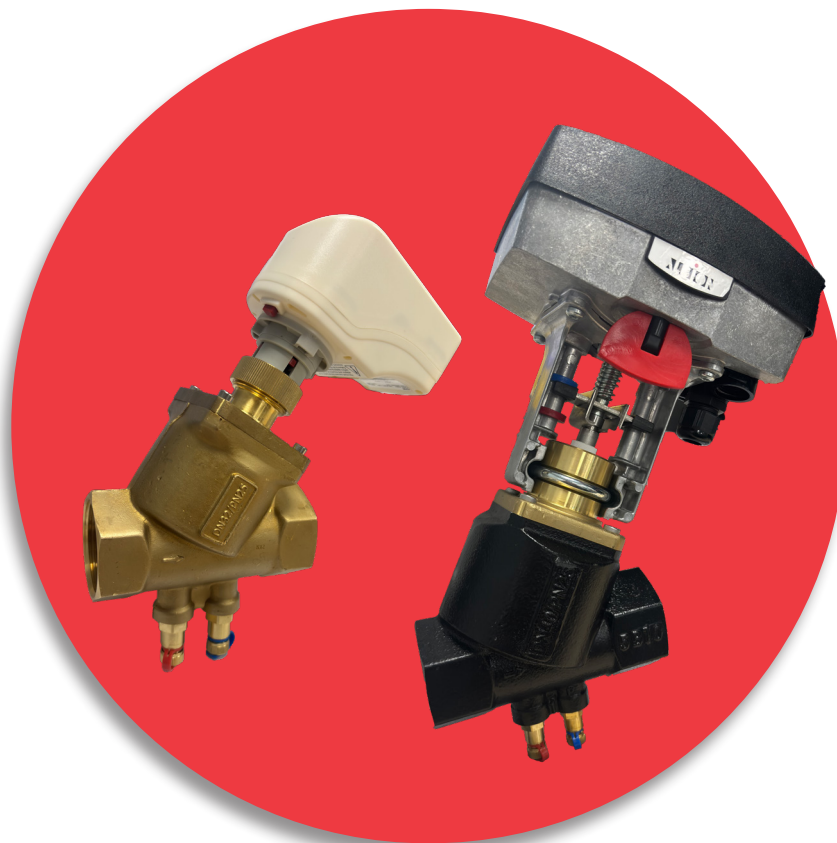




Installation & Operating Manual



ART 20F & C23E / C21V / C22V / AL20F Pressure Independent Control Valve and Control Actuators

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Contents

1. Introduction
2. Technical Data
3. Valve Features
4. Valve Installation
5. Setting and Flow
6. C23E, C21V, C22V Actuator Settings, Connections, and Wiring Diagrams
 - 6.1 C23E, C21V, C22V (DN15 - DN32) Technical Information
 - 6.2 C23E, C21V, C22V (DN15 - DN32) Actuator Settings and Connections
 - 6.3 C23E, C21V, C22V (DN15 - DN32) Wiring Diagrams
 - 6.4 Settings: Analog Models (C23E)
 - 6.5 Settings: Digital Models (C21V & C22V)
7. AL20F Actuator Settings, Connections, and Wiring Diagrams
 - 7.1 AL20F (DN40-50) Technical Information
 - 7.2 AL20F (DN40-50) Actuator Settings and Connections
 - 7.3 AL20F (DN40-50) Wiring Examples
8. AL20F Spring Return (SR) Actuator Settings, Connections, and Wiring Diagrams
 - 8.1 AL20F SR (DN40-50) Technical Information
 - 8.2 AL20F SR (DN40-50) Actuator Settings and Connections
 - 8.3 AL20F SR (DN40-50) Wiring Examples
9. Approvals Classification
10. Troubleshooting
11. Warranty

1. Introduction

Albion Valves (UK) Ltd ART 20F is a Pressure Independent Control Valve (PICV) which can be used to control the amount of fluid flowing through it whilst maintaining a pressure differential.

Thanks to their unique design, PICV's can perform flow regulation, differential pressure control and modulation for comfort control and if required isolation.

Flow Regulation

When an electric actuator is not present or the plastic cap has been removed, the valve is normally open. But if the plastic cap is screwed on, or an electric actuator is installed, the valve can be closed.

To achieve the design flow rate, the simple pre-setting scale on top of the valve is rotated to the required set point, which can be determined by using the flow tables below.

This pre-setting function has no impact on the stroke; the valve has full stroke modulation at all times.

The inlet water passes through a modulating control component whose geometry can be modified by turning the pre-setting dial to obtain the required flow rate for the branch of the system where the valve is installed.



Modulation

When fitted with either the C23E or the ART AL20F, the actuator performs the modulating function changing the section of flow passage according to the input voltage.

The valve and actuator assembly provides modulating control with ‘full authority’ regardless of any fluctuations in the differential pressure within the system.

When continuous modulation is carried out, the temperature is kept under control whilst modulating the flow.

With continuous modulation, control is excellent even with small flow openings and this eliminates the on/off effect.

By simply measuring differential pressure across the valve, the flow through the cartridge is obtained as follows;

- If measured differential pressure is above Δp min (start-up pressure), the flow rate is the same as the one stated on the valve table (function) of the pre-set;
- If measured differential pressure is below minimum Δp stated on valve table, flow rate is calculated using the following formula:

Flow Calculation

$Q = K_v \cdot \sqrt{\Delta p}$	$Q = \text{m}^3/\text{h}$ $\Delta p = \text{Bar}$
$Q = K_v \cdot 100 \cdot \sqrt{\Delta p}$	$Q = \text{l/h}$ $\Delta p = \text{kPa}$
$Q = \frac{K_v}{36} \cdot \sqrt{\Delta p}$	$Q = \text{l/s}$ $\Delta p = \text{kPa}$

Where:

Q is the flow rate in m^3/h ,

Δp is the pressure drop across the valve;

K_v s – K_v across the valve when it is fully open

Once the minimum Δp requirement is met, the constant differential pressure across the modulating control component guarantees the 100% authority, within the range up to a maximum differential pressure of 800 kPa.



2. Technical Data

Valve Type	Size Range	Connection Type	Temperature Rating	Pressure Rating (Max)
ART 20F	DN15 to DN50	BSP Parallel	-10°C to 120°C*	PN25

*Stem heater is required for temperatures below 0°C

Size	DN15 LF 2.5	DN15 HF 2.5	DN15 HF 5.0	DN20 HF 2.5	DN20 HF 5.0	DN25 HF 5.5	DN32	DN40	DN50
Δp Range kPa	14 - 800	15 - 800	16 - 800	15 - 800	16 - 800	17 - 800	18 - 800	10 - 800	10 - 800
Flow Range (l/s)	0.008 – 0.056	0.028 – 0.16	0.061– 0.369	0.028– 0.160	0.061 – 0.369	0.078 – 0.500	0.153 – 1.111	0.381 – 2.639	0.389 – 3.194

Albion ART 20F has been tested in accordance with the BSRIA document BTS.1 'Test Method for Pressure Independent Control Valves'.

The valve is capable of closing against a maximum differential pressure of 800 kPa (8 bar) with a leakage rate at maximum 0.01 % of max rated volumetric flow and comply to EN1349 Class IV. The KV-values accuracy follows the BS 7350 standard for flow measurement devices for heating and chilled water systems (see graphs below)

3. Valve Features

- Provides modulating control with full authority regardless of any fluctuations in the differential pressure of the system
- Combines an externally adjustable automatic balancing valve, a differential pressure control valve and a full authority modulating control valve
- No minimum straight pipe lengths required before or after the valve
- The presetting function has no impact on the valve stroke, Full stroke modulation at all times, regardless the preset flow
- The constant differential pressure across the modulating control component guarantees 100% authority
- Automatic balancing eliminates overflows, regardless of fluctuating pressure conditions in the system
- Differential pressure operating range up to 800 kPa
- Valve is suitable for use with both ethylene or propylene based glycol mixture up to 50% dilution.

4. Valve Installation

- No minimum straight pipe lengths required before or after the valve.
- The ART 20F can be flushed and commissioned before the actuator is installed.
- The presetting of the dial is user-friendly requiring only a simple flow vs. presetting table.
- Once the flow is set, the actuator can be mounted and the valve ready to operate.
- The arrow on the valve dictates the direction of flow.
- Can be mounted on both flow and return lines.
- Do not mount upside down.



