



AB VALVES GmbH
Manufacturer of Industrial Valves
and Relevant Equipments

Needle Valves (RVNL)





Needle Valves (RVNL)

Size: DN 150- 1600 mm

Pressure: PN 10- 40 bars

Flanges: DIN EN 1092-2 (DIN 2501)

Product Features:

The annular flow cross section prevents vibration and allows a linear ratio of flow variation to the valve opening percentage. Linear movement of the plunger in forward direction causes reduction of flow rate and at the end position closes the valve with complete tightness by positioning the piston profile sealing ring on the seat ring.

Body: a cone shape, in one piece in the small sizes and in few pieces in the larger sizes.

Piston Guide: The long piston guide ensures smooth piston movement in each direction without vibration.

Seat ring: Different application of needle valves is determined by different replaceable types of seat rings.

Gearbox: The valves can be operated by worm screw gearbox, hand wheel or by electric and hydraulic actuators.

Application:

The Needle valves may be used for pressure control and flow adjustment in pumping lines and main supply lines. Flow media is water, Air (other media on request), permissible working temperature is 70°C.

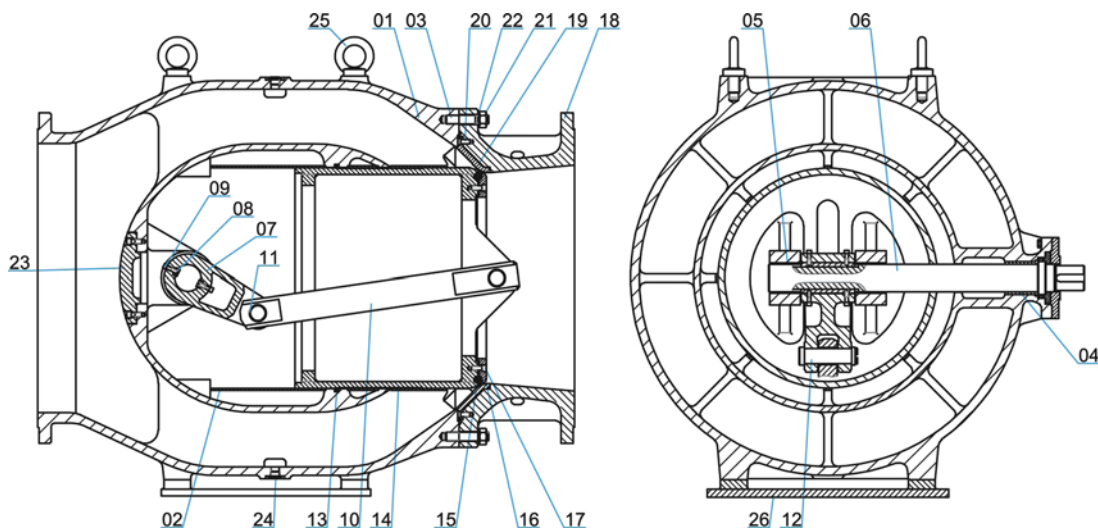
Corrosion protection:

Body is fully coated with blue electrostatic powder coating with minimum 250 micron thickness.

Hydrostatic test Pressure (bar) according to DIN EN 12266-1		
Nominal Pressure PN (bar)	Test Pressure	
	Body	Seat
10	17	11
16	25	17.6
25	37.5	27.5

