

Alfa Laval i-SSV

i-Series Single Seat Valve

Introduction

Application

i-SSV is an air-operated seat valve in a sanitary and flexible design giving a wide field of application, e.g. as a shut-off valve with two or three ports or as change-over valve with three to five ports

Working principle

The valve is remote-controlled by means of compressed air. It has few and simple moveable parts which results in a very reliable valve.

Standard Design

i-SSV consists of actuator, lip seal, plug and valve bodies. All components are assembled by means of clamp rings and a stem clip-system. In order to facilitate installation the valve is only partly assembled when delivered. The valve has welding ends as standard.

Actuator function

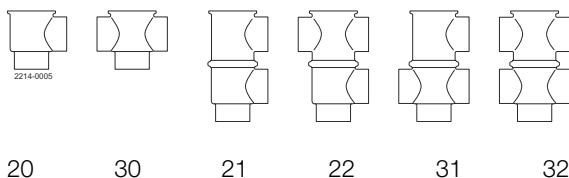
- Pneumatic downward movement, spring return (NO).
- Pneumatic upward and downward movement (A/A) sizes 25-101.6mm/DN25-100.
- Actuator for intermediate position of the valve plug as option sizes 25-101.6mm/DN25-100.
- Actuator for intermediate position of the valve plug as option sizes 25-101.6mm/DN25-100.

Other valves in the same basic design:

- Sanitary Manual valves, type i-SSV MO.

i-SSV is designed, according to EHEDG guidelines.

Valve body combinations



TECHNICAL DATA

Pressure

Max. product pressure:	1000 kPa (10 bar)
Min. product pressure:	Full vacuum

Temperature range

Standard lip seal:	-10 °C to +100 °C (EPDM)
Special lip seal:	-10 °C to +140 °C (EPDM)

Air pressure, actuator

Sizes 25-101.6mm /DN25-100	500 to 700 kPa (5 to 7 bar)
----------------------------	-----------------------------

Air consumption (litres free air) for one stroke

Size	25-63.5 mm / DN 25-65	76-101.6 mm / DN 80-100
Shut-off valve/ Change-over valve Actuator function	0.2 x Air pressure (bar)	0.7 x Air pressure (bar)
	NO and NC	NO and NC
Shut-off valve/ Change-over valve Actuator function	0.4 x Air pressure (bar)	1.3 x Air pressure (bar)
	A/A	A/A

PHYSICAL DATA

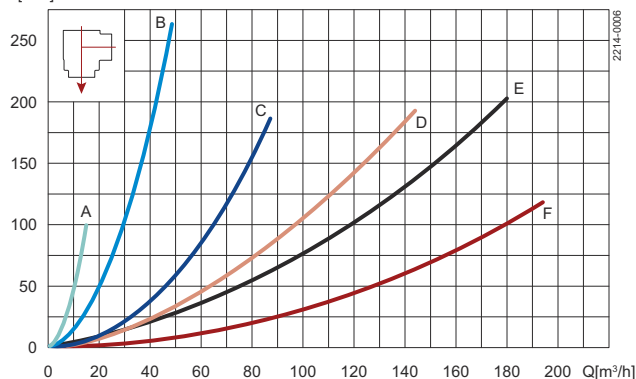
Materials

Product wetted steel parts:	Acid-resistant steel 1.4307 (304L) or 1.4404 (316L)
Finish:	Semi bright
Other steel parts:	Stainless steel 1.4307 (304L)
Plug stem:	1.4307 (304L) with hard chrome plated stem surface
Product wetted seals:	EPDM (standard)
Other seals:	Nitrile (NBR)
Alternative product wetted seals:	Nitrile (NBR) and Fluorinated rubber (FPM)

