



ARMATURY GROUP
20TH ANNIVERSARY



CRYOGENIC BALL VALVES



In partnership with



VEXVE
ARMATURY
GROUP

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COMPANY PROFILE

The company ARMATORY Group a.s. is a leading European manufacturer of industrial valves and distributor of pipings, technological units and accessories. The company started its operations on January 2000, however, the tradition of this dynamically developing company is closely related to the 50-year history of valve production in Moravia and Silesia.

Since 2019, ARMATORY Group a.s. has been part of the Vexve Armaturity Group, which offers an extensive portfolio of valves for a wide range of industrial applications. ARMATORY Group a.s. specializes in tailor-made solutions for the gas, power and metallurgical sectors, while Vexve Oy supplies valves solutions for heating and cooling systems.

Both ARMATORY Group a.s. and Vexve Oy are known for the superior quality of their products, fast delivery times combined with first-class customer service. The companies deliver their products to over 70 countries and employ around 750 people with factories in Czech Republic, Finland and Russia. The combined turnover of the Vexve Armaturity Group is over €100m. The group is owned by DevCo Partners Oy, a long-term investor, which is dedicated to building world's leading companies in selected niche markets.



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Introduction

Cryogenic ball valve is one of the most important equipment used for transportation of the gas in pipe line system. This cryogenic valve is usually used in the places where is necessary quick opening and closing of the valve, full bore or low pressure drop. This type of cryogenic ball valves is considered as shut off valve without possibility of usage as throttling or regulating valves.

Cryogenic ball valves are used to the transportation of the wide range of industrial gases such as oxygen, LNG, krypton, argon and nitrogen. We can find their application in separation of air, storage, distribution or transportation of LNG, in aviation industry, in petrochemical industry and medicine.



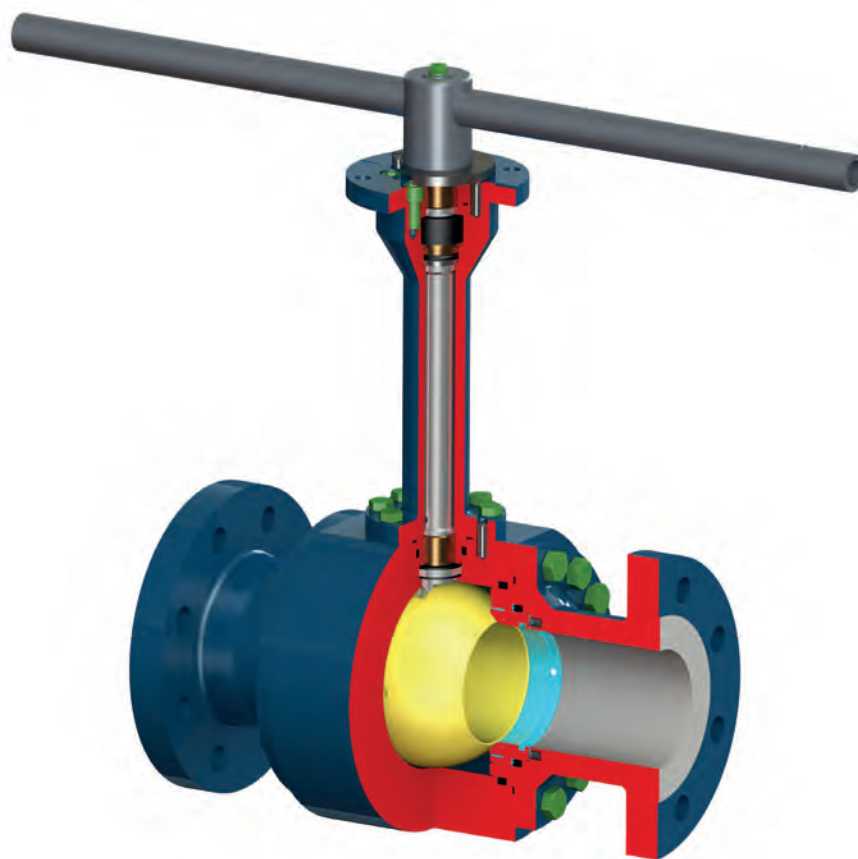


Design:

