

SYMMETRICAL CONTROL VALVE, SERIES 67.0

Downstream pressure control and isolation valve for SEMI and FPD processes.
Ideal for demanding etching processes.



Blank aluminum

Hard anodized aluminum

Enables symmetrical flow at virtually particle-free operation

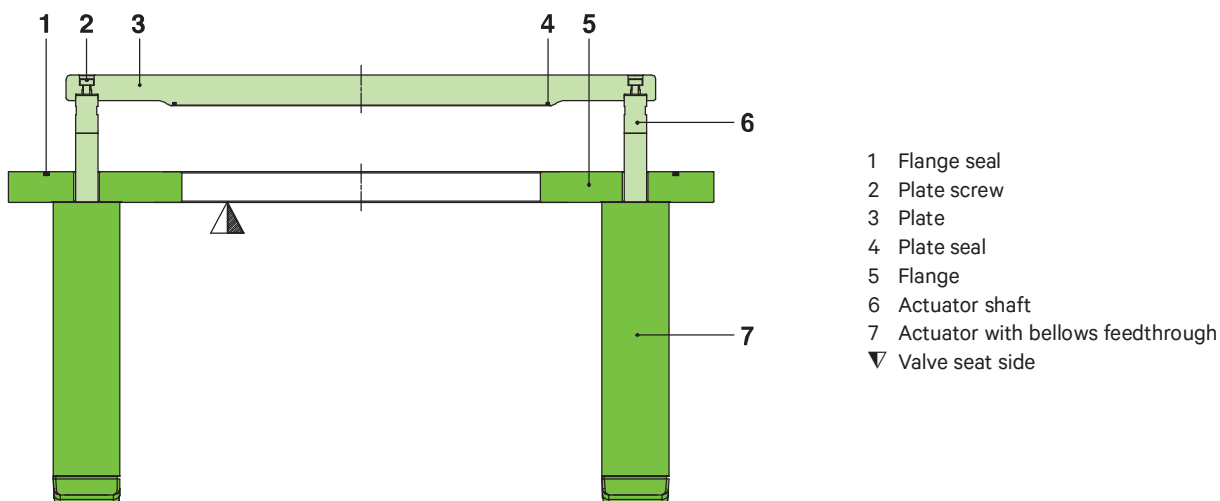
Excellent pressure control performance

Service port to connect a computer via USB and on-board Control Performance Analyzer (CPA) software

MAIN FEATURES

Sizes	DN 250 – 450 mm (10" – 18")
Actuator	two synchronized linear drives with closed loop controlled stepper motors
Body material	blank or hard anodized aluminum
Feedthrough	bellows
Flanges	pump side: ISO-F, JIS, chamber side: proprietary

FUNCTIONAL PRINCIPLE



- 1 Flange seal
- 2 Plate screw
- 3 Plate
- 4 Plate seal
- 5 Flange
- 6 Actuator shaft
- 7 Actuator with bellows feedthrough
- ▽ Valve seat side

The plate acts as a throttling element and varies the conductance of the valve opening. The pressure controller calculates the required plate position to achieve the setpoint pressure. See also principle drawing in the glossary, chapter «Pressure closed-loop control». Actuation is performed by two synchronously driven stepper motors. An encoder monitors the position. This principle ensures fast and accurate process pressure control with a wide control range and symmetrical flow.

TECHNICAL DATA

Leak rate ¹⁾	Valve body: blank aluminum hard anodized aluminum	<1·10 ⁻⁹ mbar ls ⁻¹ <1·10 ⁻⁵ mbar ls ⁻¹
Leak rate ¹⁾	Valve seat: blank aluminum hard anodized aluminum	<1·10 ⁻⁹ mbar ls ⁻¹ <1·10 ⁻⁴ mbar ls ⁻¹
Pressure range ¹⁾	Blank aluminum Hard anodized aluminum	1·10 ⁻⁸ mbar to 1.2 bar (abs) 1·10 ⁻⁶ mbar to 1.2 bar (abs)
Differential pressure on the plate	Chamber side → plate Pump side → plate	1200 mbar (valve closed) 10 mbar
Cycles until first service ²⁾	Pressure control Isolation	2 million 200000
Temperature ²⁾	Valve body Actuator: ambient	≤ 120 °C max. 50 °C (≤ 35 °C recommended)
Material	Flange, plate Actuator shafts Bellows	EN AW-6082 (3.2315) or AW-6061 (3.3211) AISI 316L (1.4404) AISI 633 (AM 350)
Seal	Flange, plate, actuators	FKM (e.g. Viton®)
Feedthrough		bellows
Mounting position		actuators down

DN (nominal I. D.)		Minimum controllable conductance (molecular flow)	Max. differential pressure during operation	Max. stroke	Operating time for throttling per 100 mm	Isolation (max. throttling → isolation)	De-isolation (isolation → max. throttling)	Weight	
mm	inch							kg	lbs
250	10	0.25	30	130	1	1	1	28	61.73
320	12	0.32	30	130	1	1	1	32	70.55
350	14	0.35	30	130	1	1	1	34	74.96
400	16	0.4	30	130	1	1	1	38	83.78
450	18	on request							

¹⁾ Unheated on delivery.