Pressure drop/capacity diagrams

Shut-off valve

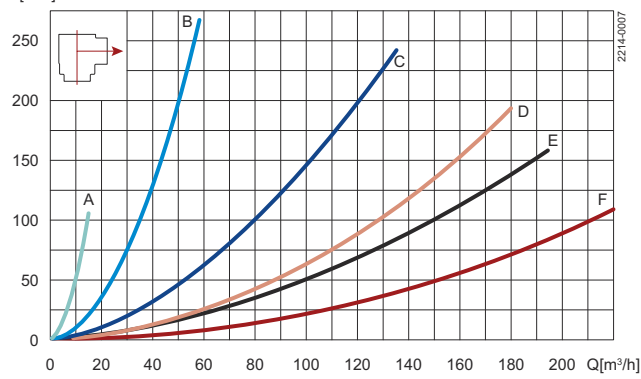
ΔP [kPa]



A = DN25/25 D = DN65/63.5
B = DN40/38 E = DN80/76.1
C = DN50/51 F = DN100/101.6

Shut-off valve

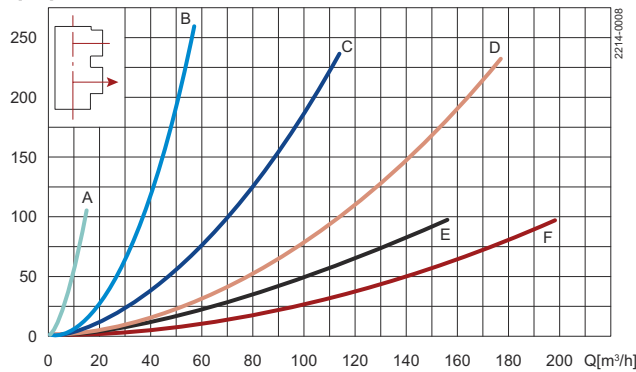
ΔP [kPa]



A = DN25/25 D = DN65/63.5
B = DN40/38 E = DN80/76.1
C = DN50/51 F = DN100/101.6

Change-over valve

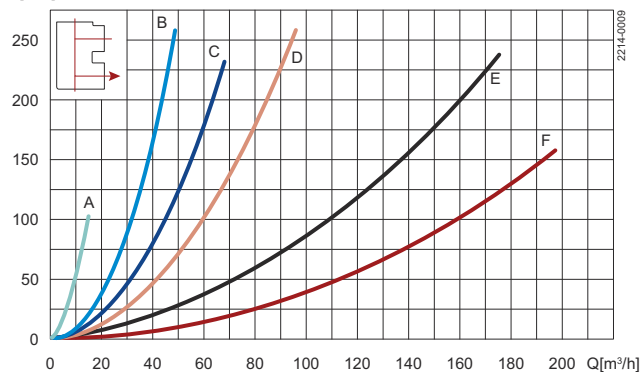
ΔP [kPa]



A = DN25/25 D = DN65/63.5
B = DN40/38 E = DN80/76.1
C = DN50/51 F = DN100/101.6

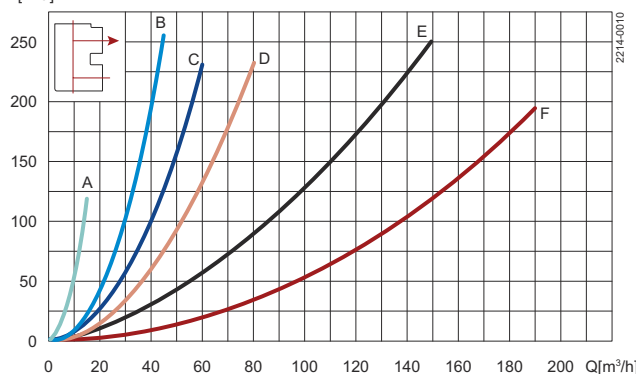
Change-over valve

ΔP [kPa]



