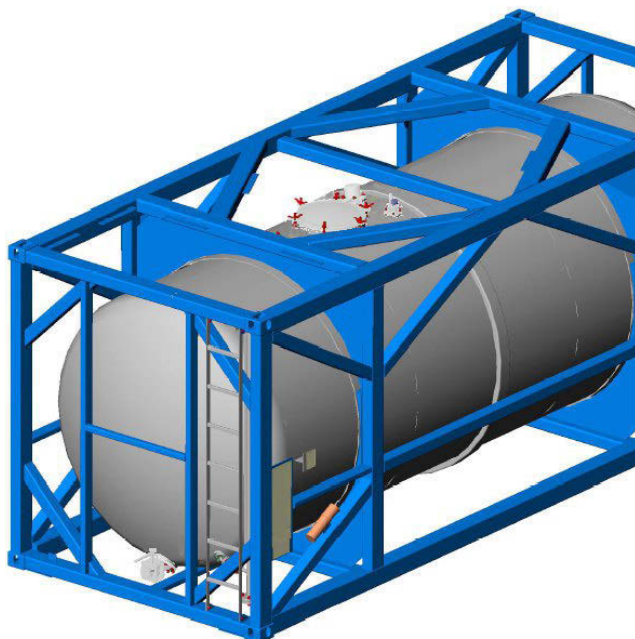
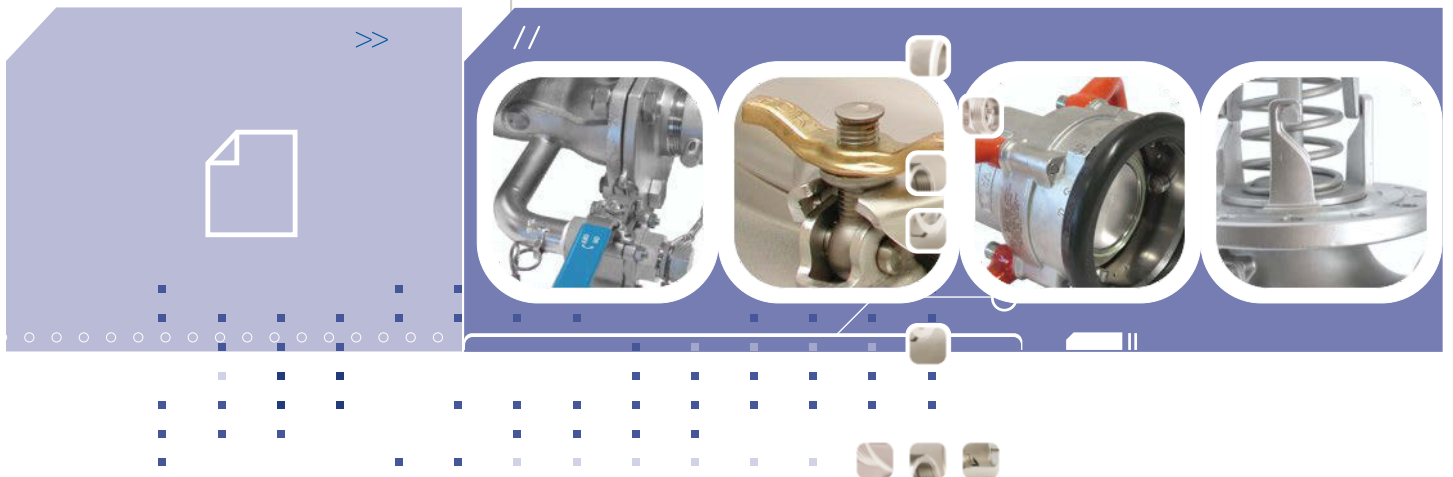




OFFSHORE  
EQUIPMENT  
CATALOGUE  
//

CATALOGUE REVISION\_06 09.06.14



The Fort Vale  
Range of  
Equipment for  
Offshore Tanks



## MANLID EQUIPMENT //

- » 170MM INSPECTION HATCH
- » 460MM PENNINE MANLID ASSEMBLY
- » 500MM PENDLE MANLID ASSEMBLY
- » 500MM OFFSHORE MANLID ASSEMBLY

## SAFETY EQUIPMENT //

- » 2½" BSP SUPER MAXI RELIEF VALVE WITH MANUAL VENT BUTTON

## AIRLINE EQUIPMENT //

- » 1½" BLACKO AIRLINE BALL VALVE
- » FEMALE SOCKET BALL VALVES

## DISCHARGE EQUIPMENT //

- » 2" FULL BORE BLACKO BALL VALVE
- » 3" TO 2" 90° TANKSTREAM FOOTVALVE
- » 3" TO 2" 90° OFFSHORE OUTLET ASSEMBLY
- » 3" 90° TANKSTREAM FOOTVALVE
- » 3" 90° HELIFUEL BOTTOM OUTLET ASSEMBLY
- » 3" 45° HIGHLIFT FOOTVALVE WITH REPLACEABLE SEAT TO 2" BALL VALVE ASSEMBLY
- » 3" 45° HIGHLIFT FOOTVALVE TO 2" BALL VALVE ASSEMBLY
- » 70MM DRYTYT TANK UNIT, HOSE UNIT & SELECTIVITY DETAILS
- » 105MM DRYTYT TANK UNIT, HOSE UNIT & SELECTIVITY DETAILS
- » PRESSURE TIGHT CAP TO SUIT DRYTYT TANK UNITS

## SAMPLING SYSTEMS //

- » 1½" SAMPLING VALVE ASSEMBLY
- » 1½" 90° SAMPLING FOOTVALVE

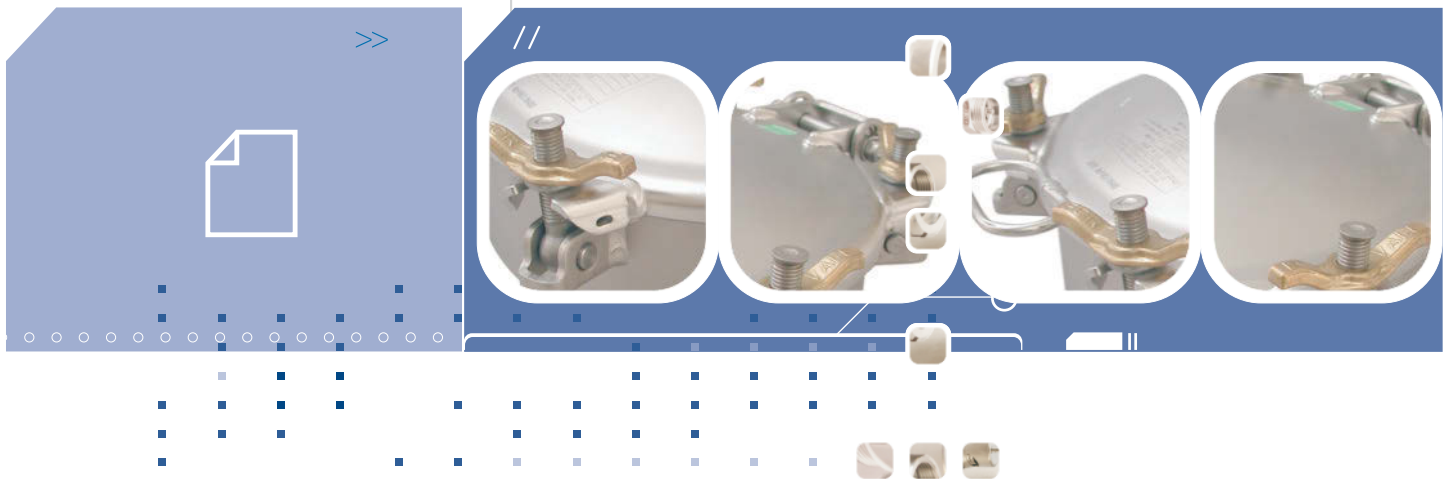
## ANCILLARIES //

- » OFFSHORE ANCILLARIES
- » REPAIR AND MAINTENANCE EQUIPMENT



MANLID  
EQUIPMENT

//







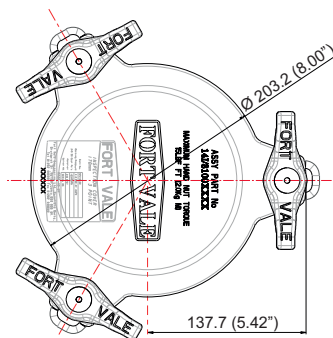
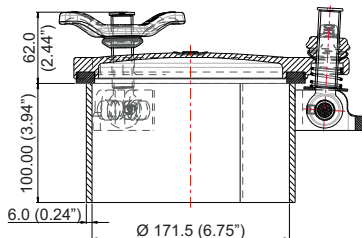


**170mm Inspection Hatch** - 3 point fastening. 6mm thick x 100mm deep neckring. Contact parts manufactured in 316 stainless steel. Stainless steel swingbolts with stainless steel handnuts, 1-off spring-loaded to allow the cover to rotate clear of the neckring when in the open position. Seal supplied separately.

**Options** - alternative neckring depths and swingbolt combinations available.

**Fitting Details**

Example shown : 14I/3100100A



**Specification**

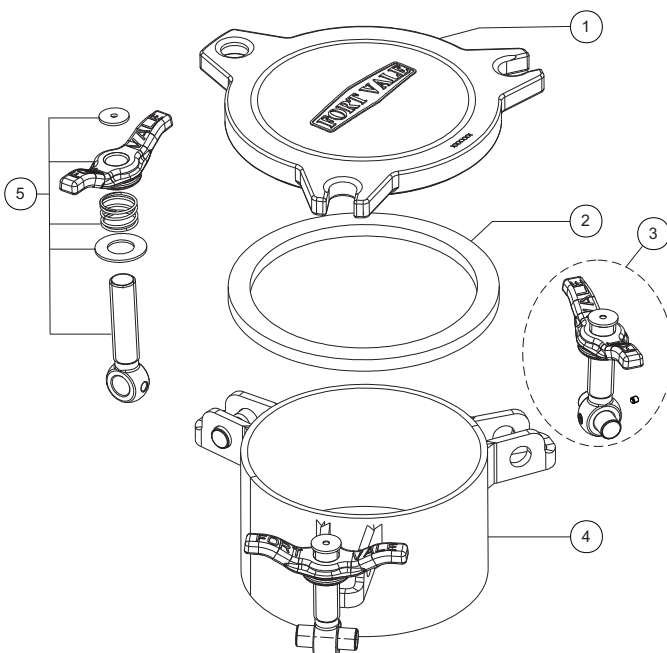
Weight	8.9 Kgs *See note
Design Pressure (MAWP)	4 Bar (58 PSI)
Test Pressure	6 Bar (87 PSI)
Design Temperature	-40°C to +150°C (-40°F to +302°F)

**NB** Weight will vary according to specification

**Range**

Part No	Neckring Height
14I/3100075X	75mm (2.95")
14I/3100100X	100mm (3.94")
14I/3100125X	125mm (4.92")
14I/3100150X	150mm (5.91")
14I/3100200X	200mm (7.87")
14I/3100305X	305mm (12.00")

**Parts drawing**



Item	Description	Part No.
1	Cover	672/0120
2	Seal (sold separately)	See separate sheet
3	Swingbolt assembly (2)	496/X342
4	Neckring <b>*See note</b>	661/36100
5	Spring loaded swingbolt, comprising	
	Top washer	5113-080
	Swingbolt	540/0342
	Spring	5104-506
	Washer	5123-005
	Swingbolt pin	10913SS
	Handnut <b>**See note</b>	490/XXXX

**\*NB:** part number may vary according to specification

**\*\*Note**

**X** in swingbolt part number denotes handnut material  
**5** = stainless steel  
**1** = naval brass  
**E** = low profile stainless steel/brass composite

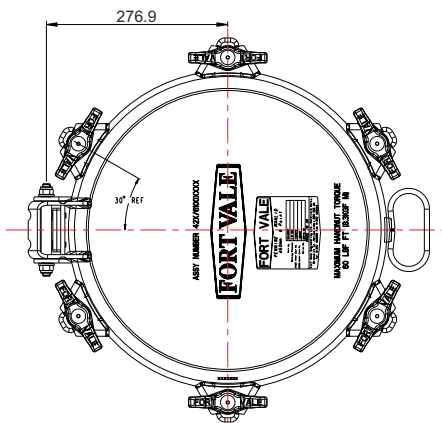
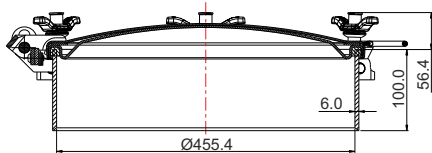


460mm Pennine Manlid Assembly - 6 point double skin cover, hinged to open to 135°. 6mm thick x 100mm deep neckring. Contact parts manufactured in 316 stainless steel with stainless steel swingbolts and handnuts. Seal supplied separately.

Options - 100mm, 150mm, 200mm & 250mm deep neckrings. Neckring profiling available to suit a tank radius range from 850mm to 1220mm. 120° opening. May be supplied fitted with a safebolt. Alternative handnut and hinge kit options available.

## Fitting Details

Part number : 42X/6100100A



## Specification

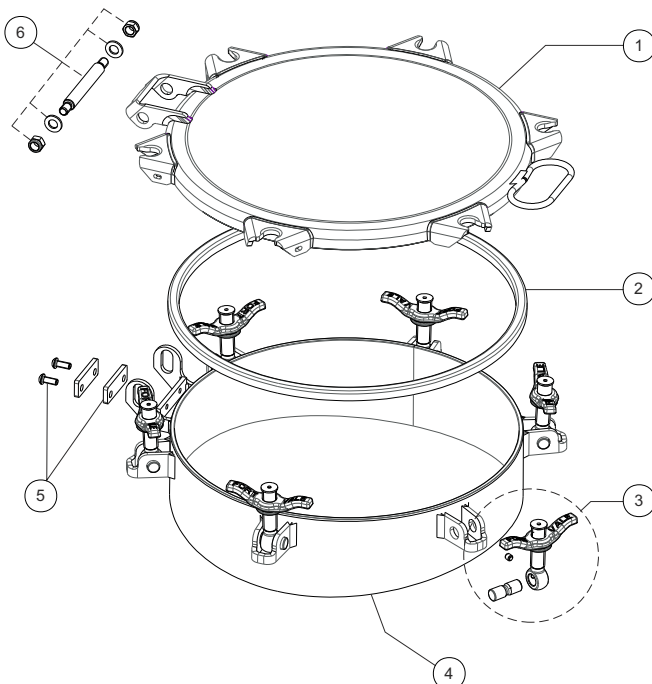
Weight	30 Kg *See note
Design Pressure (MAWP)	2.67 Bar (38.7 PSI)
Service Test Pressure	4 Bar (58 PSI)
Design Temperature Range	-20°C to 200°C (-4°F to 392°F)
Maximum handnut torque	68 Nm

\*NB Weight varies according to specification

## Range

Part No.	Description
42X/6100XXXX	Assembly with straight neckring
42X/61XXXXXX	Assembly with profiled neckring

## Parts drawing



Item	Description	Part No.
1	Manlid	722/0000P
2	Manlid seal	Sold separately
3	Swingbolt assembly (6) *see Note A	496/X342
4	Neckring *see Note B	664/66XXXXA
5	Hinge kit *see Note B	135B
6	Hinge pin assembly	600/1060

**Note A**

X in swingbolt assembly part number denotes handnut material:

1 = naval brass

5 = stainless steel

E = low profile stainless steel/brass composite

**Note B**

Part number varies according to specification.

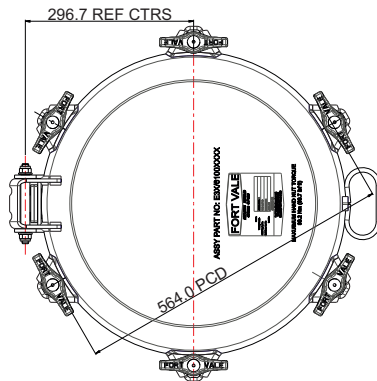
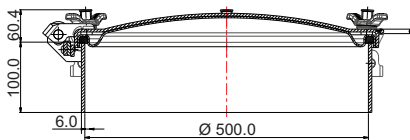


500mm Pendle Manlid Assembly - 6 point fastening. 6mm thick x 100mm deep neckring. Contact parts manufactured in 316 stainless steel. Stainless steel swingbolts with naval brass handnuts. Seal supplied separately.

Options - 3 Bar, 6 point fastening and 4 Bar, 8 point fastening assemblies. 60mm, 100mm, 125mm, 150mm, 200mm, 250mm and 350mm deep neckrings. Profiled and compensated versions. 304 Stainless steel and Carbon steel (SA516 G60) neckrings available. Stainless steel swingbolts with stainless steel handnuts.

**Fitting Details**

Example shown : E3C/6100100B



**Specification**

Weight	36 Kg *NB
Design Pressure (MAWP)	3 Bar (43.5 PSI) *NB
Test Pressure	4.5 Bar (65.3 PSI) *NB
Design Temperature Range	-40°C to 250°C **Note (-40°F to 482°F) **Note

\* NB Data will vary according to specification  
\*\*Note Metal parts only

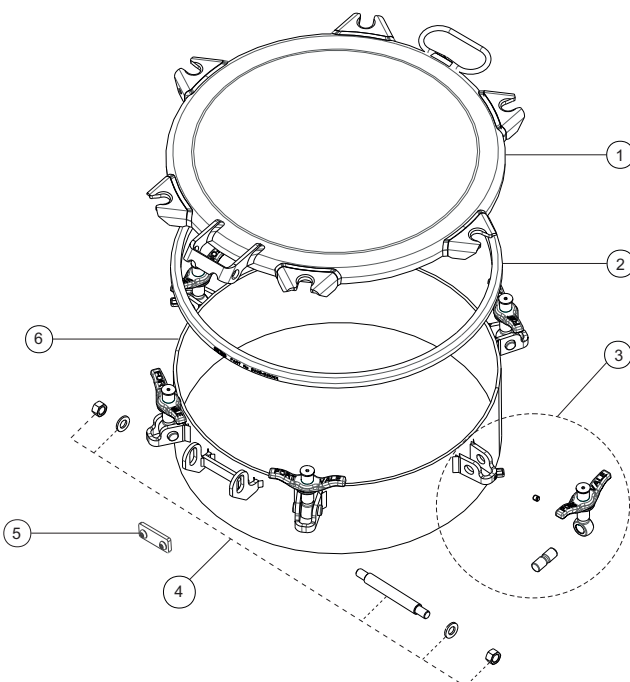
Approved to BS EN14025

**Range**

Part No.	Points	MAWP	Neckring	Material
E3C/6100100B	6	3 Bar	6 x 100 mm	St Steel
E4C/8100100B	8	4 Bar	8 x 100 mm	St Steel

Neckrings are available in a variety of heights.

**Parts drawing**



Item	Description	Part No.
1	Manlid cover	73E/0500
2	16 x 10mm seal	See separate sheet
3	Swingbolt assembly (6)	496/X375 **See note
4	Hinge pin assembly	600/1060
5	Hinge kit *See note	135B
6	Neckring *See note	66E/66100A

\*Note Part numbers will vary according to specification

\*\*Note  
X in swingbolt part number denotes handnut material  
5 = stainless steel  
1 = naval brass  
E = low profile stainless steel/brass composite  
0 = stainless steel hex nut

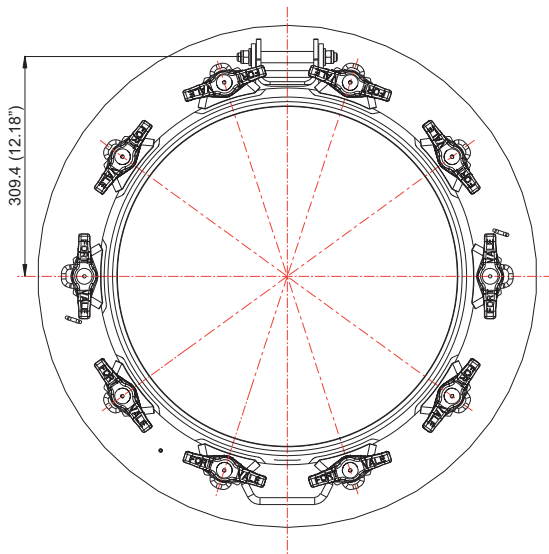
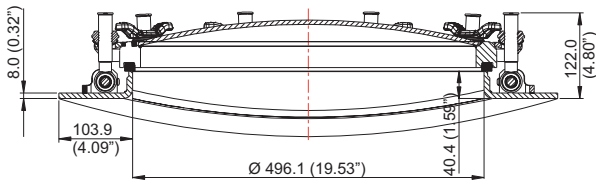


500mm Offshore Manlid Assembly - 10 point fastening. 8mm thick x 90mm deep transverse opening compensating ring. Profiled to suit tank radius range of 1145 to 1220mm. Contact parts manufactured in 316 stainless steel. Stainless steel swingbolts with naval brass handnuts. Seal supplied separately.

**Options** - tank radius range from 850mm to 1220mm. Stainless steel swingbolts with stainless steel handnuts. 6 Bar and 7.7 Bar design pressures optional.

**Fitting Details**

Example shown: 86A/9446118P



**Specification**

Weight	48 Kg *see note
Design Pressure (MAWP)	6.9 Bar (100 PSI)
Test Pressure	8.97 Bar (130 PSI)
Design Temperature	130°C (266°F)

\*NB above data varies according to specification.

**Range**

Part No.	Neckring	Swingbolts
86A/9446XXXXP	8mm x 90mm	St. Steel swingbolts / naval brass handnuts
86A/9446XXXS	8mm x 90mm	St. Steel swingbolts / St. Steel handnuts

The last letter indicates **handnut material**  
**P** = naval brass      **S** = stainless steel

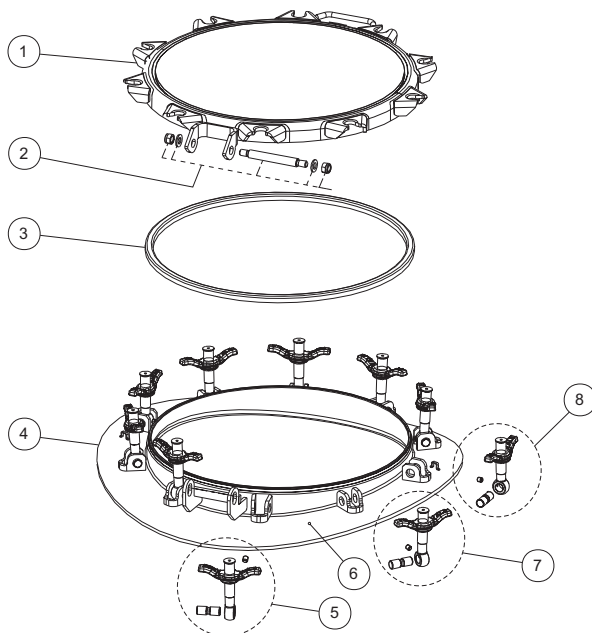
**XXX** in part number above denotes the radius range:-

<b>097</b> = 950mm - 1005mm	<b>111</b> = 1075mm - 1145mm
<b>104</b> = 1005mm - 1075mm	<b>118</b> = 1145mm - 1220mm

**Associated Parts**

Part No.	Associated Parts
5005-50XXX	16mm x 10mm manlid seal

**Parts drawing**



Item	Description	Part No.
1	Manlid cover	605/4000
2	Hinge pin assembly	600/1060
3	Seal – sold separately	5005-50XXX
4	500mm transverse neckring	679/9445XXXXP
5	Swingbolt assy - 4.25" long (4)	496/X425 *NB
6	Grubscrew	5111-009
7	Swingbolt assy – 4.0" long (4)	496/X400 *NB
8	Swingbolt assy – 3.75" long (2)	496/X375 *NB

\*NB : **X** in swingbolt assembly denotes handnut material

- 1** = naval brass
- 5** = stainless steel
- E** = low profile stainless steel/brass composite





# SAFETY EQUIPMENT

//







2½" BSP Super Maxi Relief Valve with Manual Vent Button - 2½" BSP male connection with 65mm nominal bore. Suitable for a pressure range of between 2 - 75 PSI (0.14 - 5.17 Bar) and a vacuum range of between 0 - 24"Hg (0 - 0.81 Bar). Contact parts manufactured in 316 stainless steel. Fitted with Fortyt seals as standard. Complete with rubber/PTFE tank seal.

**Options** - Alternative seal materials are available. Cable vacuum actuator linkage available to clamp to vent button for remote operation.

**Specification**

Weight 2.98 Kg \*Varies  
 Temperature Range Dependant upon seal material

Design Approval by Lloyds Register of Shipping.

Tests may be witnessed and valves individually stamped by an independent inspectorate by arrangement.

Test certificates are supplied as standard.

Valve flow rates are available by request.

