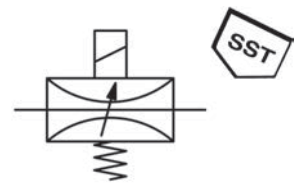
Proportional Flow Valve DFCV22...46

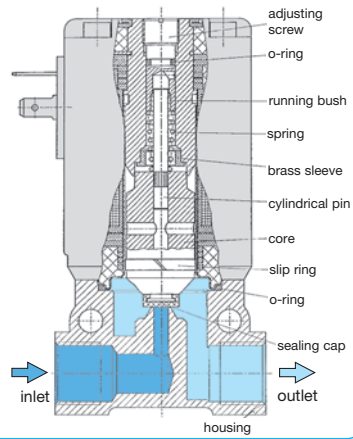
Description	2-way proportional flow valve controls the volume flow of maximum 3030 l/min for air in proportion to the input signal of 0 to 10 V or 0/4 to 20 mA. The proportional valve and the electronic control unit are ordered separately.
Product selection	To achieve the best linear flow characteristics, it is advisable not to reduce the flow too much and to have enough pressure drop at the valve for good control. Reference value: at the valve > 30% of the total pressure drop.
Installation hint	The nominal width of the orifice following the proportional valve should not be smaller than the nominal width of the valve. A constriction of the cross-section after the valve should be categorically avoided!



G⅛ up to G1
compressed air or liquids

General technical features

Design	2-way proportional flow valve, normally closed during absence of current, with additional control module PVY in cable plug or PVX in housing for DIN rail mounting. DFCV22,24,33,35.36,48 are directly acting solenoid control valves DFCV46 are servo-assisted solenoid control valves
Mounting position	any, but preferably with coil upright
Protection class	IP 65 with coupling socket, IP 40 for DIN rail version
Temperature range	-10 °C to 90 °C / 14 °F to 194 °F for medium -10 °C to 53 °C / 14 °F to 131 °F for electronics
Material	Body: brass; Inner valve: brass and stainless steel Elastomer: FKM; Control housing: plastic



cross section

Pneumatic features

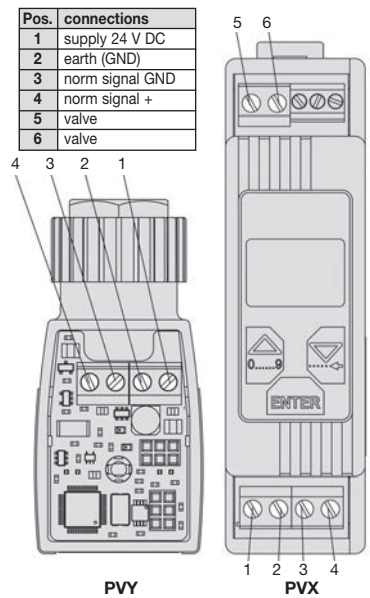
Media	compressed air, non-corrosive gases or liquids, max. viscosity 21 mm²/s, DFCV46 for liquids only
Operating pressure	see chart, max. 25 bar
Flow rate	3030 l/min for air, 83 l/min for liquids in detail see chart, at max. supply pressure and Δp = 1 bar

Electrical features

Supply voltage	24 V DC ± 10%, residual ripple max. 5%, with reverse voltage protection
Power consumption	see table below
Command signal	0...5 V, 0...10 V, 0...20 mA or 4...20 mA selectable
Impedance	> 20 kΩ at voltage signal < 200 Ω at current signal
Electrical connector	DFCV22: connecting wires, length 30 cm DFCV24: square connector according to DIN 43650 form B DFCV33...46: square connector according to DIN 43650 form A

electronic	DFCV22	DFCV24	DFCV33	DFCV35	DFCV36	DFCV46	DFCV48
1 W	2 W	5 W	9 W	16 W	24 W	8-15 W	18 W

