

Ball valves

Model 58191 3-part ATEX valve for socket welding (SW)
with ISO mounting plate - 316 stainless steel
1000 lbs/PN63 - Full bore - Lockable handle



Specifications

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

Connection: to be socket welded (SW)

Pressure: PN63 (1000 lbs)

Vacuum: -0.9 bar

Temperature: -29°C to +175°C

Material: 316 or CF8M stainless steel
(for the stainless steel parts that can come into
contact with the transported fluid)

TFM 1600 seats

PTFE + FKM gaskets

ISO 5211 mounting plate for pneumatic or electric
actuators

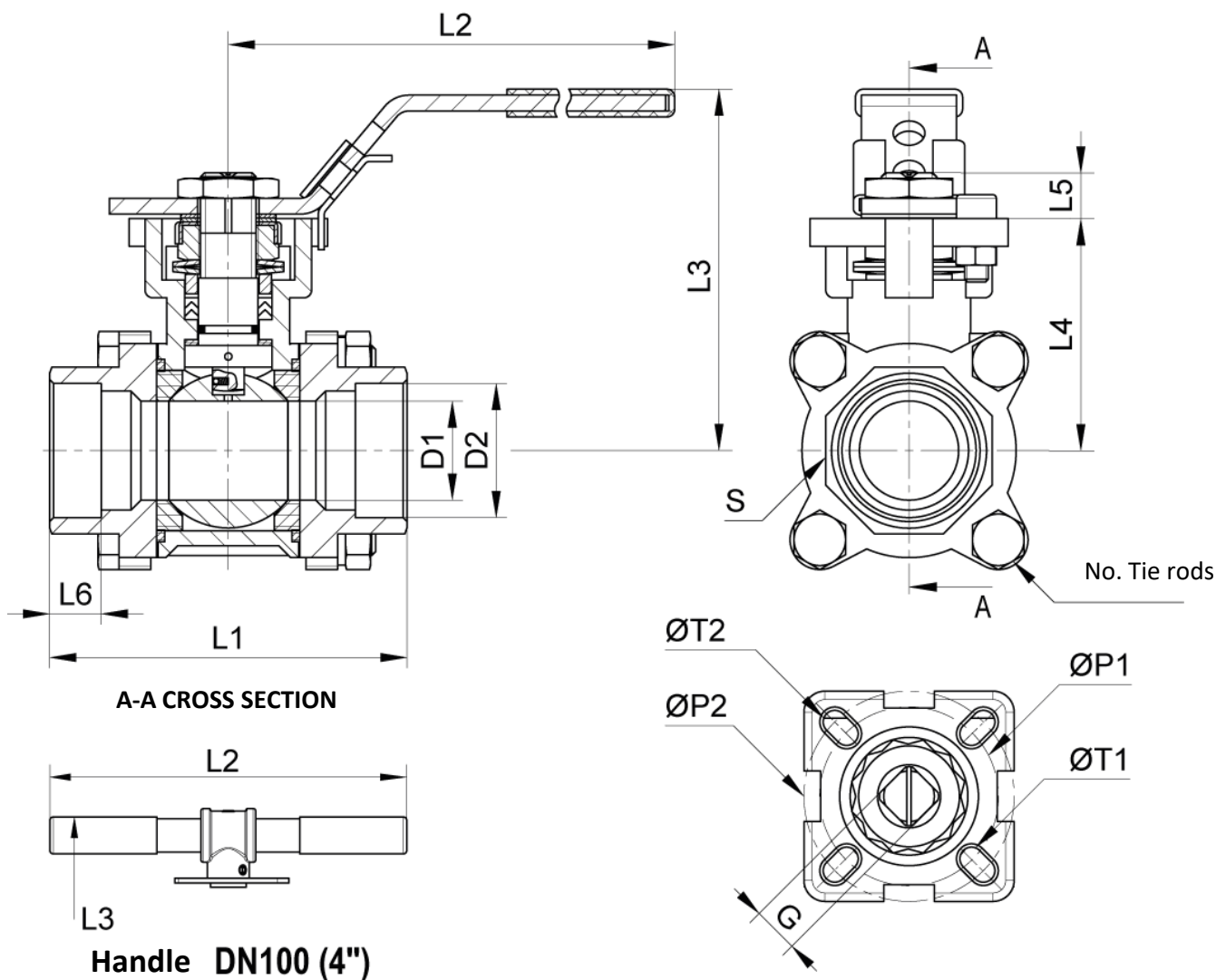
ATEX II 2 GD



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58191-H V0726

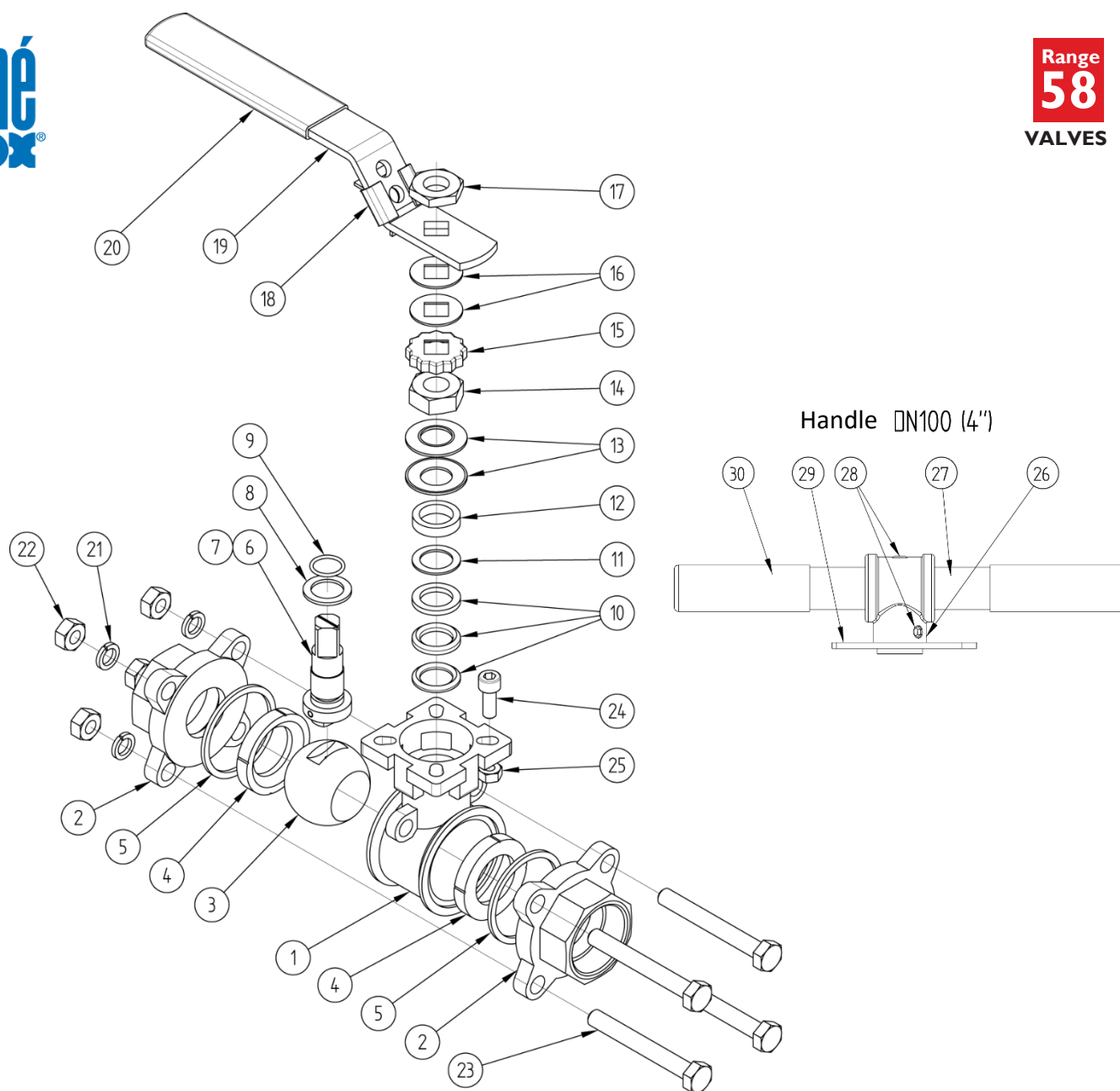


