATION

Life time 20 years or number of cycles as per EN15714-3 2009 (see table below).

Nominal torque a Nm	Piston or vane actuator Minimum number of cycles b	Maximum stroking time for testing, based on 0-90° s
≤125	500 000 c	3
≤1 000	500 000	5
≤2 000	250 000	8
≤8 000	100 000	15
≤32 000	25 000	20
≤63 000	10 000	30
≤125 000	5 000	45
≤250 000	2 500	60

a) Based on EN ISO 5211.

b) One cycle consists of nominal 90° angular travel in both directions (i.e. 90° to open + 90° to close). For angular travel other than 90°, the endurance shall be agreed between the purchaser and the manufacturer/supplier.

c) For thermoplastic actuators the minimum number of cycles shall be 250 000.

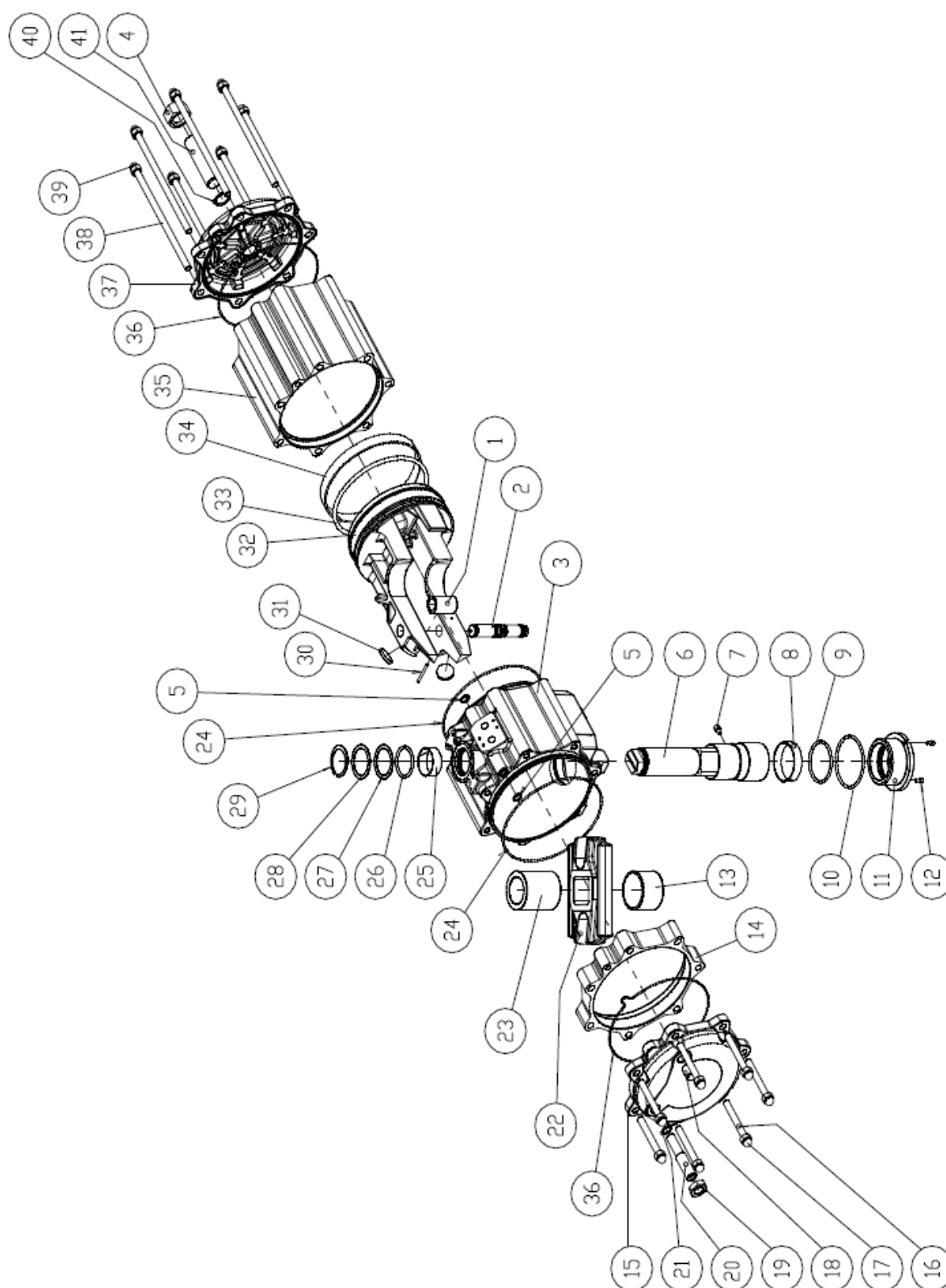
Should it be necessary to replace its pistons sealing, this operations must be done by trained people with proper tools, we recommend to return the actuator to KSB where the actuator will be overhauled and then tested for a correct replacement. On request KSB will be willing to provide its sealing Kits.

!!! KSB declines any responsibility for the products repaired by third parties

Fig 6.1 Actuator components and material list.

Actuator type	Components and material - Page
ACTAIR NG240	24 / 25
ACTAIR NG340	26 / 27
ACTAIR NG500	28 / 29 / 30
ACTAIR NG700	31 / 32 / 33
DYNACTAIR NG120	34 / 35 / 36
DYNACTAIR NG160	37 / 38 / 39
DYNACTAIR NG240	40 / 41 / 42
DYNACATIR NG350	43 / 44 / 45

6.1-1) ACTAIR NG 240



Standard version:

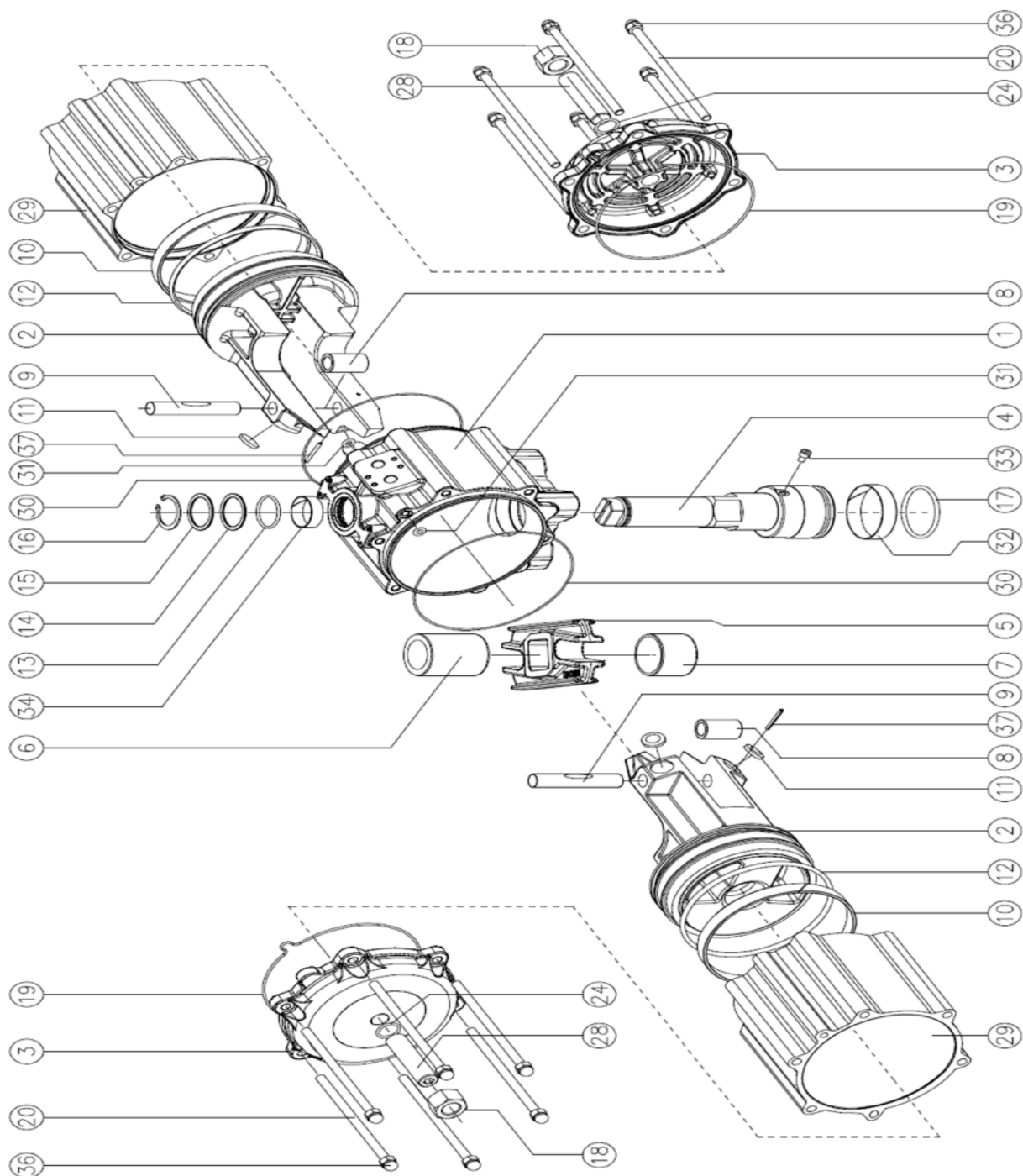
* = Kit parts

POS	DENOMINATION	QTE	MATERIALS	STANDARDS
1	Steel bush	1	Steel alloy	
2	Steel pin	1	Steel alloy	
3	Body	1	Aluminium alloy	Anodized
4	Nut	1	Stainless steel	AISI 304 – DIN 1.4301
5*	O-ring	2	Nitrilic rubber	
6	Shaft	1	Steel alloy	
7	Screw	1	Steel Alloy	
8*	Bearing (shaft down)	1	Acetalic resin	
9*	O-ring	1	FKM	
10*	O-ring	1	FKM	
11	Low bearing bush	1	Aluminium alloy	Anodized
12	Screw	2	Steel alloy	
13	Bearing shaft	1	Acetalic resin	
14	Spacer	1	Aluminium alloy	EN AW 6063 anodized
15	Cap	1	Aluminium alloy	Anodized
16	Cap screw	7	Steel alloy	
17	Cap nut	7	Stainless steel	AISI 304 – DIN 1.4301
18	Grub screw	1	Stainless steel	AISI 304 – DIN 1.4301
19	Nut	1	Stainless steel	AISI 304 – DIN 1.4301
20	Grub screw	1	Stainless steel	AISI 304 – DIN 1.4301
21*	O-ring	1	Nitrilic rubber	
22	Scotch yoke	1	Steel alloy	UNI 90MnVCr8Ku – DIN 1.2842 hardened
23	Bearing shaft	1	Acetalic resin	
24*	O-ring	2	Nitrile rubber	
25*	Bearing (shaft top)	1	Acetalic resin	
26*	O-ring	1	FKM	
27*	Thrust bearing	1	Acetalic resin	
28	Washer	1	Steel alloy	
29	Seeger	1	Steel alloy	
30	Spring pin	1	Steel alloy	
31*	Bearing (piston back)	2	Acetalic resin	
32	Piston	1	Aluminium alloy	
33*	O-ring	1	Nitrilic rubber	
34*	Bearing (piston head)	1	Acetalic resin	
35	Lateral cylinder	1	Aluminium alloy	EN AW 6063 anodized
36*	O-ring	2	Nitrile rubber	
37	Cap	1	Aluminium alloy	Anodized
38	Cap screw	7	Steel alloy	
39	Cap nut	7	Stainless steel	AISI 304 – DIN 1.4301
40*	O-ring	1	Nitrilic rubber	
41	Grub screw	1	Stainless steel	AISI 304 – DIN 1.4301

High temperature version → O-ring = FKM (Fluoroelastomer)

Low temperature version → O-ring = FVMQ (Fluorosilicon)

6.1-2) ACTAIR NG 340



Standard version:

