

Ball valves

Model 58191 3-part ATEX valve for socket welding with ISO mounting plate - 316 stainless steel

1000 lbs / PN63 - Full bore - Lockable handle



Specifications

Dimensions: DN8 to DN100 (1/4" to 4")

Connections: to be welded (socket welding)

Pressure:

- DN8 to DN32: PN63 (1000 lbs)

- DN40 to DN100: PS = 54 bar at 20°C

Temperature: from - 29°C to +175°C

Material: 316 or CF8M stainless steel
(for the stainless steel parts in contact with the fluid)

ISO 5211 mounting plate for pneumatic
or electric motorisation

PTFE + FKM gaskets

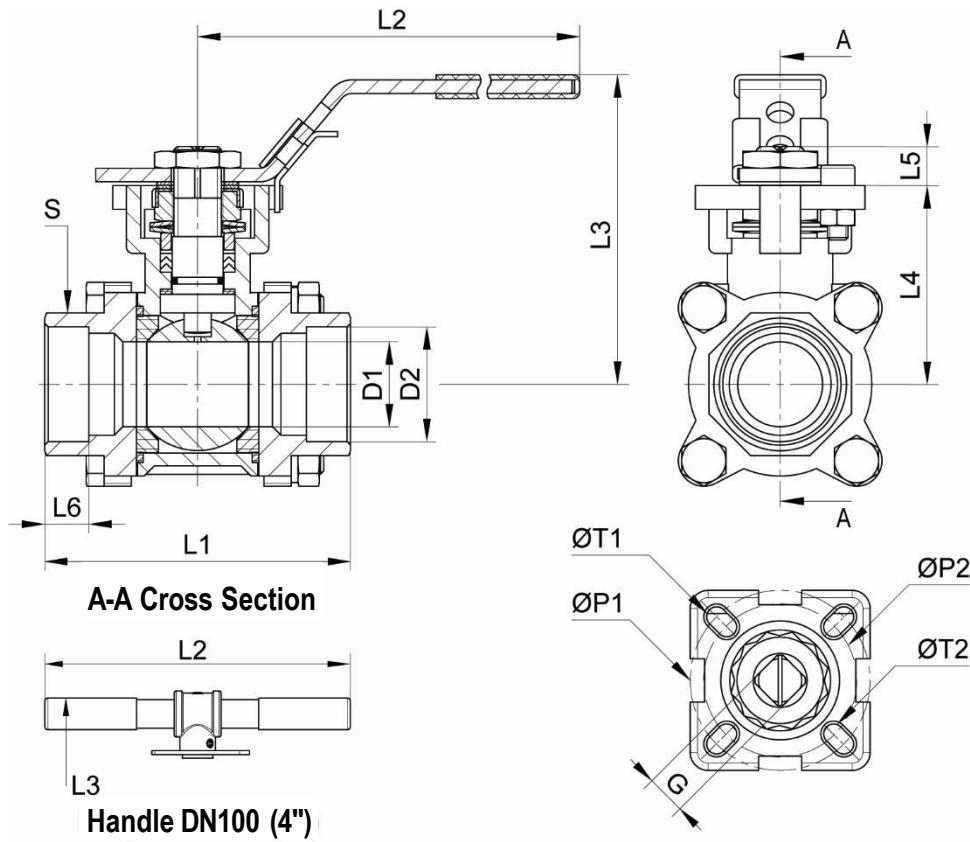
ATEX II 2 GD c T3



Béné Inox – 11 chemin de la Pierre Blanche – 69800 SAINT PRIEST – S.A.S with 240 000 € share capital – SIREN N° 311 810 287

Tel. N°: +33 (0)4 78 90 48 22 – Fax N°: +33 (0)4 78 90 69 59 – www.bene-inox.com – bene@bene-inox.com

