ARC-SB Aseptic Remote-Controlled Valve with Steel Bellows

Application
ARC-SB is an aseptic seat valve with steel bellows. It is available as a stop- or change-over valve.
The valve is suited for aseptic operating conditions such as high sterilisation temperatures.
ARC-SB is designed for applications with high activation frequencies.

Working principle
ARC-SB is operated by means of compressed air and can be supplied with or without spring return.
Sterile stem sealing towards the atmosphere is ensured by a special designed valve plug with steel bellows.

Standard design
ARC-SB is based on the SRC valve design. It consists of actuator, stem with steel bellows and valve bodies.
The change-over version is a two body design.
The valve is assembled by means of clamp rings and a stem clip system for easy maintenance.

Materials

Product wetted steel parts:	Acid-resistant steel AISI 316L, AISI 316Ti.
Other steel parts:	Stainless steel AISI 304.
Finish:	Semi bright.
Product wetted seals:	EPDM.
Other seals:	NBR, EPDM.

Technical data

Pressure range:	0-800 kPa (0-8 bar).
Temperature range:	-10°C to 140°C (EPDM).
Max. sterilization temperature (steam - short time):	150°C - 380 kPa (3.8 bar).
Air pressure:	500-800 kPa (5-8 bar).

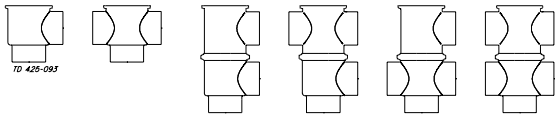
Note! Vacuum is not recommended in aseptic applications.

Expected lifetime of steel bellows under normal conditions:
(no pressure shocks or cavitation).

Size/Type	Stop valve activations	Change-over valve activations
38mm/DN40	150.000	30.000
51mm/DN50	150.000	30.000
63.5mm/DN65	150.000	30.000

Fig. 1. ARC-SB with valve body combination 20.

Valve body combinations



20 30 21 22 31 32

Actuator function
- Pneumatic downward movement, spring return (NO).
- Pneumatic upward movement, spring return (NC).
- Pneumatic upward and downward movement (A/A).

Other valves in the same basic design
Sanitary Remote-Controlled valve, type SRC.
Sanitary Long-Stroke valve, type SRC-LS.
Remote-Controlled Valve, type ARC.
Sanitary Manual valve, type SMO.
See also PD 60019, PD 65142, PD 65143 and PD 60789.

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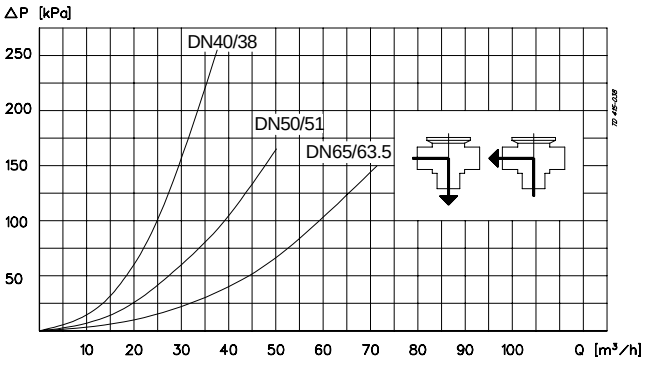
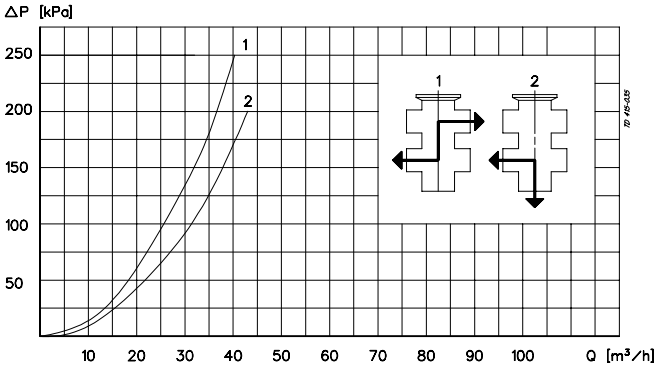
Pressure drop/capacity diagrams