- DN 15 (1/2") - DN 150 (6")
- PN 16 (class 150) - PN 160 (class 900)
- Temperature range of transported medium is from -47°C do -196°C (liquid nitrogen -196°C, LNG -162°C)
- The design of the ball valves is acc. to EN 1626, EN 12567, EN 12300, API 6D
- Extension length is acc. to BS 6364, Shell MESC SPE 77/200

Cryogenic ball valves meet:

- Full Bore and Reduced Bore design
- Anti blow-out design
- Anti-static device
- Fire safe design



Standard material

Component	Stainless steel	
	For temperatures from -47 °C to -105 °C	For temperatures from -105 °C to -196 °C
Body	A182 F304, 1.4541, A182 F316, 1.4571	
Bonnet		
Ball	A182 F316, A351 CF8, 1.4571	
Stem	A182 F316, 1.4571, 1.4542	
Seat	Filled PTFE	PCTFE (KEL-F)
Seat seal	Lip-seal Stainless Steel+PTFE	
Spring	Inconel X750	
Bearing	SS+PTFE	
Bolt	A193 B8M Cl2	
Nut	A194 8M	
Packing	Lip-seal Stainless Steel+PTFE, Graphite	

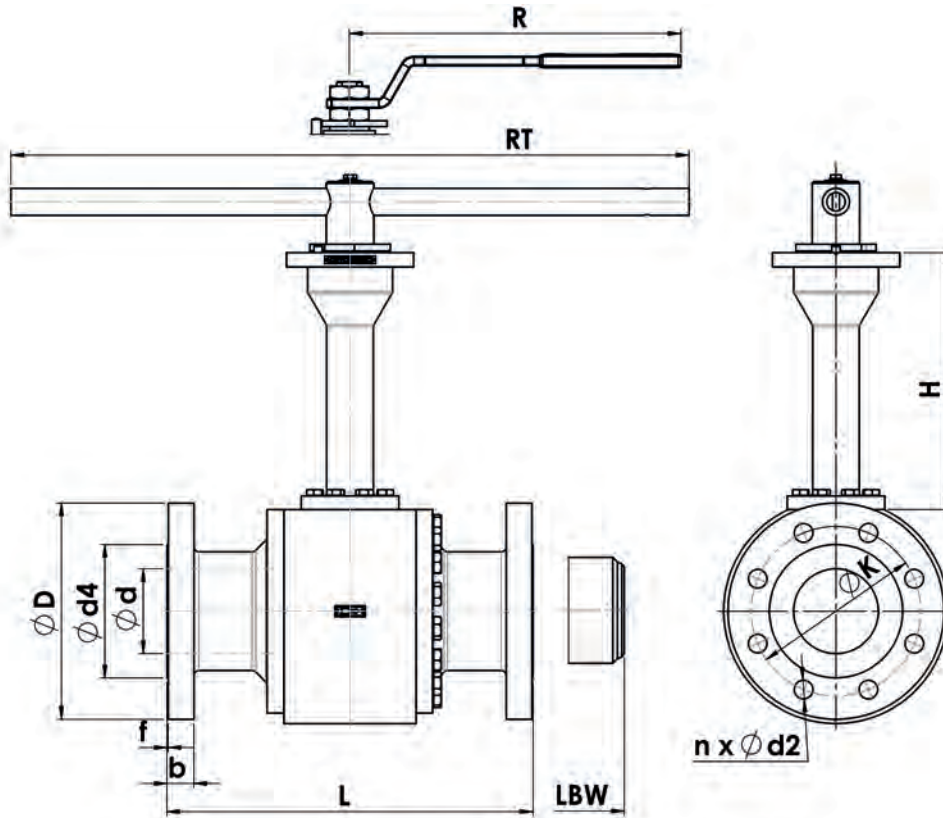


NPS 1/2" - 6" • CLASS 150-900

Design:

