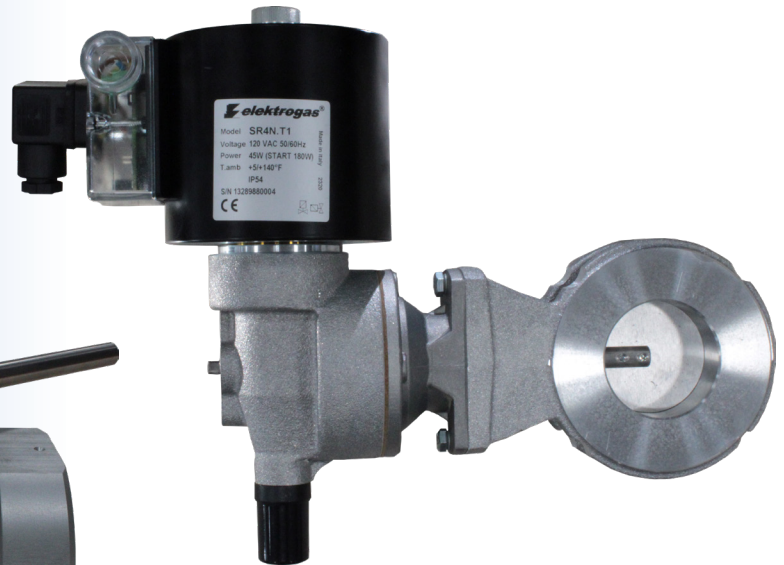


- Max. inlet pressures: 7.25 PSI (VF, VFT, LMV); 2 PSI (VFH)
- Pipe sizes: 3/4" ... 4" (NPT ... ANSI); 5" ... 8" (ISO)
- Solenoid opening behavior: fast/fast, slow/fast, or slow/slow
- Servomotor actuation for 3+ position operation
- Servomotor suitable for 24-230V
- Manual handle available



