

INSTRUCTION MANUAL

PNEUMATIC ACTUATOR WITH MANUAL OVERRIDE


COMPLETE ALUMINIUM PROTECTION VERSION

DANV 60 - DANV 3840 / SRNV 30 - SRNV 1920

OMAL S.p.A.

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 **Environmentally friendly:** under the green leaf icon you can find the instructions for a correct and environmentally friendly handling of the product.

Omal will be free to change all the specifications and data included in this manual at any time , so as to improve the quality and the performance of its products.

1. GENERAL FEATURES

Omal manufacture a manual handwheel override for a wide range of part turn pneumatic actuators.
The actuators with manual override are available on Double Acting "DANV" and Spring Return "SRNV" versions.

The principle of the manual handwheel override application is to provide the possibility to open and close the valve connected to the actuator when this operation can't be done with remote control.

Omal manual override actuator is itself equipped with an handwheel for manual operations and it doesn't need any added de-clutchable gear box. This solution guarantees a compact size and a more light system on the valve.

When the actuator is manual operated it can be locked in Open/Closed position.

Actuator versions for low temperature and high temperature applications allow to operate respectively until temperatures of -50°C and +150°C, thanks to proper kind of lubrication and material for the gaskets.

The maintenance should be done by Omal trained personnel only.

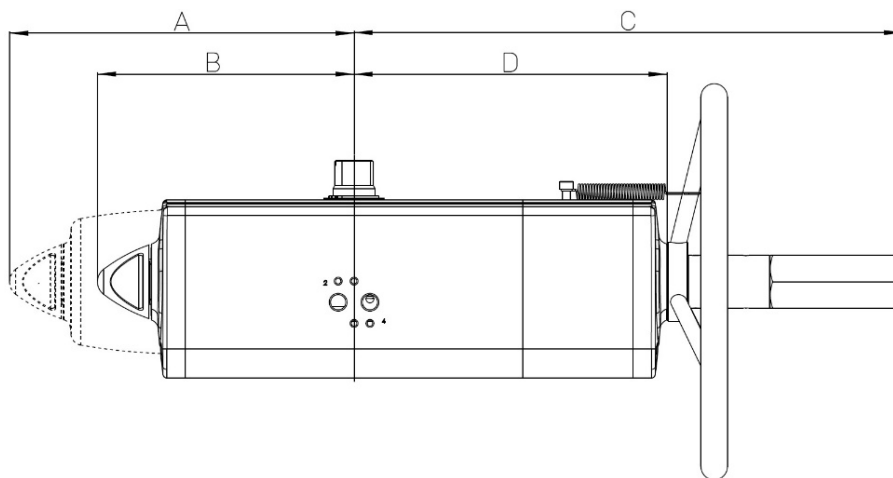
This instruction manual contains important information regarding the Omal manual override actuator operation, installation, maintenance and storage.

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

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2. DATASHEET



All the dimensions are in mm, for missing data see standard catalogue .

DOUBLE ACTING	NOMINAL TORQUE (Nm)	ISO FLANGE	SQUARE	Ø HANDWHEEL	Rim pull forces (N) To obtain the nominal torque	Weight (Kg)	Teorical n° of turns to close / open starting from the neutral position	A	B	C	D
DANV60	60	F05-F07	14	180	19.3	2.8	11	-	99	263.3	137.6
DANV106	106	F05-F07	17	180	27.8	4	13	-	118.5	279.3	154.8
DANV120	120	F05-F07	17	180	33.8	4.5	14	-	122.1	288.4	163.9
DANV180	180	F07-F10	22	220	44.1	6	16	-	144.9	338.1	183.5
DANV240	240	F07-F10	22	220	54.5	8	18	-	156.8	353.7	199.1
DANV360	360	F07-F10	22	300	67.5	10.2	15	-	169.6	398	220.8
DANV480	480	F10-F12	27	300	83.3	13.2	16	-	193.8	440.6	236.4
DANV720	720	F10-F12	27	350	108.8	17.8	19	-	216.6	503.5	282.3
DANV960	960	F10-F12 / F14	36	350	128.6	23.8	20	-	239.7	518.3	297.1
DANV1440	1440	F12 / F14	36	400	133.5	33.6	25	-	283.5	636.4	365.6
DANV1920	1920	F12-F16 / F14	46	400	162.5	43	26	-	300.4	653.7	382.9
DANV3840	3840	F16	46	575	243.5	75	30	-	353.3	890.2	537.5