DN (mm)	NB (inches)	D1 (mm)	D2 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	G (mm)	ØP1 (mm)	ØP2 (mm)	ØT1 (mm)	ØT2 (mm)	No. Tie rods	Weight (kg)	Part number
8	1/4"	10.6	14.2	75	147	72	42	9	10	9	36	42	6	6	4	0.65	458191-8
10	3/8"	12.7	17.8	75	147	72	42	9	10	9	36	42	6	6	4	0.61	458191-10
15	1/2"	15	21.8	75	147	72	42	9	10	9	36	42	6	6	4	0.67	458191-15
20	3/4"	20	27.3	80	147	79	49	9	13	9	36	50	6	7	4	0.95	458191-20
25	1"	25	34.0	90	177	89	59	11	13	11	42	50	6	7	4	1.33	458191-25
32	1 1/4"	32	42.8	110	177	93	63	11	16	11	42	70	6	9	4	2.04	458191-32
40	1 1/2"	38	48.9	120	197	103	71	14	16	14	50	70	7	9	4	2.80	458191-40
50	2"	50	61.4	140	197	110	78	14	17	14	50	70	7	9	4	4.30	458191-50
65	2 1/2"	63.5	74.0	185	267	150.	100	17	17	17	70	102	9	11	4	8.30	458191-65
80	3"	76	90.0	205	267	159	109	17	17	17	70	102	9	11	6	12.3	458191-80