VF
VFH
VFT

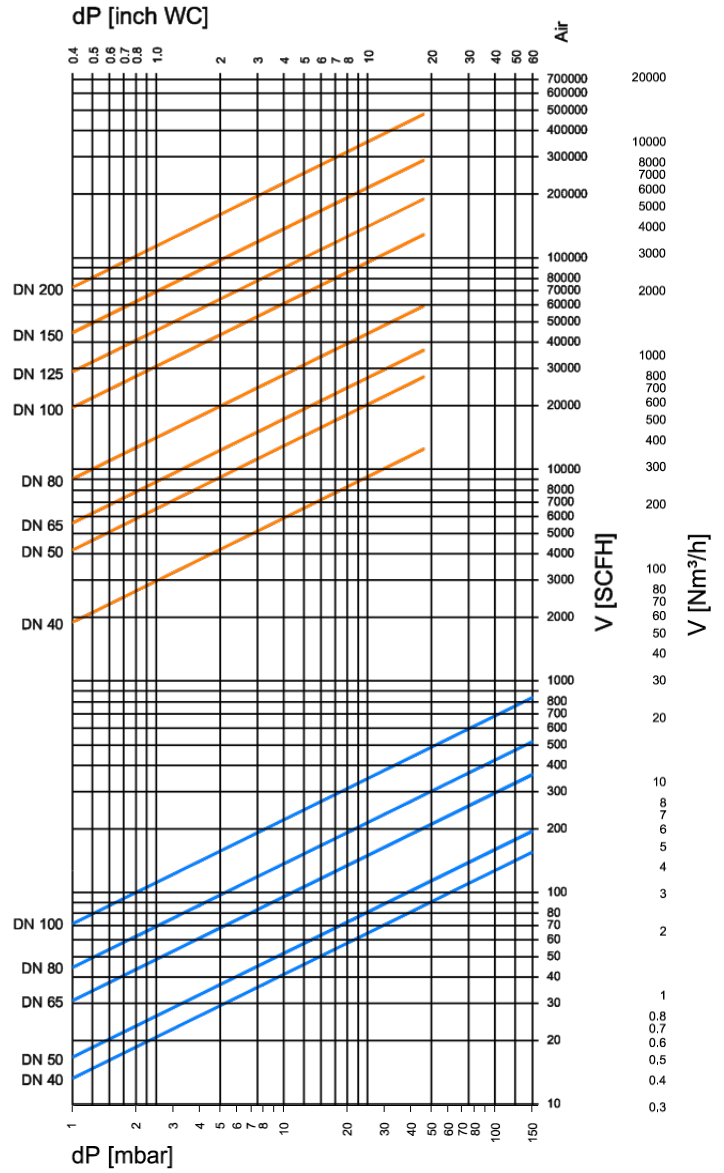
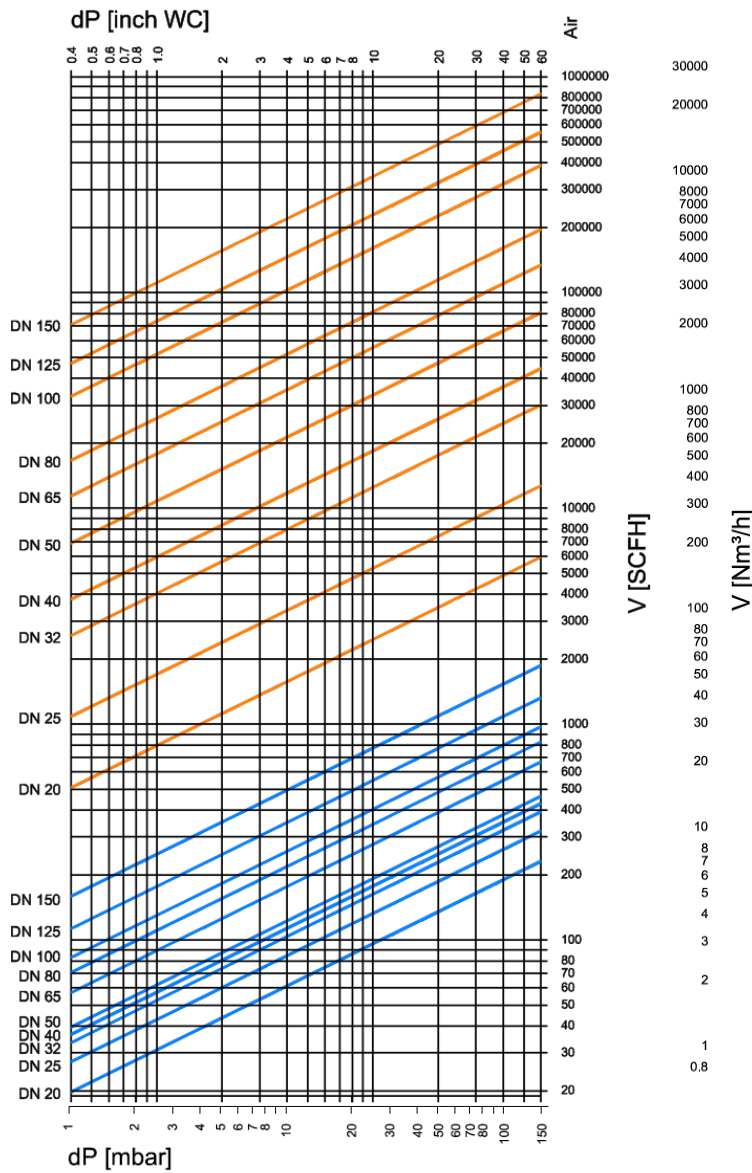
LMV
MZx
Sx

Butterfly valves and linear flow control valves for gas and air VF, VFH, VFT, LMV
Servomotor MZx
Solenoid actuator Sx
3/4" ... 8"

Flow Chart - VF, VFT

Flow Chart - VFH

- blue lines: leakage @ 0° opening angle
- orange lines: max flow rate @ 90° opening angle



Pressure drop (Δp) being 30% of inlet pressure p_1 assures a good flow control.

