

Ball Valve

## RR Series

PN10/16/25/40

DN15-DN150 (1/2"-6")

Two-piece floating ball valve

Flanged ends (DIN)

## Type Series Booklet



## **Legal information/Copyright**

Type Series Booklet RR Series

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## Ball Valves

### Floating Ball Valve



### Main applications

- Spray irrigation systems
- Mining
- Chemical industry
- Pressure-boosting
- Fire-fighting systems
- Air-conditioning systems:
  - Heating
  - Ventilation
  - Air-conditioning
- Industrial recirculation systems
- Air-conditioning systems
- Cooling circuits
- Paint shops
- Paper and cellulose industry
- Pipelines and tank farms
- Snow-making systems
- Process engineering
- Washing plants
- Water treatment
- Water supply systems

### Fluids handled

- Cleaning agents
- Condensate
- Cooling water
- Corrosive fluids
- Drinking water
- Fluids posing a health hazard
- Liquors (black, white, green)
- Lubricants
- Oil
- Pulp
- River, lake and groundwater
- Service water
- Solvents
- Wash water

### Operating data

#### Operating properties

Characteristic	Quick Opening
Nominal pressure	PN 10/16/25/40
Nominal size	DN 15-150 (1/2"-6")
Max. permissible pressure	40 bar (DN 15-150) 25 bar (DN 15-150) 16 bar (DN 15-150)
Max. permissible temperature	350 °C

### Body materials

#### Overview of available materials\*

Material	Material number	Temperature limit
ASTM A 351 CF8M	1.4408	Up to 350 °C
ASTM A 351 CF8	1.4308	
ASTM A 216 WCB	1.0619	

\*Other materials available upon request.

### Design details

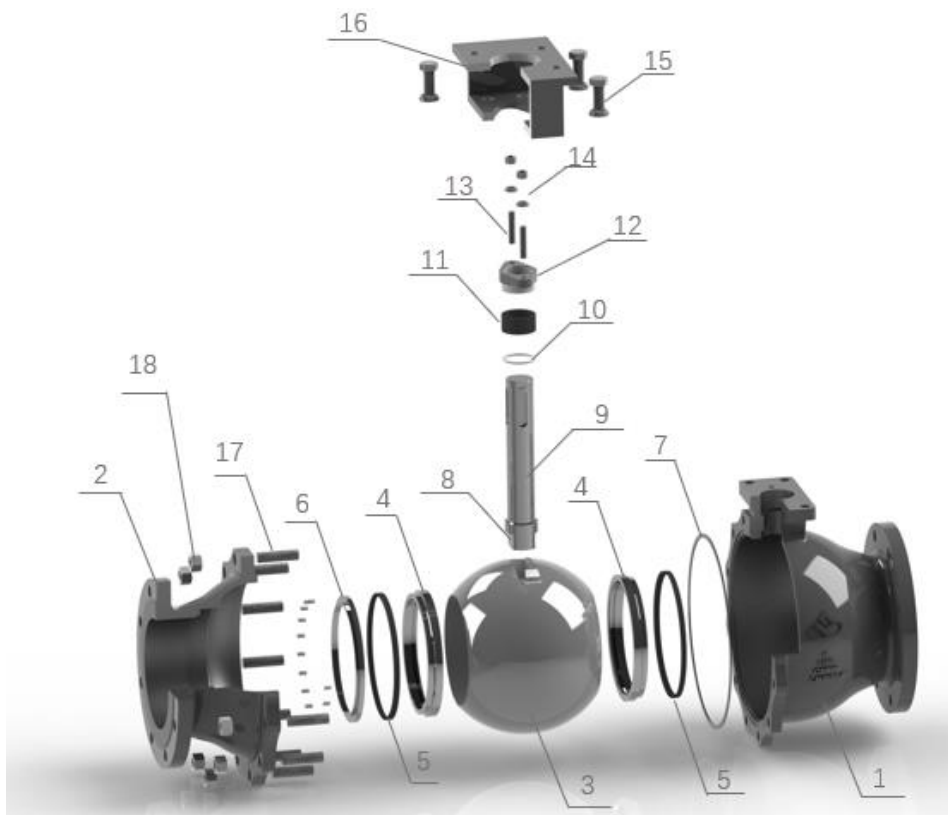
- Two-piece floating ball valve
- Full bore, solid ball
- Locking lever available
- Flanged ends to DIN EN1092-1 PN 40/25/16/10
- Designed and tested to ASME B16.34
- Pressure test ISO5208 Rate D (Rate B av. up. request)

**Product benefits**

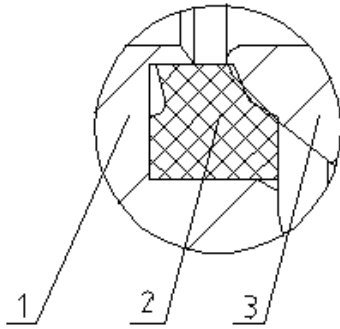
- Blow-out proof stem. Integral shoulder prevents blow-out.
- Locking device. Valve can be locked in open or closed position.

On all enquiries/orders please specify:

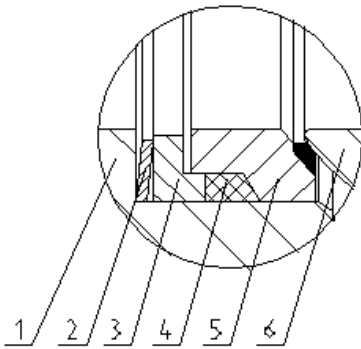
1. Type
2. Nominal pressure
3. Nominal size
4. Operating pressure
5. Differential pressure
6. Operating temperature
7. Fluid handled
8. Pipe connection
9. Number of type series booklet

**Explosion view**

**Overview of available materials**

Part No.	Description	Material		
1	Body	ASTM A351 CF8M	ASTM A351 CF8	ASTM A216 WCB
2	Bonnet	ASTM A351 CF8M	ASTM A351 CF8	ASTM A216 WCB
3	Ball	ASTM A351 CF8M/CF8 + Hard chromium plating		
4	Seat	ANSI 316/ANSI 304 + Stellite Surfacing		17-4PH
5	Seat support ring	F316		
6	Spring	17-7PH/X750		
7	Gasket	SS316L+Graphite	SS304+Graphite	
8	Anti-static components	Stainless steel		
9	Shaft	A182 F60	17-4PH	
10	Thrust washer	SS316L+N	SS304+N	
11	Packing	Graphite		
12	Packing gland	CF8M/CF8/WCB		
13	Bolt	ASTM A193 B8	ASTMA193 B7	
14	Nut	ASTM A194	ASTMA193 2H	
15	Socket head cap screw	ASTM A193 B8		
16	Yoke	Carbon steel		
17	Bolt	ASTM A193 B8	ASTMA193 B7	
18	Nut	ASTM A194	ASTMA193 2H	

**Seat seal constructions**


<b>Soft-seated</b>		
Part No.	Description	Temp. Range
1	Cap	-40~150°C
2	Seat	
3	Ball	



<b>Metal-seated for high temp. application</b>		
Part No.	Description	Temp. Range
1	Valve body	-40~350°C
2	Cylinder spring	
3	Clamping ring	
4	Graphite Ring	
5	Seat	
6	Ball	

