NAF-Navalball ball valves

Stainless steel, PN 16, 25 och 40,
NAF 888322 — 888607

Primary characteristics

NAF-Navalball is a one-piece, all-welded, soft-seated on/off valve. The valve is made of stainless steel and is available in pressure class PN 16, 25 and 40 in dimensions DN 10-250.

The valve has

- one-piece welded design with no body joints to leak
- double stem seals to avoid stem leakage
- stainless steel ball and stem, carbon reinforced PTFE seatrings, stainless steel bevel spring washers
- Easy to actuate. No modification or welding required.
- Low lifetime cost due to long life, high leakage-tight integrity and low initial cost.

CE-marked according to PED97/23/EG, module H, category III.

Design

The valve body, end pieces and valve neck are welded together to form a single unit and the blow-out proof stem is sealed by means of two FPM O-rings, the upper one of which is replaceable (both in DN65-DN250).

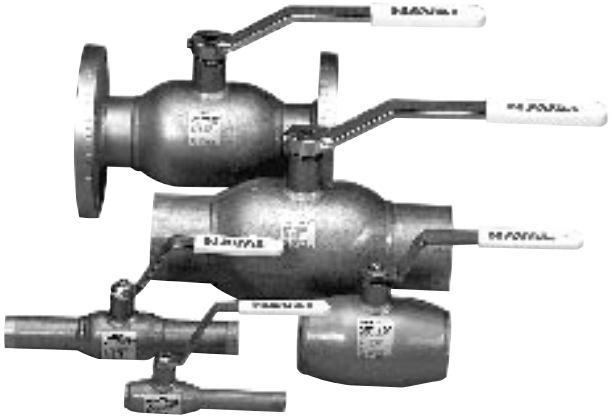
A PTFE thrust washer between the stem shoulder and valve neck prevents jamming and protects the stem seals from the media. Pre-loaded bevel washer hold the metal encapsulated carbon-reinforced PTFE seat rings in contact with the ball.

Applications

The valve is designed for a wide range of services in pulp and paper, chemical and process industries. It is used for oil, air and other liquids and gases which do not attack the valve.

Connections

The valve can be made with different ends, butt welded, female threads and flange ends in different combinations.

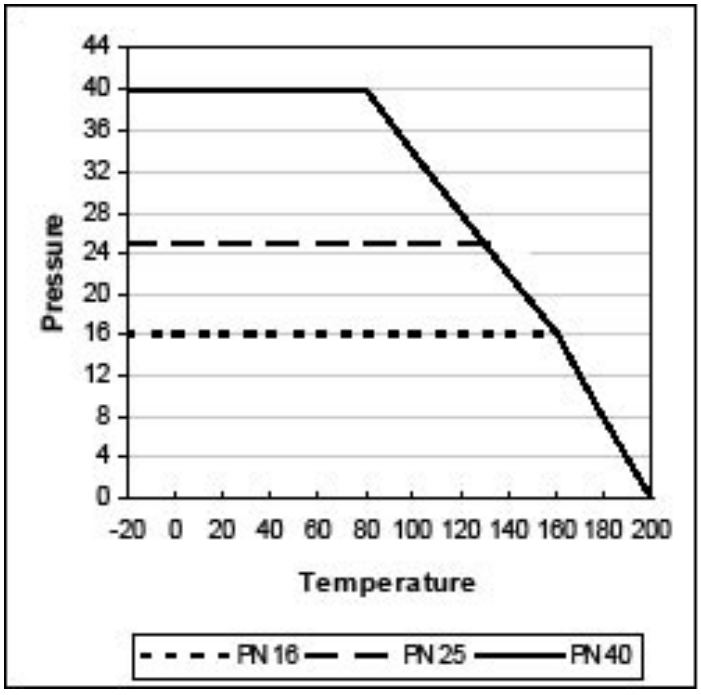


Technical specification

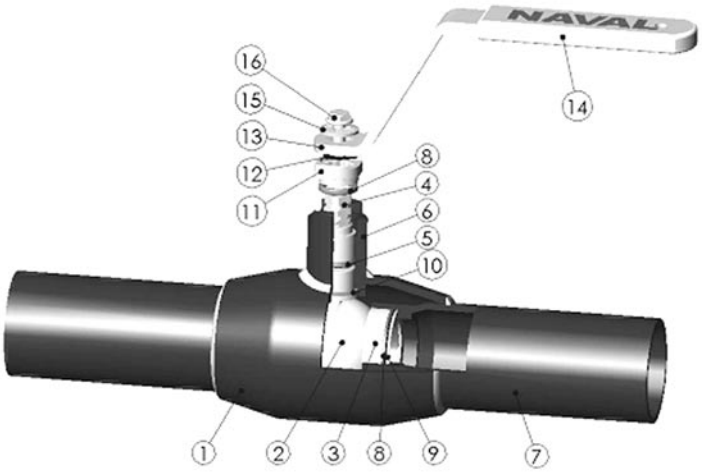
Dimension:	DN 10 - 250
Material:	Stainless steel
Pressure class:	PN 16 - 40
Temperature range:	-20 to +200°C
Connections:	Welded ends, flange or internal thread
Face-to-face:	See table 2-3
Test pressure:	According to EN 12266-1

