

## BALL VALVES ALV-3

### Nominal Pressure

ANSI Class 150-2500

PN 16-420

### Nominal size

1/4"-24"

DN 8-600

### Materials

Carbon Steel

Alloy Steel

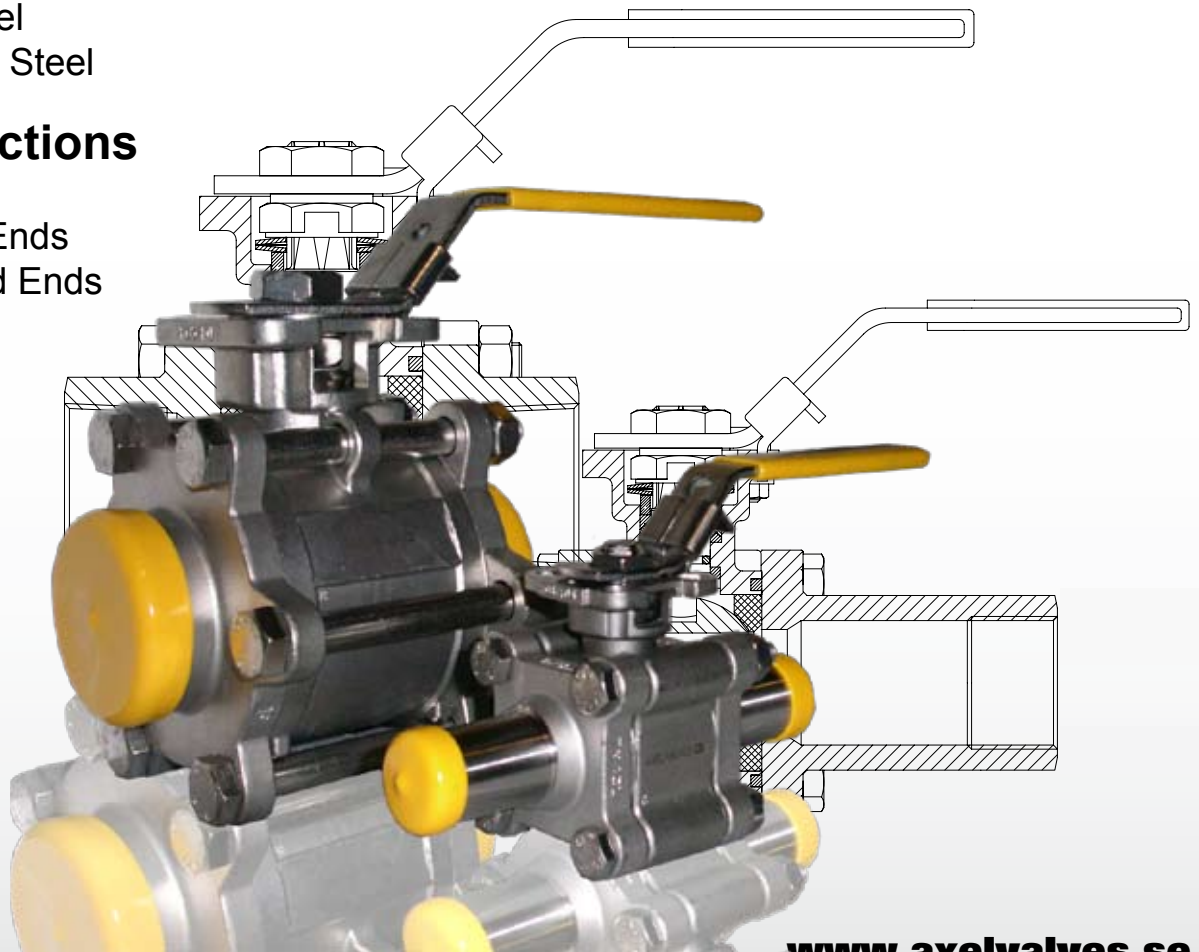
Stainless Steel

### Connections

Flanged

Welded Ends

Threaded Ends



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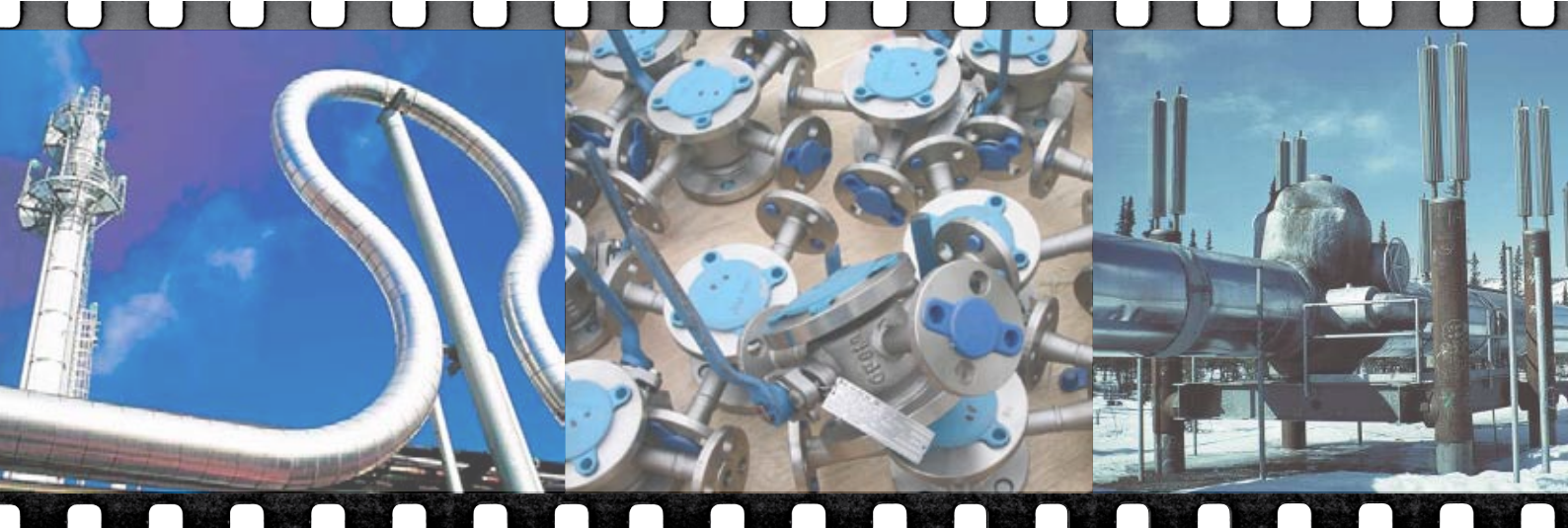
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AXELVALVES offers a wide range of ball valves, designed for the chemical and petrochemical, oil and gas processing, steam generation industries.



- **Power**
- **Oil & Gas**
- **Petrochemical**
- **Chemical**
- **Marine**
- **Pulp & Paper**
- **Cryogenics**
- **Mining**
- **Construction**

