FORT VALE®

Catalogue

Equipment for Hydrogen Peroxide Service

REV01-25.05.23

FORT VALE

CONTENTS

Equipment for Hydrogen Peroxide Service

Catalogue

500mm Ultra Low Profile Manlid Assembly: H_2O_2

Part No: E4X-85XX013A

Specification

Nominal size
DN500

Cover
8 point with a fill pipe flange assembly & a breather vent assembly with sintered disc and low-leak cap with secondary sintered disc

Neckring/compensating ring
Thickness: 8mm
Tank radius profiling range: 950mm to 1260mm

Materials
Contact parts: 316 stainless steel
Fasteners: stainless steel swingbolts and handnuts
Fill pipe gasket & breather vent seals: PTFE
Manlid cover seal: supplied separately

Alternatives are available, refer to Fort Vale

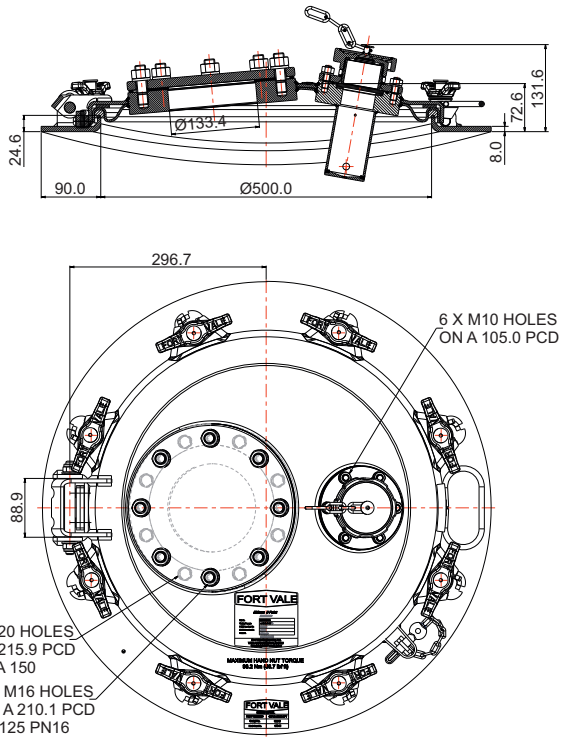
Design Conditions

Weight:	57.8 Kg
Design Pressure (MAWP):	4 Bar
Test Pressure:	6 Bar
Design Temperature Min:	-40°C
Design Temperature Max:	200°C

NOTE: The Design Temperature limits refer to metal parts only. The Design Conditions and Section View dimensions are for the specified part number only.

Design Codes
BS EN 14025

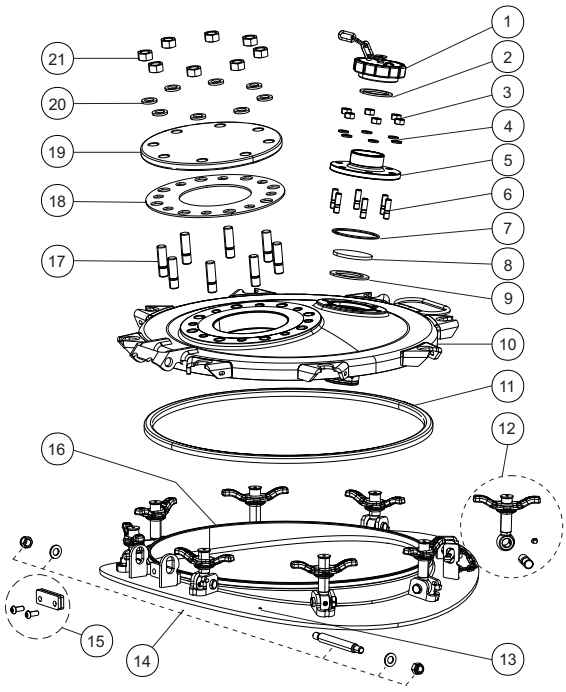
Section View



500mm Ultra Low Profile Manlid Assembly: H_2O_2

Part No: E4X-85XX013A

Parts Drawing



Parts List

Item	Description	Part No.
1	Breather cap assembly	674/3040
2	Breather cap seal	5005-414
3	M10 full nut (6)	5112-002
4	M10 spring washer (6)	5113-002
5	2" BSP outlet	674/3546
6	M10 x 35mm stud (6)	371/0001
7	PTFE O ring	5005-235
8	Sintered disc	865/2000
9	PTFE gasket	5005-435
10	Manlid cover	74E/0550T
11	Seal (not included) ***Note**	5005-XXXX
12	Short swingbolt assy. (4) Long swingbolt assy. (4) ***Note**	496/5250 496/5XXX
13	M6 set screw	5111-009
14	Hinge pin assembly	600/1060
15	Hinge kit ***Note**	135B
16	Neckring ***Note**	6EP/7403XXXPT
17	M16 x 60mm stud (8)	368/1109
18	PTFE fill flange gasket	5005-411
19	Blind flange	674/5051
20	M16 spring washer (8)	5113-012
21	M16 full nut (8)	5112-003

NOTE: The specification changes the Part No.