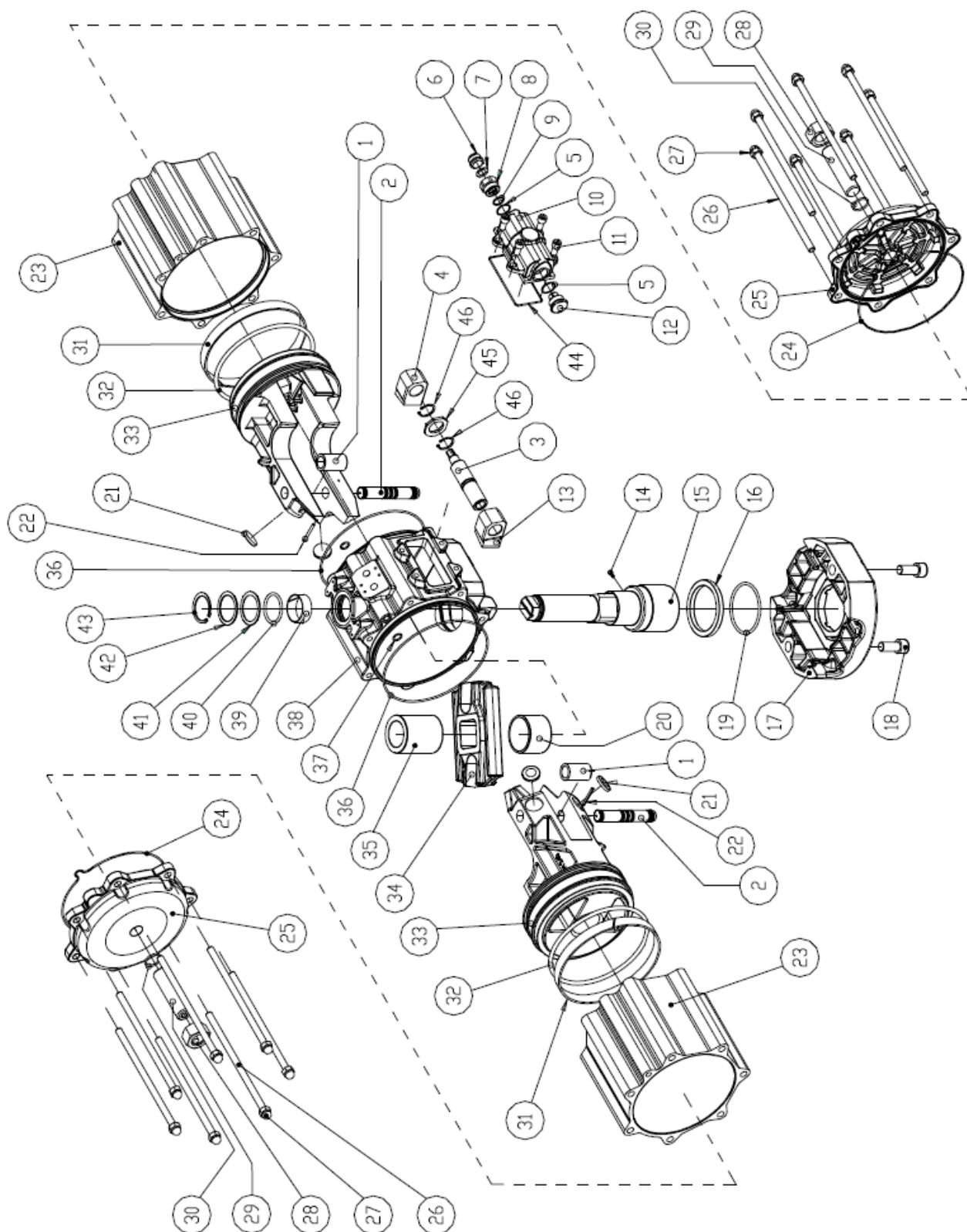
* = Kit parts

POS	DENOMINATION	QTE	MATERIALS	STANDARDS
1	Cylinder	1	Aluminium alloy	Anodized
2	Piston	2	Aluminium alloy	
3	Cap	2	Aluminium alloy	Anodized
4	Shaft	1	Stainless steel	AISI 303 – DIN 1.4305
5	Scotch yoke	1	Steel alloy	UNI 90MnVCr8Ku – DIN 1.2842 Hardened
6	Support bush	1	Acetalic resin	
7	Shaft support	1	Acetalic resin	
8	Bush	2	Steel alloy	UNI 110w4Ku – DIN 1.2516
9	Rotative sleeve	2	Steel alloy	
10*	Dynamic seal (piston)	2	Acetalic resin	
11*	Piston's support	4	Acetalic resin	
12*	Piston O-ring	2	Nitrilic rubber	
13*	O-ring (upper shaft)	1	FKM	
14*	External support ring	1	Acetalic resin	
15	Washer	1	Stainless steel	DIN 988
16	Seeger	1	Stainless steel	UNI 3653 – DIN 471
17*	O-ring (low shaft)	1	FKM	
18	Nut	2	Stainless steel	AISI 304 – DIN 1.4301
19*	Cap O-ring	2	Nitrile rubber	
20	Cap screw	12	Steel alloy	
24*	O-ring	2	Nitrilic rubber	
28	Stroke adjustment screw	2	Stainless steel	AISI 304 – DIN 1.4301
29	Lateral cylinder	2	Aluminium alloy	EN AW 6063 Anodized
30*	Cylinder O-ring	2	Nitrilic rubber	
31*	O-ring	2	Nitrilic rubber	
32*	Low support seal	1	Acetalic resin	
33	Safety screw	1	Stainless steel	AISI 304 – DIN 1.4301
34*	Upper support seal	1	Acetalic resin	
36	Cap nut	12	Stainless steel	AISI 304 – DIN 1.4301
37	Spring pin	2	Steel alloy	

High temperature version → O-ring = FKM (Fluoroelastomer)

Low temperature version → O-ring = FVMQ (Fluorosilicon)

6.1-3) ACTAIR NG 500



Standard version:

* = Kit parts

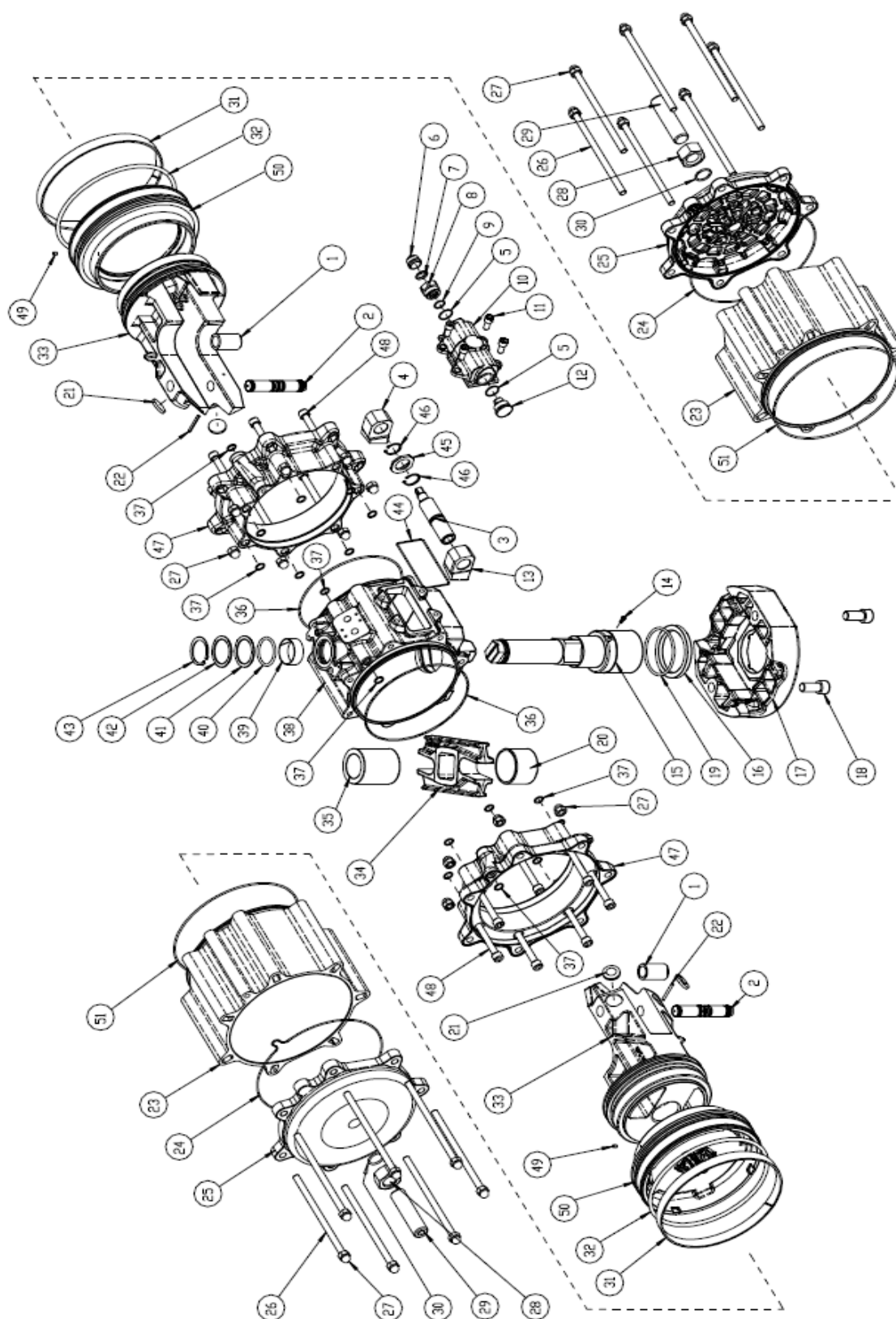
POS	DENOMINATION	QTE	MATERIALS	STANDARDS
1	Steel bush	1	Steel alloy	
2	Steel pin	1	Steel alloy	
3	Regulation screw	1	Steel alloy	
4	Left stop	1	Steel alloy	
5*	O-ring	2	Nitrilic rubber	
6	Protection cap	1	Aluminium alloy	Anodized
7	Anti-rotation washer	1	Steel Alloy	
8	Metal ring	1	Stainless steel	AISI 304 – DIN 1.4301
9*	O-ring	1	Nitrile rubber	
10	Carter	1	Aluminium alloy	Anodized
11	Screw	4	Steel alloy	
12	Metal ring	1	Stainless steel	
13	Ring stop	1	Steel alloy	
14	Screw	1	Steel alloy	
15	Shaft	1	Steel alloy	
16*	Bearing (shaft bottom)	1	Acetalic resin	
17	Interface	1	Aluminium alloy	Anodized
18	Screw	2	Steel alloy	
19*	O-ring	1	FKM	
20	Bearing shaft	1	Acetalic resin	
21*	Bearing (piston back)	4	Acetalic resin	
22	Spring pin	2	Steel alloy	
23	Lateral cylinder	2	Aluminium alloy	EN AW 6063 anodized
24*	O-ring	2	Nitrile rubber	
25	Cap	2	Aluminium alloy	Anodized
26	Cap screw	14	Steel alloy	
27	Cap nut	14	Stainless steel	AISI 304 – DIN 1.4301
28	Nut	2	Stainless steel	AISI 304 – DIN 1.4301
29	Grub screw	2	Stainless steel	AISI 304 – DIN 1.4301
30*	O-ring	2	Nitrilic rubber	
31*	Bearing (piston head)	2	Acetalic resin	Stainless steel
32*	O-ring	2	Nitrile rubber	
33	Piston	2	Aluminium alloy	
34	Scotch yoke	1	Steel alloy	UNI 90MnVCr8Ku – DIN 1.2842 Hardened
35	Bearing shaft	1	Acetalic resin	
36*	O-ring	2	Nitrilic rubber	
37*	O-ring	2	Nitrilic rubber	
38	Body	1	Aluminium alloy	Anodized
39*	Bearing (shaft top)	1	Acetalic resin	
40*	O-ring	1	FKM	
41*	Thrust bearing	1	Acetalic resin	
42	Washer	1	Steel alloy	