**\* Fitting ancillary items in the flow stream will alter the valve flow rate.**

**Range**

Part No.	Pressure	Vacuum
01B/13212	31.8 PSI (2.19 Bar)	6.2" Hg (-0.21 Bar)
01B/14812	48.0 PSI (3.31 Bar)	6.2" Hg (-0.21 Bar)
01B/15412	53.8 PSI (3.71 Bar)	6.2" Hg (-0.21 Bar)
01B/16312	63.8 PSI (4.40 Bar)	6.2" Hg (-0.21 Bar)

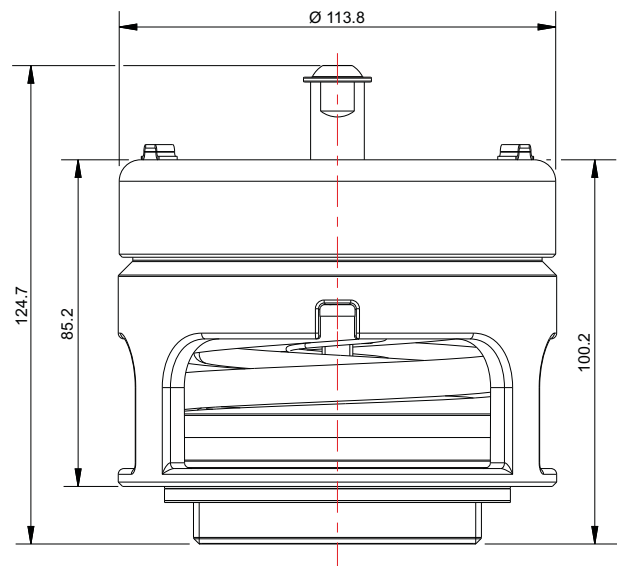
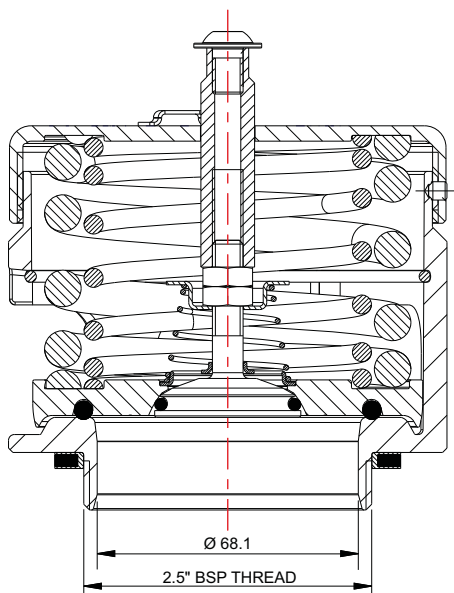
**NB** Above part numbers vary according to valve pressure and vacuum settings. These are standard settings.

**Associated Parts**

Part No.	Description
600/1000	2½" BSP weld-in socket
176/3150	Tank weld-in pad
5005-398	CNAF/PTFE gasket to suit weld-in pad / adaptor flange
921/07BBSP	0-100 PSI pressure gauge, bottom entry, brass internal parts
921/07RBSP	0-100 PSI pressure gauge, rear entry, brass internal parts
920/07BBSP	0-100 PSI pressure gauge, bottom entry, stainless steel internal parts
176/2900 *	Removable clamped gauze
176/6000 *	Gauzed cowl
1860/0400	Cable vacuum actuator

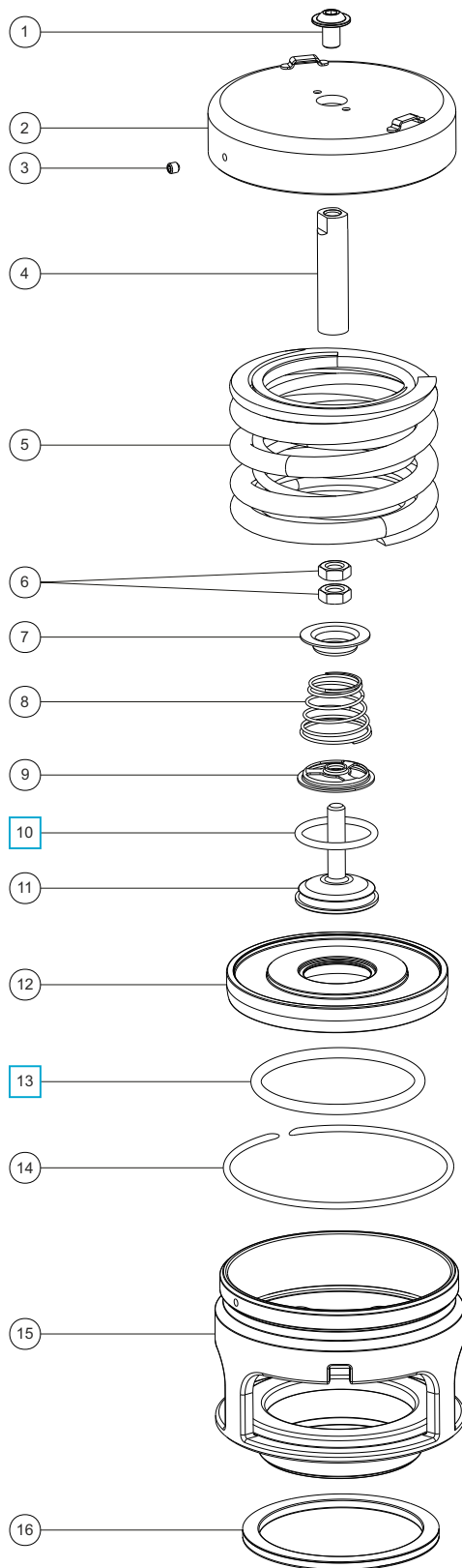
**Fitting Details**

Example shown : 01B/1XXXX





Parts drawing



Item	Description	Part No.
1	Flanged button screw	5111-9812
2	Cap	1760/0005
3	Setting locking grub screw	5121-001
4	Stem extension	1860/0070
5	Pressure spring pair *See Table 1	6104-XXXX
6	M8 locknut (2)	5112-004
7	Vacuum spring pad	1860/0005
8	6" Vacuum spring	7104-012
9	Spring pad	10986/3
10	Fortyt vacuum O ring	5005-108H <input type="checkbox"/>
11	Vacuum poppet	10983V/3
12	Pressure plate *See Note	1860/005XXX
13	Fortyt pressure O ring	5005-101 <input type="checkbox"/>
14	Retaining ring clip	5120-067
15	Body assembly	1860/0100
16	Rubber/PTFE envelope seal	5005-046

**NOTE :** Part number varies according to specification.

**SEAL KIT**

Part number **000/1PVSK** contains all parts marked

**TABLE 1**

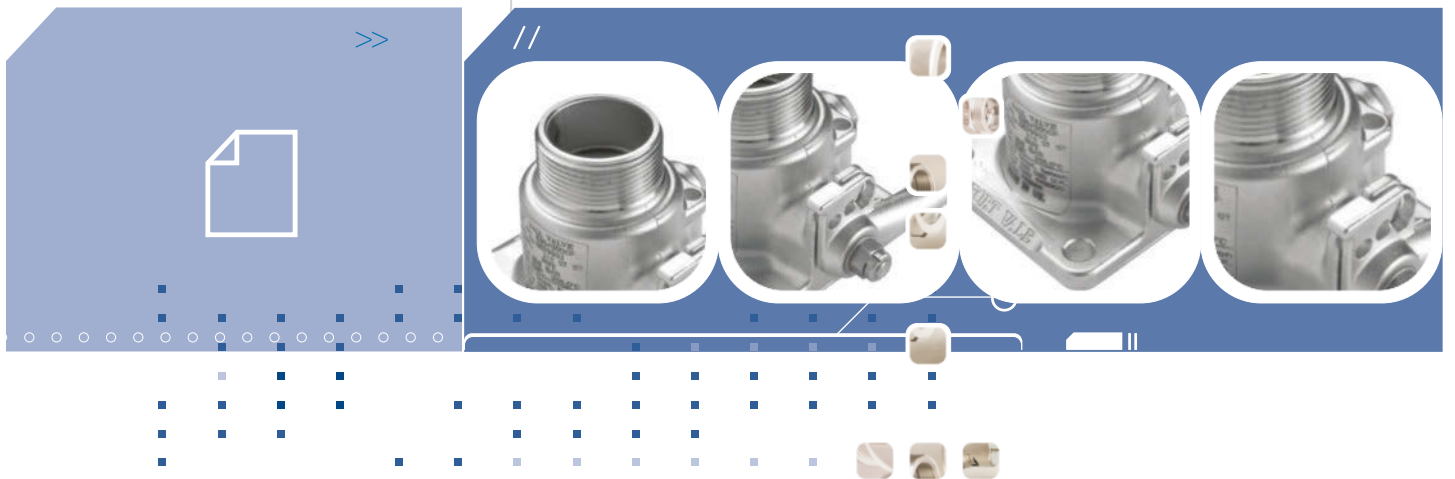
Common Pressure Settings	Pressure Springs Part No.
31.8 PSI (2.19 Bar)	6104-0252
48.0 PSI (3.31 Bar)	6104-0112 & 6104-0252
53.8 PSI (3.71 Bar)	6104-0422 (Pair)
63.8 PSI (4.40 Bar)	6104-0485 (Pair)

Visual inspection and service (where necessary) is recommended regularly. A detailed step-by-step repair manual is available for our Super Maxi Relief Valves. Please contact our Sales team for further information.

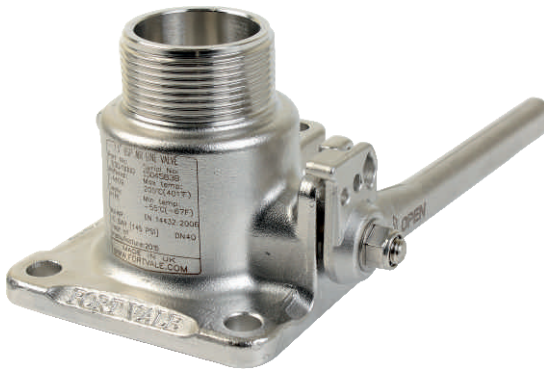


AIRLINE  
EQUIPMENT

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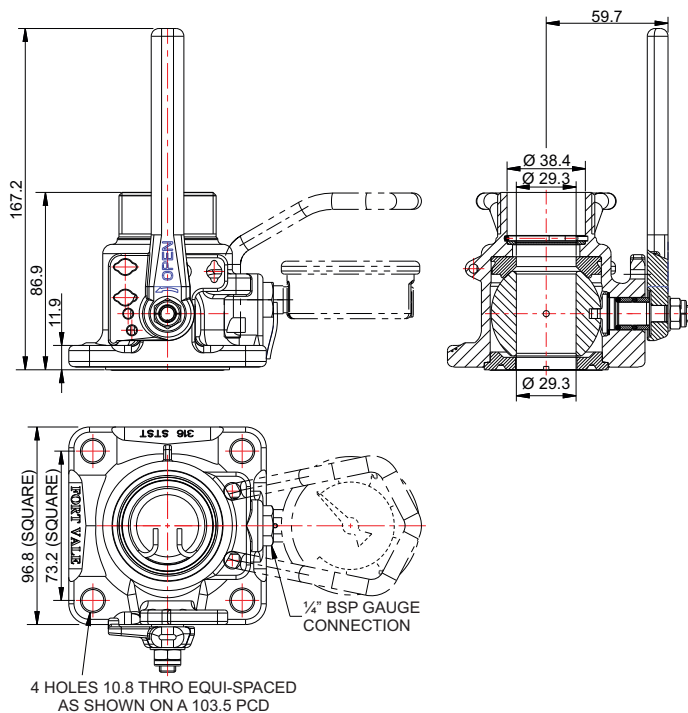
**1½" Airline Ball Valve** - 1½" BSP male inlet.

Complete with pressure gauge connection and TIR facility to handle. Contact parts manufactured in 316 stainless steel with PTFE seals.

**Options** - gauge guard and/or gauze filter, ¼" BSP plug with TIR wire.

**Fitting Details**

Part Number : 530/0000

**Specification**

Weight	2.9 Kg
Design Pressure	MAWP 10 Bar (145 PSIG)
Test Pressure	21.4 Bar (310 PSIG)
Design Temperature	-55°C to 205°C (-67°F to 401°F)

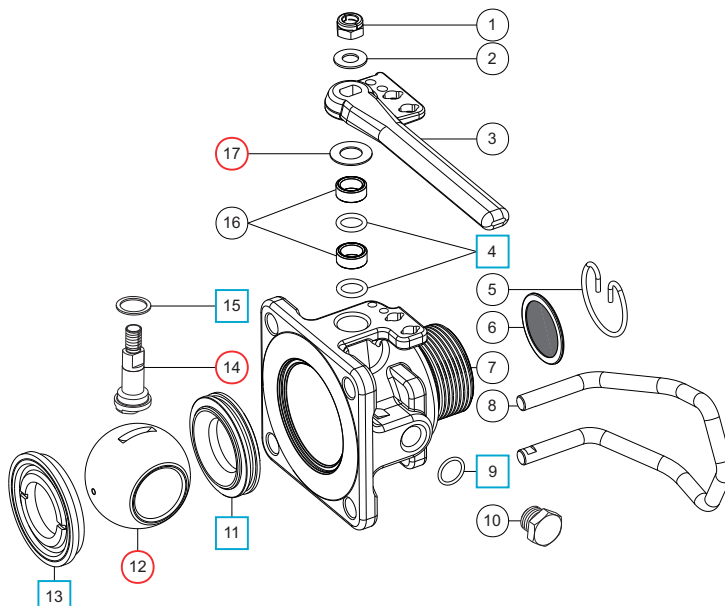
Approved to BS EN14432.

**Range**

Part No.	Description
530/0000	1½" BSP inlet standard valve.
530/0000F	1½" BSP inlet valve with gauze.
530/0000G	1½" BSP inlet valve with gauge guard.
530/0000FG	1½" BSP inlet valve with gauze and gauge guard.
530/0000W	1½" BSP inlet valve with ¼" BSP plug and TIR wire.

**Associated Parts**

Associated Parts	Part No.
Gauge	920/07BBSP
Gauge Adaptor	352/4004
1½" BSP Dust Cap	10300PS
Stud Kit	350/1300
Tank Pad	350/0025

**Parts drawing**

Item	Description	Part No.
1	Self-locking nut	5112-031
2	M8 washer	5113-005
3	Handle	531/0025
4	PTFE O ring (2)	5005-008 <input type="checkbox"/> <input type="radio"/>
5	Snap ring (optional suffix 'F')	5120-017
6	Gauze filter (optional suffix 'F')	353/0010
7	Valve body	530/0100
8	Gauge guard (optional suffix 'G')	530/0040
9	PTFE O ring	5005-048 <input type="checkbox"/> <input type="radio"/>
10	¼" BSP plug	5128-005
11	Front ball seal	5005-006 <input type="checkbox"/> <input type="radio"/>
12	Ball	350/0002 <input type="radio"/>
13	Rear ball seal	5005-007 <input type="checkbox"/> <input type="radio"/>
14	Spindle	530/0001 <input type="radio"/>
15	PTFE washer	5003-002 <input type="checkbox"/> <input type="radio"/>
16	Stuffing boss (2)	530/0003
17	Disc spring	5113-036 <input type="radio"/>

**Repair Kits:** Items marked  are included in Repair Kit 530/00RK

**Seal Kits:** Items marked  are included in Seal Kit 530/00SK

## Female Socket Ball Valves - Stainless Steel

### One Piece Ball Valve

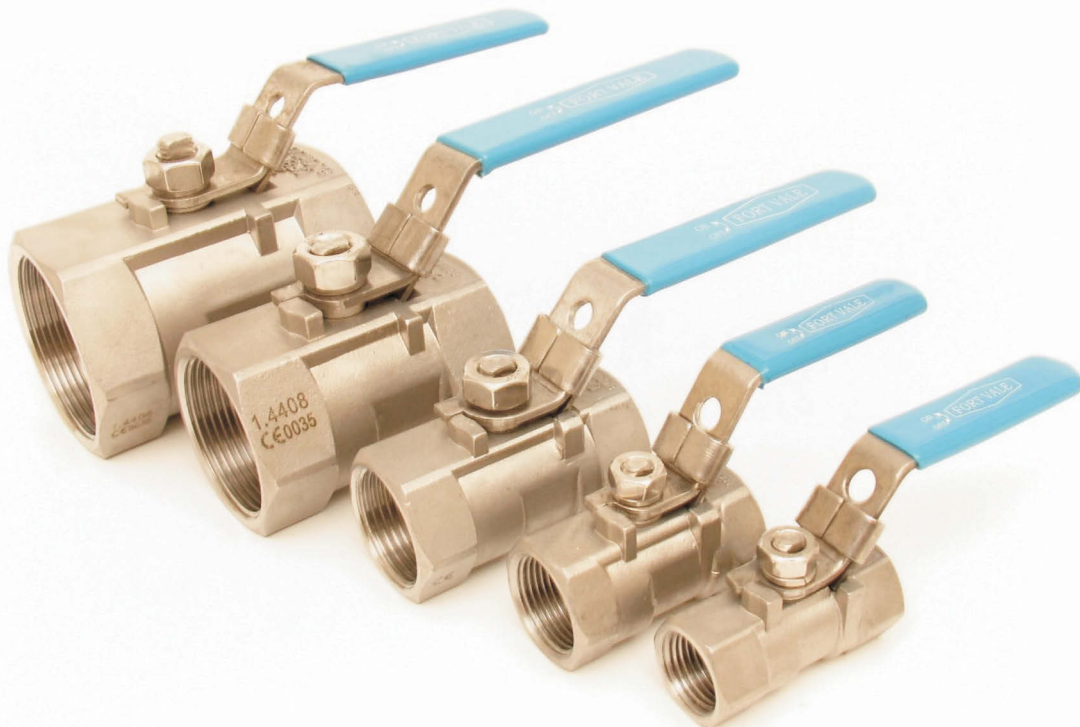
Description	Part No.
1/4" BSP one piece ball valve	410/104025
3/8" BSP one piece ball valve	410/104037
1/2" BSP one piece ball valve	410/104050
3/4" BSP one piece ball valve	410/104075
1" BSP one piece ball valve	410/104100
1 1/4" BSP one piece ball valve	410/104125
1 1/2" BSP one piece ball valve	410/104150
2" BSP one piece ball valve	410/104200

### Two Piece Ball Valve

Description	Part No.
1/4" BSP two piece ball valve	410/204025
3/8" BSP two piece ball valve	410/204037
1/2" BSP two piece ball valve	410/204050
3/4" BSP two piece ball valve	410/204075
1" BSP two piece ball valve	410/204100
1 1/4" BSP two piece ball valve	410/204125
1 1/2" BSP two piece ball valve	410/204150
2" BSP two piece ball valve	410/204200
2 1/2" BSP two piece ball valve	410/204250
3" BSP two piece ball valve	410/204300

### Three Piece Ball Valve

Description	Part No. BSP	Part No. WELD PREP
1/4" BSP three piece ball valve	410/304025B	410/304025W
3/8" BSP three piece ball valve	410/304037B	410/304037W
1/2" BSP three piece ball valve	410/304050B	410/304050W
3/4" BSP three piece ball valve	410/304075B	410/304075W
1" BSP three piece ball valve	410/304100B	410/304100W
1 1/4" BSP three piece ball valve	410/304125B	410/304125W
1 1/2" BSP three piece ball valve	410/304150B	410/304150W
2" BSP three piece ball valve	410/304200B	410/304200W
2 1/2" BSP three piece ball valve	410/304250B	410/304250W
3" BSP three piece ball valve	410/304300B	410/304300W
4" BSP three piece ball valve	410/304400B	410/304400W

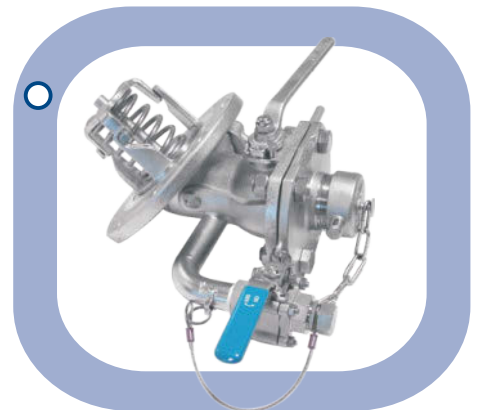
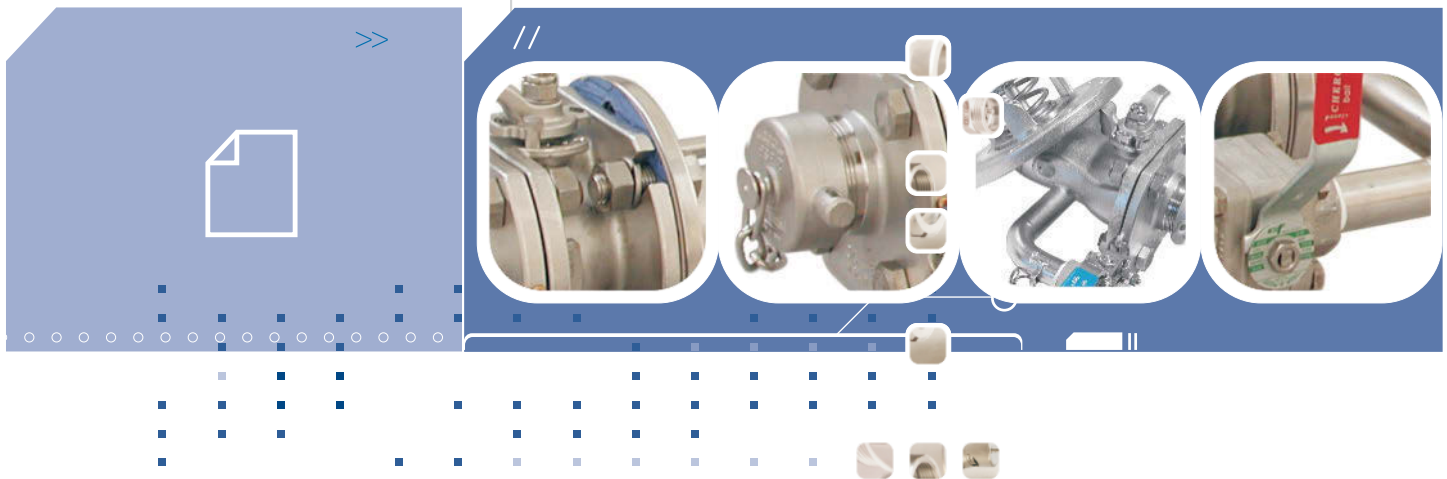


**CAUTION: Do not overtighten these ball valves.**



# DISCHARGE EQUIPMENT

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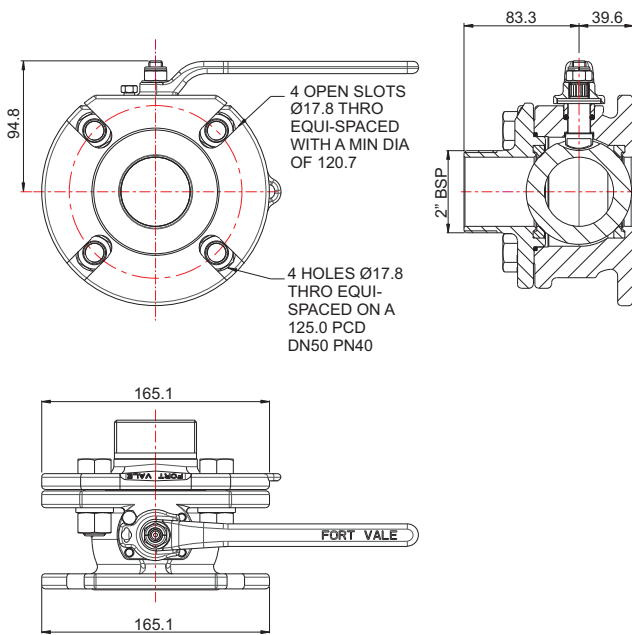


2" Full Bore Blacko Ball Valve - inlet flange with 4 open slots to suit 2" BSTD / 2" ASA 150 and DIN50 PN40. Outlet flange with 2" BSP spigot. Left hand operated with TIR facility to handle. Contact parts manufactured in 316 stainless steel with PTFE seals.

Options - NPT outlet and cap available.

**Fitting Details**

Part number : 370/0150



**Specification**

Weight	8 Kg
Design Pressure (MAWP)	7 Bar (101.5 PSI)
Hydraulic Test Pressure	10.5 Bar (152.25 PSI)
Design Temperature	-40°C to 205°C (-40°F to 400°F)

Approved to BS EN 14432  
Design approval by Lloyds Register of Shipping.