Actuator mounting on the valve (DN15-DN32)

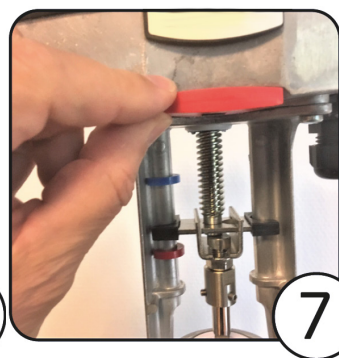
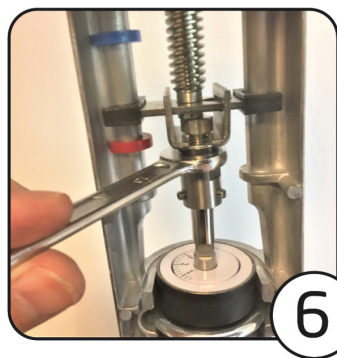
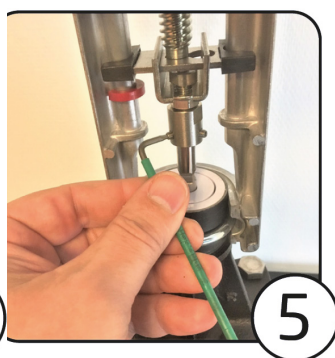
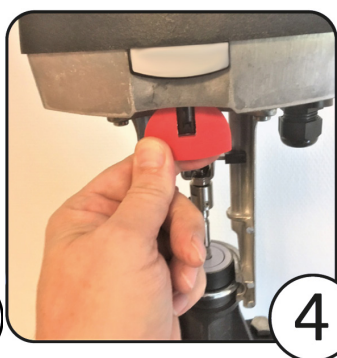
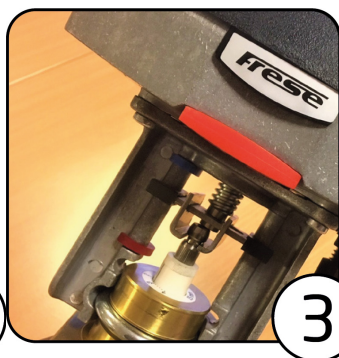
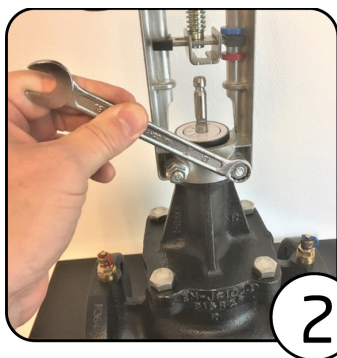
1. Pre-set the valve to the design flow. (See instruction for the valve)
2. Mount the actuator, on the valve. (See fig. 1)
 - Please don't use any tools when mounting the actuator.
3. Connect the wires in the controller terminal according to the instruction manuals.
4. Switch on the power and let the actuator run the calibration procedure and calibration. This will take 2-3 minutes.
 - During calibration the LED on the actuator will be flashing.
 - When the calibration has finished, the LED will stop flashing and be continuously on.
5. The actuator is now ready to operate.
6. The LED is flashing when the actuator is moving.

Please Note: Never turn on the power before the actuator is mounted onto the valve.



Actuator mounting on the valve (DN40-DN50)

1. Pre-set the valve to the design flow. (See instruction for the valve)
2. Mount the actuator on the valve neck with the U-bolt (See fig. 2)
3. Mounting actuator spindle to valve:
 - Valve spindle is connected directly to the actuator without any adapter. (See fig. 3)
 - To align the valve and actuator spindle, use the red handle to manually adjust the actuator spindle. (See fig. 4)
4. Flip back the red handle on the actuator, to operating position. (See fig. 7)
5. Open the top lid (See fig. 8) and connect the wires in the controller terminal according to the instruction manuals.
6. Switch on the power and set DIP-switch 9 to ON-position. The actuator will run the calibration procedure. This will take 2-3 minutes.
7. Switch the DIP-switch 9 back to OFF-position. (OP- Opreation)
8. The actuator is now ready to operate.



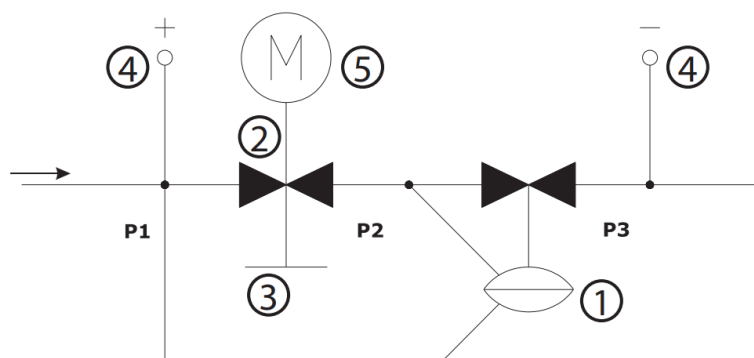
Close off Pressure

The ART 20F is capable of closing against the following differential pressures to EN 1349 Class IV:

DN15 to DN25: 600 kPa (6 bar) - based on 100N actuator force

DN32: 800 kPa (8 bar) - based on 100N actuator force

DN40 to DN50: 800 kPa (8 bar) - based on 400N actuator force



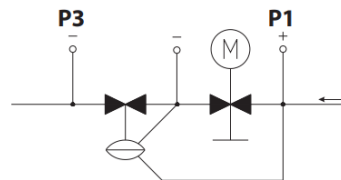
- ① Differential pressure control
- ② Modulating control component
- ③ Presetting scale (not accessible when the actuator is mounted)
 - Ⓐ Flow range:
Low-High
 - Ⓑ Stroke:
2,5 - 5,0 - 5,5mm
- ④ P/T Plugs
- ⑤ Actuator

Minimum ΔP measurement

To measure the minimum differential pressure, insert the needles from a manometer in the red P/T plug (P1) and in the blue P/T plug (P3) on the valve.

Now the manometer measures the differential pressure (P1-P3) across the total valve and the pump pressure can be optimised for pump energy saving.

Please use the required minimum differential pressure for the nominal flow detailed later in this document (see graphs below).



5. Setting and Flow

Valve size	Low Flow 2.5mm - DN15			High Flow 2.5mm - DN15/DN20		
Pre-set	Flow l/h	Flow l/s	Min. Δp kPa	Flow l/h	Flow l/s	Min. Δp kPa
0.5	30	0.008	14			
0.6	35	0.010	14	100	0.028	15
0.8	45	0.012	14	128	0.036	15
1.0	54	0.015	14	156	0.043	15
1.2	64	0.018	15	184	0.051	16
1.4	74	0.020	15	212	0.059	16
1.6	83	0.023	15	240	0.067	16
1.8	93	0.026	15	268	0.074	16
2.0	103	0.029	15	296	0.082	17
2.2	113	0.031	15	324	0.090	17
2.4	122	0.034	15	351	0.098	17
2.6	132	0.037	15	379	0.105	17
2.8	142	0.039	15	407	0.113	17
3.0	151	0.042	15	435	0.121	18
3.2	161	0.045	15	463	0.129	18
3.4	171	0.047	16	491	0.136	18
3.6	181	0.050	16	519	0.144	18
3.8	190	0.053	16	547	0.152	18
4.0	200	0.056	16	575	0.160	19