**Allowable working pressure of body material at different temperatures**

<b>WCB (ASTM A216)</b>								
Nominal pressure	Standard	Temperature °C						
		Ambient	100	150	200	250	300	350
		Bar						
PN16	DIN 2401	16	14	13	11	10	8	7
PN25	DIN 2401	25	23	21	19	17	14	13
PN40	DIN 2401	41	37	36	34	32	28	27

<b>CF8 (ASTM A351)</b>								
Nominal pressure	Standard	Temperature °C						
		Ambient	100	150	200	250	300	350
		Bar						
PN16	DIN 2401	15	14	13	11	10	8	7
PN25	DIN 2401	24	21	19	17	15	13	12
PN40	DIN 2401	40	33	30	28	26	23	23

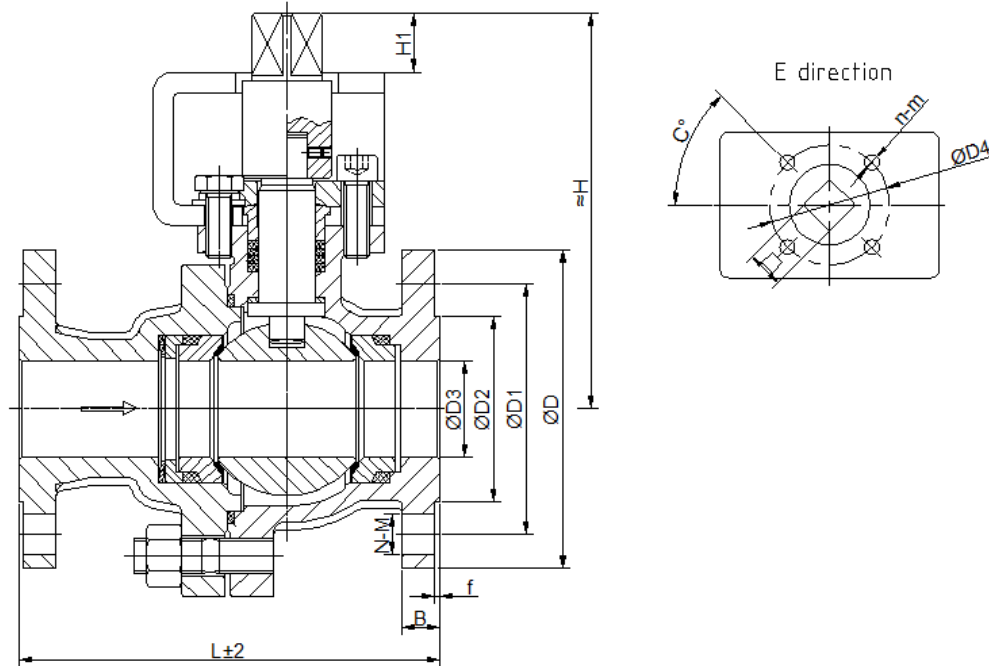
<b>CF8M (ASTM A351)</b>								
Nominal pressure	Standard	Temperature °C						
		Ambient	100	150	200	250	300	350
		Bar						
PN16	DIN 2401	15	13	12	11	10	8	7
PN25	DIN 2401	24	20	19	17	16	13	12
PN40	DIN 2401	39	34	31	28	26	24	23

**Dimensional drawings of Linor floating ball valves with high temperature seat**

<b>Drawing no.</b>	<b>Actuator</b>	<b>Pressure class</b>	<b>Sizes</b>
<a href="#"><u>1</u></a>	bare shaft	PN16	DN15-150
<a href="#"><u>2</u></a>	bare shaft	PN40	DN15-100
<a href="#"><u>3</u></a>	lever	PN16	DN15-80
<a href="#"><u>4</u></a>	gearbox + hand wheel	PN16	DN100-150
<a href="#"><u>5</u></a>	lever	PN40	DN15-65
<a href="#"><u>6</u></a>	gearbox + hand wheel	PN40	DN80-100
<a href="#"><u>7</u></a>	double-acting	PN16	DN50-150
<a href="#"><u>8</u></a>	double-acting	PN40	DN15-100
<a href="#"><u>9</u></a>	single-acting	PN16	DN15-100
<a href="#"><u>10</u></a>	single-acting	PN16	DN125-150
<a href="#"><u>11</u></a>	single-acting	PN40	DN15-80
<a href="#"><u>12</u></a>	single-acting	PN40	DN100



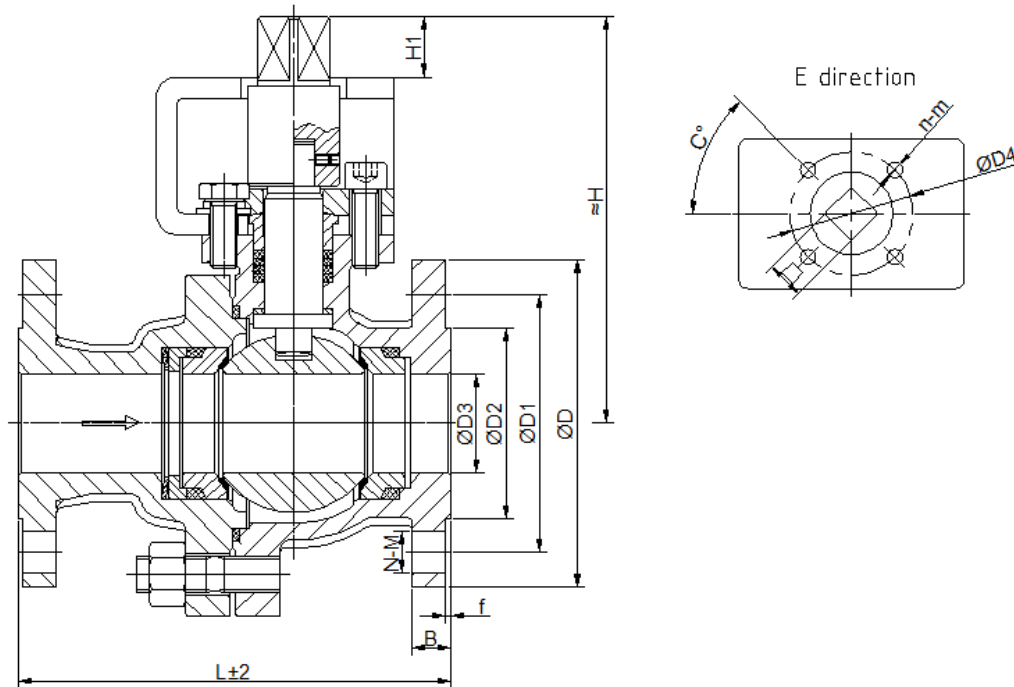
**Drawing no. 1: Dimensions of Linor floating ball valve with high temperature seat bare shaft, PN16, flanged, sizes DN15-150**