**Range**

Part No.	Outlet
370/0150	2" BSP outlet spigot flange
370/0150NPT	2" NPT outlet and NPT cap

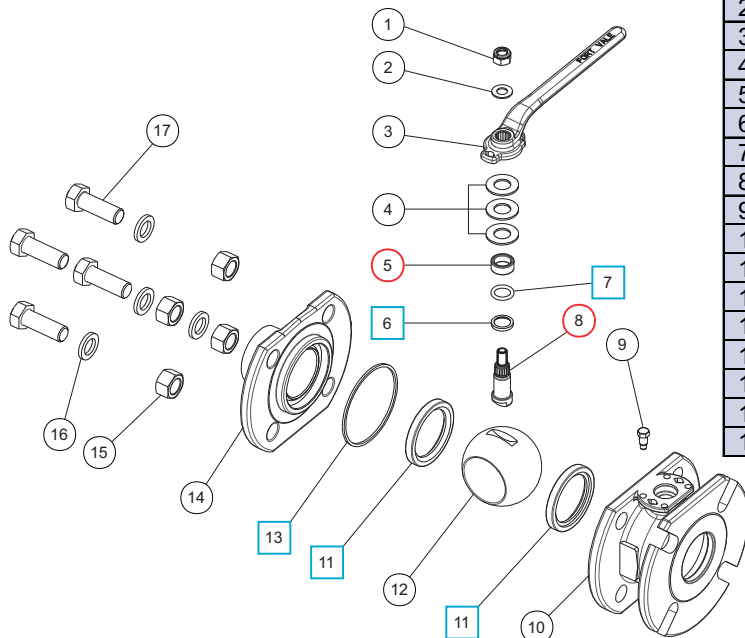
**Associated Parts**

Part No.	Description
355/3100	Tank weld-in flange
311/3700	Stud kit
10301PS	2" BSP blank cap with chain & PTFE seal
10301NPTP	2" NPTP blank cap with captivation wire & PTFE seal

**Parts drawing**

**SEAL KIT**

Part number 370/015SK contains all parts marked □



Item	Description	Part No.
1	M10 self lock 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 <span style="color: red;">○</span>
6	Bottom bearing bush	370/0104 <span style="border: 1px solid blue; padding: 0 2px;">□</span> <span style="color: red;">○</span>
7	PTFE O ring	5005-688 <span style="border: 1px solid blue; padding: 0 2px;">□</span> <span style="color: red;">○</span>
8	Spindle	370/0120 <span style="color: red;">○</span>
9	Stop bolt	370/0107
10	2" ballvalve body	370/0110
11	PTFE seal (2)	370/0102 <span style="border: 1px solid blue; padding: 0 2px;">□</span> <span style="color: red;">○</span>
12	50mm ball	370/3301
13	Body seal	370/0106 <span style="border: 1px solid blue; padding: 0 2px;">□</span> <span style="color: red;">○</span>
14	Outlet flange	370/0130
15	M16 full nut (4)	5112-003
16	M16 spring washer (4)	5113-012
17	M16 hexhead setscrew (4)	5111-036

**REPAIR KIT**

Part number 370/015RK contains all parts marked ○





3" to 2" 90° Tankstream Offshore Footvalve - inlet flange drilled 12 x 14mm holes on a 158.75 PCD (6 holes plugged); outlet flange drilled 4 x 17mm holes on a 114.3 PCD. Contact parts manufactured in 316 stainless steel with Fortyt or Viton poppet seal.

Options - various lengths of outlet tube. 3" to 3" valve version available.

**Specification**

Weight	8 Kg *Note
Design Pressure (MAWP)	6.66 Bar (96.57 PSIG)
Service Test Pressure	10 Bar (145m PSIG)
Design Temperature Range	-20°C to +200°C -4°F to +392°F

**Note :** Weight varies according to specification.

To ensure that the tank remains sealed in the event of an accident, the valve body incorporates a shear groove, designed to fail in such a way as to leave the internal part of the valve closed and attached to the tank body.

**Range**

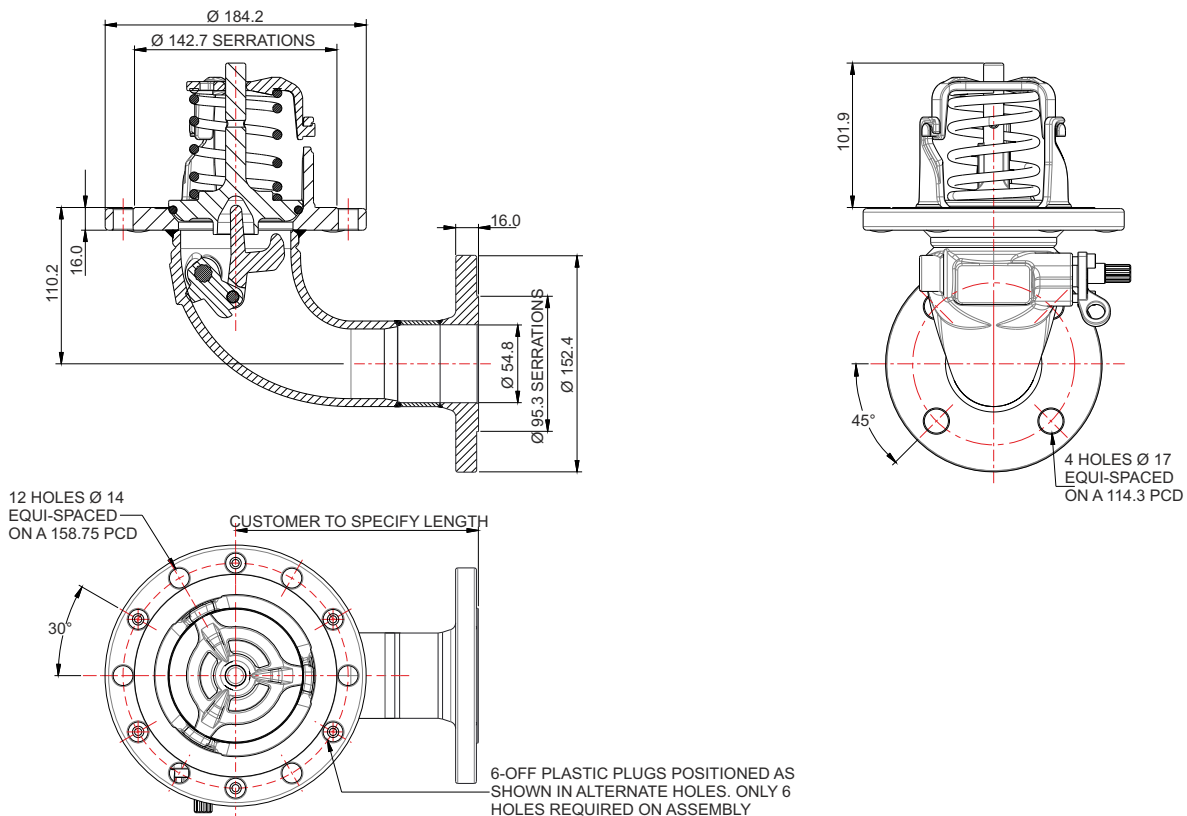
Part No.	Description
29F/00000171F02	3" to 2" footvalve with Fortyt seal
29F/00000171V02	3" to 2" footvalve with Viton seal

**Associated Parts**

Part Number	Description
11954/S	Tank weld in flange
290/1300	M12 Stud kit c/w nuts and spring washers
5005-016	Tank to footvalve PTFE gasket

**Parts drawing**

Example shown: 29F/0000XXXXX02



Parts Drawing

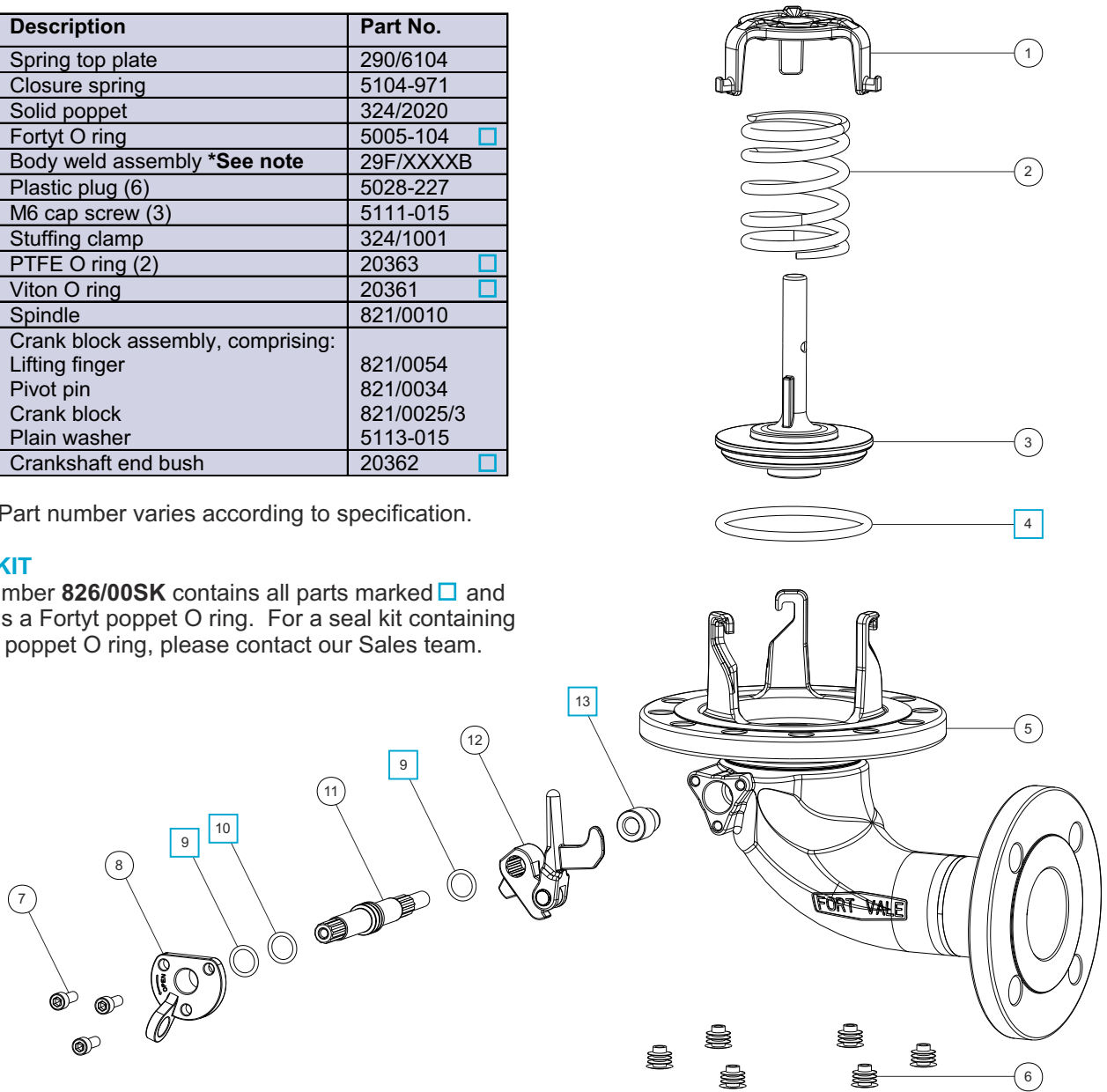


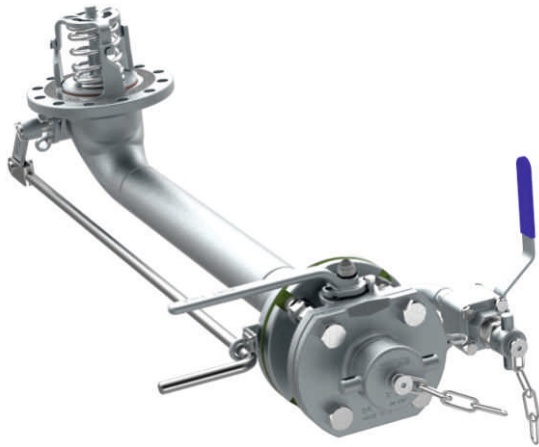
Item	Description	Part No.
1	Spring top plate	290/6104
2	Closure spring	5104-971
3	Solid poppet	324/2020
4	Fortyt O ring	5005-104 <input type="checkbox"/>
5	Body weld assembly *See note	29F/XXXXXB
6	Plastic plug (6)	5028-227
7	M6 cap screw (3)	5111-015
8	Stuffing clamp	324/1001
9	PTFE O ring (2)	20363 <input type="checkbox"/>
10	Viton O ring	20361 <input type="checkbox"/>
11	Spindle	821/0010
12	Crank block assembly, comprising: Lifting finger Pivot pin Crank block Plain washer	821/0054 821/0034 821/0025/3 5113-015
13	Crankshaft end bush	20362 <input type="checkbox"/>

**Note :** Part number varies according to specification.

**SEAL KIT**

Part number **826/00SK** contains all parts marked  and contains a Fortyt poppet O ring. For a seal kit containing a Viton poppet O ring, please contact our Sales team.





3" x 2" Offshore Outlet Assembly - comprising of a 3" NB 90° footvalve with extended reduced outlet terminating in a 2" NB ball valve with 2" BSP outlet and cap. The outlet pipe incorporates a 3/4" sampling point with firesafe ball valve fitted with a cap. Contact parts manufactured in 316 stainless steel fitted with Fortyt main seal to footvalve.

Specifically designed to fit DNV 2.7-1 Chemical offshore tanks.

**Options** - The length of the assembly can be made to suit customer requirements. The footvalve can be supplied with a replaceable seat. Other outlets connections are available: flanged, camlock, dry disconnect units.

**Specification**

Weight	23 Kg *Note
Design Pressure (MAWP)	4 Bar (58 PSI)
Hydraulic Test Pressure	6 Bar (87 PSI)
Design Temperature Range	-40°C to 200°C *Note (-40°F to 392°F)

**Note:** Varies according to the valve specification.

To make sure that the tank stays sealed if an accident occurs, the valve body has a shear groove that is designed to break so that the internal part of the valve stays closed and attached to the tank.

**i** Operating Instructions available - OPIN18.

**Range**

Part No.	Description
29F/10520834F08	834mm overall length from valve inlet centre to end of 2" BSP outlet
29F/10520774F09	774mm overall length from valve inlet centre to end of 2" BSP outlet. All parts made in 316/316L st/steel.

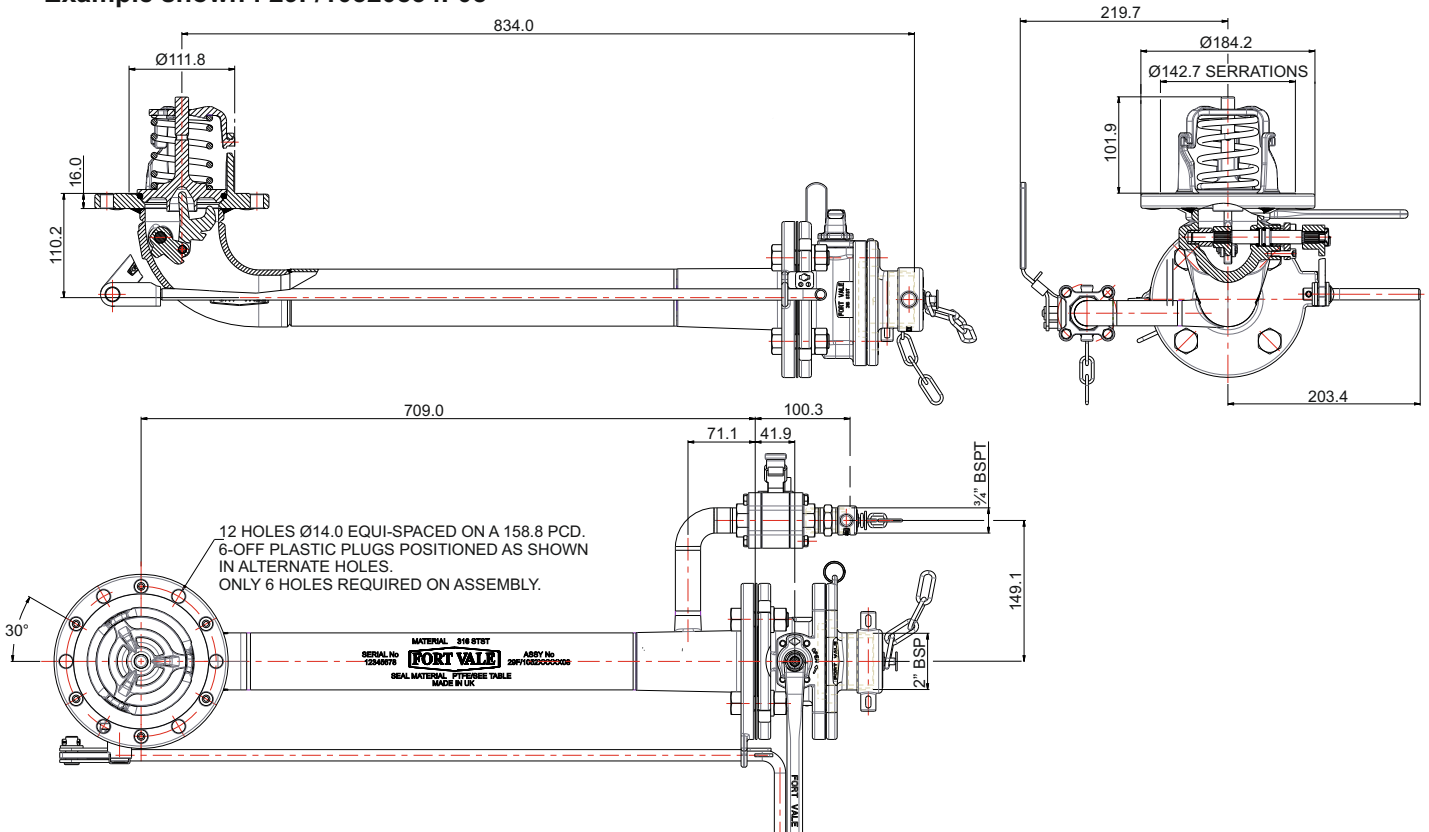
For full list of available valve configurations, please see drawing reference OUTLET/ASSY/PART/NO.

**Associated Parts**

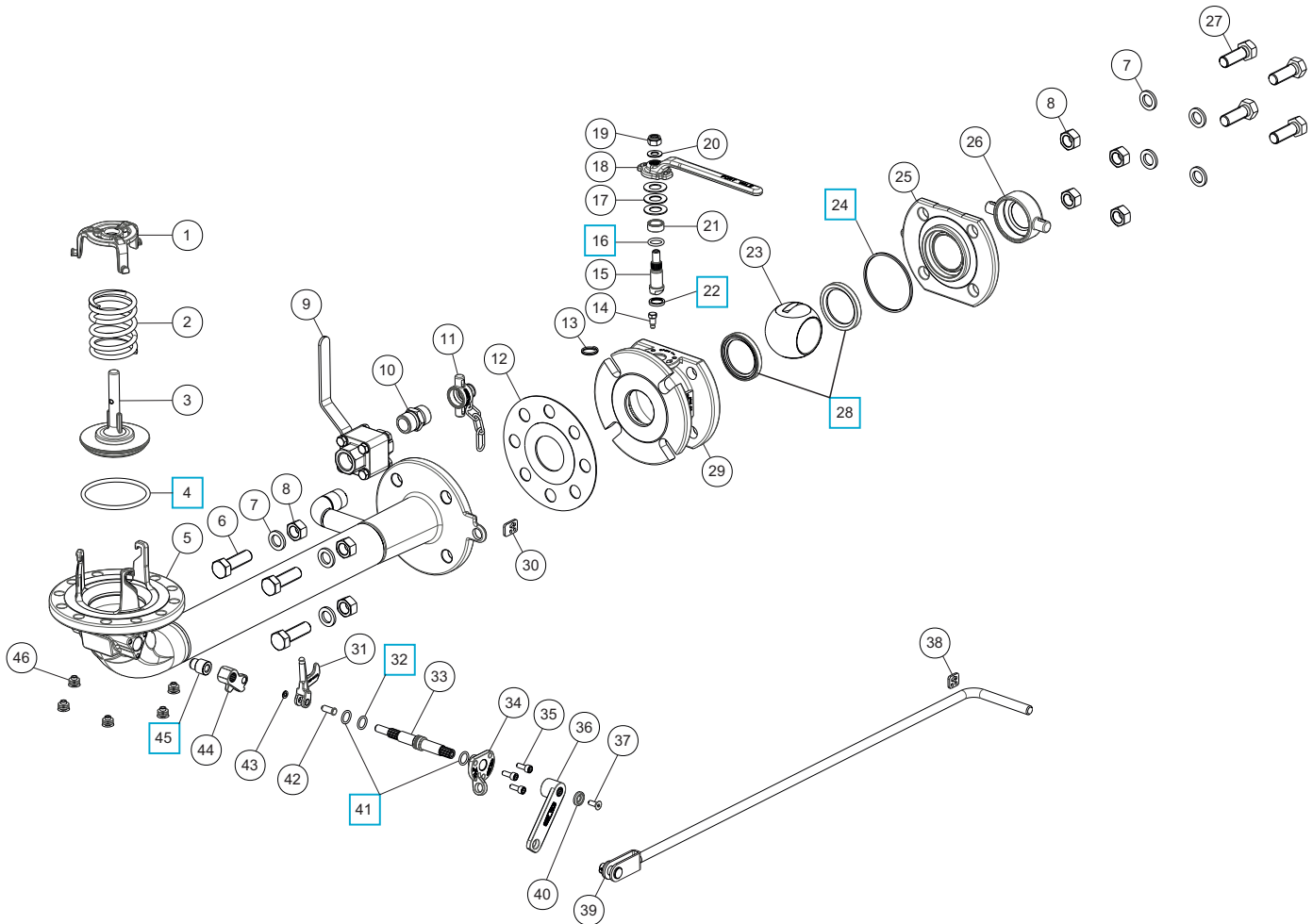
Part No.	Description
11954/S	Tank weld-in flange
290/1300	M12 stud kit with nuts and spring washers
5005-016	PTFE inlet gasket.

**Fitting Details**

Example shown : 29F/10520834F08



## Parts Drawing



Item	Description	Part No.
1	Spring top plate	290/6104
2	Spring	5104-971
3	Footvalve poppet	324/2020
4	Fortyt O ring	5005-104
5	Footvalve body assembly *Note	29F/XXXXA08
6	M16 hex bolt (4)	5111-031
7	M16 spring washer (8)	5113-012
8	M16 full nut (8)	5112-003
9	¾" Firesafe Ballvalve	410/500F
10	¾" BSPTM x ¾" BSPTM nipple	5128-091
11	¾" BSP cap with washer & chain	10306PSS
12	CNAF/PTFE gasket	5005-726
13	Split ring	5128-013
14	Stop pin	370/0107
15	Spindle	370/0120
16	PTFE O ring	5005-688
17	16mm Belleville washer (3)	5113-038
18	Ball valve handle	370/0125
19	M10 self-locking nut	5112-008
20	M10 plain washer	5113-009
21	Stuffing collar	370/0103
22	Bottom bearing	370/0104
23	50mm ball	370/3301

Item	Description	Part No.
24	Body seal	370/0106
25	Outlet flange	370/0130
26	2" BSP cap with chain & seal	10301PSS
27	M16 hex bolt (4)	5111-036
28	PTFE ball seal (2)	370/0102
29	2" ball valve body	370/0110
30	Large TIR tab	20491
31	Extended lifting finger	821/0054
32	Viton O ring	20361
33	Spindle	821/0010
34	Stuffing clamp	324/1001
35	M6 cap screw (3)	5111-017
36	Handle *Note	20607/X
37	M6 countersunk bolt	5111-030
38	Small TIR plate	20492
39	Remote handle *Note	330/5020X
40	Retaining washer	20370
41	PTFE O ring (2)	20363
42	Pivot pin	821/0034
43	5mm plain washer	5113-015
44	Crank block	821/0025/3
45	Crankshaft end bush	20362
46	Plastic plug (6)	5028-227

## SEAL KITS

Part number **370/015SK** contains all parts marked

Part number **826/00SK** contains all parts marked

**Note** : Part number varies according to specification.





3" 90° Tankstream Footvalve - 3" to 3" 90° footvalve assembly. Inlet flange drilled 12 x 14mm holes on a 6.25" PCD. 6 inlet holes are plugged with a plastic plug. Outlet flange drilled 8 x 10.5mm holes on a 124mm PCD. Contact parts manufactured in 316 stainless steel with Fortyt or Viton O ring.

Options - 3" to 2" footvalve assembly version.