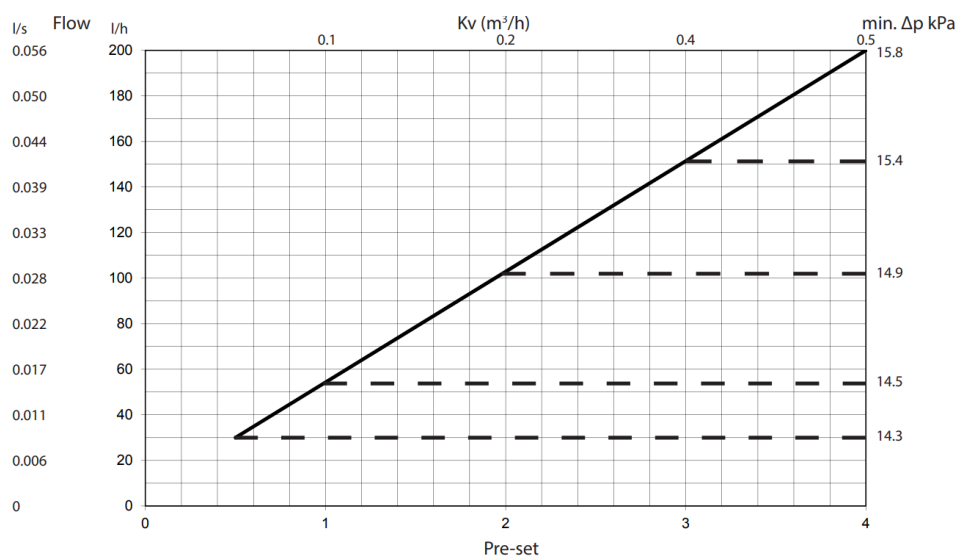


Valve size	High Flow 5.0mm - DN15/DN20			High Flow 5.5mm - DN25		
Pre-set	Flow l/h	Flow l/s	Min.Δp kPa	Flow l/h	Flow l/s	Min.Δp kPa
0.6	220	0.061	16	280	0.078	15
0.8	285	0.079	17	356	0.099	16
1.0	351	0.097	17	430	0.119	16
1.2	416	0.116	17	502	0.139	16
1.4	481	0.134	18	574	0.159	17
1.6	546	0.152	18	647	0.180	17
1.8	612	0.170	19	722	0.201	17
2.0	677	0.188	19	800	0.222	18
2.2	742	0.206	20	881	0.245	19
2.4	808	0.224	20	967	0.269	20
2.6	873	0.242	20	1057	0.294	21
2.8	938	0.261	20	1151	0.320	22
3.0	1004	0.279	21	1250	0.347	24
3.2	1069	0.297	21	1353	0.376	26
3.4	1134	0.315	21	1460	0.406	29
3.6	1199	0.333	21	1571	0.436	32
3.8	1265	0.351	21	1685	0.468	35
4.0	1330	0.369	22	1800	0.500	39

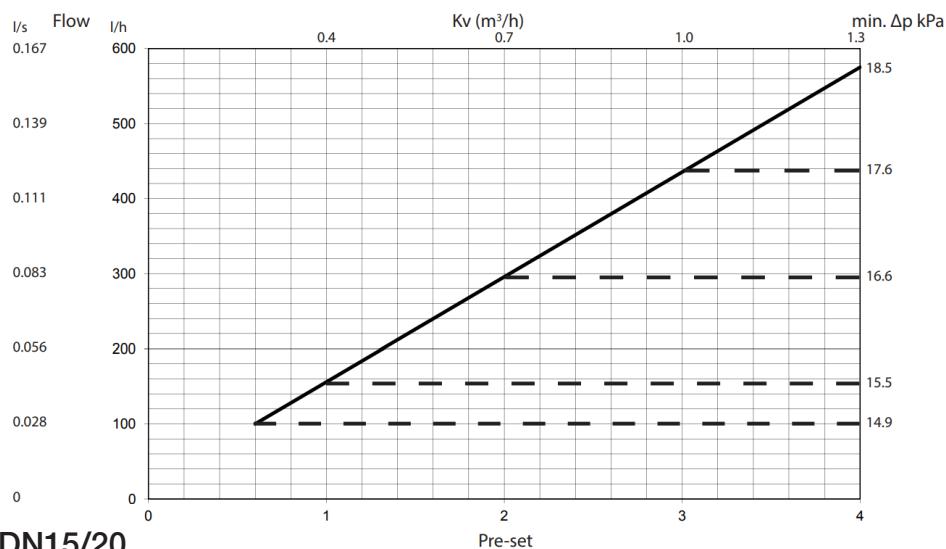
Valve size	5.5mm - DN32			15mm - DN40		
Pre-set	Flow l/h	Flow l/s	Min.Δp kPa	Flow l/h	Flow l/s	Min.Δp kPa
0.6	550	0.153	18	1370	0.381	10
0.8	753	0.209	18	1681	0.467	10
1.0	956	0.266	18	2000	0.556	10
1.2	1159	0.322	18	2333	0.648	10
1.4	1362	0.378	18	2686	0.746	10
1.6	1565	0.435	19	3063	0.851	10
1.8	1768	0.491	19	3467	0.963	11
2.0	1971	0.548	19	3900	1.083	11
2.2	2174	0.604	19	4364	1.212	12
2.4	2377	0.660	20	4857	1.349	13
2.6	2580	0.717	20	5380	1.494	14
2.8	2783	0.773	21	5928	1.647	15
3.0	2986	0.829	22	6500	1.806	17
3.2	3189	0.886	23	7090	1.969	19
3.4	3392	0.942	24	7692	2.137	21
3.6	3595	0.999	25	8300	2.306	22
3.8	3798	1.055	26	8906	2.474	24
4.0	4001	1.111	28	9500	2.639	25

Valve size	15mm - DN50		
Pre-set	Flow l/h	Flow l/s	Min.Δp kPa
0.6	1400	0.389	10
0.8	1724	0.479	10
1.0	2050	0.569	11
1.2	2393	0.665	11
1.4	2766	0.768	11
1.6	3178	0.883	12
1.8	3638	1.011	12
2.0	4150	1.153	13
2.2	4717	1.310	14
2.4	5339	1.483	16
2.6	6014	1.671	18
2.8	6737	1.871	20
3.0	7500	2.083	22
3.2	8295	2.304	25
3.4	9108	2.530	27
3.6	9925	2.757	30
3.8	10729	2.980	33
4.0	11500	3.194	36

