

HV GATE VALVE, SERIES 14.0

General purpose valve for isolation in high or rough vacuum applications. Especially suited to industrial processes.

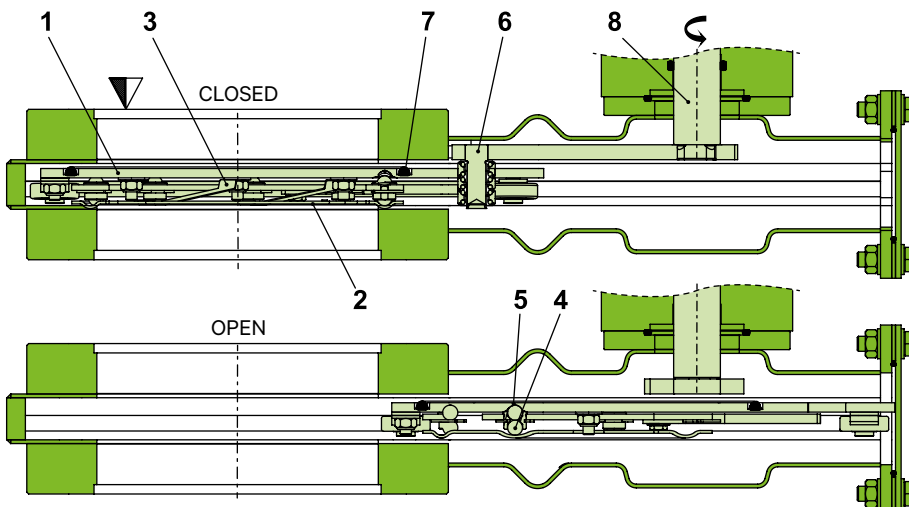


Compact design
Variable actuator positions
Rotary feed-through for a high number of cycles

MAIN FEATURES

Sizes	DN 63 – 400 mm (2½" – 16")
Actuators	manual with lever or handwheel pneumatic: double acting 3-position pneumatic: double acting
Body material	stainless steel
Feedthrough	rotary feedthrough
Standard flanges	ISO-F, CF-F, ASA-LP/ASA, JIS
Sealing technology	VATLOCK (see glossary)

FUNCTIONAL PRINCIPLE



- 1 Gate
- 2 Counter-plate
- 3 Leaf springs
- 4 Ball pairs
- 5 Ball detents
- 6 Crank bolt
- 7 Gate seal
- 8 Actuator shaft
- ▽ Valve seat side

TECHNICAL DATA

Leak rate	Valve body, valve seat	$<1 \cdot 10^{-9}$ mbar ls ⁻¹
Pressure range	DN 63–200	$1 \cdot 10^{-8}$ mbar to 2 bar (abs)
	DN 250–400	$1 \cdot 10^{-8}$ mbar to 1.2 bar (abs)
Differential pressure on the gate	DN 63–200	≤ 2 bar
	DN 250–400	≤ 1.2 bar
Differential pressure at opening		≤ 30 mbar
Cycles until first service		200 000 ¹⁾
Temperature ²⁾	Valve body	≤ 150 °C
	Manual actuator	≤ 80 °C
	Pneumatic actuator	≤ 50 °C
	Solenoid valve	≤ 50 °C
	Position indicator	≤ 80 °C
Heating and cooling rate		≤ 50 °C h ⁻¹
Material	Valve body, valve gate	AISI 304 (1.4301)
	Mechanism (main components)	AISI 301 (1.4310), AISI 304 (1.4301), AISI 316L (1.4404), AISI 420 (1.4034),
Seal	Bonnet, gate	FKM (Viton®)
Feedthrough		rotary feedthrough
Mounting position	DN 63–350	any
	DN 400	horizontal ¹⁾
Solenoid valve		24 V DC, 2.5 W (others on request)
Position indicator: contact rating	Voltage	≤ 250 V AC ≤ 50 V DC
	Current	≤ 5 A ≤ 3 A
Valve position indication		visual (mechanical)