Stop valve



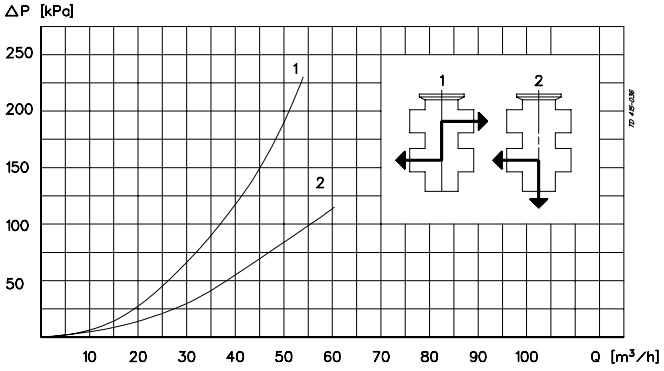
38-63.5 mm/DN40-65

Change-over valve

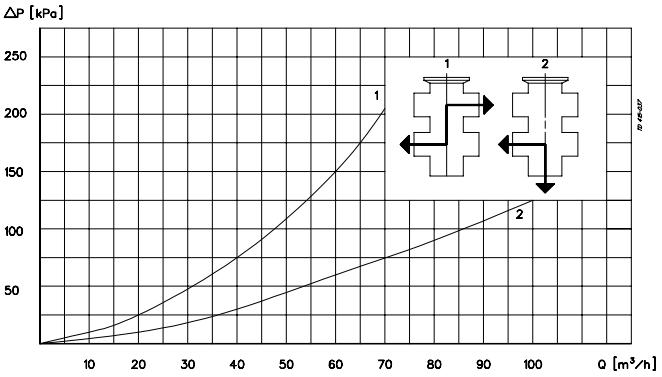


38 mm/DN40

NOTE! For the diagrams the following applies:
Medium: Water (20° C).
Measurement: In accordance with VDI 2173.



51 mm/DN50

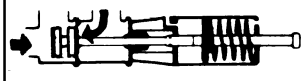
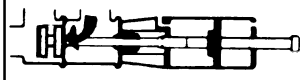


63.5 mm/DN65

Pressure data for ARC-SB
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: Standard Valves - Max. static pressure in bar without leakage at the valve seat.

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Actuator Combination		Valve size 38 DN40	Valve size 51 DN50	Valve size 63.5 DN65	Air consumption (Litres free per stroke) 38-63.5 DN40-65
 Spring closes		10		4.5	4.5	3.0	0.2 x Air pressure (bar)
 Air closes	5	10	ISO	7.0	4.0	3.0	0.2 x Air pressure (bar)
			DIN	6.0	3.6	3.0	
	6		ISO	10.0	5.5	4.0	
			DIN	8.5	5.0	4.0	
 Air closes	5	20		4.5	4.5	3.0	0.2 x Air pressure (bar)
	6			6.5	6.5	4.0	
 Spring closes		20	ISO	7.0	4.0	2.5	0.2 x Air pressure (bar)
			DIN	6.0	3.6	2.5	
 Air closes	5	30		9.0	9.0	8.0	0.2 x Air pressure (bar)
	6			10.0	10.0	9.0	
 Air closes	5	30	ISO	10.0	9.0	6.0	0.2 x Air pressure (bar)
			DIN	8.5	8.2	6.0	
	6		ISO	10.0	10.0	7.0	
			DIN	8.5	9.1	7.0	

☐ = Values are valid for air pressure of 6 bar.

Pressure data for ARC-SB

Table 2: Standard valves - Approx. static pressure in bar against which the valve plug can open by means of the spring or air pressure.

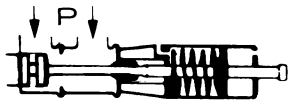
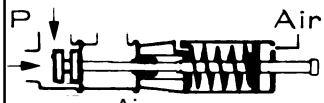
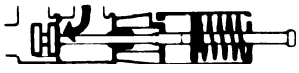
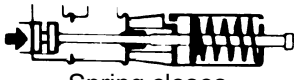
Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Actuator Combination		Valve size 38 DN40	51 DN50	63.5 DN65
 Spring opens		10	ISO	9.0	6.0	4.0
			DIN	7.7	5.5	4.0
 Air opens	6	10		7.5	7.5	5.5
 Air opens	6	20		10.0	7.5	5.0
 Spring opens		20		6.0	6.0	5.0

Table 3: Valves with reinforced spring or larger actuator - max. static pressure in bar without leakage at the valve seat.

Actuator / Valve body combination and direction of pressure	Air pressure (bar)	Actuator Combination		Extra strong spring Valve size 38 DN40	51 DN50	63.5 DN65	Spec. actuator Valve size 38 DN40	51 DN50	63.5 DN65
 Spring closes		10		6.5	6.5	4.0	9.0	9.0	6.0
 Air closes	5	10	ISO	2.0	0.0	0.0	10.0	8.5	6.0
			DIN	1.7	0.0	0.0	8.5	7.7	
	6		ISO	2.0	2.0	1.0	*	*	*
			DIN	1.7	1.8	1.0			
 Air closes	5	20		0.0	0.0	0.0	9.0	9.0	6.0
	6			2.0	2.0	1.0	*	*	*
 Spring closes		20	ISO	9.0	5.5	3.5	10.0	9.0	6.0
			DIN	7.7	5.0	3.5	8.5	8.2	

| | = Values are valid for air pressure of 6 bar.

| * | = Do not use 6 bar air pressure.

