

FAST CLOSING SHUTTER, SERIES 77.1/77.3

77.1 flap shutter / 77.3 slot shutter to preserve the vacuum in accelerators and storage rings in case of an air inrush.

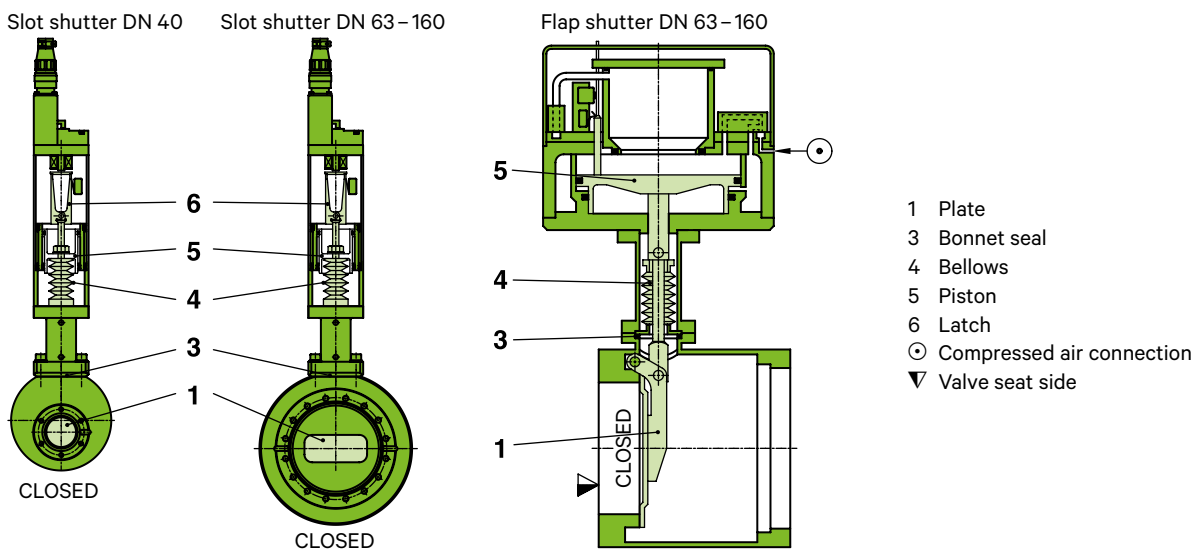


- Highly reliable
- Maintenance-free
- Part of a proven system

MAIN FEATURES

Sizes	DN 40 – 160 mm (1½" – 6")
Actuators	pneumatic, double acting
Body material	stainless steel
Feedthrough	bellows
Standard flanges	CF-F

FUNCTIONAL PRINCIPLE



TECHNICAL DATA

Leak rate	Valve body Valve seat 77.3 77.1	<1·10 ⁻¹⁰ mbar ls ⁻¹ < 1 mbar ls ⁻¹ <30 mbar ls ⁻¹
Pressure range		UHV to 1.2 bar (abs)
Differential pressure		see table below
Cycles until first service	Slot shutter Flap shutter	5000 ¹⁾ 2000 ¹⁾
Bake-out temperature ²⁾	Valve body Actuator	≤ 300 °C ≤ 50 °C
Radiation resistance	Valve body Pneumatic actuator	10 ⁸ Gy 10 ⁴ Gy
Material	Valve body Mechanism DN 40 DN 63 – 160 Bellows Slot shutter Flap shutter Gate / plate Slot shutter Flap shutter	AISI 316L (1.4435, 1.4404) AISI 304 (1.4301) AISI 316L (1.4435) AISI 633 (AM 350) AISI 316L (1.4404) AISI 316L (1.4404), silver-plated Titanium
Seal	Bonnet	metal
Feedthrough		bellows
Mounting position		seat side (marked ▼) in opposite direction of the air inrush

