



# **BALLOMAX<sup>®</sup>**

DESIGNED TO LAST



## **SECTION 6**

**Trunnion mounted valves**

**Reduced bore**

# Trunnion mounted valve - DN200-350, PN40/25/16

## Type 3/D... - Reduced bore

### Welding × Welding

Fully welded steel ball valve.

### Materials

See next page.

### Applications

Stop valve for heating systems, district heating, cooling and industrial purposes. In order to achieve lowest possible torque all valves bigger than DN200 are trunnion mounted as standard.

### Media

Water, gas, oil and other media not decomposing the steel. If in doubt, please contact BROEN Ballomax® Sales Department.

### Surface treatment

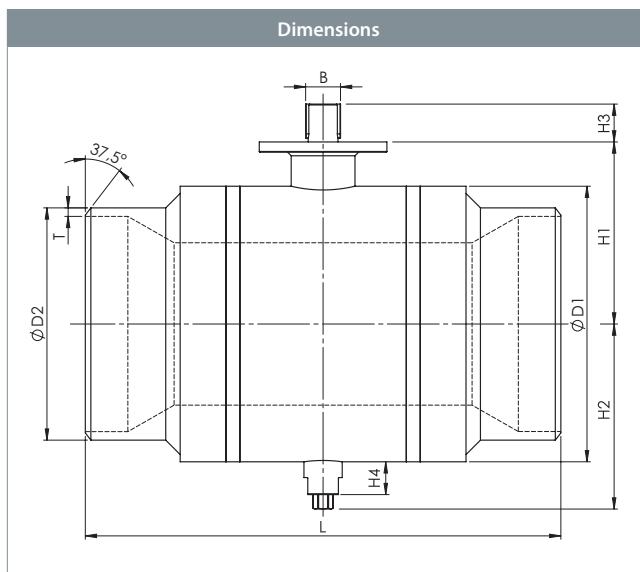
Eco-friendly protection finish against corrosion.

### Approvals and certificates

BROEN is certified according to ISO 9001 and environmentally certified according to ISO 14001. Ballomax® is approved according to the requirements of Pressure Equipment Directive (PED). All ball valves as from DN200 are CE-marked. The 3.1 certificate is available upon request.

### Notice

As standard DN200-350 is delivered with Double Block and Bleed (DBB) with normal temperature range up to 150°. Temperature range up to 200° on request. We recommend to add a BROEN-Gear.



DN	BROEN No.	Bore	Kvs	net Weight kg	All dimensions in mm	
					L	
200	3/D200WW5D30	152.0	1800	107	521	
250	3/D250WW5D30	201.5	3410	152	559	
300	3/D300WW5D30	253.0	5101	255	635	
350	3/D350WW5D30	304.0	7853	442	762	

## Trunnion mounted valve - DN200-350, PN40/25/16

### Type 3/D... - Reduced bore

Accessories	BROEN No.	Dimension	Description
	-	DN200-350	Columns.
	-	DN200-350	BROEN-Gear.
	-	DN200-350	BROEN-Gear, Electric gear.
	-	DN200-350	Lubrication fitting NPT.
	-	DN200-350	Drain ball valve and pipe for Double Block and Bleed (DBB) with the following valve options DN25 - 32 - 40 - 50.
	-	DN200-350	Base.

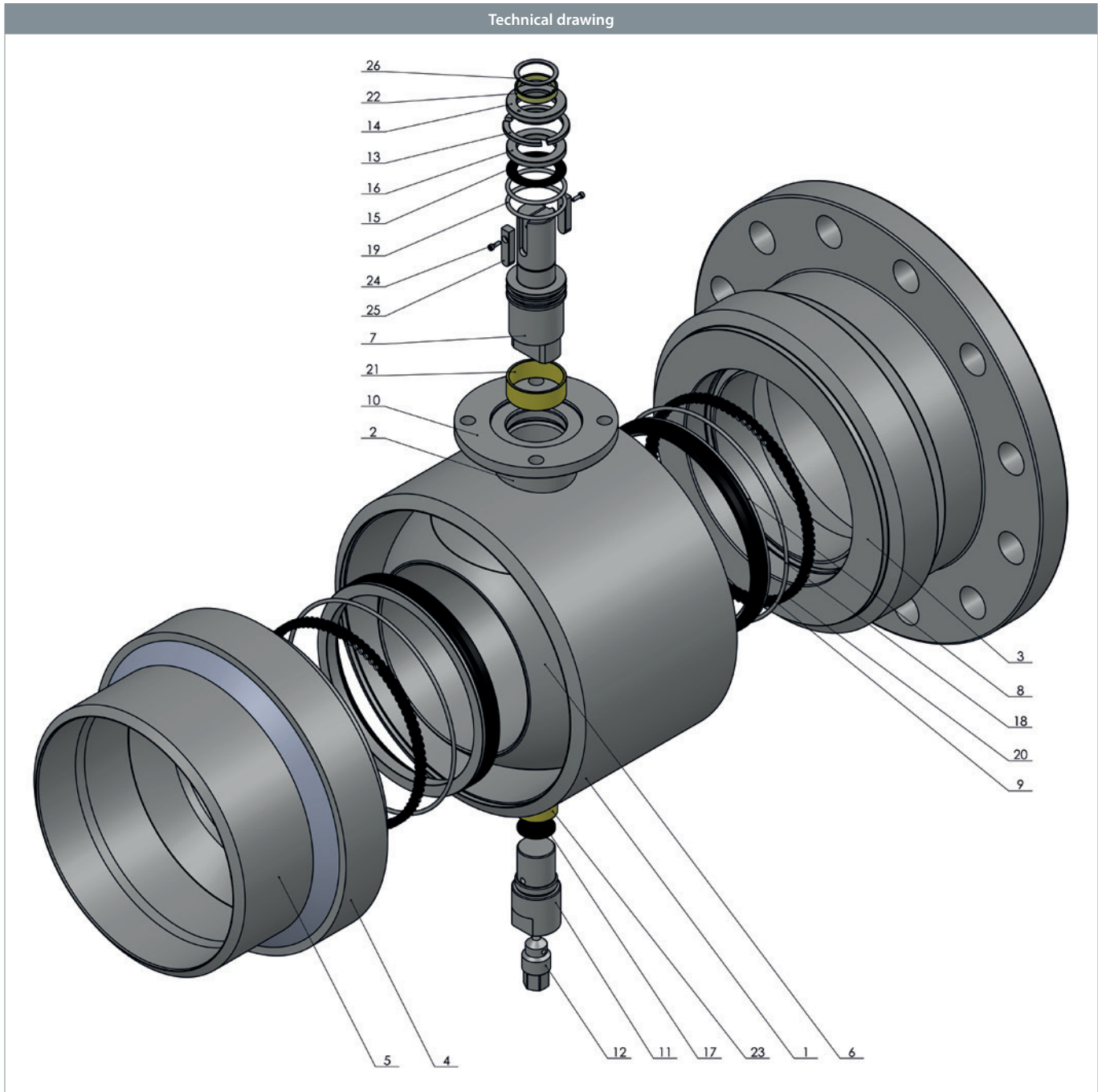
All dimensions in mm

D1	D2	T	H1	H2	H3	H4	A	ISO
273.0	219.1	8.8	214.0			37	SQ36	F14
323.9	273.0	10.0	252.5	202.0	40.0	37	SQ36	F14
406.4	323.9	10.0	315.0	360.0	44.8	75 / 82	SQ36 / Ø60	F16
508.0	355.6	11.0	355.5	400.0	34.2	82	Ø60	F16

Trunnion mounted valve - DN200-350, PN40/25/16

Type 3/D... - Reduced bore

Technical drawing



## Trunnion mounted valve - DN200-350, PN40/25/16

### Type 3/D... - Reduced bore

Material description		
1	Valve body	Steel - P355NH / 1.0565 / EN 10028-3
2	Stem guide	Steel - P355NH / 1.0565 / EN 10028-3
3	Inner part	Steel - P355NH / 1.0565 / EN 10028-3
4	Flange	Steel - P355NH / 1.0565 / EN 10028-3
5	Pipe	Steel - P355NH / 1.0565 / EN 10028-3
6	Ball	Steel - A350LF2 Class 1, EN coated
7	Stem	Stainless steel - X20Cr13 / AISI420 / 1.4021
8	Seat	Steel - P355NH / 1.0565 / EN 10028-3
9	Seal	PTFE+C
10	ISO-flange	Steel - S235JR / 1.0038 / EN 10025-2
11	Trunnion	Steel - P355NH / 1.0565 / EN 10028-3
12	Plug	Stainless steel - X20Cr13 / AISI420 / 1.4021
13	Split ring	Stainless steel - X20Cr13 / AISI420 / 1.4021
14	Sleeve	Stainless steel - X20Cr13 / AISI420 / 1.4021
15	Washer	PTFE+C
16	Washer	Stainless steel - X20Cr13 / AISI420 / 1.4021
17	Washer	PTFE+C
18	O-ring	EPDM
19	O-ring	EPDM
20	Spring	Stainless steel - X10CrNi18-8 / AISI302 / 1.4301
21	Bearing	CS + PTFE
22	Bearing	CS + PTFE
23	Bearing	CS + PTFE
24	Screw	Steel - 8.8
25	Key	Steel - C45 / 1.0503 / EN 10277-2
26	Lock ring	Steel - 65G

# Trunnion mounted valve - DN400-1000, PN40/25/16

**Type 3/D... - Reduced bore**

**Welding × Welding**

Fully welded steel ball valve.

**Materials**

See next page.

**Applications**

Stop valve for heating systems, district heating, cooling and industrial purposes. In order to achieve lowest possible torque all valves bigger than DN400 are trunnion mounted as standard.

**Media**

Water, gas, oil and other media not decomposing the steel. If in doubt, please contact BROEN Ballomax® Sales Department.

**Surface treatment**

Eco-friendly protection finish against corrosion.

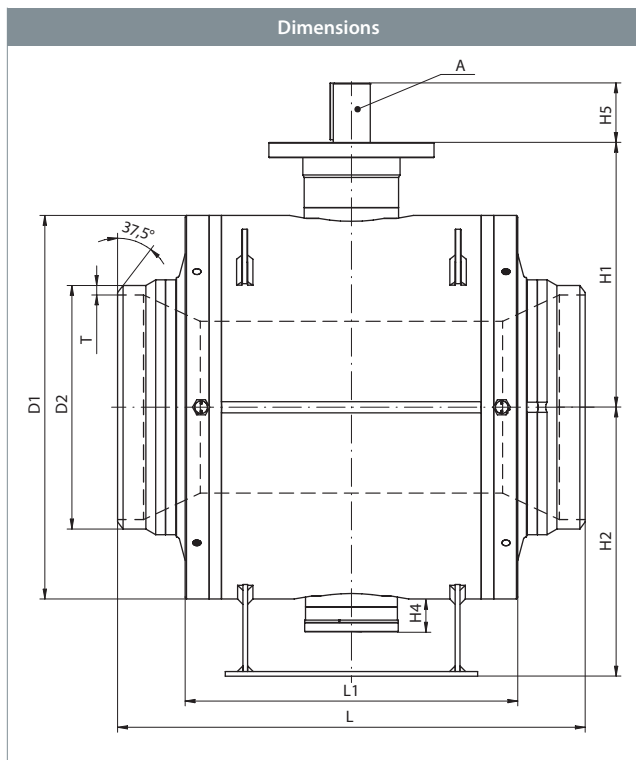
**Approvals and certificates**

BROEN is certified according to ISO 9001 and environmentally certified according to ISO 14001. Ballomax® is approved according to the requirements of Pressure Equipment Directive (PED). All ball valves as from DN400 are CE-marked. The 3.1 certificate is available upon request.

**Notice**

As standard DN400-1000 is delivered with Double Block and Bleed (DBB) with normal temperature range up to 150°. Temperature range up to 200° on request. We recommend to add a BROEN-Gear.

Larger dimensions on request.