100	4"	100	115.5	240	400*	212	140	22	20	22	-	102	-	11	6	23.0	458191-100

* positionable tubular handle

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N°	Part Name	Material
1	BODY	ASTM CF8M
2	FLANGE (SW END)	ASTM CF3M
3	BALL	ASTM CF8M
4	SEAT	TFM 1600
5	BODY GASKET	PTFE
6	ANTI-STATIC 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 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.

You must lift the locking device **18** to be able to turn the valve's handle **19**. You must always turn the handle by a complete 1/4 turn, until it cannot be turned any further due to **24**.

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

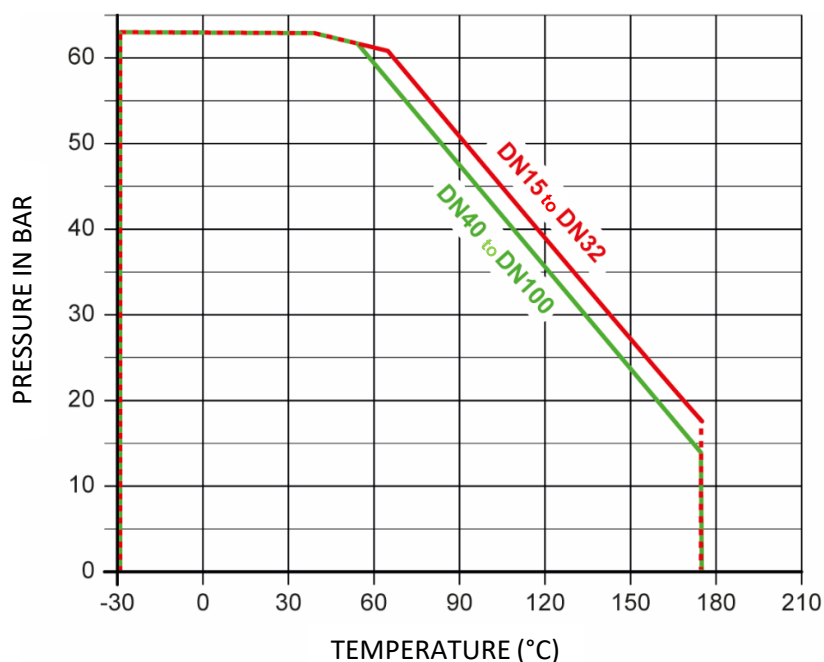
The valve is open if the handle is in line with the piping.