Dimensions in mm

DN	L	ØD	ØD1	ØD2	ØD3	B	f	N-ØM	H	H 1	□	ØD4	n-Øm	C°	ISO 5211	[kg]
15	108	95	65	45	13	16	2	4-14	113	14	14x14	50	4-8	45	F05	4.1
20	117	105	75	58	19	18	2	4-14	118	14	14x14	50	4-8	45	F05	5.1
25	127	115	85	68	25	18	2	4-14	122	14	14x14	50	4-8	45	F05	5.6
32	140	140	100	78	32	18	2	4-18	136	14	14x14	70	4-10	45	F07	8
40	165	150	110	88	38	18	2	4-18	146	14	14x14	70	4-10	45	F07	13
50	178	165	125	102	49	18	2	4-18	157	17	17x17	70	4-10	45	F07	15
65	191	185	145	122	62	18	2	8-18	168	17	17x17	70	4-10	45	F07	21
80	203	200	160	138	74	20	2	8-18	217	22	22x22	102	4-12	45	F10	30
100	229	220	180	158	100	22	2	8-18	232	22	22x22	102	4-12	45	F10	40
125	356	250	210	188	125	22	2	8-18	272	27	27x27	125	4-14	45	F12	52
150	394	285	240	212	150	22	2	8-22	334	36	36x36	140	4-18	45	F14	69

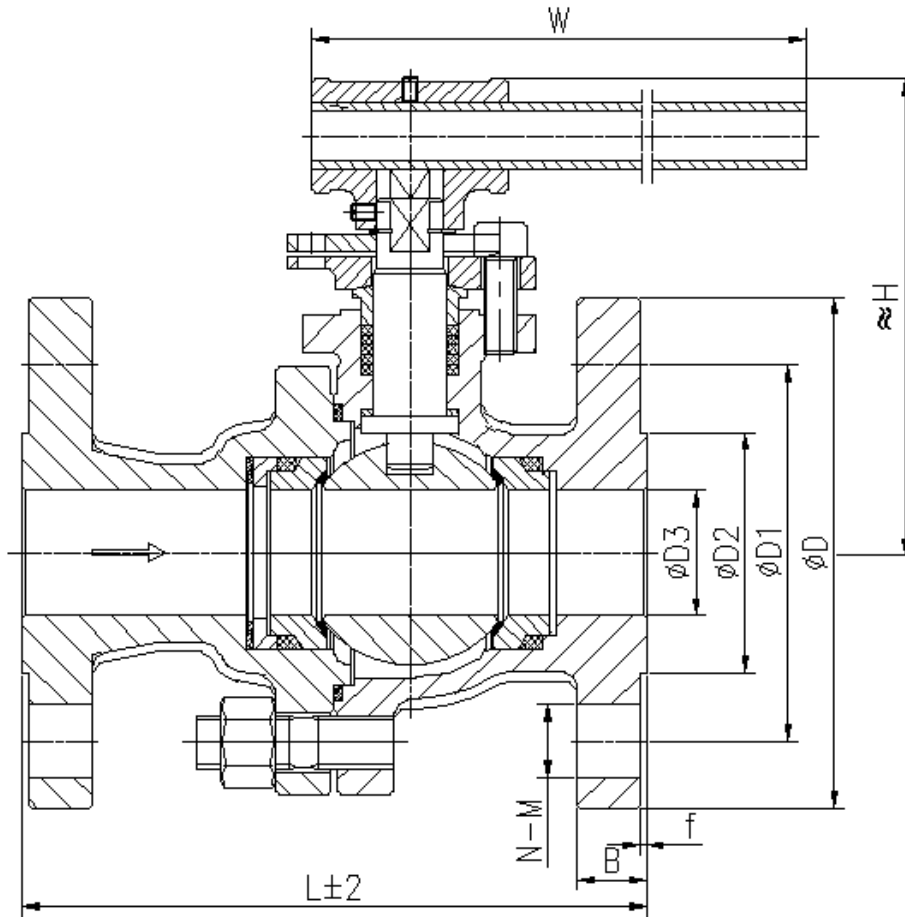
**Drawing no. 2: Dimensions of Linor floating ball valve with high temperature seat bare shaft, PN40, flanged, sizes DN15-100**



Dimensions in mm

DN	L	ØD	ØD1	ØD2	ØD3	B	f	N-ØM	H	H1	□	ØD4	n-Øm	C°	ISO 5211	[kg]
15	140	95	65	45	13	16	2	4-14	113	14	14x14	50	4-8	45	F05	5
20	152	105	75	58	19	18	2	4-14	118	14	14x14	50	4-8	45	F05	6.5
25	165	115	85	68	25	18	2	4-14	125	17	17x17	70	4-10	45	F07	7.2
32	178	140	100	78	32	18	2	4-18	139	17	17x17	70	4-10	45	F07	9.5
40	190	150	110	88	38	18	2	4-18	149	17	17x17	70	4-10	45	F07	15
50	216	165	125	102	49	20	2	4-18	162	22	22x22	102	4-12	45	F10	17
65	241	185	145	122	62	22	2	8-18	199	22	22x22	102	4-12	45	F10	25
80	283	200	160	138	74	24	2	8-18	222	27	27x27	125	4-14	45	F12	36
100	305	225	190	162	100	24	2	8-22	261	36	36x36	140	4-18	45	F14	53

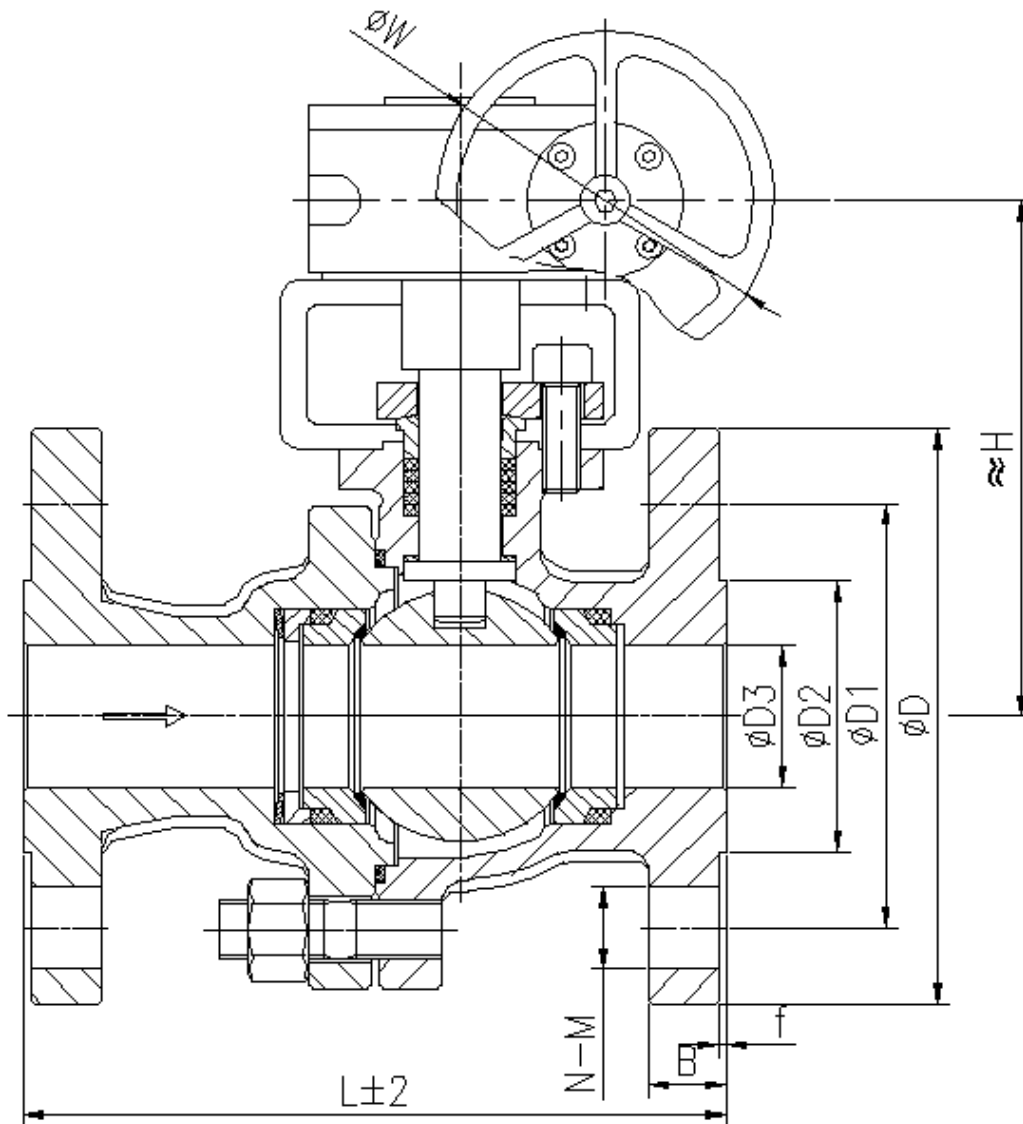
**Drawing no. 3: Dimensions of Linor floating ball valve with high temperature seat lever, PN16, flanged, sizes DN15-80**