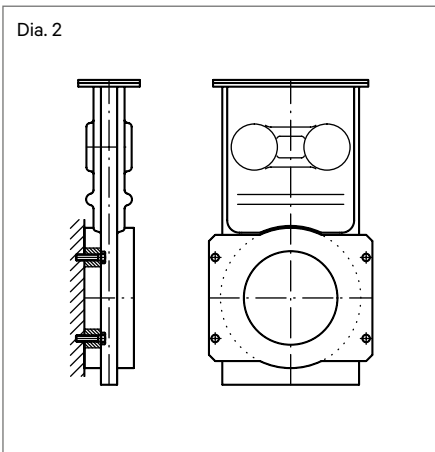
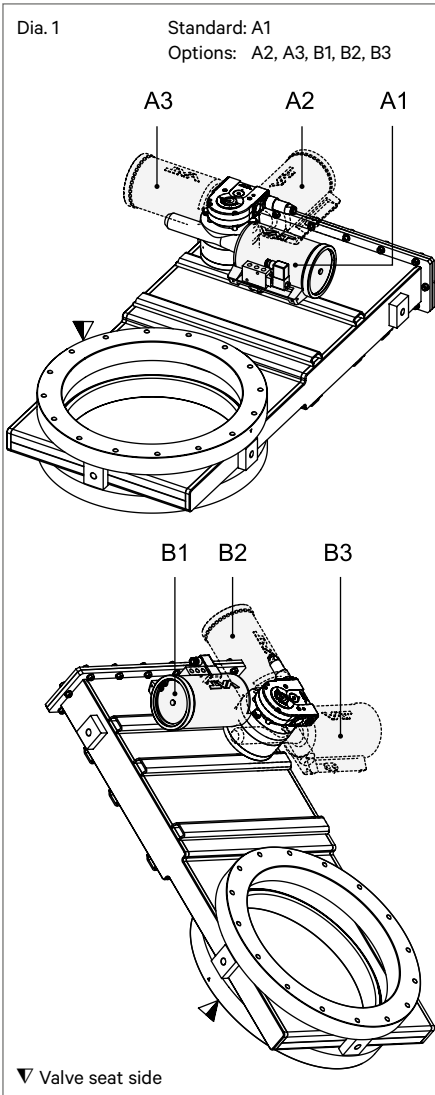
DN (nominal I.D.)		Conductance (molecular flow) (depending on A-dimension and flange type)	Valve with manual actuator						Valve with pneumatic actuator												
			lever		handwheel		Compressed air min. – max. overpressure	standard				3-position									
mm	inch	ls ⁻¹	Angle of rotation per stroke °	Weight kg	Weight lbs	Turns per stroke n		Weight kg	Weight lbs	bar	psi	Volume of pneumatic actuator l	Volume of pneumatic actuator ft ³	Closing or opening time s	Weight kg	Weight lbs	Minimum controllable conductance ls ⁻¹	Volume of pneumatic actuator l	Volume of pneumatic actuator ft ³	Closing or opening time s	Weight kg
63	2½	440	130	10	22	41	10	22	4–7	58–102	0.15	0.005	1.5	10	22	3	0.53	0.019	2.5	14	31
80	3	890	130	10	22	41	10	22	4–7	58–102	0.15	0.005	1.5	10	22	–	–	–	–	–	–
100	4	1740	130	13	28	41	15	33	4–7	58–102	0.15	0.005	1.5	15	34	5	0.53	0.019	2.5	17	37
160	6	5150	130	24	52	37	26	57	4–7	58–102	0.32	0.011	2.5	27	58	7.5	0.96	0.034	3.5	30	66
200	8	12200	130	30	66	37	32	70	4–7	58–102	0.32	0.011	2.5	33	72	10	0.96	0.034	3.5	36	79
250	10	21690	130	58	127	48	60	132	4–7	58–102	0.84	0.030	4.5	62	137	12.5	2.62	0.093	6	69	151
320	12	32690	130	108	237	48	110	242	4–7	58–102	0.84	0.030	4.5	112	246	16	2.62	0.093	6	119	261
350	14	43580	130	108	237	48	110	242	4–7	58–102	0.84	0.030	4.5	112	246	16	2.62	0.093	6	127	279
400	16	52050	–	–	–	48	153	336	4–7	58–102	0.84	0.030	5.5	155	340	20	2.62	0.093	10	164	360

¹⁾ DN 400 in horizontal mounting position only. Mounting the valve in any other position may reduce the cycle lifetime.

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



OPTIONS, CUSTOMIZED SOLUTIONS



ACTUATOR

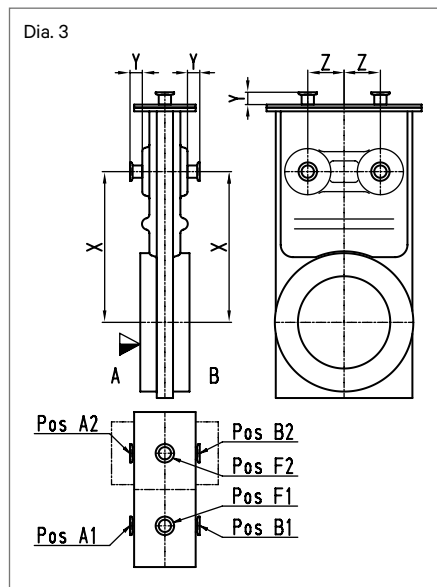
- Solenoid valve for impulse actuation:
last valve position is maintained at power failure
- Solenoid valve separate, for external mounting
- Other solenoid valve voltage (standard 24VDC)
- Double position indicator (2 switches each for the positions «open» and «closed»)
- Actuator mountable in 6 positions (Dia. 1):
A1, A2, A3 (valve seat side) or B1, B2, B3 (rear side) – desired position to be specified with order.
Without specification, the actuator is mounted in the standard position A1.