You can lock the handle 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 this information does not cover any associated actuator or servo motor, so if you use one of these with the valve please also check their respective data plates to find this information). The operating temperature is between -29°C and +175°C for TFM I600 seats.

For pressure/temperature ratings, see the graph below.



Warning: If the valve is used with fluids that have a temperature above 60°C then people could burn themselves if they touch it.

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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)	14	20	26	48	83	147	234	407	675	995	1817

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

$$\Delta P = \frac{Q^2}{K_v^2} \quad \text{so:} \quad K_v = \frac{Q}{\sqrt{\Delta P}}$$

Q in m³/h K_v in m³/h $C_v = 1.16 \times K_v$
 ΔP in bar C_v in GPM (Gallons per minute - US)

Fluids

This valve is suitable for non-abrasive and non-coagulable fluids, as long as the fluids are chemically compatible with the valve parts that they can come into contact with.

You can motorise the valve through direct mounting using 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 actuator
- Model **50074**: valve with spring return or double-acting type stainless steel pneumatic actuator
- Model **50077**: valve with IP65 electric servo motor
- Model **50086 - 50089 - 50092**: valve with IP68 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 for water at 10 bar	Nm	5	5	5	6	10	13	19	29	45	72	110
Operating torque for water at 20 bar	Nm	5	5	5	6	11	15	22	32	49	81	122
Operating torque for water at 50 bar	Nm	5	5	5	6	11	17	24	35	54	90	135
Operating torque for water at 63 bar	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

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

You can find this information on the product data sheet for each actuator.

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Use in ATEX zones

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

The valve's anti-static shaft ensures electrical continuity between the valve's ball, shaft and body.

If you add any other element (e.g. position detection, solenoid valves etc.), you must check that this addition can be used in ATEX zones.

You **cannot use** models **50077**, **50086** and **50098** etc. (valves with electric servo motors) **in ATEX zones**.

You can only use models **50110**, **50113** and **50116** with electric servo motors in ATEX II 2 GD zones.

Assembly and maintenance instructions

Installation

You can install the valve in any position. However, check that there is enough space to move the valve's handle where you are planning to install the valve.

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

Check that all piping is perfectly aligned and that the piping support structure is dimensioned so that the valve is not subject to any external stresses. The piping support structure must only support the pipes, not the valve.

How to install a valve with threaded ends:

Use a wrench that is suitable for the hexagon-shaped valve ends. Do not use the valve's body or handle when you are tightening the assembly (this could damage the valve). Use a product that is suitable for the working conditions (e.g. pipe sealant model **5291**, PTFE tape, etc.) to make sure the valve's threaded connections are sealed correctly.

You must disassemble and reassemble the valve with the ball in the open position. You must tighten and loosen the tie rods in a criss-cross pattern. You must adhere to the tightening torques in table **B** (see page 8) when you reassemble the valve.

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

Pressure test the installation according to the relevant standards (e.g. EN 12266-1), but do not exceed the valve's specifications.

Maintenance

The valve does not require any specific maintenance if it is used in normal operating conditions.

If the valve is never opened or closed during normal operation then you should regularly open and close the valve to check that it is still working correctly.

If any leaks appear around the shaft **6**, during operation or during the valve installation testing phase, tighten the shaft nut (gland) **14**. You can usually stop leaks by tightening the nut by 30 to 60°. But you must not over tighten the nut, as this could reduce the system's service life. You must adhere to the tightening torques in table **A** (see page 8).

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

You may need to change some of the valve's parts due to unusual wear and tear, or if a fluid has damaged the valve and caused a leak or malfunction.

If this is the case see the 'Assembly / Disassembly' and 'Spare Parts' sections below.

Assembly / Disassembly

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



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

Warning: If the valve is used with fluids that have a temperature above 60°C then people could burn themselves if they touch it.

Warning: Beware of hazardous materials - follow the instructions provided by the suppliers.

Remove the tie rods (bolts **23** + washer **21** + nut **22**). You should work with the valve in the open position.

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

Remove the 2 TFM I600 seat rings **4** and the 2 body gaskets **5**.