250mm Low Profile Burst Disc Holder: Hydrogen Peroxide

Part No: 674/8680

Specification

Nominal size
250mm

Tank connection
Flanged: 12 x M20 holes on a 350.0mm PCD

Properties
Weather cowl, TIR and internal surge protection cover.
NOTE: The burst disc is not included, refer to Related Parts

Materials
Weld-in flange: 316L stainless steel
Gasket: PTFE

Alternatives are available, refer to Range or contact Fort Vale

Design Conditions

Weight:	38.7 Kg
Design Pressure (MAWP):	4 Bar
Design Temperature Max:	140°C
Minimum Flow:	93045 m^3/hr at 4 Barg

NOTE: The Design Conditions and Section View dimensions are for the specified part number only.

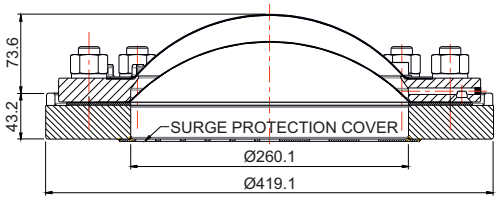
Range

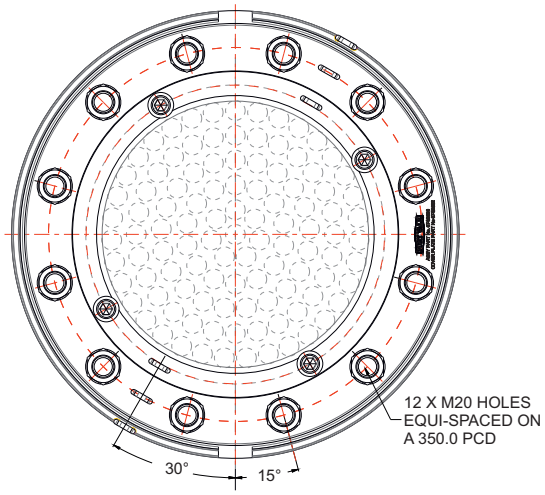
Description	Part No.
With surge protection cover	674/8680
Without surge protection cover	674/8580

Related Parts

Description	Part No.
250mm burst disc: 4.5 Bar at 20°C	865/A0450020AD
250mm burst disc: 4.5 Bar at 60°C	865/A0450060AD
250mm burst disc: 6 Bar at 20°C	865/A0600020AD

Section View

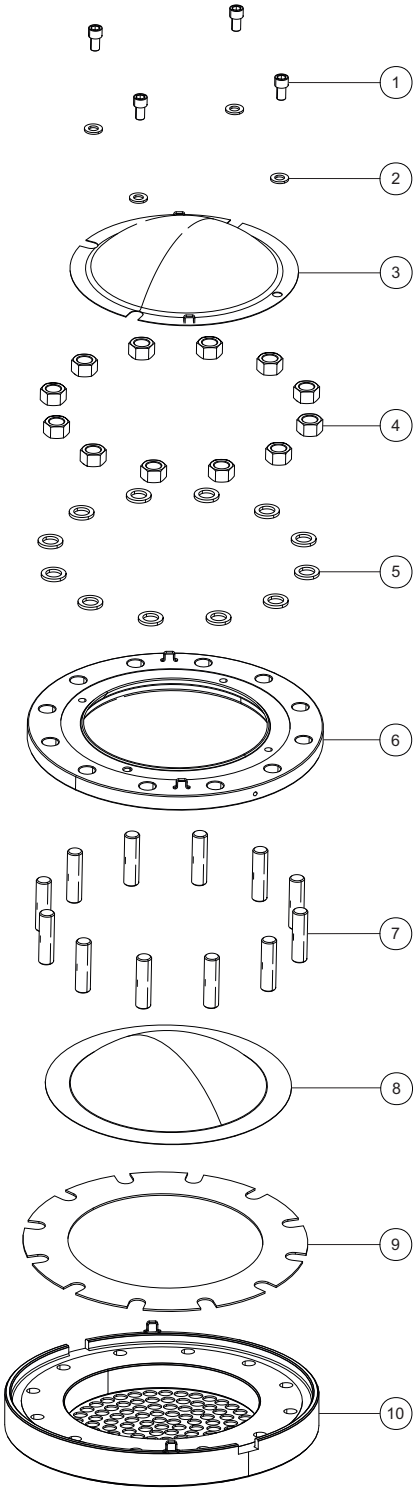




250mm Low Profile Burst Disc Holder: Hydrogen Peroxide

Part No: 674/8680

Parts Drawing



Parts List

Item	Description	Part No.
1	M12 cap screw (4)	5111-066
2	M12 plain washer (4)	5113-006
3	Weather cowl	674/2005
4	M20 full nut (12)	5112-011
5	M20 spring washer (12)	5113-016
6	Burst disc cover plate	674/2002
7	M20 stud (12)	674/8005
8	Burst disc ***Note**	865/XXXX
9	PTFE gasket	5005-283
10	Weld-in flange with surge cover	674/8560

NOTE: The burst disc is supplied as a separate part. Please refer to Related Parts, page 1.

2½” BSP Super Maxi Relief Valve - Pressure/Vacuum

Part No: 010/1XXXXX - Metric Setting

Specification

Nominal size
DN65

Tank connection
2½” BSP

Set pressure
From 0.15 Bar to 5.15 Bar

Set vacuum
From 1 kPa to 88 kPa

Materials
Contact parts: 316 stainless steel
Pressure O ring: Fortyt
Vacuum O ring: Fortyt
Tank seal: Rubber/PTFE envelope

Alternatives are available, refer to the Design Options page

Design Conditions

Weight:	2.9 Kg
Design Pressure (MAWP):	5.2 Bar
Test Pressure:	10.1 Bar
Design Temperature Min:	-55°C
Design Temperature Max:	200°C

NOTE: The working temperature of the pressure and vacuum O rings can change the design temperature limits. The Design Conditions and Section View dimensions are for the specified part number only.