SPRING RETURN	NOMINAL TORQUE (Nm)	ISO FLANGE	SQUARE	Ø HANDWHEEL	Rim pull forces (N) To obtain the nominal torque	Weight (Kg)	Teorical n° of turns to close / open starting from the neutral position	A	B	C	D
SRNV30	30	F05-F07	14	180	19.3	3.2	11	129.4	-	263.3	137.6
SRNV053	53	F05-F07	17	180	27.8	4.5	13	152.1	-	279.3	154.8
SRNV060	60	F05-F07	17	180	33.8	5.3	14	169.3	-	288.4	163.9
SRNV090	90	F07-F10	22	220	44.1	6.8	16	196.8	-	338.1	183.5
SRNV120	120	F07-F10	22	220	54.5	9	18	204.8	-	353.7	199.1
SRNV180	180	F07-F10	22	300	67.5	11.7	15	237	-	398	220.8
SRNV240	240	F10-F12	27	300	83.3	15.2	16	260.2	-	440.6	236.4
SRNV360	360	F10-F12	27	350	108.8	19.5	19	306.6	-	503.5	282.3
SRNV480	480	F10-F12 / F14	36	350	128.6	28.1	20	324.1	-	518.3	297.1
SRNV720	720	F12 / F14	36	400	133.5	38.8	25	399	-	636.4	365.6
SRNV960	960	F12-F16 / F14	46	400	162.5	50.6	26	414	-	653.7	382.9
SRNV1920	1920	F16	46	575	243.5	91	30	509	-	890.2	537.5

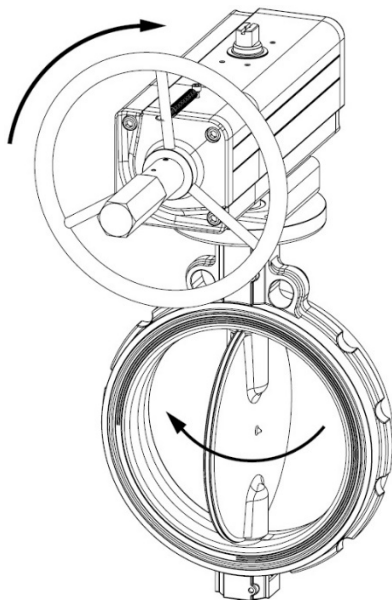
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3. FUNCTIONAL DESCRIPTION

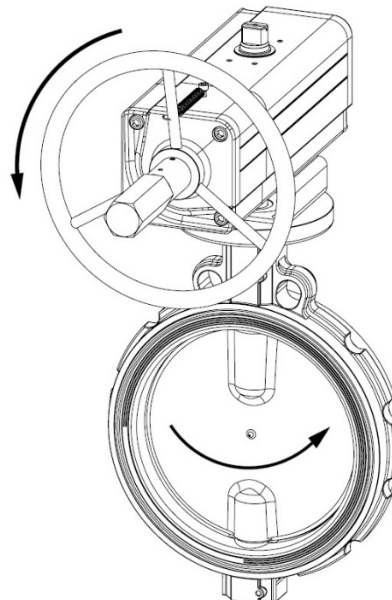
NB: PRIOR TO MANUAL OVERRIDE OPERATE, ENSURE THAT THE ACTUATOR IS FREE FROM PRESSURE.

1. Remove the cap to ensure there is no pressure in the actuator
2. Engage the manual override and operate as required
3. Disconnect the manual override (neutral position)



TO CLOSE THE VALVE

To close the valve turn the wheel in clockwise direction*.



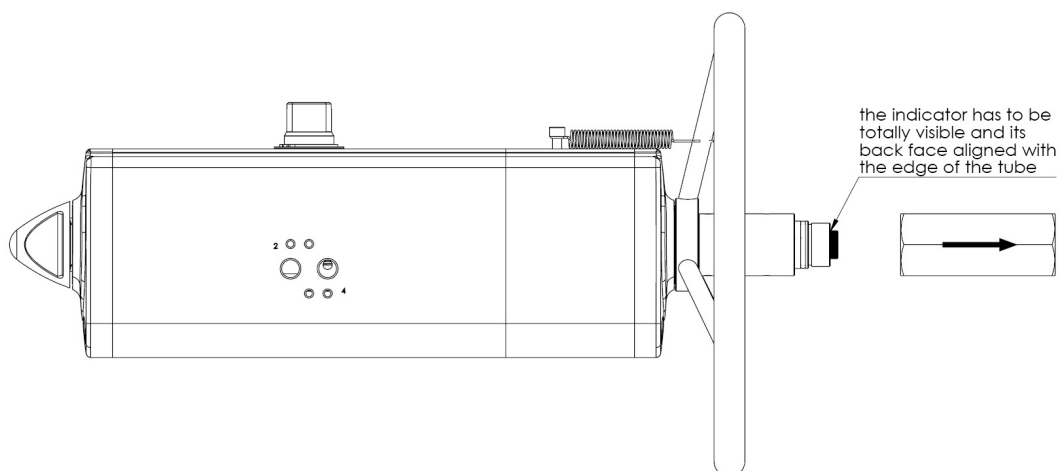
TO OPEN THE VALVE

To open the valve turn the wheel in counterclockwise direction.*

*for standard actuators.