VALVE

- Customer specified flanges with/without watercooling
- Other sealing materials
- Intermediate pumping of the rotary feedthrough
- For direct mounting to flat chamber (Dia. 2):
special flange for mounting to chamber wall, standard flange on opposite side
- Ports for roughing (by-pass), venting or for gauges (Dia. 3):
possible positions A1, A2, B1, B2, F1, F2

DN valve	mm	63	80	100	160	200	250	320	350	400
	inch	2½	3	4	6	8	10	12	14	16
Recommended port	mm	16	16	40	40	40	40	40	40	40
CF-F or ISO-KF	inch	¾	¾	1½	1½	1½	1½	1½	1½	1½
X	mm	146	146	185	245	304.40	387.30	482	482	415
	inch	5.75	5.75	7.28	9.65	11.98	15.25	18.98	18.98	16.34
Y	mm	30	30	30	30	30	30	30	30	30
	inch	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
Z	mm	30	30	47.50	59	85	100	135	135	140
	inch	1.18	1.18	1.87	2.32	3.35	3.94	5.31	5.31	5.51

Other ports on request



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 32 and 33
- Heater

ORDERING INFORMATION

FOR STANDARD VALVES

**Valve with manual actuator
handwheel**

DN		Ordering numbers				
mm	inch	ISO-F	CF-F metric threads	CF-F UNF threads	ASA-LP (T) ASA (A)	JIS
63	2 ½	14036-PE01	14036-CE01	14036-UE01	14036-TE01	14036-JE01
80	3	14038-PE01	14038-CE01	14038-UE01	on request	on request
100	4	14040-PE01	14040-CE01	14040-UE01	14040-TE01	14040-JE01
160	6	14044-PE01	14044-CE01	14044-UE01	14044-TE01	14044-JE01
200	8	14046-PE01	14046-CE01	14046-UE01	14046-TE01	14046-JE01
250	10	14048-PE01	14048-CE01	14048-UE01	14048-TE01	14048-JE01
320	12	14050-PE01	on request	on request	14050-TE01	14050-JE01
350	14	on request	on request	on request	on request	14051-JE01
400	16	14052-PE01	on request	on request	on request	14052-JE01

with handwheel, with position indicator: 140 . . . E08

with lever (instead of handwheel, DN 63 – 350 only): 140 . . . E06

**Valve with pneumatic actuator
double acting
with solenoid valve
with position indicator**

DN		Ordering numbers (specify control voltage)				
mm	inch	ISO-F	CF-F metric threads	CF-F UNF threads	ASA-LP (T) ASA (A)	JIS
63	2 ½	14036-PE44	14036-CE44	14036-UE44	14036-TE44	14036-JE44
80	3	14038-PE44	14038-CE44	14038-UE44	on request	on request
100	4	14040-PE44	14040-CE44	14040-UE44	14040-TE44	14040-JE44
160	6	14044-PE44	14044-CE44	14044-UE44	14044-TE44	14044-JE44
200	8	14046-PE44	14046-CE44	14046-UE44	14046-TE44	14046-JE44
250	10	14048-PE44	14048-CE44	14048-UE44	14048-TE44	14048-JE44
320	12	14050-PE44	on request	on request	14050-TE44	14050-JE44
350	14	on request	on request	on request	on request	14051-JE44
400	16	14052-PE44	on request	on request	14052-AE44	14052-JE44

without solenoid valve, without position indicator: 140 . . . E14

without solenoid valve, with position indicator: 140 . . . E24

with solenoid valve, without position indicator: 140 . . . E34 (specify control voltage)

**Valve with 3-position pneumatic actuator
double acting
with solenoid valve
with position indicator**

DN		Ordering numbers (specify control voltage)				
mm	inch	ISO-F	CF-F metric threads	CF-F UNF threads	ASA-LP (T) ASA (A)	JIS
63	2 ½	14036-PE48	14036-CE48	14036-UE48	14036-TE48	14036-JE48
100	4	14040-PE48	14040-CE48	14040-UE48	14040-TE48	14040-JE48
160	6	14044-PE48	14044-CE48	14044-UE48	14044-TE48	14044-JE48
200	8	14046-PE48	14046-CE48	14046-UE48	14046-TE48	14046-JE48
250	10	14048-PE48	14048-CE48	14048-UE48	14048-TE48	14048-JE48
320	12	14050-PE48	on request	on request	14050-TE48	14050-JE48
350	14	on request	on request	on request	on request	14051-JE48
400	16	14052-PE48	on request	on request	14052-AE48	14052-JE48