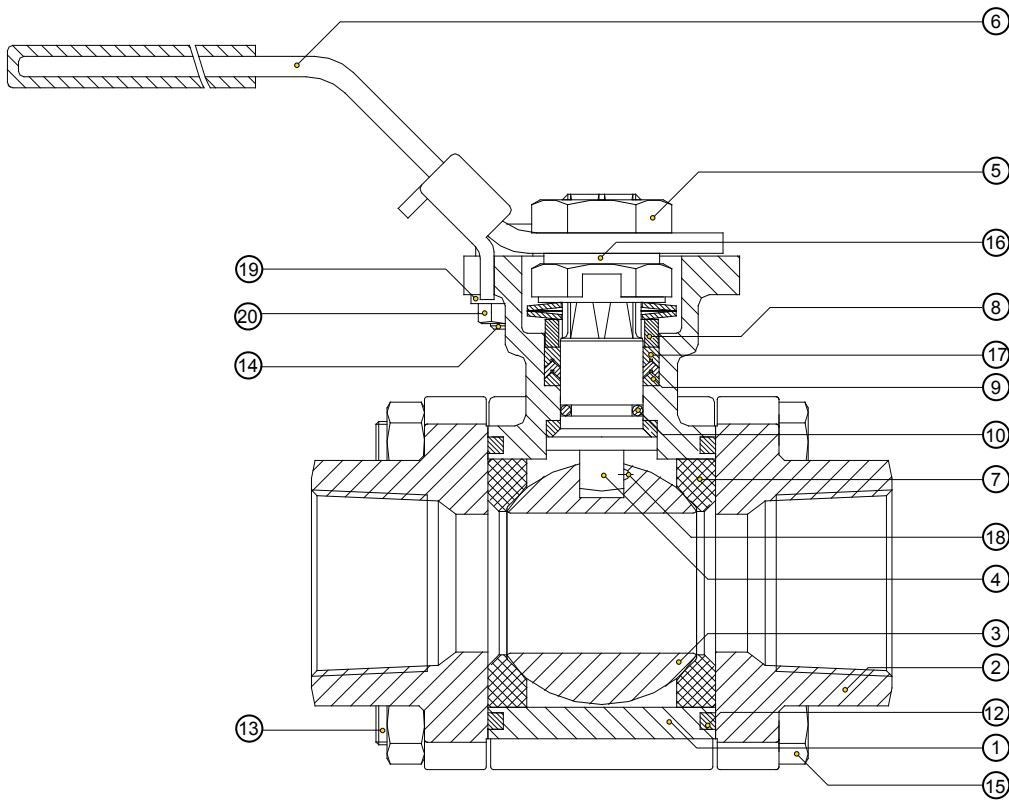
## Features

ALV-3 is a three piece ball valve that comes standard in stainless or carbon steel, with a soft seat in reinforced teflon. Other alloys and seat materials such as pure teflon or metallic seats are available on request.

- Blow Out Proof Stem
- Anti Static Design
- Low Torque - low and even torque throughout the entire range of motion.
- Zero Leakage - in flow directions at both high pressures and at vacuum
- Materials - wide arrange of seats and seal materials available
- Free Floating Ball - the stem is engaged in a slot on the ball, meaning that the ball is free floating, making the valve leak tight within the pressure range
- Fire Safe - ALV-3 is fire safe according to API607

## Marking

Valves are identified by a proper marking as required by MSS-SP25 with all informations of rating, size, valve body and trim material.