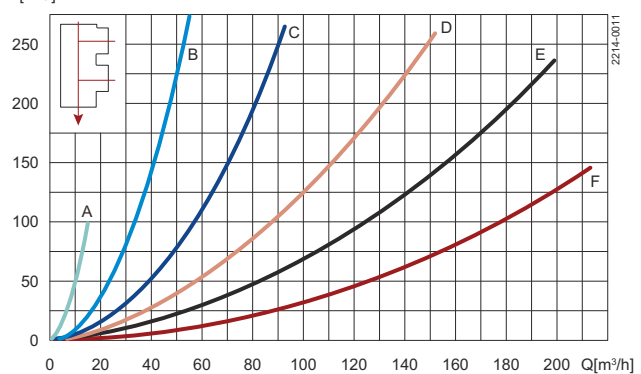
A = DN25/25 D = DN65/63.5
B = DN40/38 E = DN80/76.1
C = DN50/51 F = DN100/101.6

ΔP [kPa]



A = DN25/25 D = DN65/63.5
B = DN40/38 E = DN80/76.1
C = DN50/51 F = DN100/101.6

ΔP [kPa]



A = DN25/25 D = DN65/63.5
B = DN40/38 E = DN80/76.1
C = DN50/51 F = DN100/101.6



For the diagrams the following applies:

Medium: Water (20 °C)

Measurement: In accordance with VDI 2173

Pressure data for i-SSV

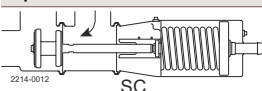
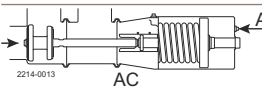
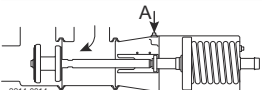
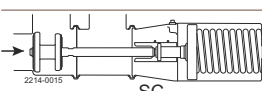
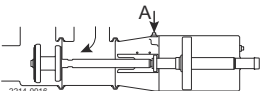
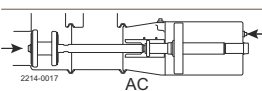
Actuator type / function

10. Pneumatic downward movement, spring return (NO-lower seat)

20. Pneumatic upward movement, spring return (NC-lower seat)

30. Pneumatic upward and downward movement (A/A)

Table 1: Shut-off and change-over valves - Max. pressure without leakage at the valve seat

Actuator / Valve bodycombination and direction of pressure	Airpressure (bar)	Actuator type/ function	Valve Size							
			Type	DN2525 mm	DN4038 mm	DN50 51mm	DN65 63.5mm	76.1mm	DN80	DN100101, 6 mm
 2214-0012 SC	10 (NO)			9.5	4.5	4.5	3.0	5.0	5.0	3.5
 2214-0013 AC	5	10 (NO)	ISO	Min.10	7.0	4.0	3.0	4.0	3.2	2.5
	5		DIN	Min.10	6.0	3.6	3.0	4.0	3.2	2.5
	6	10 (NO)	ISO	Min.10	10.0	5.5	4.0	6.0	4.8	4.0
	6		DIN	Min.10	8.5	5.0	4.0	6.0	4.8	4.0
 2214-0014 AC	5	20 (NC)		9.5	4.5	4.5	3.0	4.5	4.5	2.5
 2214-0015 SC	20 (NC)		ISO	Min.10	7.0	4.0	2.5	5.0	4.0	3.5
 2214-0016 AC	5	30 (A/A)		Min.10	9.0	9.0	8.0	Min.10	Min.10	7.5
	6			Min.10	Min.10	Min.10	9.0	Min.10	Min.10	9.0
 2214-0017 AC	5	30 (A/A)	ISO	Min.10	10.0	9.0	6.0	Min.10	8.0	7.5
	5		DIN	Min.10	8.5	8.2	6.0	Min.10	8.0	7.5
	6		ISO	Min.10	Min.10	Min.10	7.0	Min.10	9.4	9.0
	6		DIN	Min.10	9.1	8.5	7.0	10	9.4	9.0

AC = Air closes

SC = Spring closes

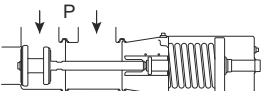
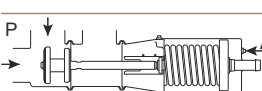
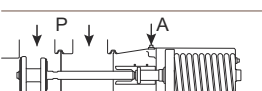
A = Air

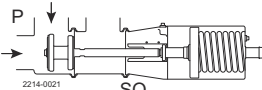
* = Values are valid for 8 bar air pressure

↑ = Actual product pressure

Pressure data for i-SSV

Table 2: Shut-off and change-over valves. The table shows the approx. static pressure (P) in bar against which the valve can open.

