

EXTREME BALL VALVE

INSTALLATION AND MAINTENANCE MANUAL

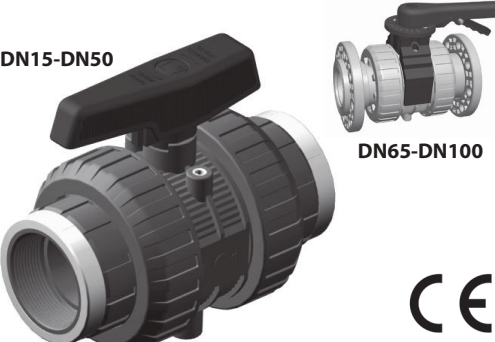
- PVC-U (PTFE - EPDM/FPM)
- CPVC (PTFE - EPDM/FPM)
- PPH (PTFE - EPDM/FPM)
- PVDF (PTFE - EPDM/FPM)
- ABS (PTFE - EPDM/FPM)

Declaración de conformidad CE / EC Declaration of Conformity
 El fabricante / the manufacturer : CEPEX S.A.U.
 Avinguda Ramon Ciurens 40 (Parcel.la 6)
 Poligon Industrial Congost
 08530 LA GARRIGA

Declara que nuevas válvulas / declares that our valves :
 Tipo/type: Válvula de Bola manuales / Manual Ball valves
 Modelos / Models: [IND] and EXTREME SERIES
 Material / Material: PVC-U / PVC-C / PPH / PVDF / ABS
 Cumple con los requisitos establecidos por la UNIÓN EUROPEA para EQUIPOS A PRESIÓN según Directiva 2014/68/UE (PED), categoría II módulo A2, de acuerdo con las normas armonizadas :
 - EN ISO 16135 VALVULAS INDUSTRIALES - Válvulas de bola de materiales termoplásticos
 Meets the requirements established by the European Union for PRESSURE EQUIPMENT according to Directive 2014/68/UE (PED), category II module A2, in accordance with the harmonized standards:
 - EN ISO 16135 INDUSTRIAL VALVES - Ball valves of thermoplastics material.

La marca CE sobre la válvula hace referencia a esta conformidad. Según la directiva 2014/68/UE solamente las válvulas mayores a DN25 pueden ir marcadas con CE.
 The CE marking on the valve refers to this conformity. According to Directive 2014/68/UE only valves larger than DN25 can be marked with CE.

Yasmin Fernández
 Quality Manager
 La Garriga, April 2017



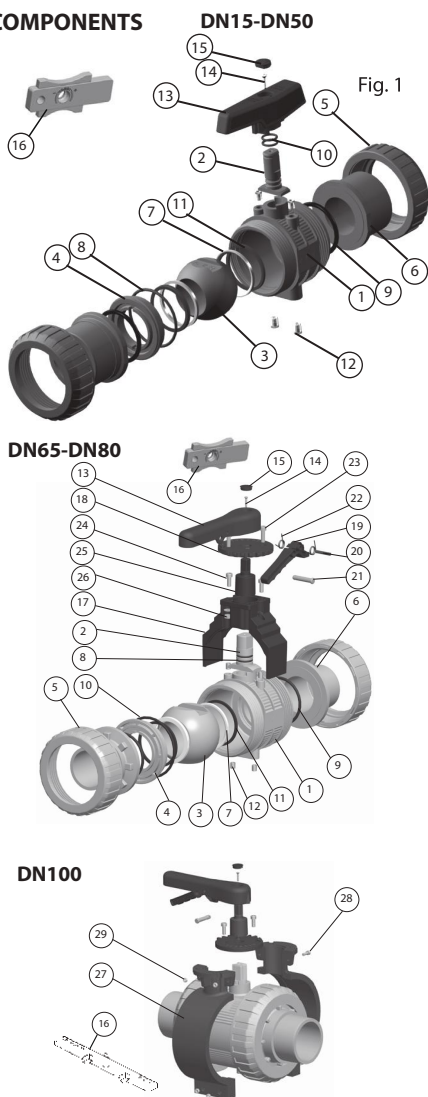
1. DEFINITION

Ball valve for isolating the flow in liquid handling systems. Design based on the EN ISO 16135:2007 Standard in accordance with the 2014/68/UE (PED) Directive. The valve is available with PVC-U, CPVC, PPH, PVDF and ABS bodies and EPDM and FPM (FKM) sealing gaskets. The choice of material for the body and gaskets depends on the type of liquid to be carried and on the working temperature of the liquid, in accordance with the chemical resistance tables available on our website and the pressure/temperature chart in this Manual.