43	Seeger	1	Steel alloy	
POS	DENOMINATION	QTE	MATERIALS	STANDARDS
44*	Gasket	1	Nitrilic rubber	
45	Washer	1	Steel alloy	
46	Seeger	2	Steel alloy	

High temperature version → O-ring = FKM (Fluoroelastomer)

Low temperature version → O-ring = FVMQ (Fluorosilicon)

6.1-4) ACTAIR NG 700



Standard version:

* = Kit parts

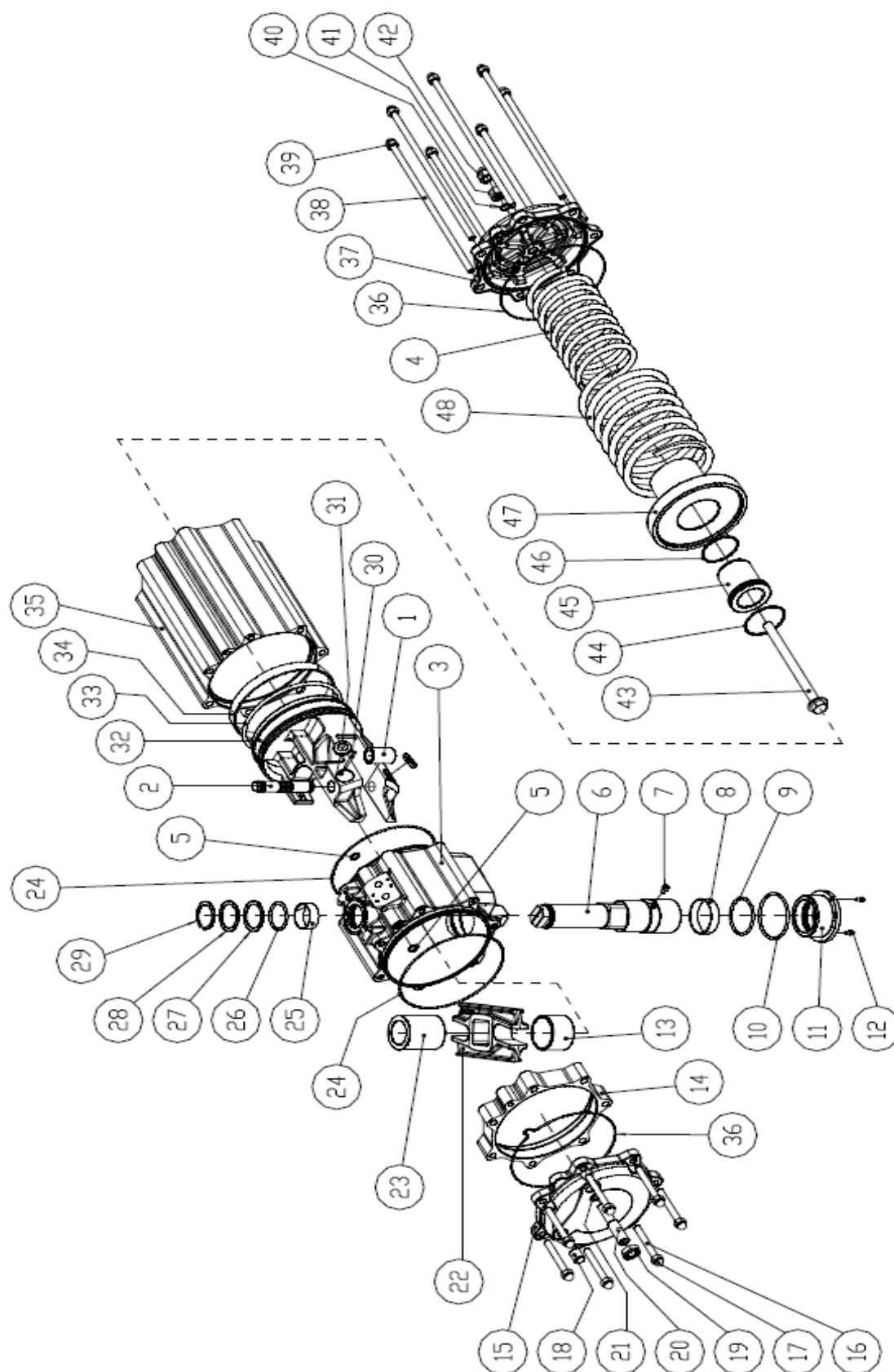
POS	DENOMINATION	QTE	MATERIALS	STANDARDS
1	Steel bush	2	Steel alloy	
2	Steel pin	2	Steel alloy	
3	Regulation screw	1	Steel alloy	
4	Left stop	1	Steel alloy	
5*	O-ring	2	Nitrilic rubber	
6	Protection cap	1	Aluminium alloy	Anodized
7	Anti-rotation washer	1	Steel Alloy	
8	Metal ring	1	Stainless steel	AISI 304 – DIN 1.4301
9*	O-ring	1	Nitrilic rubber	
10	Carter	1	Aluminium alloy	Anodized
11	Screw	4	Steel alloy	
12	Metal ring	1	Stainless steel	AISI 304 – DIN 1.4301
13	Ring stop	1	Steel alloy	
14	Screw	1	Steel alloy	
15	Shaft	1	Steel alloy	
16*	Bearing (shaft bottom)	1	Acetalic resin	
17	Interface	1	Aluminium alloy	Anodized
18	Screw	2	Steel alloy	
19*	O-ring	1	FKM	
20	Bearing shaft	1	Acetalic resin	
21*	Bearing (piston back)	4	Acetalic resin	
22	Spring pin	2	Steel alloy	
23	Lateral cylinder	2	Aluminium alloy	EN AW 6063 anodized
24*	O-ring	2	Nitrilic rubber	
25	Cap	2	Aluminium alloy	Anodized
26	Cap screw	14	Steel alloy	
27	Cap nut	28	Stainless steel	AISI 304 – DIN 1.4301
28	Nut	2	Stainless steel	AISI 304 – DIN 1.4301
29	Grub screw	2	Stainless steel	AISI 304 – DIN 1.4301
30*	O-ring	2	Nitrilic rubber	
31*	Bearing (piston head)	2	Acetalic resin	Stainless steel
32*	O-ring	2	Nitrile rubber	
33	Piston	2	Aluminium alloy	
34	Scotch yoke	1	Steel alloy	UNI 90MnVCr8Ku – DIN 1.2842 Hardened
35	Bearing shaft	1	Acetalic resin	
36*	O-ring	2	Nitrilic rubber	
37*	O-ring	18	Nitrilic rubber	
38	Body	1	Aluminium alloy	Anodized
39*	Bearing (shaft top)	1	Acetalic resin	
40*	O-ring	1	FKM	
41*	Thrust bearing	1	Acetalic resin	
42	Washer	1	Steel alloy	
43	Seeger	1	Steel alloy	