DN	BROEN No.	Bore	Kvs	net Weight kg	All dimensions in mm	
					L	L1
400	3/D400WW5D30	336	10443	583	838	475
500	3/D500WW5D30	386	14306	1230	991	562
600	3/D600WW5D30	488	22354	1985	1143	705
700	3/D700WW5D30	588	32188	3398	1345	819
800	3/D800WW5D30	684	43812	4900	1524	976
900	3/D900WW5D30	780	57223	6731	1727	1124
1000	3/D910WW5D30	874	72423	9052	1850	1214

## Trunnion mounted valve - DN400-1000, PN40/25/16

Type 3/D... - Reduced bore

Accessories	BROEN No.	Dimension	Description
	-	DN400-800	Columns.
	-	DN400	BROEN-Gear.
	-	DN500	
	-	DN600	
	-	DN700	
	-	DN800	
	-	DN400-1000	BROEN-Gear, Electric gear.
	-	DN400-1000	Drain ball valve and pipe for Double Block and Bleed (DBB) with the following valve options DN25 - 32 - 40 - 50.

All dimensions in mm

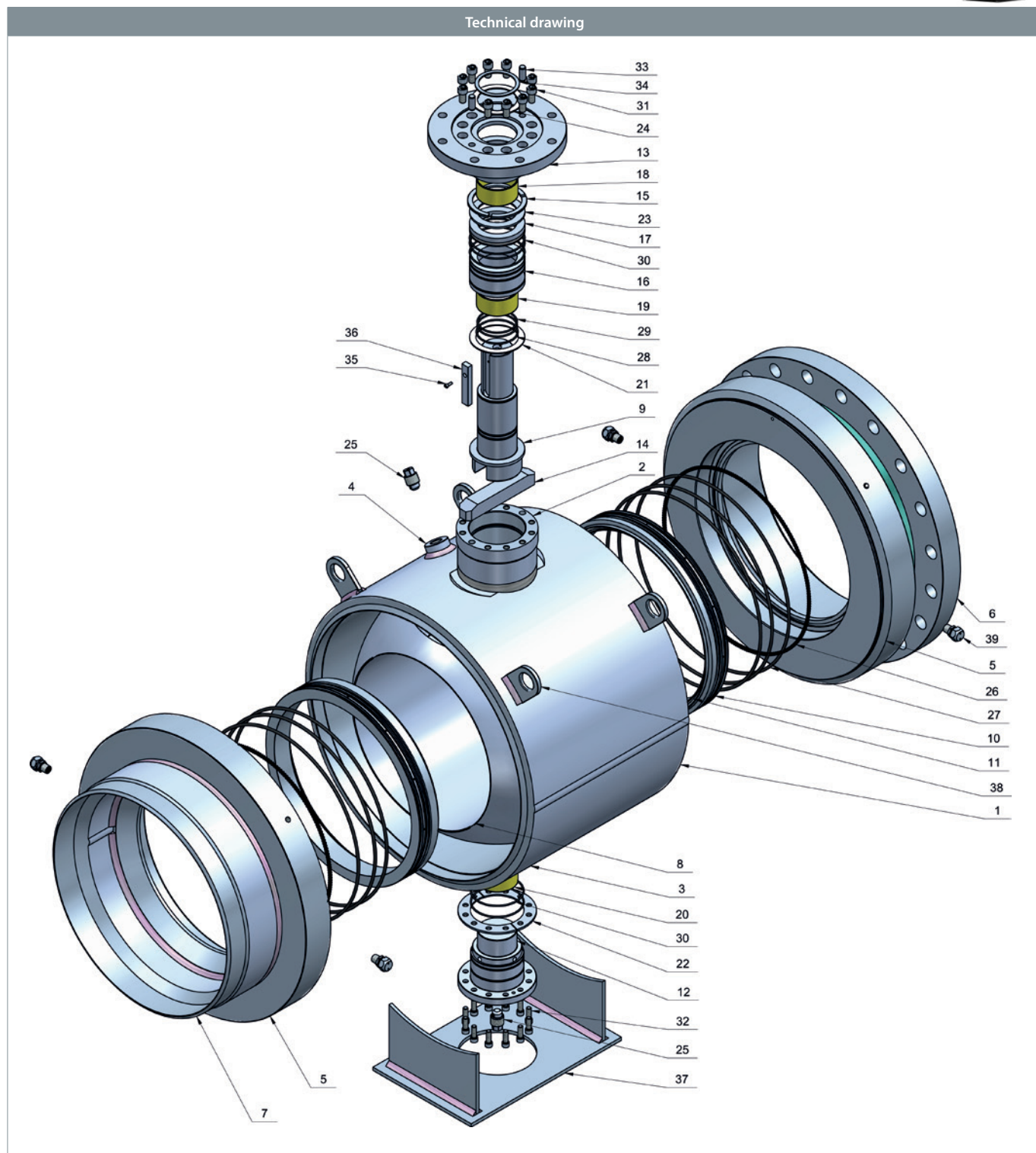
D1	D2	T	H1	H2	H4	H5	A	ISO
558	406.4	12.5	377.5	420.5	31.5	75 / 82	Ø60	F16
660	508.0	12.5	433.0	480.0	60.0	110	Ø72	F25
813	610.0	12.5	561.0	570.0	70.0	130	Ø80	F30
988	711.0	14.2	654.0	682.0	81.0	130	Ø100	F30
1126	813.0	16.0	806.0	790.0	109.0	200	Ø120	F35
1300	914.0	20.0	890.0	900.0	107.0	198	Ø120	F35
1450	1016.0	22.0	941.0	1000.0	117.0	183	Ø140	F40

Trunnion mounted valve - DN400-1000, PN40/25/16

Type 3/D... - Reduced bore



Technical drawing





## Trunnion mounted valve - DN400-1000, PN40/25/16

Type 3/D... - Reduced bore

Material description		
1	Valve body	Steel - P355NH / 1.0565 / EN 10028-3
2	Stem guide	Steel - P355NH / 1.0565 / EN 10028-3
3	Trunnion guide	Steel - P355NH / 1.0565 / EN 10028-3
4	Plug guide	Steel - P355NH / 1.0565 / EN 10028-3
5	Inner part	Steel - P355NH / 1.0565 / EN 10028-3
6	Flange	Steel - P355NH / 1.0565 / EN 10028-3
7	Pipe	Steel - P355NH / 1.0565 / EN 10028-3
8	Ball	ASTM A350 LF2
9	Stem	Stainless steel - X20Cr13 / AISI420 / 1.4021
10	Seat	Steel - P355NH / 1.0565 / EN 10028-3
11	Seal	PTFE / PTFE+C (PTFE+C - 200°C)
12	Trunnion	Steel - P355NH / 1.0565 / EN 10028-3
13	ISO-flange	Steel - S235JR / 1.0038 / EN 10025-2
14	Ball key	Steel - C45 / 1.0503 / EN 10277-2
15	Split ring	Stainless steel - X20Cr13 / AISI420 / 1.4021
16	Sleeve	Stainless steel - X20Cr13 / AISI420 / 1.4021
17	Packing	PTFE / PTFE+C
18	Bearing	CS + PTFE
19	Bearing	CS + PTFE
20	Bearing	CS + PTFE
21	Washer	PTFE+C
22	Washer	Steel - S235JR / 1.0038 / EN 10025-2
23	Washer	Stainless steel - X20Cr13 / AISI420 / 1.4021
24	Washer	PTFE
25	Plug	Stainless steel - X20Cr13 / AISI420 / 1.4021
26	Spring	Stainless steel - X10CrNi18-9 / AISI302 / 1.4310
27	O-ring	EPDM (AFLAS - 200°C)
28	O-ring	EPDM (AFLAS - 200°C)
29	O-ring	EPDM (AFLAS - 200°C)
30	O-ring	EPDM (AFLAS - 200°C)
31	Screw	Steel - 8.8
32	Screw	Steel - 8.8
33	Parallel pin	Steel - 8.8
34	Lock ring	Steel - 65G
35	Screw	Steel - 8.8
36	Key	Steel - C45 / 1.0503 / EN 10277-2
37	Base	Steel - S235JR / 1.0038 / EN 10025-2
38	Lifting eye	Steel - S235JR / 1.0038 / EN 10025-2
39	Lubrication fitting NPT	Steel - P355NH / 1.0565 / EN 10028-3

# Trunnion mounted valve - DN200-350, PN40

## Type 3/D... - Reduced bore

### Flange × Flange

Fully welded steel ball valve.

### Materials

See next page.

### Applications

Stop valve for heating systems, district heating, cooling and industrial purposes. In order to achieve lowest possible torque all valves bigger than DN200 are trunnion mounted as standard.

### Media

Water, gas, oil and other media not decomposing the steel. If in doubt, please contact BROEN Ballomax® Sales Department.

### Surface treatment

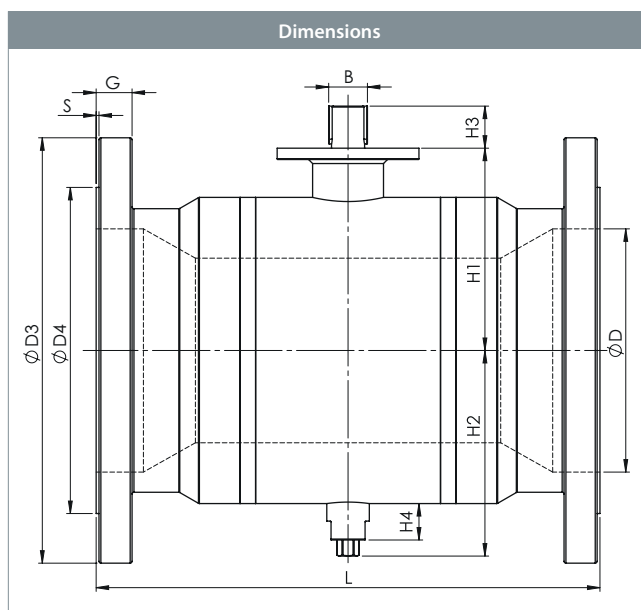
Eco-friendly protection finish against corrosion.

### Approvals and certificates

BROEN is certified according to ISO 9001 and environmentally certified according to ISO 14001. Ballomax® is approved according to the requirements of Pressure Equipment Directive (PED). All ball valves as from DN200 are CE-marked. The 3.1 certificate is available upon request.

### Notice

As standard DN200-350 is delivered with Double Block and Bleed (DBB) with normal temperature range up to 150°. Temperature range up to 200° on request. We recommend to add a BROEN-Gear.



DN	BROEN No.	Bore	Kvs	net Weight kg	All dimensions in mm
					L
200	3/D200KK5D30	152.0	1800	120	457
250	3/D250KK5D30	201.5	3410	207	533
300	3/D300KK5D30	253.0	5101	336	610
350	3/D350KK5D30	304.0	7853	541	686

## Trunnion mounted valve - DN200-350, PN40

### Type 3/D... - Reduced bore

Accessories	BROEN No.	Dimension	Description
	-	DN200-350	Columns.
	-	DN200-350	BROEN-Gear.
	-	DN200-350	BROEN-Gear, Electric gear.
	-	DN200-350	Lubrication fitting NPT.
	-	DN200-350	Drain ball valve and pipe for Double Block and Bleed (DBB) with the following valve options DN25 - 32 - 40 - 50.
	-	DN200-350	Base.