2. GENERAL ADVICES

- The valves described in this manual are especially designed to ensure a correct flow circulation in all working phases.
- Apparatus should be installed in accordance with the specific instructions for each installation. All existing safety legislation should be respected at all times in order to avoid accidents.
- Any modification to the ball valve requires the prior authorisation of the manufacturer. Spare parts and accessories authorised by the manufacturer are a guarantee of greater safety. The manufacturer of this valve is exempt from all responsibility for damage arising from unauthorised spare parts and accessories.
- The user should ensure that all assembly and maintenance work is carried out by suitably authorised, qualified personnel, and that these have previously read the installation and service instructions set out in this manual.
- Avoid shocks during transport, since they may damage the body of the valve.
- Store the valve in the original packaging, protected against humidity and direct sunlight.
- The maximum service life of the valve is specified in EN ISO 16135:2007. It is verified on the production plant by aging tests specified in the standard.
- Correct installation and handling of the valve, as well as adherence to the maximum pressure and temperature conditions specified in this manual are essential for preserving the service life of the valve.
- The driven liquid must be compatible with the valve materials. Consult chemical resistance charts published by Cepex or consult the technical department.
- Using tools for opening or closing the manual valve control is not recommended.
- Before carrying out any maintenance operations on the pipe or valve, ensure that the system is depressurised by releasing the pressure and emptying the pipes, following the specific safety regulations of each product.
- Before installation, check that the valve is undamaged and that it contains all the parts required for installation.
- It is important to avoid rapid closure of valves to eliminate the possibility of water hammer causing damage to the pipeline.
- When using the valve as the final element of an installation, take into account the risks of the liquid and control the pressure and temperature, according to the standards of safety of each product.
- It is not recommended to use this valve for transport of solids or liquids with impurities that may damage the seat or the ball of the valve.