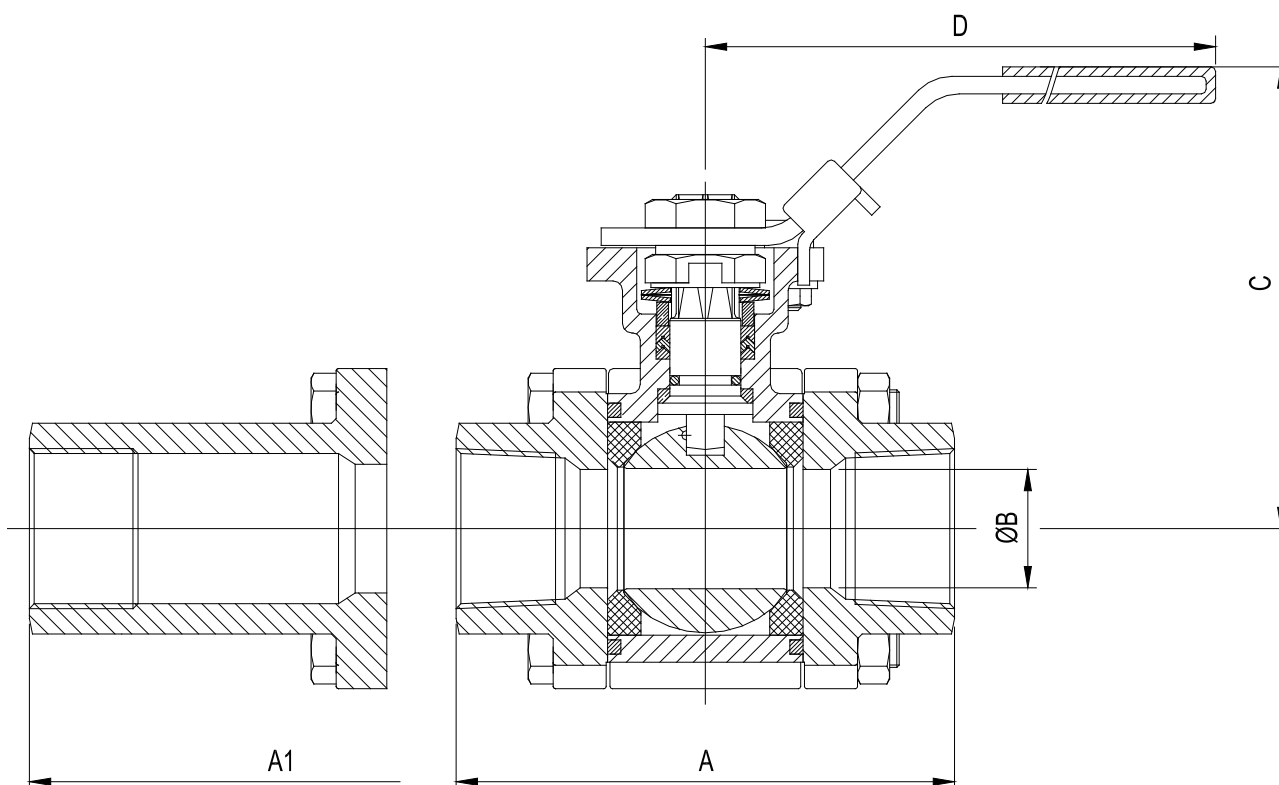


**Standard Material Specification**

No	Part	Material	
		Carbon Steel	Stainless Steel
1	Body	ASTM A216 WCB	ASTM A351 CF8M
2	End Cap	ASTM A216 WCB	ASTM A351 CF8M
3	Ball	ASTM A F316	
4	Stem	ASTM A F316	
5	Stem Nut	ASTM A F304	
6	Handle	ASTM A F304	
7	Ball Seat	Reinforced PTFE	
8	Gland	ASTM A F304	
9	V-Ring Packing	MG1241	
10	Stem Seal	Reinforced PTFE	
11	Body Gasket	PTFE	
12	Bolt	ASTM A F304	
13	Stop Bolt	ASTM A F304	
14	Bolt Nut	ASTM A F304	
15	Stem Washer	ASTM A F304	
16	Bushing	25% Glass Fiber Filled + PTFE	
17	Anti-Static Device	ASTM A F304	
18	Stop Nut Washer	ASTM A F304	
19	Stop Nut	ASTM A F304	

Other materials and material combinations available on request.

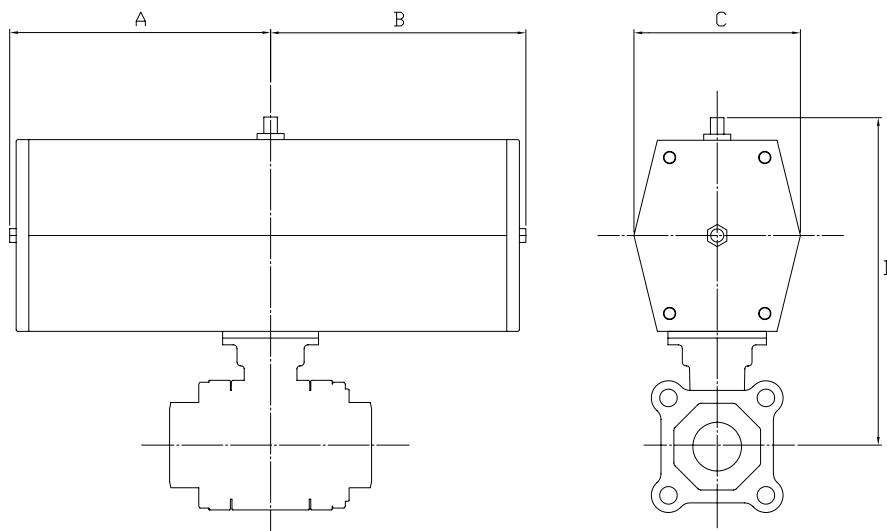




Measurements in mm.

Dimensions												
Dimensions		Size										
		8	10	15	20	25	32	40	50	65	80	100
		1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