without solenoid valve, with position indicator: 140 . . . E28

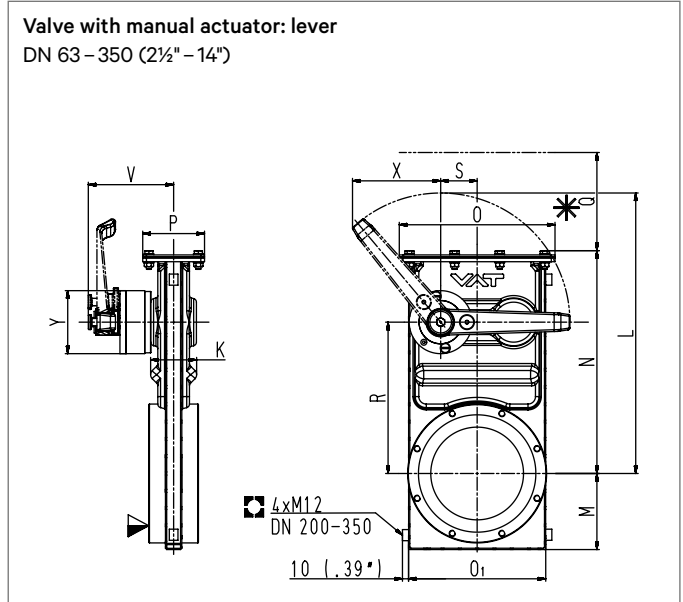
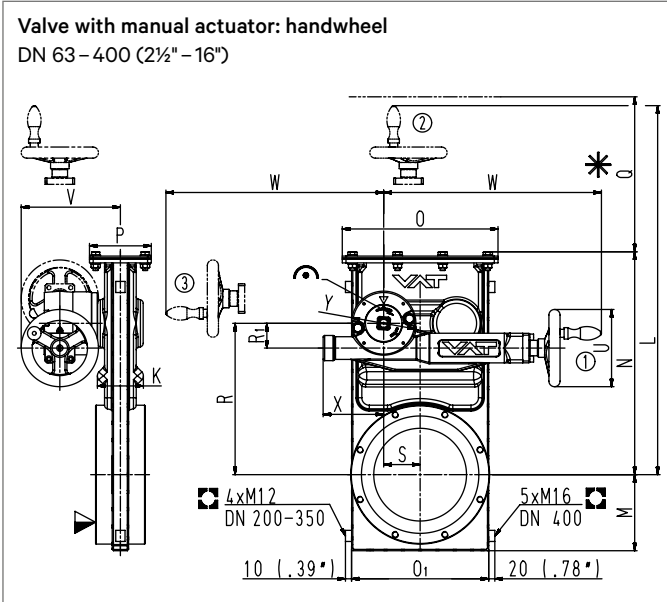
ORDERING INFORMATION

FOR VALVES WITH OPTIONS

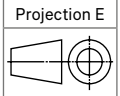
Basic ordering number plus «-X»: -X to be specified

Example: 14046-CE44-X, X = port CF-F 40 in position A1

MAIN DIMENSIONS



- ▼ Valve seat side ↻ Mechanical position indication ① Standard actuator position (A1)
 * Required for dismantling □ For attachment ② ③ Optional actuator positions