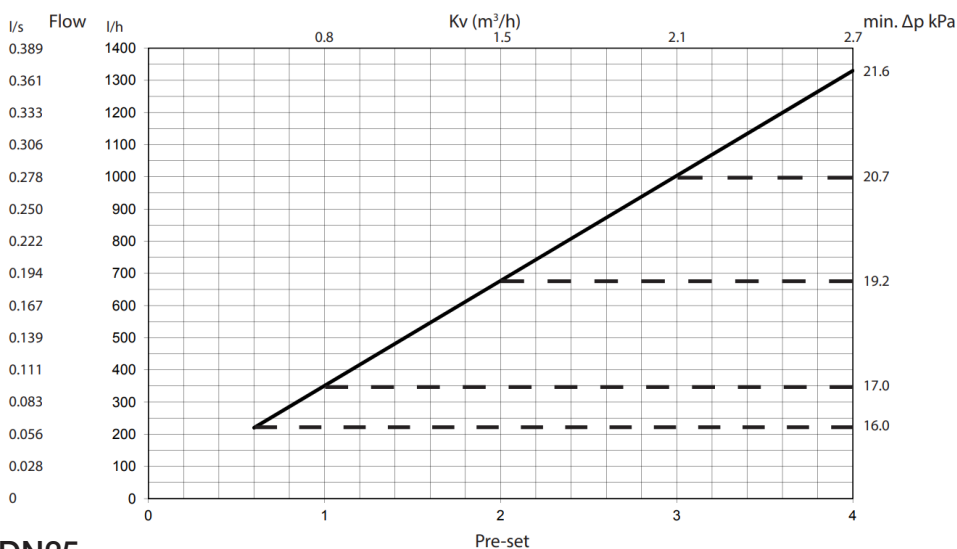
Low Flow 2.5 DN15



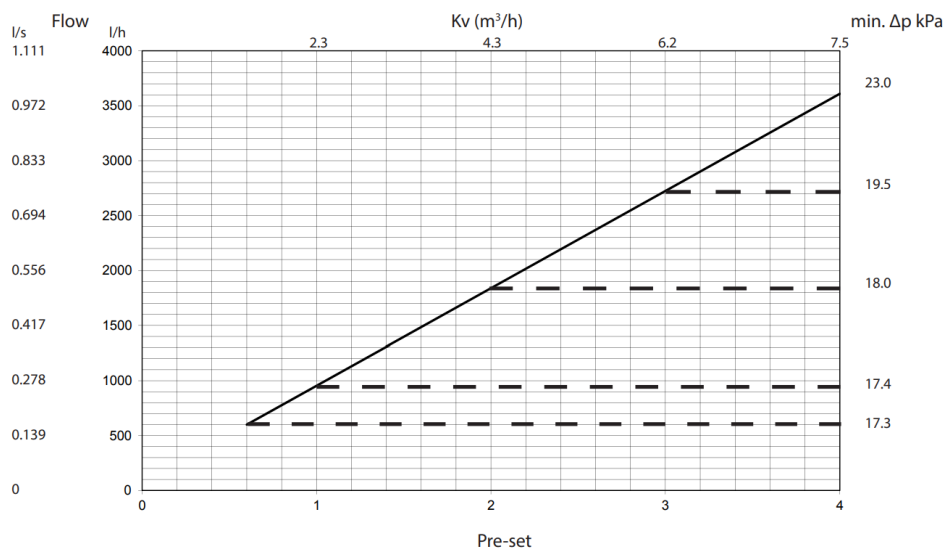
High Flow 2.5 DN15/20



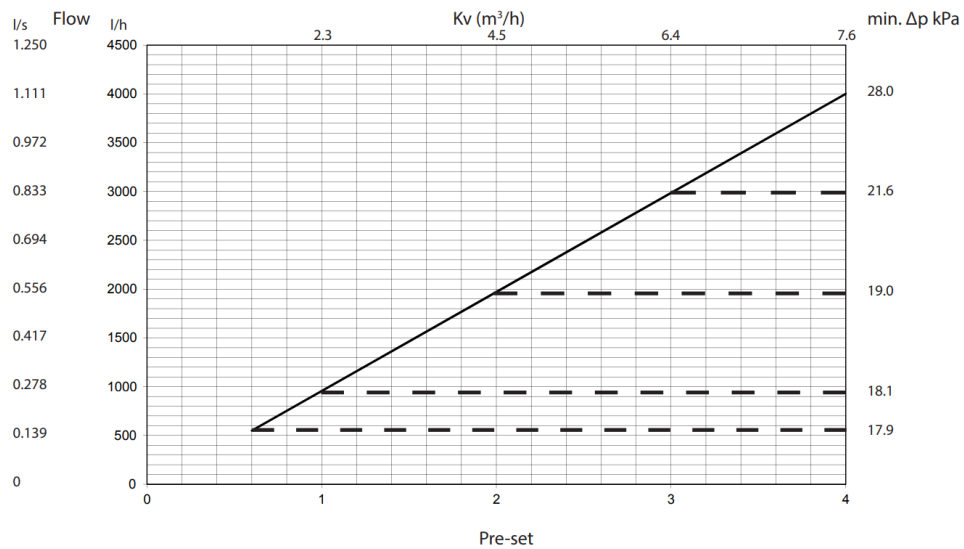
High Flow 5.0 DN15/20



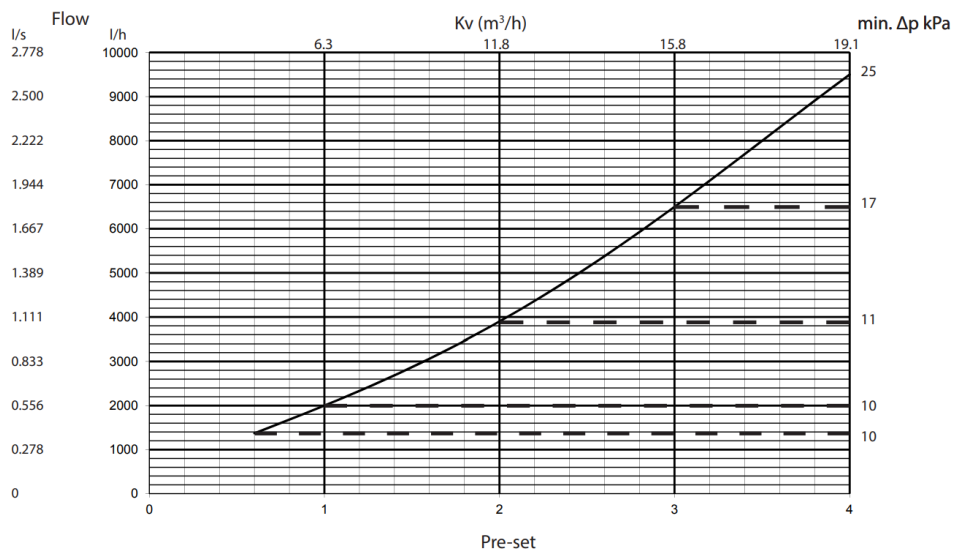
High Flow 5.5 DN25



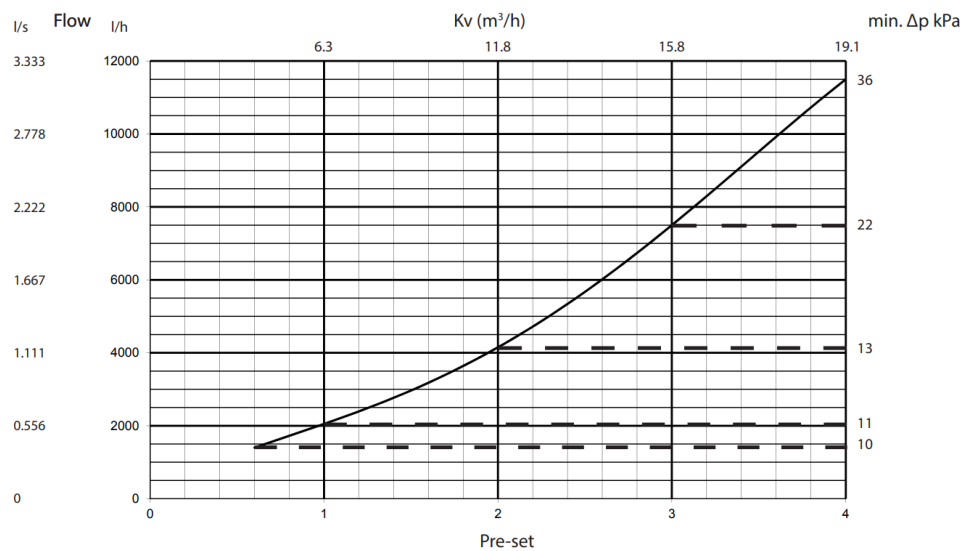
DN32



DN40



DN50



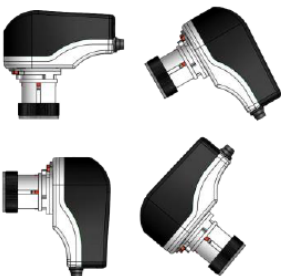
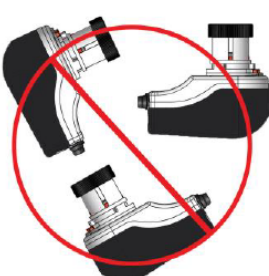