Gas type	Density ρ [lb/ft³]	$k = \sqrt{\frac{0.078}{\rho_{GAS}}}$
1) Air	0.078	1.00
2) Natural gas	0.049	1.25
3) Town gas	0.035	1.48
4) LPG	0.129	0.77

Formula of conversion from air to other gases

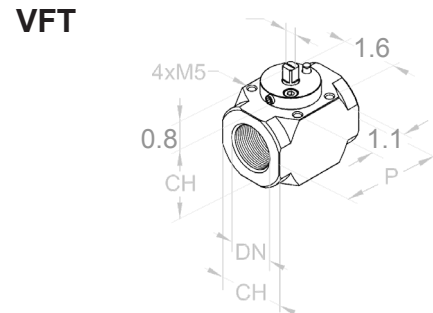
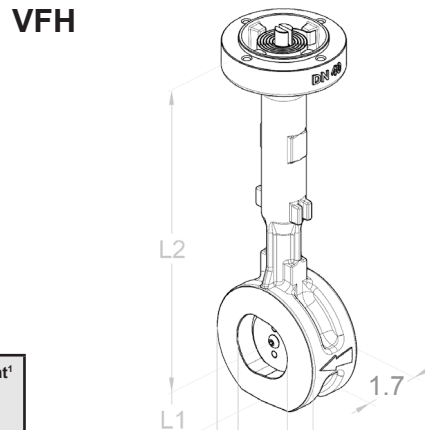
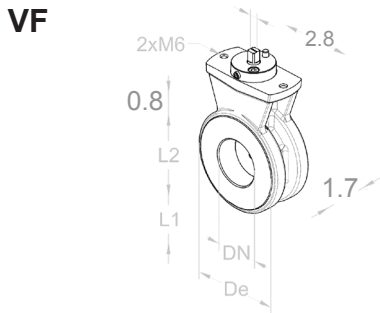
$$V_{GAS} = k \cdot V_{AIR}$$

60°F, 14.7 PSIA, dry

Technical Specifications

VF, VFH, VFT

	VF	VFH	VFT
Connections	From 1-1/2" up to 4" for fitting between two flanges according to ANSI-ASA-ASME B16.5 class 150 From 5" up to 6" for fitting between two flanges according to EN 1092 PN16	From 1-1/2" up to 4" for fitting between two flanges according to ANSI-ASA-ASME B16.5 class 150 From 5" up to 8" for fitting between two flanges according to EN 1092 PN16	Internal threaded ANSI-ASME B1.20 from 3/4" to 2" NPT
Rotation angle	0 / 90° adjustable	0 / 90° adjustable	0 / 90° adjustable
Ambient temperature	5°F/140°F	5°F/140°F	5°F/140°F
Media type	Air and non-aggressive gases according to EN 437	Heated air and flue gas	Air and non-aggressive gases according to EN 437
Max. media temperature	140°F 390°F for use with air only (special version on request)	480°F 840°F with heat shields (available accessory)	140°F
Max. operating pressure	7.25 PSI	2 PSI	7.25 PSI
Max. pressure loss	2 PSI	0.65 PSI	2 PSI
Flow rate	See tables	See tables	See tables
Materials in contact with fluid	Aluminum alloy Copper alloy Stainless steel Nitrile rubber (NBR) Fluoro elastomer (FPM) Polytetrafluoroethylene (PTFE)	Cast iron Stainless steel Polytetrafluoroethylene (PTFE)	Aluminum alloy Stainless steel Nitrile rubber (NBR)
Driving systems and actuators	- square shaft □ 8 - round shaft Ø10 - manual lever - solenoid SR/SL/ST - servomotor MZ	- manual lever - solenoid SR/SL/ST - servomotor MZ	- manual lever - solenoid SR/SL/ST - servomotor MZ