A	Full Bore	72,5	72,5	72,5	85,4	105,3	111	127,3	145	185	205	240
	Reduced Bore	-	-	72,5	72,5	85,4	105,3	111	127,3	145	185	205
A1 <sup>1</sup>	Full Bore	-	-	230	250	260	270	290	341	358	442	-
	Reduced Bore	-	-	225	230	250	260	270	290	341	355	442
B	Full Bore	11,5	12,6	15,0	20,0	25,0	32,0	38,0	50,0	65,0	80,0	100,0
	Reduced Bore	-	-	12,6	15,0	20,0	25,0	32,0	38,0	50,0	65,0	80,0
C	Full Bore	78,3	78,3	78,3	28,6	98,5	101,8	127	135,6	167,7	176,7	192,7
	Reduced Bore	-	-	78,3	78,3	82,6	98,5	101,8	127	135,6	167,7	176,7
D	Full Bore	139	139	139	139	165	165	215	215	262	262	312
	Reduced Bore	-	-	139	139	139	165	165	215	215	262	262
Weight kg	Full Bore	0,89	0,88	0,82	1,29	2,01	2,76	4,21	6,88	12	16,2	25,8
	Reduced Bore	-	-	0,88	0,82	1,29	2,01	2,76	4,21	6,88	12	16,2

<sup>1</sup> = Contact AXELVALVES for weight specifications.  
Other valve end dimensions are available on request.