Dimensions in mm

DN	L	$\varnothing D$	$\varnothing D1$	$\varnothing D2$	$\varnothing D3$	B	f	N- $\varnothing M$	H	W	[kg]
15	108	95	65	45	13	16	2	4-14	82.5	115	3.5
20	117	105	75	58	19	18	2	4-14	78	130	4.5
25	127	115	85	68	25	18	2	4-14	98	150	5
32	140	140	100	78	32	18	2	4-18	129	200	9.5
40	165	150	110	88	38	18	2	4-18	143	200	12.5
50	178	165	125	102	49	18	2	4-18	155	400	15
65	191	185	145	122	62	18	2	8-18	178	400	21
80	203	200	160	138	74	20	2	8-18	217	600	30

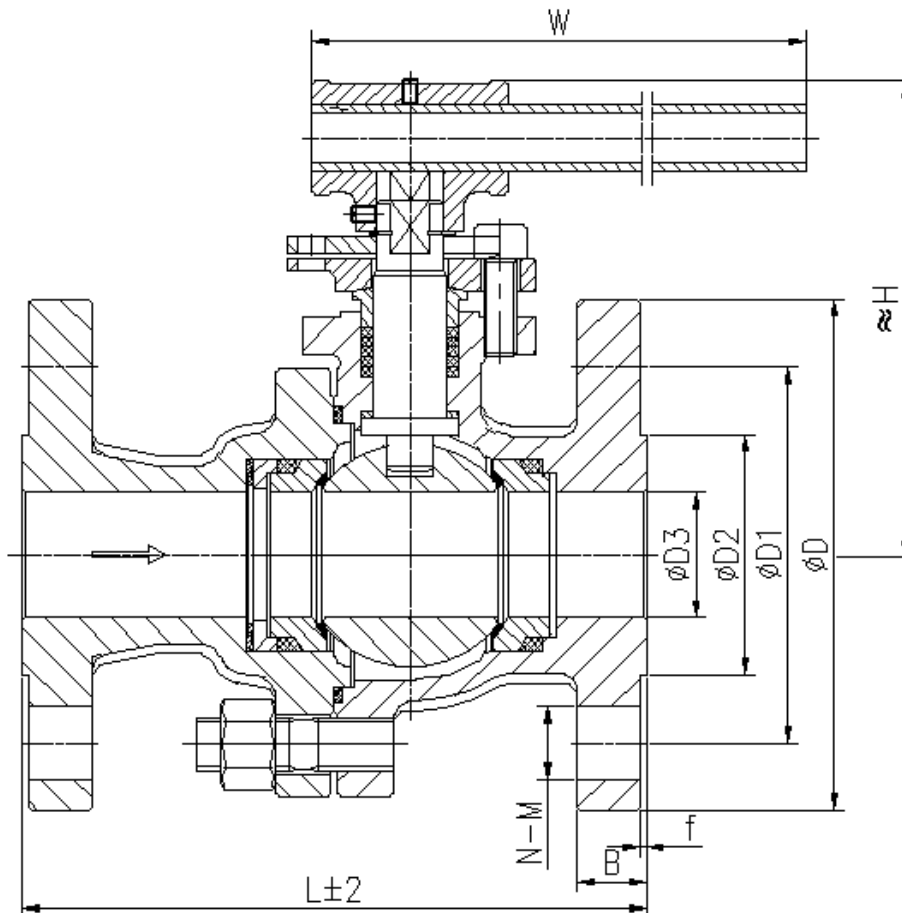
**Drawing no. 4: Dimensions of Linor floating ball valve with high temperature seat gearbox + hand wheel, PN16, flanged, sizes DN100-150**



Dimensions in mm

DN	L	ØD	ØD1	ØD2	ØD3	B	f	N-ØM	H	W	Gearbox	[kg]
100	229	220	180	158	100	20	2	8-18	245	350	WQT07	49
125	356	250	210	188	125	22	2	8-18	290	350	WQT07	61
150	394	285	240	212	150	22	2	8-22	360	460	WQT18-F16	92