Approval
Design Approval by Lloyds Register of Shipping

WARNING: If you install an approved relief valve accessory item, e.g. a flame arrester, cowl, burst disc or baffle, it will decrease the air flow capacity of the relief valve. Thus, you must calculate again to make sure that the decreased air flow capacity will give sufficient protection to your vessel/system. Refer to Fort Vale for more information.

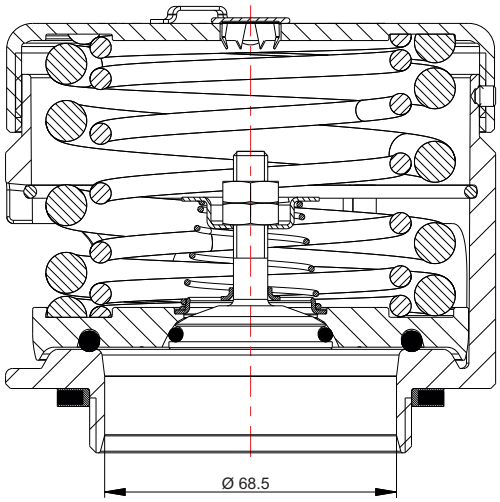
Range

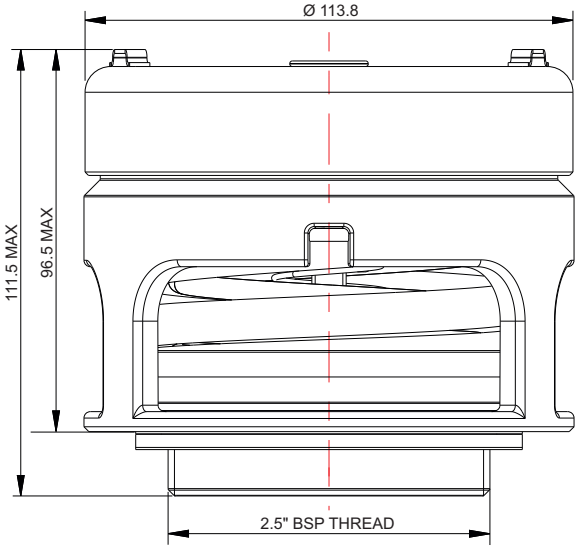
Standard Settings	Part No.
2.19 Bar & 21 kPa	010/121921
3.31 Bar & 21 kPa	010/133121
3.71 Bar & 21 kPa	010/137121
4.40 Bar & 21 kPa	010/144021

Related Parts

Description	Part No.
2½” BSP weld-in socket	600/1000
Tank weld-in flange	176/3150
CNAF/PTFE gasket (adaptor flange)	5005-398
0-7 Bar pressure gauge, brass internal parts	921/07BBSP
0-7 Bar pressure gauge, stainless steel internal parts	920/07BBSP
Flame arrester ***Warning**	176/2900
Gauzed cowl ***Warning**	176/6000

