Accurate Regulation of your Flow

Alfa Laval Unique RV-P Regulating Valve

Concept
Unique RV-P is a hygienic electro-pneumatic regulating valve for use in applications which require precision control of pressure, flow, temperature, level in tanks etc.

Working principle
It is remotely-controlled by an electrical signal and compressed air. The IP-converter, which is an integrated part of the actuator, converts the electrical signal to a pneumatic signal. This signal conversion is based on a highly accurate and reliable contactless AMR sensor making it insensitive to vibrations and pressure shocks. The pneumatic signal is transmitted to the integrated positioner which operates by means of the force-balance principle, ensuring that the position of the actuator piston is directly proportional to the input signal. Signal range and zero point can be adjusted individually. The actuator can be used for split-range operation by using a different measuring spring.

Standard design
The valve is built on the Unique SSV platform and consists of valve body, valve plug, lip seal, bonnet and an external actuator. The actuator with the bonnet is fitted to the valve body by means of a clamp. The Kv value is flexible as lower element can be exchanged.

TECHNICAL DATA

Valves
Max. product pressure: . . . . . 1000 kPa (145 PSI).
Min. product pressure: . . . . . Full vacuum.
Temperature range: . . . . . 50°F to 284°F (EPDM).
Flow range Kv (Δp = 1bar = 14.5 PSI): . . . . . .2.2 -484.32 US GPM
Max. pressure drop: . . . . . 500 kPa (72.52 PSI).

Actuator
Air quality
Air connection: . . . . . 6/4 air tube with air fitting R1/8" (BSP)
Max. pressure: . . . . . 600 kPa (87 PSI).
Working pressure: . . . . . 400 kPa (58 PSI).
Max. size of particles: . . . . . 0.0003936996 inch.
Max. oil content: . . . . . 0.08 ppm.
Dew point: . . . . . 50°F below ambient temp. or lower.
Max. water content: . . . . . 0.17 lbs/lbs

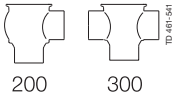
I/P converter
Signal range: . . . . . 4 - 20 mA (standard).
Input resistance: 200
Inductivity/capacitance: . . . . . Negligible.

PHYSICAL DATA

Materials, Valves
Product wetted steel parts: . . . Acid-resistant steel, AISI 316L (1.4404).
Other steel parts: . . . . . Stainless steel, AISI 304 (1.4301).
Product wetted seals: . . . . . EPDM.
External finish: . . . . . Semi-bright (blasted).
Internal finish: . . . . . Bright (polished) RA<32 µin.

Materials, Actuator
Actuator cases: . . . . . Aluminium with plastic coating.
Diaphragms: . . . . . NBR with reinforced fabric insert.
Springs: . . . . . Stainless steel uncovered/spring steel epoxy resin coated.
Actuator stem: . . . . . Polyamide.
Screws, nuts: . . . . . Stainless steel, polyamide.
Other parts: . . . . . Stainless steel.

Valve body combinations



200 300

Authorized to carry the 3A symbol

CERTIFIED EHEDG TYPE EL OCTOBER 2008

Accuracy

Deviation: . . . . . ≤1.5%
Hysteresis: . . . . . ≤0.5%.
Sensitivity: . . . . . <0.1%.
Influence of air supply pressure: . . . . . ≤0.1% between 20.3 and 87 bar.
Air consumption at steady state condition: . . . . . With 8.7 PSI signal pressure and supply pressures up to 87 PSI ≤100 ln/h.
Ambient temperature: . . . . . -13°F to +158°F.
Protection class: . . . . . IP 66