**Specification**

Weight	7.5 Kg
Design Pressue (MAWP)	4 Bar (58 PSI)
Service Test Pressure	6 Bar (87 PSI)
Design Temperature Range	-20°C to +200°C -4°F to +392°F

**Range**

Part No.	Description
28F/0000F	3" to 3" footvalve with Fortyt seal
28F/0000V	3" to 3" footvalve with Viton seal

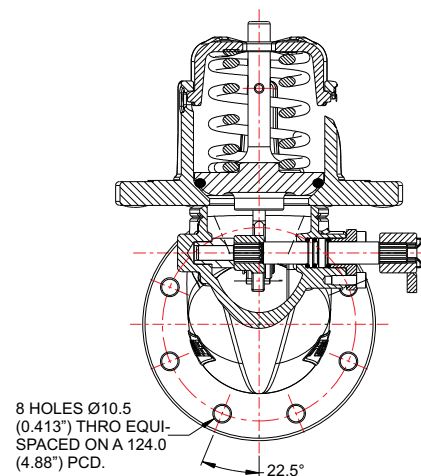
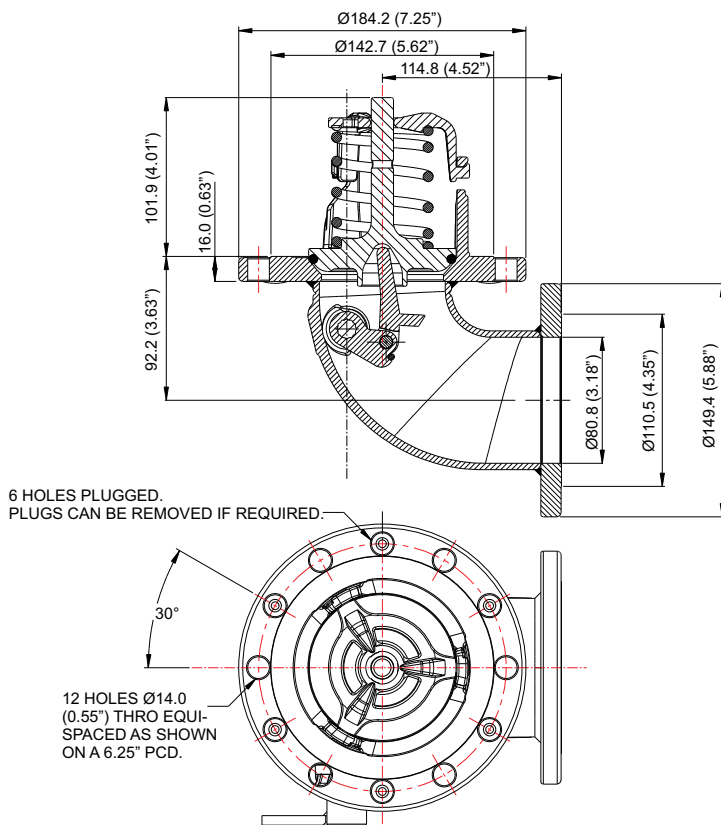
**Associated Parts**

Part Number	Description
11954/S	Tank weld in flange
290/1300	M12 stud kit
5005-016	Tank to footvalve PTFE gasket
299/7116	3" TTMA mating flange
5005-445	Outlet gasket

To ensure that the tank remains sealed in the event of an accident, the valve body incorporates a shear groove, designed to fail in such a way as to leave the internal part of the valve closed and attached to the tank body.

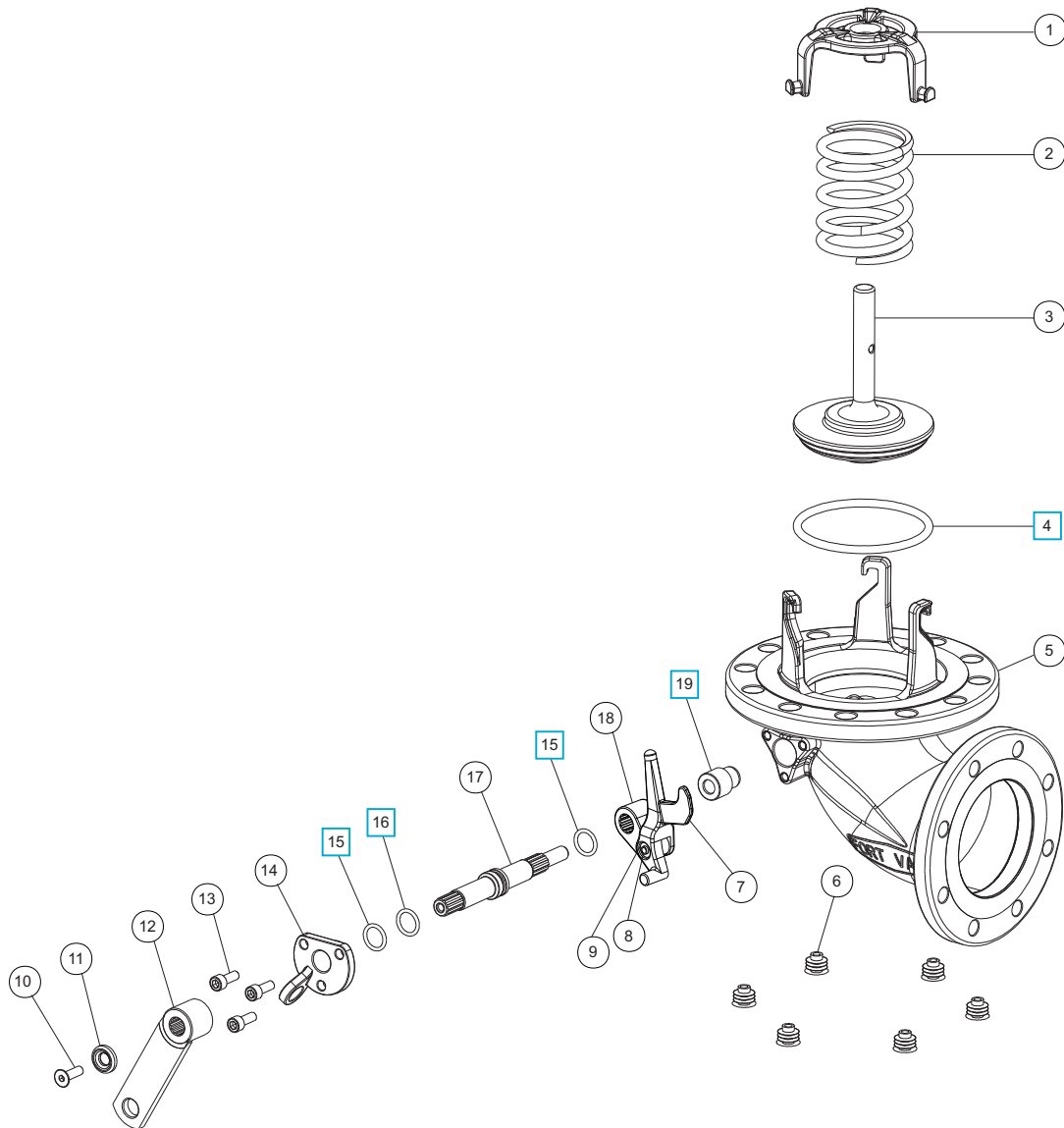
**Fitting Details**

Part Number : 28F/0000X





Parts drawing



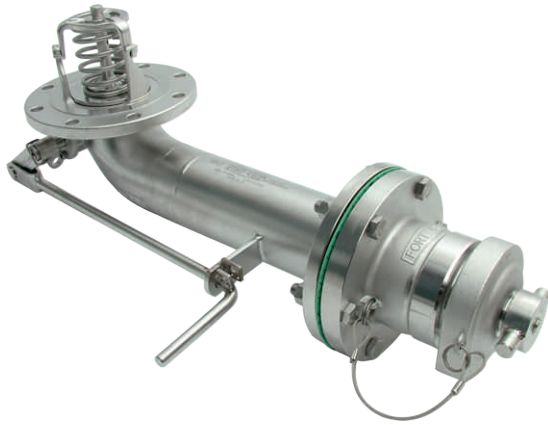
Item	Description	Part No.
1	Spring top plate	290/6104
2	Closure spring	5104-971
3	Solid poppet	324/2020
4	Fortyt O ring <b>*See Note</b>	5005-104 <input type="checkbox"/>
5	3" to 3" footvalve body assembly	28F/0003
6	Plastic plug (6)	5028-227
7	Lifting finger	821/0056
8	Pivot pin	821/0034
9	Plain washer	5113-015
10	Countersunk bolt	5111-019

Item	Description	Part No.
11	Retaining washer	20370
12	Crank arm	20607
13	Capscrew (3)	5111-017
14	Stuffing clamp	324/1001
15	PTFE O ring (2)	20363 <input type="checkbox"/>
16	Viton O ring	20361 <input type="checkbox"/>
17	Spindle	821/0010
18	Crank block	821/0025
19	Crankshaft end bush	20362 <input type="checkbox"/>

**\*Note:** Part number varies according to specification.

**SEAL KIT**

Part number **826/00SK** contains all parts marked



3" 90° Helifuel Bottom Outlet Assembly - Highlift style footvalve with extended outlet, terminated with a flanged 105mm "Drytyt" dry disconnect tank unit fitted with a pressure-tight cap. Contact parts manufactured in 316 stainless steel with Fortyt footvalve main seal. Drytyt tank unit fitted with low temperature Viton seal. Cap fitted with Fortyt seal.

Specifically designed to fit DNV 2.7-1 Helifuel offshore tanks.

Options - range of assembly lengths. Pneumatically operated version. Other seal combinations available. Cleanflow assembly available.

**Specification**

Weight	20 Kg *See Note
Design Pressure (MAWP)	4 Bar (58 PSI)
Service Test Pressure	6 Bar (87 PSI)
Design Temperature Range	-20°C to 200°C (-4°F to 392°F)

**Note :** Weight varies according to specification

To ensure that the tank remains sealed in the event of an accident, the footvalve body incorporates a shear groove, designed to fail in such a way as to leave the internal part of the valve closed and attached to the tank body.

**i** Operating Instructions available - OPIN59

**Range**

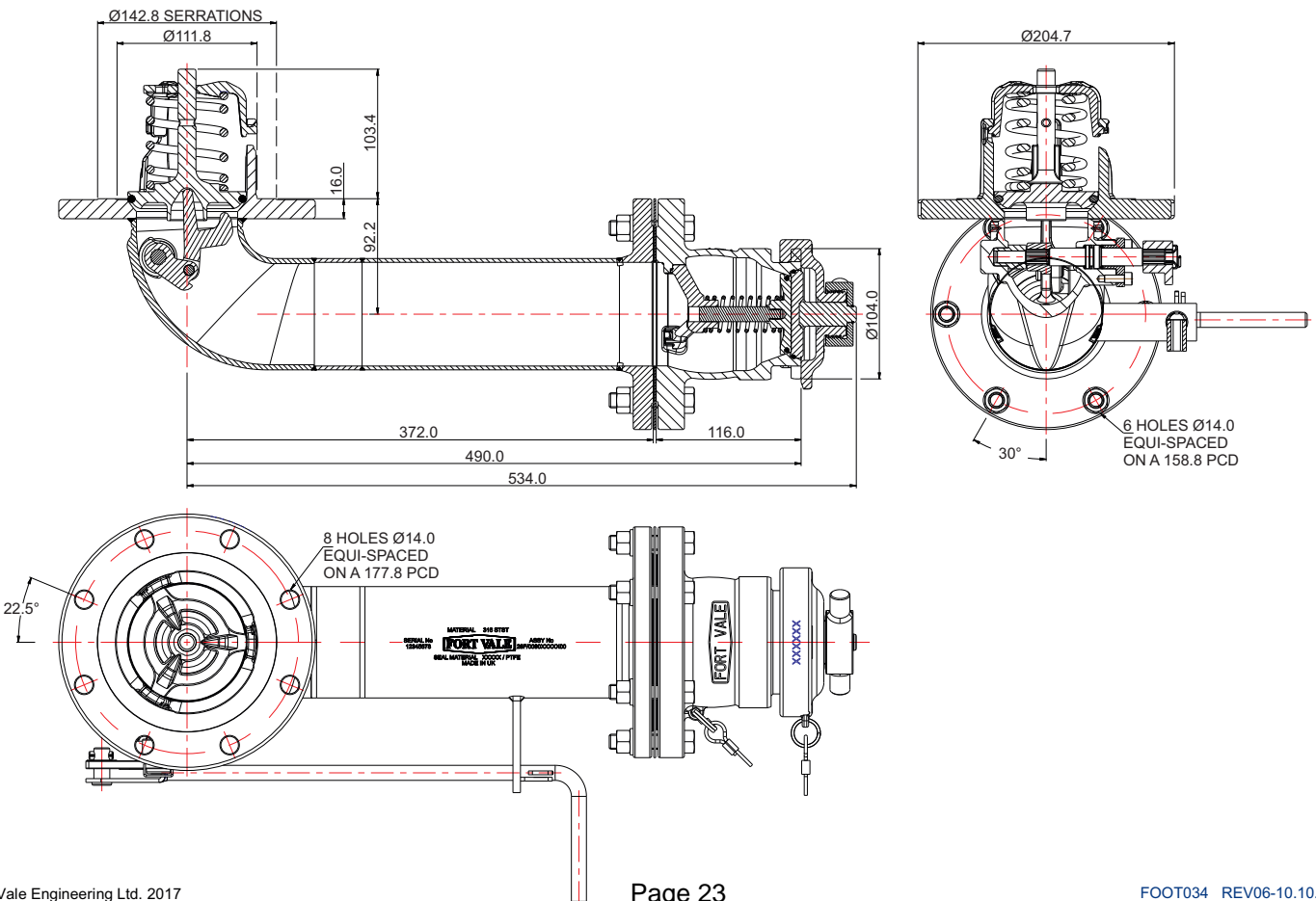
Part No.	Description
28F/00900490F00	3" 90° extended Highlift footvalve with 105mm Drytyt & cap
806/5400ASS	3" 90° extended pneumatic Cleanflow footvalve with 105mm Drytyt & cap

**Associated Parts**

Part No.	Associated Parts
324/9000	Tank weld-in flange
5005-015	CNAF/PTFE envelope gasket
324/2040	M12 x 8 stud kit with nuts and washers
915/5480F	105mm pressure-tight cap, Fortyt seal

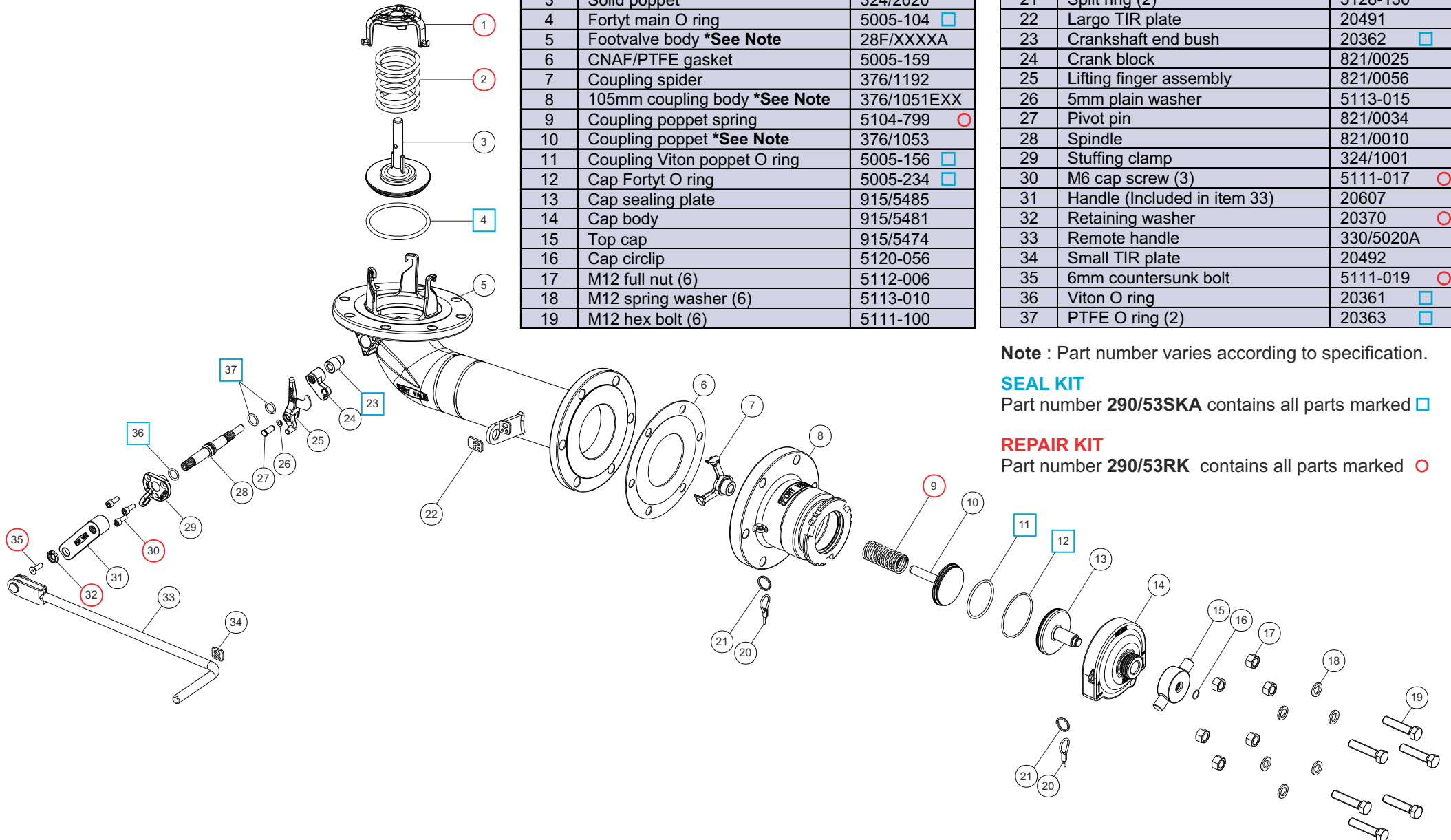
**Fitting Details**

Example shown : 28F/00900490F00



Item	Description	Part No.	
1	Spring top plate	290/6104	○
2	Closure spring	5104-971	○
3	Solid poppet	324/2020	
4	Fortyt main O ring	5005-104	□
5	Footvalve body *See Note	28F/XXXXA	
6	CNAF/PTFE gasket	5005-159	
7	Coupling spider	376/1192	
8	105mm coupling body *See Note	376/1051EXX	
9	Coupling poppet spring	5104-799	○
10	Coupling poppet *See Note	376/1053	
11	Coupling Viton poppet O ring	5005-156	□
12	Cap Fortyt O ring	5005-234	□
13	Cap sealing plate	915/5485	
14	Cap body	915/5481	
15	Top cap	915/5474	
16	Cap circlip	5120-056	
17	M12 full nut (6)	5112-006	
18	M12 spring washer (6)	5113-010	
19	M12 hex bolt (6)	5111-100	

Item	Description	Part No.	
20	2.5mm st/st wire (2)	SF2.5 & 6110-005	
21	Split ring (2)	5128-130	
22	Largo TIR plate	20491	
23	Crankshaft end bush	20362	□
24	Crank block	821/0025	
25	Lifting finger assembly	821/0056	
26	5mm plain washer	5113-015	
27	Pivot pin	821/0034	
28	Spindle	821/0010	
29	Stuffing clamp	324/1001	
30	M6 cap screw (3)	5111-017	○
31	Handle (Included in item 33)	20607	
32	Retaining washer	20370	○
33	Remote handle	330/5020A	
34	Small TIR plate	20492	
35	6mm countersunk bolt	5111-019	○
36	Viton O ring	20361	□
37	PTFE O ring (2)	20363	□



**Note :** Part number varies according to specification.

#### SEAL KIT

Part number **290/53SKA** contains all parts marked □

#### REPAIR KIT

Part number **290/53RK** contains all parts marked ○



3" 45° Highlift footvalve to 2" Ball valve assembly - 8 hole inlet footvalve with replaceable seat, reducing to a 2" fire-safe designed ball valve terminating in a 2" BSP outlet spigot and fitted with a 2"BSP cap. The assembly incorporates a 90° sampling point with a ¾" ball valve fitted with a nipple adaptor and ¾"BSP cap. Contact parts manufactured in 316 stainless steel with Fortyt seal to the footvalve and PTFE seals to the ball valve.

**Options** - Various footvalve seat material options (see Range). Left or right handed ball valve. Available terminated with 2" dry disconnect coupling and cap. Version without replaceable seat.

**Specification**

Weight	15.1 Kg
Design Pressure (MAWP)	4 Bar (58 PSIG)
Test Pressure	6 Bar (87 PSIG)
Design Temperature range	-40°C to +200°C (-40°F to +392°F)

Specifically designed to fit hazardous cargo tanks for the Offshore Industry, this compact integral design offers several cost-effective advantages over the composite discharge assembly:

- ! shorter in overall length
- ! less weight, increasing tank tare weight
- ! potential leak path eliminated
- ! requires less spare parts, including external gaskets

To ensure that the tank remains sealed in the event of an accident, the Highlift footvalve body incorporates a shear groove, designed to fail in such a way as to leave the internal part of the valve closed and attached to the tank body.

**Range**

Part No.	Description
804/0085LXA	Assembly with left hand ballvalve
804/0085RXA	Assembly with right hand ballvalve

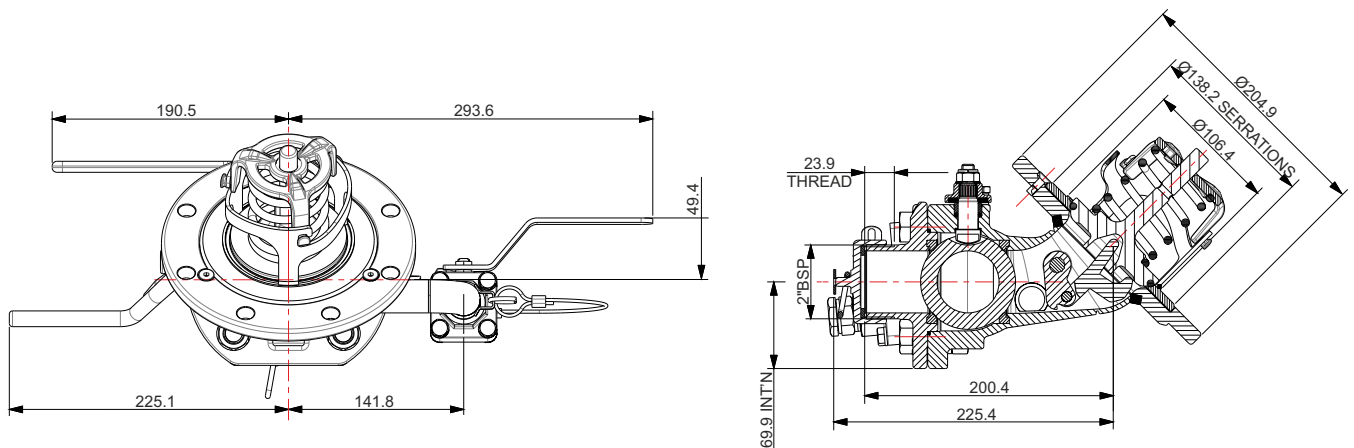
Part No.	Sealing face material to footvalve
804/0085XHA	Alloy C276
804/0085XSA	316 Stainless steel
804/0085XTA	Titanium GR2
804/0085XUA	904L Stainless steel

**Associated Parts**

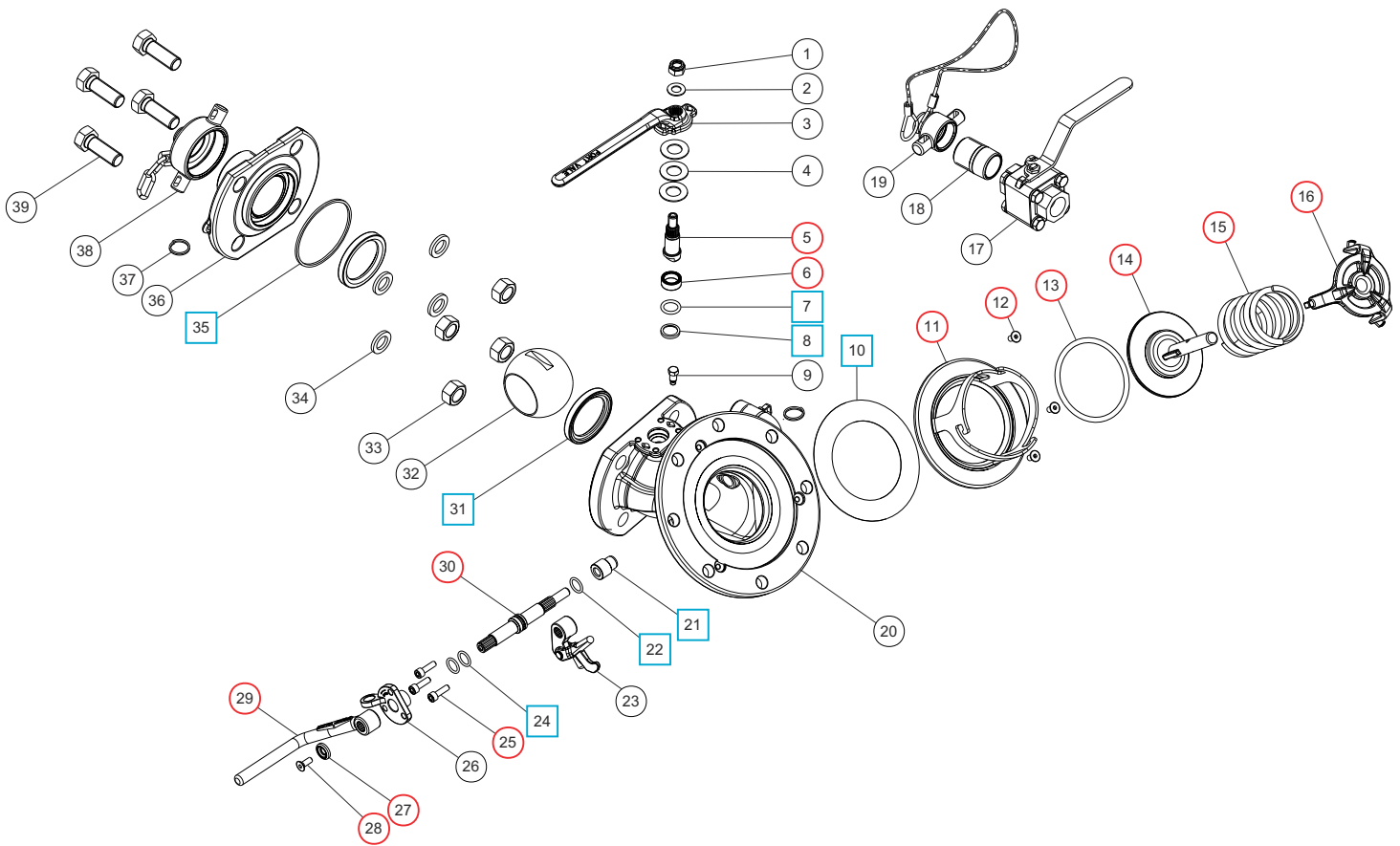
Part Number	Description
324/9000	Tank weld-in pad
5005-015	CAF/PTFE gasket
324/2060	Stud kit