DN (nominal I. D.)		CF-F flange	Conductance (molecular flow)	Differential pressure valve closed		Differential pressure at opening		Compressed air min. – max. overpressure		Volume of pneumatic actuator		Total closing time ³⁾	Opening time	Weight	
mm	inch	O. D.		In closing direction	In opening direction	In closing direction	In opening direction	bar	psi	l	ft ³			kg	lbs
Slot shutter 77.3															
40	1½	2¾	110	≤1.2	≤1.2	≤300	≤300	4–6	58–87	0.36	0.01	<10	9	8.1	18
63	2½	4½	240	≤1.2	≤1.2	≤200	≤200	4–6	58–87	0.36	0.01	<10	9	11	24
100	4	6	450	≤1.2	≤1.2	≤150	≤150	4–6	58–87	0.36	0.01	<10	9	14	30
160	6	8	830	≤1.2	≤1.2	≤100	≤100	4–6	58–87	0.36	0.01	<10	9	20	44
Flap shutter 77.1															
63	2½	4½	200	≤2	≤1.2	≤600	≤1000	5–8	73–116	3	0.11	13	7	25	55
100	4	6	700	≤2	≤1.2	≤180	≤1000	5–8	73–116	3	0.11	15	7	29	64
160	6	8	1700	≤2	≤0.5	≤50	≤1000	5–8	73–116	3	0.11	23	7	36	80

¹⁾ At 5 bar compressed air.

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

³⁾ From closing signal to closed shutter.

OPTIONS, CUSTOMIZED SOLUTIONS

- Customer-specified flanges
- Special slot dimensions (slot shutter)

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 33
- Controller: see pages 328 – 329

ORDERING INFORMATION FOR STANDARD VALVES

77.3
Slot shutter with pneumatic actuator
double acting
without controller

DN		○ Circular opening		Ordering numbers
mm	inch	mm	inch	CF-F
40	1½	Ø 40	Ø 1½	77332-CE44

DN		▭ Slot opening D × D1 (height × width)		Ordering numbers
mm	inch	mm	inch	CF-F
63	2½	35 × 50	1.38 × 1.97	77336-CE44
100	4	35 × 80	1.38 × 3.15	77340-CE44
160	6	35 × 130	1.38 × 5.12	77344-CE44

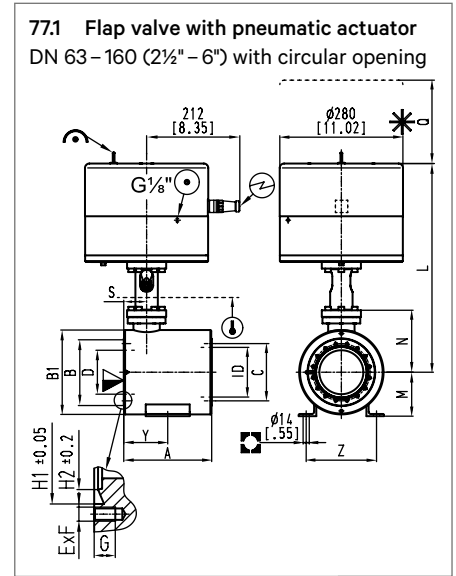
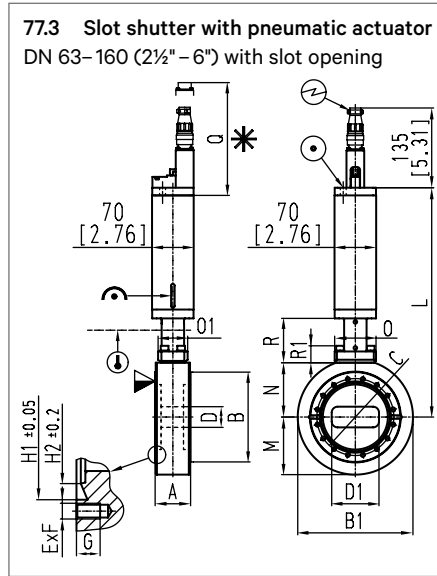
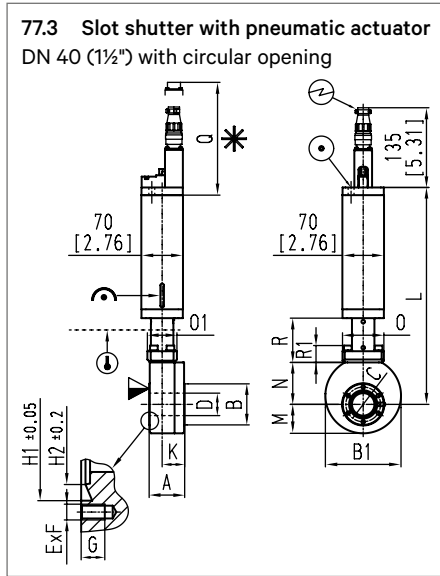
77.1
Flap shutter with pneumatic actuator
double acting
without controller