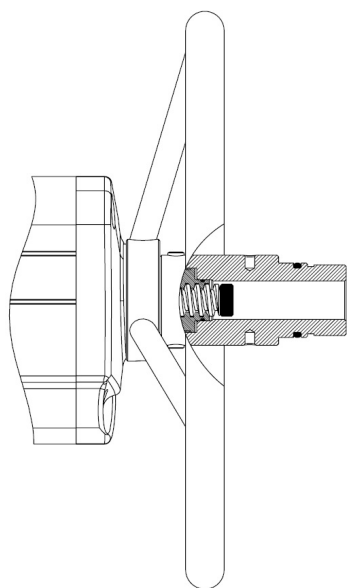
NB: Before commissioning to ensure proper disengagement, perform an ON-OFF maneuver of the actuator.

NB: WHEN THE ACTUATOR HAS BEEN MANUALLY OPERATED, RETURN TO THE NEUTRAL POSITION PRIOR TO START NORMAL OPERATIONS.



NEUTRAL POSITION

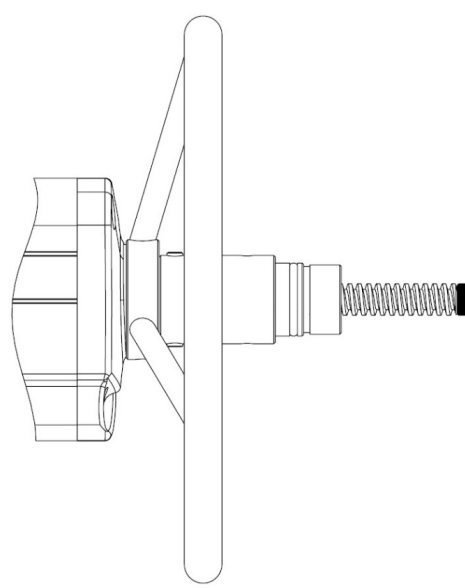
With the screw in neutral position the piston can move freely and the actuator can be driven pneumatically.



MANUAL OPERATION

DANV : The handwheel turned counter clockwise, pushes the screw and piston inwards. The valve opens.

SRNV : The handwheel turned clockwise pushes the screw and piston inwards. The valve closes.



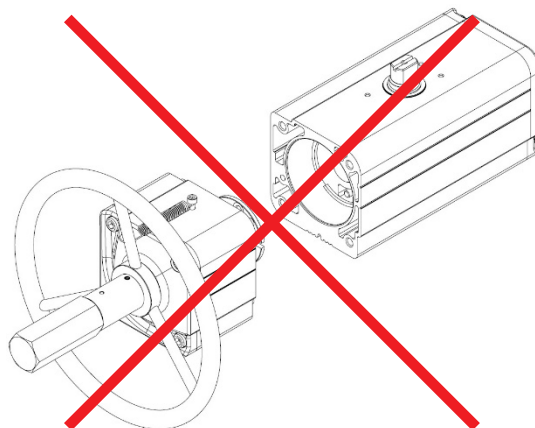
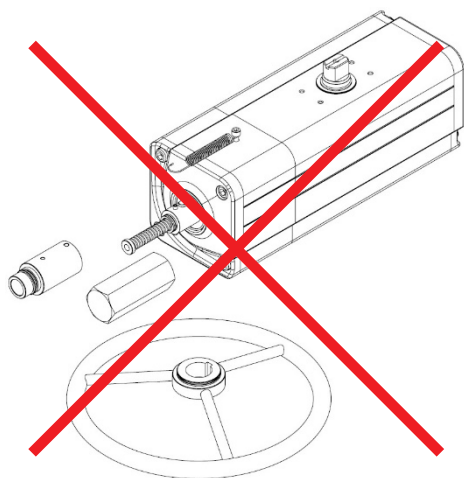
MANUAL OPERATION

DANV : When the handwheel is turned clockwise, the screw and piston are drawn outwards. The valve closes.