**Fitting Details**

Example shown : 804/0085XXA



## Parts Drawing



Item	Description	Part No.
1	M10 self locking nut	5112-008
2	M10 washer	5113-009
3	Handle	370/0125
4	Belleville washer (3)	5113-038
5	2" ball valve spindle	370/0120 ●
6	Stuffing collar	370/0103 ●
7	PTFE O Ring	5005-688 ● □
8	Bottom bearing	370/0104 ● □
9	Stop pin	370/0107
10	PTFE wafer gasket *See Note 1	5005-828
11	Seal flange assembly *See Note 2	826/0817X
12	6mm x 12mm csk bolt (3) *Note 2	5111-018
13	Fortyt O Ring	5005-104 ● □
14	Footvalve solid poppet	324/2020 ●
15	Footvalve spring	5104-971 ●
16	Spring top plate	290/6104 ●
17	¾" Firesafe ball valve	410/500F
18	¾" nipple	338/1304
19	¾" BSP cap with wire	10306PSW
20	45° footvalve body	826/1176316

Item	Description	Part No.
21	Crankshaft end bush	20362 ● □
22	PTFE O ring (2)	20363 ● □
23	Crank block assembly	821/0300
24	Viton O ring	20361 ● □
25	M6 cap screw (3)	5111-017 ●
26	Stuffing clamp	324/1001
27	Retaining washer	20370 ●
28	M6 countersunk set screw	5111-030 ●
29	Footvalve handle	330/5010 ●
30	Spindle	821/0010 ●
31	PTFE ball seal (2)	370/0102 ● □
32	50mm ball	370/3301
33	M16 full nut (4)	5112-003
34	M16 spring washer (4)	5113-012
35	Body seal	370/0106 ● □
36	Outlet flange	370/0130
37	Split ring (2)	5128-013
38	2" BSP dust cap	10301PS
39	M16 hex bolt (4)	5111-036

## SEAL KITS

Part number **826/00SK** contains all parts marked ■  
 Part number **370/015SK** contains all parts marked □

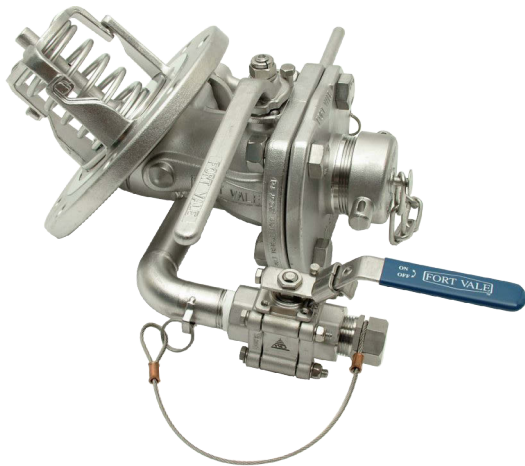
**Note 1** - PTFE wafer gasket 5005-828 is not included in the seal kit. Please order separately if required.

## REPAIR KITS

Part number **826/00RKA** contains all parts marked ●  
 Part number **370/015RK** contains all parts marked ○

**Note 2** - Seal flange assembly 826/0817X and countersunk bolt 5111-018 are not included in the repair kit. Please order separately if required.  
 Seal flange assembly part number varies according to specification.





3" 45° Highlift Footvalve to 2" Ball valve assembly -8 hole inlet footvalve reducing to a 2" fire-safe designed ball valve terminating in a 2" BSP outlet spigot and fitted with a 2" BSP cap. The assembly incorporates a 90° sampling point fitted with 3/4" ball valve with plug. Contact parts manufactured in 316 stainless steel fitted with Fortyt seal to the footvalve and PTFE seals to the ball valve.

**Options** - left or right handed ball valve. Available terminated with 2" dry disconnect coupling and cap. Replaceable seat version for corrosive cargo.

## Specification

Weight	15.2 Kg
Design Pressure (MAWP)	4 Bar (58 PSIG)
Test Pressure	6 Bar (87 PSIG)
Design Temperature range	-40°C to +200°C (-40°F to +392°F)

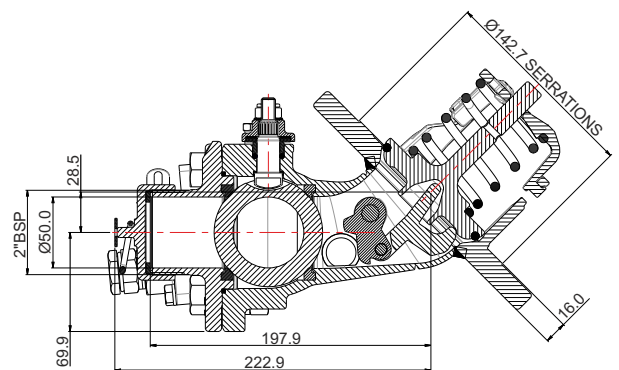
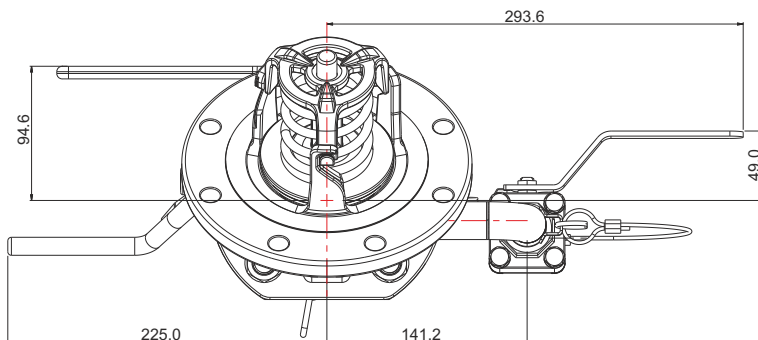
Specifically designed to fit hazardous cargo tanks for the Offshore Industry, this compact integral design offers several cost-effective advantages over the composite discharge assembly:

- shorter in overall length
- less weight, increasing tank tare weight
- potential leak path eliminated
- requires less spare parts, including external gaskets

To ensure that the tank remains sealed in the event of an accident, the Highlift footvalve body incorporates a shear groove, designed to fail in such a way as to leave the internal part of the valve closed and attached to the tank body.

## Fitting Details

Example Shown : 804/0080XA



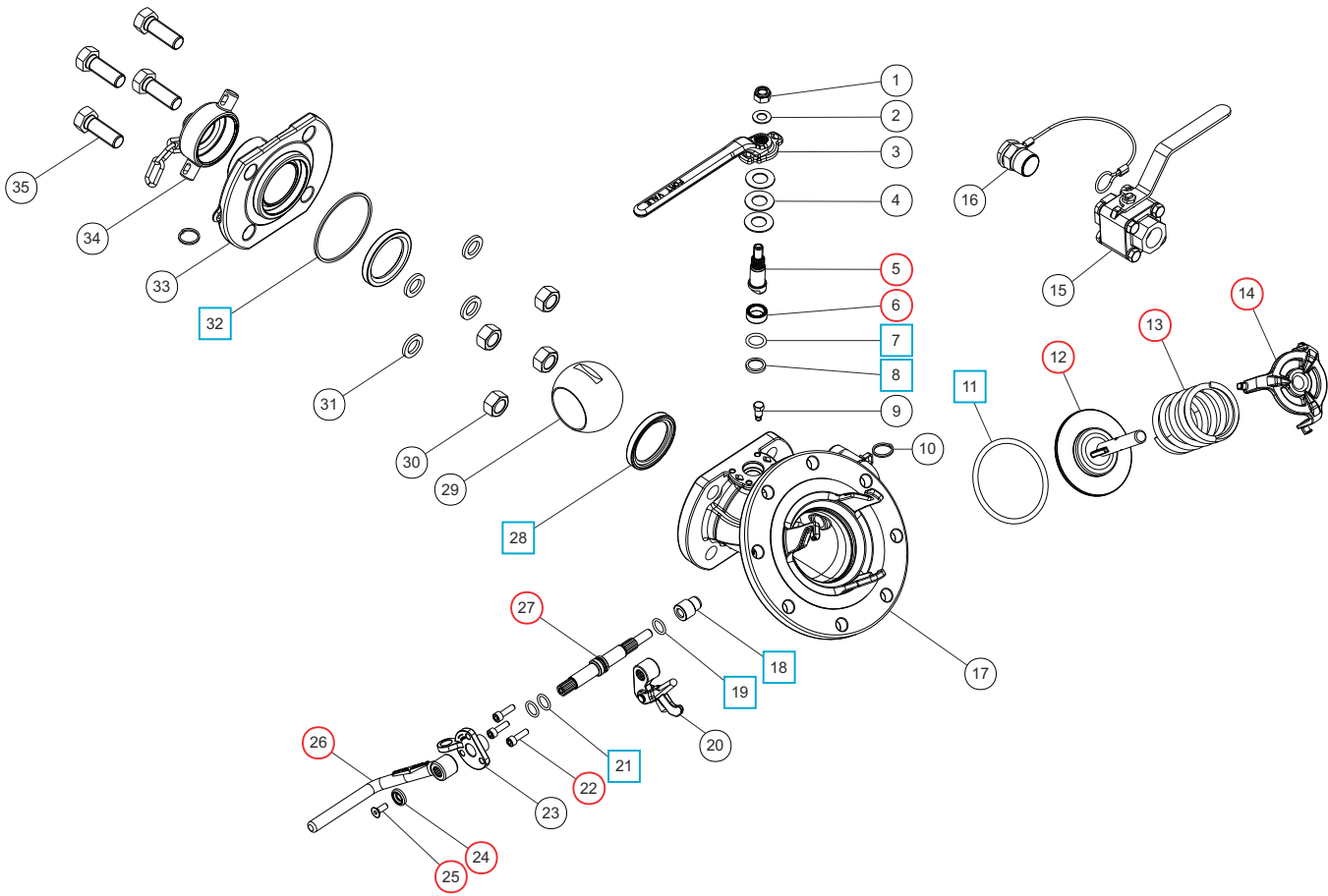
## Range

Part No.	Description
804/0080LA	Assembly with left hand ball valve
804/0080RA	Assembly with right hand ball valve

## Associated Parts

Part Number	Description
324/9000	Tank weld-in pad
5005-015	CAF/PTFE gasket
324/2070	Stud kit

Parts Drawing



Item	Description	Part No.
1	M10 self locking nut	5112-008
2	M10 washer	5113-009
3	Handle	370/0125
4	Belleville washer (3)	5113-038
5	2" ball valve spindle	370/0120
6	Stuffing collar	370/0103
7	PTFE O Ring	5005-688
8	Bottom bearing	370/0104
9	Stop pin	370/0107
10	Split ring (2)	5128-013
11	Fortyt O Ring	5005-104
12	Footvalve solid poppet	324/2020
13	Footvalve spring	5104-971
14	Spring top plate	290/6104
15	3/4" Firesafe ball valve	410/500F
16	3/4" plug with retaining wire	S0364/1
17	45° footvalve body	826/1179
18	Crankshaft end bush	20362

Item	Description	Part No.
19	PTFE O ring (2)	20363
20	Crank block assembly	821/0300
21	Viton O ring	20361
22	M6 cap screw (3)	5111-017
23	Stuffing clamp	324/1001
24	Retaining washer	20370
25	M6 countersunk set screw	5111-030
26	Footvalve handle	330/5010
27	Spindle	821/0010
28	PTFE ball seal (2)	370/0102
29	50mm ball	370/3301
30	M16 full nut (4)	5112-003
31	M16 spring washer (4)	5113-012
32	Body seal	370/0106
33	Outlet flange	370/0130
34	2" BSP dust cap	10301PS
35	M16 hex bolt (4)	5111-036

SEAL KITS

Part number **826/00SK** contains all parts marked ■  
 Part number **370/015SK** contains all parts marked

REPAIR KITS

Part number **826/00RKA** contains all parts marked ●  
 Part number **370/015RK** contains all parts marked ○





Fort Vale "Drytyt" couplings are compatible & interchangeable with Todo®, Mann-Tek® & Avery Hardoll® units.

### Range

Part No.	Inlet Connection
376X/B700AXX	2" BSP inlet
376X/B700BXX	4 x Ø18.0 holes on a 125.0 PCD
376X/B700EXX	6 x Ø14.0 holes on a 158.8 PCD

### Seal Limitations

Seal Code	Seal Material	Seal Temp. Range
376B/	Butyl	-40°C to +150°C
376E/	EPDM	-40°C to +150°C
376F/	Fortyt	-40°C to +200°C
376K/	Kalrez	-15°C to +200°C
376N/	Nitrile	-30°C to +100°C
376P/	Perfluoroelastomer	-15°C to +200°C
376Q/	Viton A-FDA approved	-20°C to +200°C
376V/	Viton	-20°C to +200°C

70mm "Drytyt" Tank Unit - 2" BSP inlet; 70mm outlet. Firesafe designed with non-protruding poppet alleviates the need to use a spacer when mounting onto a secondary discharge valve. Manufactured in 316 stainless steel. A range of seal materials is available.

**Options** : Available in 56mm, 70mm, 105mm, 119mm, 164mm with threaded (BSP or NPSL) or flanged inlet. All industry standard selective positions available. Different materials and colour coding available. Specific branded Perfluoroelastomer seals available on request. Compatible pressure-tight stainless steel cap available for all outlet sizes (may be used as secondary/tertiary closure). Dust caps available.

### Specification

Weight	1.18 Kg* <b>Note</b>
Static Design Pressure (MAWP)	25.0 Barg (362.5 PSIG)
Hydraulic Test Pressure	37.5 Barg (543.8 PSIG)
Max. Design Temperature	200°C (392°F) <b>**Note</b>
Min. Design Temperature	-40°C (-40°F) <b>**Note</b>

**Note** : \*weight varies according to valve specification  
\*\*metal parts only, see seal limitations

Maximum Coupling Pressure is determined by the hose unit.

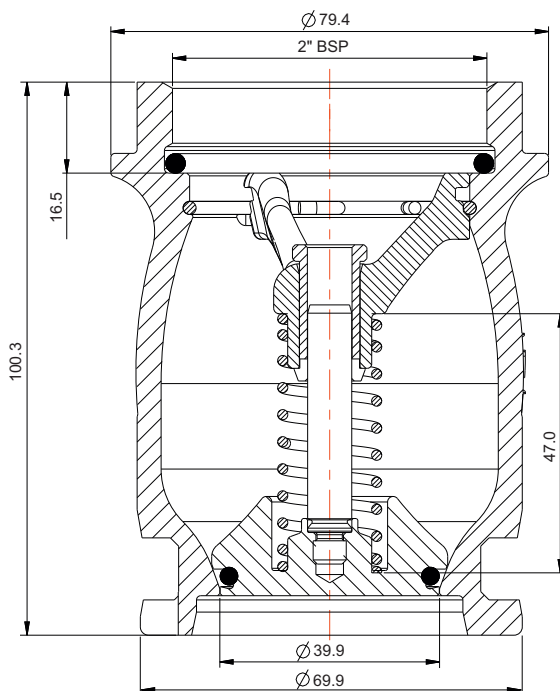
Approved to BS EN12516-2 & BS EN14432.

### Associated Parts

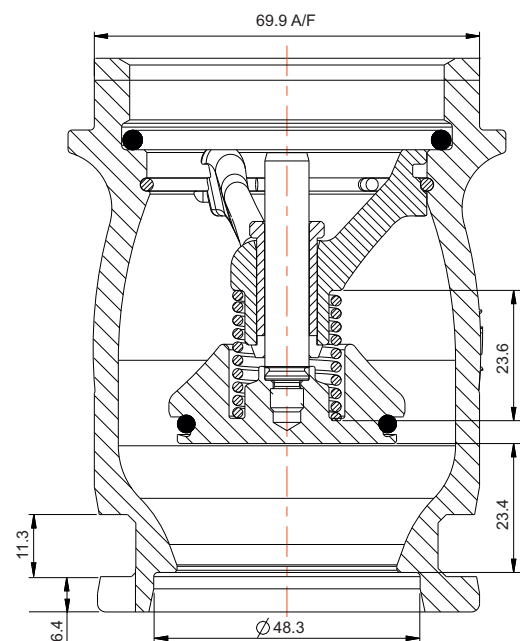
Part No.	Description
915/5420X	70mm pressure-tight cap, st/st
895X/0700AXX	70mm hose unit, threaded inlet

### Fitting Details

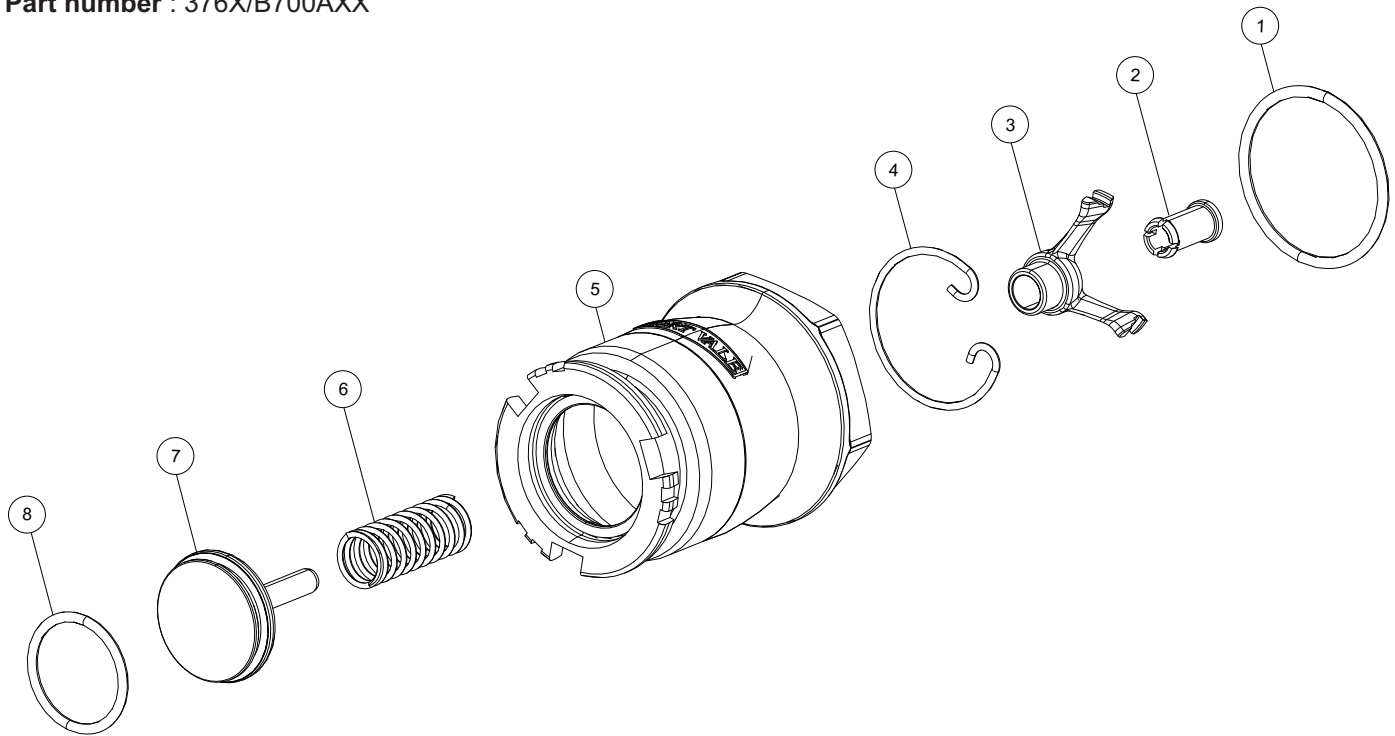
Part number : 376X/B700AXX



CLOSED POSITION



OPEN POSITION

**Parts drawing**
**Part number : 376X/B700AXX**


Item	Description	Part number
1	PTFE O ring	ORB832P0
2	Guide bush	376/0702/2
3	Spider	376/B702
4	Snap ring	5120-081
5	70mm "Drytyt" coupler body <b>*See Note</b>	376/B701AXX
6	Poppet spring	5104-800
7	Poppet assembly	376/B703
8	Poppet O ring <b>*See Table 1</b>	5005-XXXX

**Note :** Part number varies according to specification

**Table 1**

Seal Material	Part No.
Butyl	5005-126
EPDM	5005-171E
Fortyt	5005-171F
Kalrez	5005-171K
Nitrile	5005-594
Perfluoroelastomer	5005-171P
Viton	5005-171



Fort Vale "Drytyt" couplings are compatible & interchangeable with Todo®, Mann-Tek® & Avery Hardoll® units.

### Range

Part No.	Inlet Connection
895X/0700A00	2" BSP inlet
895X/0700C00	2" NPSL inlet
895X/0700F00	2" BSP inlet with a low profile handle

"X" is variable and designates seal material, see Table below.

Seal Code	Seal Material	Seal Temp. Range
895B/	Butyl	-40°C to +150°C
895E/	EPDM	-40°C to +150°C
895K/	Kalrez	-15°C to +200°C
895N/	Nitrile	-30°C to +100°C
895P/	Perfluoroelastomer	-15°C to +200°C
895Q/	Viton A-FDA approved	-20°C to +200°C
895V/	Viton	-20°C to +200°C

70mm "Drytyt" Hose Unit - 2" BSP inlet with built-in swivel; 70mm outlet. Manufactured in 316 stainless steel. A range of seal materials is available.

**Options :** Available in 70mm, 105mm, 119mm, 164mm with a range of inlet connections. All industry standard selective positions are available. (See separate sheet COUP003 for details). Branded Perfluoroelastomer seals are available on request.

### Specification

Weight	2.95 Kg *See Note
Maximum Coupling Pressure	7 Barg (101.5 PSIG)
Static Design Pressure (MAWP)	25 Barg (362.5 PSIG)
Hydraulic Test Pressure	37.5 Barg (544.0 PSIG)
Max. Design Temperature	200°C (392°F) **Note
Min. Design Temperature	-40°C (-40°F) **Note

**Note :** \* weight varies according to specification  
\*\* metal parts only, see seal limitations

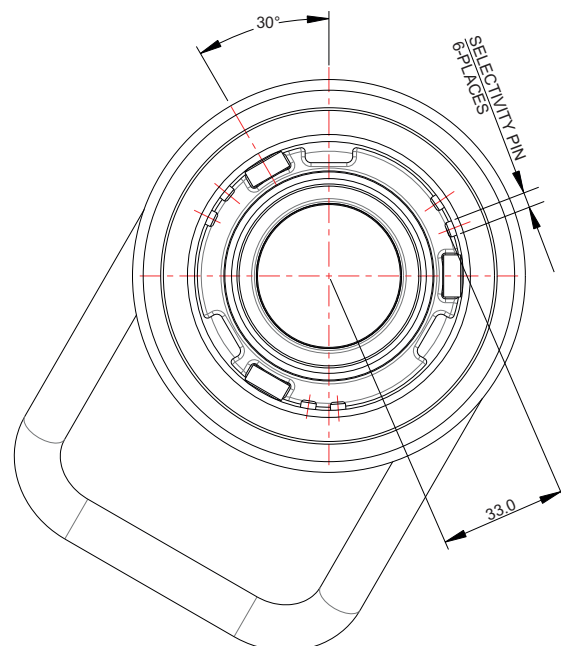
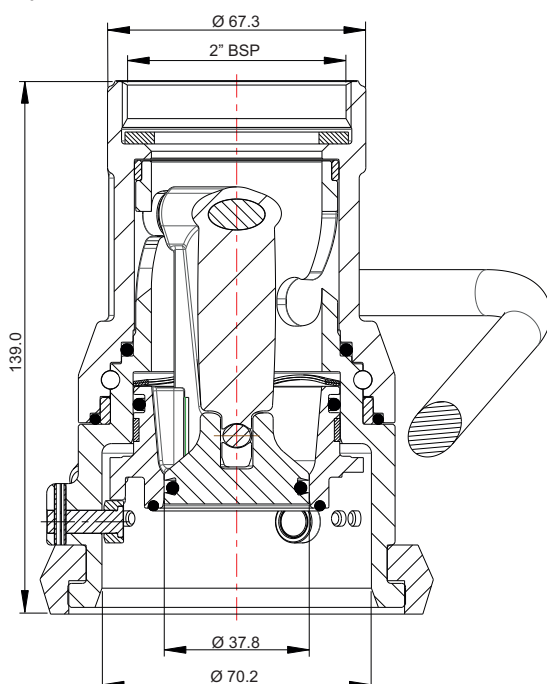
Approved to BS EN12516-2.