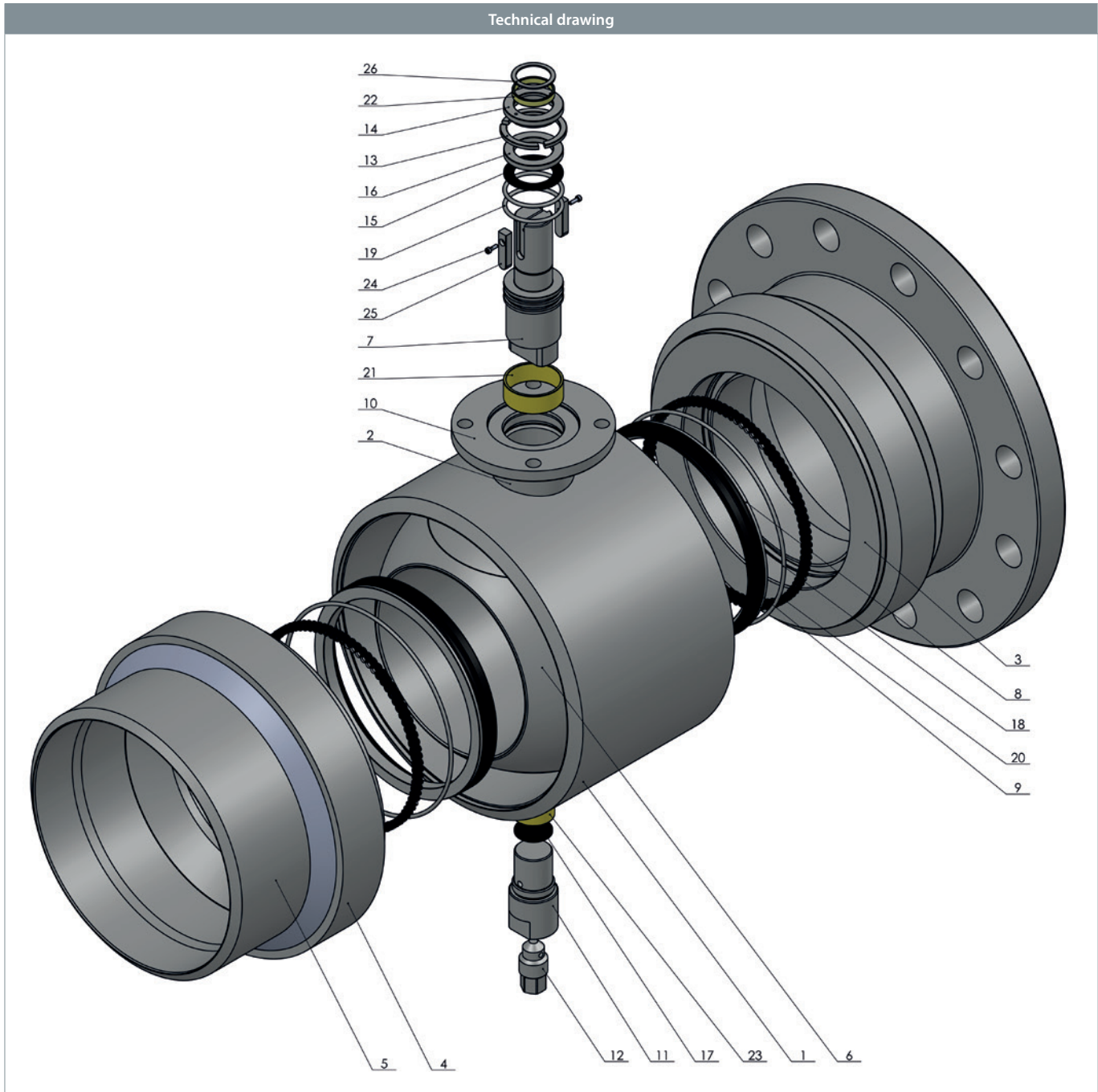
All dimensions in mm

D1	D3	D4	G	S	H1	H2	H3	H4	A	ISO
273.0	375	285	34	3	214.0			37	SQ36	F14
323.9	450	345	38	3	252.5	202.0	40.0	37	SQ36	F14
406.4	515	410	42	4	315.0	360.0	44.8	75 / 82	SQ36 / Ø60	F16
508.0	580	465	46	4	355.5	400.0	34.2	82	Ø60	F16

Trunnion mounted valve - DN200-350, PN40

Type 3/D... - Reduced bore

Technical drawing



## Trunnion mounted valve - DN200-350, PN40

### Type 3/D... - Reduced bore

Material description		
1	Valve body	Steel - P355NH / 1.0565 / EN 10028-3
2	Stem guide	Steel - P355NH / 1.0565 / EN 10028-3
3	Inner part	Steel - P355NH / 1.0565 / EN 10028-3
4	Flange	Steel - P355NH / 1.0565 / EN 10028-3
5	Pipe	Steel - P355NH / 1.0565 / EN 10028-3
6	Ball	Steel - A350LF2 Class 1, EN coated
7	Stem	Stainless steel - X20Cr13 / AISI420 / 1.4021
8	Seat	Steel - P355NH / 1.0565 / EN 10028-3
9	Seal	PTFE+C
10	ISO-flange	Steel - S235JR / 1.0038 / EN 10025-2
11	Trunnion	Steel - P355NH / 1.0565 / EN 10028-3
12	Plug	Stainless steel - X20Cr13 / AISI420 / 1.4021
13	Split ring	Stainless steel - X20Cr13 / AISI420 / 1.4021
14	Sleeve	Stainless steel - X20Cr13 / AISI420 / 1.4021
15	Washer	PTFE+C
16	Washer	Stainless steel - X20Cr13 / AISI420 / 1.4021
17	Washer	PTFE+C
18	O-ring	EPDM
19	O-ring	EPDM
20	Spring	Stainless steel - X10CrNi18-8 / AISI302 / 1.4301
21	Bearing	CS + PTFE
22	Bearing	CS + PTFE
23	Bearing	CS + PTFE
24	Screw	Steel - 8.8
25	Key	Steel - C45 / 1.0503 / EN 10277-2
26	Lock ring	Steel - 65G

# Trunnion mounted valve - DN400-1000, PN40

## Type 3/D... - Reduced bore

### Flange × Flange

Fully welded steel ball valve.

### Materials

See next page.

### Applications

Stop valve for heating systems, district heating, cooling and industrial purposes. In order to achieve lowest possible torque all valves bigger than DN400 are trunnion mounted as standard.

### Media

Water, gas, oil and other media not decomposing the steel. If in doubt, please contact BROEN Ballomax® Sales Department.

### Surface treatment

Eco-friendly protection finish against corrosion.

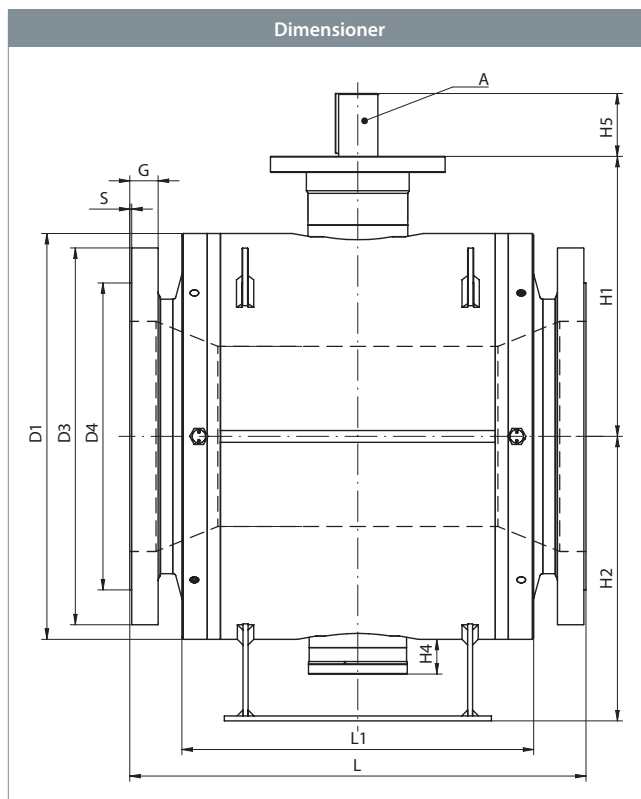
### Approvals and certificates

BROEN is certified according to ISO 9001 and environmentally certified according to ISO 14001. Ballomax® is approved according to the requirements of Pressure Equipment Directive (PED). All ball valves as from DN400 are CE-marked. The 3.1 certificate is available upon request.

### Notice

As standard DN400-1000 is delivered with Double Block and Bleed (DBB) with normal temperature range up to 150°. Temperature range up to 200° on request. We recommend to add a BROEN-Gear.



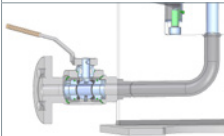
Larger dimensions on request.



DN	BROEN No.	Bore	Kvs	net Weight kg	All dimensions in mm	
					L	L1
400	3/D400KK5D30	336	10443	731	762	475
500	3/D500KK5D30	386	14306	1485	914	565
600	3/D600KK5D30	488	22354	2566	1067	705
700	3/D700KK5D30	588	32188	3505	1245	819
800	3/D800KK5D30	684	43812	5044	1372	936
900	3/D900KK5D30	780	57223	6924	1524	1054
1000	3/D910KK5D30	874	72423	10584	2050	1214

## Trunnion mounted valve - DN400-1000, PN40

### Type 3/D... - Reduced bore

Accessories	BROEN No.	Dimension	Description
	-	DN500-800	Columns.
	-	DN500	BROEN-Gear.
	-	DN600	
	-	DN700	
	-	DN800	
	-	DN500-1000	BROEN-Gear, Electric gear.
	-	DN500-1000	Drain ball valve and pipe for Double Block and Bleed (DBB) with the following valve options DN25 - 32 - 40 - 50.

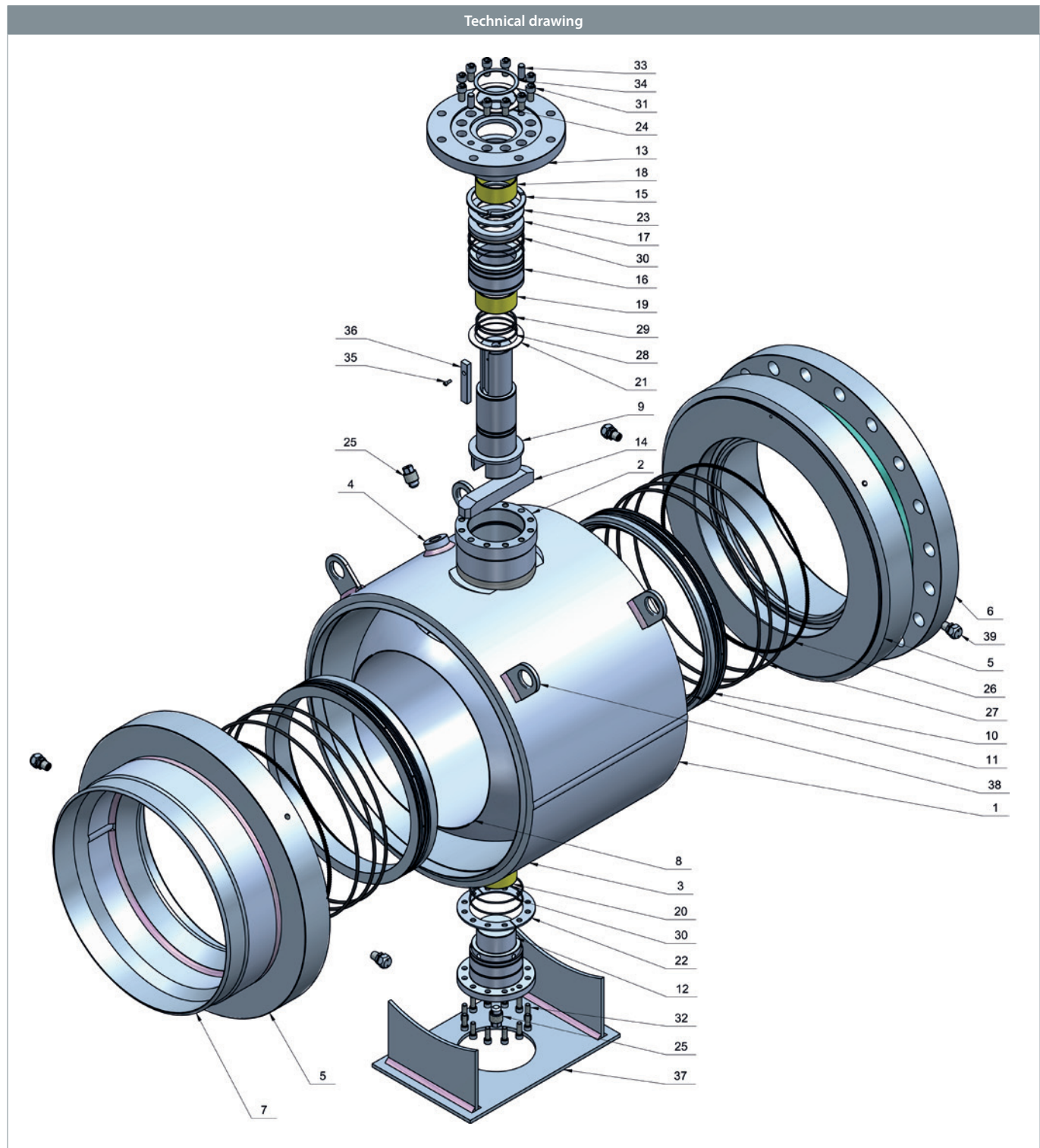
All dimensions in mm

D1	D3	D4	G	S	H1	H2	H4	H5	A	ISO
558	660	535	50	4	377.5	420.5	31.5	75 / 82	Ø60	F16
660	755	615	57	4	433.0	480.0	60.0	110	Ø72	F25
813	890	735	72	5	561.0	570.0	70.0	130	Ø80	F30
988	995	840	86	5	654.0	682.0	81.0	130	Ø100	F30
1126	1140	960	90	5	806.0	790.0	109.0	200	Ø120	F35
1300	1250	1070	95	5	890.0	900.0	107.0	198	Ø120	F35
1450	1360	1180	100	5	941.0	1000.0	117.0	183	Ø140	F40