Section View

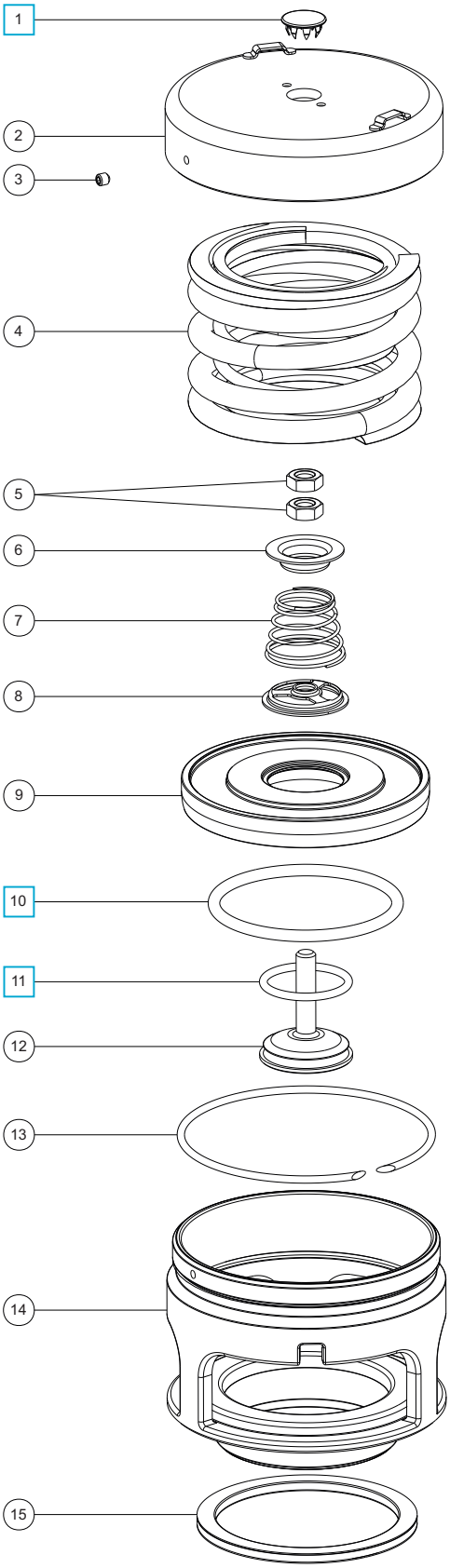




2½” BSP Super Maxi Relief Valve - Pressure/Vacuum

Part No: 010/1XXXXX - Metric Setting

Parts Drawing



Parts List

Item	Description	Part No.	
1	Stainless steel plug	10978	☐
2	Cap ***Note**	1760/0005XX	
3	Anti-tamper screw	5121-001	
4	Pressure springs	Refer to Table 1	
5	M8 half nut (2)	5112-004	
6	Vacuum spring pad	1860/0005	
7	Vacuum spring	Refer to Table 2	
8	Spring pad	10986/3	
9	Pressure plate ***Note**	1860/005XXX	
10	Fortyt pressure O ring	5005-101	☐
11	Fortyt vacuum O ring	5005-108H	☐
12	Vacuum poppet	10983V/3	
13	Retaining ring clip	5120-067	
14	Body	1860/0100	
15	Rubber/PTFE envelope seal	5005-046	

NOTE: The valve specification changes the Part No.

Table 1

Std. Pressure Settings	Pressure Spring Part No.
2.19 Bar	6104-0252
3.31 Bar	6104-0112 & 6104-0252
3.71 Bar	6104-0422 (Pair)
4.40 Bar	6104-0485 (Pair)

Pressure springs are available from 0.15 Bar to 5.15 Bar

Table 2

Std. Vacuum Setting	Vacuum Spring Part No.
21 kPa	7104-012

Vacuum springs are available from 1 kPa to 88 kPa

Seal Kit

Description	Part No.
All parts marked ☐ in the Parts List	000/1PVSK

50mm Low Profile Breather Vent: Hydrogen Peroxide

Part No: 674/3542

Specification

Nominal size
50mm

Tank connection
Flanged: 6 x 11mm holes on a 104.9mm PCD

Outlet connection
2" BSP

Properties
With sintered disc to prevent vessel pressurisation
Low-leak cap with secondary sintered disc and chain

Materials
Contact parts: 316 stainless steel
Sintered discs: 316 stainless steel
All seals & gaskets: PTFE

Alternatives are available, refer to Range or contact Fort Vale

Design Conditions

Weight:	5.29 Kg
Design Pressure (MAWP):	4 Bar
Design Temperature Min:	-40°C
Design Temperature Max:	150°C

NOTE: The Design Conditions and Section View dimensions are for the specified part number only.

Approvals
The cap is compatible with SNCF regulations

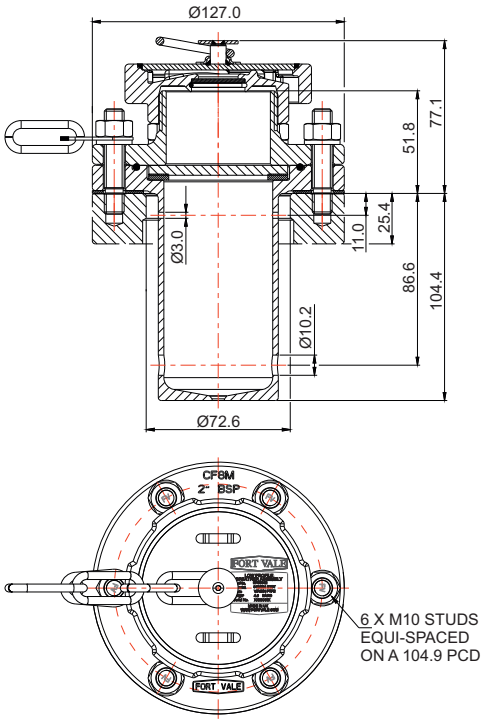
Range

Description	Part No.
Weld-in breather vent assembly	674/3500
DIN80 PN10 flanged breather vent assy	674/3550