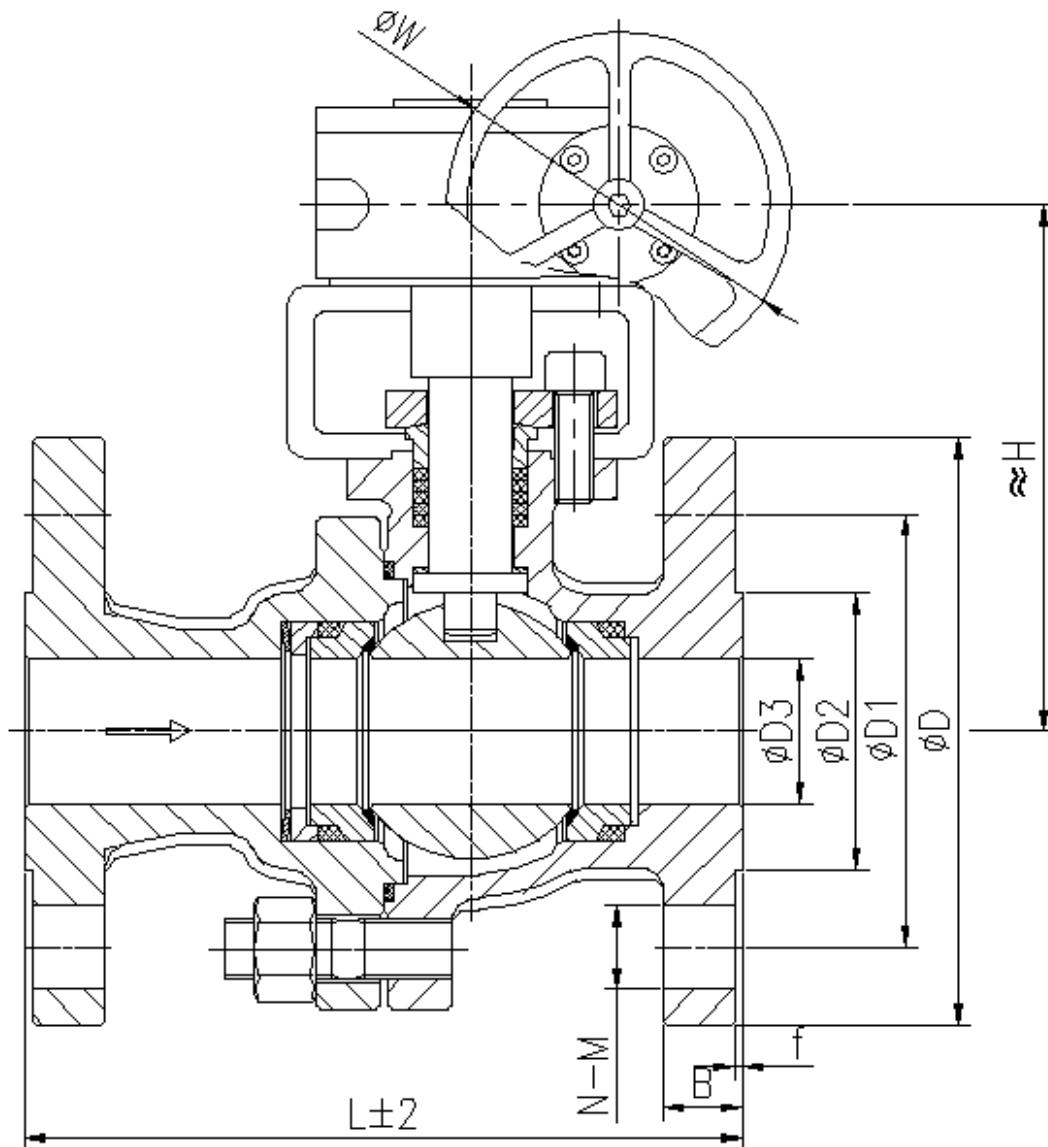
**Drawing no. 5: Dimensions of Linor floating ball valve with high temperature seat lever, PN40, flanged, sizes DN15-65**



Dimensions in mm

DN	L	ØD	ØD1	ØD2	ØD3	B	f	N-ØM	H	W	[kg]
15	140	95	65	45	13	16	2	4-14	82.5	115	5
20	152	105	75	58	19	18	2	4-14	78	130	6.5
25	165	115	85	68	25	18	2	4-14	98	150	7.2
32	178	140	100	78	32	18	2	4-18	129	300	10
40	190	150	110	88	38	18	2	4-18	143	300	15
50	216	165	125	102	49	20	2	4-18	155	600	17
65	241	185	145	122	62	22	2	8-18	184	800	25

**Drawing no. 6: Dimensions of Linor floating ball valve with high temperature seat gearbox + hand wheel, PN40, flanged, sizes DN80-100**



Dimensions in mm

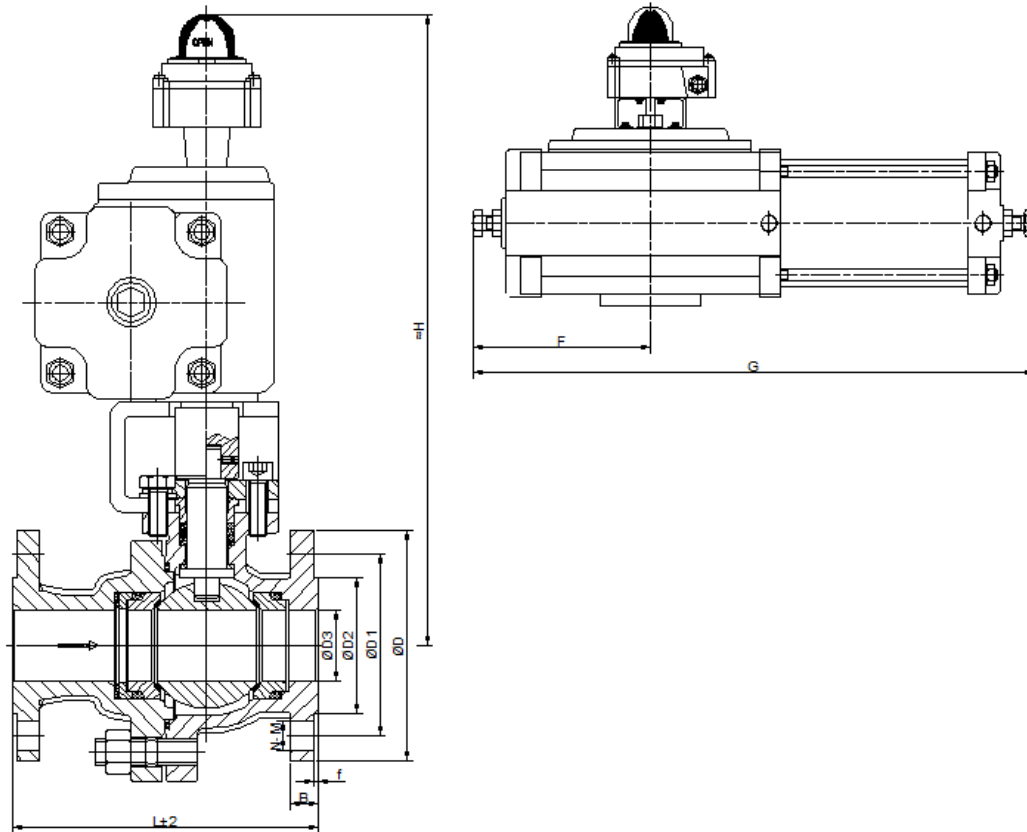
DN	L	ØD	ØD1	ØD2	ØD3	B	f	N-ØM	H	W	Gearbox	[kg]
80	283	200	160	138	74	24	2	8-18	245	350	WQT07	46
100	305	235	190	162	100	24	2	8-22	270	350	WQT07	63

**Actuator Sizing**

DN	Operation Torque PN16 (N.m)	Operation Torque PN40 (N.m)	Air Supply Pressure
	1.6MPa	4MPa	(MPa)
15	18	40	0.5~0.7
20	30	65	
25	40	100	
32	50	115	
40	67	130	
50	100	200	
65	160	390	
80	210	480	
100	390	840	
125	740	1860	
150	15600	2880	

Note: ZSQ and ZDQ series piston actuators are manufactured by Linuo. The actuators above are recommended for valves of pressure PN16, PN40 and temp. -20~230°C, with minimum air supply pressure of 5 bar.