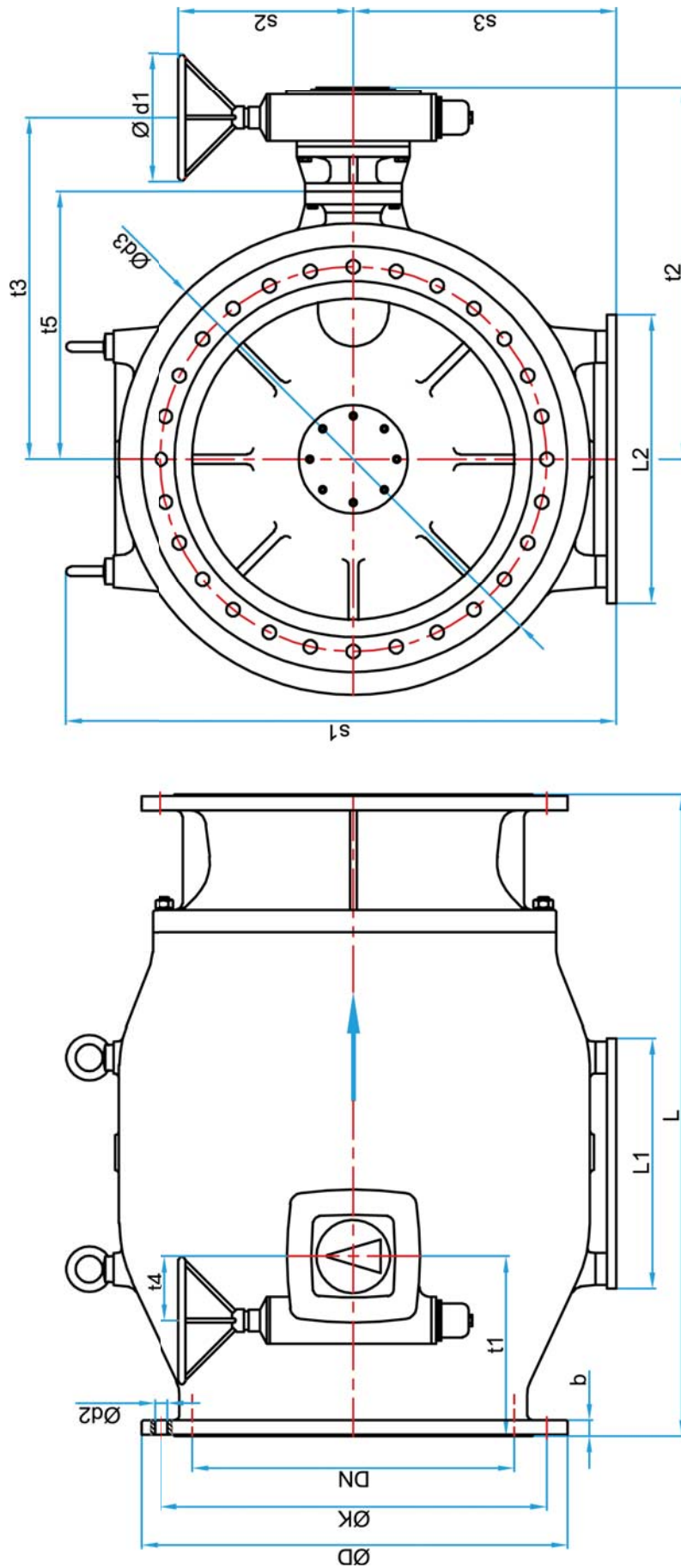


Part List



Part	Description	Material	Spare parts	
			1	2
1	body	EN-GJS-400-15 (1)		
2	Guide	2.0401.30	•	
3	Stud	1.4301(304)		
4	Bearing bush	Al.Bz		
5	Bearing bush	Al.Bz		
6	Crank shaft	1.4021		
7	Crank	1.4308		
8	Key	St-60		
9	hexagon socket head cap crew	A2		
10	Connecting rod	1.4021		
11	Bush	Brass		
12	Crank pin	1.4541		
13	O-ring	EPDM / NBR	•	•
14	Piston	1.4308		
15	Profile seal	EPDM / NBR	•	•
16	Retainer	1.4308		
17	hexagon socket head cap crew	A2	•	
18	Diffuser	EN-GJS-400-15 (1)		
19	Seat ring	1.4308		
20	hexagon socket head cap crew	A2		
21	Nut	A2		
22	Washer	A2		
23	Cover	EN-GJS-400-15 (1)		
24	Plug screw	S.St	•	
25	Eye bolt	Galvanized Steel		
26	Base plate	EN-GJS-400-15 (1)		

(1) EN-GJS-500-7 can be produced as requested.



For correct size and type selection please contact AB-Valves company.