Working pressure and temperature

bar(e)



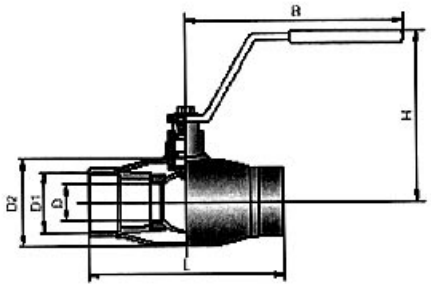
Material specification



(Table 1)

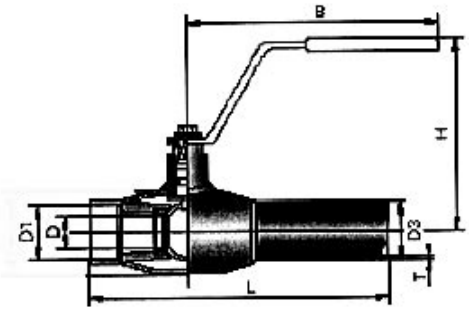
Item	Description	Material
1	Body	AISI 316L
2	Ball	AISI 316L
3	Seat ring	PTFE+C
4	Stem	AISI 316L
5	O-ring	FPM
6	Stem housing	AISI 316L
7	Weld ends	AISI 316L
8	Washer	AISI 316L
9	Bevel washer	XCrNIMo1810 DIN 17224
10	Thrust washer	PTFE
11	Washer	AISI 316L
12	Washer	Stainless steel
13	Lever	Zinc-plated steel
14	Handle	Plastic
15	Washer	Stainless steel
16	Screw	Stainless steel

Dimensions and mass



Valves in Stainless steel with internal thread and handle (Table 2)

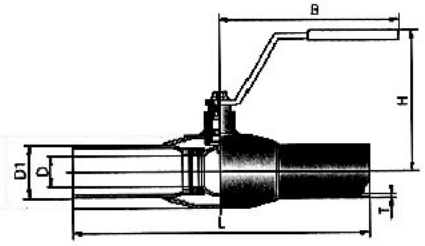
DN	PN	NAF part No	L	D	D1	D2	H	B	Kg
10	40	888600-0010	75	10	3/8	33,7	98	145	0,5
15	40	888600-0015	85	10	1/2	33,7	98	145	0,5
20	40	888600-0020	100	15	3/4	42,4	103	145	0,5
25	40	888600-0025	115	20	1	48,3	112	145	0,8
32	40	888600-0032	130	25	1 1/4	60,3	116	145	0,9
40	40	888600-0040	150	32	1 1/2	76,1	111	190	1,5
50	40	888600-0050	180	40	2	88,9	118	190	2,1



Valves in Stainless steel with internal thread/welding and handle (Table 3)

DN	PN	NAF part No mm piping	NAF part No ISO piping	L	D	D1	D3 mm piping	D3 ISO-piping	H	B	T	Kg
10	40	888603-0010	888607-0010	153	10	3/8	13,5	17,2	98	145	2	0,5
15	40	888603-0015	888607-0015	158	10	1/2	20	21,3	98	145	2	0,5
20	40	888603-0020	888607-0020	168	15	3/4	25	26,9	103	145	2	0,6
25	40	888603-0025	888607-0025	172	20	1	30	33,7	112	145	2	0,8
32	40	888603-0032	888607-0032	195	25	1 1/4	36	42,4	116	145	2	1
40	40	888603-0040	888607-0040	205	32	1 1/2	45	48,3	111	190	2,5	1,7
50	40	888603-0050	888607-0050	240	40	2	54	60,3	118	190	3	2,2
65	25	888523-0065	88-286010-DN65	265	50	2 1/2	70	76,1	150	280	3	4,5
80	25	888523-0080	88-286011-DN80	260	65	3	86	88,9	160	280	3	5,8