3. COMPONENTS

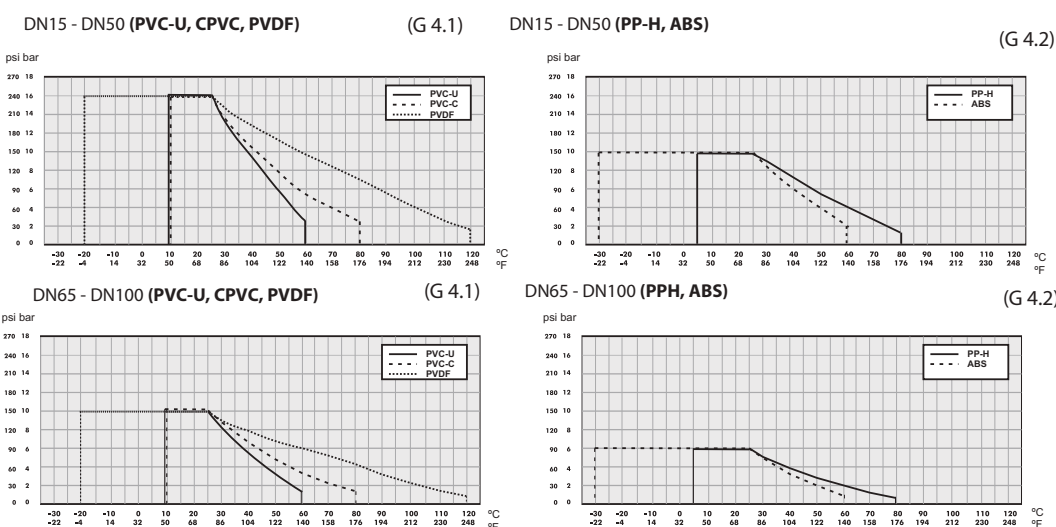


N	DESCRIPTION	MATERIAL	Q
1	Body	PVC-U, PPH, CPVC, PVDF, ABS	1
2	Shaft	PVC-U, PPH, CPVC, PVDF, ABS	1
3	Ball	PVC-U, PPH, CPVC, PVDF, ABS	1
4	Seal carrier	PVC-U, PPH, CPVC, PVDF, ABS	1
5	Nut	PVC-U, PP, CPVC, PVDF, ABS	2
6	End connector	PVC-U, PPH, CPVC, PVDF, ABS, PE-100 Threaded versions with AISI-304 ring	2
7	Ball Seat	PTFE	2
8	O-ring	EPDM / FPM	2
9	O-ring	EPDM / FPM	2
10	O-ring	EPDM / FPM	1
11	Dampener seal	EPDM / FPM	2
12	Insert	Stainless steel AISI-303	4
13	Handle	PP-GR	1
14	Screw	A2-70	1
15	Cap	PP	1
16	Adjusting tool	ABS (DN15-80), POM (DN100)	1
17	Mounting clamp	PP-GR	1
18	Throttle plate	PP-GR	1
19	Lever-lock	PP-GR	1
20	Pin	AISI-304	1
21	Locking pin	POM	1
22	Spring	AISI-302	2
23	Screw	A2-70	2
24	Screw	A2-70	2
25	Coupling bush	PA-GR	1
26	Nut	A2-70	2
27	Mounting clamp	PVC-U (PVC-U Valve), CPVC (CPVC Valve), PP-GR (PPH, PVDF, ABS valve)	2
28	Screw	A2-70	4
29	Nut	A2-70	4

4. BALL VALVE TECHNICAL SPECIFICATIONS

DN10-DN50 (PVC-U, CPVC, PVDF): PN16 at 20°C liquid temperature.
 DN65-DN100 (PVC-U, CPVC, PVDF): PN10 at 20°C liquid temperature.
 DN10-DN50 (PPH, ABS): PN10 at 20°C liquid temperature.
 DN65-DN100 (PPH, ABS): PN6 at 20°C liquid temperature.
 The working pressure of the valve reduces with increasing liquid temperature, as shown in the accompanying chart.

Pressure / Temperature Chart.



Valve operating torque

Operating torque values at rated pressure (PN) and 20 °C in as new direct from the factory condition. Installation and operating conditions (pressure and temperature) will affect these values. The actuator that is required for an automatic operation must be calculated according to some safety factors that were determined in life tests carried out in the factory.

Operating torque table (N·m) (T4.1)

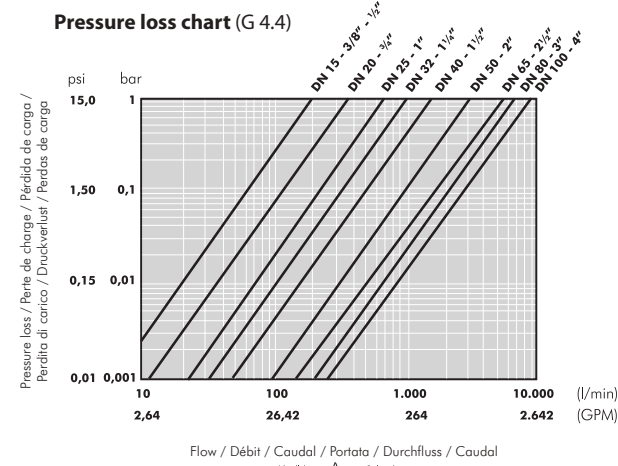
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
N·m	1	2	3,5	3,5	5	15	25	45	60
lbf·inch	8,9	17,7	31	31	44,3	132,8	221,3	398,3	531

Pressure loss table (T4.2)

DN	D	Kv (l/min)	Cv (GPM)
10	16	75	5,3
15	20	190	13,3
20	25	380	26,6
25	32	690	48,3
32	40	980	68,6
40	50	1600	112
50	63	3000	210,1
65	75	5500	385,2
80	90	6800	476,2
100	110	8900	623,2

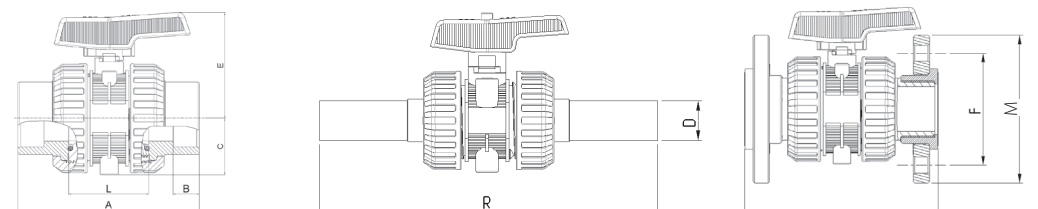
Valve connections	Actuator coupling (Optional)
Threads: ISO 7-1, ISO 228-1 Flanges: EN 558-1, EN 1092-1 PVC-U, CPVC, ABS: ISO 15493 PPH, PE-100: ISO 15494 PVDF: ISO 10931	EN/ISO 5211