• DIN EN 1092-2 (DIN 2501)

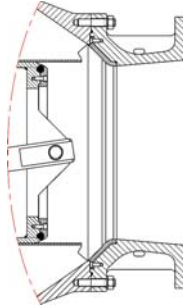
DN mm	L mm	D mm	K mm	d2 mm	n	b mm	d1 mm	d3 mm	t1 mm	t2 mm	t3 mm	t4 mm	t5 mm	s1 mm	s2 mm	s3 mm	L1 mm	L2 mm	Weight kg
PN 10																			
150	350	285	240	23	8	19	250	278	103	391	345	63	210	343	196	145	-	-	118
200	400	340	295	23	8	20	250	340	103	391	345	63	210	423	196	205	-	-	129
250	500	395	350	23	12	22	250	350	124	438	391	63	271	442	196	260	-	-	201
300	600	445	400	23	12	24.5	250	433	160	469	422	63	280	542	196	260	-	-	278
350	700	505	460	23	16	24.5	250	515	180	541	484	80	350	609	294	285	-	-	427
400	800	565	515	28	16	24.5	400	588	211	633	567	100	365	710	350	363	340	420	541
450	900	615	565	28	20	25.5	400	640	248	527	460	100	385	763	350	377	340	500	757
500	1000	670	620	28	20	26.5	400	732	280	582	515	100	440	863	450	442	400	530	968
600	1200	780	725	31	20	30	400	876	318	645	575	125	500	1043	460	530	460	640	1236
700	1400	895	840	31	24	32.5	400	1020	355	720	650	125	575	1212	460	610	540	800	1854
800	1600	1015	950	34	24	35	400	1165	412	901	829	125	654	1370	386	690	590	900	2688
900	1800	1115	1050	34	28	37.5	400	1360	474	1045	953	160	750	1600	582	770	773	900	3739
1000	2000	1230	1160	37	28	40	400	1470	494	1128	1035	160	809	1656	582	817	770	900	4831
1200	2400	1455	1380	41	32	45	400	1740	577	1221	1097	160	990	2067	582	1000	940	1400	8322
PN 16																			
150	350	285	240	23	8	19	250	278	103	391	345	63	210	343	196	145	-	-	118
200	400	340	295	23	12	20	250	340	103	391	345	63	210	343	196	205	-	-	129
250	500	405	355	28	12	22	250	350	124	438	391	63	271	442	196	260	-	-	211
300	600	460	410	28	12	24.5	250	433	160	469	422	63	280	542	196	260	-	-	288
350	700	520	470	28	16	26.5	250	515	180	541	484	80	350	609	294	285	-	-	438
400	800	580	525	31	16	28	400	588	211	633	567	100	365	710	350	363	340	420	572
450	900	640	585	31	20	30	400	640	248	527	460	100	385	763	350	377	340	500	788
500	1000	715	650	34	20	31.5	400	752	268	706	639	100	440	863	350	442	400	530	1009
600	1200	840	770	37	20	36	400	824	288	752	680	125	500	1043	386	530	460	640	1308
700	1400	910	840	37	24	39.5	400	979	361	824	752	125	575	1212	386	610	540	800	1895
800	1600	1025	950	41	24	43	400	1165	412	901	829	125	654	1370	386	690	590	900	2750
900	1800	1125	1050	41	28	46.5	400	1360	474	1066	953	160	750	1600	582	770	773	900	3770
1000	2000	1255	1170	44	28	50	500	1470	560	990	1065	200	809	1716	544	817	770	900	5052
1200	2400	1485	1390	50	32	57	400	1740	577	1221	1107	200	990	2640	664	1000	940	1400	8580
PN 25																			
150	350	300	250	28	8	20	250	270	120	330	280	63	210	343	190	145	-	-	124
200	400	360	310	28	12	22	250	340	120	330	255	63	210	423	196	205	-	-	134
250	500	425	370	31	12	24.5	250	350	124	443	397	63	271	455	196	260	-	-	216
300	600	485	430	31	16	27.5	250	433	160	494	438	80	280	517	294	260	-	-	314
350	700	555	490	34	16	30	400	515	180	597	525	100	350	609	350	285	-	-	484
400	800	620	550	37	16	32	400	588	211	633	567	100	365	691	350	363	340	420	613
450	900	670	600	37	20	34.5	400	670	248	527	460	125	385	763	386	377	340	500	865
500	1000	730	660	37	20	36.5	400	752	268	711	639	125	440	876	386	442	400	530	1082
600	1200	845	770	41	20	42	400	824	288	736	664	125	500	958	386	530	460	640	1452
700	1400	960	875	44	24	46.5	500	979	361	824	752	125	575	1141	386	610	540	800	2101
800	1600	1085	990	50	24	51	400	1165	412	973	881	160	654	1285	582	690	590	900	3121
900	1800	1185	1090	50	28	55.5	400	1360	474	1071	958	200	750	1490	664	770	773	900	4233
1000	2000	1320	1210	57	28	60	400	1470	494	1148	1035	200	809	1656	664	817	770	900	5511
1200	2400	1530	1420	57	32	69	400	1740	577	1257	1118	250	990	1780	767	1000	940	1400	9167

Dimension for sizes larger DN1200 and PN 40 as per order.