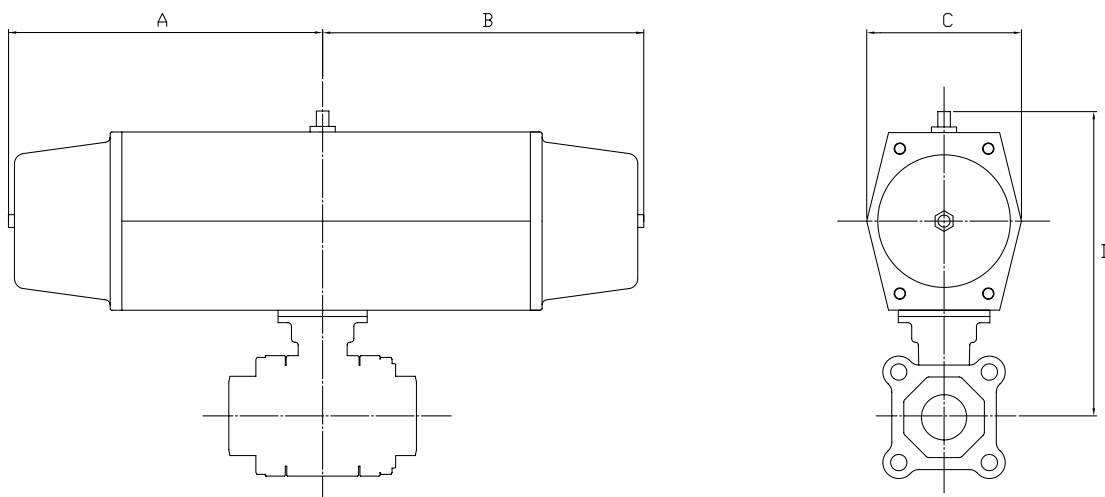


Measurements in mm.

**Double Acting Actuators - RC200-DA**

Dimensions	Size							
	15 1/2"	20 3/4"	25 1"	32 1 1/4"	40 1 1/2"	50 2"	65 2 1/2"	80 3"
Actuator Type	210-DA	210-DA	210-DA	220-DA	220-DA	220-DA	230-DA	240-DA
A	45	45	45	98	98	98	65	135/90
B	98	98	98	98	98	98	135	135/190
C	73	73	73	73	73	73	104	104/144
D	139,6	143,9	156,3	159,6	176,0	184,5	241,7	250,0
Weight kg	2,0	3,2	4,2	5,2	6,5	12,0	15,0	20,0

Actuator size for air 5.5 bar.



Measurements in mm.

**Spring Return Actuators - RC200-SR**

Dimensions	Size							
	15 1/2"	20 3/4"	25 1"	32 1 1/4"	40 1 1/2"	50 2"	65 2 1/2"	80 3"
Actuator Type	210-SR	210-SR	220-SR	220-SR	230-SR	230-SR	240-SR	250-SR
A	45	45	150	150	65	65	200	90/285
B	150	150	150	150	200	200	200	258/285
C	73	73	73	73	104	104	104	144/144
D	139,6	143,9	156,3	159,6	212,0	220,7	241,7	295,7
Weight kg	2,3	4,0	4,9	7,8	9,1	14,8	17,8	27,6

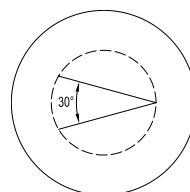
Actuator size for air 5.5 bar.



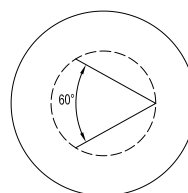
**Description**

For a precise and cost efficient control valve the V-port control ball is available as option for ALV-3. The valve can be equipped with hand lever or pneumatic alternatively electric actuator.

The V-port control ball is available in two designs, 30° or 60°, depending on which control range is desired. The ball is delivered with PTFE seats reinforced with stainless steel metal powder and is available in full bore DN15-100.