# Trunnion mounted valve - DN400-1000, PN40

Type 3/D... - Reduced bore

Technical drawing





# Trunnion mounted valve - DN400-1000, PN40

## Type 3/D... - Reduced bore

Material description		
1	Valve body	Steel - P355NH / 1.0565 / EN 10028-3
2	Stem guide	Steel - P355NH / 1.0565 / EN 10028-3
3	Trunnion guide	Steel - P355NH / 1.0565 / EN 10028-3
4	Plug guide	Steel - P355NH / 1.0565 / EN 10028-3
5	Inner part	Steel - P355NH / 1.0565 / EN 10028-3
6	Flange	Steel - P355NH / 1.0565 / EN 10028-3
7	Pipe	Steel - P355NH / 1.0565 / EN 10028-3
8	Ball	ASTM A350 LF2
9	Stem	Stainless steel - X20Cr13 / AISI420 / 1.4021
10	Seat	Steel - P355NH / 1.0565 / EN 10028-3
11	Seal	PTFE / PTFE+C (PTFE+C - 200°C)
12	Trunnion	Steel - P355NH / 1.0565 / EN 10028-3
13	ISO-flange	Steel - S235JR / 1.0038 / EN 10025-2
14	Ball key	Steel - C45 / 1.0503 / EN 10277-2
15	Split ring	Stainless steel - X20Cr13 / AISI420 / 1.4021
16	Sleeve	Stainless steel - X20Cr13 / AISI420 / 1.4021
17	Packing	PTFE / PTFE+C
18	Bearing	CS + PTFE
19	Bearing	CS + PTFE
20	Bearing	CS + PTFE
21	Washer	PTFE+C
22	Washer	Steel - S235JR / 1.0038 / EN 10025-2
23	Washer	Stainless steel - X20Cr13 / AISI420 / 1.4021
24	Washer	PTFE
25	Plug	Stainless steel - X20Cr13 / AISI420 / 1.4021
26	Spring	Stainless steel - X10CrNi18-9 / AISI302 / 1.4310
27	O-ring	EPDM (AFLAS - 200°C)
28	O-ring	EPDM (AFLAS - 200°C)
29	O-ring	EPDM (AFLAS - 200°C)
30	O-ring	EPDM (AFLAS - 200°C)
31	Screw	Steel - 8.8
32	Screw	Steel - 8.8
33	Parallel pin	Steel - 8.8
34	Lock ring	Steel - 65G
35	Screw	Steel - 8.8
36	Key	Steel - C45 / 1.0503 / EN 10277-2
37	Base	Steel - S235JR / 1.0038 / EN 10025-2
38	Lifting eye	Steel - S235JR / 1.0038 / EN 10025-2
39	Lubrication fitting NPT	Steel - P355NH / 1.0565 / EN 10028-3

# Trunnion mounted valve - DN200-350, PN25

## Type 3/D... - Reduced bore

### Flange × Flange

Fully welded steel ball valve.

### Materials

See next page.

### Applications

Stop valve for heating systems, district heating, cooling and industrial purposes. In order to achieve lowest possible torque all valves bigger than DN200 are trunnion mounted as standard.

### Media

Water, gas, oil and other media not decomposing the steel. If in doubt, please contact BROEN Ballomax® Sales Department.

### Surface treatment

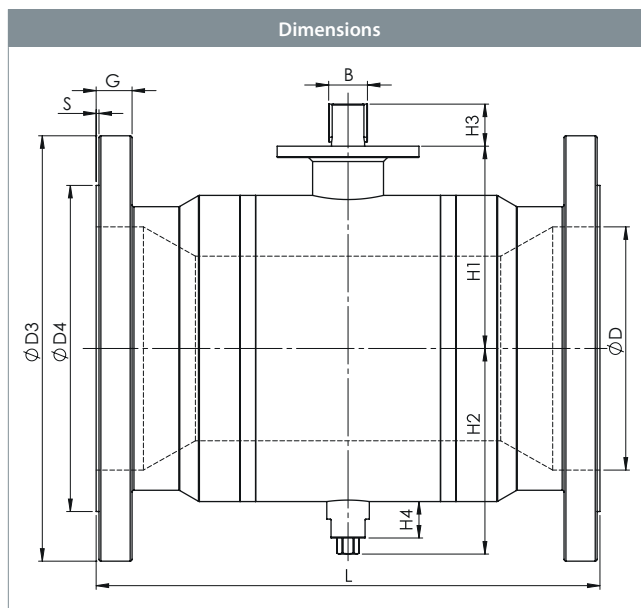
Eco-friendly protection finish against corrosion.

### Approvals and certificates

BROEN is certified according to ISO 9001 and environmentally certified according to ISO 14001. Ballomax® is approved according to the requirements of Pressure Equipment Directive (PED). All ball valves as from DN200 are CE-marked. The 3.1 certificate is available upon request.

### Notice

As standard DN200-350 is delivered with Double Block and Bleed (DBB) with normal temperature range up to 150°. Temperature range up to 200° on request. We recommend to add a BROEN-Gear.



DN	BROEN No.	Bore	Kvs	net Weight kg	All dimensions in mm	
					L	
200	3/D200KK4D30	152.0	1800	115	457	
250	3/D250KK4D30	201.5	3410	195	533	
300	3/D300KK4D30	253.0	5101	312	610	
350	3/D350KK4D30	304.0	7853	512	686	

## Trunnion mounted valve - DN200-350, PN25

### Type 3/D... - Reduced bore

Accessories	BROEN No.	Dimension	Description
	-	DN200-350	Columns.
	-	DN200-350	BROEN-Gear.
	-	DN200-350	BROEN-Gear, Electric gear.
	-	DN200-350	Lubrication fitting NPT.
	-	DN200-350	Drain ball valve and pipe for Double Block and Bleed (DBB) with the following valve options DN25 - 32 - 40 - 50.
	-	DN200-350	Base.

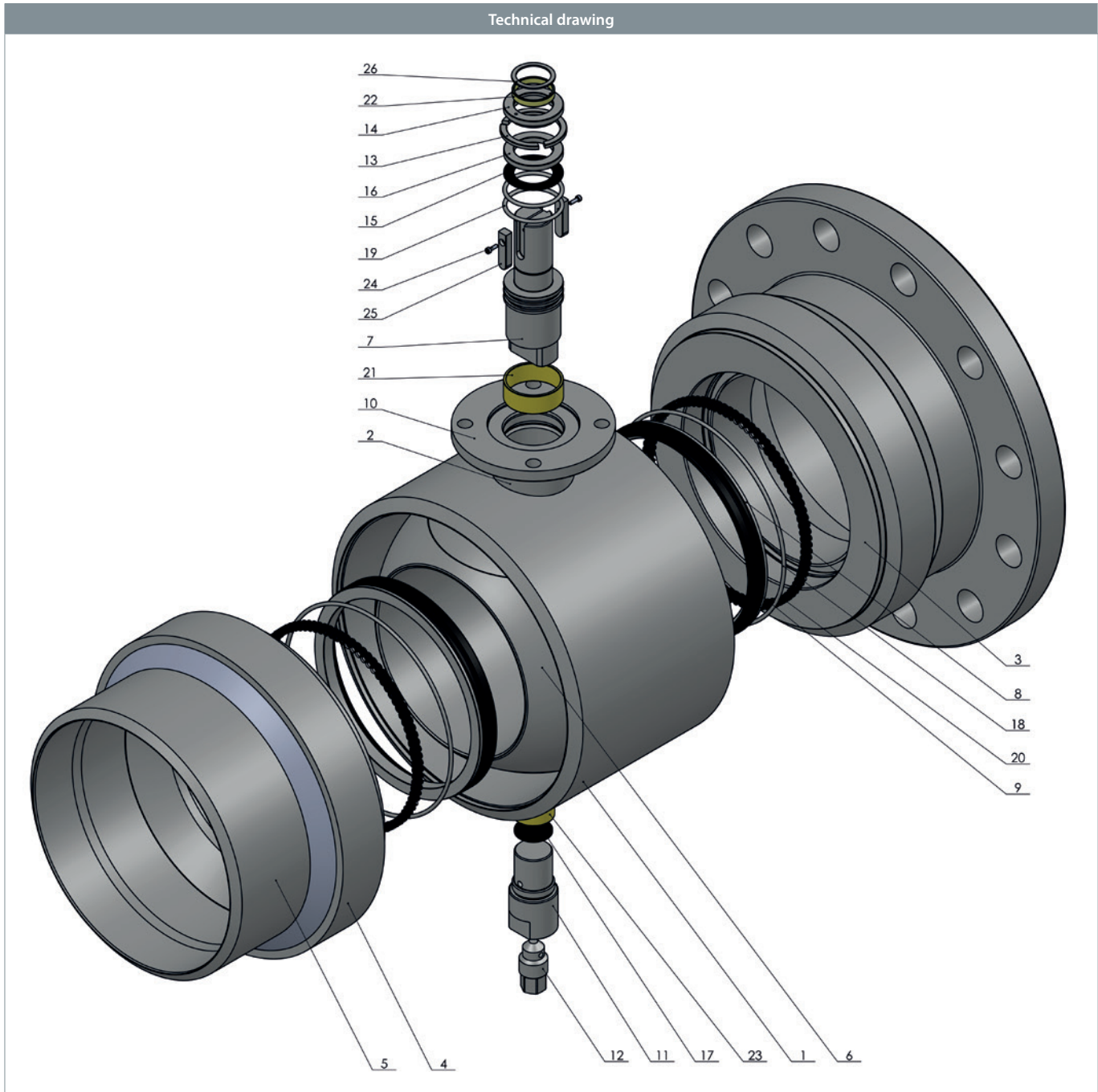
All dimensions in mm

D1	D3	D4	G	S	H1	H2	H3	H4	A	ISO
273.0	360	278	34	3	214.0			37	SQ36	F14
323.9	425	335	32	3	252.5	202.0	40.0	37	SQ36	F14
406.4	485	395	34	4	315.0	360.0	44.8	75 / 82	SQ36 / Ø60	F16
508.0	555	450	38	4	355.5	400.0	34.2	75 / 82	SQ36 / Ø60	F16