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DN (mm)	NB (inches)	D1 (mm)	D2 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	G (mm)	ØP1 (mm)	ØP2 (mm)	ØT1 (mm)	ØT2 (mm)	Weight (kg)	Part number
8	1/4"	10.5	14	75	149	70	42	9	10	9	36	42	6	6	0.65	458191-8
10	3/8"	12.5	18	75	149	70	42	9	10	9	36	42	6	6	0.72	458191-10
15	1/2"	15	22	75	149	70	42	9	10	9	36	42	6	6	0.78	458191-15
20	3/4"	20	27	80	149	77	49	9	13	9	36	50	6	7	1.02	458191-20
25	1"	25	34	90	177	94	59	11	13	11	42	50	6	7	1.47	458191-25
32	1 1/4"	32	43	110	177	98	63	11	16	11	42	70	6	9	2.10	458191-32
40	1 1/2"	38	49	120	197	105	72	14	16	14	50	70	7	9	3.00	458191-40
50	2"	50	61	140	197	111	78	14	17	14	50	70	7	9	4.50	458191-50
65	2 1/2"	63.5	74	185	267	152	100	17	17	17	70	102	9	11	8.50	458191-65
80	3"	76	90	205	267	159	109	17	17	17	70	102	9	11	12.30	458191-80
100	4"	100	115	240	400*	205	140	22	20	22	-	102	-	11	23.10	458191-100

* positionable tubular handle

Flow coefficient and pressure loss

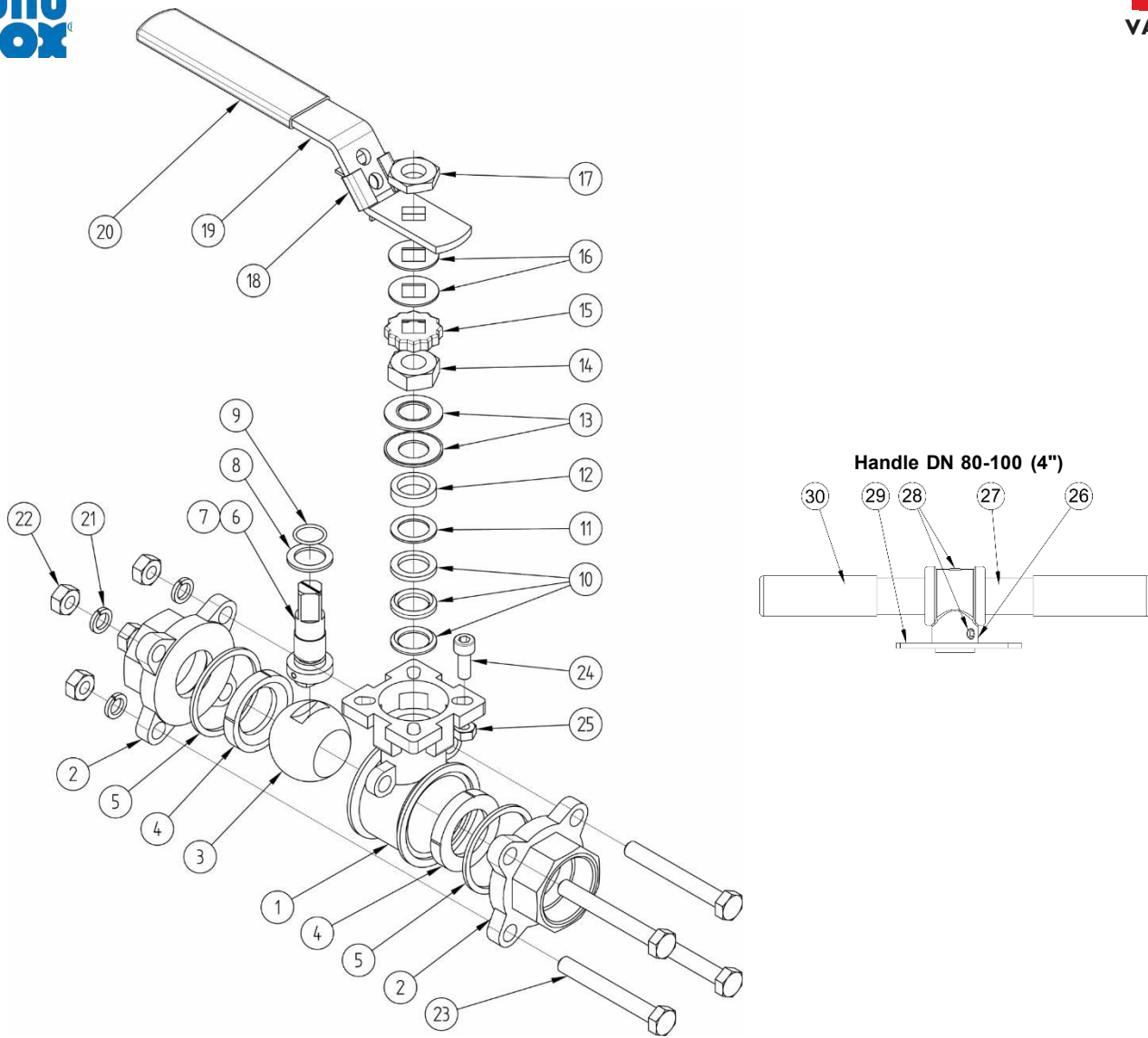
Dimensions	DN8	DN10	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
Kv (m³/h)	8.7	11.3	15.6	31.2	41.6	80.5	142.8	179.1	389.3	674.7	1176.4