Dimensions (mm)

Size	38 mm	51 mm	63.5 mm	40 DN	50 DN	65 DN
A_1	371	381	389	369	380	386
A_2	383	393	401	381	392	398
A_3	416	449	500	414	448	497
A_4	431	468	525	429	467	522
C	79	94	113	79	94	113
OD	37.9	50.8	63.5	41	53	70
ID	34.9	47.6	60.3	38	50	66
t	1.5	1.6	1.6	1.5	1.5	2.0
E	50	62	82	50	62	82
F_1	12	12	12	12	12	12
F_2	15	19	25	15	19	25
H	87	87	87	87	87	87
M/ISO clamp	21	21	21			
M/ISO male	21	21	21			
M/SMS male	20	20	24			
M/DIN male				22	22	25
M/BS male	22	22	22			
Weigth (kg) Stop	6.0	6.5	7.0	6.0	6.5	7.0
Change-over	6.5	7.0	7.5	6.5	7.0	7.5

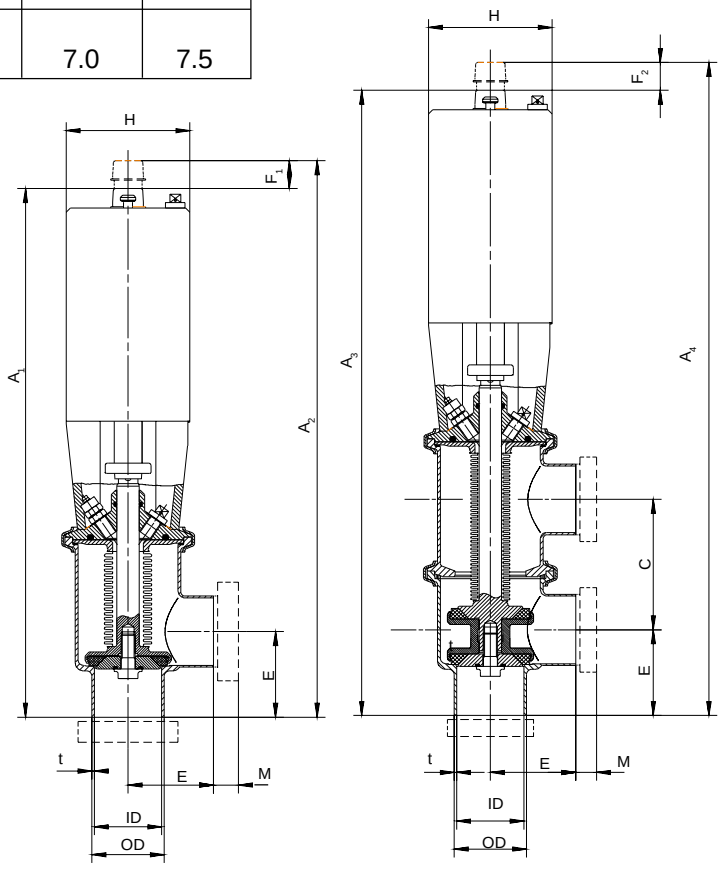
Caution, opening/closing time:
Opening/closing time will be effected by the following:
- The air supply (air pressure).
- The length and dimensions of the air hoses.
- Number of valves connected to the same air hose.
- Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.

Options
Equipment
A) Male parts or clamp liners in accordance with required standard.
B) Control & Indication (see chapter in Product Catalogue).
C) Damper against water hammer.
D) Actuator with stronger spring.
E) Larger actuator for valve size 38 - 63.5 mm, DN 40-65.

Materials grades
F) Product wetted seals of Nitrile (NBR), Fluorinated rubber (FPM) or PTFE.
Tools
G) Service tool for actuator.

Ordering
Please state the following when ordering:
- Connections if not welding ends.
- Size.
- Valve body combination.
- Actuator function, NO, NC or A/A.
- Options.

NOTE! For further details, see also PD 65036, PD 65152 and instruction IM 70799.



a. Stop valve. **b.** Change-over valve.

Fig. 3. Dimensions.

PD 65432 GB2 2001-01

The information contained herein is correct at the time of issue, but may be subject to change without prior notice.

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