Trunnion mounted valve - DN200-350, PN25

Type 3/D... - Reduced bore

Technical drawing



## Trunnion mounted valve - DN200-350, PN25

### Type 3/D... - Reduced bore

Material description		
1	Valve body	Steel - P355NH / 1.0565 / EN 10028-3
2	Stem guide	Steel - P355NH / 1.0565 / EN 10028-3
3	Inner part	Steel - P355NH / 1.0565 / EN 10028-3
4	Flange	Steel - P355NH / 1.0565 / EN 10028-3
5	Pipe	Steel - P355NH / 1.0565 / EN 10028-3
6	Ball	Steel - A350LF2 Class 1, EN coated
7	Stem	Stainless steel - X20Cr13 / AISI420 / 1.4021
8	Seat	Steel - P355NH / 1.0565 / EN 10028-3
9	Seal	PTFE+C
10	ISO-flange	Steel - S235JR / 1.0038 / EN 10025-2
11	Trunnion	Steel - P355NH / 1.0565 / EN 10028-3
12	Plug	Stainless steel - X20Cr13 / AISI420 / 1.4021
13	Split ring	Stainless steel - X20Cr13 / AISI420 / 1.4021
14	Sleeve	Stainless steel - X20Cr13 / AISI420 / 1.4021
15	Washer	PTFE+C
16	Washer	Stainless steel - X20Cr13 / AISI420 / 1.4021
17	Washer	PTFE+C
18	O-ring	EPDM
19	O-ring	EPDM
20	Spring	Stainless steel - X10CrNi18-8 / AISI302 / 1.4301
21	Bearing	CS + PTFE
22	Bearing	CS + PTFE
23	Bearing	CS + PTFE
24	Screw	Steel - 8.8
25	Key	Steel - C45 / 1.0503 / EN 10277-2
26	Lock ring	Steel - 65G

# Trunnion mounted valve - DN400-1000, PN25

## Type 3/D... - Reduced bore

### Welding × Welding

Fully welded steel ball valve.

### Materials

See next page.

### Applications

Stop valve for heating systems, district heating, cooling and industrial purposes. In order to achieve lowest possible torque all valves bigger than DN400 are trunnion mounted as standard.

### Media

Water, gas, oil and other media not decomposing the steel. If in doubt, please contact BROEN Ballomax® Sales Department.

### Surface treatment

Eco-friendly protection finish against corrosion.

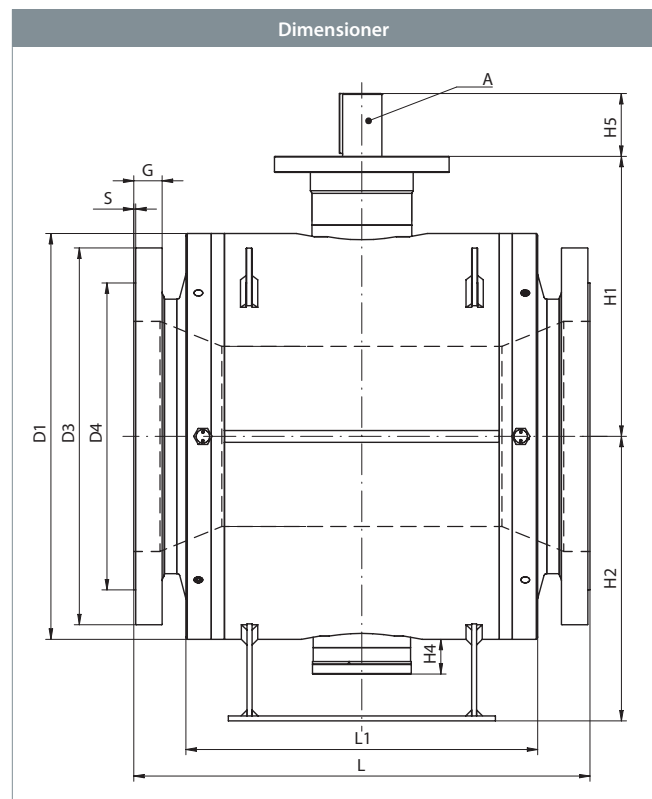
### Approvals and certificates

BROEN is certified according to ISO 9001 and environmentally certified according to ISO 14001. Ballomax® is approved according to the requirements of Pressure Equipment Directive (PED). All ball valves as from DN400 are CE-marked. The 3.1 certificate is available upon request.

### Notice

As standard DN400-1000 is delivered with Double Block and Bleed (DBB) with normal temperature range up to 150°. Temperature range up to 200° on request. We recommend to add a BROEN-Gear.



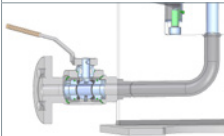
Larger dimensions on request.



DN	BROEN No.	Bore	Kvs	net Weight kg	All dimensions in mm	
					L	L1
400	3/D400KK4D30	336	10443	679	762	491
500	3/D500KK4D30	386	14306	1422	914	565
600	3/D600KK4D30	488	22354	2380	1067	705
700	3/D700KK4D30	588	32188	3299	1245	819
800	3/D800KK4D30	684	43812	4757	1372	976
900	3/D900KK4D30	780	57223	7232	1524	1138
1000	3/D910KK4D30	874	72423	10012	2050	1214

## Trunnion mounted valve - DN400-1000, PN25

### Type 3/D... - Reduced bore

Accessories	BROEN No.	Dimension	Description
	-	DN400-800	Columns.
	-	DN400	BROEN-Gear.
	-	DN500	
	-	DN600	
	-	DN700	
	-	DN800	
	-	DN400-1000	BROEN-Gear, Electric gear.
	-	DN400-1000	Drain ball valve and pipe for Double Block and Bleed (DBB) with the following valve options DN25 - 32 - 40 - 50.

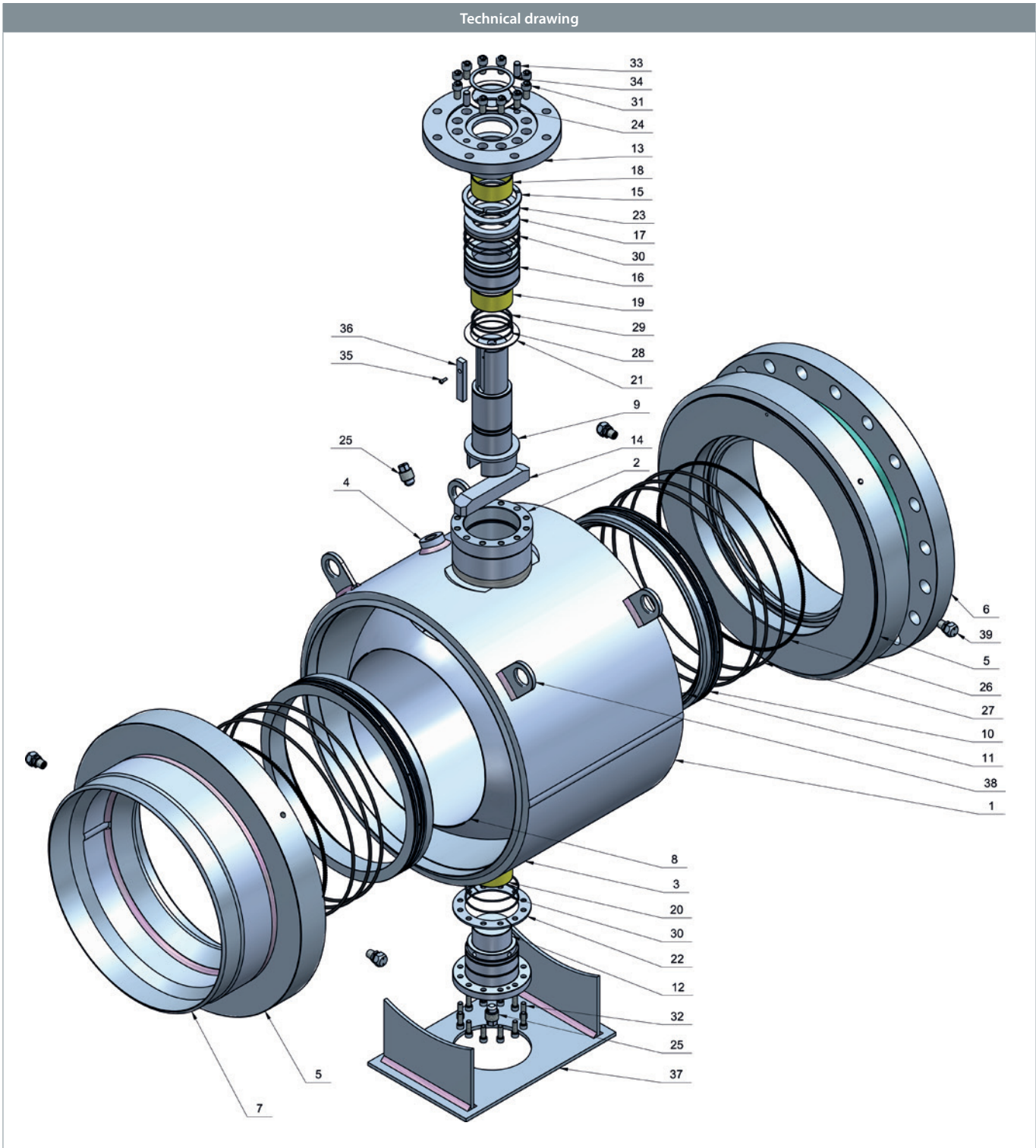
All dimensions in mm

D1	D3	D4	G	S	H1	H2	H4	H5	A	ISO
558	620	505	40	4	377.5	420.5	31.5	75 / 82	Ø60	F16
660	730	615	48	4	433.0	480.0	60.0	110	Ø72	F25
813	845	720	48	5	561.0	570.0	70.0	130	Ø80	F30
988	960	820	50	5	654.0	682.0	81.0	130	Ø100	F30
1126	1085	930	53	5	806.0	790.0	109.0	200	Ø120	F35
1300	1185	1030	53	5	890.0	900.0	107.0	198	Ø120	F35
1450	1320	1140	63	5	941.0	1000.0	117.0	183	Ø140	F40

Trunnion mounted valve - DN400-1000, PN25

Type 3/D... - Reduced bore

Technical drawing





## Trunnion mounted valve - DN400-1000, PN25

### Type 3/D... - Reduced bore

Material description		
1	Valve body	Steel - P355NH / 1.0565 / EN 10028-3
2	Stem guide	Steel - P355NH / 1.0565 / EN 10028-3
3	Trunnion guide	Steel - P355NH / 1.0565 / EN 10028-3
4	Plug guide	Steel - P355NH / 1.0565 / EN 10028-3
5	Inner part	Steel - P355NH / 1.0565 / EN 10028-3
6	Flange	Steel - P355NH / 1.0565 / EN 10028-3
7	Pipe	Steel - P355NH / 1.0565 / EN 10028-3
8	Ball	ASTM A350 LF2
9	Stem	Stainless steel - X20Cr13 / AISI420 / 1.4021
10	Seat	Steel - P355NH / 1.0565 / EN 10028-3
11	Seal	PTFE / PTFE+C (PTFE+C - 200°C)
12	Trunnion	Steel - P355NH / 1.0565 / EN 10028-3
13	ISO-flange	Steel - S235JR / 1.0038 / EN 10025-2
14	Ball key	Steel - C45 / 1.0503 / EN 10277-2
15	Split ring	Stainless steel - X20Cr13 / AISI420 / 1.4021
16	Sleeve	Stainless steel - X20Cr13 / AISI420 / 1.4021
17	Packing	PTFE / PTFE+C
18	Bearing	CS + PTFE
19	Bearing	CS + PTFE
20	Bearing	CS + PTFE
21	Washer	PTFE+C
22	Washer	Steel - S235JR / 1.0038 / EN 10025-2
23	Washer	Stainless steel - X20Cr13 / AISI420 / 1.4021
24	Washer	PTFE
25	Plug	Stainless steel - X20Cr13 / AISI420 / 1.4021
26	Spring	Stainless steel - X10CrNi18-9 / AISI302 / 1.4310
27	O-ring	EPDM (AFLAS - 200°C)
28	O-ring	EPDM (AFLAS - 200°C)
29	O-ring	EPDM (AFLAS - 200°C)
30	O-ring	EPDM (AFLAS - 200°C)
31	Screw	Steel - 8.8
32	Screw	Steel - 8.8
33	Parallel pin	Steel - 8.8
34	Lock ring	Steel - 65G
35	Screw	Steel - 8.8
36	Key	Steel - C45 / 1.0503 / EN 10277-2
37	Base	Steel - S235JR / 1.0038 / EN 10025-2
38	Lifting eye	Steel - S235JR / 1.0038 / EN 10025-2
39	Lubrication fitting NPT	Steel - P355NH / 1.0565 / EN 10028-3

# Trunnion mounted valve - DN200-350, PN16

## Type 3/D... - Reduced bore

### Flange × Flange

Fully welded steel ball valve.