30° V-port



60° V-port

**Capacity**

Dimensions		Size							
		15	20	25	40	50	80	100	
		1/2"	3/4"	1"	1 1/2"	2"	3"	4"	
30° V-port	Open	100%	2,19	2,67	6,37	14,56	23,02	47,54	78,78
		90%	1,75	2,07	5,06	11,51	18,45	37,95	64,04
		80%	1,31	1,53	3,85	8,69	14,15	28,98	49,95
		70%	0,91	1,07	2,76	6,19	10,28	20,94	37,08
		60%	0,58	0,68	1,84	4,08	6,97	14,08	25,86
		50%	0,33	0,37	1,10	2,40	4,28	8,56	16,57
		40%	0,15	0,16	0,56	1,18	2,27	4,45	9,39
		30%	0,04	0,04	0,21	0,41	0,93	1,74	4,36
		20%	0,00	0,00	0,03	0,05	0,21	0,34	1,36
		10%	0,00	0,00	0,00	0,00	0,00	0,00	0,10
Closed	0%	0,00	0,00	0,00	0,00	0,00	0,00	0,00	

**Capacity**

Dimensions		Size							
		15	20	25	40	50	80	100	
		1/2"	3/4"	1"	1 1/2"	2"	3"	4"	
60° V-port	Open	100%	5,19	5,91	13,60	35,26	53,51	109,31	175,44
		90%	3,81	4,34	10,25	26,41	40,71	82,80	135,71
		80%	2,73	3,11	7,55	19,33	30,27	61,31	102,68
		70%	1,87	2,14	5,35	13,58	21,68	43,68	75,04
		60%	1,18	1,36	3,56	8,95	14,65	29,31	52,12
		50%	0,65	0,76	2,15	5,31	9,06	19,93	33,55
		40%	0,29	0,34	1,11	2,65	4,86	9,44	19,22
		30%	0,08	0,09	0,42	0,95	2,01	3,77	9,06
		20%	0,00	0,00	0,07	0,12	0,45	0,75	2,86
		10%	0,00	0,00	0,00	0,00	0,00	0,00	0,21
Closed	0%	0,00	0,00	0,00	0,00	0,00	0,00	0,00	




**Pressure Temperature Ratings**

Group Material	Nominal Designation Steel	Carbon Steel	C-Mn Si	18 Cr - 8 Ni 18 Cr - 8 Ni	16 Cr - 12 Ni - 2 Mo	18 Cr - 13 Ni - 3 Mo	18 Cr - 9 Ni - 2Mo	18 Cr - 8 Ni	16 Cr - 12 Ni - 2 Mo
Product Forms	Forging Spec.-Gr	A105 A350 LF2	-	A182 F304 A182 F304H	A182 F316 A182 F316H	-	-	A182 F304L	A182 F316L
	Casting Spec.-Gr	A216-WCB	-	A351 CF3 A351 CF8	-	-	A351 CF3M A351 CF8M	-	-

**Pressure Temperature Ratings**

Material		Pressure (psig) by Classes							
Group	Item	150	300	400	600	900	1500	2500	4500
A105 A350 LF2	Working Pressure	285	740	990	1480	2220	3705	6170	11110
	Shell Test	450	1125	1500	2225	3350	5575	9275	16675
	Seat Test	315	815	1090	1630	2445	4075	6790	12225
A182 F304 A182 F304H A182 F316 A182 F316H	Working Pressure	275	720	960	1440	2160	3600	6000	10800
	Shell Test	425	1100	1450	2175	3250	5400	9000	16200
	Seat Test	305	795	1060	1585	2380	3960	6600	11880
A182 F304L A182 LF16L	Working Pressure	230	600	800	1200	1800	3000	5000	9000
	Shell Test	350	900	1200	1800	2700	4500	7500	13500
	Seat Test	255	660	880	1320	1980	3300	5500	9900