**Drawing no. 7: Dimensions of Linor floating ball valve with high temperature seat double-acting, PN16, flanged, sizes DN15-150**

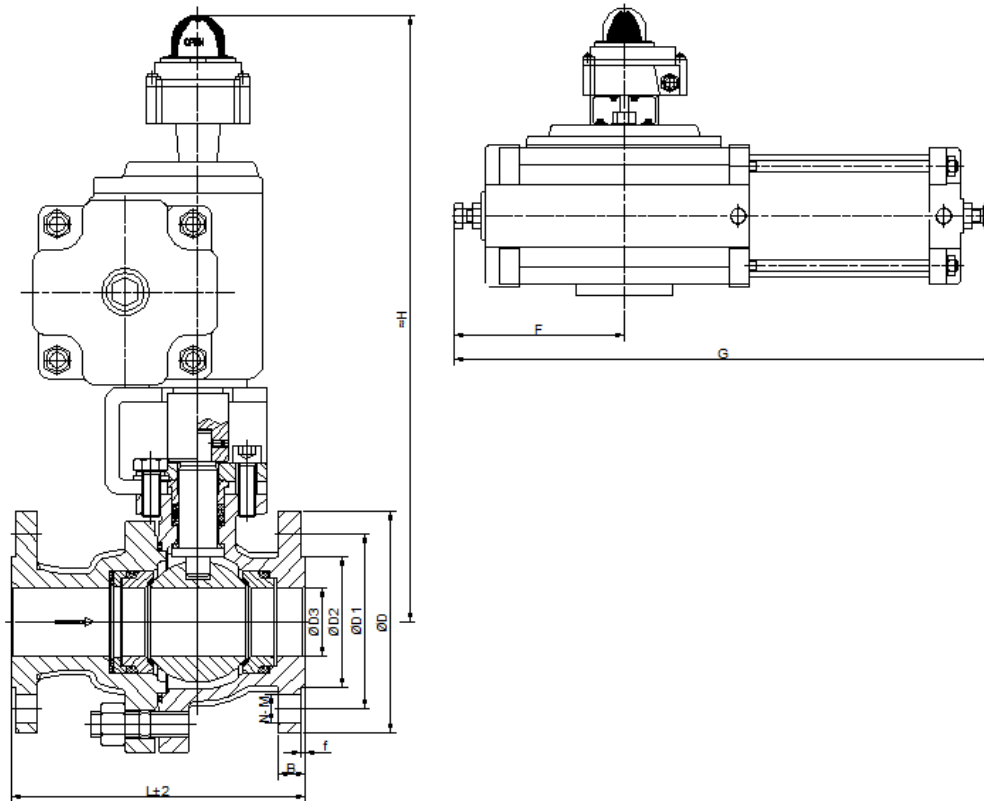


Dimensions in mm

DN	L	ØD	ØD1	ØD2	ØD3	B	f	N-ØM	H	G	F	Actuator	[kg]
15	108	95	65	45	13	16	2	4-14	405	345	105	ZSQ32-63	8.1
20	117	105	75	58	19	18	2	4-14	410	345	105	ZSQ32-63	9.1
25	127	115	85	68	25	18	2	4-14	435	410	130	ZSQ41-80	11.5
32	140	140	100	78	32	18	2	4-18	450	410	130	ZSQ41-80	13.6
40	165	150	110	88	38	18	2	4-18	460	430	130	ZSQ41-100	18.5
50	178	165	125	102	49	18	2	4-18	480	475	150	ZSQ50-100	23
65	191	185	145	122	62	18	2	8-18	485	485	150	ZSQ50-125	30
80	203	200	160	138	74	20	2	8-18	565	535	175	ZSQ60-125	43
100	229	220	180	158	100	20	2	8-18	580	580	175	ZSQ60-200	67
125	356	250	210	188	125	22	2	8-18	655	750	245	ZSQ80-200	117
150	394	285	240	212	150	22	2	8-22	710	800	245	ZSQ80-300	193



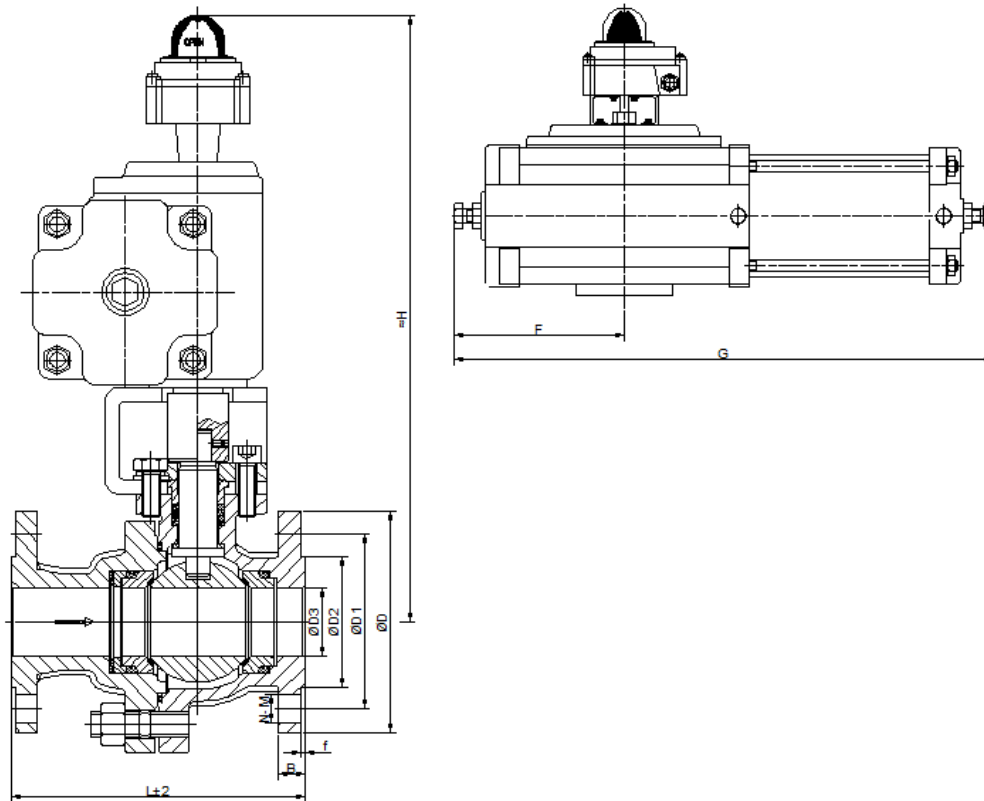
**Drawing no. 8: Dimensions of Linor floating ball valve with high temperature seat double-acting, PN40, flanged, sizes DN15-100**