Pressure loss chart (G 4.4)



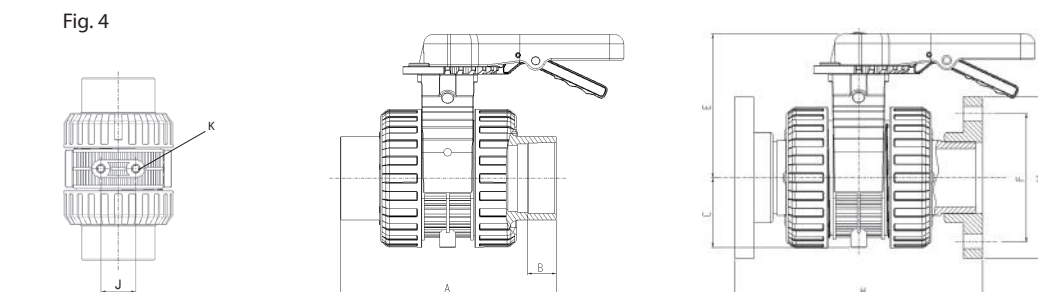
5. DIMENSIONS

DN	D / G	A ± 2 (PVC-U, CPVC, ABS)	A' ± 2 (PPH, PVDF)	B cemented	B welded	B threaded	C	E	J	K	L	R ± 2	F	H ± 2	M
10	16 - 3/8"	102	101	15,5	14,5	8,5	26	53	16	M4	48	-	-	-	-
15	20 - 1/2"	102	101	17	15,5	13,5	26	53	16	M4	48	170,5	65	130	95
20	25 - 3/4"	120	118	20	17	15,5	31,5	65	20	M5	56	75	150	105	
25	32 - 1"	139	136	23	19	18,5	36	73	24	M5	66	204,5	85	160	140
32	40 - 1 1/4"	156	151	27,5	21,5	20	45	88	28	M5	74	226	100	180	150
40	50 - 1 1/2"	170	165	32	24,5	20	51	102	30	M8	77	250	110	195	165
50	63 - 2"	197	190	39,5	28,5	24	61	114	37,5	M8	90	296	125	223	185



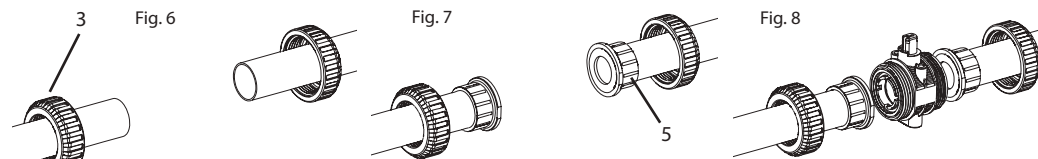
DN65-DN100

DN	D / G	A ± 2 (PVC-U, CPVC, ABS)	A' ± 2 (PPH, PVDF)	B cemented	B welded	B threaded	C	E	J	K	F DIN	Holes DIN	F' ANSI	Holes ANSI	H ± 2	M
65	75 - 2 1/2"	238	235	45	31	27	75	137	38	M8	145	4x18	139,7	4x19	290	185
80	90 - 3"	278	272	53	35	30	88,5	153	53	M8	160	8x18	152,4	4x19	310	200
100	110 - 4"	359	350	63	42	63	140	215	-	-	180	8x18	190,5	8x19	418	220