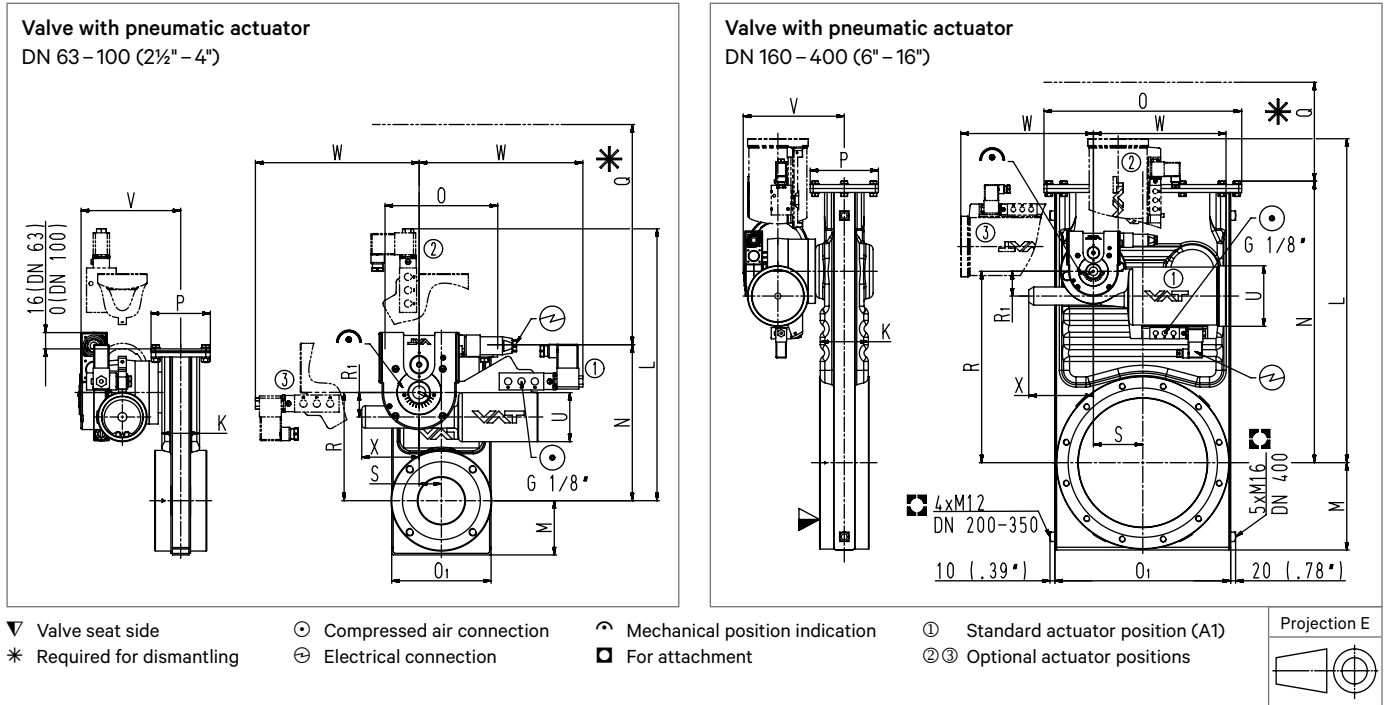


DN	mm	63 / 80	100	160	200	250	320/350	400
	inch	2½ / 3	4	6	8	10	12/14	16
K	mm	51	63	75	77	117	120	130
	inch	2.01	2.48	2.95	3.03	4.60	4.72	5.12
L	mm	458	497	595	655	771	849	935
	inch	18.03	19.57	23.43	25.79	30.35	33.42	36.81
M	mm	73	93	123	148	177	214	232
	inch	2.87	3.66	4.84	5.83	6.97	8.43	9.13
N	mm	211	270	362	441	570	689	787
	inch	8.31	10.63	14.25	17.36	22.44	27.13	31
O	mm	152	190	252	304	400	475	520
	inch	5.98	7.48	9.92	11.97	15.75	18.70	20.47
O1	mm	134	172	222	274	356	421	474
	inch	5.28	6.77	8.74	10.79	14.02	16.57	18.66
P	mm	80	80	100	100	138	138	138
	inch	3.15	3.15	3.94	3.94	5.43	5.43	5.43
Q	mm	180	220	300	350	450	550	600
	inch	7.09	8.66	11.81	13.78	17.72	21.65	23.62
R	mm	146	185	245	305	387	482	568
	inch	5.75	7.28	9.65	12.01	15.24	18.98	22.36
R1	mm	33	33	40	40	50	50	50
	inch	1.30	1.30	1.57	1.57	1.97	1.97	1.97
S	mm	30	47.50	59	85	100	135	140
	inch	1.18	1.87	2.32	3.35	3.94	5.31	5.51
U	mm	100	100	125	125	125	125	125
	inch	3.94	3.94	4.92	4.92	4.92	4.92	4.92
V	mm	129	129	160.50	160.50	196.50	198	202
	inch	5.08	5.08	6.32	6.32	7.74	7.80	7.95
W	mm	312	312	350	350	385	385	385
	inch	12.28	12.28	13.78	13.78	15.16	15.16	15.16
X	mm	78	78	98	98	130	130	130
	inch	3.07	3.07	3.86	3.86	5.12	5.12	5.12
Y	mm	85	85	104	104	130	130	130
	inch	3.35	3.35	4.09	4.09	5.12	5.12	5.12

DN	mm	63 / 80	100	160	200	250	320/350
	inch	2½ / 3	4	6	8	10	12/14
K	mm	51	63	75	75	117	120
	inch	2.01	2.48	2.95	2.95	4.60	4.72
L	mm	276	315	455	515	817	1012
	inch	10.87	12.40	17.91	20.27	32.17	39.84
M	mm	73	93	123	148	182	214
	inch	2.87	3.66	4.84	5.83	7.17	8.43
N	mm	211	270	362	441	570	688
	inch	8.31	10.63	14.25	17.36	22.44	27.09
O	mm	152	190	252	304	400	475
	inch	5.98	7.48	9.92	11.97	15.75	18.70
O1	mm	134	172	222	274	356	421
	inch	5.28	6.77	8.74	10.79	14.02	16.57
P	mm	80	80	100	100	138	138
	inch	3.15	3.15	3.94	3.94	5.43	5.43
Q	mm	180	220	300	350	450	550
	inch	7.09	8.66	11.81	13.78	17.72	21.65
R	mm	146	185	245	305	387	482
	inch	5.75	7.28	9.65	12.01	15.24	18.98
S	mm	30	47.50	59	85	100	135
	inch	1.18	1.87	2.32	3.35	3.94	5.31
V	mm	120	120	138	138	189	189
	inch	4.72	4.72	5.43	5.43	7.44	7.44
X	mm	96	96	143	143	293	353
	inch	3.78	3.78	5.63	5.63	11.54	13.90
Y	mm	85	85	102	102	130	130
	inch	3.35	3.35	4.02	4.02	5.12	5.12