Related Parts

Description	Part No.
Weld-in flange	176/3150

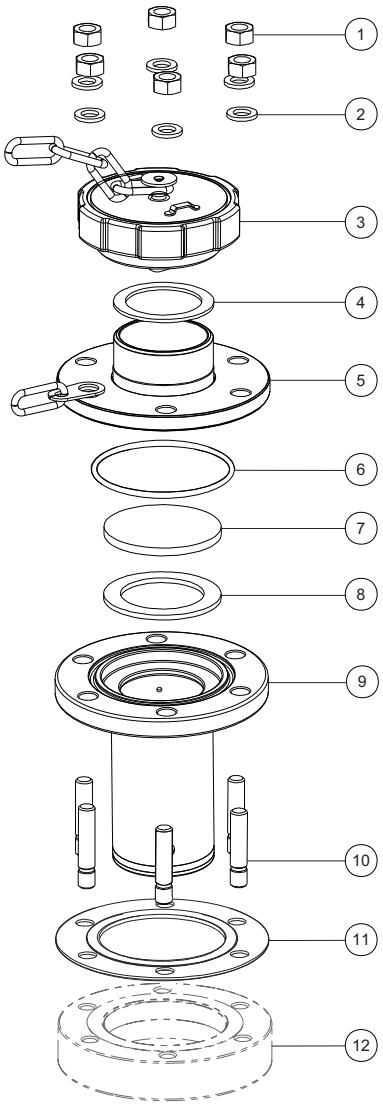
Section View



50mm Low Profile Breather Vent: Hydrogen Peroxide

Part No: 674/3542

Parts Drawing

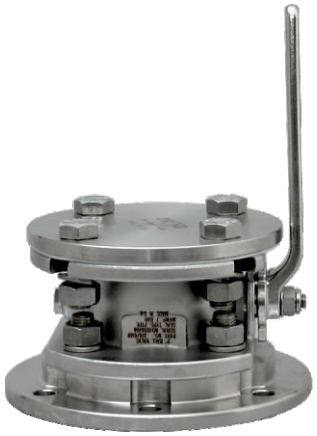


Parts List

Item	Description	Part No.
1	M10 full nut (6)	5112-002
2	M10 spring washer (6)	5113-002
3	Breather cap assembly	674/3040
4	PTFE breather cap seal	5005-414
5	2" BSP outlet	674/3546
6	PTFE O ring	5005-235
7	Sintered disc	865/2000
8	PTFE breather disc seal	5005-435
9	Breather body	674/3540
10	M10 x 53mm stud (6)	371/0008-B8
11	PTFE inlet gasket	5005-398P
12	Weld-in flange (supplied separate)	176/3150

2" Ball Valve: Hydrogen Peroxide Specification

Part No: 370/0140



Specification

Nominal size
50mm

Tank connection
Flanged: 6 x 14mm holes on a 168mm PCD

Outlet/Process connection
Flanged: 4 x open slots - 2" ASA150 / 2" BSTD / DIN50 PN10

Properties
Ball with bleed hole and body with gauge connection to monitor tank pressure. Handle with TIR. With blind flange

Materials
Contact parts: 316 stainless steel
Main seal: PTFE

Alternative tank connections are available, refer to Fort Vale

Design Conditions

Weight:	13.5 Kg
Design Pressure (MAWP):	7.5 Bar
Test Pressure:	13.8 Bar
Design Temperature Min:	-40°C
Design Temperature Max:	205°C

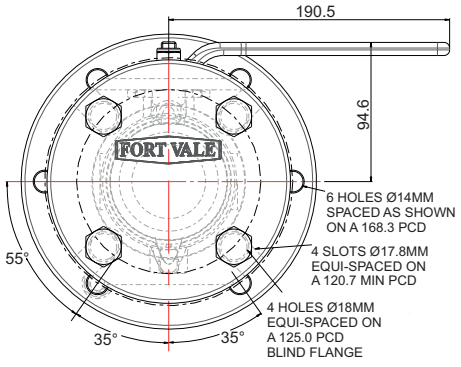
NOTE: The Design Conditions and Section View dimensions are for the specified part number only.

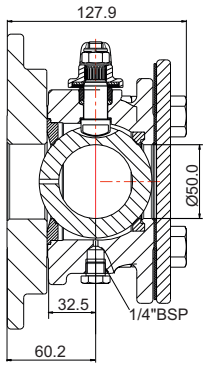
Design Code
BS EN14432

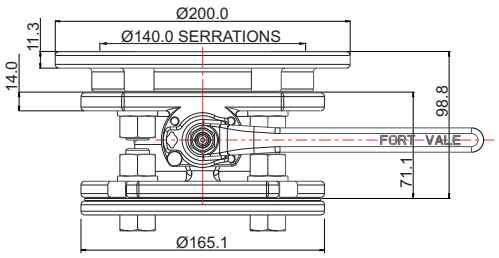
Related Parts

Description	Part No.
Tank weld-in flange	368/0800
Stud kit	312/1000
Solid PTFE inlet gasket	5005-222P
Syphon tube stub pipe	368/0810
CNAF/PTFE gasket	5005-169