Pos.	connections
1	supply 24 V DC
2	earth (GND)
3	norm signal GND
4	norm signal +
5	valve
6	valve



control electronics

Accuracy

Linearity	< 10% FS
Hysteresis	< 5 % FS, for DFCV22 < 10%FS, DFCV48 < 7% FS
Response sensitivity	< 0.1% FS, for DFCV46 < 1%FS,DFCV36, DFCV48 < 0.5% FS, DFCV24,33,35 < 0.25%FS
Repeatability	< 0.25% FS, for DFCV33,48 < 0.5% FS, DFCV36,46 < 1% FS
Regulating time	DFCV22: < 10 ms, DFCV24/33: < 20 ms, DFCV35,48: < 50 ms, DFCV36< 100 ms, DFCV46: < 200 ms each for 90% of the range

Adjustment

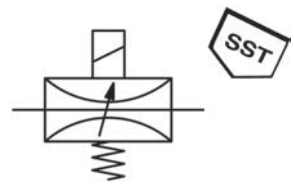
Zero point	The zero point can be decreased or increased.
Range	The range can be decreased or increased.
Ramp	The ramping potentiometer adjusts the time delay with a range of 0 to 10 s in order to dampen sudden changes of the setpoint. Increasing and decreasing ramps have the same delay.
Zero point switch	Using a DIP switch, the zero point switch can be activated or deactivated. It is not necessary to have another switch-off valve.

Proportional Flow Valve — DFCV22...46

Proport. flow

Technical features

• **Media**	compressed air, non-corrosive gases or liquids, except for DFCV46	• **Linearity**	< 10% FS
• **Signal range**	0...5 V, 0...10 V, 0...20 mA, 4...20 mA	• **Hysteresis**	< 5% FS, at DFCV22 < 10% FS DFCV48 < 7% FS
• **Pressure range**	vacuum...2 / 25 bar	• **Response sensitivity**	< 0.1% FS, at DFCV46 < 1% FS
• **Orifice**	DN0.05 ... DN 20	• **Repeatability**	< 0.25% FS, at DFCV33,48 < 0.5% FS DFCV36,46 < 1% FS
• **Flow rate**	max. 3030 l/min for air, max. 83 l/min for liquids	• **Regulating time**	depending on type < 10 ms, < 20 ms, < 50 ms,< 100 ms or < 200 ms
• **Adjustment**	zero point, range and ramp	• **Protection class**	IP 65 with plug
• **Zero switch-off**	ensures reliable closure of the valve	• **Impedance**	> 20 kΩ at voltage signal < 200 Ω at current signal



G⅛ up to G1 compressed air or liquids

Dimensions A mm	B mm	C mm	Nominal size DN	K_v value (m^3/h)	Flow rate Water l/min*1	Air l/min*1	Operating pressure max. bar	Connection thread G	Order number
Proportional flow valve				without electronics, brass, FKM, for compressed air, vacuum or liquids*2					**DFCV**
25	50	7	0.05	0.00006	0.001	0.06	10	1/8"	**DFCV22-01**
			0.1	0.00025	0.004	0.27	10		**DFCV22-02**
			0.2	0.001	0.0165	1	10		**DFCV22-03**
			0.3	0.002	0.033	2	10		**DFCV22-04**
			0.4	0.004	0.0665	4	8		**DFCV22-05**
			0.6	0.01	0.166	11	6		**DFCV22-06**
25	50	7	0.8	0.018	0.3	19	12	1/8"	**DFCV24-01**
			1.0	0.027	0.45	29	10		**DFCV24-02**
			1.2	0.038	0.63	41	8		**DFCV24-03**
			1.6	0.055	0.92	59	6		**DFCV24-04**
			2.0	0.09	1.5	97	3		**DFCV24-05**
32	66	8.5	0.8	0.018	0.3	19	16	1/8"	**DFCV33-01**
32	66	8.5	1.2	0.04	0.66	43	12		**DFCV33-02**
32	66	8.5	1.5	0.06	1.0	65	10		**DFCV33-03**
46	72	8.5	2.0	0.1	1.66	108	8	1/4"	**DFCV33-04**
46	72	8.5	2.5	0.15	2.5	162	5	1/4"	**DFCV33-05**
46	72	8.5	3.0	0.22	3.66	237	3.5		**DFCV33-06**
46	72	8.5	4.0	0.32	5.3	345	2		**DFCV33-07**