### Associated Parts

Part No.	Description
376X/B700AXX	70mm tank unit, threaded inlet
376X/B700BXX	70mm tank unit, flanged inlet
915/5171	70mm rubber dust plug

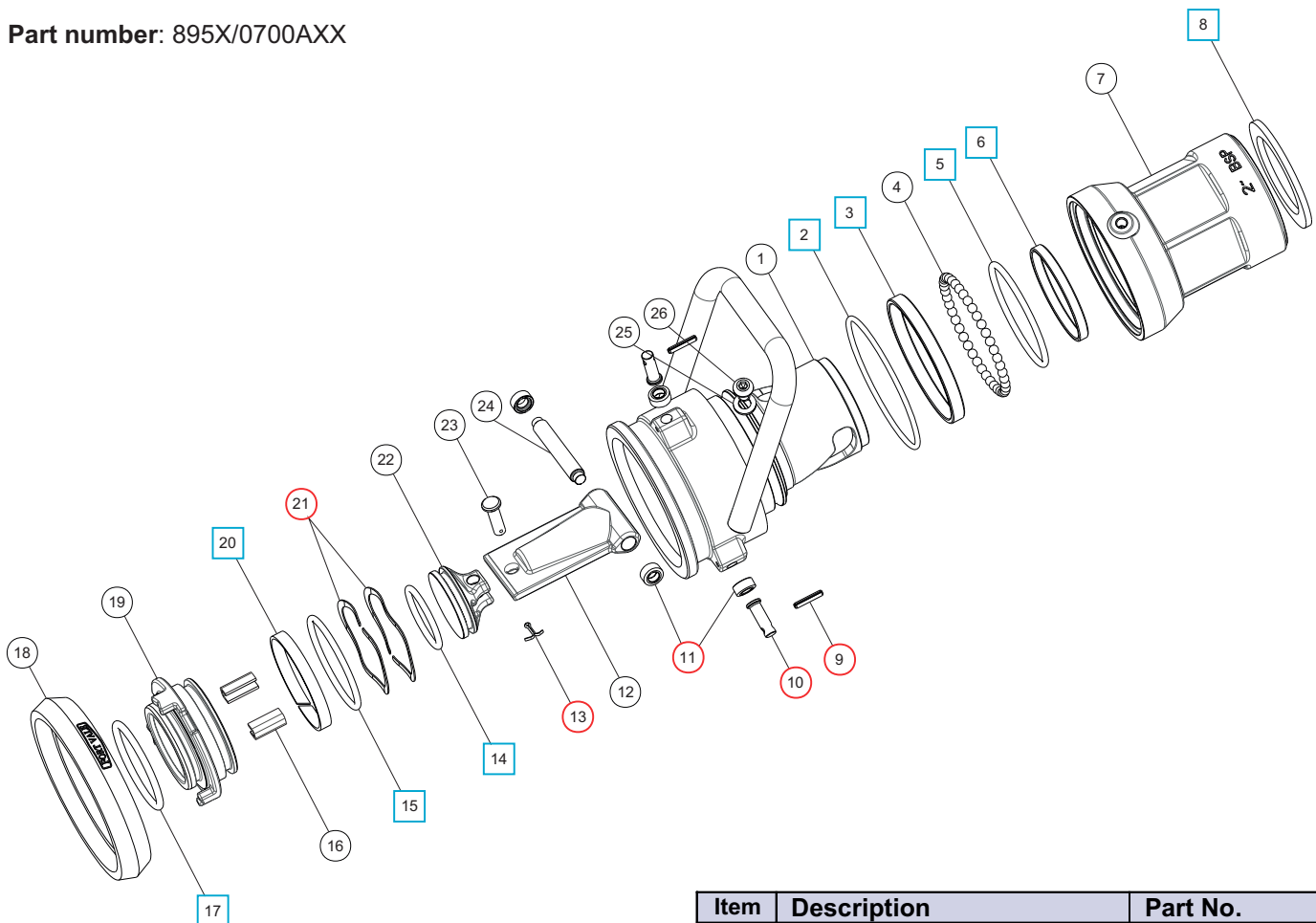
### Fitting Details

Example Shown : 895X/0700AXX



**Parts drawing**

Part number: 895X/0700AXX


**TABLE 1**

Seal Material	Part No.
Butyl	ORB227BU
EPDM	ORB227EP
Kalrez	ORB227KO
Nitrile	ORB227N
Perfluoroelastomer	ORB227K2
Viton	5005-156

**TABLE 2**

Seal Material	Part No.
Butyl	ORB217BU
EPDM	ORB217EP
Kalrez	ORB217KO
Nitrile	ORB217N
Perfluoroelastomer	ORB217K2
Viton	5005-173

**TABLE 3**

Seal Material	Part No.
Butyl	ORB225BU
EPDM	ORB225EP
Kalrez	ORB225KO
Nitrile	ORB225N
Perfluoroelastomer	ORB225K2
Viton	5005-201

**TABLE 4**

Seal Material	Part No.
Butyl	ORB129BU
EPDM	ORB129EP
Kalrez	ORB129KO
Nitrile	ORB129N
Perfluoroelastomer	ORB129K2
Viton	ORB129VR

Item	Description	Part No.
1.	Cammed body	895/0702XX
2.	Fortyt O ring	ORB149F1 <input type="checkbox"/> <input type="radio"/>
3.	Plain bearing	895/0708/3 <input type="checkbox"/> <input type="radio"/>
4.	Ball bearing (42)	10145SS
5.	O ring	<b>See Table 1</b> <input type="checkbox"/> <input type="radio"/>
6.	Plain bearing	895/0708 <input type="checkbox"/> <input type="radio"/>
7.	Swivel body	895/0701
8.	2" PTFE seal	10327P <input type="checkbox"/> <input type="radio"/>
9.	Roll pin (3)	5128-071 <input type="checkbox"/> <input type="radio"/>
10.	Roller spindle pin (3)	895/0707 <input type="checkbox"/> <input type="radio"/>
11.	Roller (5)	895/0706 <input type="checkbox"/> <input type="radio"/>
12.	Piston plate	895/0705/5
13.	Split pin	5118-012 <input type="checkbox"/> <input type="radio"/>
14.	O ring	<b>See Table 2</b> <input type="checkbox"/> <input type="radio"/>
15.	O ring	<b>See Table 3</b> <input type="checkbox"/> <input type="radio"/>
16.	Slide strip (2)	895/0708/4
17.	O ring	<b>See Table 4</b> <input type="checkbox"/> <input type="radio"/>
18.	Rubber buffer ring	895/0708/2
19.	Piston guide	895/0703
20.	Scarf cut bearing	895/0708/5 <input type="checkbox"/> <input type="radio"/>
21.	Wavy spring (2)	5111-185 <input type="checkbox"/> <input type="radio"/>
22.	Piston head	895/0705/1
23.	Clevis pin	895/0705/8
24.	Piston spindle	895/0705/6
25.	M6 spring washer	5113-008
26.	M6 button screw	5111-610

**SEAL KIT**

 Part number 895XSK/0700 contains all parts marked 
**REPAIR KIT**

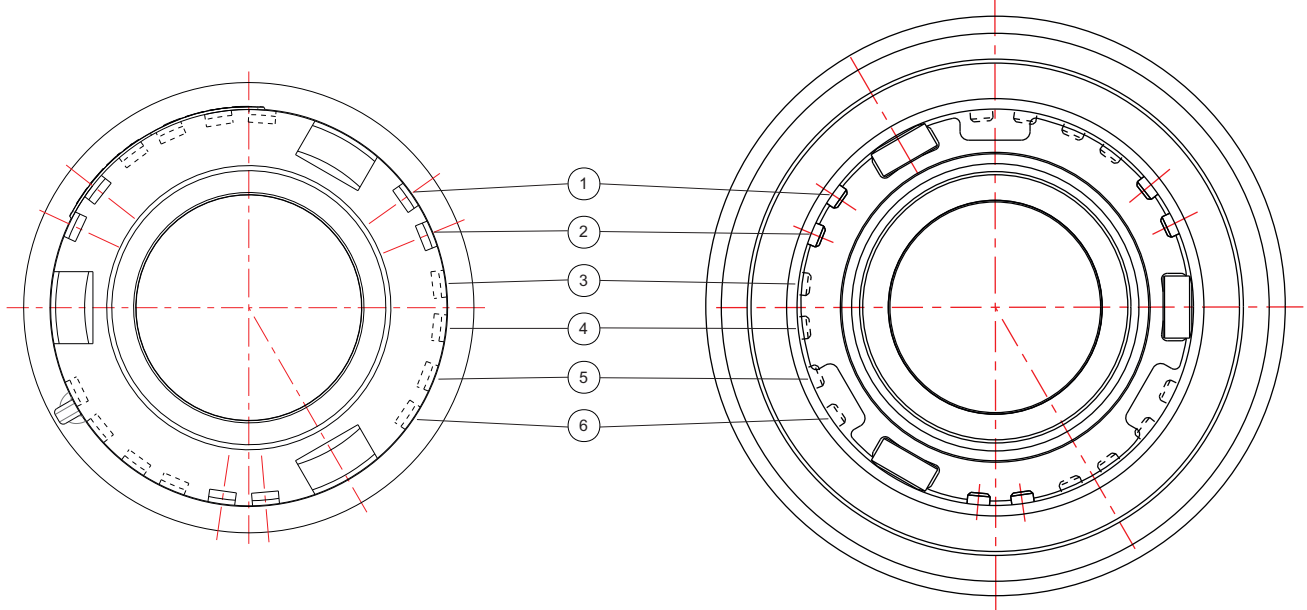
 Part number 895XRK/0700 contains all parts marked 

 (X indicates variable seal material, see Tables 1-4  
eg. 895VSK/0700 indicates Viton seals throughout)

# Fort Vale “Drytyt” Selectivity System - 70mm

Tank Unit - Part number : 376X/B700XXX

Hose Unit - Part number : 895X/0700XXX



Fort Vale 70mm “Drytyt” couplings are available with 15 selectivity options from A to Q. See table below. When ordering, please add the chosen selectivity letter to the end of the part number e.g. 376X/B700XQ 895X/0700XQ

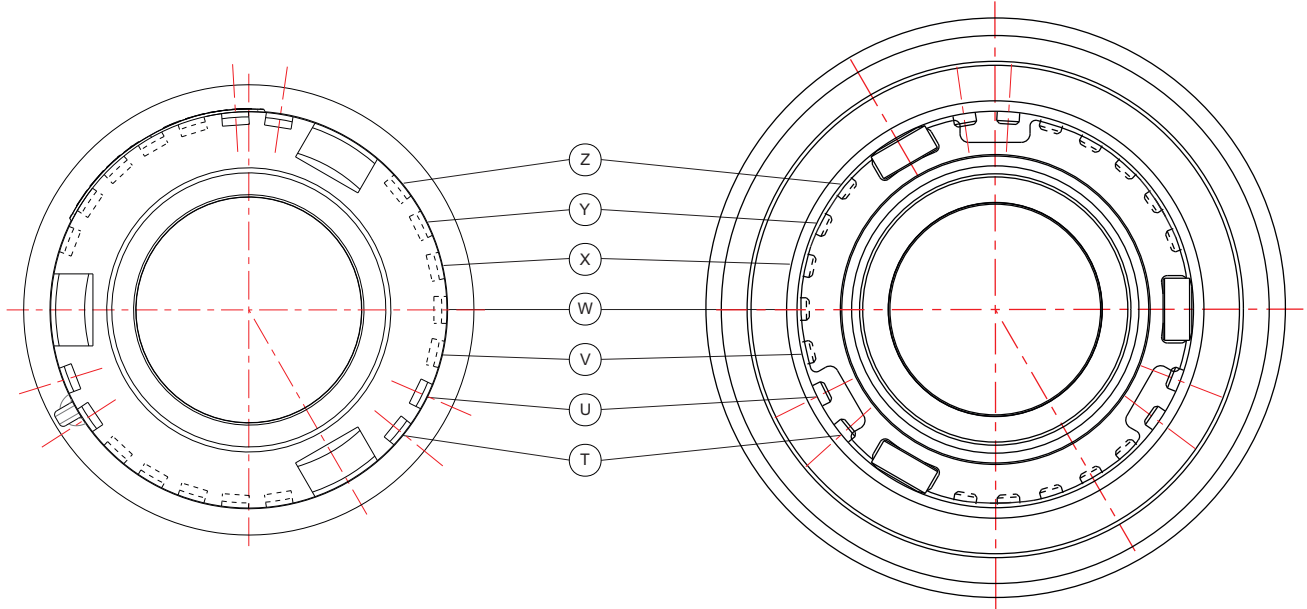
### 15 Position Selectivity

Selectivity Letter	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Pin & Slot Position	1+2	1+3	1+4	1+5	1+6	2+3	2+4	2+5	2+6	3+4	3+5	3+6	4+5	4+6	5+6

# Todo® Selectivity System - 70mm

Tank Unit - Part number : 376X/B700XXX

Hose Unit - Part number : 895X/0700XXX



Fort Vale 70mm “Drytyt” couplings are also available with 7 position selectivity and 21 position selectivity. (i.e. **Todo®**, **Mann-Tek®** & **Avery Hardoll®** compatible) See tables below.

When ordering, please add the chosen selectivity letter/number to the end of the part number e.g. 376X/B700XTU 895X/0700XTU

### 7 Position Selectivity

T	U	V	W	X	Y	Z
---	---	---	---	---	---	---

### 21 Position Selectivity

TU	TV	TW	TX	TY	TZ	UV
UW	UX	UY	UZ	VW	VX	VY
VZ	WX	WY	WZ	XY	XZ	YZ

**CAUTION** : You must check carefully when you connect the units because a hose unit with a single pin (from 7 position selectivity) will also fit a double slot tank unit (from 21 position selectivity).







Fort Vale "Drytyt" couplings are compatible & interchangeable with Todo®, Mann-Tek® & Avery Hardoll® units.

### Range

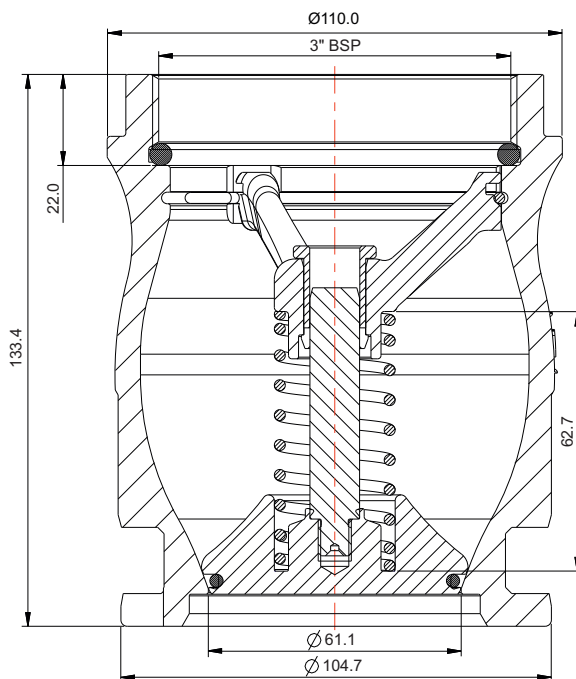
Part No.	Inlet Connection
376X/B050AXX	3" BSP inlet
376X/B050BXX	8 x Ø18.0 holes on a 160.0 PCD
376X/B050CXX	4 x Ø19.0 holes on a 152.4 PCD
376X/B050GXX	4 x Ø17.0 holes on a 160.0 PCD

### Seal Limitations

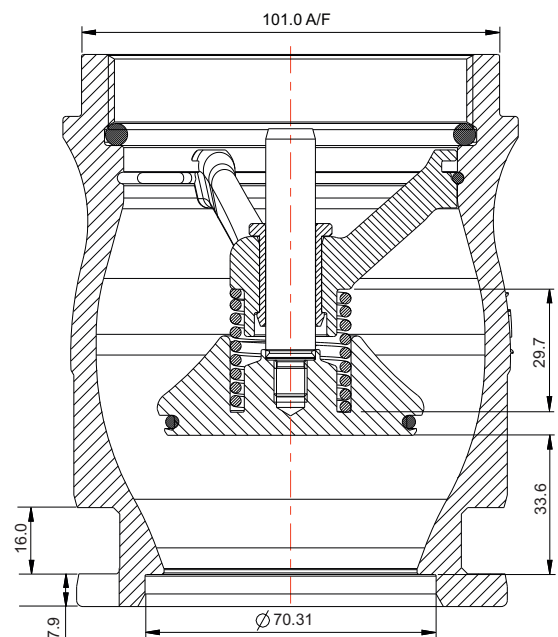
Seal Code	Seal Material	Seal Temp. Range
376B/	Butyl	-40°C to +150°C
376E/	EPDM	-40°C to +150°C
376F/	Fortyt	-40°C to +200°C
376K/	Kalrez	-15°C to +200°C
376N/	Nitrile	-30°C to +100°C
376P/	Perfluoroelastomer	-15°C to +200°C
376Q/	Viton A-FDA approved	-20°C to +200°C
376V/	Viton	-20°C to +200°C

### Fitting Details

Part Number : 376X/B050AXX



CLOSED POSITION



OPEN POSITION

105mm "Drytyt" Tank Unit - 3" BSP inlet; 105mm outlet. Firesafe designed with non-protruding poppet alleviates the need to use a spacer when mounting onto a secondary discharge valve. Manufactured in 316 stainless steel. A range of seal materials is available.

**Options** : Available in 56mm, 70mm, 105mm, 119mm, 164mm with threaded (BSP or NPSL) or flanged inlet. All industry standard selective positions available. Different materials and colour coding available. Specific branded Perfluoroelastomer seals available on request. Compatible pressure-tight stainless steel cap available for all outlet sizes (may be used as secondary/tertiary closure). Dust caps available.

### Specification

Weight	3.30 Kg *Note
Static Design Pressure (MAWP)	25.0 Barg (362.5 PSIG)
Hydraulic Test Pressure	37.5 Barg (543.8 PSIG)
Max. Design Temperature	200°C (392°F) **Note
Min. Design Temperature	-40°C (-40°F) **Note

**Note** : \* weight varies according to valve specification  
\*\*metal parts only, see seal limitations

Maximum Coupling Pressure is determined by the hose unit.

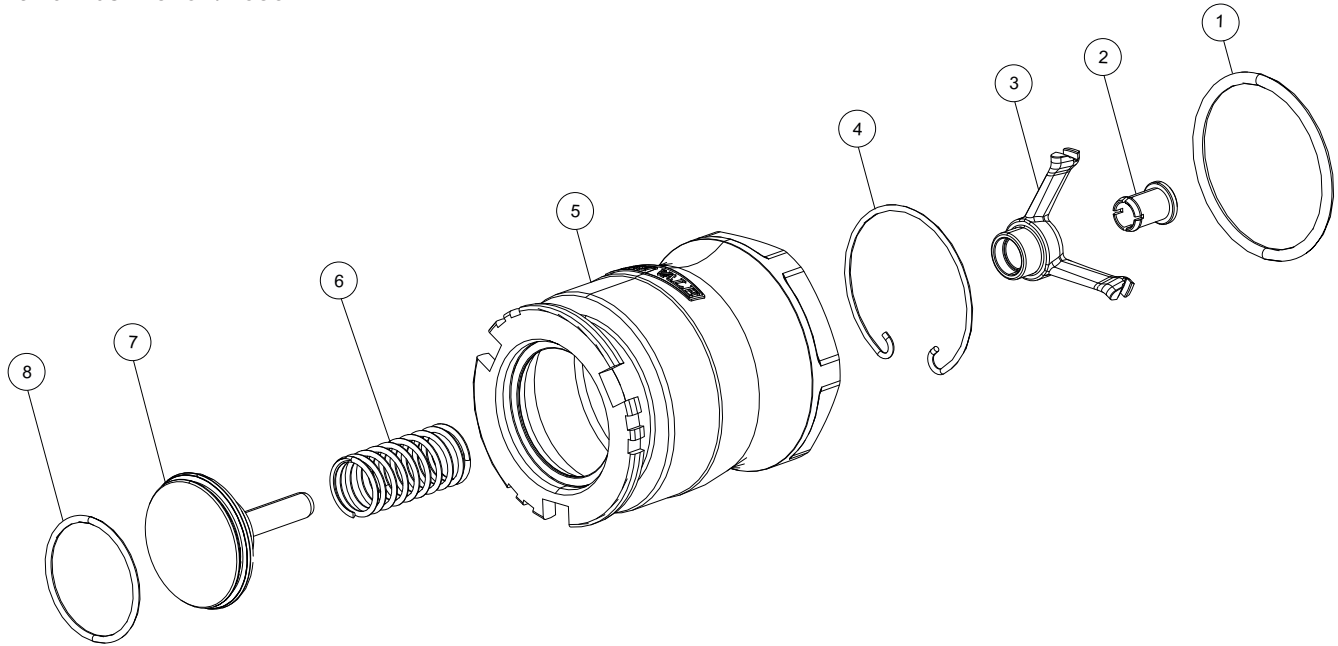
Approved to BS EN12516-2 & BS EN14432.

### Associated Parts

Part No.	Description
915/5480X	105mm pressure-tight cap, st/st
895X/1050AXX	105mm hose unit, threaded inlet

## Parts drawing

Part number : 376X/B050AXX



Item	Description	Part number
1	PTFE O ring	5005-103
2	Guide bush	376/1052/2
3	Spider	376/B192
4	Snap ring	5120-082
5	105mm "Drytyt" coupler body <b>*See Note</b>	376/B051AXX
6	Poppet spring	5104-799
7	Poppet assembly	376/B153
8	Poppet O ring <b>*See Table 1</b>	5005-XXXX

**Note :** Part number varies according to specification

Table 1

Seal Material	Part No.
Butyl	5005-157
EPDM	5005-156E
Fortyt	5005-750
Kalrez	5005-156K
Nitrile	5005-156N
Perfluoroelastomer	5005-156P
Viton	5005-156



Fort Vale "Drytyt" couplings are compatible & interchangeable with Todo®, Mann-Tek® & Avery Hardoll® units.

### Range

Part No.	Inlet Connection
895X/1050A00	3" BSP inlet
895X/1050B00	2 1/2" BSP inlet
895X/1050C00	3" NPSL inlet
895X/1050F00	3" ASA 150 flanged inlet
895X/1050G00	DN80 PN25/40 flanged inlet

"X" is variable and designates seal material, see Table below.

Seal Code	Seal Material	Seal Temp. Range
895B/	Butyl	-40°C to +150°C
895E/	EPDM	-40°C to +150°C
895K/	Kalrez	-15°C to +200°C
895N/	Nitrile	-30°C to +100°C
895P/	Perfluoroelastomer	-15°C to +200°C
895Q/	Viton A-FDA approved	-20°C to +200°C
895V/	Viton	-20°C to +200°C

105mm "Drytyt" Hose Unit - Available with either 2 1/2" BSP or 3" BSP inlet with built-in swivel (see Range); 105mm outlet. Manufactured in 316 stainless steel. A range of seal materials is available.

**Options** : Available in 70mm, 105mm, 119mm, 164mm with a range of inlet connections. All industry standard selective positions are available. (See separate sheet COUP013 for details). Branded Perfluoroelastomer seals are available on request.