### Materials

See next page.

### Applications

Stop valve for heating systems, district heating, cooling and industrial purposes. In order to achieve lowest possible torque all valves bigger than DN200 are trunnion mounted as standard.

### Media

Water, gas, oil and other media not decomposing the steel. If in doubt, please contact BROEN Ballomax® Sales Department.

### Surface treatment

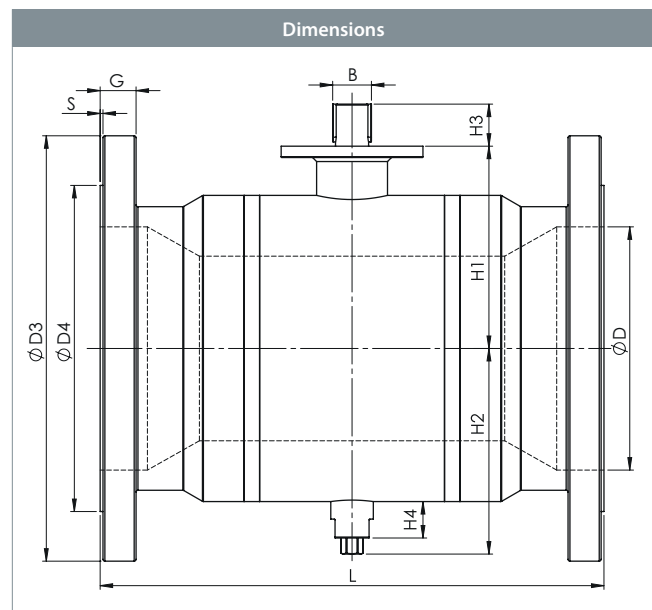
Eco-friendly protection finish against corrosion.

### Approvals and certificates

BROEN is certified according to ISO 9001 and environmentally certified according to ISO 14001. Ballomax® is approved according to the requirements of Pressure Equipment Directive (PED). All ball valves as from DN200 are CE-marked. The 3.1 certificate is available upon request.

### Notice

As standard DN200-350 is delivered with Double Block and Bleed (DBB) with normal temperature range up to 150°. Temperature range up to 200° on request. We recommend to add a BROEN-Gear.



DN	BROEN No.	Bore	Kvs	net Weight kg	All dimensions in mm
					L
200	3/D200KK3D30	152.0	1800	111	457
250	3/D250KK3D30	201.5	3410	185	533
300	3/D300KK3D30	253.0	5101	299	610
350	3/D350KK3D30	304.0	7853	486	686

## Trunnion mounted valve - DN200-350, PN16

### Type 3/D... - Reduced bore

Accessories	BROEN No.	Dimension	Description
	-	DN200-350	Columns.
	-	DN200-350	BROEN-Gear.
	-	DN200-350	BROEN-Gear, Electric gear.
	-	DN200-350	Lubrication fitting NPT.
	-	DN200-350	Drain ball valve and pipe for Double Block and Bleed (DBB) with the following valve options DN25 - 32 - 40 - 50.
	-	DN200-350	Base.

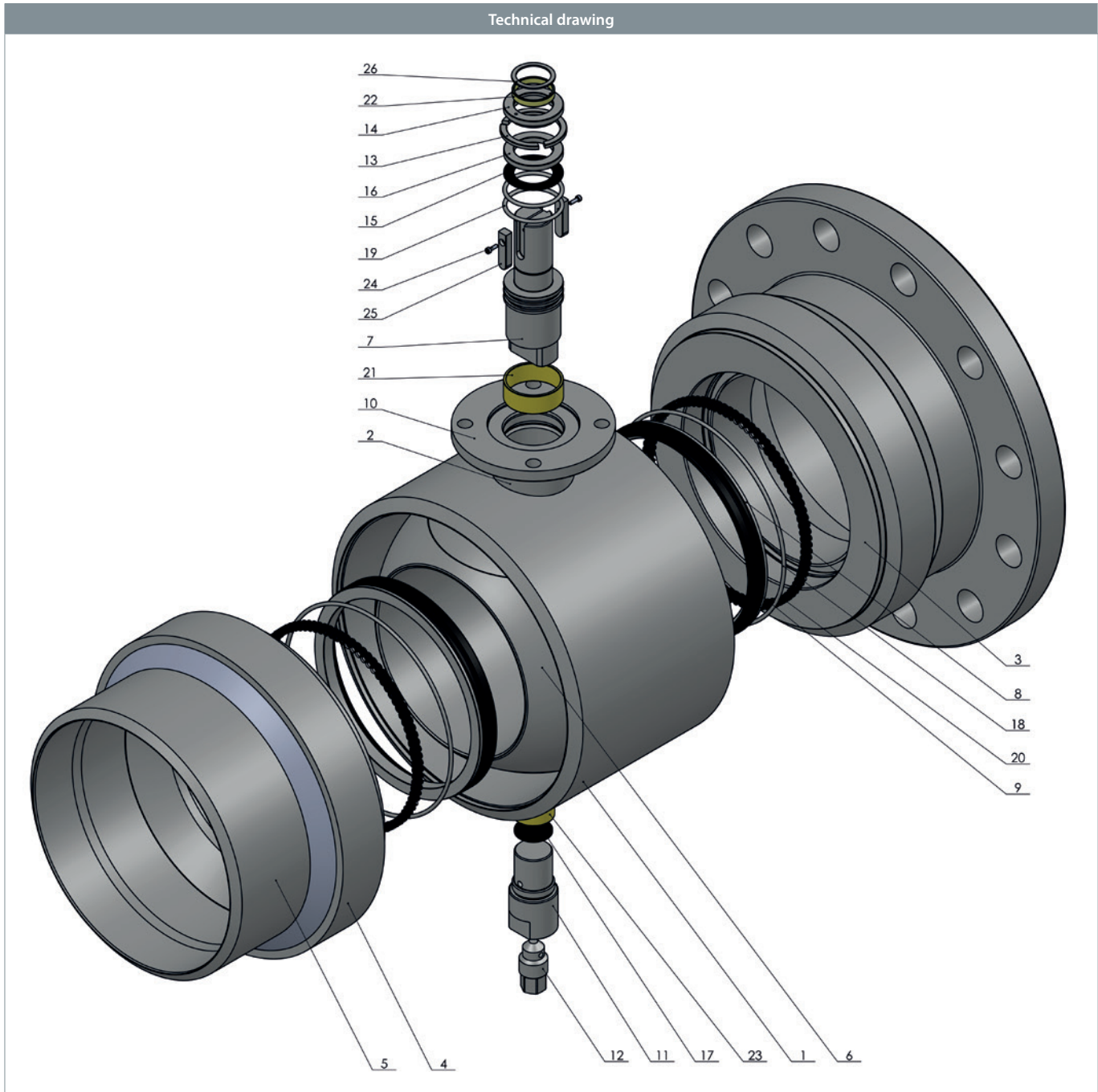
All dimensions in mm

D1	D3	D4	G	S	H1	H2	H3	H4	A	ISO
273.0	340	268	24	3	214.0			37	SQ36	F14
323.9	405	320	26	3	252.5	202.0	40.0	37	SQ36	F14
406.4	460	378	28	4	315.0	360.0	44.8	75 / 82	SQ36 / Ø60	F16
508.0	520	438	30	4	355.5	400.0	34.2	75 / 82	SQ36 / Ø60	F16

# Trunnion mounted valve - DN200-350, PN16

Type 3/D... - Reduced bore

Technical drawing



## Trunnion mounted valve - DN200-350, PN16

### Type 3/D... - Reduced bore

Material description		
1	Valve body	Steel - P355NH / 1.0565 / EN 10028-3
2	Stem guide	Steel - P355NH / 1.0565 / EN 10028-3
3	Inner part	Steel - P355NH / 1.0565 / EN 10028-3
4	Flange	Steel - P355NH / 1.0565 / EN 10028-3
5	Pipe	Steel - P355NH / 1.0565 / EN 10028-3
6	Ball	Steel - A350LF2 Class 1, EN coated
7	Stem	Stainless steel - X20Cr13 / AISI420 / 1.4021
8	Seat	Steel - P355NH / 1.0565 / EN 10028-3
9	Seal	PTFE+C
10	ISO-flange	Steel - S235JR / 1.0038 / EN 10025-2
11	Trunnion	Steel - P355NH / 1.0565 / EN 10028-3
12	Plug	Stainless steel - X20Cr13 / AISI420 / 1.4021
13	Split ring	Stainless steel - X20Cr13 / AISI420 / 1.4021
14	Sleeve	Stainless steel - X20Cr13 / AISI420 / 1.4021
15	Washer	PTFE+C
16	Washer	Stainless steel - X20Cr13 / AISI420 / 1.4021
17	Washer	PTFE+C
18	O-ring	EPDM
19	O-ring	EPDM
20	Spring	Stainless steel - X10CrNi18-8 / AISI302 / 1.4301
21	Bearing	CS + PTFE
22	Bearing	CS + PTFE
23	Bearing	CS + PTFE
24	Screw	Steel - 8.8
25	Key	Steel - C45 / 1.0503 / EN 10277-2
26	Lock ring	Steel - 65G

# Trunnion mounted valve - DN400-1000, PN16

## Type 3/D... - Reduced bore

### Welding × Welding

Fully welded steel ball valve.

### Materials

See next page.

### Applications

Stop valve for heating systems, district heating, cooling and industrial purposes. In order to achieve lowest possible torque all valves bigger than DN400 are trunnion mounted as standard.

### Media

Water, gas, oil and other media not decomposing the steel. If in doubt, please contact BROEN Ballomax® Sales Department.

### Surface treatment

Eco-friendly protection finish against corrosion.

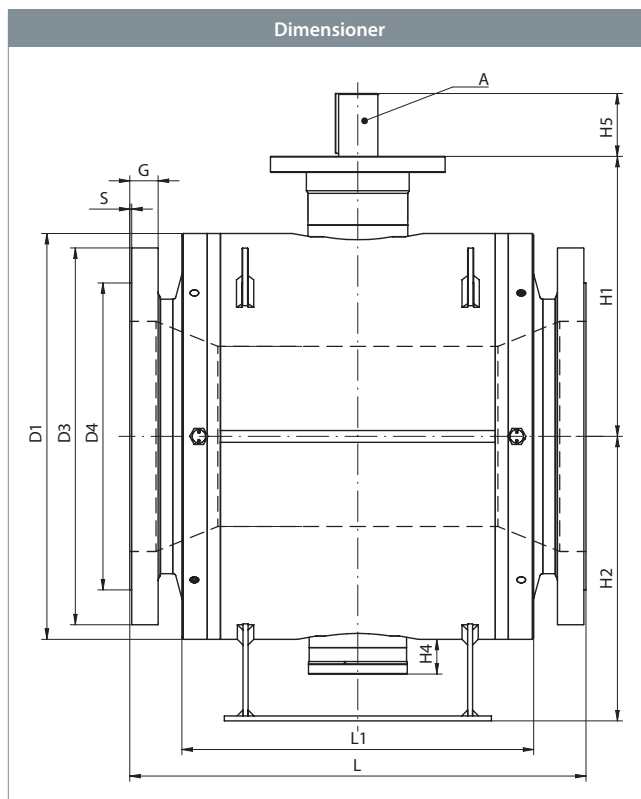
### Approvals and certificates

BROEN is certified according to ISO 9001 and environmentally certified according to ISO 14001. Ballomax® is approved according to the requirements of Pressure Equipment Directive (PED). All ball valves as from DN400 are CE-marked. The 3.1 certificate is available upon request.