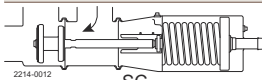
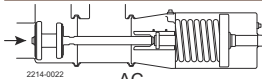
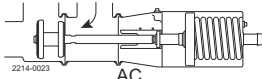
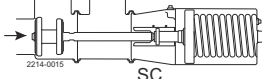
Actuator / Valve bodycombination and direction of pressure	Airpressure (bar)	Actuator type/ function	Type	Valve size						
				DN2525 mm	DN4038 mm	DN5051mm	DN65 63.5mm	76.1mm	DN80	DN100 101.6 mm
 2214-0018 SO	10 (NO)		ISO	Min.10	9.0	6.0	4.0	7.5	6.5	5.0
 2214-0019 AO	6	10 (NO)		Min.10	7.5	7.5	5.5	9.0	7.5	6.0
 2214-0020 AO	6	20 (NC)	ISO	Min.10	10.0	7.5	5.0	9.0	7.5	6.0

Actuator / Valve bodycombination and direction of pressure	Airpressure (bar)	Actuator type/ function	Type	Valve size						
				DN25 mm	DN40 38 mm	DN50 51mm	DN65 63.5mm	76.1mm	DN80	DN100 101.6 mm
 2214-0021 SO		20 (NC)		Min.10	6.0	6.0	5.0	7.5	6.5	5.0

AO = Air opens

SO = Spring opens

Table 3: Shut-off and change-over valves with extra strong springs or special cylinder - Max. pressure without leakage at the valve seat

Actuator / Valve bodycombination and direction of pressure	Air pressure (bar)	Actuator type/ function	Type	Extra strong springValve size in DN					Spec. actuator (dia. 133 mm)Valve size in DN			
				DN40 38 mm	DN50 51mm	DN65 63.5mm	76.1mm	DN80	DN100 101.6 mm	40 38 mm	50 51 mm	65 63.5 mm
 2214-0012 SC		10 (NO)		6.5	6.5	4.0	7.0	7.0	4.5	9.0	9.0	6.0
 2214-0022 AC	5		ISO	4.2	2.2	1.4	1.1		2.3	10.0	8.5	6.0
	5	10 (NO)	DIN	3.5	2.0	1.4		0.9	2.2	8.5	7.7	6.0
	6		DIN	8.3	4.8	3.3		3.4	2.2	*	*	*
 2214-0023 AC	5	20 (NC)		2.3	2.3	2.3	1.3	1.3	0.8	9.0	9.0	6.0
 2214-0015 SC		20 (NC)	ISO	9.0	5.5	3.5	7.0	5.0	4.5	10.0	9.0	6.0

AC = Air closes* = Do not exceed 5 bar air pressure.

SC = Spring closes

A = Air

P = Product

** = Values are valid for air pressure of 8 bar.

* = Do not exceed 5 bar air pressure.

Dimensions (mm)