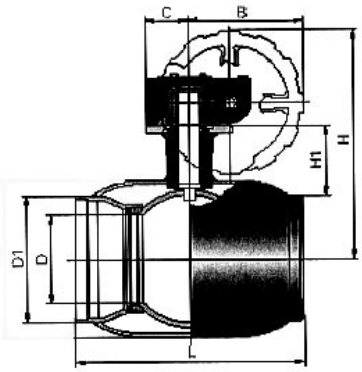
Dimensions and mass



Valves in Stainless steel with welded ends and handle (Table 4)

DN	PN	NAF part No mm piping	NAF part No ISO piping	L	D	D1 mm piping	D1 ISO piping	H	B	T	Kg
10	40	888601-0010	888605-0010	230	10	13,5	17,2	98	145	2	0,5
15	40	888601-0015	888605-0015	230	10	20	21,3	98	145	2	0,5
20	40	888601-0020	888605-0020	230	15	25	26,9	103	145	2	0,7
25	40	888601-0025	888605-0025	230	20	30	33,7	112	145	2	0,9
32	40	888601-0032	888605-0032	260	25	36	42,4	116	145	2	1,2
40	40	888601-0040	888605-0040	260	32	45	48,3	111	190	2,5	1,9
50	40	888601-0050	888605-0050	300	40	54	60,3	118	190	3	2,6
65	25	888521-0065	888529-0065	300	50	70	76,1	150	280	3	3,5
80	25	888521-0080	888529-0080	300	65	86	88,9	160	280	3	5,5
100	25	888521-0100	888529-0100	325	80	106	114,3	175	280	3	8
125	16	888321-0125	888329-0125	425/325	100	131	139,7	220	400	3/3,3	13
150	16	888321-0150	888329-0150	450/350	125	156	168,3	240	600	3/4	17

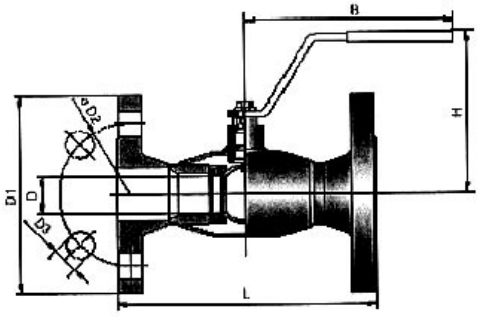
Valves in Stainless steel with welded ends and manual gear (Table 5)



DN	PN	NAF part No mm-rör	NAF part No ISO-rör	L	D	D1 mm piping	D1 ISO piping	H	H1	B	C	T	Kg
125	16	88-286343-DN125	88-286433-DN125	425/325	100	131	139,7	276	68	145	50	3/3,3	18
150	16	88-286344-DN150	88-286434-DN150	450/350	125	156	168,3	297	74	145	50	3/4	22
200	16	88-286346-DN200	88-286436-DN200	490/390	150	206	219,1	369	94	196	75	3/4,5	45
250	16	88-286347-DN250	88-286437-DN250	620/520	200	256	273,0	451	122	236	100	3/6,3	80
200*	16	888321-0200	888329-0200	490/390	150	206	219,1		94			3/4,5	40
250*	16	888321-0250	888329-0250	620/520	200	256	273,0		122			3/6,3	75

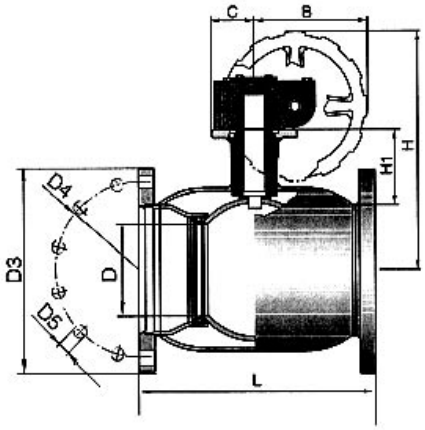
* Excl manual gear

Valves in Stainless steel with flanged ends and handle (Table 6)



DN	PN	NAF part No DIN	NAF part No SSG	L	D	D1	D2 (hcd)	D3	H	B	Kg
15	40	888602-0015	Not available	130	10	95	65	14	98	145	2,1
20	40	888602-0020	Not available	150	15	105	75	14	103	145	2,7
25	40	888602-0025	Not available	160	20	115	85	14	112	145	3,3
32	40	888602-0032	Not available	180	25	140	100	18	116	145	4,8
40	40	888602-0040	Not available	200	32	150	110	18	111	190	5,8
50	40	888602-0050	Not available	230	40	165	125	18	118	190	7,9
65	16	888322-0065	888324-0065	270/222	50	185	145	18	150	280	11,0
80	16	888322-0080	888324-0080	280/241	65	200	160	18	160	280	12,5
100	16	888322-0100	888324-0100	300/305	80	220	180	18	175	280	16,7
125	16	888322-0125	Not available	325	100	250	210	18	220	400	21,0
150	16	888322-0150	Not available	350	125	285	240	22	240	600	25,0