■ SPLIT BODY

Connection: ☉ ASME B16.5 FLANGED ENDS
 ☉ ASME B16.25 WELDED ENDS



Class 150 • PN 16-25

NPS	Dimensions [mm]						L		H (-106 °C)	H (-196 °C)	Lever		ISO 5211	kg		
	ød	øD	b	øK	ød4	f	L _{RF}	L _{BW}			R	RT		RF	BW	
1/2"	14	90	11,2	60,3	34,9	2	4x16	140	140	130	200	150	-	F05	9	8
3/4"	20	100	12,7	69,9	42,9		4x16	152	152	130	200	220	-	F05	10	9
1"	25	110	14,3	79,4	50,8		4x16	165	165	130	200	220	-	F05	13	12
1 1/4"	30	115	15,9	88,9	63,5		4x16	178	178	130	265	-	400	F05	18	13,5
1 1/2"	38	125	17,5	98,4	73,2		4x16	191	191	130	265	-	400	F05	28	25
2"	50	150	19,5	120,7	92,1		4x19	216	216	150	300	-	650	F07	37	33
2 1/2"	62	180	22,7	139,7	104,8		4x19	241	241	150	300	-	650	F10	40	33
3"	76	190	23,9	152,4	127		4x19	283	283	160	325	-	800	F12	73	65
4"	98	230	24,3	190,5	157,2		8x19	305	305	175	350	*		F14	93	87
5"	120	255	24,3	215,9	185,7		8x22	381	381	200	375	*		F14	133	108
6"	145	280	25,9	241,3	215,9		8x22	403	457	200	375	*		F16	135	123

Class 300 • PN 40

NPS	Dimensions [mm]						L		H (-106 °C)	H (-196 °C)	Lever		ISO 5211	kg		
	ød	øD	b	øK	ød4	f	L _{RF}	L _{BW}			R	RT		RF	BW	
1/2"	14	95	14,3	66,7	34,9	2	4 x 16	140	140	130	200	150	-	F05	10	8
3/4"	20	115	15,9	82,6	42,9		4 x 19	152	152	130	200	220	-	F05	11	9
1"	25	125	17,9	88,9	50,8		4 x 19	165	165	130	200	220	-	F05	14	12
1 1/4"	30	135	19,5	98,4	63,5		4 x 19	178	178	130	265	-	400	F05	18	13,5
1 1/2"	38	155	21,1	114,3	73		4 x 22	191	191	130	265	-	400	F05	28	25
2"	50	165	22,7	127	92,1		8x19	216	216	150	300	-	650	F07	40	33
2 1/2"	62	190	25,9	149,2	104,8		8 x 22	241	241	150	300	-	650	F10	42,5	33
3"	76	210	29	168,3	127		8 x 22	283	283	160	325	-	800	F12	77	65
4"	98	255	32,2	200	157,2		8 x 22	305	305	175	350	*		F14	100	87
5"	120	280	35,4	235	185,7		8 x 22	381	381	200	375	*		F14	135	108
6"	145	320	37	269,9	215,9		12 x 22	403	457	200	375	*		F16	146	123



NPS 1/2" - 6" • CLASS 150-900

Design:

■ SPLIT BODY

Connection: ☉ ASME B16.5 FLANGED ENDS

☼ ASME B16.25 WELDED ENDS

Class 600 • PN 63-100

NPS	Dimensions [mm]						L			H	H	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L _{RF}	L _{BW}	(-106 °C)	(-196 °C)	R	RT		RF	BW
1/2"	14	95	14,3	66,7	35,1	7	4 x 19	165	165	130	200	-	300	F05	10	9
3/4"	20	115	15,9	82,6	42,9		4 x 19	191	191	130	200	-	400	F05	11	9
1"	25	125	17,5	88,9	50,8		4 x 19	216	216	130	200	-	400	F05	12	10
1 1/4"	30,5	135	20,7	98,4	63,5		4 x 19	229	229	130	265	-	650	F05	18	14
1 1/2"	38	155	22,3	114,3	73,2		4x22	241	241	130	265	-	650	F07	28	25
2"	50	165	25,4	127	92,1		8 x 19	292	292	150	300	-	650	F10	37	31
2 1/2"	62	190	28,6	149,2	104,6		8 x 22	330	330	150	300	-	650	F10	52	44
3"	76	210	31,8	168,3	127		8 x 22	356	356	160	325	*		F12	77	61
4"	95	275	38,1	215,9	157,2		8 x 25	432	432	175	350	*		F14	129	100