Nominal size	InchDN/OD						DIN DN					
	25	38	51	63.5	76.1	101.6	25	40	50	65	80	100
A ¹	311	345	355	389	455	527	311	343	354	386	456	526
A ²	332	370	380	414	487	559	332	368	379	411	488	558
A ³	365	416	449	500	584	677	365	414	448	497	585	676
A ⁴	387	441	474	525	616	709	387	439	473	522	617	708
C	55.6	79	94	113	129	163	55.6	79	94	113	129	160
OD	25.2	38.1	50.8	63.5	76.1	101.6	29	41	53	70	85	104
ID	22.2	34.9	47.6	60.3	72.1	97.6	26	38	50	66	81	100
t	1.5	1.6	1.6	1.6	2.0	2.0	1.5	1.5	1.5	2.0	2.0	2.0
E ¹	30.1	49.5	62	82	87	134	32	49.5	62	82	87	134
E ²	57	49.5	62	82	87	134	57	49.5	62	82	87	134
F ¹	21	25	25	25	32	32	21	25	25	25	32	32
F ²	20	25	25	25	32	32	20	25	25	25	32	32
H	87	87	87	87	133	133	87	87	87	87	133	133
M/ISO clamp	21	21	21	21	21	21						
M/DIN clamp							21	21	21	21	21	21
M/ISO male	21	21	21	21	21	21						
M/DIN male							22	22	23	25	25	30
M/SMS male	20	20	20	24	24	35						
M/BS male	22	22	22	22	22	27						
Weight (kg)												
Shut-off valve:	5.0	4.9	5.0	5.4	12.4	13.0	5.0	4.9	5.0	5.4	12.4	13.0
Change-over valve:	5.8	5.9	6.1	6.8	14.6	15.9	5.8	5.9	6.1	6.8	14.6	15.9

Figure 1. Shut-off valve

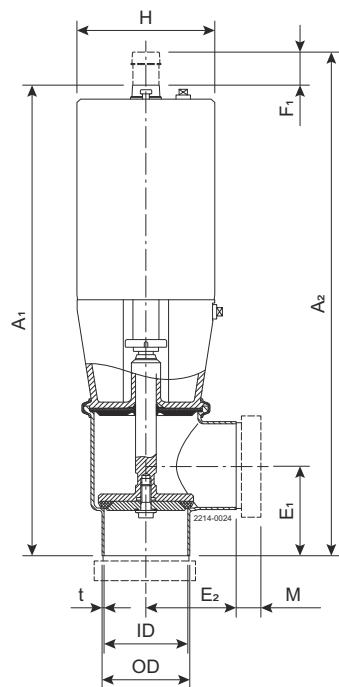
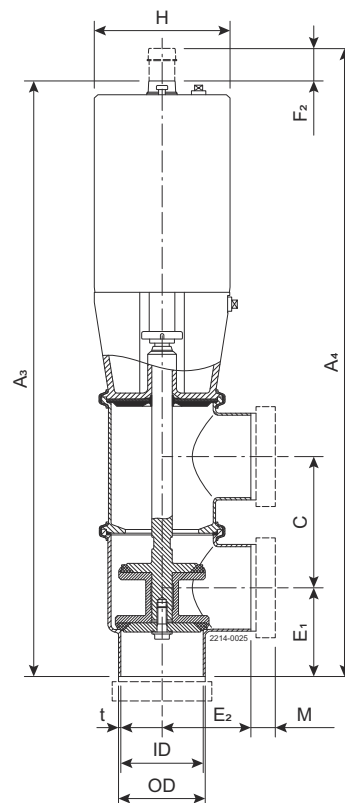


Figure 2. Change-over valve



Caution, opening/closing time:

Opening/closing time will be affected by the following

- The air supply (air pressure)
- The length and dimensions of the air hoses
- Number of valves connected to the same air hose
- Use of single solenoid valve for serial connected air actuator functions
- Product pressure

Air Connections Compressed air:

R 1/8" (BSP), internal thread

Fig 2. Dimensions

Options

- Male parts or clamp ends in accordance with required standard
- Control and Indication (see chapter in Product Catalogue)
- Stainless steel seal disc replacing standard lip seal
- Product wetted seals of Nitrile (NBR), Fluorinated rubber (FPM)
- Service tools for actuator

Ordering

Please state the following when ordering:

- Size
- Connections if not welding ends
- Valve body combination
- Actuator function, NC, NO or A/A
- Options

This document and its contents are subject to copyrights and other intellectual property rights owned by Alfa Laval Corporate AB. No part of this document may be copied, re-produced or transmitted in any form or by any means, or for any purpose, without Alfa Laval Corporate AB's prior express written permission. Information and services provided in this document are made as a benefit and service to the user, and no representations or warranties are made about the accuracy or suitability of this information and these services for any purpose. All rights are reserved.

200006961-1-EN-GB

© Alfa Laval Corporate AB

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com