Close the valve to remove the ball **3**. Check the condition of the ball's surface. You must replace it at the same time as the two seat rings **4** if it is scratched or damaged.

If you need to replace the shaft's sealing, remove the parts from the upper part 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 valve's motorisation), then the stop nut **15**, shaft nut **14**, Belleville washers **13** and stainless steel rings (**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** (be careful you do not scratch the shaft).

Remove the PTFE packing (v-washers) **10** from its housing (be careful you do not scratch the surface of this housing).

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Clean and inspect all of the parts of the valve. Replace any worn parts. You are strongly advised to replace all the shaft's sealing parts (gaskets and PTFE packing) if it has been disassembled, as well as the ball's TFM 1600 seat rings.

Follow the disassembly steps in reverse to reassemble the valve.

You must adhere to the tightening torques in table **A** below when you tighten the shaft packing (shaft + PTFE packing + washers, etc.) with the shaft nut **14**.

You must tighten the tie rods in a criss-cross pattern, with the valve's ball in the open position, and you must adhere to the tightening torques in table **B** below.

Pressure test the valve and check that it can be opened and closed before you put 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	28.3~30.6

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	90.5

Spare parts

Gasket kits

A gasket kit contains:

- 2 seat rings **4**
 - 2 body gaskets **5**
 - 1 sealing ring **8**
 - 1 o-ring **9**
 - 1 shaft packing **10**
 - 1 support ring **11**
- (quantity could vary according to the DN)

DN (mm)	NB (inches)	Gasket kit Part no.
8	1/4"	D5341-8
10	3/8"	D5341-10
15	1/2"	D5341-15
20	3/4"	D5341-20
25	1"	D5341-25
32	1"1/4"	D5341-32

DN (mm)	NB (inches)	Gasket kit Part no.
40	1"1/2"	D5341-40
50	2"	D5341-50
65	2"1/2"	D5341-65
80	3"	D5341-80
100	4"	D5341-100

Handle **18; 19; 20**

For DN8 to DN80

DN (mm)	NB (inches)	Handle Part no.
8 to 20	1/4" to 3/4"	D5121-820
25 to 32	1" to 1"1/4"	D5121-2532
40 to 50	1"1/2 to 2"	D5121-4050

DN (mm)	NB (inches)	Handle Part no.
65 to 80	2"1/2 to 3"	D5121-6580
100	4"	D5121-100

Tubular handle **26; 27; 28; 29; 30**

For DN100

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Customisation possibilities



Position raiser with ISO mounting plate



DN (mm)	NB (inches)	Length (mm)	Position raiser with ISO plate Part no.
8 to 20	1/4" to 3/4"	100	458208-1
25 to 32	1" to 1 1/4"	100	458208-2
40 to 50	1 1/2" to 2"	100	458208-3
65 to 80	2 1/2" to 3"	100	458208-4
100	4"	100	458208-5

Oval operating wheel



DN (mm)	NB (inches)	Operating wheel Part no.
15 to 20	1/2" to 3/4"	458136-1
25 to 32	1" to 1 1/4"	458136-2
40 to 50	1 1/2" to 2"	458136-3

Spring return (deadman) handle



DN (mm)	NB (inches)	Deadman handle Part no.
15 to 20	1/2" to 3/4"	458136-1
25 to 32	1" to 1 1/4"	458136-2
40 to 50	1 1/2" to 2"	458136-3

Standards and compliance

- This valve is 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.
- Leak testing according to EN 12266/API 598.
- This valve complies with European Pressure Equipment Directive (PED) 2014/68/EU
 - from DN8 according to Annex I Paragraph 4.3.
 - from DN32 according to Annex III Module H: Certificate No. DGR 0036-QS-1045-23.
- ATEX Group II Category 2 G D in accordance with Directive 2014/34/EU: Certificate No. EX9A 082326 0003
 - II 2G Ex h IIC T6...T1 Gb (gas and vapour).
 - II 2D Ex h IIC T85°C...T450°C Db (combustible dust).
- ACS certified (French certification for drinking-water piping sanitary compliance).