44*	Gasket	1	Nitrilic rubber	
POS	DENOMINATION	QTE	MATERIALS	STANDARDS
45	Washer	1	Steel alloy	
46	Seeger	2	Steel alloy	
47	Flange	2	Aluminium alloy	Anodized
48	Screw	14	Steel alloy	
49	Grub screw	2	Steel alloy	
50	Flange	2	Aluminium alloy	
51*	O-ring	2	Nitrilic rubber	

High temperature version → O-ring = FKM (Fluoroelastomer)

Low temperature version → O-ring = FVMQ (Fluorosilicon)

6.1-5) DYNACTAIR NG 120



Standard version:

* = Kit parts

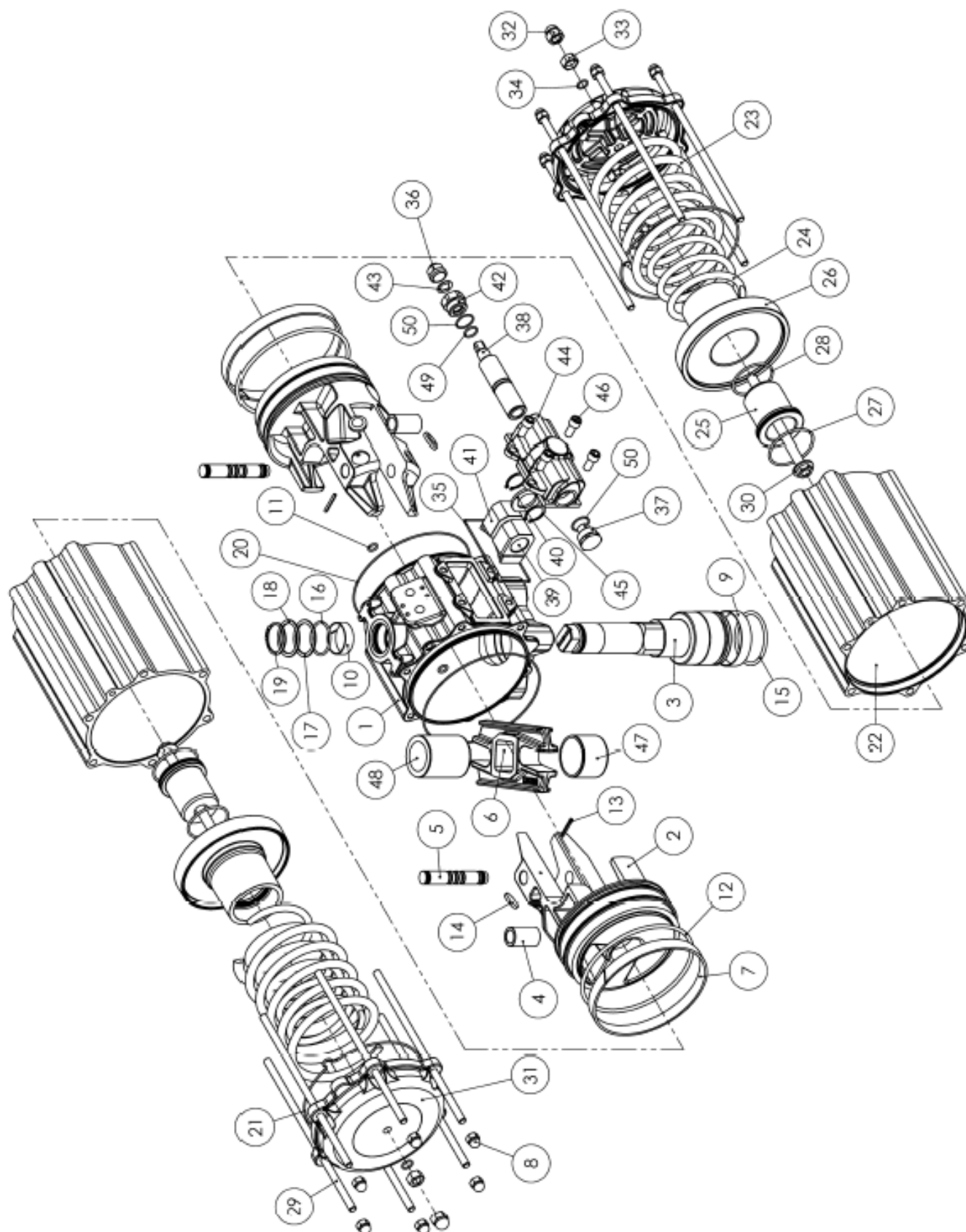
POS	DENOMINATION	QTE	MATERIALS	STANDARDS
1	Steel bush	1	Steel alloy	
2	Steel pin	1	Steel alloy	
3	Body	1	Aluminium alloy	Anodized
4	Spring inside	1	Steel alloy	
5*	O-ring	2	Nitrilic rubber	
6	Shaft	1	Steel alloy	
7	Screw	1	Steel Alloy	
8*	Bearing (shaft down)	1	Acetalic resin	
9*	O-ring	1	FKM	
10*	O-ring	1	FKM	
11	Low bearing bush	1	Aluminium alloy	Anodized
12	Screw	2	Steel alloy	
13	Bearing shaft	1	Acetalic resin	
14	Spacer	1	Aluminium alloy	EN AW 6063 anodized
15	Cap	1	Aluminium alloy	Anodized
16	Cap screw	7	Steel alloy	
17	Cap nut	7	Stainless steel	AISI 304 – DIN 1.4301
18	Grub screw	1	Stainless steel	AISI 304 – DIN 1.4301
19	Nut	1	Stainless steel	AISI 304 – DIN 1.4301
20	Grub screw	1	Stainless steel	AISI 304 – DIN 1.4301
21*	O-ring	1	Nitrilic rubber	
22	Scotch yoke	1	Steel alloy	UNI 90MnVCr8Ku – DIN 1.2842 hardened
23	Bearing shaft	1	Acetalic resin	
24*	O-ring	2	Nitrile rubber	
25*	Bearing (shaft top)	1	Acetalic resin	
26*	O-ring	1	FKM	
27*	Thrust bearing	1	Acetalic resin	
28	Washer	1	Steel alloy	
29	Seeger	1	Steel alloy	
30	Spring pin	1	Steel alloy	
31*	Bearing (piston back)	2	Acetalic resin	
32	Piston	1	Aluminium alloy	
33*	O-ring	1	Nitrilic rubber	
34*	Bearing (piston head)	1	Acetalic resin	
35	Lateral cylinder	1	Aluminium alloy	EN AW 6063 anodized
36*	O-ring	2	Nitrile rubber	
37	Cap	1	Aluminium alloy	Anodized
38	Cap screw	7	Steel alloy	
39	Cap nut	7	Stainless steel	AISI 304 – DIN 1.4301
40*	O-ring	1	Nitrilic rubber	
41	Nut	1	Stainless steel	AISI 304 – DIN 1.4301
42	Nut	1	Stainless steel	AISI 304 – DIN 1.4301
43	Screw	1	Stainless steel	AISI 304 – DIN 1.4301
44	O-ring	1	Nitrilic rubber	