Dimensions in mm

DN	L	ØD	ØD1	ØD2	ØD3	B	f	N-ØM	H	G	F	Actuator	[kg]
15	140	95	65	45	13	16	2	4-14	425	410	130	ZSQ41-80	11
20	152	105	75	58	19	18	2	4-14	430	430	130	ZSQ41-100	13.5
25	165	115	85	68	25	18	2	4-14	445	475	150	ZSQ50-100	16
32	178	140	100	78	32	18	2	4-18	460	475	150	ZSQ50-100	18.5
40	190	150	110	88	38	18	2	4-18	470	475	150	ZSQ50-100	23.5
50	216	165	125	102	49	20	2	4-18	475	485	150	ZSQ50-125	27
65	241	185	145	122	62	22	2	8-18	545	580	175	ZSQ60-200	52.5
80	283	200	160	138	74	24	2	8-18	565	580	175	ZSQ60-200	63.5
100	305	225	190	162	100	24	2	8-22	635	780	245	ZSQ80-250	133

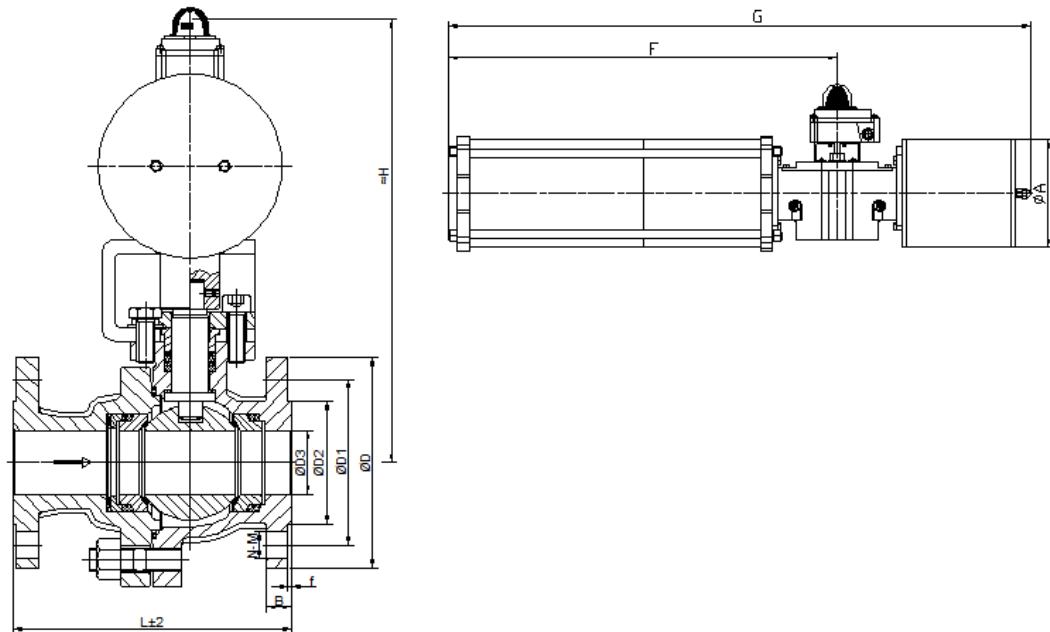
**Drawing no. 9: Dimensions of Linor floating ball valve with high temperature seat single-acting, PN16, flanged, sizes DN15-100**



Dimensions in mm

DN	L	ØD	ØD1	ØD2	ØD3	B	f	N-ØM	H	G	F	Actuator	[kg]
15	108	95	65	45	13	16	2	4-14	425	550	130	ZDQ41-100	16
20	117	105	75	58	19	18	2	4-14	430	560	130	ZDQ41-125	22
25	127	115	85	68	25	18	2	4-14	435	560	130	ZDQ41-125	23
32	140	140	100	78	32	18	2	4-18	460	660	150	ZDQ50-125	27
40	165	150	110	88	38	18	2	4-18	470	700	150	ZDQ50-160	41
50	178	165	125	102	49	18	2	4-18	505	430	130	ZDQ60-160	55
65	191	185	145	122	62	18	2	8-18	515	430	130	ZDQ60-200	75
80	203	200	160	138	74	20	2	8-18	535	475	150	ZDQ80-200	141
100	229	220	180	158	100	20	2	8-18	585	485	150	ZDQ80-250	174

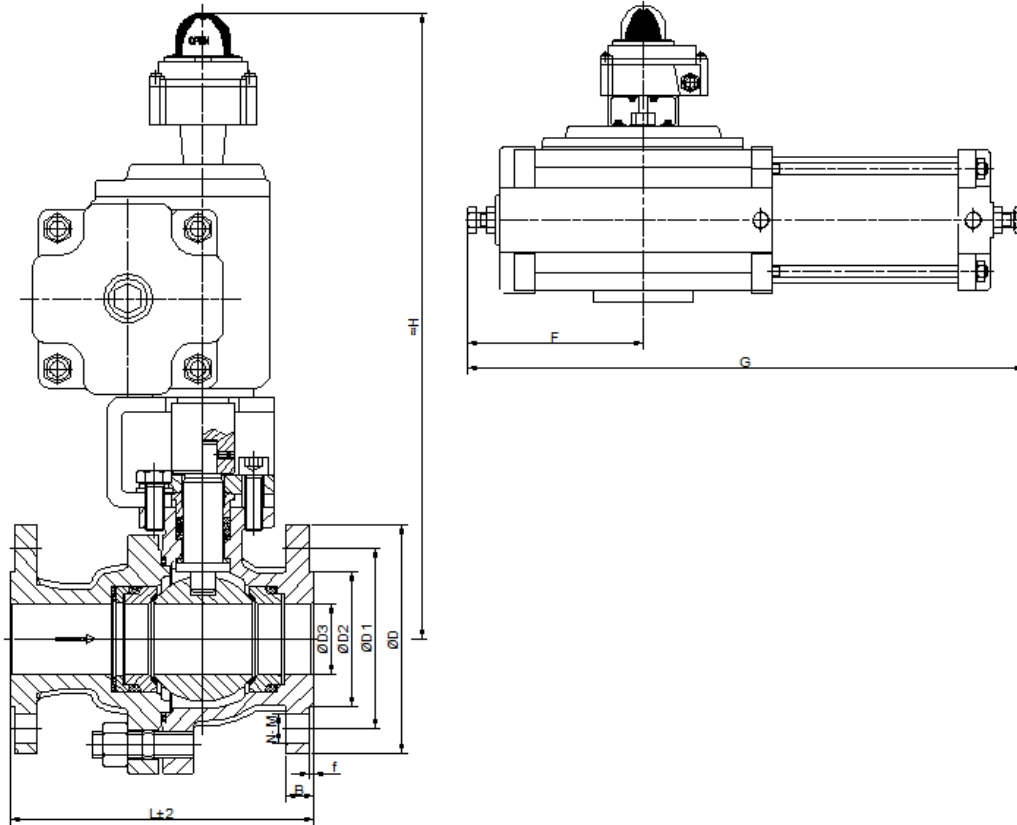
**Drawing no. 10: Dimensions of Linor floating ball valve with high temperature seat single-acting, PN16, flanged, sizes DN125-150**



Dimensions in mm

DN	L	$\varnothing D$	$\varnothing D1$	$\varnothing D2$	$\varnothing D3$	B	f	N- $\varnothing M$	H	G	F	Actuator	[kg]
125	356	250	210	188	125	22	2	8-18	635	1500	945	BRB20S	225
150	394	285	240	212	150	22	2	8-22	690	1520	965	BRB28S	348