DFCV22 **DFCV24**

DFCV33 **DFCV46**

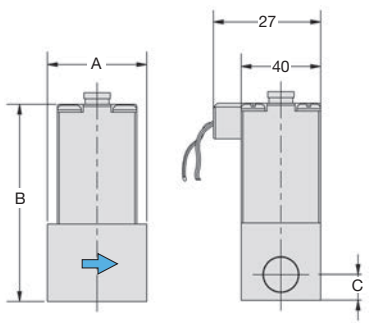
PVY **PVX**

Special options, add the appropriate letter

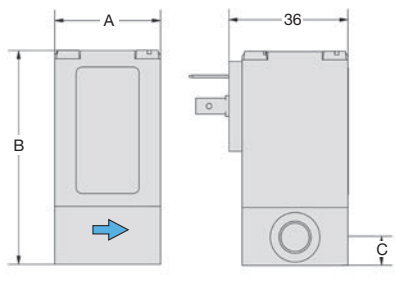
stainless steel body	SST 316, material no. 1.4401	**DFCV..-.. S**
sub-base	optional for DFCV 22,24,33	**DFCV..-..M**
NPT	connection thread	**DFCV..-.. N**

Accessories, enclosed

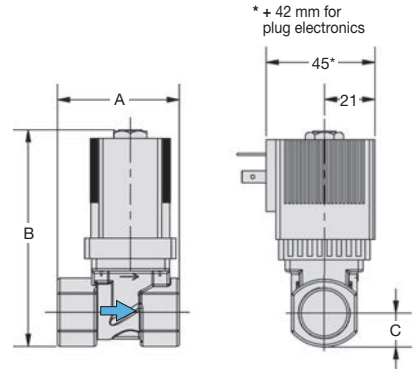
plug electronics	24 V DC, 0...5 V, 0...10 V, 0/4 mA...20 mA	for DFCV33 up to 46	**PVY-01**
clip-on electronics	24 V DC, 0...5 V, 0...10 V, 0/4 mA...20 mA	DFCV22,24	**PVX-01**
		DFCV33,35,46,48	**PVX-02**
		DFCV36	**PVX-03**
coupling socket	according to DIN 43650 form B	DFCV24	**2285-0**
	according to DIN 43650 form A	DFCV33 up to 46	**2286-0**



DFCV22 with wire



DFCV33



DFCV46

*1 at max. operating pressure and Δp = 1 bar

*2 DFCV46 is not suitable for compr. air and vacuum, since pilot-controlled

DURAY

Order example: DFCV33-03

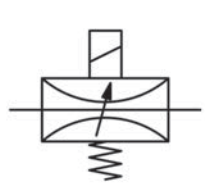
China website: www.duray-control.cn

Proportional Flow Valve DFCV22...46

Proport. flow

Technical features

• **Media**	compressed air, non-corrosive gases or liquids, except for DFCV46	• **Linearity**	< 10% FS
		• **Hysteresis**	< 5% FS, at DFCV22 < 10% FS DFCV48 < 7% FS
• **Signal range**	0…5 V, 0…10 V, 0…20 mA, 4…20 mA	• **Response sensitivity**	< 0.1% FS, at DFCV46 < 1% FS
• **Pressure range**	vacuum…2 / 25 bar	• **Repeatability**	< 0.25% FS, at DFCV33,48 < 0.5% FS DFCV36,46 < 1% FS
• **Orifice**	DN0.05 … DN 20		
• **Flow rate**	max. 3030 l/min for air, max. 83 l/min for liquids	• **Regulating time**	depending on type < 10 ms, < 20 ms, < 50 ms,< 100 ms or < 200 ms
• **Adjustment**	zero point, range and ramp	• **Protection class**	IP 65 with plug
• **Zero switch-off**	ensures reliable closure of the valve	• **Impedance**	> 20 kΩ at voltage signal < 200 Ω at current signal