### Specification

Weight	8.97 Kg *See Note
Maximum Coupling Pressure	7 Barg (101.5 PSIG)
Static Design Pressure (MAWP)	25 Barg (362.5 PSIG)
Hydraulic Test Pressure	37.5 Barg (544.0 PSIG)
Max. Design Temperature	200°C (392°F) **Note
Min. Design Temperature	-40°C (-40°F) **Note

**Note** : \*weight varies according to specification  
\*\* metal parts only, see seal limitations

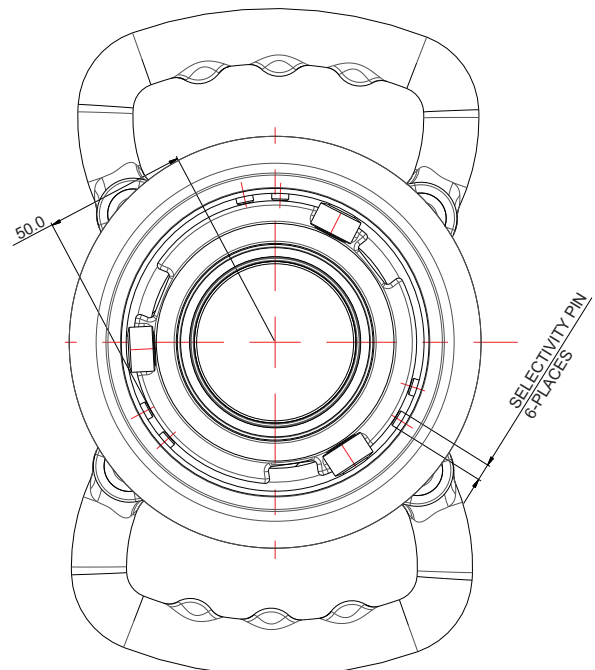
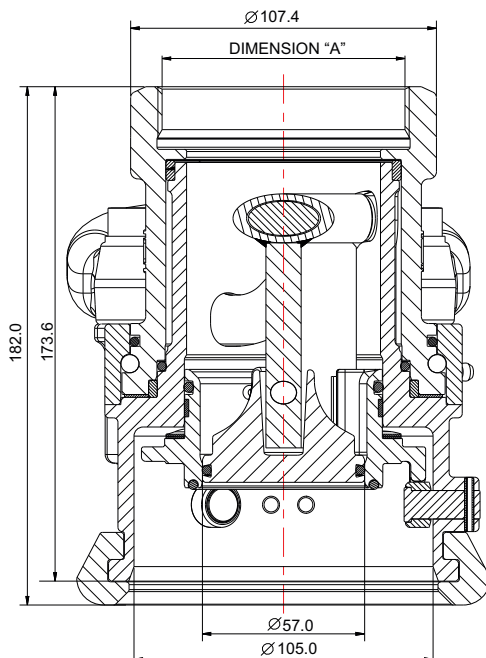
Approved to BS EN12516-2

### Associated Parts

Part No.	Description
376X/B050A00	105mm tank unit, threaded inlet
376X/B050B00	105mm tank unit, flanged inlet

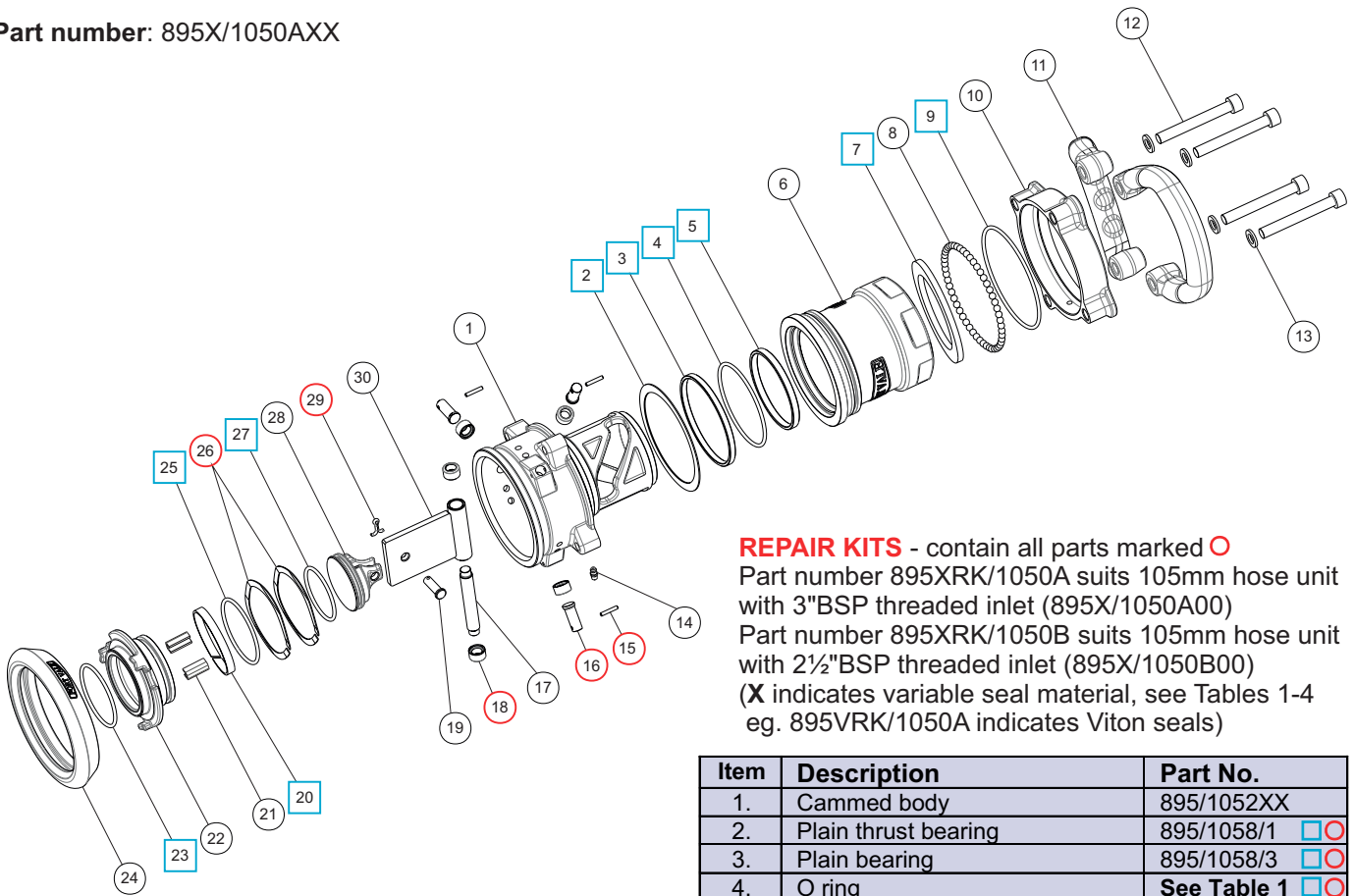
### Fitting Details

Part Number : 895X/1050AXX indicates 3" BSP inlet - see DIMENSION "A"  
895X/1050BXX indicates 2 1/2" BSP inlet - see DIMENSION "A"



## Parts drawing

Part number: 895X/1050AXX

**REPAIR KITS** - contain all parts marked ○

Part number 895XRK/1050A suits 105mm hose unit with 3"BSP threaded inlet (895X/1050A00)

Part number 895XRK/1050B suits 105mm hose unit with 2½"BSP threaded inlet (895X/1050B00)

(X indicates variable seal material, see Tables 1-4 eg. 895VRK/1050A indicates Viton seals)

TABLE 1

Seal Material	Part No.
Butyl	ORB236BU
EPDM	ORB236EP
Kalrez	ORB236KO
Nitrile	ORB236N
Perfluoroelastomer	ORB236K2
Viton	5005-941

TABLE 2

Seal Material	Part No.
Butyl	ORB229BU
EPDM	ORB229EP
Kalrez	ORB229KO
Nitrile	ORB229N
Perfluoroelastomer	ORB229K2
Viton	5005-313

TABLE 3

Seal Material	Part No.
Butyl	ORB230BU
EPDM	ORB230EP
Kalrez	ORB230KO
Nitrile	ORB230N
Perfluoroelastomer	ORB230K2
Viton	5005-996

TABLE 4

Seal Material	Part No.
Butyl	ORB226BU
EPDM	ORB226EP
Kalrez	ORB226KO
Nitrile	ORB226N
Perfluoroelastomer	ORB226K2
Viton	5005-299

Item	Description	Part No.
1.	Cammed body	895/1052XX
2.	Plain thrust bearing	895/1058/1 □ ○
3.	Plain bearing	895/1058/3 □ ○
4.	O ring	See Table 1 □ ○
5.	Plain bearing	895/1058 □ ○
6.	Swivel body	895/1051
7.	PTFE seal – 2½" PTFE seal – 3"	10328P □ ○ 10329P
8.	Ball bearing (52)	10143SS
9.	Viton O ring	5005-658V □ ○
10.	Bearing outer body	895/1054
11.	Plastic coated handle (2)	895/1199L
12.	M10 cap head bolt (4)	5111-183
13.	M10 spring washer (4)	5113-029
14.	Grease nipple	5128-026
15.	Roll pin (3)	5128-002 ○
16.	Roller spindle pin (3)	895/1197 ○
17.	Roller spindle	895/1055/6
18.	Roller (5)	895/1196 ○
19.	Clevis pin	895/1195/8
20.	Scarv cut bearing	895/1058/4 □ ○
21.	Slide strip (2)	895/1058/5
22.	Piston guide	895/1053
23.	O ring	See Table 2 □ ○
24.	Rubber buffer ring	895/1058/2
25.	O ring	See Table 3 □ ○
26.	Wavey washer (2)	5111-186 ○
27.	O ring	See Table 4 □ ○
28.	Piston head	895/1055/1
29.	Split pin	5118-017 ○
30.	Piston plate	895/1055/4

**SEAL KITS** - contain all parts marked □

Part number 895XSK/1050A suits 105mm hose unit with 3"BSP threaded inlet (895X/1050A00)

Part number 895XSK/1050B suits 105mm hose unit with 2½"BSP threaded inlet (895X/1050B00)

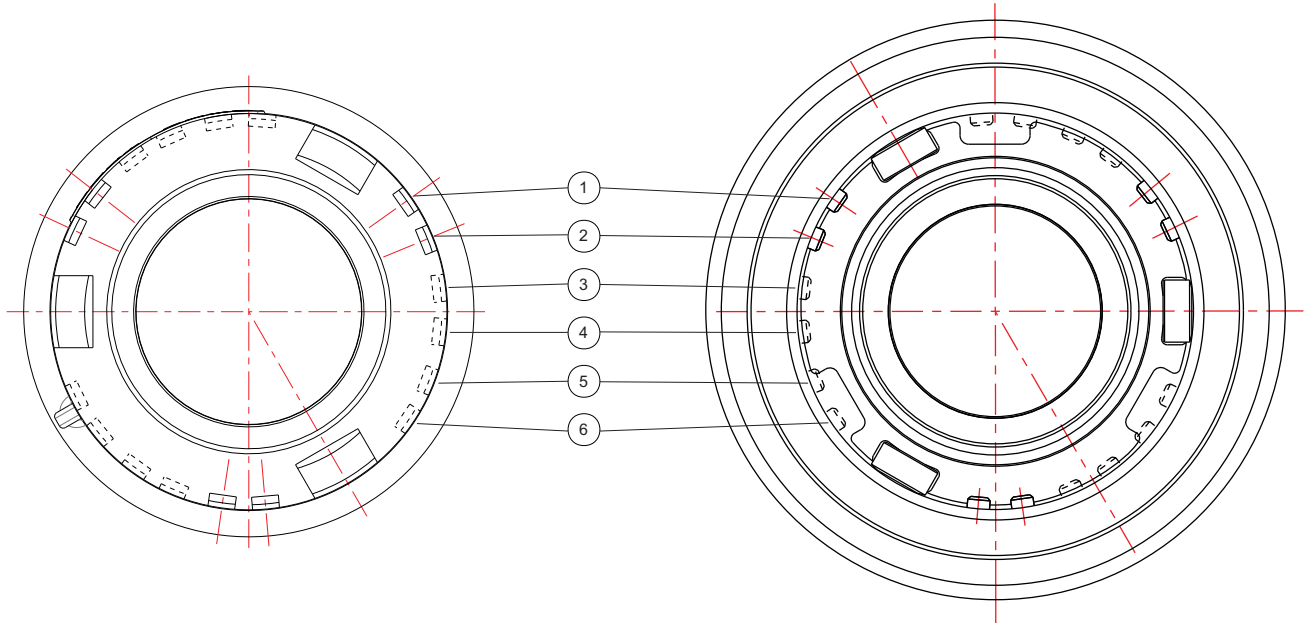
(X indicates variable seal material, see Tables 1-4 eg. 895VSK/1050A indicates Viton seals throughout)



# Fort Vale “Drytyt” Selectivity System - 105mm & 119mm

Tank Unit - Part number : 376X/B050XXX - 105mm  
376X/B190XXX - 119mm

Hose Unit - Part number : 895X/1050XXX - 105mm  
895X/1190XXX - 119mm



Fort Vale 105mm and 119mm “Drytyt” couplings are available with 15 selectivity options from A to Q. See table below. When ordering, please add the chosen selectivity letter to the end of the part number eg. 376X/B050XQ  
895X/1050XQ

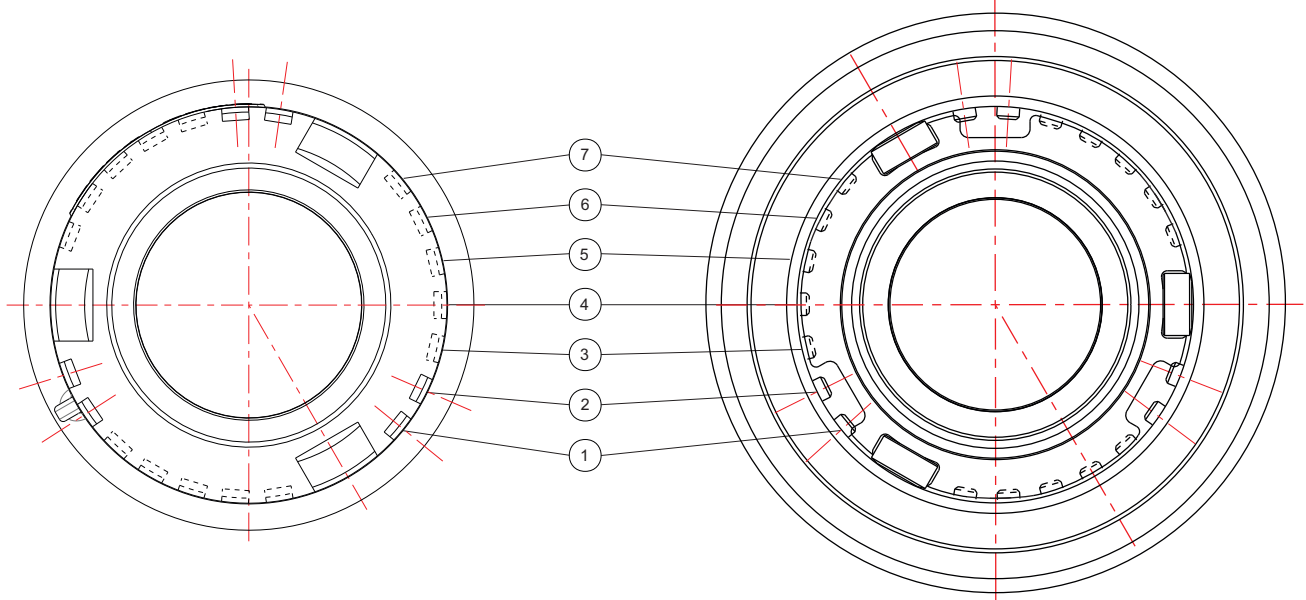
### 15 Position Selectivity

Selectivity Letter	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
Pin & Slot Position	1+2	1+3	1+4	1+5	1+6	2+3	2+4	2+5	2+6	3+4	3+5	3+6	4+5	4+6	5+6

# Todo® Selectivity System - 105mm & 119mm

Tank Unit - Part number : 376X/B050XXX - 105mm  
376X/B190XXX - 119mm

Hose Unit - Part number : 895X/1050XXX - 105mm  
895X/1190XXX - 119mm



Fort Vale 105mm & 119mm “Drytyt” couplings are also available with 7 position selectivity and 21 position selectivity. (i.e. **Todo®**, **Mann-Tek®** & **Avery Hardoll®** compatible) See tables below.

When ordering, please add the chosen selectivity letter/number to the end of the part number e.g. 376X/B050X12  
895X/1050X12

### 7 Position Selectivity

1	2	3	4	5	6	7
---	---	---	---	---	---	---

### 21 Position Selectivity

12	13	14	15	16	17	23
24	25	26	27	34	35	36
37	45	46	47	56	57	67

**CAUTION** : You must check carefully when you connect the units because a hose unit with a single pin (from 7 position selectivity) will also fit a double slot tank unit (from 21 position selectivity).







915/5470V depicted.

The pressure-tight cap can be used as a secondary or tertiary closure and is designed to safely release any build-up of pressure from the tank unit. It is firesafe designed and seals metal-to-metal when installed on the tank unit. In addition, the sealing plate O ring enables a gas-tight and liquid-tight seal. (\*\*exception applies, see Specification)

The cap is available to suit 56mm, 70mm, 105mm, 119mm & 164mm units and is compatible with the Fort Vale "Drytyt", Todo®, Mann-Tek® and Avery Hardoll® range of tank units. All caps are manufactured in stainless steel and a range of seal materials is available, dependant upon cargo and conditions. The cap design incorporates a chain point and a TIR or padlock hole for added security.

**Specification**

**70mm, 105mm, 119mm only**

Static Design Pressure (MAWP) 25.0 Barg (362.5 PSIG)  
 Hydraulic Test Pressure 37.5 Barg (543.8 PSIG)

**164mm only**

Static Design Pressure (MAWP) 10.0 Barg (145.0 PSIG)  
 Hydraulic Test Pressure 16.0 Barg (232.1 PSIG)

Max. Design Temperature 200°C (392°F) **Note**  
 Min. Design Temperature -40°C (-40°F) **Note**

**Note :** Temperature applies to metal parts only, see seal limitations.

**\*\*Please note that the Fortyt O ring is liquid-tight but is not bubble-tight.**

Approved to BS EN12516-2 & BS EN14432.

**Range**

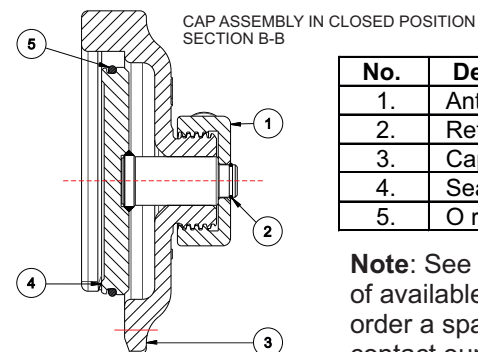
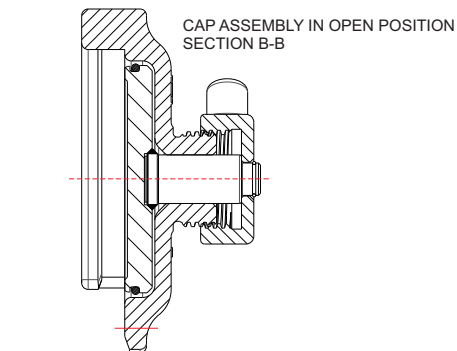
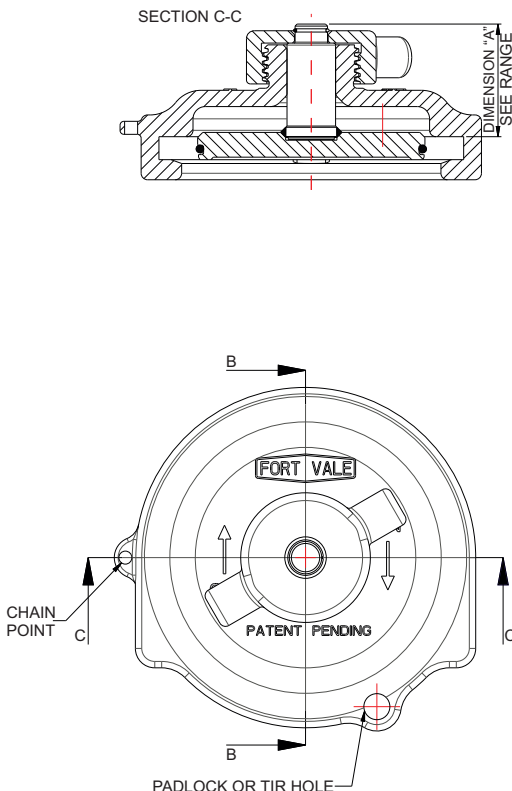
Part No.	Size	Weight	Dimension "A"
915/5410X	56mm	0.91 Kg	45.1 mm
915/5420X	70mm	1.07 Kg	42.1 mm
915/5480X	105mm	1.92 Kg	44.1 mm
915/5470X	119mm	2.33 Kg	44.1 mm
915/5490X	164mm	3.68 Kg	44.1 mm

"X" in Part No. indicates seal material, see Table below.

Seal Code	Seal Material	Seal Temp. Range
915/54XXB	Butyl	-40°C to +150°C
915/54XXE	EPDM	-40°C to +150°C
915/54XXF	Fortyt	-40°C to +200°C
915/54XXK	Kalrez	-15°C to +200°C
915/54XXN	Nitrile	-30°C to +100°C
915/54XXP	Perfluoroelastomer	-15°C to +200°C
915/54XXQ	Viton-FDA approved	-20°C to +200°C
915/54XXV	Viton	-20°C to +200°C

**Fitting Details**

Example shown : 915/5470X



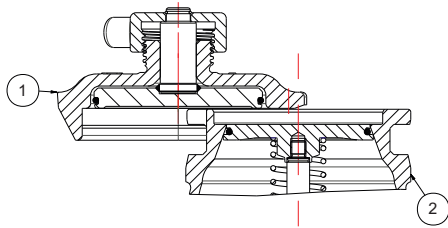
No.	Description
1.	Anti-galling top cap
2.	Retaining clip
3.	Cap body
4.	Sealing plate
5.	O ring (see Note)

**Note:** See Range for a list of available materials. To order a spare part, please contact our Sales Team.

## Operating Instructions



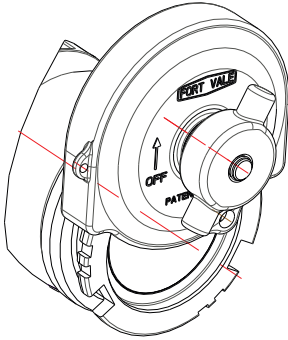
Example shown: 119mm pressure-tight cap ref. 915/5470X (1), and 119mm "Drytyt" tank unit ref. 376X/B190AXX (2).



## TO INSTALL THE CAP ASSEMBLY

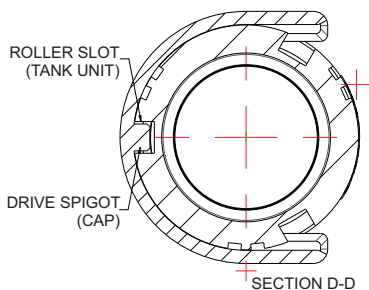
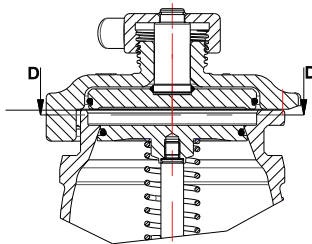
## STEP 1

With the top cap fully unscrewed and the sealing plate in its recess, slide the cap assembly onto the tank unit.



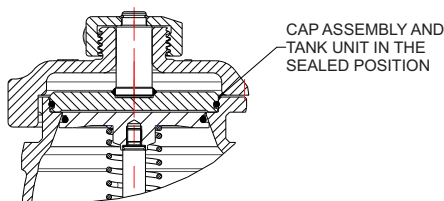
## STEP 2

Make sure that the drive spigot in the cap assembly engages into one of the roller slots on the tank unit.



## STEP 3

Tighten the top cap. The cap sealing face will move forward into the recess on the tank unit. The cap assembly and the tank unit will seal and the cap assembly will be locked.