Class 900 • PN 160

NPS	Dimensions [mm]						L			H	H	Lever		ISO 5211	kg	
	ød	øD	b	øK	ød4	f	n x ød2	L _{RF}	L _{BW}	(-106 °C)	(-196 °C)	R	RT		RF	BW
1/2"	14	120	22,3	82,6	34,9	7	4 x 22	216	216	130	200	-	300	F07	11	9
3/4"	20	130	25,4	88,9	42,9		4 x 22	229	229	130	200	-	400	F07	17	11
1"	25	150	28,6	101,6	50,8		4 x 25	254	254	130	200	-	400	F07	17	14
1 1/4"	30,5	160	28,6	111,1	63,5		4 x 25	279	279	130	265	-	650	F07	25	21
1 1/2"	38	180	31,8	123,8	73		4 x 29	305	305	130	265	-	650	F12	32	28
2"	50	215	38,1	165,1	92,1		8 x 25	368	368	150	300	-	650	F12	72	45

* gear operator with handwheel

B and C dimensions are informative only and may vary depending on the accessories and the temperature of the working medium of the ball valves.
°Weights are informative only because of potential technological deviations.

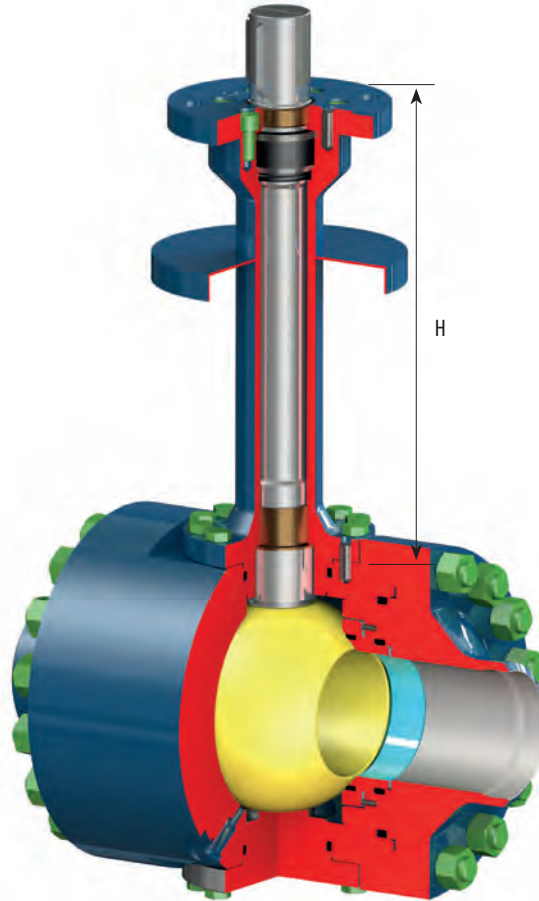


Design:

- DN 100 (4") - DN 500 (20")
- PN16 (class 150) - PN 160 (class 900)
- Temperature range of transported medium is from -47 °C to -196 °C (liquid nitrogen -196 °C, LNG -162 °C)
- The design of the ball valves is acc. to EN 1626, EN 12567, EN 12300, API 6D
- Extension length is acc. to BS 6364, Shell MESC SPE 77/200

Cryogenic ball valves meet:

- Full Bore and Reduced Bore design
- Anti blow-out design
- Anti-static device
- Double Block and Bleed design
- Fire safe design