POS	DENOMINATION	QTE	MATERIALS	STANDARDS
45	Spring cap	1	Aluminium alloy	
46	O-ring	1	Nitrilic rubber	
47	Spring cap	1	Aluminium alloy	
48	Spring outside	1	Steel alloy	

High temperature version → O-ring = FKM (Fluoroelastomer)

Low temperature version → O-ring = FVMQ (Fluorosilicon)

6.1-6) DYNACTAIR NG 160



Standard version:

* = Kit parts

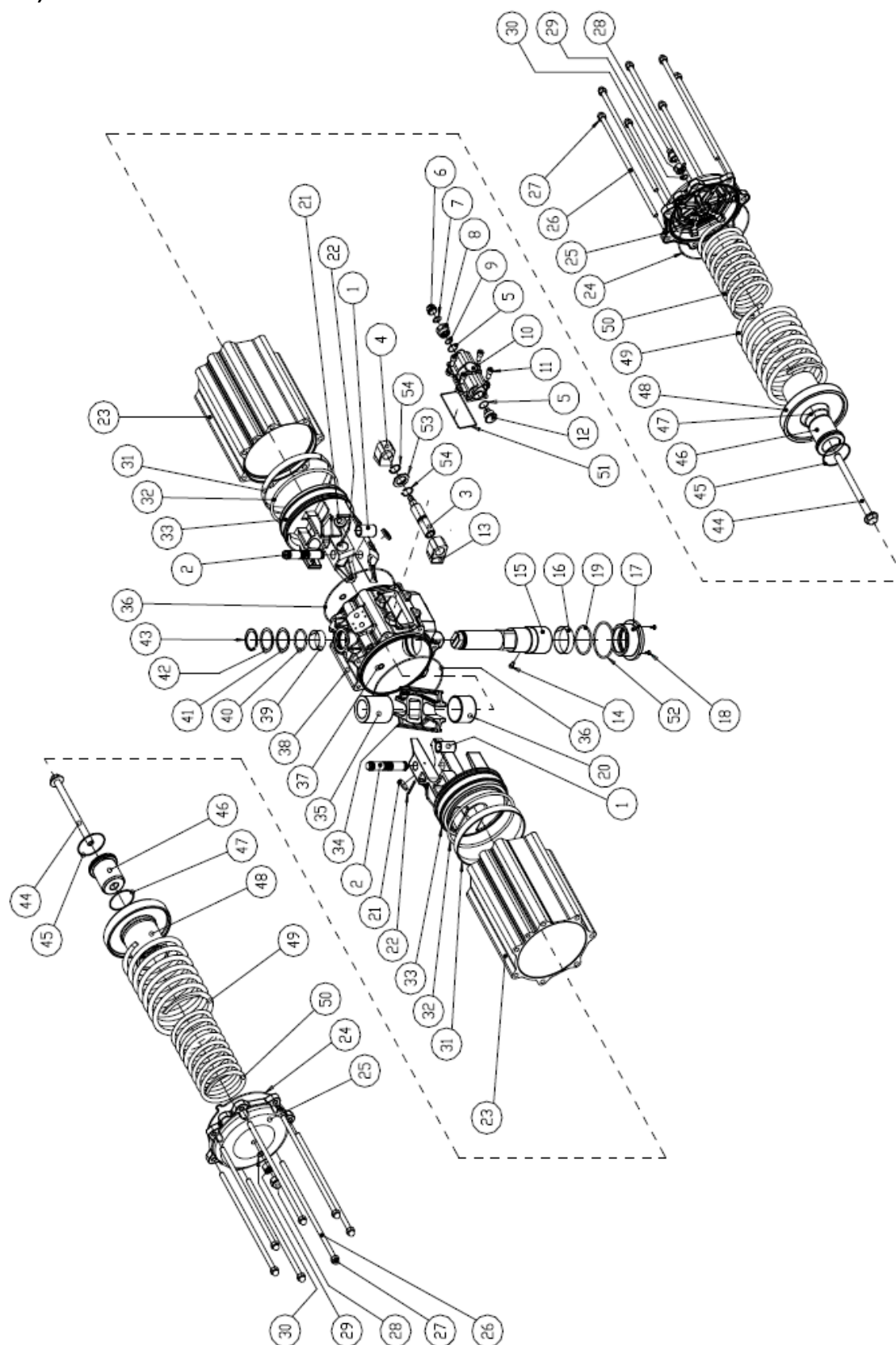
POS	DENOMINATION	QTE	MATERIALS	STANDARDS
1	Cylinder	1	Aluminium alloy	Anodized
2	Piston	2	Aluminium alloy	
3*	Dynamic seal (piston)	2	Acetalic resin	Dynamic seal (piston)
4*	Piston O-ring	2	Nitrilic rubber	Piston O-ring
5	Bush	2	Steel alloy	UNI 110w4Ku – DIN 1.2516
6	Rotative sleeve	2	Steel alloy	
7*	Piston's support	4	Acetalic resin	
8	Spring pin	2	Steel alloy	
9	Cap nut	12	Stainless steel	AISI 304 – DIN 1.4301
10	Shaft	1	Stainless steel	AISI 303 – DIN 1.4305
11*	Low support seal	1	Acetalic resin	
12*	O-ring (low sealing shaft)	1	FKM	
13*	Upper support seal	1	Acetalic resin	
14*	O-ring (upper sealing shaft)	1	FKM	
15*	External support ring	1	Acetalic resin	
16	Washer	1	Stainless steel	
17	Seeger	1	Stainless steel	
18*	O-ring	2	Nitrilic rubber	
19*	Cylinder O-ring	2	Nitrilic rubber	Anodized
20*	Cap O-ring	2	Nitrilic rubber	
21	Lateral cylinder	2	Aluminium alloy	EN AW 6063 Anodized
22	Outer spring	2	Steel alloy	
23	Inner spring	2	Steel alloy	
24	Inner spring cap	2	Aluminium alloy	
25	Outer spring cap	2	Aluminium alloy	
26*	O-ring	2	Nitrilic rubber	
27*	O-ring	2	Nitrilic rubber	
28	Cap screw	12	Steel alloy	
29	Spring loading screw	2	Stainless steel	AISI 304 – DIN 1.4301
30	Cap	2	Aluminium alloy	Anodized
31	Cap nut	2	Stainless steel	AISI 304 – DIN 1.4301
32	Nut	2	Stainless steel	AISI 304 – DIN 1.4301
33*	O-ring	2	Nitrilic rubber	
35*	Gasket	1	Nitrilic rubber	
36	Metal ring	1	Stainless steel	AISI 304 – DIN 1.4301
36	Protection cap	1	Aluminium alloy	Anodized
37*	O-ring	2	Nitrilic rubber	
38	Regulation screw	1	Steel alloy	
39	Left stop	1	Steel alloy	
40	Washer	1	Steel alloy	
41	Right stop	1	Steel alloy	
42	Metal ring	1	Stainless steel	AISI 304 – DIN 1.4301
43	Anti-rotation washer	1	Steel alloy	