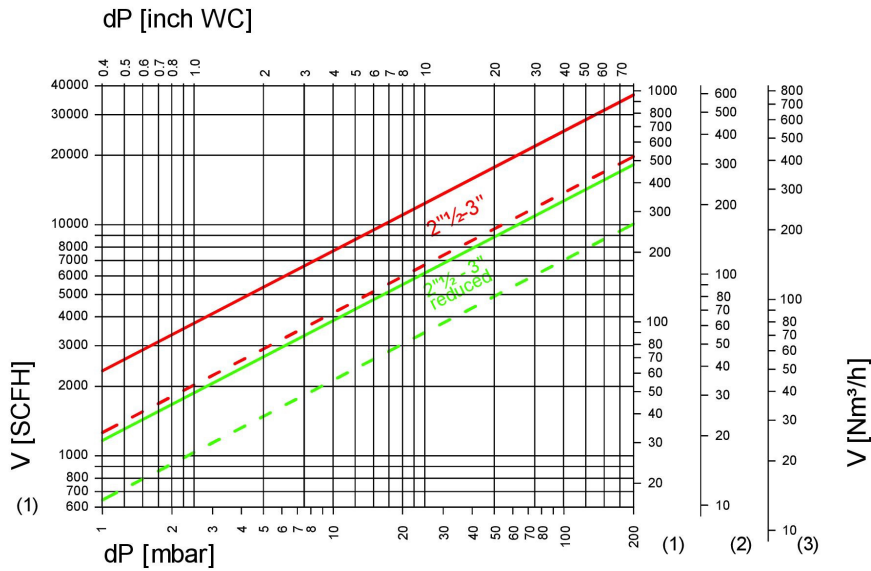
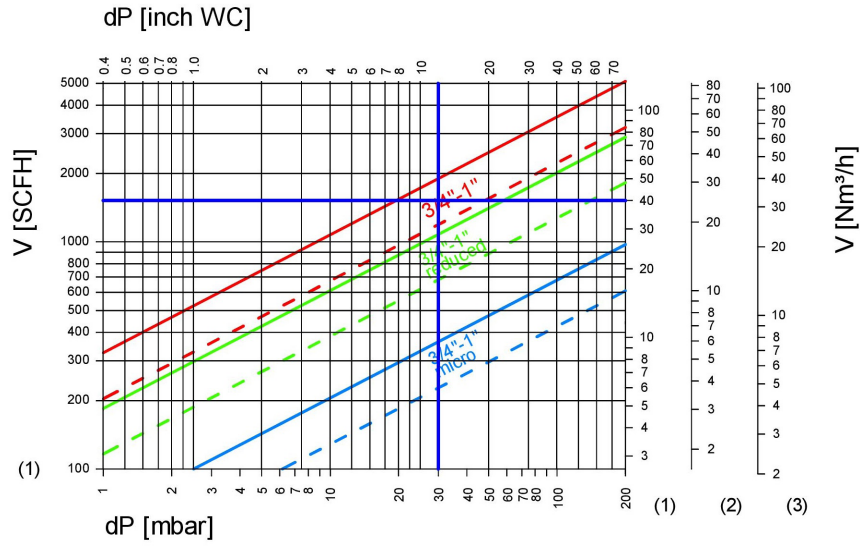


Connections	Overall dimensions [inches]			Weight ¹ [lbs]
	De	L1	L2	
1½" ANSI	3.6	1.8	3.1	1.8
2" ANSI	4.2	2.1	3.4	2
2½" ANSI	5	2.5	3.8	2.6
3" ANSI	5.6	2.8	4.1	2.9
4" ANSI	6.4	3.2	4.5	3.3
5" ANSI	7.6	3.8	5.1	4
6" ANSI	8.5	4.3	5.8	4.9

Connections	Overall dimensions [inches]			Weight ¹ [lbs]
	De	L1	L2	
1½" ANSI	3.6	1.7	9.1	6.4
2" ANSI	4.2	1.9	9.4	7.3
2½" ANSI	5	2.3	9.7	8.6
3" ANSI	5.6	2.6	10	9.5
4" ANSI	6.4	3.2	10.4	10.6
5" ANSI	7.6	3.9	10.8	15.9
6" ANSI	8.5	4.4	11.3	18
8" ANSI	10.8	5.5	12.4	24.3

Connections	Overall dimensions [inches]		Weight ¹ [lbs]
	CH	P	
3/4" NPT	2	2.8	1
1" NPT	2	2.8	0.9
1½" NPT	2.6	3.3	1.7
1½" NPT	2.6	3.3	1.4
2" NPT	3	3.5	1.8