²⁾ Maximum values: depending on operating conditions and sealing materials.

Technical data for pressure controller: see pages 184 – 189

OPTIONS, CUSTOMIZED SOLUTIONS

Certain options are not available for some nominal diameters or cannot be combined. Moreover, options can affect the general technical data.

VALVE

- Other nominal diameters
- Customer specified body
- Customer specified flanges
- Surface treatment, e. g. aluminum hard anodized or nickel-plated
- Other sealing materials
- Heater for flange and/or plate

SPARE PARTS

We can offer a wide variety of spare parts. Please contact us for details and an offer.

Thank you for specifying the fabrication number of the valve indicated on the identification tag when asking for spare parts.

ACCESSORIES

Flange connections for installation of the valve: see series 31 and 32

ORDERING INFORMATION

FOR STANDARD VALVES

Valve with two stepper motors

DN		Ordering numbers			
mm	inch	blank aluminum		hard anodized aluminum	
		ISO-F	JIS	ISO-F	JIS
250	10	67048-PA52	67048-JA52	67048-PH52	67048-JH52
320	12	67050-PA52	67050-JA52	67050-PH52	67050-JH52
350	14	67051-PA52	67051-JA52	67051-PH52	67051-JH52
400	16	67052-PA52	67052-JA52	67052-PH52	67052-JH52
450	18	on request	on request	on request	on request

Connecting cable: valve – pressure controller

Length 2 m:	670CV-99LB
Length 3 m:	670CV-99LC
Length 4 m:	670CV-99LD
Length 5 m:	670CV-99LE

Pressure controller

670EC-24 . . (Example: 670EC-24GH = controller with RS232 interface)
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Controller configurations:		Interface	Number of sensors
G = basic version		H = RS232	2
A = with SPS		E = Logic (analog / digital)	2
H = with PFO		Q = DeviceNet®	2
C = with SPS and PFO		F = Profibus	2
T = basic version with VC master		K = RS485	2
V = with SPS and VC master		X = EtherCAT	2
U = with PFO and VC master		S = VC slave (without interface)	
W = with SPS, PFO and VC master			

SPS = Sensor Power Supply
(±15 V DC power supply for sensor)

PFO = Power Failure Option
(valve closes / opens automatically at power failure)

VC = Valve Cluster
(for operating several valves synchronously)