POS	DENOMINATION	QTE	MATERIALS	STANDARDS
44	Carter	1	Aluminium alloy	
45	Seeger	2	Steel alloy	
46	Screw	4	Stainless steel	AISI 304 – DIN 1.4301
47*	Shaft support	1	Acetalic resin	
48	Scotch yoke	1	Steel alloy	UNI 90MnVCr8Ku – DIN 1.2842 hardened
49*	Support bush	1	Acetalic resin	
50*	O-ring	1	Nitrilic rubber	

High temperature version → O-ring = FKM (Fluoroelastomer)

Low temperature version → O-ring = FVMQ (Fluorosilicon)

6.1-7) DYNACTAIR NG 240



Standard version:

* = Kit parts

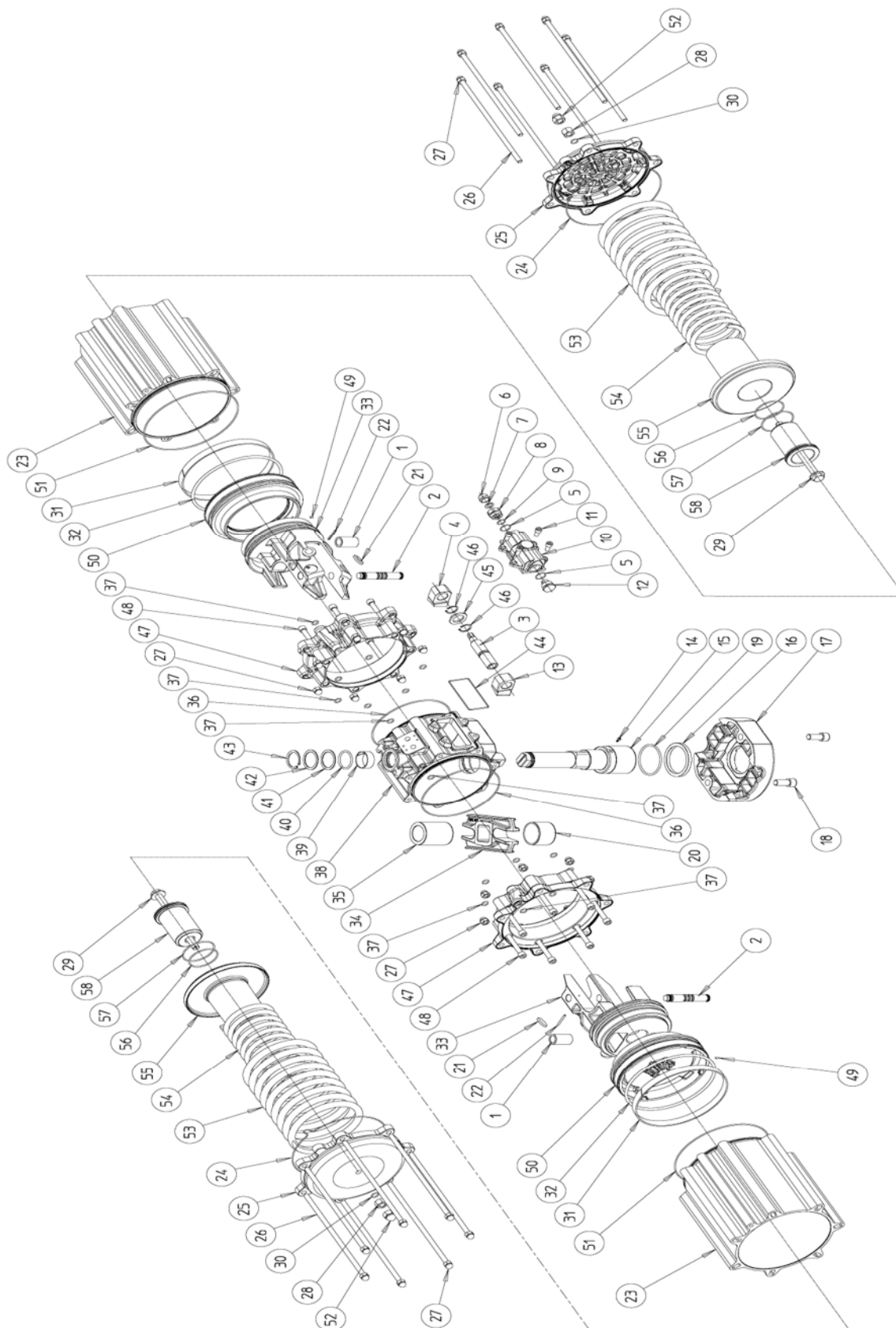
POS	DENOMINATION	QTE	MATERIALS	STANDARDS
1	Steel bush	1	Steel alloy	
2	Steel pin	1	Steel alloy	
3	Regulation screw	1	Steel alloy	
4	Left stop	1	Steel alloy	
5*	O-ring	2	Nitrilic rubber	
6	Protection cap	1	Aluminium alloy	Anodized
7	Anti-rotation washer	1	Steel Alloy	
8	Metal ring	1	Stainless steel	AISI 304 – DIN 1.4301
9*	O-ring	1	Nitrile rubber	
10	Carter	1	Aluminium alloy	Anodized
11	Screw	4	Steel alloy	
12	Metal ring	1	Stainless steel	
13	Ring stop	1	Steel alloy	
14	Screw	1	Steel alloy	
15	Shaft	1	Steel alloy	
16*	Bearing (shaft bottom)	1	Acetalic resin	
17	Low bearing bush	1	Aluminium alloy	Anodized
18	Screw	2	Steel alloy	
19*	O-ring	1	FKM	
20	Bearing shaft	1	Acetalic resin	
21*	Bearing (piston back)	4	Acetalic resin	
22	Spring pin	2	Steel alloy	
23	Lateral cylinder	2	Aluminium alloy	EN AW 6063 anodized
24*	O-ring	2	Nitrile rubber	
25	Cap	2	Aluminium alloy	Anodized
26	Cap screw	14	Steel alloy	
27	Cap nut	14	Stainless steel	AISI 304 – DIN 1.4301
28	Cap nut	2	Stainless steel	AISI 304 – DIN 1.4301
29	Nut	2	Stainless steel	AISI 304 – DIN 1.4301
30*	O-ring	2	Nitrilic rubber	
31*	Bearing (piston head)	2	Acetalic resin	Stainless steel
32*	O-ring	2	Nitrile rubber	
33	Piston	2	Aluminium alloy	
34	Scotch yoke	1	Steel alloy	UNI 90MnVCr8Ku – DIN 1.2842 Hardened
35	Bearing shaft	1	Acetalic resin	
36*	O-ring	2	Nitrilic rubber	
37*	O-ring	2	Nitrilic rubber	
38	Body	1	Aluminium alloy	Anodized
39*	Bearing (shaft top)	1	Acetalic resin	
40*	O-ring	1	FKM	
41*	Thrust bearing	1	Acetalic resin	
42	Washer	1	Steel alloy	
43	Seeger	1	Steel alloy	

POS	DENOMINATION	QTE	MATERIALS	STANDARDS
44	Screw	2	Stainless steel	
45	O-ring	2	Nitrilic rubber	
46	Spring cap	2	Aluminium alloy	
47	O-ring	2	Nitrilic rubber	
48	Spring cap	2	Aluminium alloy	
49	Spring outside	2	Steel alloy	
50	Spring inside	2	Steel alloy	
51*	Gasket	1	Nitrilic rubber	
52*	O-ring	1	FKM	
53	Washer	1	Steel alloy	
54	Seeger	2	Steel alloy	

High temperature version → O-ring = FKM (Fluoroelastomer)