Section View



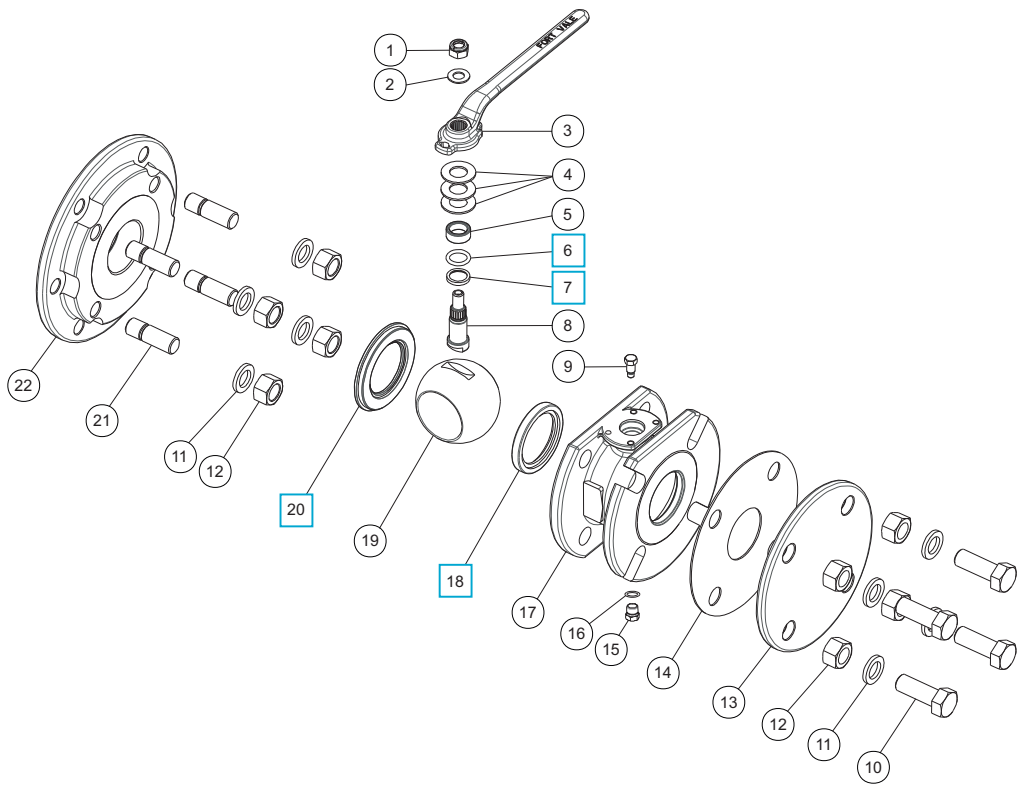




2" Ball Valve: Hydrogen Peroxide Specification

Part No: 370/0140

Parts Drawing



Parts List

Item	Description	Part No.	
1	M10 self locking nut	5112-008	
2	M10 plain washer	5113-009	
3	Handle	370/0125	
4	16mm Belleville washer (3)	5113-038	
5	Stuffing collar	370/0103	
6	PTFE O ring	5005-688	☐
7	Bottom bearing bush	370/0104	☐
8	Spindle	370/0120	
9	Stop bolt	370/0107	
10	M16 hex bolt (4)	5111-031	
11	M16 spring washer (8)	5113-012	
12	M16 full nut (8)	5112-003	
13	Blind flange	370/4239	
14	PTFE gasket	5005-724P	
15	¼" BSP hex plug	5128-005	
16	PTFE O ring	5005-048	
17	2" ball valve body	370/0115	
18	PTFE ball seal	370/0102	☐
19	2" ball	370/3309	
20	PTFE ball seal	370/0105	☐
21	M16 stud (4)	S0600/3	
22	Adaptor flange	370/0145	

Seal Kit

Description	Part No.
All parts marked ☐ in the Parts List	370/01SK

Blind Weld-in Flange: Hydrogen Peroxide

Part No: 324/9007

Specification

The blind weld-in flange is welded into the bottom of the vessel in the normal discharge valve position. If the vessel is changed to standard service, the centre section of the flange can be cut out so that a 45° discharge valve assembly can be installed.

Drilling pattern
8 x M12 holes equi-spaced on a 178mm PCD

Compatible
Standard 45° Cleanflow, Uniflow, Highlift & Univalve footvalves

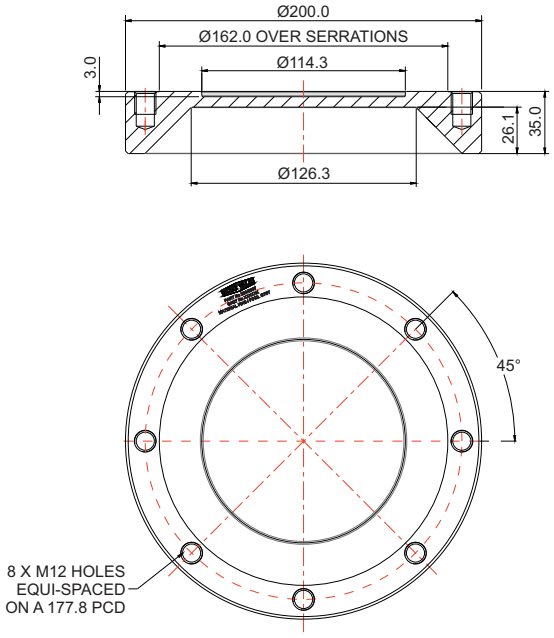
Material
316 stainless steel

Design Conditions

Weight	4.5 Kg
Design Pressure (MAWP):	6.67 Bar
Test Pressure:	10.0 Bar
Design Temperature Min:	-40°C
Design Temperature Max:	130°C

NOTE: The Design Conditions and Section View dimensions are for the specified part number only.

Section View



APPENDIX

Catalogue

Flange Bolting

CAUTION: Weld-distortion and too much tightening force will cause damage to a flange.

It is important not to cause damage to weld-in flanges and mating flanges. If a flange is damaged it will not give a satisfactory seal when a gasket and secondary mating flange is installed.

Bolt-stress can decrease after initial tightening. The cause can be deformation of the gasket material, particularly with soft materials such as a CNAF/PTFE envelope gasket.

Best procedure recommends that, after initial bolting, the flange joint is tightened again after a period of time. Most gasket manufacturers advise a period of 24 hours. ASME PCC-1-2000 GUIDELINES FOR PRESSURE BOUNDARY BOLTED FLANGE JOINT ASSEMBLY advises a minimum period of 4 hours.

Bolt torque calculations are based on a flat flange to within 0.15mm.

Recommended bolt torque values will be reduced if a lubrication is used.

Bolt Torque

Bolt Torque Values

Fort Vale bolt torque values are given as a reference guide only and are based on:

- the use of a CNAF/PTFE gasket.
- unlubricated fasteners.
- a flange flat to within 0.15mm.