Flange dimensions: see pages 72 – 73

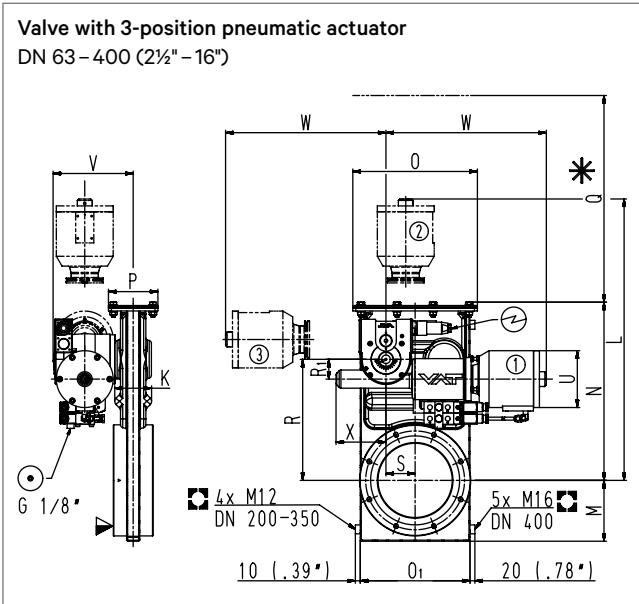
MAIN DIMENSIONS



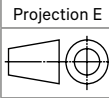
DN	mm inch	63 / 80 2½ / 3	100 4	160 6	200 8	250 10	320 12	350 14	400 16
K	mm inch	51 2.01	63 2.48	75 2.95	75 2.95	117 4.60	120 4.72	120 4.72	130 5.12
L	mm inch	367 14.45	406 15.98	435 17.13	495 19.49	654 25.75	750 29.59	750 29.59	836 32.91
M	mm inch	73 2.87	93 3.66	123 4.84	148 5.83	177 6.97	214 8.43	214 8.43	232 9.13
N	mm inch	211 8.31	270 10.63	362 14.25	441 17.36	570 22.44	689 27.13	689 27.13	787 31
O	mm inch	152 5.98	190 7.48	252 9.92	304 11.97	400 15.75	475 18.70	475 18.70	520 20.47
O1	mm inch	134 5.28	172 6.77	222 8.74	274 10.79	356 14.02	421 16.57	421 16.57	474 18.66
P	mm inch	80 3.15	80 3.15	100 3.94	100 3.94	138 5.43	138 5.43	138 5.43	138 5.43
Q	mm inch	180 7.09	220 8.66	300 11.81	350 13.78	450 17.72	550 21.65	550 21.65	600 23.62
R	mm inch	146 5.75	185 7.28	245 9.65	305 12.01	387 15.24	482 18.98	482 18.98	568 22.36
R1	mm inch	33 1.30	33 1.30	40 1.57	40 1.57	50 1.97	50 1.97	50 1.97	50 1.97
S	mm inch	30 1.18	47.50 1.87	59 2.32	85 3.35	100 3.94	135 5.31	135 5.31	140 5.51
U	mm inch	66 2.60	66 2.60	87 3.43	87 3.43	122.50 4.82	122.50 4.82	122.50 4.82	122.50 4.82
V	mm inch	136 5.35	135 5.32	158 6.22	158 6.22	202 7.95	202 7.95	202 7.95	206 8.11
W	mm inch	221 8.70	221 8.70	190 7.48	190 7.48	268 10.55	268 10.55	268 10.55	268 10.55
X	mm inch	78 3.07	78 3.07	101 3.98	101 3.98	131 5.16	131 5.16	131 5.16	131 5.16

Flange dimensions: see pages 72 – 73

MAIN DIMENSIONS



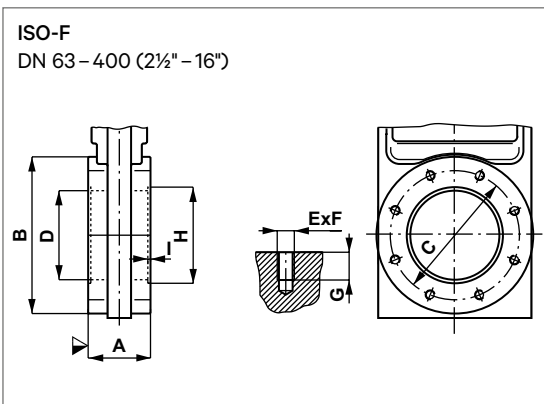
- ▼ Valve seat side
- * Required for dismantling
- ⊙ Compressed air connection
- ⊕ Electrical connection
- For attachment
- ① Standard actuator position (A1)
- ②③ Optional actuator positions