Flow Chart - LMV



Gas type	Density ρ [lb/ft ³]
(1) Natural gas	0.80
(2) LPG	2.08
(3) Air	1.25

60°F, 14.7 PSIA, dry

**Technical Specifications
LMV**

Connections	Internal threaded ANSI-ASME B1.20 from 3/4"NPT to 2½"NPT Flanged ANSI-ASA-ASME B16.5 class 150 2" ANSI to 3" ANSI
Control Ratio	25:1
Ambient Temperature	5°F / +140°F (-15°C / +60°C)
Max Working Pressure	7.25 PSI (500 mbar)
Flow Capacity	See flow chart
Leakage Rate	< 2% of maximum capacity
Filtering Element	600 µm
Materials in Contact With Gas	Aluminum alloy Brass Stainless steel Plated steel Anaerobic adhesive Nitrile rubber (NBR) Fluoro elastomer (FPM) Acetal resin (POM)
90° Opening / Closing Time	7.5 - 60 sec (depending on servomotor type)

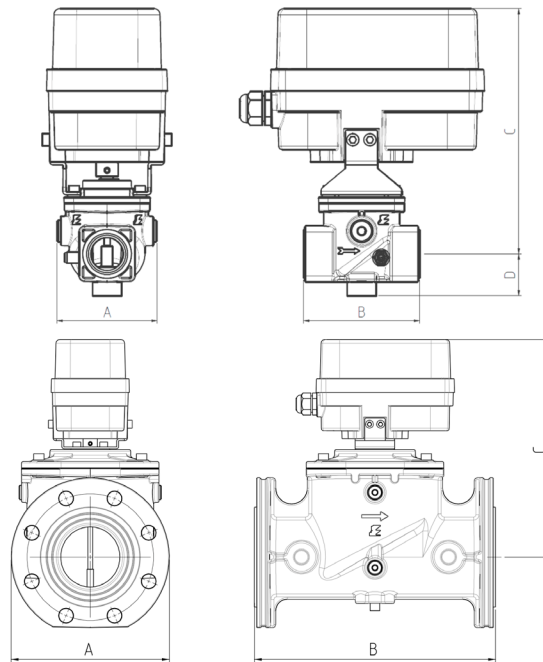


Fig. 3

Tab. 2

Overall dimensions (inches)						
Conn.	A	B	C ⁽¹⁾	D	Int	h
3/4" NPT	3.5	3.8	7.9	1.3	-	-
1" NPT	3.5	3.8	7.9	1.3	-	-
1¼" NPT	4.7	6	9.3	1.7	-	-
1½" NPT	4.7	6	9.3	1.7	-	-
2" NPT	4.2	6.1	9.4	1.9	-	-
2½" NPT	7	8.6	10.3	2.2	-	-
2" ANSI	6.4	7.7	9.4	3	4.9	0.2x0.7
2½" ANSI	7	12	10.8	3.5	5.7	0.2x0.7
3" ANSI	7	12	10.8	3.5	6.3	0.3x0.7

Technical Specifications MZx

Servomotor type	Continuous adjustment of position by analogue signals			
Weight	4.5lbs			
Rotation angle	0/90°			
Position repeatability	±0.25°			
Ambient temperature	5°F/140°F (-15°C/60°C)			
Voltage rating	230VAC 50/60 Hz 110VAC 50/60 Hz 24V AC/DC			
Power consumption	5 VA			
Protection class	Class I (EN 60335-1)			
Enclosure	IP65 (EN 60529)			
Cable gland	2x ISO 20 for cable O.D. 7/12 mm (EN 50262)			
Wires cross-section	14 AWG max.			
Max. torque (= holding torque)	5 Nm (MZ 5) 10 Nm (MZ 510)			
Operating time (0 - 90°)	From 7s up to 60s (adjustable)			
Position switches electrical rating	Voltage 250VAC	Resist. Load 2A	Lamp. Load 0.3A	Induct. Load 0.3A
Analogue inputs	Signal type Overload max. Load impedance	0-10V 24Vdc 9.9KΩ	0-20mA 25mA 100Ω	4-20mA 25mA 100Ω
Analogue outputs	Signal type Load max.	0-10V 10mA	0-20mA 350Ω	4-20mA 350Ω

See technical sheet for additional details.