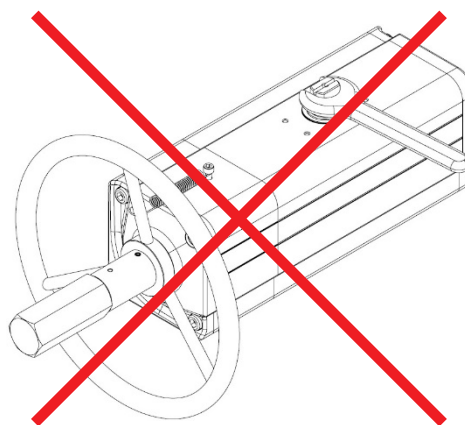
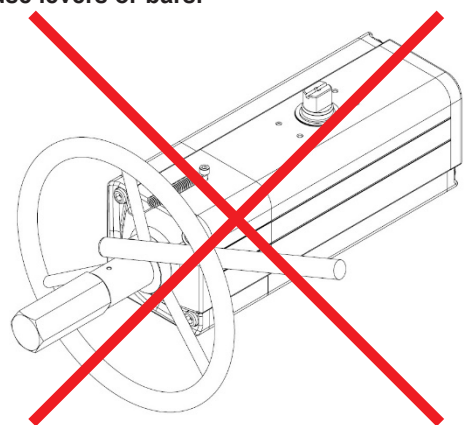
SRNV : When the handwheel is turned counter clockwise, the screw and the piston are drawn outwards. The valve opens.

4. WARNINGS

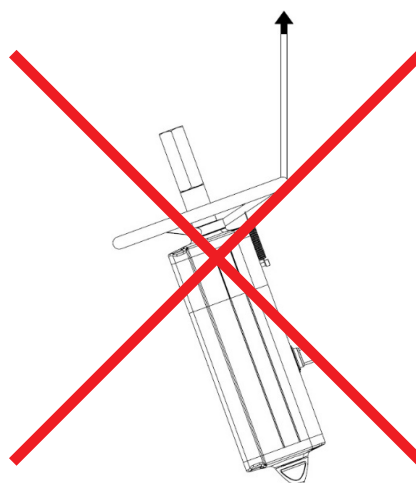
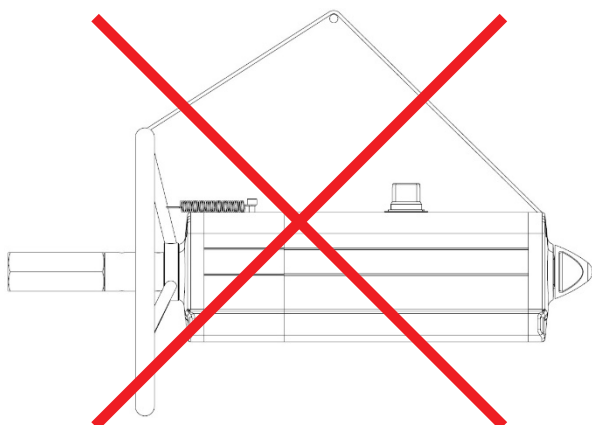
a) Don't disassemble, compressed spring inside.



b) Don't use levers or bars.