CAUTION: If you use a different gasket material, a lubricant or a flange with distortion, you must re-calculate the torque value.

Bolt Torque Procedure

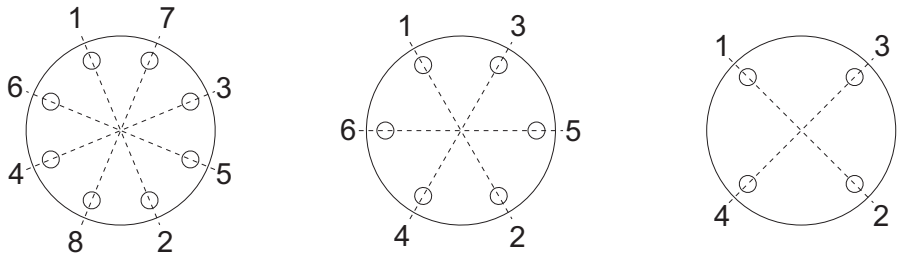
To install flanged parts correctly:

- Examine the mating flange of the part.
- If the flange is marked with a torque value, obey that torque value.
- If there is no torque value marked on the mating flange, obey the bolt torque values given in Table BT1.
- Tighten the bolts evenly in sequence. Refer to Figure BT1.
- Obey the Step Loading Procedure (ASME PCC-1-2000). Refer to the next page.

Table BT1

Thread	Torque Value
M10	30 Nm (22 lbf.ft)
M12	65 Nm (48 lbf.ft)
M16	81 Nm (60 lbf.ft)

Figure BT1



8 HOLE PATTERN **6 HOLE PATTERN** **4 HOLE PATTERN**

Step Loading Procedure

To install flanged parts correctly, obey the Step Loading Procedure extract from ASME PCC-1-2000:

Install

Hand tighten, then “snug up” to 15 Nm (10 lbf.ft) to 30 Nm (20 lbf.ft) (not to exceed 20% of Target Torque).
Check flange gap around circumference for uniformity. If the gap around the circumference is not reasonably uniform, make the appropriate adjustments by selective tightening before proceeding.

Round 1

Tighten to 20% to 30% of Target Torque. Check flange gap around circumference for uniformity. If the gap around the circumference is not reasonably uniform, make the appropriate adjustments by selective tightening before proceeding.

Round 2

Tighten to 50% to 70% of Target Torque. Check flange gap around circumference for uniformity. If the gap around the circumference is not reasonably uniform, make the appropriate adjustments by selective tightening before proceeding.

Round 3

Tighten to 100% of Target Torque. Check flange gap around circumference for uniformity. If the gap around the circumference is not reasonably uniform, make the appropriate adjustments by selective tightening before proceeding.

Round 4

Continue tightening the bolts, but on a rotational clockwise pattern until no further nut rotation occurs at the Round 3 Target Torque value. For indicator bolting, tighten bolts until the indicator rod retraction readings for all bolts are within the specified range.

Round 5

Time permitting, wait a minimum of 4 hr and repeat Round 4; this will restore the short-term creep relaxation/embedment losses. If the flange is subjected to a subsequent test pressure higher than its rating, it may be desirable to repeat this round after the test is completed.

Compatibility

Make sure that the function and technical specification of the valve/accessory is compatible with the vessel service conditions and the cargo. This includes, but is not limited to:

- dimensions.
- pressure/vacuum setting.
- air/vapour/liquid flow capacity.
- maximum allowable working pressure.
- test pressure.
- minimum/maximum design temperatures.
- materials of construction.

Maintenance and Inspection

Fort Vale valves and accessories have a long life if you use them correctly in compatible service conditions. It is not necessary to lubricate the parts, but we recommend that you do the inspections that follow:

Inspections at regular intervals:

1. Examine the valve to make sure there is no damage, wear or corrosion.
2. Examine the valve and adjacent area to make sure there is no leakage of cargo.
3. Examine the fasteners to make sure they are not loose.
4. Make sure the valve operates correctly.

CAUTION: If you operate the valve with very corrosive cargo, or near its temperature and/or pressure limit (very high or very low temperature and/or pressure), do the inspections more frequently.

Also, schedule regular maintenance based on how frequently the valve is used, the type of cargo and the service conditions.

Inspections after 2½ years of service or a minor incident:

1. Examine the valve to make sure there is no damage, wear or corrosion.
2. Make sure the valve operates correctly.
3. Do a pressure test on the valve.

Inspections after 5 years of service or a major incident:

1. Disassemble and clean the valve.
2. Replace all the valve seals and do a pressure test.

Replacement Parts

Do not adapt or change the valve. If you install a replacement part, it must be a genuine Fort Vale part.

WARNING: If you install a part that is not genuine, there is a risk of:

- injury to personnel.
- permanent damage to the valve.
- permanent damage to the vessel.
- valve malfunction.

External Fire

If you install the valve in an area where there is a risk of external fire, you must install compatible accessories to prevent damage to the valve.

Compatibility of Accessories

Accessory components must cause no interference with the valve's function. Accessories must be made from compatible materials that will cause no damage to the valve materials. Do not install an accessory that will cause an increased load on the valve, such as mechanical, static, dynamic or thermal load.