Standard material

Component	Stainless steel	
	For temperatures from -47 °C to -105 °C	For temperatures from -105 °C to -196 °C
Body	A182 F316	A182 F316
Bonnet		
Ball	A182 F316	
Stem, bottom stem	A182 F316	A182 F316
Seat – basic material	A182 F316	
Bolt	A193 B8M Cl.2	
Nut	A194 8M	
Stem extension	A182 F316	
Seat inserts	RPTFE	PCTFE (KEL-F)
Seals	LIP-SEAL(PTFE+Elgiloy), Graphite	LIP-SEAL(PTFE+Elgiloy), Graphite

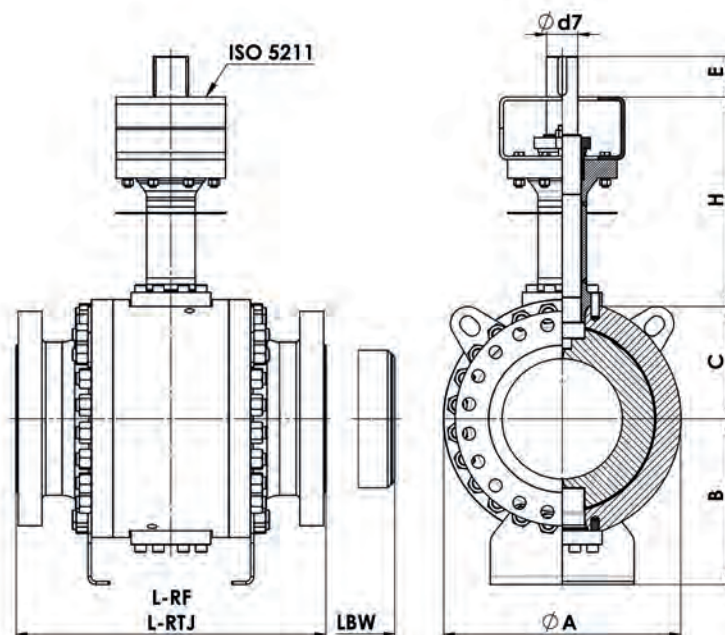


NPS 4"- 20" • CLASS 150-900

Design:

- SPLIT BODY

Connection: ASME B16.5 FLANGED ENDS
 ASME B16.25 WELDED ENDS



Class 150 • PN 16-25

NPS / DN	Dimensions [mm]											ISO 5211	kg (without extension)	
	øD	L _{RF}	L _{BW}	L _{RTJ}	øA	B	C	E	H (-109°C)	H (-196°C)	ød ₇		RF	BW
8" / 200	201	457	521	470	440	340	609	65	210	400	50	F16	295	260
10" / 250	252	533	559	546	490	365	660	65	225	425	50	F16	381	345
12" / 300	303	610	635	662	575	410	725	75	250	450	60	F25	652	580
14" / 350	334	686	762	699	630	435	774	85	275	475	70	F25	965	903
16" / 400	385	762	838	775	720	480	846	85	300	500	70	F25	1 325	1 130
18" / 450	436	864	914	876	790	515	907	85	325	525	70	F25	1 665	1 420
20" / 500	487	914	991	927	880	610	975	100	350	550	80	F30	2 050	1 900

Class 300 • PN 40

NPS / DN	Dimensions [mm]											ISO 5211	kg (without extension)	
	øD	L _{RF}	L _{BW}	L _{RTJ}	øA	B	C	E	H (-109°C)	H (-196°C)	ød ₇		RF	BW
8" / 200	201	502	521	518	460	350	618	65	210	400	50	F16	310	269
10" / 250	252	568	559	584	500	370	663	75	225	425	60	F25	395	355
12" / 300	303	648	635	664	595	420	735	85	250	450	70	F25	665	590
14" / 350	334	762	762	778	660	450	790	85	275	475	70	F25	980	920
16" / 400	385	838	838	854	745	495	858	100	300	500	80	F25	1 350	1 161