**Pressure Temperature Ratings - According to ASME/ANSI B16.34**

Service Temp.	A105 <sup>1</sup> A350 LF2 <sup>2</sup>	A182 F316	A105 <sup>1</sup> A350 LF2 <sup>2</sup>	A182 F316	A105 <sup>1</sup> A350 LF2 <sup>2</sup>	A182 F316	A105 <sup>1</sup> A350 LF2 <sup>2</sup>	A182 F316	A105 <sup>1</sup> A350 LF2 <sup>2</sup>	A182 F316
	PN20	PN20	PN50	PN50	PN100	PN100	PN250	PN250	PN420	PN420
°C	bar	bar	bar	bar	bar	bar	bar	bar	bar	bar
-29 to 38	19,6	19,0	51,1	49,6	102,1	99,3	255,3	248,1	425,5	413,6
50	19,2	18,4	50,1	48,1	100,2	96,3	250,4	240,6	417,3	401,0
100	17,7	16,2	46,4	42,2	92,8	84,4	231,9	211,0	386,5	351,7
150	15,8	14,8	45,2	38,5	90,5	77,0	226,1	192,5	376,9	320,9
200	14,0	13,7	43,8	35,7	87,6	71,3	219,1	178,4	365,2	297,3
250	12,1	12,1	41,7	33,4	83,4	66,8	208,6	166,9	347,7	278,2
300	10,2	10,2	38,7	31,6	77,5	63,3	193,7	158,1	322,8	263,6
350	8,4	8,4	37,0	30,4	73,9	60,8	184,8	152,1	308,0	253,8
375	7,4	7,4	36,5	29,7	72,9	59,4	182,3	148,5	303,9	247,5
400	6,5	6,5	34,5	29,1	69,0	58,2	172,5	145,6	287,5	242,6
425	5,6	5,6	28,8	28,7	57,5	57,3	143,8	143,3	239,6	238,9
450	4,7	4,7	20,0	28,1	40,1	56,2	100,2	140,4	166,9	234,0
475	3,7	3,7	13,5	27,4	27,1	54,7	67,7	136,8	112,9	228,0
500	2,8	2,8	8,8	26,8	16,6	53,7	44,0	134,1	73,3	223,6
525	1,9	1,9	5,2	25,8	10,4	51,6	25,9	129,0	43,2	214,9

1 = Permissible, but not recommended for prolonged use above 400°C

2 = Not to be used over 300°C





## Max. Working Pressure and Pressure Test of Valves

Pressure Class of Valve			PN16	ANSI 150 PN20	PN25	PN40	ANSI 300 PN50	ANSI 400 PN68	ANSI 600 PN100	ANSI 800 <sup>1</sup>	ANSI 900 PN150	ANSI 1500 PN250	ANSI 2500 PN420	API 2000	API 3000	API 5000	API 10000
Max. Operating Pressure	-29 to 38°C	bar	16	19	25	40	49,6	66,2	99,3	138	149	248	414	138	207	345	690
	Hydrostatic Shell Test	bar	25	29	40	60	76	100	150	207	224	372	621	276	414	690	1035
Pressure Test <sup>2</sup>	Hydrostatic Seat Test	bar	18	21	28	44	55	73	110	152	166	276	455	152	228	380	760
	Air Seat	bar±1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

1 = Class 800 is not a normally tabulated ASME/ANSI B16.34 designation, but it is an intermediate class that is widely used for SW - BW - and threaded end valves.

2 = No visible leakage under all test pressure sequence

## Pneumatic actuators

Double and single acting 90° actuators.

Max air pressure (instrument air): 10bar

Operating media: Air or inert gas (low pressure hydraulics are available on request)

Ambient temperature: -50°C - +150°C.

All types of pneumatic actuators are supplied with drive shaft with flats for manual operation. Manual override unit M1 is available as accessory for all actuator sizes.

## Material certificates

Axelvalves supply ALV-3 valves with test and material certificates in accordance to EN 10204 3.1B as standard. Heat codes are forged or cast on the valve material ensuring full traceability.

## Mounting pad - ISO 5211:

The valves are equipped with top-flange according to ISO 5211 enabling direct mounting of pneumatic or electric actuators. No bracket or couplings are needed.

## Design and applicable standards:

- ANSI/ASME: B16.34, B16.25, B1.20.1
- API: 6D, 607, 598
- ISO: 5211, 5209, 5752, 7/1, 261
- DIN: 3357, 50.049-3.1B
- MSS: SP25, SP72
- BS: 5351, 6755-1, 6755-2

## Available on request:

- Bare Shaft - lever or gear operated
- Electric or Pneumatic Operated
- Stem Extension
- Trunnion Mounted Ball
- Cryogenic Service
- High Temperature Service
- Hig Pressure Service
- Metal Seats
- Welded or Screwed Connections
- Special Dimensions
- Special Materials