Fig. 11

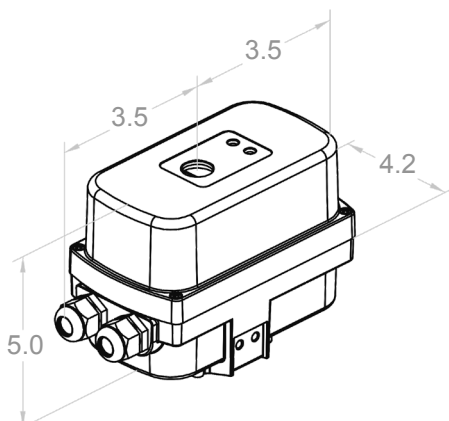
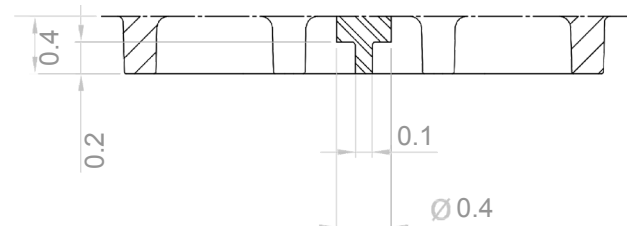
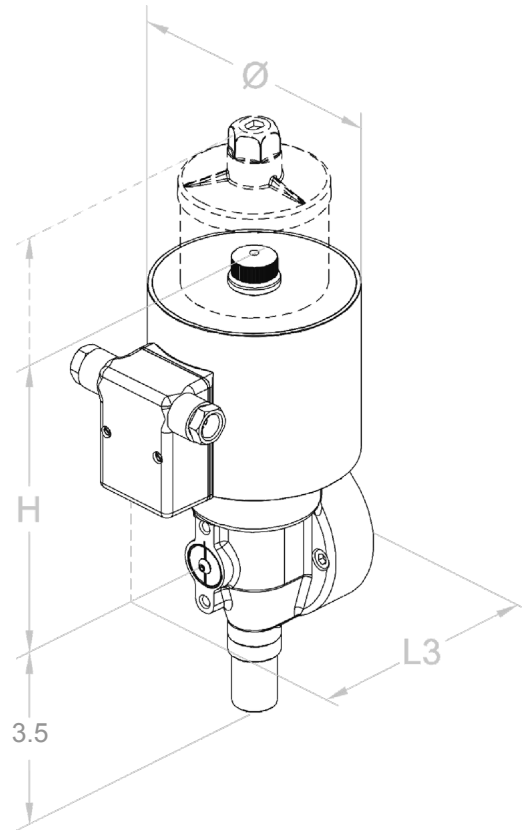


Fig. 12



**Dimensions
Sx**



Model	Overall dimensions [inches]			Weight [lbs]
	L3	H	Ø	
SR4	5	6.3	3.9	11
SL4	5	9.1	3.9	12.1
ST4	5	9.4	3.9	12.3
SR8	5.3	7.2	4.5	15.9
SL8	5.3	10	4.5	17
ST8	5.3	10.3	4.5	17.2

Technical Specifications Sx

Actuator type	SR fast opening and fast closing SL slow opening and fast closing ST slow opening and slow closing
Rotation angle	0/90° min. and max.adjustable
Ambient temperature	5°F/140°F (-15°C/60°C)
Voltage rating	230VAC 50/60Hz 120VAC 50/60Hz
Voltage tolerance	-15%/+10%
Power consumption	45 W (starting 180 W)
Enclosure	IP54 (optional IP65)
Cable gland	2x ISO 20 (EN 50262) standard socket optional
Coil winding insulation	Class H (392°F)
Coil thermal resistance	Class F (311°F)
Operating time (0-90°)	SR: 1s opening/closing SL: ~4s opening/ 1s closing ST: ~4s opening/closing

VF VFT	3/4" NPT	1" NPT	1 1/4" NPT	1 1/2" ANSI 1 1/2" NPT	2" ANSI 2" NPT	2 1/2" ANSI	3" ANSI	4" ANSI	5" ANSI	6" ANSI
MZ	●	●	●	●	●	●	●	●	●	●
S..4	●	●	●	●	●	●				
S..8							●	●	●	●

VFH				1 1/2" ANSI	2" ANSI	2 1/2" ANSI	3" ANSI	4" ANSI	5" ANSI	6" ANSI	8" ANSI
MZ				●	●	●	●	●	●	●	●
S..4				●	●						
S..8						●	●	●	●	●	●



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