The flow coefficient Kv defines the water flow rate through a device (valve, check valve, etc.) for a pressure loss (ΔP) of 1 bar. Kv is expressed mathematically as:

$$\Delta P = \frac{Q^2}{K_v^2} \quad \text{so:} \quad K_v = \frac{Q}{\sqrt{\Delta P}} \quad \begin{array}{l} Q \text{ in m}^3/\text{h} \\ \Delta P \text{ in bar} \end{array}$$

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N°	Part Name	Material
1	BODY	ASTM CF8M
2	FLANGE (SW END)	ASTM CF8M
3	BALL	ASTM CF8M
4	SEAT	TFM 1600
5	BODY GASKET	PTFE
6	SHAFT	AISI 316
7	SPRING + BALL BEARING (ANTI-STATIC)	AISI 316
8	SEALING RING	PTFE
9	O-RING	FKM
10	PACKING (V-WASHER)	PTFE
11	SUPPORT RING	STAINLESS STEEL + PTFE
12	SPACER	AISI 316
13	BELLEVILLE WASHER	AISI 301
14	SHAFT NUT (GLAND)	A194-8
15	STOP NUT	AISI 304

N°	Part Name	Material
16	FLAT WASHER	AISI 304
17	HANDLE NUT	A194-8
18	LOCKING DEVICE	AISI 304
19	HANDLE	AISI 304
20	HANDLE COVERING	PVC
21	GROWER WASHER (TIE ROD)	AISI 304
22	NUT (TIE ROD)	A2-70
23	BOLT (TIE ROD)	A2-70
24	BOLT (HANDLE STOP)	A2-70
25	NUT (HANDLE STOP)	A2-70
26	HANDLE MOUNTING BASE (DN 80-100)	ASTM CF8
27	TUBULAR HANDLE (DN 80-100)	Zinc-coated ASTM A53
28	SCREW (DN 80-100)	A2-70
29	LOCKING DEVICE (DN 80-100)	AISI 304
30	HANDLE COVERING (DN 80-100)	PVC

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Use

This valve is a shut-off valve: it must be either fully open or fully closed.

Do not leave the valve partially open: an opening default, or leaving the ball valve partially open, to decrease flow, could lead to cavitation which is likely to damage the valve.

To operate the valve, lift the locking device **18** to turn the handle **19** 1/4 of a turn until it cannot be turned any further due to **24**.

Turn the handle 1/4 turn (90°) clockwise to close it or 1/4 turn (90°) anti-clockwise to open it.

If the handle is in line with the piping, the valve is open.