6. C23E, C21V, C22V Actuator Settings, Connections, and Wiring Diagrams

6.1 C23E, C21V, C22V (DN15 - DN32) Technical Information

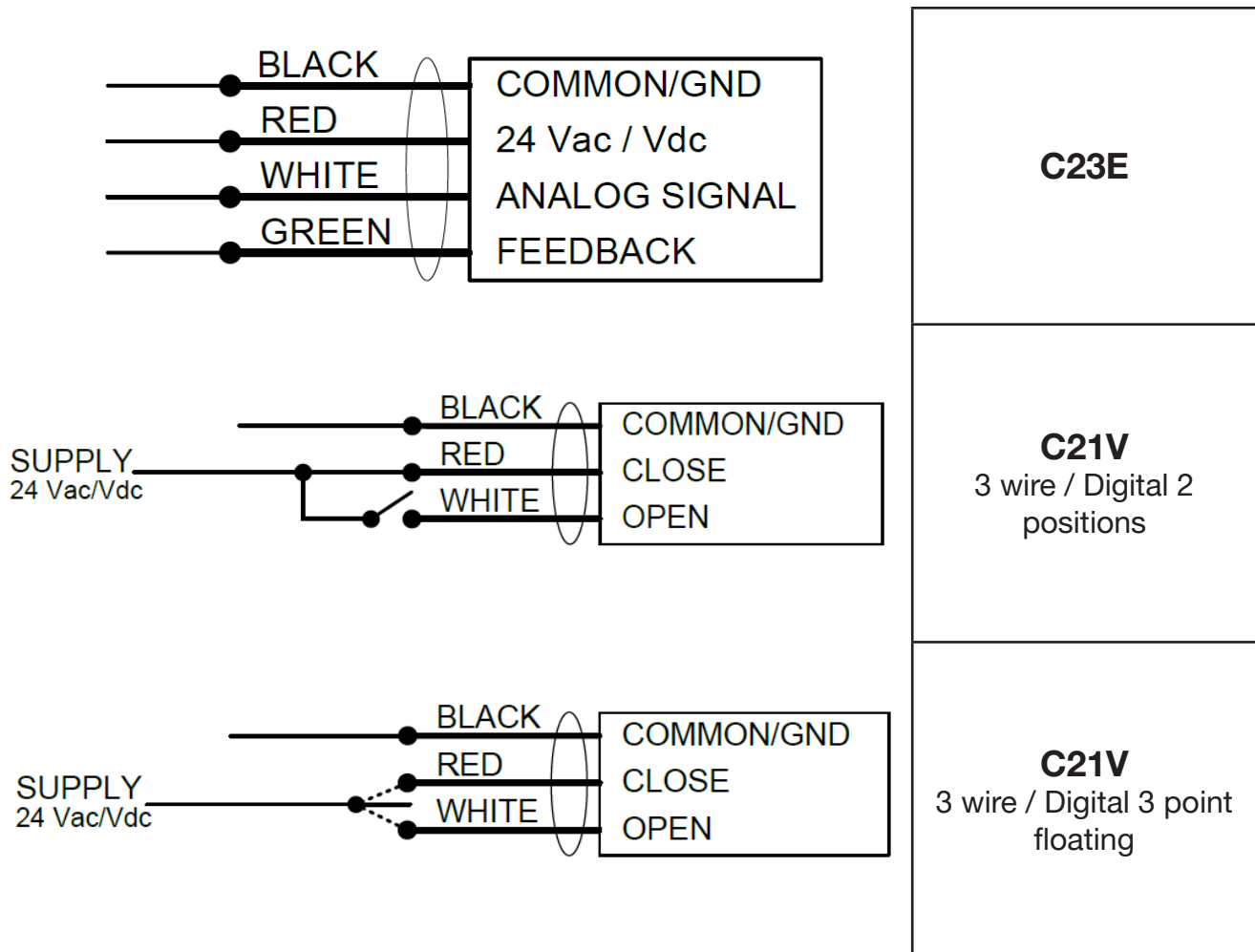
	C23E	C21V	C22V
Control mode & signal	Modulating 0-10V	3 position	3 position
Minimum force	200N (45lbs)	200N (45lbs)	200N (45lbs)
Power supply	22 to 26 Vac or Vdc	22 to 26 Vac or Vdc	22 to 26 Vac or Vdc
Power consumption	5VA	5VA	10VA peak, 6VA
Electrical connection	4 wire halogen free cable 0.8mm ² (18AWG), 1m long	3 Wire halogen free cable 0.8mm ² (18AWG), 1m long	4 wire halogen free cable 0.8mm ² (18AWG), 1m long
Feedback signal	0-10Vdc or 2-10Vdc	No feedback	No feedback
Running time	18.5 sec/mm - 120 sec for 6.5mm	18.5 sec/mm - 120 sec for 6.5mm	18.5 sec/mm - 120 sec for 6.5mm
Failsafe running time	No failsafe	No failsafe	9.2 sec/mm - 60 sec for 6.5mm
Maximum stroke	Up to 6.5mm (1/4"), self calibrating	Up to 6.5mm (1/4"), self calibrating	Up to 6.5mm (1/4"), self calibrating
Direction	Reversible, normally up position (open) or normally down position (close)	Reversible, normally up position (open) or normally down position (close)	Reversible, normally up position (open) or normally down position (close)
Ambient temperature	2°C to 50°C (36°F to 122°F)	2°C to 50°C (36°F to 122°F)	2°C to 50°C (36°F to 122°F)
Medium temperature	2°C to 120°C (36°F to 248°F)	2°C to 120°C (36°F to 248°F)	2°C to 120°C (36°F to 248°F)
Weight	0.24kgs	0.24kgs	0.3kgs
Ingress protection	IP54	IP54	IP54

6.2 C23E, C21V, C22V (DN15 - DN32) Actuator Settings and Connections

Mounting of the actuated valve on system		
<u>Correct mounting</u> 	<u>Incorrect mounting</u> 	1. The actuated valve installation should be easily accessible and provide sufficient clearance for service and replacement. 2. Horizontal and vertical positions are preferred orientation for the installation of actuated valve. However, this actuator can be installed at any in between angle. <u>Caution:</u> Do not install at more than 90° from horizontal.
Mounting of the actuator on valve		
ACTUATOR TO VALVE ADAPTOR  No foam insulation above the dotted line and around the adaptor	 No foam insulation above the dotted line and around the adaptor	1. Mount the valve adaptor to the valve and fingers tighten only. 2. Rotate knob clockwise to open the valve. Do not force knob in either direction! 3. Manually adjust the knob to test piping network. 4. Once satisfied that the network is working properly, engage the actuator over the valve adaptor and turn 30° clockwise (CW). You should hear an audible click. To disengage the actuator, press the release button while turning the actuator CCW 30°. <u>Caution:</u> Actuator specifically calibrated to its adapter. DO NOT exchange original adapter with a different actuator.

NOTE: You must connect the actuator to its adaptor and mount it on a valve before applying power. Failure to do so will result in incorrect operation of the actuator.

6.3 C23E, C21V, C22V (DN15 - DN32) Wiring Diagrams



DIP Switches

Each model has a different number of DIP switches, which are located behind the translucent silicone cap at the back of the actuator. Read the following sections carefully for detailed information on the different options. The DIP switches can be changed at any time. The changed option (DIP switch setting) takes effect immediately. If a change is made during an Auto-Stroke sequence (analog models only), the change takes effect once the Auto-Stroke sequence is complete (up to 240 seconds).

6.4 Settings: Analog Models (C23E)

Auto-Stroke

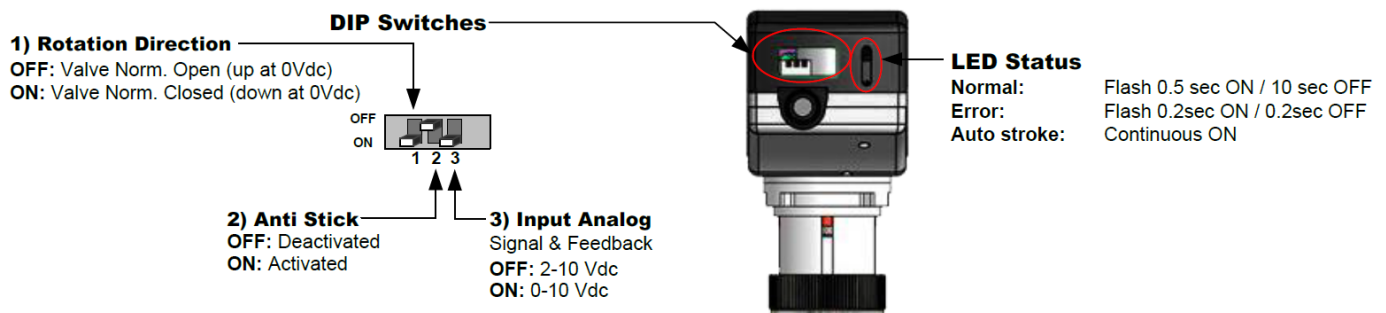
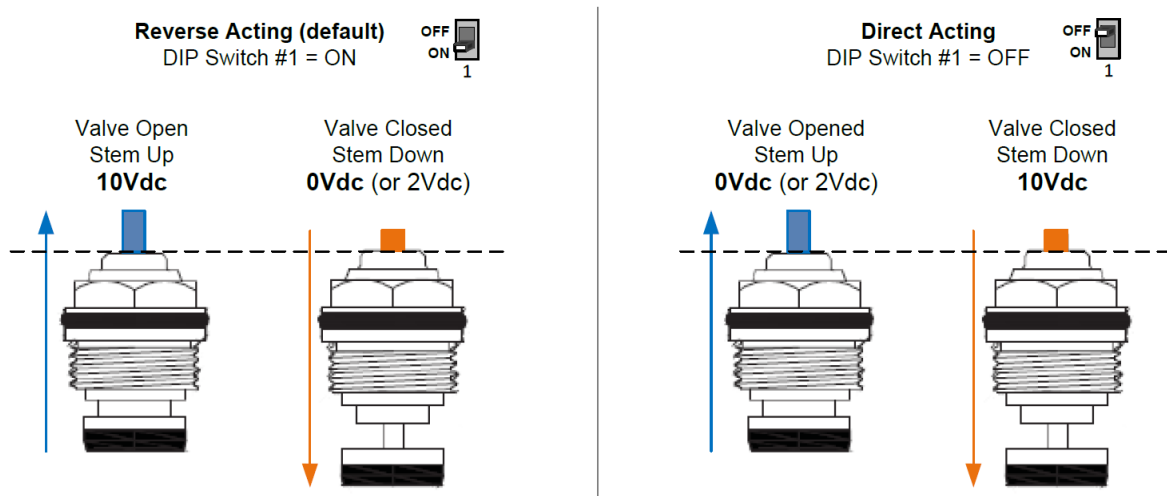
Analog actuators perform an Auto-Stroke sequence upon every power-up. The Auto-Stroke sequence runs from 0 to the end position and back in order to automatically detect the stroke limits and calibrate the input signal to the detected stroke limits. The Auto-Stroke sequence can take up to a maximum of 2 minutes to complete.

During the Auto-Stroke sequence, the status LED remains on and the actuator will not perform any other action.

If the actuator and/or adaptor are removed from the valve after initial installation, an Auto-Stroke sequence must be initiated to recalibrate the actuator. To do so, remove and reapply the power.