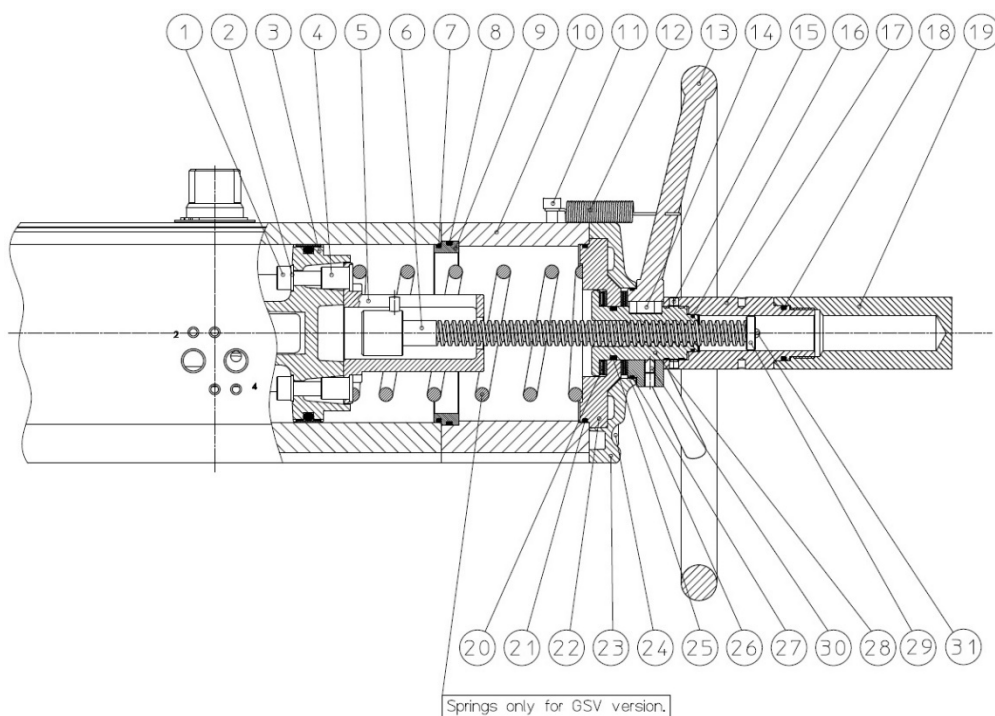


c) Don't use the handwheel to lift the actuator.



NB: Manual override is not recommended for safety related applications (SIL) as bypass of a security function. In this application, to prevent an unauthorized use, the manual override is provided with a locking device.

5. PART DESCRIPTION



Pos.	Denomination	Q.	Material	Standards
1	Screw	2	Stainless steel	AISI 304 DIN 1.4301
2	Bonded	2	Steel alloy + Nitrilic rubber	-
3	Piston (Modified)	1	Aluminium alloy	EN AB 46100
4	Threaded bush (only for DANV480 - SRNV240)	2	Stainless steel	AISI 303 DIN 1.4305
5	Special spring cap	1	Aluminium alloy	EN AW 6060 Anodized
6	Screw maneuver (right DANV - left SRNV)	1	Steel alloy	-
7	O-ring (not for all versions)	1	NBR	-
8	O-ring	1	NBR	-
9	Centering ring (not for all versions)	1	Aluminium alloy	EN AW 6060 Anodized
10	Cylinder spacer	1	Aluminium alloy	EN AW 6063 Anodized
11	Screw	1	Stainless steel	AISI 304 DIN 1.4301
12	Spring	1	Stainless steel	-
13	Handwheel for maneuver	1	Steel alloy	Fe37A Painted
14	Key	1	Steel alloy	UNI 6604
15	Screw	1	Stainless steel	AISI 304 DIN 1.4301
16	O-ring	1	NBR	-
17	Protecting tube	1	Aluminium alloy	EN AW 6060 Anodized
18	O-ring	1	NBR	-
19	Protecting removable tube	1	Aluminium alloy	EN AW 6060 Anodized
20	Roller bearing	1	Steel alloy	-
21	O-ring	1	NBR	-
22	Flange	1	Aluminium alloy	EN AW 6060 Nickel plated
23	Cap (Modified)	1	Aluminium alloy	EN AB 46100 Painted
24	Screw	4	Stainless steel	AISI 304 DIN 1.4301
25	O-ring	1	NBR	-
26	Roller bearing	1	Steel alloy	-
27	O-ring	1	NBR	-
28	Lead nut maneuver (right DANV - left SRNV)	1	Steel alloy	-
29	Indicator	1	Aluminium alloy	EN AW 6060 Painted
30	Screw	1	Stainless steel	AISI 304 DIN 1.4301
31	Rivet	1	Steel alloy	UNI 7346

NB: In the case of actuator low or high temperature the pistons and the material of the O-ring are different from the standard actuator.

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6. TROUBLESHOOTING

POTENTIAL EFFECT OF FAILURE	POTENTIAL CAUSE OF FAILURE	SOLUTION
Difficult manual operations	Blocked valve	Repair or replace the valve
	Presence of particles inside the actuator due to an incorrect filtration of the air	Verify the condition of the supply air and contact Omal
	The actuator is pressurized	Remove supply air

7. DISPOSAL

Our products are designed so that when they are at the end of their life cycle they can be completely disassembled, separating the different materials for the proper disposal and/or recovery. All materials have been selected in order to ensure minimal environmental impact, health and safety of personnel during their installation and maintenance, provided that, during use, they are not contaminated by hazardous substances.

The personnel in charge of the product disposal/recovery, must be qualified and equipped with appropriate personal protective equipment (PPE), according to the product size and the type of service for which the device was intended. The management of waste generated during the installation, maintenance or due to the product disposal, is governed by the rules in force in the country where the product is installed, in any case, the following are general guidelines:

- The metal components (aluminum/steel) can be restored as raw material;
- Seals/sealing elements as contaminated by fluids from other materials and lubrication, must be disposed of.
- The packaging materials that come with the product, should be transferred to the differentiated collection system available in the country.