Flow sizes/tube connections

Flow sizes/tube connections

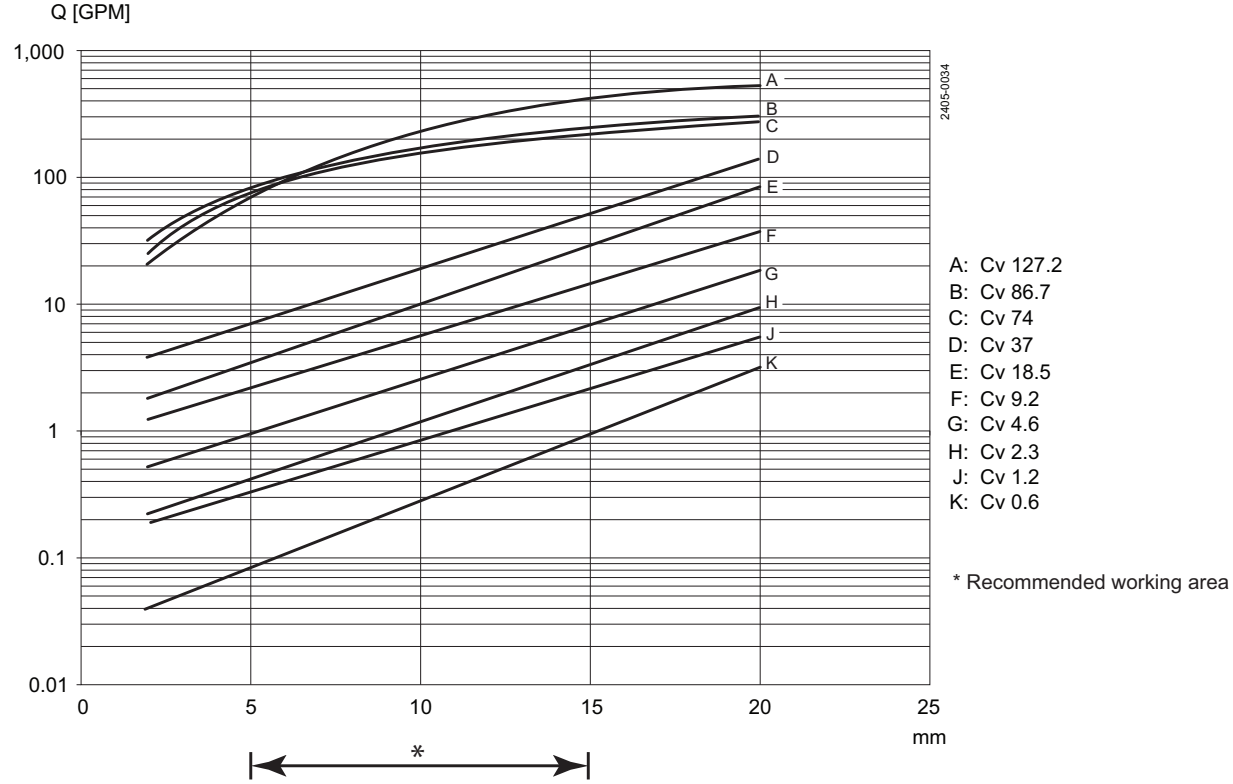
Kv	Seat diam.		Tube connections		Actuator (type no.)	
	(mm)	inch	ISO (mm)	Inch	NO	NC
0,5 E	6	0.24	38	1½"	3277-5	3277-5
1,0 E	10	0.39	38	1½"	3277-5	3277-5
2 E	12	0.47	38	1½"	3277-5	3277-5
4 E	14	0.55	38	1½"	3277-5	3277-5
8 E	23	0.91	38	1½"	3277-5	3277-5
16 E	29	1.14	38	1½"	3277-5	3277-5
32 E	48.5	1.91	51	2"	3277-5	3277-5
64 L	51	2.01	63.5	2½"	3277-5	3277-5
75 L	51	2.01	76.1	3"	3277-5	3277-5
110 L	72	2.83	101.6	4"	3277-5	3277

Options

A. Male parts or clamp liners in accordance with required standard.
B. Lip seal of HNBR or Fluorinated rubber (FPM).
C. Profibus communication
D. Aseptic configuration Max 116 ps

Capacity diagram

For Δ P= 100 kPa (1bar).



Conversion Table

100 kPa = 1 bar = 14.5 PSI
10 mm = 0.39 inch
10 m^3/h = 44.03 US GPM

Notel For the diagram the following applies:
Medium: Water (68°F).
Measurement: In accordance with VDI 2173.
Alfa Laval recommend max. flow velocity in tubing and valves to be 5 m/sec.

Pressure drop calculation

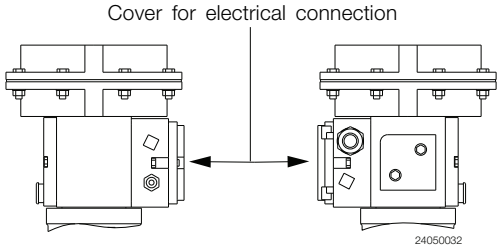
The Kv designation is the flow rate in m^3/h at a pressure drop of 1 bar when the valve is fully open (water at 68°F or similar liquids).
To select the Kv value it is necessary to calculate the Kv_q value using the following formula:

$$Kv_q = \frac{Q}{\sqrt{\Delta p}}$$

Where:

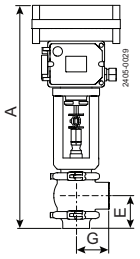
Kv_q	=	Kv value at specific flow and specific pressure drop.
Q	=	Flow rate (m^3/h).
Δ P	=	Pressure drop over valve (bar).

Electrical connection



1. Open the cover from actuator
2. Fit the cable through the cable gland and connect it to the terminal strip. **Ensure correct polarity (11 = +,12 = -)!**
3. Tighten the cable gland and close the cover

Dimensions (inch)



Dimensions (in)

Size	1.5"	2"	2.5"	3"	4"		DN40	DN50	DN65	DN80	DN100	
	NO/NC	NO/NC	NO/NC	NO/NC	NO	NC	NO/NC	NO/NC	NO/NC	NO/NC	NO	NC
A- std	16.1	16.7	15.9	17.3	18.2	18.9	16.2	16.7	16.2	17.6	18.3	19
A- aseptisk	16.2	16.8	16.2	17.6	18.5	19.2	16.3	16.8	16.5	17.9	18.6	19.3
E	2.2	2.5	2.2	3.3	3.8	3.8	2.2	2.5	2.4	3.5	3.9	3.9
G	1.9	2.4	3.2	3.4	4.7	4.7	1.9	2.4	3.1	3.4	4.7	4.7
H	6.6	6.6	6.6	6.6	6.6	11	6.6	6.6	6.6	6.6	6.6	11
OD	1.5	2	2.5	3	4	4	1.6	2.1	2.8	3.3	4.1	4.1
ID	1.4	1.9	2.4	2.9	3.8	3.8	1.5	2	2.6	3.2	3.9	3.9
t	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
M/ISO clamp	0.8	0.8	0.8	0.8	0.8	0.8						
M/DIN clamp							0.8	0.8	1.1	1.1	1.1	1.1
M/DIN male							0.9	0.9	1	1	1.2	1.2
M/SMS male	0.8	0.8	0.9	0.9	1.4	1.4						
Weight lb	18.1	20.5	21.4	24.7	34.0	54.9	18.1	20.5	21.4	24.7	34.0	54.9

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How to contact Alfa Laval
Contact details for all countries are continually updated on our website. Please visit www.alfalaval.us to access the information direct.