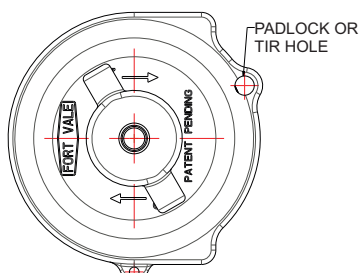


CAP ASSEMBLY AND  
TANK UNIT IN THE  
SEALED POSITION

## TO REMOVE THE CAP ASSEMBLY

**CAUTION:** Keep your face away from the cap.

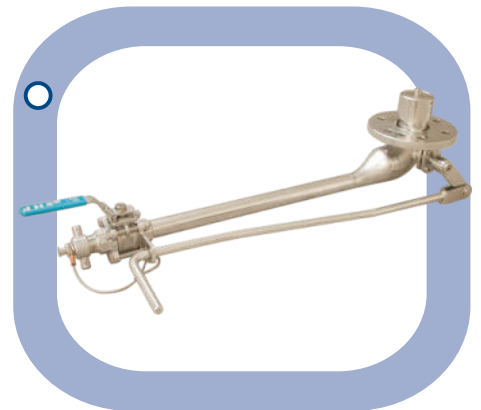
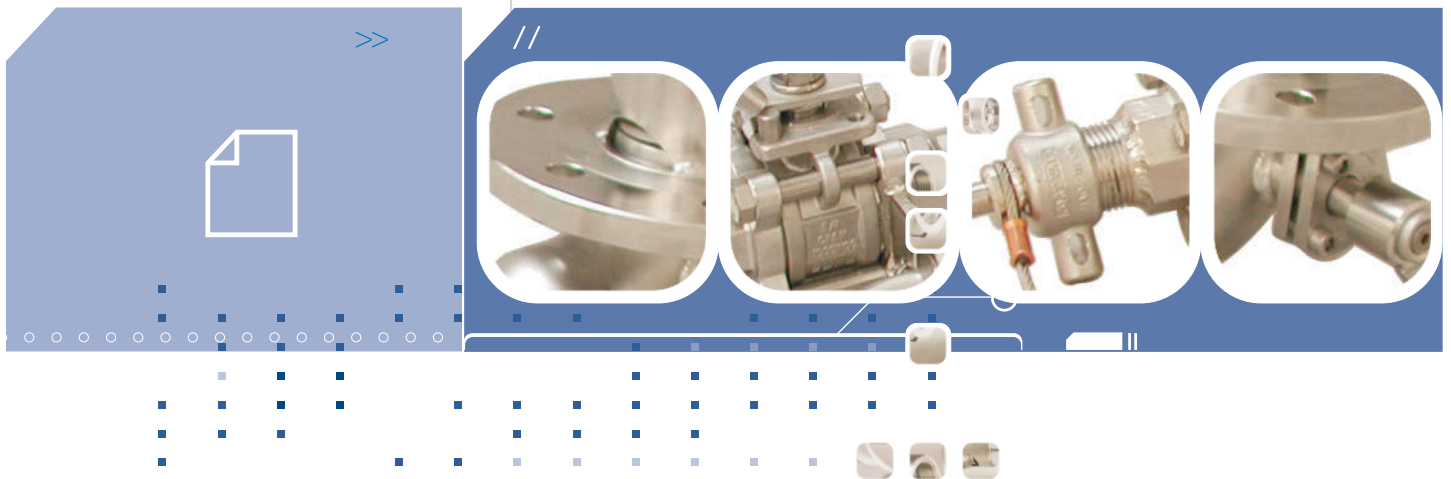
With the cap assembly still installed on the tank unit, fully unscrew the top cap. Any build-up of pressure will now be safely released. Slide the cap assembly off the tank unit.





# SAMPLING SYSTEM

//







1½" Sampling Valve Assembly - comprising: 1½" 90° footvalve - inlet flange drilled 6 x 14mm holes equi-spaced on a 114.3mm PCD; right hand operated extended handle; outlet reducing to ¾" NB pipe terminating with a ¾" ball valve fitted with a ¾" BSP check cap. Contact parts manufactured in 316 stainless steel and Viton main seals.

Options - length of assembly can be manufactured to suit customer requirements, from a minimum of 200mm. ¾" and 1" reduced outlet options. Assembly can be terminated with different options .

## Specification

Weight	8.2 Kg <b>*NB</b>
Design Pressure (MAWP)	4 Bar (58 PSI)
Test Pressure	6 Bar (87 PSI)
Design Temperature Range	-20°C to 125°C (-4°F to 257°F)

\*NB: Weight varies according to specification.

Operating Instructions available - OPIN58

## Associated Parts

Part No.	Associated Parts
20594/T	Tank weld-in flange
5005-050	CNAF/PTFE envelope gasket
290/1300	Stud kit

## Range

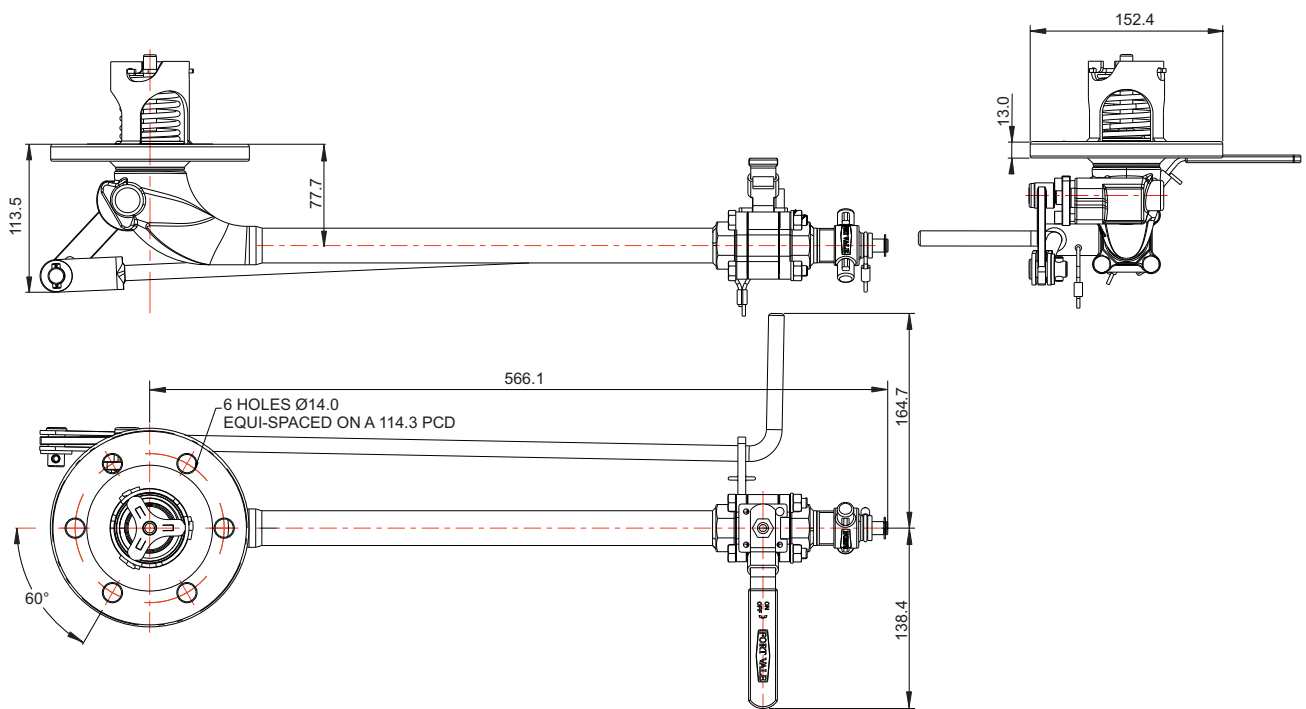
Part No.	Length*	Options
338/2850	300 mm	¾" reduced outlet, 90° elbow
338/2800	567 mm	¾" reduced outlet
338/2900	780 mm	¾" reduced outlet, 90° elbow

**Length\*** - this dimension refers to the overall length of the assembly from the footvalve inlet centre line to the end of the outlet assembly, including the cap (where fitted).

All the above options comprise of a 90° footvalve with sampling ball valve. Please refer to the '**Options**' information above as these assemblies can be manufactured to suit customer requirements.

## Fitting Details

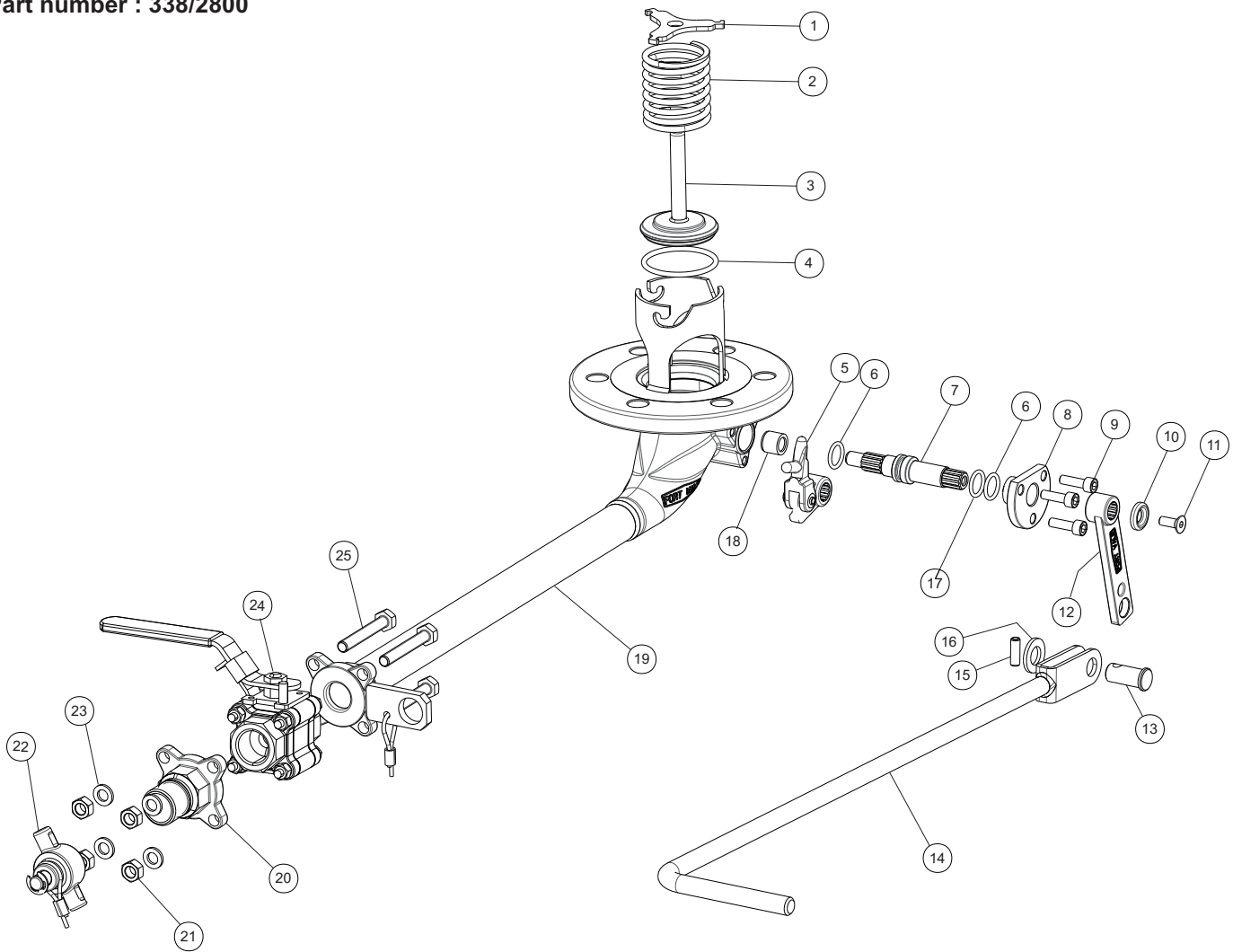
Example shown : 338/2800



## Fitting Details



Part number : 338/2800



Item	Description	Part No.	
1	Bayonet cap	338/2153	○
2	Spring	5104-718	○
3	Poppet weld assembly	337/0010AF	○
4	Viton O Ring	5005-172	□ ○
5	Crank block	821/0050	
	Lifting finger	821/0049	
	Pivot pin	821/0034	
	Washer	5113-015	
6	PTFE O Rng (2)	20363	□ ○
7	Crank shaft	821/0013	○
8	Stuffing clamp	324/1004	
9	M6 socket capscrew (3)	5111-017	○
10	Retaining washer	20370	○
11	M6 countersunk bolt	5111-030	○
12	Splined handle	338/2801	

Item	Description	Part No.	
13	Linkage pin	S0346/4	
14	Handle weld assembly	290/1032	
15	Seloc pin	5118-001	
16	M12 washer	5123-003	
17	Viton O Ring	20361	□ ○
18	PTFE spindle bush	20360	□ ○
19	Extended body assembly <b>*NB</b>	338/2100A	
20	¾" BSP outlet assembly	338/2106	
21	M8 full nut (4)	5112-001	
22	¾" BSP check cap assembly	10306CK	
23	M8 flat washer (4)	5113-003	
24	¾" BSP ball valve	410/500F	
25	M8 hex head bolt (4)	5111-101	

### SEAL KIT

Part number **338/00SK** contains all parts marked □

### REPAIR KIT

Part number **338/00RK** contains all parts marked ○

**\*NB** Part number may vary according to assembly specification.





1½" 90° Offshore Fuel Sampling Footvalve - inlet flange drilled 6 x 14mm holes equi-spaced on a 114.3mm PCD; outlet flange drilled 4 x 13mm holes equi-spaced on a 98.4mm PCD (1.5" ASA 150). Left hand operated. Contact parts manufactured in 316 stainless steel with Viton main seal.

Options - alternative seal materials and outlet flange drilling patterns available. Right hand version.

**Specification**

Weight	4.5 Kg
Design Pressure (MAWP)	4 Bar (58 PSI)
Test Pressure	6 Bar (87 PSI)
Design Temperature Range	-20°C to 125°C (-4°F to 247°F)

**Range**

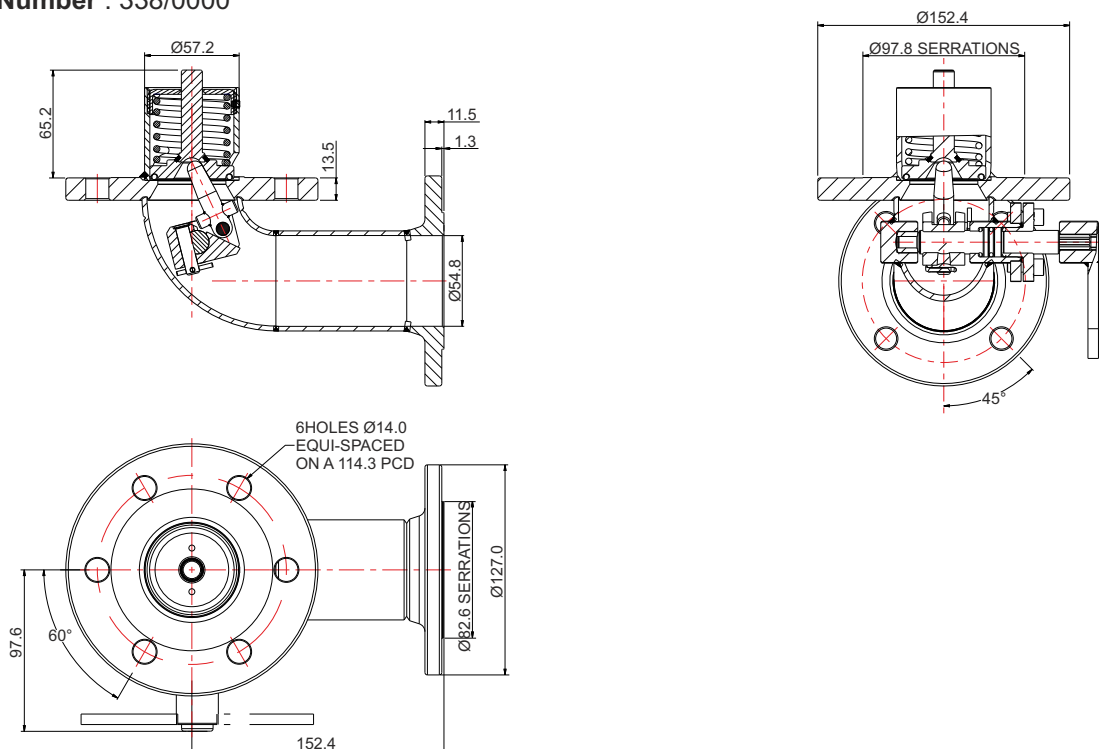
Part No.	Description
337/0000	1½" ASA150 outlet with Fortyt main seal
338/0000	1½" ASA150 outlet with Viton main seal

**Associated Parts**

Part No.	Associated Parts
20594/T	Tank weld-in flange
5005-050	CNAF/PTFE envelope inlet gasket
290/1300	Stud kit
5005-430	CNAF/PTFE envelope outlet gasket

**Fitting Details**

Part Number : 338/0000



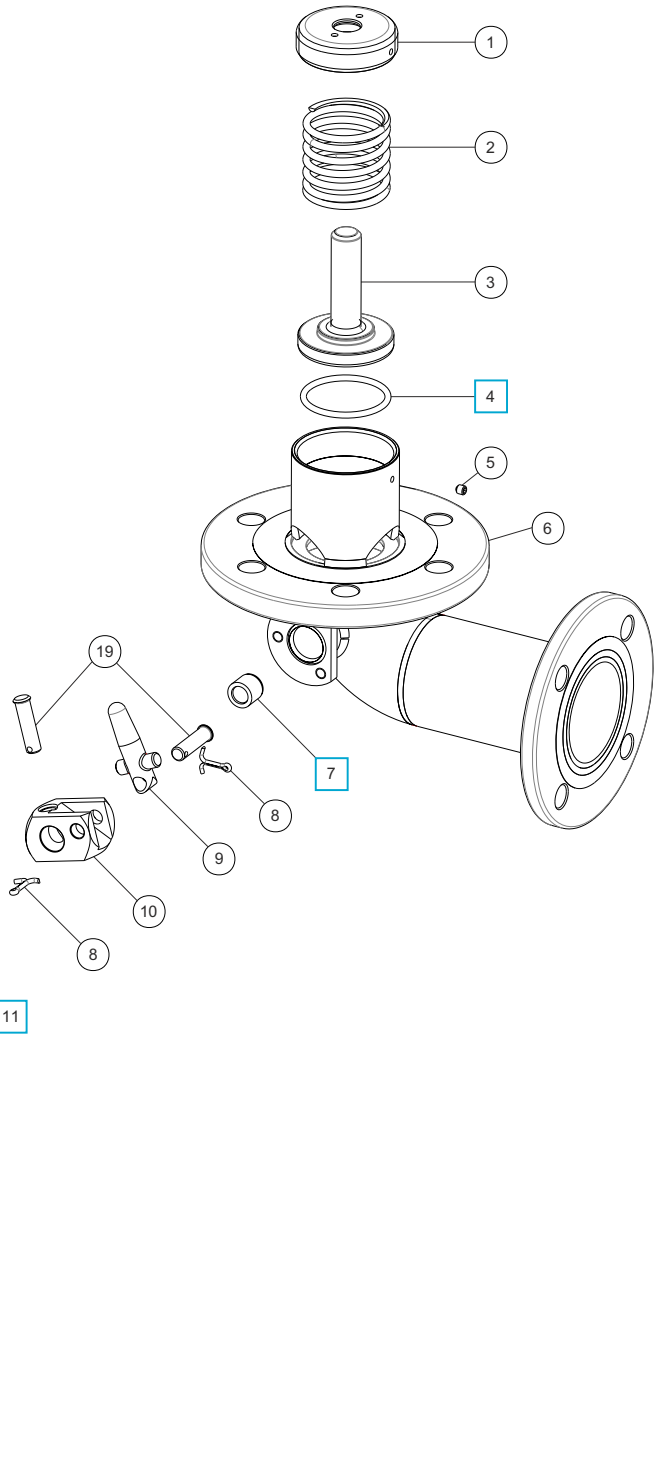
Parts Drawing



Item	Description	Part No.
1	Top cap	11004
2	Spring	5104-718
3	Closure plate	337/0010
4	Viton O ring	5005-110 <input type="checkbox"/>
5	Sockethead grubscrew	5121-001
6	Body weld assembly	337/1000
7	Crankshaft end bush	20360 <input type="checkbox"/>
8	Split pin (2)	5118-017
9	Con rod assembly	337/0020
10	Crank block	11360
11	Viton O ring	20361 <input type="checkbox"/>
12	Crankshaft	20596
13	Stuffing clamp	324/1004
14	M6 cap screw (3)	5111-017
15	Crank arm	20607
16	Retaining washer	20370
17	M6 countersunk bolt	5111-030
18	PTFE O ring (2)	20363 <input type="checkbox"/>
19	Clevis pin (2)	11375

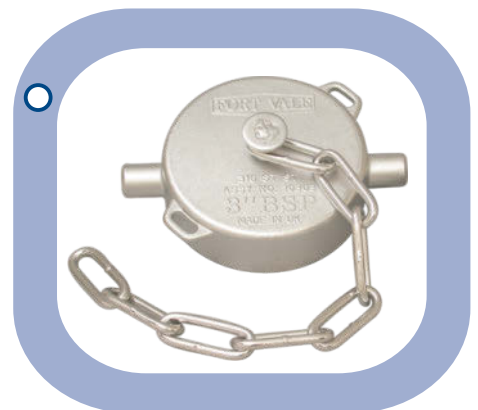
SEAL KIT

Part number **337/00SK** contains all parts marked  and contains a Viton poppet O ring. For a seal kit containing a Fortyt poppet O ring, please contact our Sales team.





# ANCILLARIES





## Blank Caps

A range of blank caps are available in either stainless steel or aluminium. These may be fitted with heavy duty security chain or stainless steel securing wire and are fitted with PTFE sealing washer as standard. BSP or NPT connections available.

A range of check caps are also available in stainless steel. These comprise of a cap with an indicator which allows the operator to check if there is any pressure. The part numbers have a **'CK'** suffix instead of the 'PS'.

Please contact our Sales team if the size or material you require is not listed below.



Description	Part No.
1/2" BSP stainless steel cap with wire & PTFE washer	10316PS
3/4" BSP stainless steel cap with chain & PTFE washer	10306PS
1" BSP stainless steel cap with chain & PTFE washer	10305PS
1 1/2" BSP stainless steel cap with chain & PTFE washer	10300PS
2" BSP stainless steel cap with chain & PTFE washer	10301PS
2 1/2" BSP stainless steel cap with wire & PTFE washer	10302PS
3" BSP stainless steel cap with chain & PTFE washer	10303PS
4" BSP stainless steel cap with wire & PTFE washer	10304PS

## Plugs

Plugs are available in several sizes and are manufactured in 316 stainless steel as is the securing wire.

Please contact our Sales team if the size you require is not listed below.

Description	Part No.
3/4" BSP plug with securing wire	338/2122
1 1/2" BSP plug with securing wire and Viton O ring seal	10321BSP/W
2" NPS plug with securing wire and Viton O ring seal	10322NPS/W



## Weld-in Sockets

Weld-in sockets are available in several sizes and are heavy duty.

The sockets have oversized threads to alleviate the need for re-tapping after welding.

Manufactured in 316 stainless steel.

Please contact our Sales team if the size you require is not listed below.

Description	Part No.
1/2" BSP stainless steel weld-in socket	600/1030
3/4" BSP stainless steel weld-in socket	653/1000
1" BSP stainless steel weld-in socket	600/1025
1 1/2" BSP stainless steel weld-in socket	600/1010
2" BSP stainless steel weld-in socket	600/1017
2 1/2" BSP stainless steel weld-in socket	600/1000



## Repair & Maintenance Equipment



Fort Vale offer a full range of instruction manuals and proprietary tools for the repair, maintenance and testing of our valves.

Maintenance manuals may be provided electronically and in printed format. Training courses in valve refurbishment and testing are available on application.

**Fort Vale highly recommend the use of proprietary tools to ensure the quick and efficient refurbishment of valves without damaging the seals, and more importantly, to guarantee that the valve passes its pressure test once re-assembled.**

### Test Rig

**Pressure / Vacuum Test Rig** - is used for the testing of any pressure or vacuum Super Maxi, Twinact, Uniact, Minnow and Steam Relief Valve. Connection is by a 2½" BSP socket mounted on top of the rig with adaptors available upon request. The rig comprises of a digital pressure and vacuum gauge and two control valves.

The testing range of the rig is -10 PSI to 100 PSI (-0.7 Bar to 6.9 Bar).

Supply connection to the test rig is via a 1/4" BSP female socket on the back of the rig.



Part No. 400/8000

### Tool Kits

Description	Part No.
Relief Valve Test Rig – digital gauges	400/8000
Test rig adaptor flange, adapts 2½" BSP to 3" ASA150, DIN65 PN10 & DIN80 PN6	425/1000
C Spanner – to fit/remove Twinact relief valves	400/3000
C Spanner – to fit/remove Super Maxi relief valve	400/3001
Tightening tool for MKIII Super Maxi relief valve	400/8380
1½" & 2½" Twinact relief valve Tool Kit	400/2000
2½" BSP Maxi & Highflow relief valve Tool Kit	400/8100
65mm & 80mm Super Maxi Relief Valve Tool Kit	400/8300
Footvalve & Relief Valve Seat Repair Kit	400/2600
Box of 100 x 60 grit grinding discs	400/2610
Box of 100 x 80 grit grinding discs	400/2620
Box of 100 x 180 grit polishing discs	400/2630
Box of 100 x 600 grit polishing discs	400/2640
3" Cleanflow Footvalve Tool Kit	400/2150
3" Highlift Footvalve Tool Kit	400/2450
2" Butterfly Valve Tool Kit	400/2300
3" Butterfly Valve Tool Kit	400/2700
1½" Ball Valve Tool Kit	400/2500
3" Ball Valve Tool Kit	400/2200



Part No. 400/2600



Part No. 400/2000



Part No. 400/8300







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