Types of Needle Valves Seating

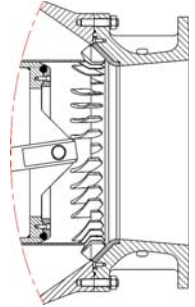
1- Standard type:

As a shut-off and flow regulating valve under high pressure differences and sufficient down stream pressure.



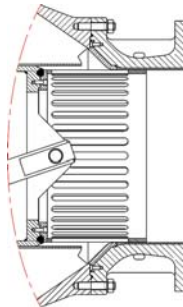
2- Vaned ring type:

This type of needle valve may be used as flow regulating valve under high pressure differences and sufficient down stream pressure.



3- Slotted cylinder type:

- As flow and pressure regulating valve under high pressure differences and low down stream pressure like in tanks.
- For optimization of pump function.



4- Multiple orifice cylinder type:

- As flow and pressure regulating valve under high pressure difference and low down stream pressure like in tanks.
- Anti cavitations valve.

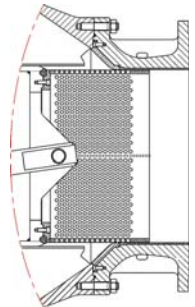


Table of Kv values, pressure loss efficient and pressure loss calculation:

Pressure loss p :

$$p = [\text{mWS}]$$

$$v = [\text{m/s}] \text{ flow velocity in pipeline}$$

$$\zeta = \text{as per table}$$

$$g = 9.81 \frac{\text{m}}{\text{s}^2}$$

$$p = \frac{\zeta \cdot v^2}{2 \cdot g}$$

coefficient Kv:

$$Kv = [\text{m}^3/\text{h}]$$

$$DN = [\text{mm}]$$

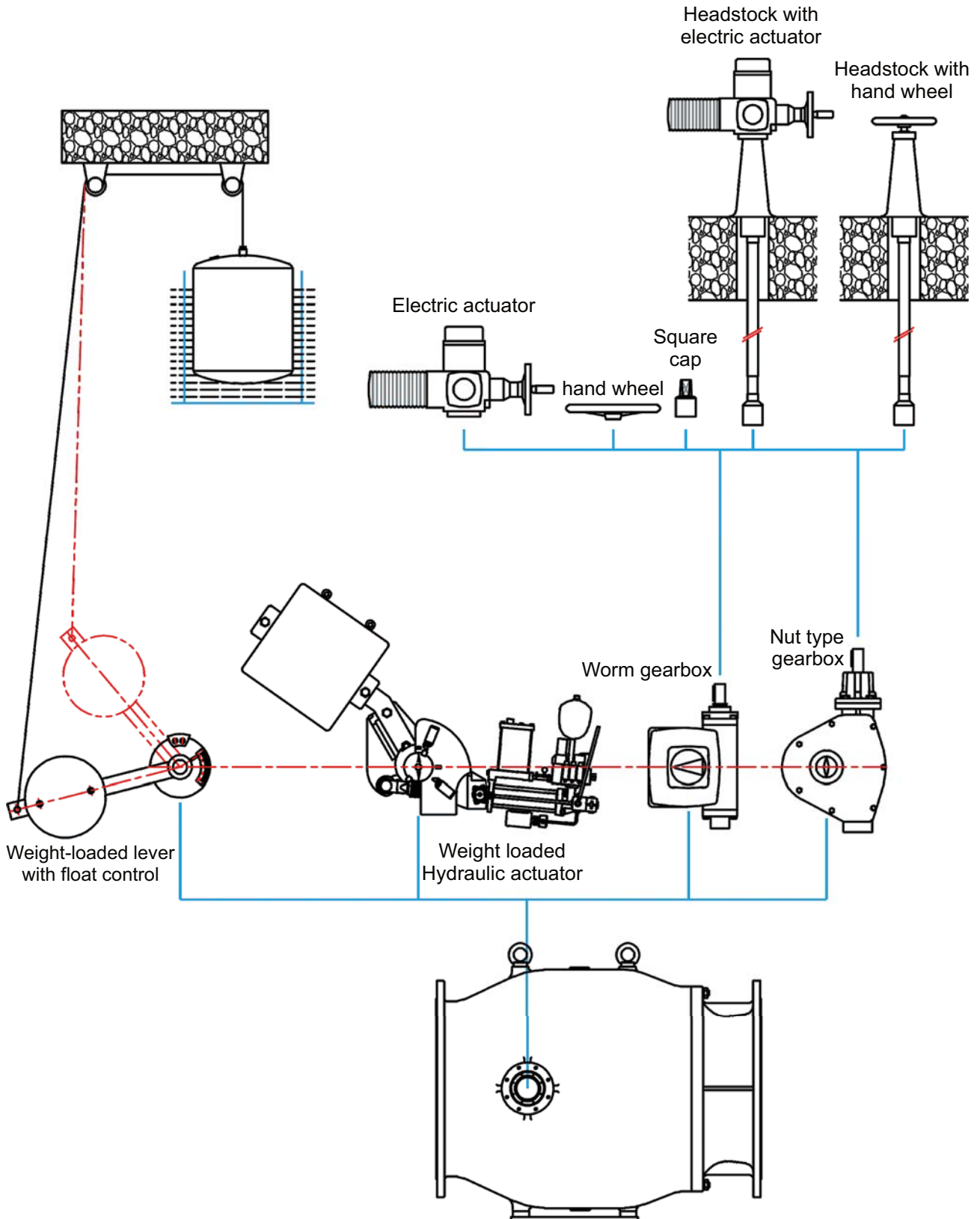
$$\zeta = \text{as per table}$$

$$Kv = 0.0396 \cdot \frac{DN^2}{\sqrt{\zeta}}$$

Pressure drop coefficient in open position (ζ)				
DN mm	Standard	Vaned	Slotted	Multiple orifice
150	0.82	2.7	7.1	—
200	0.82	2.0	6.2	11.2
250	0.82	2.1	9.2	11.2
300	0.82	2.2	6.9	11.2
350	0.82	1.5	6.5	11.2
400	0.82	1.5	6.5	11.2
450	0.82	1.5	6.5	11.2
500	0.82	1.5	6.5	11.2
600	0.82	1.5	6.5	11.2
700	0.82	1.5	6.5	11.2
800	0.82	1.4	6.5	11.2
900	0.82	1.4	6.5	11.2
1000	0.82	1.3	6.5	11.2
1200	0.82	1.1	6.5	11.2

Kv (m ³ /h)				
DN mm	Standard	Vaned	Slotted	Multiple orifice
150	983.9	542.2	334.4	—
200	1749.2	1120.1	636.1	—
250	2733.2	1707.9	816.0	—
300	3935.8	2402.8	1356.8	1064.9
350	5357.0	3960.8	1902.7	1449.5
400	6996.9	5173.3	2485.2	1893.2
450	8855.5	6547.5	3145.3	2396.1
500	10932.7	8083.3	3883.1	2958.2
600	15743.1	11640.0	5591.7	4259.8
700	21428.1	15843.3	7610.9	5798.1
800	27987.8	21419.6	9940.7	7573.0
900	35722.0	27109.2	12581.2	9584.5
1000	43730.0	34731.5	15532.4	11832.8
1200	62972.5	54370.3	22366.7	17039.2

Operating of Needle valve



AB VALVES' PRODUCTS

Butterfly Valves Flange Type (BVF)
Butterfly Valves Wafer Type (BVW)
Butterfly Valves Wafer Type for Sea Water (BVS)
Gate Valves (GV)
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Air Valves (AV)
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Automatic Control Valves (RV)
Non-Return Valves (NV)
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AB VALVES GmbH

Borsigallee 16
D-60388 Frankfurt am Main
Germany

Tel: +49(0)69-941 758-0
Fax: +49(0)69-941 758-33
info@ab-valves.com
www.ab-valves.com