Valves in Stainless steel with flanged ends and manual gear (Table 7)



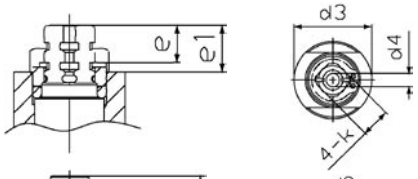
DN	PN	NAF part No	L	D	D3	D4 (hcd)	D5	H	H1	B	C	Kg
125	16	88-286593-DN125	325	100	250	210	18	276	68	145	50	26
150	16	88-286594-DN150	350	125	285	240	22	297	74	145	50	30
200	16	88-286596-DN200	390	150	340	295	22	369	94	196	75	60
250	16	88-286597-DN250	520	200	405	355	26	451	122	236	100	100
200*	16	888322-0200	390	150	340	295	22		94		75	55
250*	16	888322-0250	520	200	405	355	26		122		100	95

* Excl manual gear

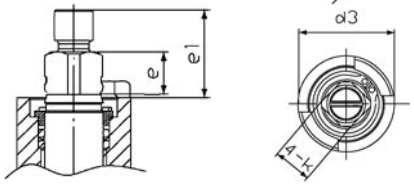
Valve stem dimensions (Table 8)

DN	e	e1	d3	4-k	d4	Actuator flange
10	5,5	9,5	22	7	M5	Option
15	5,5	9,5	22	7	M5	Option
20	5,5	9,5	24	7	M5	Option
25	6	10	24	9	M5	Option
32	6	10	24	9	M5	Option
40	7	11	28	11	M6	Option
50	7	11	28	11	M6	Option
65	13	27	35	14	M12	Option
80	13	27	35	14	M12	Option
100	22,5	23,50	40	16	-	Option
125	29,5	30,50	45	20	-	Option
150	29,5	30,50	45	20	-	Option
200	-	65	150	35 Ø	-	ISO F12
250	-	79	180	40 Ø	-	ISO F14

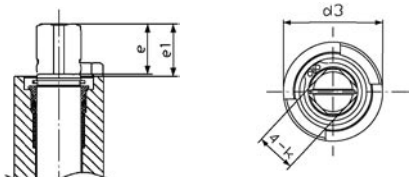
DN 10-50



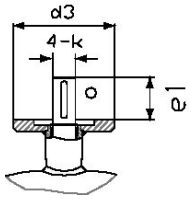
DN 65-80



DN 100-150



DN 200-250



Operating torque (Table 9)

Torque necessary as a function of the differential pressure over the valve.

Diff. pressure bar	Torque in Nm												
	DN												
	10-15	20	25	32	40	50	65	80	100	125	150	200	250
0-7	9	12	16	22	35	45	60	80	110	150	280	460	1120
10	10,2	13,2	17,2	23,2	36,3	46,7	62,7	87	122	185	260	580	1400
13	11,2	14,2	18,2	24,2	37,6	48,4	65,4	93	135	230	430	700	1700
16	12	15	19	25	39	50	68	98	150	270	520	820	2050
19	12,5	15,5	19,8	25,8	40,3	51,6	70,4	103	166	-	-	-	-
22	12,8	15,8	20,5	26,5	41,6	53,4	72,7	107	183	-	-	-	-
25	13	16	21	27	43	55	75	110	200	-	-	-	-
40	15	18	24	30	47	60	-	-	-	-	-	-	-

The table shows the maximum torque necessary for releasing the ball in closed position (even when the valve has been closed for a long period of time) to be opened 8° — 10°, at which point the differential pressure decreases.

Actuators

Pneumatic and electric actuators

Contact NAF for further information about types and actuator selection procedure.

Ordering example

When placing your order, please specify the NAF part No, DN and description as per the following example: NAF 888600, DN 50, NAF-Navaball ball valve. Please also specify media, pressure and temperature.

Capacity (Table 10)

DN	10	15	20	25	32	40	50	65	80	100	125	150	200	250
Z	0,3	2,6	1,3	0,9	1	0,9	0,9	1,1	0,75	0,9	0,9	0,7	1,35	0,9
Kv	7	5,5	14	26	41	67	105	160	290	420	650	1070	1420	2620

The specified coefficients of resistance are applicable when the valve is fully open. The K_v value is specified in m^3/h with cold water at a pressure drop of 1 bar over the valve. The relation between K_v and C_v is as follows:
$K_v = 0,86 \times C_v$ $C_v = 1,16 \times K_v$

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