Class 400-600 • PN 63-100

NPS / DN	Dimensions [mm]											ISO 5211	kg (without extension)	
	øD	L _{RF}	L _{BW}	L _{RTJ}	øA	B	C	E	H (-109°C)	H (-196°C)	ød ₇		RF	BW
6" / 150	150	559	559	562	360	280	542	65	200	375	50	F16	286	230
8" / 200	201	660	660	664	480	360	625	75	210	400	60	F16	487	383
10" / 250	252	787	787	791	530	385	678	90	225	425	70	F25	727	592
12" / 300	303	838	838	841	605	425	737	95	250	450	75	F25	920	780

Class 900 • PN160

NPS / DN	Dimensions [mm]											ISO 5211	kg (without extension)	
	øD	L _{RF}	L _{BW}	L _{RTJ}	øA	B	C	E	H (-109°C)	H (-196°C)	ød ₇		RF	BW
4" / 100	100	457	457	460	310	230	500	50	175	350	38	F14	200	180
6" / 150	150	610	610	613	390	295	552	70	200	375	55	F16	335	290
8" / 200	201	737	737	740	510	375	635	85	210	400	70	F25	515	430

B and C dimensions are informative only and may vary depending on the accessories and the temperature of the working medium of the ball valves.

° Weights are informative only because of potential technological deviations.



CERTIFICATION



QMS Certificate acc. to ČSN EN ISO 9001:2015



Certificate acc. EMS to EN ISO 14001:2015



Certificate acc. to BS OHSAS 18001:2007



Certificate PED 2014_68_EU



Cryogenic resistance acc. to BS 6364



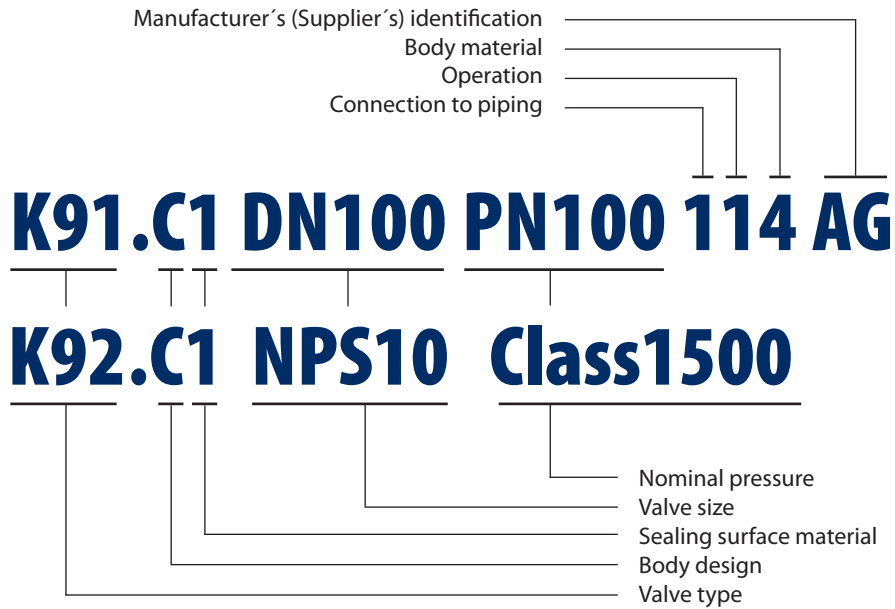
Certificate API Spec 6D

TYPE NUMBER COMPOSITION

Type number uniquely describes the valve.

Type number is fixed by the manufacturer (supplier).

Type number serves to customers in subsequent communication with the manufacturer (supplier) valve.



Valve type

- K91 – ball valve with floating ball
- K92 – trunnion mounted ball valve full or reduced bore

Body design

- C - forged body, cryogenic design

Sealing surface material

- 1 – soft seated seats (PMSS with thermoplastic)

Connection to piping

- 1 – flanged ends
- 2 – welded ends

Operation

- 1 – lever
- 2 – gear operator with handwheel
- 3 – electric actuator
- 4 – pneumatic
- 5 – bare stem

Body material

- 0 – stainless steel

Manufacturer's (Supplier's) identification

- AG – ARMATURY Group a.s.

Data mentioned in the catalogue are not subject to changes, for an order and delivery of the goods are obligatory the data mentioned in respective specifications.

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