Rotation Direction

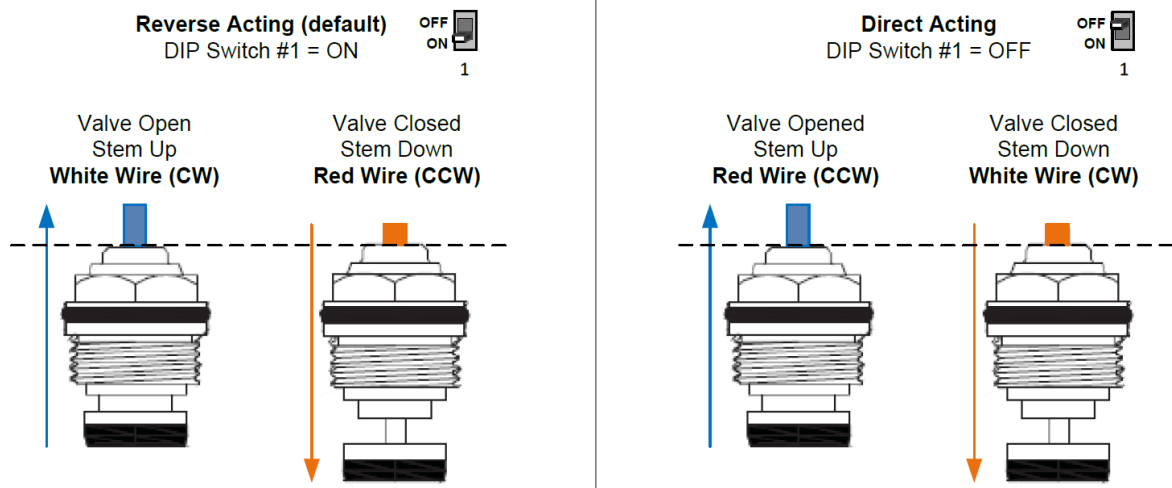
The motor direction for analog actuators is reversible. By default, the actuator is set to reverse acting (DIP switch #1 = ON).



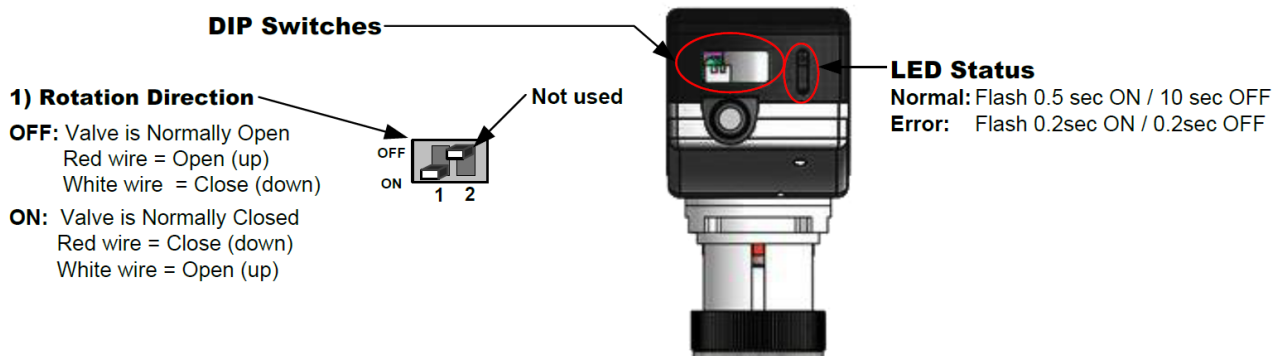
6.5 Settings: Digital Models (C21V & C22V)

Rotation Direction

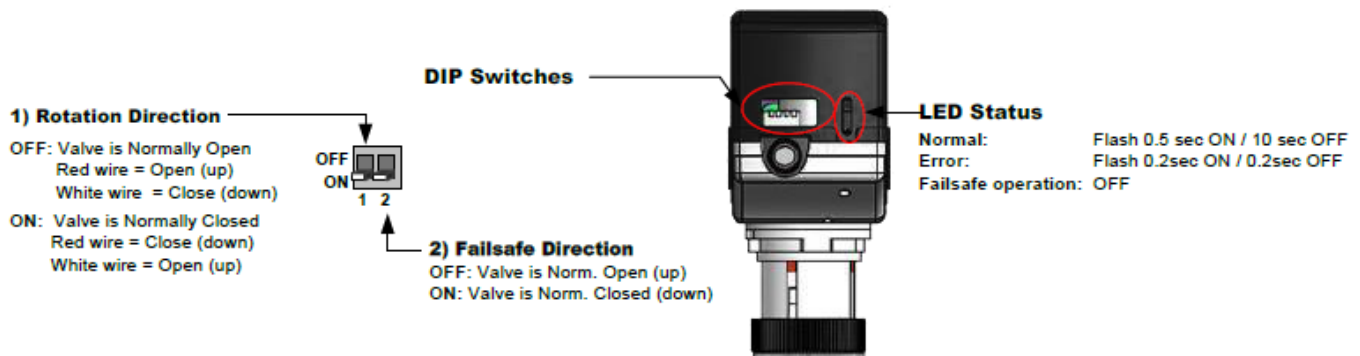
The motor direction for digital actuators is reversible. By default, the actuator is set to reverse acting (DIP switch #1 = ON).



C21V



C22V



If you plan to add foam insulation, do not add insulation foam beyond the chrome ring and around the adaptor. Improper installation of insulation material could lead to a build-up of condensate water around the valve and the chrome ring of the adaptor, which could lead to build up of rust and compromise the structure of the chrome ring that holds the adaptor.

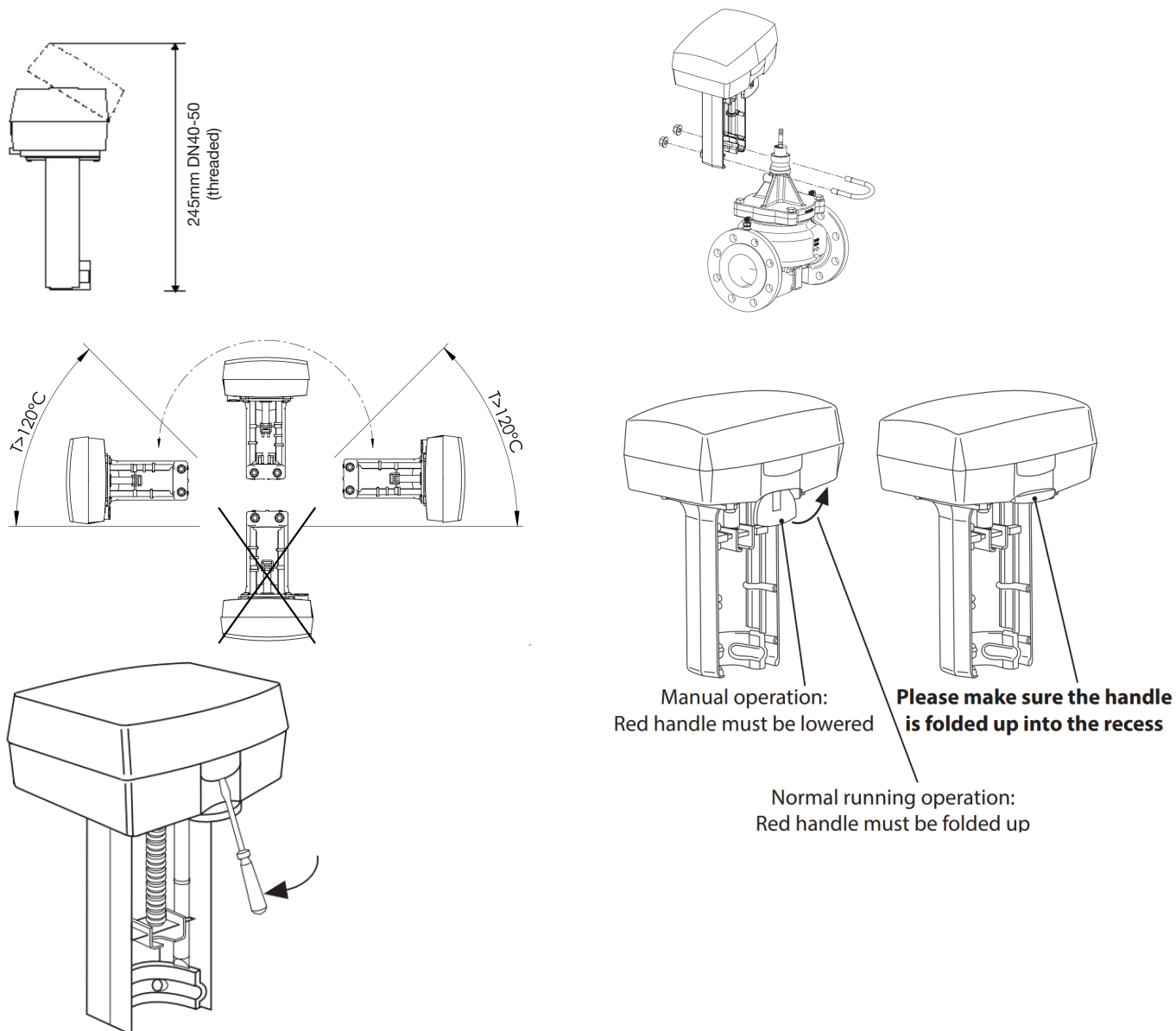
7. AL20F Actuator Settings, Connections, and Wiring Diagrams