G⅛ up to G1
compressed air or liquids

Dimensions A mm	B mm	C mm	Nominal size DN	K_v value (m^3/h)	Flow rate Water l/min*1	Air l/min*1	Operating pressure max. bar	Connection thread G	Order number
Proportional flow valve			without electronics, brass, FKM, for compressed air, vacuum or liquids*2						**DFCV**
55	105	14	2	0.12	2	129	25	3/8"	**DFCV35-01**
			3	0.25	4.15	270	10		**DFCV35-02**
			4	0.45	7.5	485	8	1/2"	**DFCV35-03**
			6	0.8	13.3	862	4	1/2"	**DFCV35-04**
			8	1.1	18.3	1186	2		**DFCV35-05**
90	174	18	3	0.25	4.15	270	25	1/2"	**DFCV36-01**
			4	0.4	6.67	430	16		**DFCV36-02**
			6	0.9	15	970	8		**DFCV36-03**
			8	1.5	25	1615	5	3/4"	**DFCV36-04**
			10	2.0	33.3	2150	3	3/4"	**DFCV36-05**
			12	2.5	41.67	2700	2		**DFCV36-06**
58	125	11	8	1.4	23.3	1500	0.7	3/4"	**DFCV48-01**
			10	2.0	33.3	2150	0.4		**DFCV48-02**
			12	2.8	46.67	3030	0.2		**DFCV48-03**
50	89	12	10	1.4	23.3	/	0.5-10	1/2"	**DFCV46-01**
58	110	14	13	2.5	41.67	/	0.5-10	3/4"	**DFCV46-02**
80	155	16	20	5.0	83.3	/	0.5-10	1"	**DFCV46-03**

DFCV35

DFCV36

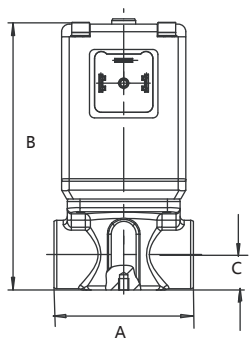
DFCV48

Special options, add the appropriate letter

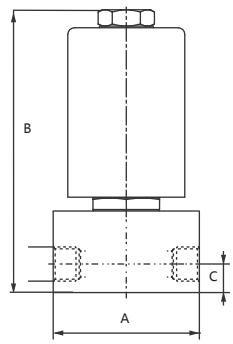
stainless steel body	SST 316, material no. 1.4401	**DFCV..-.. S**
sub-base	optional for DFCV 22,24,33	**DFCV..-..M**
NPT	connection thread	**DFCV..-.. N**

Accessories, enclosed

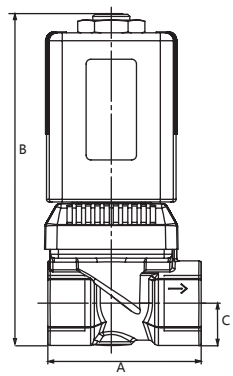
plug electronics	24 V DC, 0…5 V, 0…10 V, 0/4 mA…20 mA	for DFCV33 up to 46	**PVY-01**
clip-on electronics	24 V DC, 0…5 V, 0…10 V, 0/4 mA…20 mA	DFCV22,24	**PVX-01**
		DFCV33,35,46,48	**PVX-02**
		DFCV36	**PVX-03**
coupling socket	according to DIN 43650 form B	DFCV24	**2285-0**
	according to DIN 43650 form A	DFCV33 up to 46	**2286-0**



DFCV35



DFCV36



DFCV48

*1 at max. operating pressure and Δp = 1 bar

*2 DFCV46 is not suitable for compr. air and vacuum, since pilot-controlled

DURAY

Order example: DFCV35-03

China website: www.duray-control.cn