Pressure controller: see pages 184 – 189

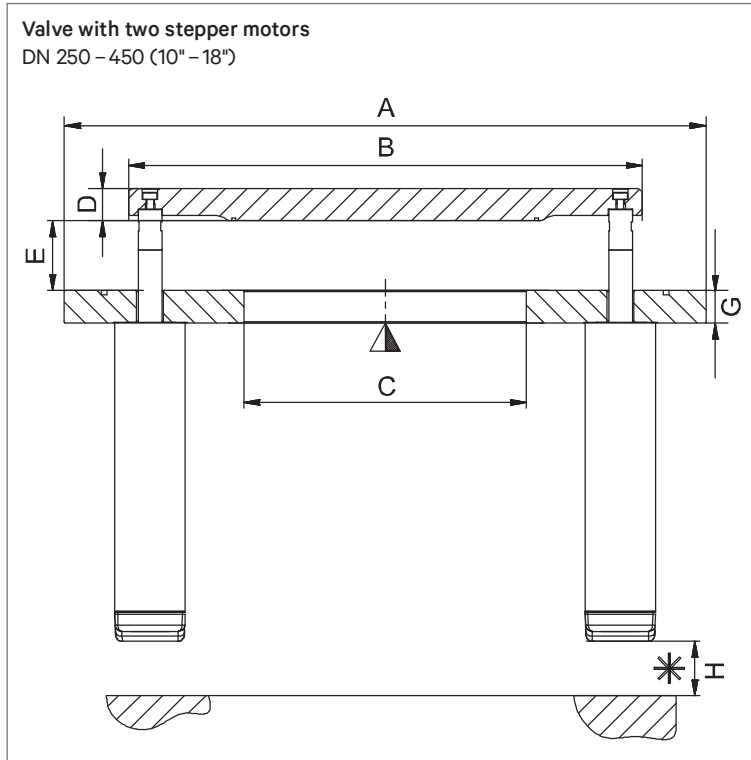
ORDERING INFORMATION

FOR VALVES WITH OPTIONS

Basic ordering number plus «-X»: -X to be specified

Example: 67048-PA52-X, X = valve with heater for 120 °C

DIMENSIONS



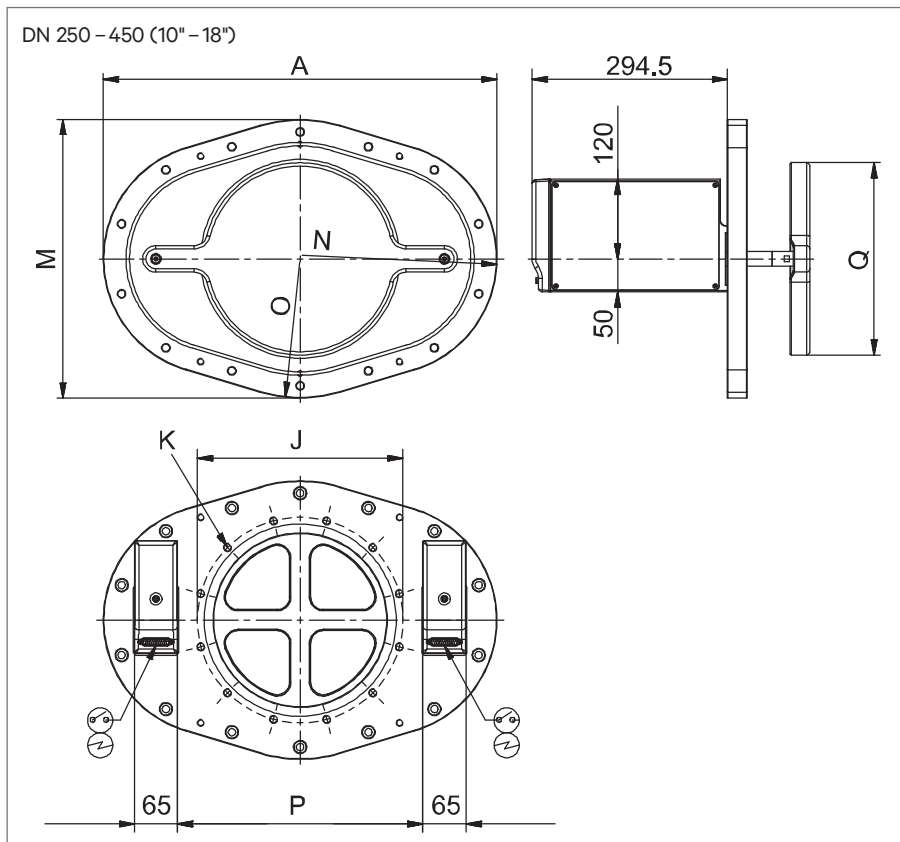
DN	mm	250	320	350	400
inch		10	12	14	16
A	mm	594	656	688	740
inch		23.39	25.83	27.09	29.13
B	mm	475	550	575	645
inch		18.70	21.65	22.64	25.39
C	mm	261	318	350	400
inch		10.28	12.52	13.78	15.75
D	mm	30	30	30	30
inch		1.18	1.18	1.18	1.18
E ¹⁾	mm	130	130	130	130
inch		5.12	5.12	5.12	5.12
G	mm	30	30	30	30
inch		1.18	1.18	1.18	1.18
H	mm	70	70	70	70
inch		2.76	2.76	2.76	2.76

¹⁾ Maximum stroke:
effective stroke depends on
controller configuration

DN 450 on request

* Required for dismantling

▼ Valve seat side



	DN	250	320	350	400
		mm	250	320	350
	inch	10	12	14	16
A	mm	594	656	688	740
inch		23.39	25.83	27.09	29.13
ISO-F	J	310	395	-	480
	inch	12.20	15.55	-	18.90
K		12 × M10	12 × M12	-	16 × M12
JIS	J	310	370	420	480
	inch	12.20	14.57	16.54	18.90
K		12 × M12	12 × M12	12 × M12	12 × M16
M	mm	420	500	530	600
	inch	16.54	19.69	20.87	23.62
N	mm	175	200	188	220
	inch	6.89	7.87	7.40	8.66
O	mm	210	250	265	300
	inch	8.27	9.84	10.43	11.81
P	mm	370	445	470	540
	inch	14.57	17.52	18.50	21.26
Q	mm	290	340	374	430
	inch	11.42	13.39	14.72	16.93

J = Bolt circle

K = Thread diameter

DN 450 on request

- ⊙ Position indicator
- ⊕ Electrical connection