7.1 AL20F (DN40-50) Technical Information

Valve Dimension	Technical Code	Function	Supply Voltage	Power Consumption
DN40-DN50	ADPFAL20F150200MOD24	0-10 V / 3-pos	24V AC +/-25% 24V DC +/-10%	6 VA (*30VA)

*Max Consumption for transformer sizing

7.2 AL20F (DN40-50) Actuator Settings and Connections



19

Switch 6b Security function 0% / 50%

At 2–10 V control signal you can select which security function you want the actuator to have.

If the actuator is used for heating control and switch 6 is ON (50%), the actuator will open the valve halfway if the control signal disappears, e.g. if the X1 connection is unplugged.

If, instead, you want the valve closed, set switch 6 to OFF (0%).

Note! The direction of movement is also significant. See the following description.

Switch 7 Direction of movement – NORM / INV

Actuators direction of movement according to the control signal. In normal 'NORM' mode the actuator directly follows the control signal and closes the valve downwards against a 0V control signal.

In inverse 'INV' mode, the actuator reverses the direction of travel against the control signal and will open the valve upwards against a 0V control signal.

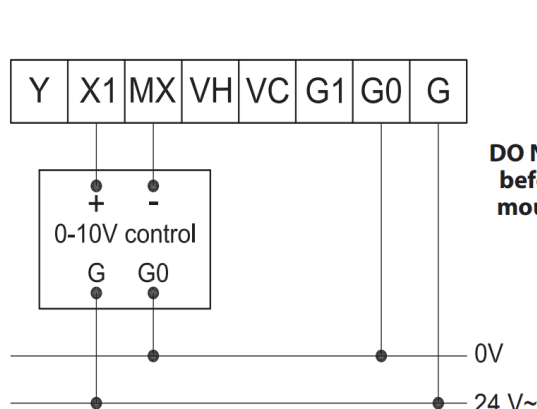
Switch 8 Linearization – LIN / EQ%

The total valve characteristics can be modified from linear to EQ%.

Switch 9 End position adjustment – OP / ADJ

This switch is only used to calibrate the end positions when the actuator is commissioned. Momentarily put the switch in the ON position. The actuator will automatically find the end positions of the valve. For normal operation the switch must be OFF

AL20F Connection Diagram (DN40-50)



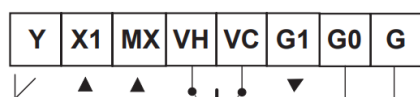
DO NOT connect power before the actuator is mounted on the valve

Terminals

Block	Function	Description
G	24 V AC	Supply voltage
G0	24 V AC return	
X1	Input	Control signals (VH, VC short-circuited to G0)
MX	Input, neutral	
VH	Increase	
VC	Decrease	
		Floating
G1	16±0.3 VDC, 25 mA	Short circuit-safe supply
Y	0-100% (2-10V)	
		Feedback signal

Wiring 3-point floating/

G, G0= Max 100 m 1.5 mm² (AWG 15)
X1, MX, Y, VH, VC = Max 200 m 0,5 mm² (AWG 20)



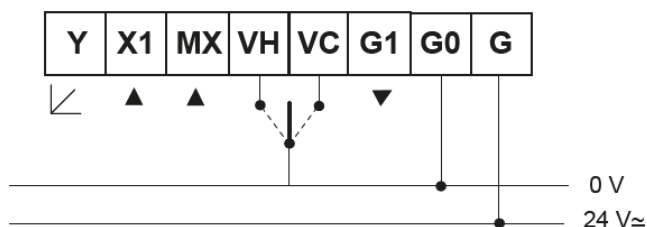
Wiring 0-10V, 2-10v... control signal:

For 0-10V control with 3 wire connection, it is needed to mount an internal wiring between MX and G0.

DO NOT connect power before the actuator is mounted on the valve.

G, G0 = Max 100 m
X1, MX, Y, VH, VC = Max 200 m

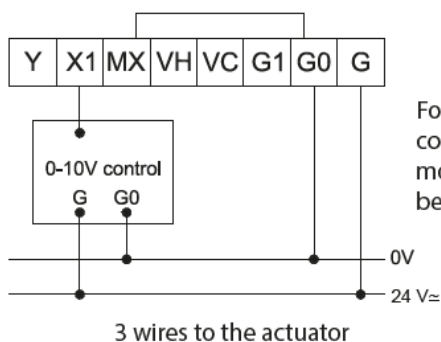
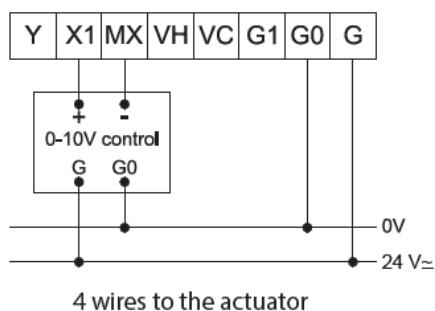
1.5 mm² (AWG 15)
0,5 mm² (AWG 20)



Terminal	Function
Y	Feedback signal 0-100% (2-10V)
X1	Input signal 0-10V
MX	Neutral
VH	Increase (3-pos. control)
VC	Decrease (3-pos. control)
G1	Short circuit-safe supply 16±0.3 VDC, 25mA
G0	System neutral 0 V
G	System potential 24 V AC/DC

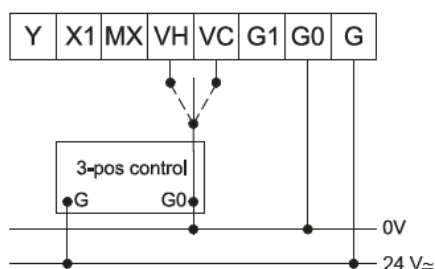
7.3 AL20F (DN40-50) Wiring Examples

0-10V, 2-10V control signal

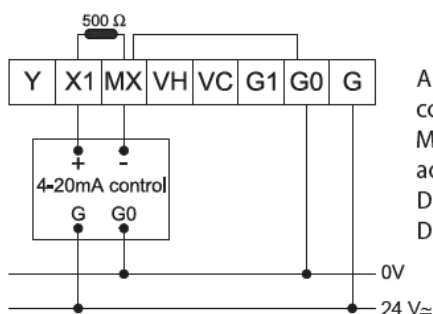


For 0-10V control with 3 wire connection, it is needed to mount an internal wiring between MX and G0

3-pos control signal

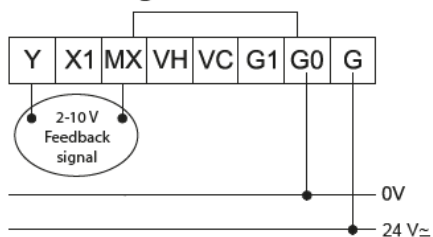


4-20 mA control signal



A 500 Ω resistor must be connected between X1 and MX. (Not delivered with the actuator)
Dip switch 2 must be OFF and
Dip switch 4 must be ON

Feedback signal (2-10V)



8. AL20F Spring Return (SR) Actuator Settings, Connections, and Wiring Diagrams

8.1 AL20F SR (DN40-50) Technical Information

Valve Dimension	Technical Code	Function	Supply Voltage	Power Consumption
DN40-DN50	ADPFAL20F150200SRC24	0-10 V / 3-pos Stem up	24V AC +/-20% 50-60Hz 24V DC +/-20%	30 VA (*50VA)
DN40-DN50	ADPFAL20F150200SRO24	0-10 V / 3-pos Stem down	24V AC +/-20% 50-60Hz 24V DC +/-20%	30 VA (*50VA)

8.2 AL20F SR (DN40-50) Actuator Settings and Connections

		Function in the		Description
		"OFF" pos.	"ON" position	
2-10 Vdc		1 2-10 Vdc	0-5 Vdc	Feed back signal
PROP		2 Proportional	3-point floating	Control mode
---		3 -	Sequence	Sequence control
0-10		4 0-10 V	2-10 V	Input voltage range
0-5, 2-6		5 0-5 V, 2-6 V	5-10 V, 6-10 V	Part of voltage range
60 s		6 60 s	300 s	Running time (Floating control only)
NORM		7 Normal	Inverted	Direction of movement
LIN		8 Linear	EQ%	Valve characteristic
OP		9 Operation	Calibration	Operation/End position calibration

There are nine switches in a row on the circuit board.
On delivery ('Factory'), all switches are in OFF" position.