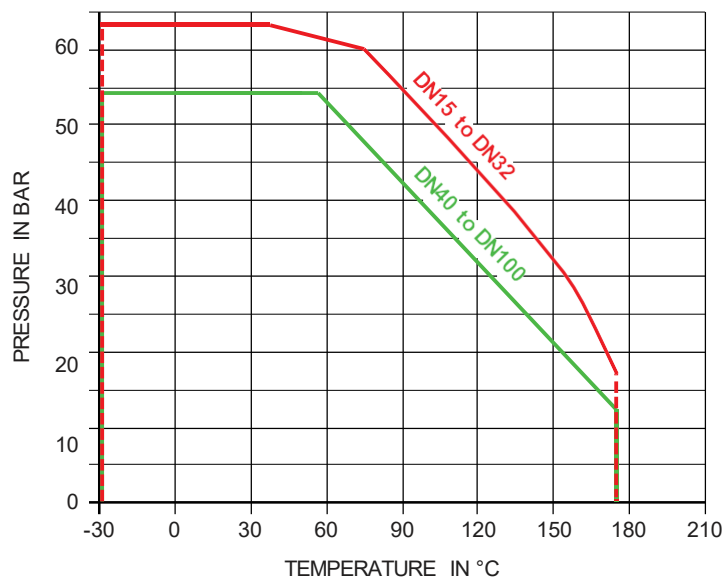
The handle is lockable, with a padlock, in the open or closed position.

Pressure and temperature

The data plate indicates the valve's maximum operating pressure and the minimum and maximum operating temperatures (but the valve's data plate does not include this information for any associated actuator or servo motor, please check their specific data plates for this information).

The operating temperature is between -29°C and +175°C for PTFE shaft packings.

For pressure/temperature ratings, see the graph below.



Warning: For usage temperatures above 60°C there is a risk of burns.

Fluids

This valve is suitable for non-abrasive and non-coagulable fluids, subject to the chemical compatibility of the parts in contact.

The valve can be motorised (direct mounting), thanks to its ISO mounting plate (ISO 5211 standard), see the corresponding product data sheets.

- Model **50071**: valve with spring return or double-acting type aluminium pneumatic cylinder
- Model **50074**: valve with spring return or double-acting type stainless steel pneumatic cylinder
- Model **50077**: valve with IP65 electric servo motor
- Model **50086 - 50089 - 50092**: valve with IP66 electric servo motor
- Model **50098 - 50101 - 50104**: valve with IP68 electric servo motor
- Model **50110 - 50113 - 50116**: valve with ATEX IP68 electric servo motor

Required operating torque for valve motorisation

Dimensions	-	DN8	DN10	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
Operating torque	Nm	5	5	5	6	11	19	26	38	59	101	148
Coupling characteristics	Mounting plate	F03 F04	F03 F04	F03 F04	F03 F05	F04 F05	F04 F07	F05 F07	F05 F07	F07 F10	F07 F10	F10
	Square	9x9	9x9	9x9	9x9	11x11	11x11	14x14	14x14	17x17	17x17	22x22

Torque required for water at 63 bar.

It is recommended to use a minimum safety factor of +30% for motorisation with a pneumatic cylinder and +50% for motorisation with an electric actuator.

Refer to the information given on the product data sheets for the corresponding actuators.

Use in ATEX zones

The manual valves (model **58191**) and pneumatic valves (models **50071** and **50074**) can be used in ATEX II 2 GD zones.

If any other element is added (position detection, solenoid valves etc.), it must be confirmed if this addition is compatible with use in an ATEX zone.

The models **50077**, **50086** and **50098**, valves with electric servo motor, **cannot be used in ATEX zones.**

Only the valves with electric servo motor models **50110**, **50113** and **50116** can be used in an ATEX II 2 GD zone.

Assembly and maintenance instructions

Installation

The valve can be used in any position. Ensure that the intended location is sufficiently clear from obstructions for handle operation.

Check that the installation is clean and free from foreign bodies that could damage the valve.

Make sure that the piping is perfectly aligned and its support structures are sufficiently dimensioned so that the valve is not subject to any external stresses. The support structure must support the pipes, not the valve.

Installation of a valve with ends to be socket welded:

Use a wrench that is suitable for the hexagon-shaped valve end. Do not use the valve body or the handle when you are tightening the assembly (this could damage the valve). To ensure the sealing of the threaded connections, use a product suitable for the working conditions (e.g. anaerobic adhesive model **5291**, PTFE tape, etc.).

The valve must be disassembled and reassembled with the ball in the open position. The tie rods must be tightened and loosened in a criss-cross pattern. When reassembling, adhere to the tightening torques (see table **B** on page 8).

Clean the installation leaving the valve open so that there are no impurities between the ball and the body. Check the valve is operating correctly.