Mis-use

Obey the instructions and recommended procedures in the installation and operating instructions. Obey the pressure and temperature markings on the valve and on the drawing. Use the valve/accessory for its correct function only. Fort Vale accept no liability or responsibility for incorrect use of the valve/accessory.

Our subsidiaries are located in:

US Office
126 N. Virginia
La Porte
TX 77571
USA

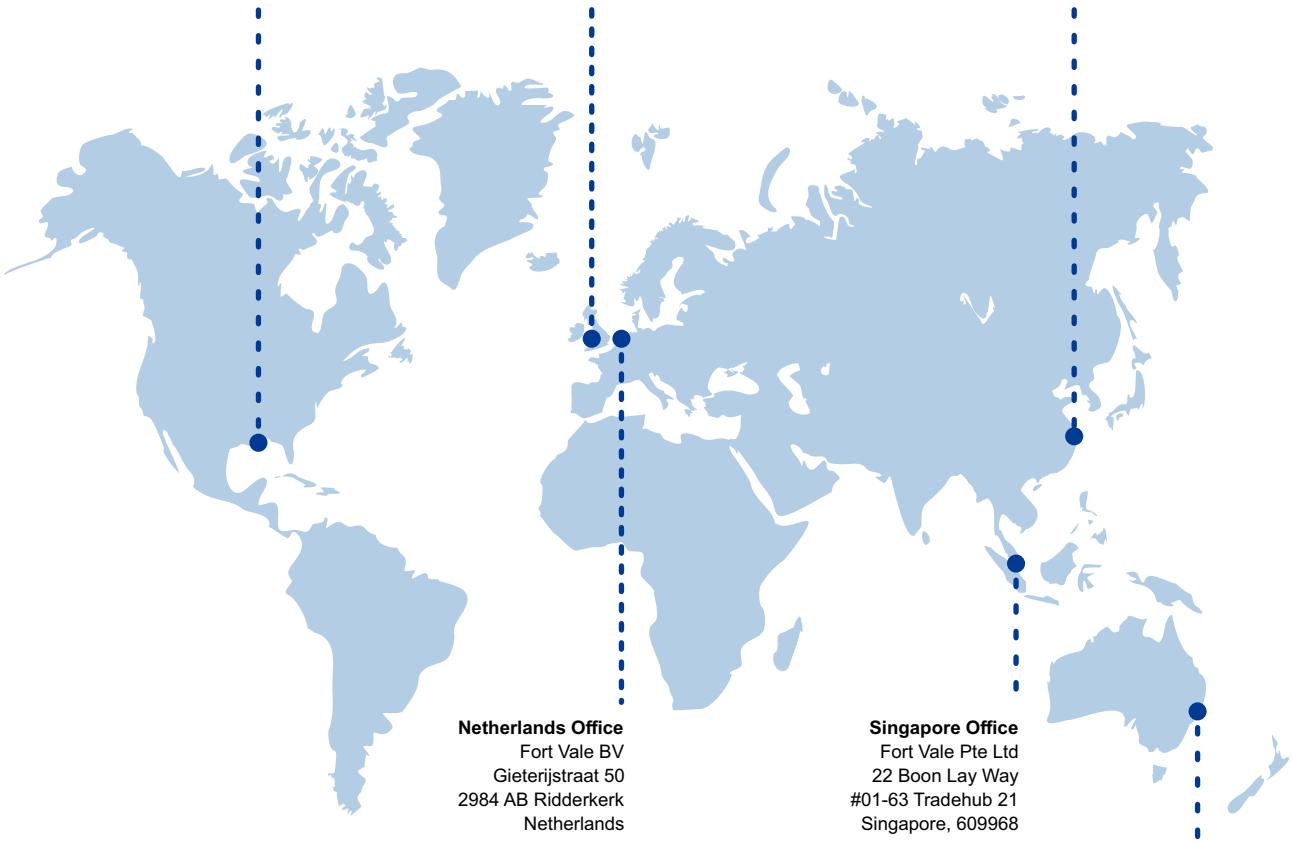
Tel: +1 281 471 8100
Fax: +1 281 471 8116
Email: ussales@fortvale.com

Head Office
Calder Vale Park
Simonstone Lane
Simonstone, Burnley
Lancashire, BB12 7ND, UK

Tel: +44 (0) 1282 687120
Fax: +44 (0) 1282 687110
Email: sales@fortvale.com

China Office
Fort Vale Engineering Shanghai Ltd
Building 11 88 Yuanshan Road
Xinzhuang Industry Park
Shanghai 201108 China

Tel: +86 21 6442 1367
Fax: +86 21 6442 1376
Email: cnsales@fortvale.com



Netherlands Office
Fort Vale BV
Gieterijstraat 50
2984 AB Ridderkerk
Netherlands

Tel: +31 180 483333
Fax: +31 180 410797
Email: bvsales@fortvale.com

Singapore Office
Fort Vale Pte Ltd
22 Boon Lay Way
#01-63 Tradehub 21
Singapore, 609968

Tel: +65 6515 9950
Fax: +65 6515 3034
Email: sgsales@fortvale.com

Australia Office
Fort Vale Australia Pty Ltd
Bellwood Business Park
Unit 14, 49 Bellwood Street
Darra, Queensland, 4076

Tel: +61 7 3189 5059
Email: ausales@fortvale.com

We also have Authorised Distributors around the world to provide you with product sales and after-market services. To find your nearest distributor, please visit our website - **www.fortvale.com**

FORT VALE®