DN	mm	63	100	160	200	250	320	350	400
inch		2½	4	6	8	10	12	14	16
K	mm	51	63	75	75	116	120	120	130
inch		2.01	2.48	2.95	2.95	4.57	4.72	4.72	5.12
L	mm	474 ¹⁾	503 ¹⁾	569	628	843	938	938	1024
inch		18.66	19.80	22.40	24.72	33.19	36.93	36.93	40.31
M	mm	73	93	123	148	177	214	214	232
inch		2.87	3.66	4.84	5.83	6.97	8.43	8.43	9.13
N	mm	211	270	362	442	570	689	689	790
inch		8.31	10.63	14.25	17.40	22.44	27.13	27.13	31.10
O	mm	152	190	252	304	400	475	475	520
inch		5.98	7.48	9.92	11.97	15.75	18.70	18.70	20.47
O1	mm	134	172	222	274	356	421	421	474
inch		5.28	6.77	8.74	10.79	14.02	16.57	16.57	18.66
P	mm	80	80	100	100	138	138	138	138
inch		3.15	3.15	3.94	3.94	5.43	5.43	5.43	5.43
Q	mm	180	220	300	350	450	550	550	600
inch		7.09	8.66	11.81	13.78	17.72	21.65	21.65	23.62
R	mm	146	185	245	304.4	387.3	482	482	568
inch		5.75	7.28	9.65	11.98	15.25	18.98	18.98	22.36
R1	mm	33	33	40	40	50	50	50	50
inch		1.30	1.30	1.57	1.57	1.97	1.97	1.97	1.97
S	mm	30	47.5	59	85	100	135	135	140
inch		1.18	1.87	2.32	3.35	3.94	5.31	5.31	5.51
U	mm	96	96	115	115	165	165	165	165
inch		3.78	3.78	4.53	4.53	6.50	6.50	6.50	6.50
V	mm	158	158	162	162	217	217	217	221.50
inch		6.22	6.22	6.38	6.38	8.54	8.54	8.54	8.72
W	mm	328 ¹⁾	318 ¹⁾	324	324	456	456	456	456
inch		12.91	12.52	12.76	12.76	17.95	17.95	17.95	17.95
X	mm	78	78	101	101	131	131	131	131
inch		3.07	3.07	3.98	3.98	5.16	5.16	5.16	5.16

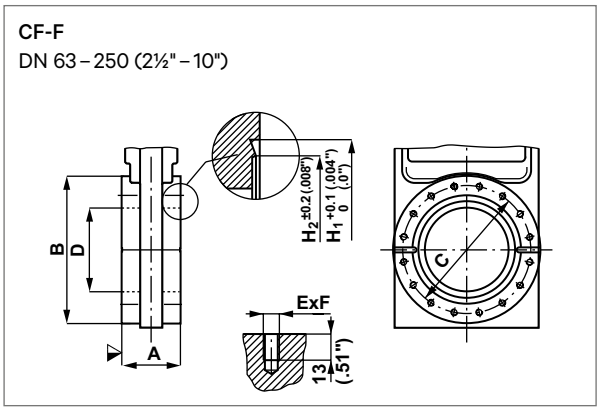
¹⁾ L + W DN 63 + 100: without pneumatic connection 6 mm shorter

FLANGE DIMENSIONS



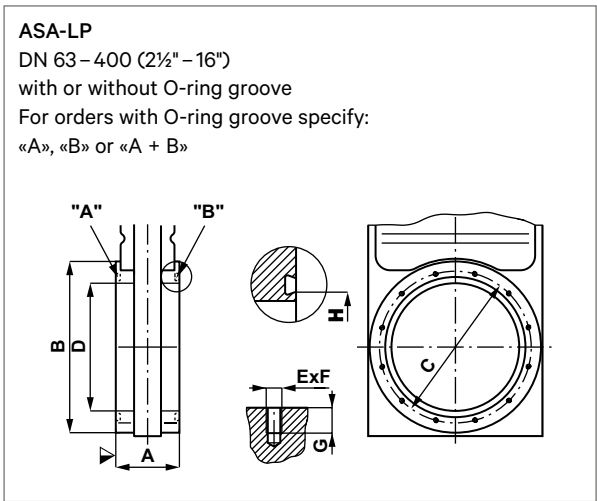
DN	mm	63	80	100	160	200	250	320	400
inch		2½	3	4	6	8	10	12	16
A	mm	70	70	70	80	80	100	120	150
inch		2.76	2.76	2.76	3.15	3.15	3.94	4.72	5.90
B	mm	136	136	176	225	288	350	425	510
inch		5.35	5.35	6.93	8.86	11.34	13.78	16.73	20.08
C	mm	110	125	145	200	260	310	395	480
inch		4.33	4.92	5.71	7.87	10.24	12.20	15.55	18.90
D	mm	63	80	100	150	200	261	318	400
inch		2.48	3.15	3.94	5.91	7.87	10.28	12.52	15.75
E × F		4 × M8	8 × M8	8 × M8	8 × M10	12 × M10	12 × M10	12 × M12	16 × M12
G	mm	13	13	13	14	16	16	16	20
inch		0.51	0.51	0.51	0.55	0.63	0.63	0.63	0.79
H	mm	70	83	102	153	213	-	-	-
inch		2.76	3.27	4.02	6.02	8.39	-	-	-
I	mm	3	3	3	5	5	-	-	-
inch		0.12	0.12	0.12	0.20	0.20	-	-	-

Dimensions for DN 350 (14") on request.