DN		○ Circular opening		Ordering numbers
mm	inch	mm	inch	CF-F
63	2½	Ø 63	Ø 2½	77136-CE44
100	4	Ø 100	Ø 4	77140-CE44
160	6	Ø 160	Ø 6	77144-CE44

ORDERING INFORMATION FOR VALVES WITH OPTIONS

Basic ordering number plus «-X»: -X to be specified
Example: 77340-CE44-X, X = special flanges

MAIN DIMENSIONS

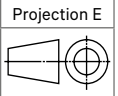


▼ Valve seat side
* Required for dismantling

⊙ Compressed air connection
⊕ Electrical connection

↻ Mechanical position indication
Ⓞ Bake-out area

▣ For attachment



DN	mm	40		
	inch	1½		
A	mm	60		
	inch	2.36		
B	mm	69.50		
	inch	2.74		
B1	mm	128		
	inch	5.04		
C	mm	58.70		
	inch	2.31		
D	mm	38		
	inch	1.50		
E × F		6 × M6		
G	mm	12		
	inch	0.47		
H1	mm	48.35		
	inch	1.90		
H2	mm	42		
	inch	1.65		
L	mm	367		
	inch	14.45		
M	mm	49		
	inch	1.93		
N	mm	71		
	inch	2.80		
O	mm	70		
	inch	2.76		
O1	mm	50		
	inch	1.97		
Q	mm	195		
	inch	7.68		
R	mm	75		
	inch	2.95		
R1	mm	29		
	inch	1.14		

DN	mm	63	100	160
	inch	2½	4	6
A	mm	60	60	60
	inch	2.36	2.36	2.36
B	mm	113.50	152	202.50
	inch	4.47	5.98	7.97
B1	mm	158	195	245
	inch	6.22	7.67	9.65
C	mm	92.10	130.30	181
	inch	3.63	5.13	7.13
D	mm	35	35	35
	inch	1.38	1.38	1.38
D1	mm	50	80	130
	inch	1.97	3.15	5.12
E × F		8 × M8	16 × M8	20 × M8
G	mm	12	12	12
	inch	0.47	0.47	0.47
H1	mm	82.55	120.70	171.50
	inch	3.25	4.75	6.75
H2	mm	77.40	115.50	166
	inch	3.05	4.55	6.54
L	mm	369	388	414
	inch	14.52	15.28	16.30
M	mm	79	97.50	122.50
	inch	3.11	3.84	4.82
N	mm	73	92	118
	inch	2.87	3.62	4.65
O	mm	70	70	70
	inch	2.76	2.76	2.76
O1	mm	50	50	50
	inch	1.97	1.97	1.97
Q	mm	195	195	195
	inch	7.68	7.68	7.68
R	mm	75	75	75
	inch	2.95	2.95	2.95
R1	mm	29	29	29
	inch	1.14	1.14	1.14

DN	mm	63	100	160
	inch	2½	4	6
A	mm	150	200	250
	inch	5.91	7.87	9.84
B	mm	113.50	152	202.50
	inch	4.47	5.98	7.97
B1	mm	154	192	242
	inch	6.06	7.56	9.53
C	mm	92.10	130.30	181
	inch	3.63	5.13	7.13
D	mm	63	100	150
	inch	2.48	3.94	5.91
E × F		8 × M8	16 × M8	20 × M8
G	mm	12	12	12
	inch	0.47	0.47	0.47
H1	mm	82.55	120.65	171.50
	inch	3.25	4.75	6.75
H2	mm	77.40	115.50	166
	inch	3.05	4.55	6.54
ID	mm	76	113	164
	inch	2.99	4.45	6.47
L	mm	456	475	500
	inch	17.95	18.70	19.69
M	mm	80	100	125
	inch	3.15	3.94	4.92
N	mm	122	141	166
	inch	4.80	5.55	6.54
Q	mm	83	83	83
	inch	3.27	3.27	3.27
S	mm	52	52	52
	inch	2.05	2.05	2.05
Y	mm	75	100	125
	inch	2.95	3.94	4.92
Z	mm	120	160	160
	inch	4.72	6.30	6.30