Carry out installation pressure testing without exceeding the valve's specifications and according to the applicable standards (e.g. EN 12266-1).

Maintenance

Under normal operating conditions, the valve does not require any specific maintenance.

In the case of a valve that is never operated during normal operation, it is advisable to regularly open and close the valve to ensure it continues to operate correctly.

During operation (or during the valve installation testing phase), if any leaks appear around the shaft **6**, tighten the shaft nut **14**. Usually leaks can be stopped by tightening the nut by 30 to 60°. But do not over tighten the nut, as this could reduce the system's service life. Adhere to the tightening torques (see table **A** on page 8).

If a leak appears between the valve body and the flanges, check that the tie rods are correctly tightened (bolt **23** + washer **22** + nut **21**), adhering to the tightening torques (see table **B** on page 8).

Following abnormal wear, or the passage of a product which has damaged the valve and caused a leak or malfunction, it may be necessary to change some of its parts.

In this case, see the "Assembly / Disassembly" section below.

Assembly / Disassembly

The maintenance and removal/reassembly of the valve must be carried out by personnel who are qualified and trained for this type of intervention.



Warning: Before working on the valve, check that the installation has been stopped and that the piping is empty and is not pressurised.

Warning: For usage temperatures above 60°C there is a risk of burns.

Warning: Be careful of hazardous materials - follow supplier usage instructions.

Remove the tie rods (bolt **23** + washer **22** + nut **21**). It is best to work with the valve in the open position.

Remove the central part of the valve; the flanges **2** can remain attached to the piping.

Remove the 2 PTFE seat rings **4** and the 2 body gaskets **5**.

Move the valve to the closed position to remove the ball **3**. Inspect the surface condition of the ball. If it is scratched or damaged, it must be replaced at the same time as the two seat rings **4**.

If the shaft needs to be resealed, remove the upper parts of the valve in the following order: handle nut **17**, handle **19** and flat washer(s) **16** in the case of a manual valve (otherwise remove the motorisation), then the stop nut **15**, shaft nut **14**, Belleville washers **13** and stainless steel support ring and spacer (**11** + **12**).

Push the shaft **6** towards the inside of the body **1** in order to remove it, and remove the o-ring **9** and the PTFE sealing ring **8** (take care not to scratch the shaft).

Remove the PTFE packing (v-washers) **10** from its housing (take care not to scratch the surface of this housing).

Clean and inspect all the parts. Change any worn parts. It is strongly recommended to change all the shaft's sealing parts (gaskets and PTFE packing) if it has been disassembled, as well as the ball's TFM seat rings and the PTFE body gaskets.

To reassemble, follow the disassembly steps in reverse order.

To tighten the shaft packing (shaft + PTFE packing + washers, etc.) with the shaft nut **14** (gland) adhere to the tightening torques given in table **A** below.

To retighten the tie rods, work with the valve's ball in the open position, and tighten the tie rods in a criss-cross pattern, adhering to the tightening torques given in table **B** below.

Test the valve (pressure testing + manoeuvring) before putting the installation back into service.

Table A	Dimensions	DN8	DN10	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
	Tightening torque for shaft nut (14)	Nm	8.0 ~ 9.0	8.0 ~ 9.0	8.0 ~ 9.0	8.0 ~ 9.0	9.0 ~ 11.3	9.0 ~ 11.3	15.8 ~ 18.1	15.8 ~ 18.1	20.4 ~ 22.6	20.4 ~ 22.6

Table B	Dimensions	DN8	DN10	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
	Tightening torque for the tie rods (22 and 23)	Nm	7.9	7.9	7.9	11.3	11.3	31.7	31.7	31.7	65	65

Standards and compliance

- Designed in accordance with ASME B16.34, ISO 15848-1 and EN 12516-3 standards
- Connection: to be welded (SW - socket welding) in accordance with ASME B16.11
- Complies with European Pressure Equipment Directive (PED) 2014/68/EU (formerly 97/23/EC) according to Annex III module H (certificate DGR 0036-QS-1045-14)
- ATEX Group II Category 2 G/2D, in accordance with Directive 2014/34/EU (formerly 94/9/EC) (certificate EX9 13 09 82326 002)