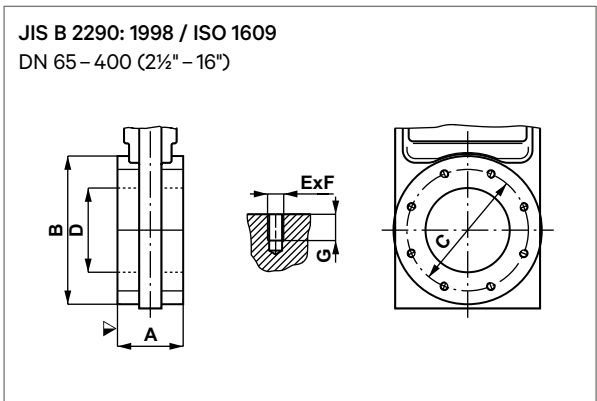


¹⁾ Option UNF DN 250 (10"), O. D. 13¼"
Ordering No. 14048-UE44-X, X = O. D. 13¼"

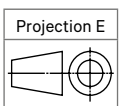
DN	mm	63	80	100	160	200	250	250 ¹⁾
	inch	2½	3	4	6	8	10	10
O. D.	inch	4½	4¾	6	8	10	12	13¼
A	mm	70	70	70	80	80	100	100
	inch	2.76	2.76	2.76	3.15	3.15	3.94	3.94
B	mm	136	136	176	225	288	350	350
	inch	5.35	5.35	6.93	8.86	11.34	13.78	13.78
C	mm	92.10	102.40	130.30	181	231.80	284	306.30
	inch	3.63	4.03	5.13	7.13	9.13	11.18	12.06
D	mm	63	80	100	150	200	254	254
	inch	2.48	3.15	3.94	5.91	7.87	10	10
E x F	metric threads	8 x M8	10 x M8	16 x M8	20 x M8	24 x M8	32 x M8	-
	UNF threads	8 x 5/16" 24 UNF	10 x 5/16" 24 UNF	16 x 5/16" 24 UNF	20 x 5/16" 24 UNF	24 x 5/16" 24 UNF	32 x 5/16" 24 UNF	30 x 3/8" 24 UNF
H1	mm	82.50	91.55	120.65	171.45	222.40	273.15	294.64
	inch	3.25	3.60	4.75	6.75	8.76	10.75	11.60
H2	mm	77.40	86.30	115.50	166	217	267	288.30
	inch	3.05	3.40	4.55	6.54	8.54	10.51	11.35



DN	mm	63	100	160	200	250	320	400
	inch	2½	4	6	8	10	12	16
ASA-LP		2	3	4	6	8	10	-
ASA		-	-	-	-	-	-	16
A	mm	70	70	80	80	100	120	150
	inch	2.76	2.76	3.15	3.15	3.94	4.72	5.90
B	mm	136	176	225	288	350	425	596.90
	inch	5.35	6.93	8.86	11.34	13.78	16.73	23.50
C	mm	120.70	152.40	190.50	241.30	298.50	362	539.80
	inch	4.75	6.00	7.50	9.50	11.75	14.25	21.25
D	mm	63	100	150	200	254	300	400
	inch	2.48	3.94	5.91	7.87	10.00	11.81	15.75
E x F		4 x 3/8" 16 UNC	4 x 3/8" 16 UNC	8 x 3/8" 16 UNC	8 x 3/4" 10 UNC	8 x 3/4" 10 UNC	12 x 3/4" 10 UNC	16 x 1" 8 UNC
G	mm	15	15	15	20	20	28	25.40
	inch	0.59	0.59	0.59	0.79	0.79	1.10	1
H	mm	88.90	120.65	158.75	206.40	266.70	317.50	419.10
	inch	3.50	4.75	6.25	8.13	10.50	12.50	16.50
O-ring	mm	88.49 x 3.53	120.24 x 3.53	158.34 x 3.53	202.79 x 3.53	266.29 x 3.53	316.87 x 7.00	417.96 x 7.00
I. D. x D	inch	3.48 x .139	4.73 x .139	6.23 x .139	7.98 x .139	10.48 x .139	12.47 x .275	16.46 x .275



DN	mm	65	100	150	200	250	300	350	400
	inch	2½	4	6	8	10	12	14	16
A	mm	70	70	80	80	100	120	120	150
	inch	2.76	2.76	3.15	3.15	3.94	4.72	4.72	5.90
B	mm	136	176	225	288	350	425	450	510
	inch	5.35	6.93	8.86	11.34	13.78	16.73	17.72	20.08
C	mm	120	160	210	270	320	370	420	480
	inch	4.72	6.30	8.27	10.63	12.60	14.57	16.54	18.90
D	mm	63	100	150	200	261	318	350	400
	inch	2.48	3.94	5.91	7.87	10.28	12.52	13.78	15.75
E x F		4 x M10	8 x M10	8 x M10	8 x M12	12 x M12	12 x M12	12 x M12	12 x M16
G	mm	12	12	14	16	16	16	16	25
	inch	0.47	0.47	0.55	0.63	0.63	0.63	0.63	0.98



▼ Valve seat side