### Notice

As standard DN400-1000 is delivered with Double Block and Bleed (DBB) with normal temperature range up to 150°. Temperature range up to 200° on request. We recommend to add a BROEN-Gear.



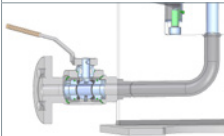
Larger dimensions on request.



DN	BROEN No.	Bore	Kvs	net Weight kg	All dimensions in mm	
					L	L1
400	3/D400KK3D30	336	10443	644	762	491
500	3/D500KK3D30	386	14306	1396	914	565
600	3/D600KK3D30	488	22354	2355	1067	705
700	3/D700KK3D30	588	32188	3217	1245	819
800	3/D800KK3D30	684	43812	4652	1372	936
900	3/D900KK3D30	780	57223	6212	1524	1054
1000	3/D910KK3D30	874	72423	9822	2050	1214

## Trunnion mounted valve - DN400-1000, PN16

### Type 3/D... - Reduced bore

Accessories	BROEN No.	Dimension	Description
	-	DN400-800	Columns.
	-	DN400	BROEN-Gear.
	-	DN500	
	-	DN600	
	-	DN700	
	-	DN800	
	-	DN400-1000	BROEN-Gear, Electric gear.
	-	DN400-1000	Drain ball valve and pipe for Double Block and Bleed (DBB) with the following valve options DN25 - 32 - 40 - 50.

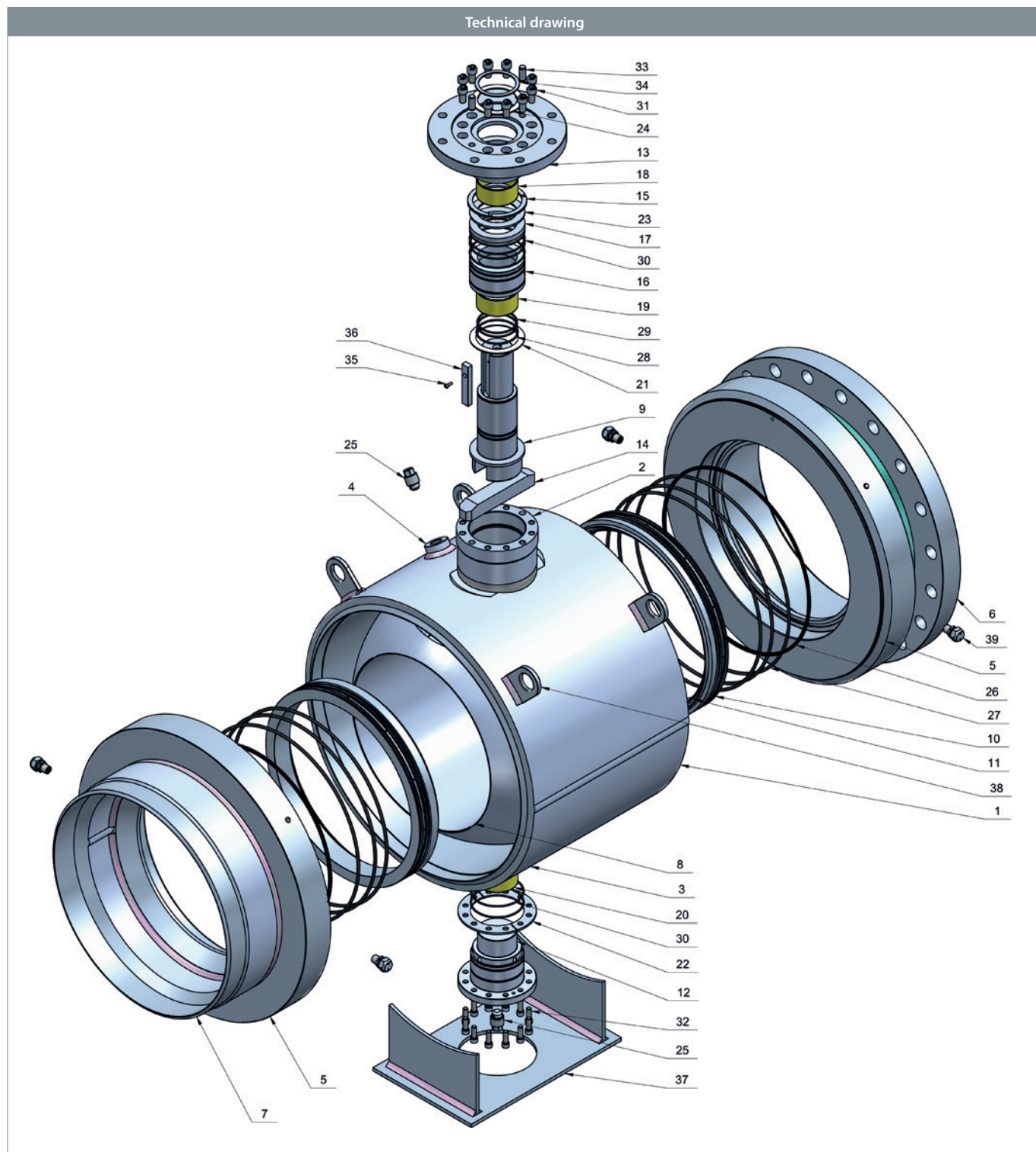
All dimensions in mm

D1	D3	D4	G	S	H1	H2	H4	H5	A	ISO
558	580	490	32	4	377.5	420.5	31.5	75 / 82	Ø60	F16
660	715	610	36	4	433.0	480.0	60	110	Ø72	F25
813	840	725	40	5	561.0	570.0	70	130	Ø80	F30
988	910	795	40	5	654.0	682.0	81	130	Ø100	F30
1126	1025	900	41	5	806.0	790.0	109	200	Ø120	F35
1300	1125	1000	48	5	890.0	900.0	107	198	Ø120	F35
1450	1255	1115	59	5	941.0	1000.0	117	183	Ø140	F40

# Trunnion mounted valve - DN400-1000, PN16

Type 3/D... - Reduced bore

Technical drawing





# Trunnion mounted valve - DN400-1000, PN16

## Type 3/D... - Reduced bore

Material description		
1	Valve body	Steel - P355NH / 1.0565 / EN 10028-3
2	Stem guide	Steel - P355NH / 1.0565 / EN 10028-3
3	Trunnion guide	Steel - P355NH / 1.0565 / EN 10028-3
4	Plug guide	Steel - P355NH / 1.0565 / EN 10028-3
5	Inner part	Steel - P355NH / 1.0565 / EN 10028-3
6	Flange	Steel - P355NH / 1.0565 / EN 10028-3
7	Pipe	Steel - P355NH / 1.0565 / EN 10028-3
8	Ball	ASTM A350 LF2
9	Stem	Stainless steel - X20Cr13 / AISI420 / 1.4021
10	Seat	Steel - P355NH / 1.0565 / EN 10028-3
11	Seal	PTFE / PTFE+C (PTFE+C - 200°C)
12	Trunnion	Steel - P355NH / 1.0565 / EN 10028-3
13	ISO-flange	Steel - S235JR / 1.0038 / EN 10025-2
14	Ball key	Steel - C45 / 1.0503 / EN 10277-2
15	Split ring	Stainless steel - X20Cr13 / AISI420 / 1.4021
16	Sleeve	Stainless steel - X20Cr13 / AISI420 / 1.4021
17	Packing	PTFE / PTFE+C
18	Bearing	CS + PTFE
19	Bearing	CS + PTFE
20	Bearing	CS + PTFE
21	Washer	PTFE+C
22	Washer	Steel - S235JR / 1.0038 / EN 10025-2
23	Washer	Stainless steel - X20Cr13 / AISI420 / 1.4021
24	Washer	PTFE
25	Plug	Stainless steel - X20Cr13 / AISI420 / 1.4021
26	Spring	Stainless steel - X10CrNi18-9 / AISI302 / 1.4310
27	O-ring	EPDM (AFLAS - 200°C)
28	O-ring	EPDM (AFLAS - 200°C)
29	O-ring	EPDM (AFLAS - 200°C)
30	O-ring	EPDM (AFLAS - 200°C)
31	Screw	Steel - 8.8
32	Screw	Steel - 8.8
33	Parallel pin	Steel - 8.8
34	Lock ring	Steel - 65G
35	Screw	Steel - 8.8
36	Key	Steel - C45 / 1.0503 / EN 10277-2
37	Base	Steel - S235JR / 1.0038 / EN 10025-2
38	Lifting eye	Steel - S235JR / 1.0038 / EN 10025-2
39	Lubrication fitting NPT	Steel - P355NH / 1.0565 / EN 10028-3

## Columns - DN250-800

### Type - Reduced bore

#### Columns

The columns are the extension of the stem thereby allowing control of the fittings installed in underground systems or places requiring control from a strictly set height. In addition to the standard height columns, BROEN also recommends the rigid columns, the telescope columns with a regulated height and columns made to the individual order of the customer according to predefined parameters. A lever, planetary gear or any type of drive (electric, pneumatic, hydraulic etc.) installed at the top of the column could be an element enabling control of the valve. The type of the valve control (lever, planetary gear) and the height of the column measuring from the valve axis to the top part of the column (size "A") should be stated in the order.

## BROEN-Gear - DN250-800

### Type 3-TPA... - Reduced bore

#### BROEN-Gear

Hand-operated gearbox.

BROEN-Gear - supports control of the fittings when the high opening torque of the valve prevents the use of a lever.