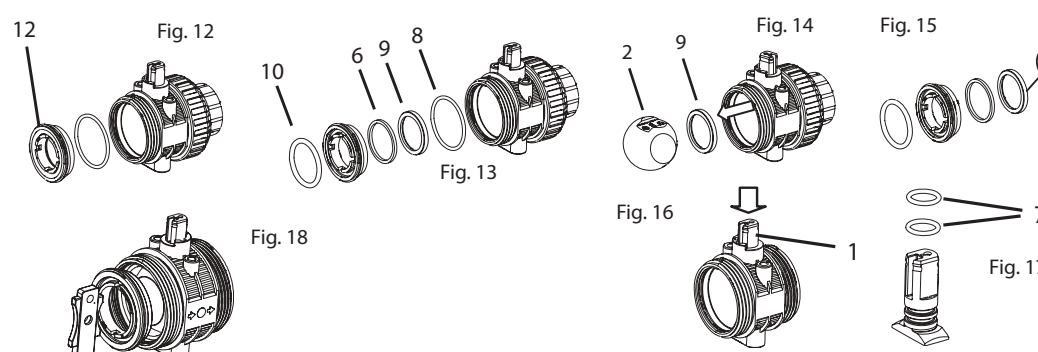
6. INSTALLATION AND COMMISSIONING

Before commencing the installation process, check that you have all the parts needed for the valve assembly, and that the materials, connection type and nominal pressure are suitable for the installation. For solvent or welded connections, ensure also that the parts to be connected are of the same material and that you are using the correct solvent or welding tools. To install the valve, follow best installation practice recommendations provided on the Cepex website, paying particular attention to thermal expansion and pipe alignment. When filling the pipes with liquid, check that all the air is purged from the system and that the initial pressure does not exceed the nominal pressure of the valve, or of the system element with the lowest nominal pressure rating. Install the valve pointing in the direction of flow marked on the body of the valve (downstream). Install the valve once the sockets are solvent-bonded and dry, to avoid problems with the adhesive (entry of the latter into the valve). The valve is supplied assembled from the factory and the following steps should be followed for its installation: 1. Check that the diameter of the tube corresponds to the inside of the end connector (if it is a solvent socket). 2. Adjust the valve to the installation leaving the union nut (3) Fig. 6 on the tube before gluing the end connector (5) Fig. 7. 3. Leave an exact distance between end connectors (see Fig. 8), so that the body of the valve can be easily introduced, preventing it from being strained by both ends of the tubing. 4. Solvent sockets (PVC-U / PVC-C / ABS) are made by cleaning the areas to be joined with a suitable solvent and then adding adhesive. It is not recommended that pressure is applied until 24 hours after gluing. In the solvent operation you have to separate the body of the end connectors, just to avoid the adhesive damages the valve internal parts. 5. PTFE tape is placed in the male threads of the threaded unions: "it is very important that an excessive amount is not used as when it is put together it could cause breakage of the female housing". 6. The soldered unions (PE / PP-H / PVDF) are made taking into account the instructions of the soldering tool used. This range of valves allows the valve to be fixed to a base using threaded inserts at the bottom. When using the inserts, take note of the dimensions of the screws.



7. OPERATION AND MAINTENANCE INSTRUCTIONS

If the valve is installed correctly pointing in the direction of flow marked on the body, it is possible to carry out the maintenance downstream without problems. By simply closing the valve this acts as a plug. If on the contrary it is upstream where maintenance is required, it is essential that there is no pressure in the circuit when dismantling the union nut and end connector. The operations described next are always carried out without fluid in the line. The valve is adjusted in the factory for correct and prolonged functioning. Nevertheless, it is possible to readjust the tightening of the sealing gasket on the ball when the conditions of use so require it. This operation is carried out with the help of the handle or the supplied tool (Fig. 18). Dismantle the valve's union nuts (3) and remove them from their housing. Put the outil into the slot that is found in the seal carriers for this purpose (12) and turn the key anti-clockwise to tighten the o-ring and clockwise to loosen it. If any of the components of the valve wear out, you can replace them by dismantling the body of the valve. To do so, proceed in the same way with the adjustment but turn it clockwise until the seal carriers (12) are free. When you have done this you may substitute any of the body's O-rings. Turn the shaft until the ball is in a closed position; remove the ball (2) and remove the ball seat (9). To replace the shaft, it has to be forced as shown in Fig.16. Once the shaft has been removed (1) the o-rings can be replaced (7). Remember that excessive force on the seal carriers can affect the action which can damage the actual functioning of the valve. Assembly can be done by reversing the process but always taking the precaution of lubricating the o-rings with PTFE oil. Do not use grease or mineral oils that attack the material of the o-rings.



8. TROUBLESHOOTING

FAULT	POSSIBLE CAUSE	FAULT CLEARANCE
Leakage on the body of the valve	Wear of the body o'ring	Change the o'ring
	Looseness of the seal carrier	Ajust the seal carrier
	Presence of solids or strange elements	Remove the valve and replace damaged parts
Leakage on the shaft of the valve	Wear of the shaft o'rings	Change the o'rings
The torque is too strong or the valve is blocked	The seal carrier is over-tight	Ajust the seal carrier

* For other languages, please visit our website: www.cepexindustrial.com