Switch 1 Feedback signal

Select between 2-10V and 0-5V feedback voltage output .

Switch 2 Control signal — PROP/FLOAT

Actuator can either be controlled by a variable direct voltage, known as a proportional modulating signal (PROP), or by a 3-point floating signal (FLOAT).

Switch 3 Sequence or parallel control — — / SEQ

With sequence (or parallel) control (SEQ), two actuators/valves can be controlled by only one control signal.

For each of these you can choose which part of the voltage range to use, the upper one, 5-10 V (6-10 V) or the lower one, 0-5 V (2-6 V).

If the switch NORM / INV is in the NORM position, the higher voltage corresponds to 100% flow and the lower one to 0%. With NORM / INV in the INV position you will get the opposite function. Note! If sequence or parallel control is not used, the switch — — / SEQ must be in the OFF position, as the switch MOD / INC is not valid during sequence or parallel control.

Switch 4 Voltage range — 0-10 / 2-10

You can choose whether to use the control signal voltage range 0-10 V or 2-10 V.

Switch 5 Part of voltage range — 0-5, 2-6 / 5-10. 6-10

You can choose which part of a voltage range to use, the lower one 0-5 V (2-6 V) or the upper one 5-10 V (6-10 V).

If the switch is in the NORM position, the higher voltage corresponds to 100% flow and the lower one to 0%. To achieve the opposite function, the switch should be put in its INV position.

Switch 6a Running time — 60 s / 300 s

With 3-point floating control, you can choose a running time between 60 s or 300 s.

With modulating control, the running time is 20 s.

Switch 7 Direction of movement — NORM / INV

Actuators direction of movement according to the control signal. In normal 'NORM' mode the actuator directly follows the control signal and closes the valve downwards against a 0V control signal.

In inverse 'INV' mode, the actuator reverses the direction of travel against the control signal and will open the valve upwards against a 0V control signal.

Switch 8 Linearization — LIN /EQ%

The total valve characteristics can be modified from linear to EQ%.

Switch 9 End position adjustment — OP / ADJ

This switch is only used to adjust the end positions when the actuator is commissioned.

Momentarily put the switch in the ON position. The actuator will automatically find the end positions of the valve.

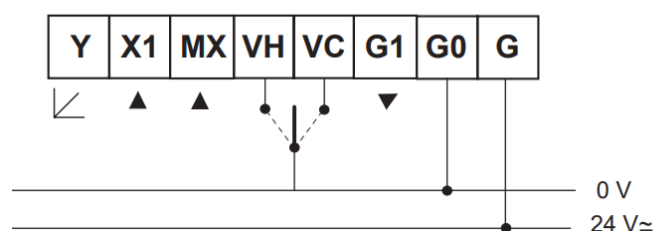
Stroke calibration will only be initiated once power is applied to the actuator and the user has triggered this switch.

AL20F SR Connection Diagrams (DN40-50)

G, G0= Max 100 m
X1, MX, Y, VH, VC = Max 200 m

1.5 mm² (AWG 16)

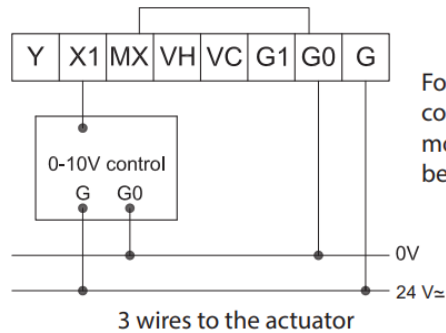
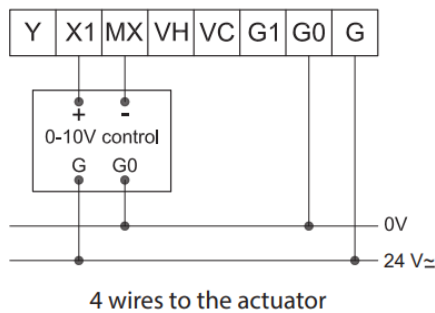
0,5 mm² (AWG 20)



Block	Function	Description
G	24 V AC/DC	Supply voltage
G0	0 V	Supply voltage
X1	Input (0-10 V)	Control signals
MX	Input, neutral	(VH, VC short-circuited to G0)
VH	Increase	
VC	Decrease	
G1	16 VDC,	External supply 25 mA max
Y	0-100% (2-10V)	Feedback signal

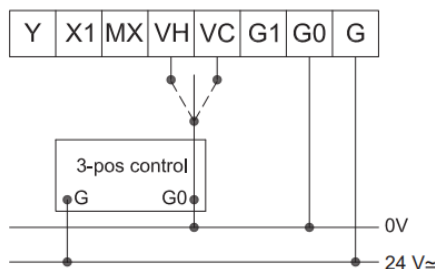
8.3 AL20F SR (DN40-50) Wiring Examples

0-10V, 2-10V..... control signal

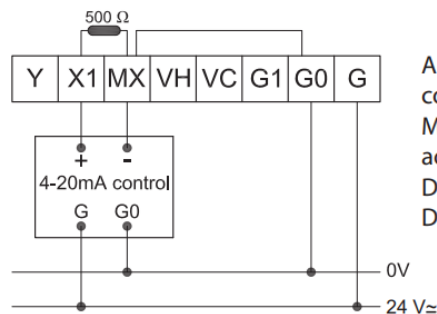


For 0-10V control with 3 wire connection, it is needed to mount an internal wiring between MX and G0

3-pos control signal



4-20 mA control signal



A 500 Ω resistor must be connected between X1 and MX. (Not delivered with the actuator)
Dip switch 2 must be OFF and
Dip switch 4 must be ON

9. Approvals Classification

- The valve is classified in accordance with PED 2014/68/EU as Sound Engineering Practice (SEP), EMC (Electro Magnetic Compatibility) Directive 2004/108/EC and Low Voltage Directive 2006/95/EC.

10. Troubleshooting

- For trouble-free operation of the product, good installation practice must include initial system flushing and chemical water treatment.
- Do not use boiler additives, solder flux, and wetted materials which are petroleum-based or contain mineral oil, hydrocarbons, or ethylene glycol acetate. Compounds that can be used, with a minimum 50% water dilution, are diethylene glycol, ethylene glycol, and propylene glycol (antifreeze solutions).



If installing these valves in an addition to, or retrofitting an existing building, do not assume that the fluid in the existing piping meets these criteria.

1. Before installing the valves, flush the system according to BG29.
2. It is recommended to install strainers in front of the valves to protect against clogging due to foreign particles. Strainer baskets should be installed, checked, and cleaned as required during flushing and normal operation.
3. Use clean water according to the guidelines in BG50

11. Warranty

- For further details of Albion Valves (UK) Ltd warranty period, please refer to Albion Valves (UK) Ltd 'Conditions of Sale' available on our website.



About Albion Valves (UK) Ltd

Albion has been supplying valves and fittings to the building services and industrial markets for the past 40 years.

Albion was created with the sole purpose of providing quality products at an affordable price. With a growing reputation for quality and reliability, Albion is now an established brand providing the industry with a trusted alternative to premium-priced products.

Our commitment to setting the highest standards in all areas of our business means, if you're looking for quality, service, delivery and choice — you'll find it's all at Albion.

Quality

Whatever you need, you can rest assured that if it comes from Albion it has been designed and manufactured to deliver optimum performance and is accredited with the necessary approvals. Our in-house quality department are always on hand too!

Service

We pride ourselves on our customer service – we have even won awards for it! Our cradle to grave approach means you will never be on your own!

Delivery

We know that time is money, and when a priority project depends on a part you can trust Albion to deliver – next day for all orders placed before 4:00PM.

Choice

We may have started out with a single brass ball valve, but our range has grown substantially since and we now consider ourselves to be a 'One Stop Shop' with our comprehensive range. It is becoming more and more apparent to the industry, that it really is all at Albion.