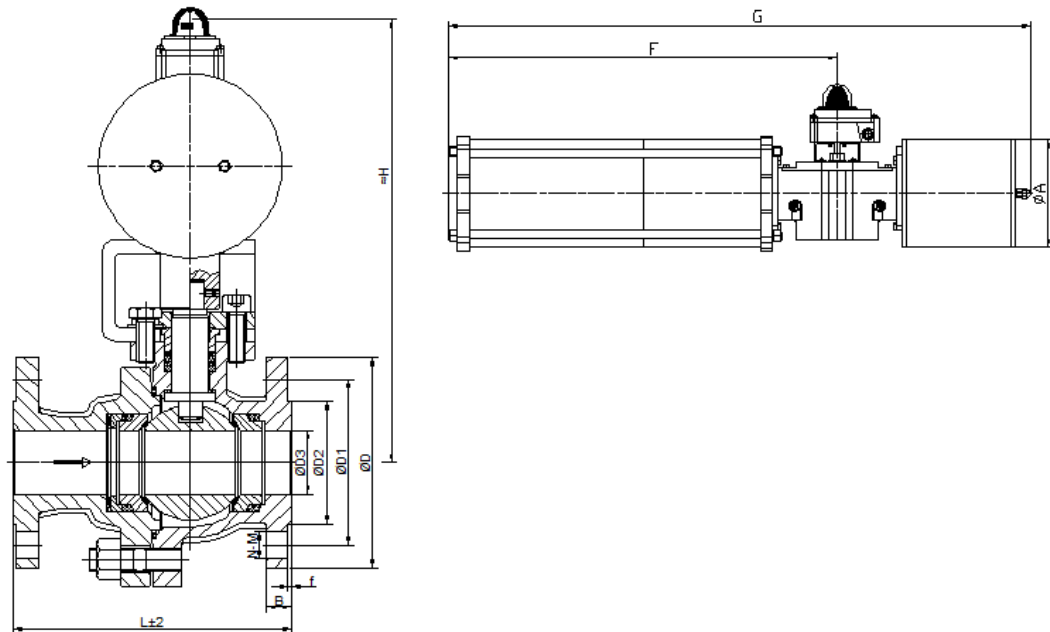
**Drawing no. 11: Dimensions of Linor floating ball valve with high temperature seat single-acting, PN40, flanged, sizes DN15-80**



Dimensions in mm

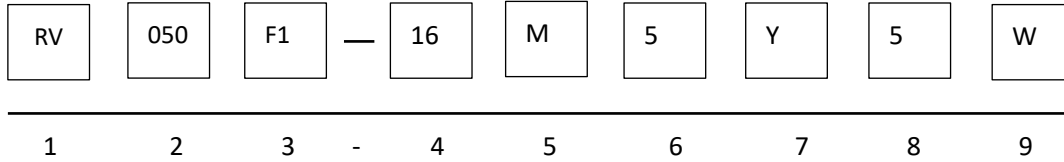
DN	L	ØD	ØD1	ØD2	ØD3	B	f	N-ØM	H	G	F	Actuator	[kg]
15	140	95	65	45	13	16	2	4-14	425	560	130	ZDQ41-125	22
20	152	105	75	58	19	18	2	4-14	440	700	150	ZDQ50-160	35.5
25	165	115	85	68	25	18	2	4-14	480	780	175	ZDQ60-160	48
32	178	140	100	78	32	18	2	4-18	495	790	175	ZDQ60-200	64
40	190	150	110	88	38	18	2	4-18	500	790	175	ZFQ60-200	70
50	216	165	125	102	49	20	2	4-18	550	970	245	ZDQ80-200	130
65	241	185	145	122	62	22	2	8-18	585	1030	245	ZDQ80-300	205
80	283	200	160	138	74	24	2	8-18	605	1030	245	ZDQ80-300	216

**Drawing no. 12: Dimensions of Linor floating ball valve with high temperature seat single-acting, PN40, flanged, size DN100**



Dimensions in mm

DN	L	$\varnothing D$	$\varnothing D1$	$\varnothing D2$	$\varnothing D3$	B	f	N- $\varnothing M$	H	G	F	$\varnothing A$	Actuator	[kg]
100	305	225	190	162	100	24	2	8-22	615	1500	945	216	BRB20S	227

**Product selection**

**1: Valve series type**

RV - Segment ball valve

RR - Two-piece body floating ball valve

RB - Two-piece body trunnion mounted ball valve

**2: Nominal diameter**

015 - DN15 1/2"	065 - DN65 2-1/2"	250 - DN250 10"
020 - DN20 3/4"	080 - DN80 3"	300 - DN300 12"
025 - DN25 1"	100 - DN100 4"	350 - DN350 14"
032 - DN32 1-1/4"	125 - DN125 5"	400 - DN400 16"
040 - DN40 1-1/2"	150 - DN150 6"	450 - DN450 18"
050 - DN50 2"	200 - DN200 8"	500 - DN500 20"

**3: Connection type**

F1 – RF Flange

D1 – RF Wafer

**4: Nominal pressure**

DIN		ANSI	
04	PN6	01	150Lb
10	PN10	03	300Lb
16	PN16	06	600Lb
25	PN25	09	900Lb
40	PN40	15	1500Lb

**5: Body material**

C - WCB

F - CG3M (317L)

G - CG8M (317)

H - Hastelloy alloy

L - CF3M (316L)

M - CF8M (316)

P - CF8 (304)

Q - CF3 (304L)

S - Duplex steel (2205)

T - Titanium alloys

Z - Special material

**6: Disc material and surface treatment**

Material:

1 - A105 (Q235, WCB)	7 - 317	K - LF2
2 - F6a	8 - 410	L - 4Cr13
3 - 304	9 - 201	S - Duplex steel (2205)
4 - 304L	E - 321	T - Titanium alloys
5 - 316	F - CG3M (317L)	Y - P20
6 - 316L	H - Hastelloy alloy	Z - Special material

Surface treatment:

0 - Without treatment	3 – Spr.weld. nickel base all.	6 - Spray welding stellite
1 - Hard chrome plating	4 – Spr.weld. tungsten carb.	7 - Graphite
2 - Nickel plating	5 - Plasma nitriding	

**7: Seat seal construction**

Y - Metal seated

G - High temperature execution

R - Soft-seated

**8: Seat material and treatment:**

Metal seat				Soft seat	
Material		Treatment		Material	
1	A105	0	Without treatment	P0	PTFE
2	F6a	1	Hard chrome plating	P1	GFRPTFE (glass fiber RTFE)
3	304	2	Nickel plating	P2	CFRPTFE (carbon fiber RTFE)
4	304L	3	Spray welding nickel base alloy	K0	PEEK
5	316	4	Spray welding tungsten carbide	E0	EPDM
6	316L	5	Plasma nitriding	B0	NBR
7	317	6	Overlaying stellite	V0	VITON
8	2CR13	7	Graphite	D0	DEVLON
F	317L	D	Overlaying 13%Cr		
H	Hastelloy alloy	G	Spray welding chromium carbide		
S	Duplex steel				
T	Titanium				
Z	Special material				

**9: O-Ring material:**

A - PFA

K - KFM

V - VITON

W - Without O-ring



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