Low temperature version → O-ring = FVMQ (Fluorosilicon)

6.1-8) DYNACTAIR NG 350



Standard version :

* = Kit parts

POS	DENOMINATION	QTE	MATERIALS	STANDARDS
1	Steel bush	2	Steel alloy	
2	Steel pin	2	Steel alloy	
3	Regulation screw	1	Steel alloy	
4	Left stop	1	Steel alloy	
5*	O-ring	2	Nitrile rubber	
6	Protection cap	1	Aluminium alloy	Anodized
7	Anti-rotation washer	1	Steel Alloy	
8	Metal ring	1	Stainless steel	AISI 304 – DIN 1.4301
9*	O-ring	1	Nitrile rubber	
10	Carter	1	Aluminium alloy	Anodized
11	Screw	4	Steel alloy	
12	Metal ring	1	Stainless steel	AISI 304 – DIN 1.4301
13	Ring stop	1	Steel alloy	
14	Screw	1	Steel alloy	
15	Shaft	1	Steel alloy	
16*	Bearing (shaft bottom)	1	Acetalic resin	
17	Interface	1	Aluminium alloy	Anodized
18	Screw	2	Steel alloy	
19*	O-ring	1	FKM	
20	Bearing shaft	1	Acetalic resin	
21*	Bearing (piston back)	4	Acetalic resin	
22	Spring pin	2	Steel alloy	
23	Lateral cylinder	2	Aluminium alloy	EN AW 6063 anodized
24*	O-ring	2	Nitrilic rubber	
25	Cap	2	Aluminium alloy	Anodized
26	Cap screw	14	Steel alloy	
27	Cap nut	28	Stainless steel	AISI 304 – DIN 1.4301
28	Nut	2	Stainless steel	AISI 304 – DIN 1.4301
29	Screw	2	Stainless steel	AISI 304 – DIN 1.4301
30*	O-ring	2	Nitrile rubber	
31*	Bearing (piston head)	2	Acetalic resin	Stainless steel
32*	O-ring	2	Nitrile rubber	
33	Piston	2	Aluminium alloy	
34	Scotch yoke	1	Steel alloy	UNI 90MnVCr8Ku – DIN 1.2842 Hardened
35	Bearing shaft	1	Acetalic resin	
36*	O-ring	2	Nitrilic rubber	
37*	O-ring	18	Nitrile rubber	
38	Body	1	Aluminium alloy	Anodized
39*	Bearing (shaft top)	1	Acetalic resin	
40*	O-ring	1	FKM	
41*	Thrust bearing	1	Acetalic resin	
42	Washer	1	Steel alloy	
43	Seeger	1	Steel alloy	

POS	DENOMINATION	QTE	MATERIALS	STANDARDS
44*	Gasket	1	Nitrilic rubber	
45	Washer	1	Steel alloy	
46	Seeger	2	Steel alloy	
47	Flange	2	Aluminium alloy	Anodized
48	Screw	14	Steel alloy	
49	Grub screw	2	Steel alloy	
50	Flange	2	Aluminium alloy	Anodized
51*	O-ring	2	Nitrilic rubber	
52	Cap nut	2	Stainless steel	AISI 304 – DIN 1.4301
53	Spring outside	2	Steel alloy	
54	Spring inside	2	Steel alloy	
55	Spring cap	2	Aluminium alloy	
56*	O-ring	2	Nitrilic rubber	
57*	O-ring	2	Nitrilic rubber	
58	Spring cap	2	Aluminium alloy	

High temperature version → O-ring = FKM (Fluoroelastomer)

Low temperature version → O-ring = FVMQ (Fluorosilicon)

6.2 Spare parts kit code identification for actuator size.

A) Spare parts kit for standard version: -20°C to +80°C (NBR)

Code article	KSB Designation	Actuator
01 731 279	A59A- NG240	ACTAIR NG 240
01 731 385	D32A- NG120	DYNACTAIR NG 120
01 731 280	A59A- NG340	ACTAIR NG 340
01 731 386	D32A- NG160	DYNACTAIR NG 160
01 731 281	A59A- NG500	ACTAIR NG 500
01 731 397	D32A- NG240	DYNACTAIR NG 240
01 731 282	A59A- NG700	ACTAIR NG 700
01 731 398	D32A- NG350	DYNACTAIR NG 350

B) Spare parts kit for High temperature : -20°C to +150°C (FKM), Please contact KSB

C) Spare parts kit for Low temperature: -50°C to +60°C (FVMQ), Please contact KSB

7) ATEX 2014/34/EU

In conformance with the European Directive ATEX 2014/34/EU for the suitability of the equipment intended for the use in Potentially Explosive Atmosphere, KSB declare the conformity of the scotch-yoke actuator of the above mentioned Atex directive in the limits of its Classification and Zone Classification.

Classification:

Product Classification: Equipment Group II Category 2

Zone Classification: Suitable for Gas Zone 1, and Dust Zone 21.

Protection Class: "c" constructional safety

Gas group IIC / IIB

Temperature Class TX, Determined by Environmental Temperature and Operating Media Temperature.

Whenever the actuator may be installed in the Potentially Explosive Atmosphere the operator before start the installation must observe the suitability of the equipment classification and special installation instruction included that follow the actuator. In case of instruction missing or any doubts please call the KSB technical department.

Attention.

Keep the actuator in its original box until the installation, and store it in dry and clean environment at temperatures between -10°C and +60°C.

8) ACTUATOR SPECIAL VERSION

KSB manufactures and supplies special actuators versions for specific actuator use and environmental.

a) Simple Acting spring return Fail to Open.

Spring Return Fail to Open actuators are required when in case of the pressurized air or electrical power supply are off the valve should be automatically opened.

In the fail to open actuators the pistons are inserted into the cylinder like the Double Acting version, and due to the spring force the actuator is Normally Open.

9) STORAGE

The KSB actuator has been packaged to provide protection during shipment, however, it can be damaged in transport. Prior to storage, inspect the actuator for shipping damage. Keep the actuators in their original packing box during storage. It is recommended to keep the actuators in a clean and dry environment at temperatures between -10°C and +60°C until ready for use.

The actuator has two air ports, which are closed by labels for prevent liquids or others material to entering in the actuator during storage.

If the actuators are to be stored for a long period of time before installation, it is recommended to stroke them periodically to prevent setting of the seals.

Store the actuators indoors to protect them from humidity and dust.

10) TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Loss or reduction of output torque	No air supply	Connect air supply
	Insufficient air supply to produce required torque	Increase air supply
	Loss of air due to seal leakage	Contact KSB
Air leak at top or bottom shaft	Damage O-ring seal	Contact KSB
	Damage to body bore	Contact KSB
	Damage to pinion shaft	Contact KSB
Air leak at end cap and body seal	Damage end cap seal	Contact KSB
	Dust in the home of cap seal	Contact KSB
Air leaking from either port after operation	Damage piston seal	Contact KSB
	Damage body cylinder	Contact KSB
Insufficient valve rotation	Actuator has failed	Contact KSB
	Insufficient air supply to produce required valve torque	Increase air supply
	Actuator mechanical stop (if present) not properly adjusted	Adjust actuator stops allow more travel
	Incorrect fit between actuator output bore and valve stem	Check actuator to valve adapter for proper size and fit

11) DISPOSAL

Observe all regulations and laws governing the disposal of hazardous substances to the environment.



ACTAIR – NG240 to NG700
INSTRUCTION MANUAL
DYNACTAIR – NG120 to NG350



This leaflet is not contractual
and may be amended without notice.

13.02.2020

8513.82/04-EN



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