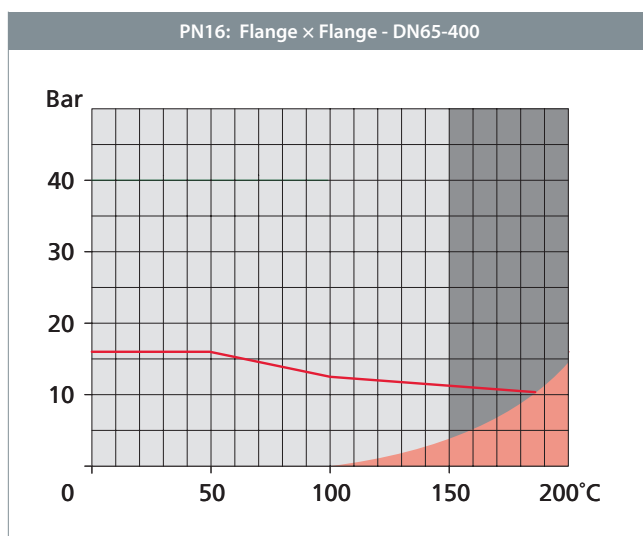
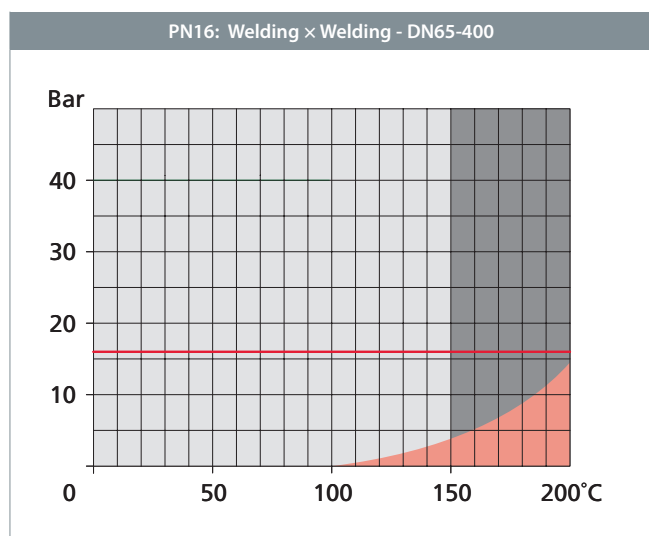
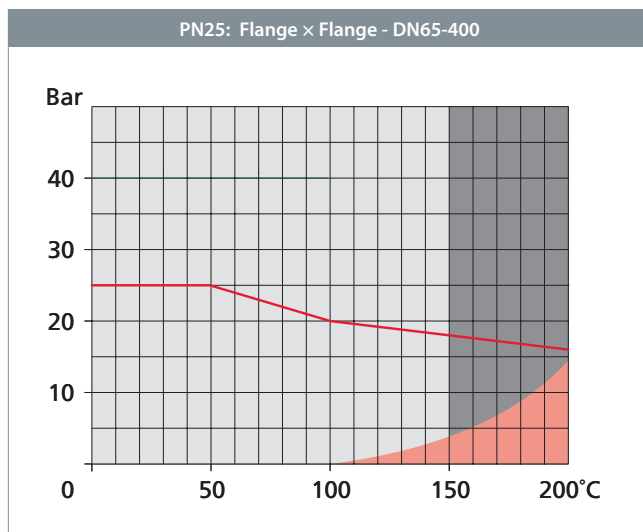
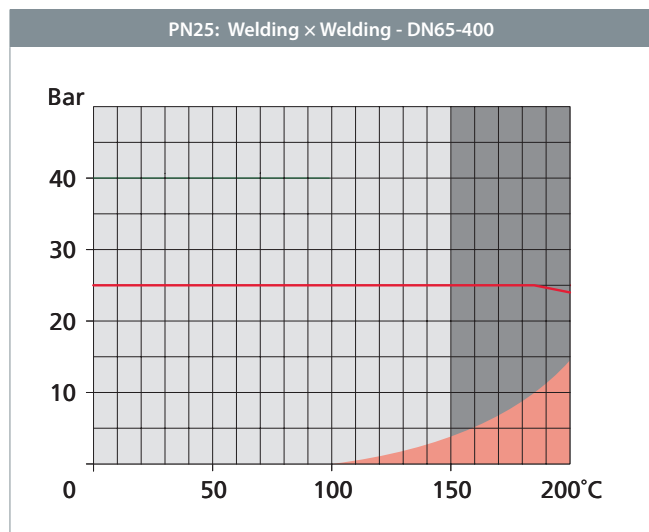
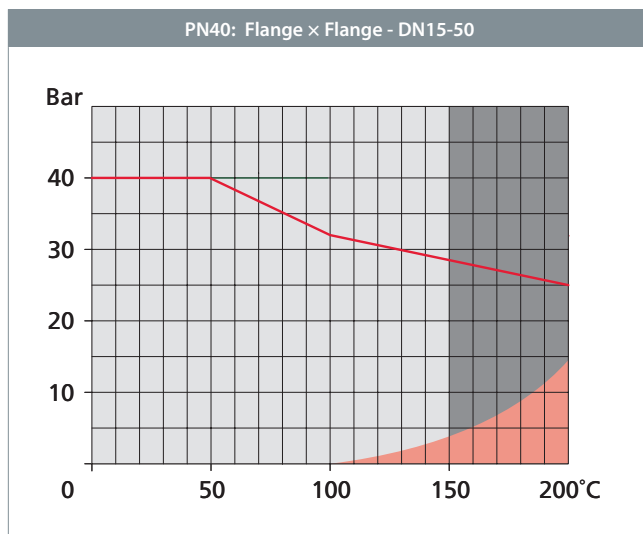
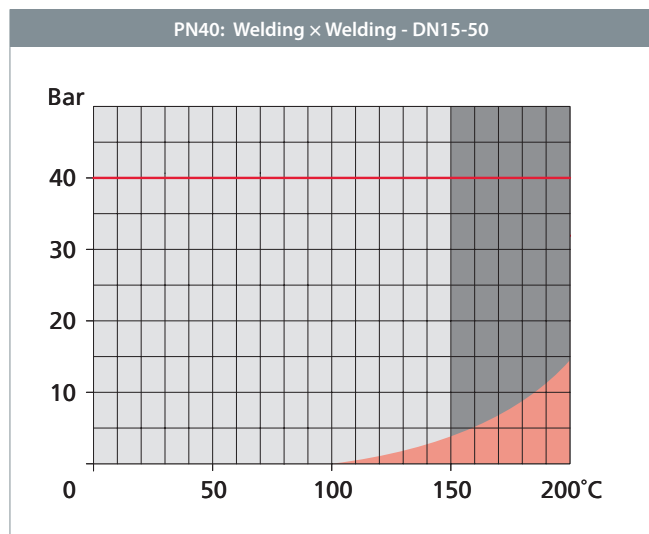
The gear is used for manual control of the fittings between the OPEN - CLOSED end positions (30° rotation angle), substantially reducing the force required for its operation. The end positions are enforced by stops that are adjusted during the installation of the gear on the fittings and then protected against regulation.



DN	BROEN No.	PN
250-300	3-TPA023	40
350-400	3-TPA025	40
500-600	3-TPA035	40
700	3-TPA064	40
800	3-TPA065	40
250-400	3-TPA023	25
500	3-TPA031	25
600	3-TPA035	25
700	3-TPA067	25
800	3-TPA064	25
250-400	3-TPA023	16
500	3-TPA031	16
600	3-TPA035	16
700	3-TPA067	16
800	3-TPA064	16

Pressure and temperature graph - DN250-1000 - PN40/25/16

Reduced bore



# Pressure drop graph - DN250-1000

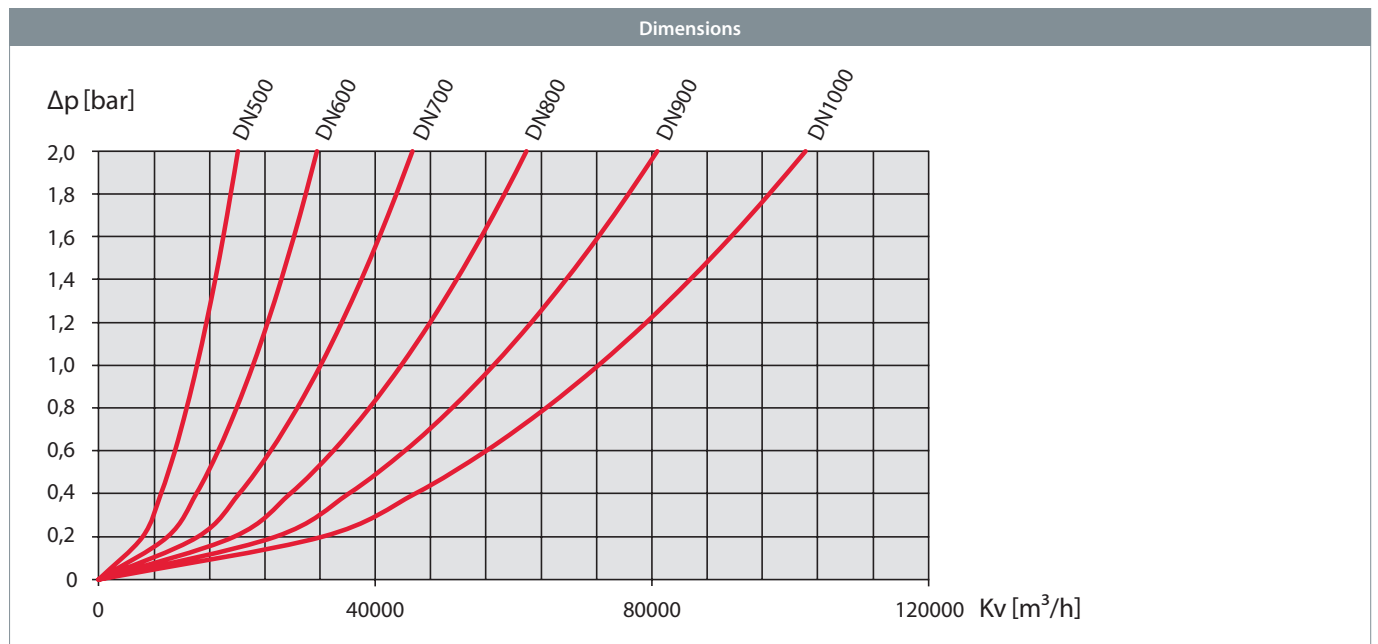
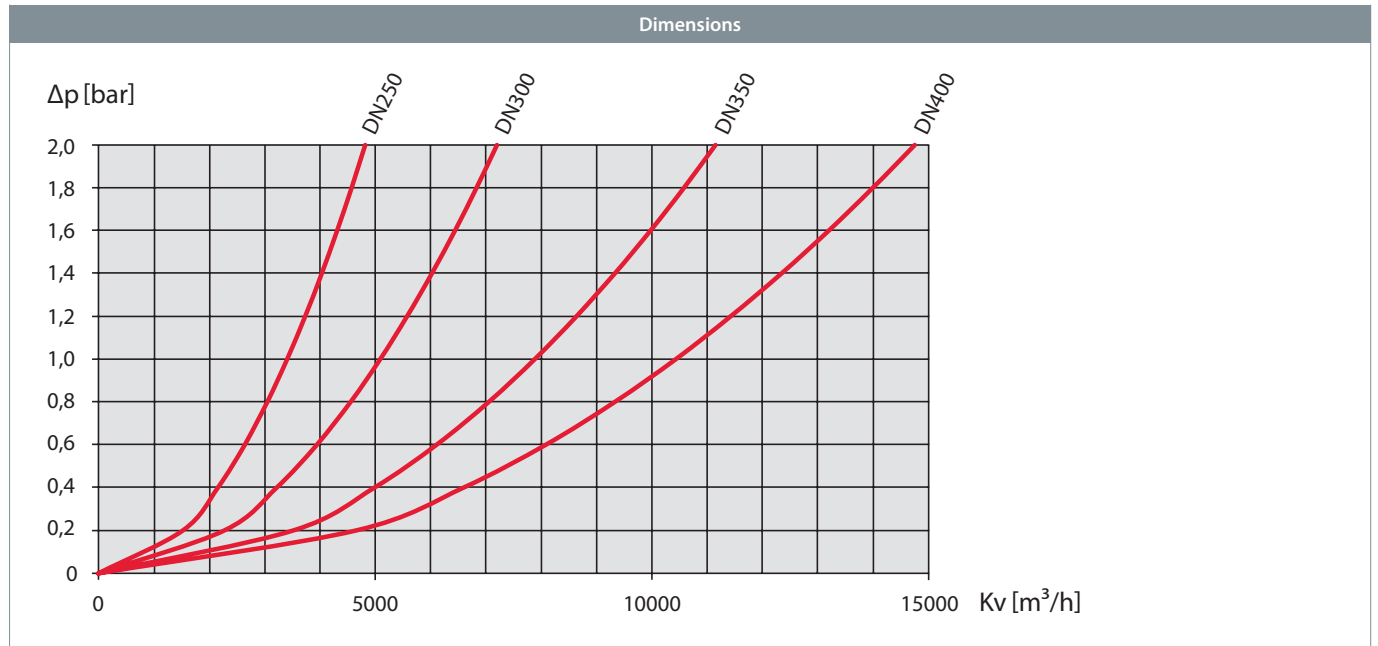
**Reduced bore**

**Pressure drop graph**

Ball valve in fully open position.  
Medium: water density in 1000 kg/m<sup>3</sup>

**Definitions**

Kvs: M<sup>3</sup> water per hour at pressure drop 1 bar.



DN	250	300	350	400	500	600	700	800	900	1000
Kvs	3410	5101	7853	10443	14306	22354	32188	43812	57223	72423

# Operating torque - DN250-1000, PN40/25/16

## Reduced bore

### Operating torque

The torque stated is for guidance only; it has been obtained by measuring on new ball valves. The torque is to be understood as the pull-off torque applicable for a closed, but recently activated ball valve.

The value stated may rise to a factor of 1.5 after a long period of inactivity.

