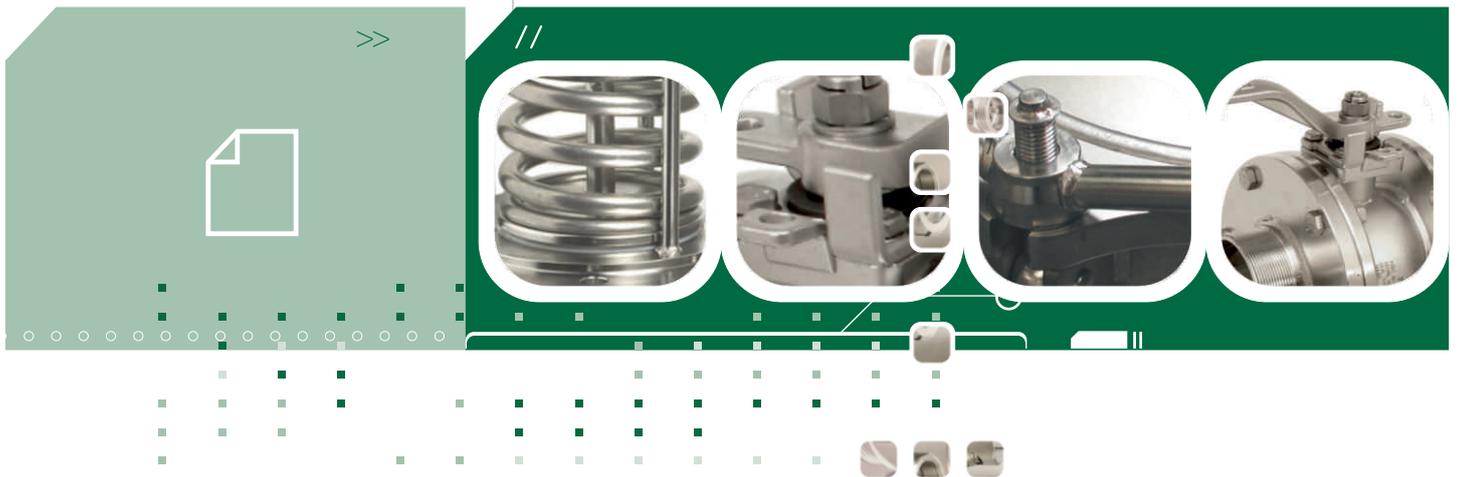




RAIL TANKER  
EQUIPMENT  
CATALOGUE

//



CORE  
COMPONENTS

//



PAGE

## REFUELLING EQUIPMENT //

- » 50mm Rail Locomotive Fuel Delivery Coupler 1

## MANLID EQUIPMENT //

- » 500mm 4 point Manlid Assembly 2

## VENT VALVES & EMERGENCY RELIEF VALVES //

- » 3" BSP Vacuum Vent Valve 3
- » 80mm Flanged PTFE Lined Vacuum Vent Valve 4
- » M90 65mm Alloy C276 Lined Super Maxi Relief Valve 5/6
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## DISCHARGE VALVES & COUPLINGS //

- » 100mm "Y" Pattern Discharge Valve 11/12
- » 5" 180° Footvalve 13/14
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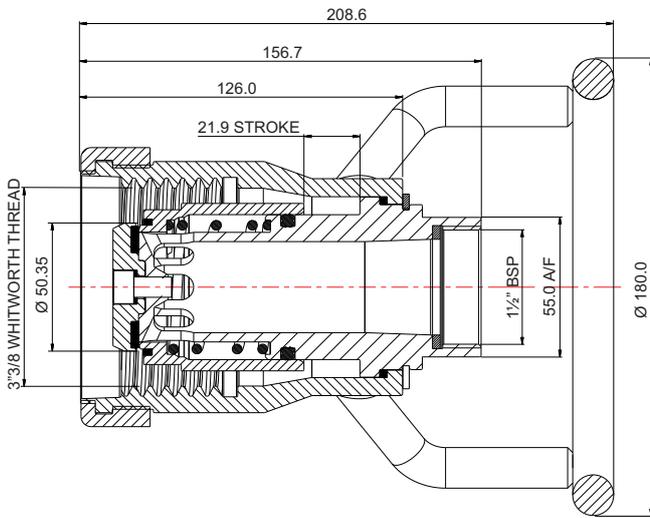


50mm Rail Locomotive Fuel Delivery Coupler - 1½" BSP inlet, 50mm outlet. Inner housing manufactured in brass and aluminium for smooth operation and to prevent galling. The design of the poppet ports facilitates optimum flow rate of fuel. Robust outer housing manufactured in stainless steel for improved corrosion resistance and longevity. Fitted with Viton main seal.

Compatible and interchangeable with existing rail fuelling fittings and couplers.

**Fitting Details**

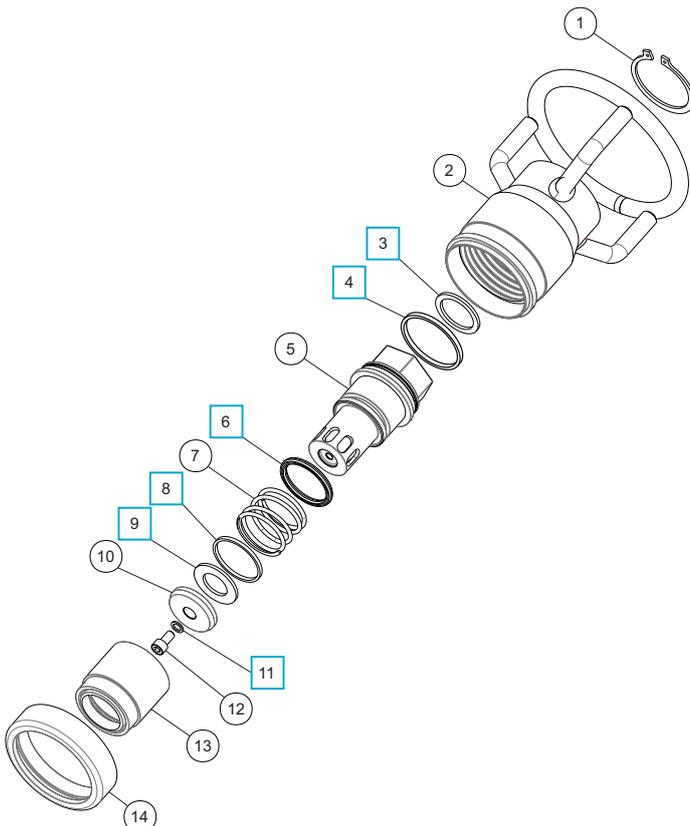
Part Number : 860/0000



**Specification**

Weight	9.27 Kg
Design Pressure	4 Bar (58 PSIG)
Service Test Pressure	6 Bar (87 PSIG)
Max. Design Temperature	50°C (122°F)
Min. Design Temperature	-10°C (14°F)

**Parts drawing**



Item	Description	Part No.
1	Circlip	5120-060
2	Body weld assembly	860/0010
3	Viton washer seal	860/0012 <input type="checkbox"/>
4	Thrust bearing	860/0015 <input type="checkbox"/>
5	Poppet	860/0001
6	Nitrile Nu-Lip seal	NU7031 <input type="checkbox"/>
7	Poppet spring	5104-193
8	Viton poppet sleeve seal	860/0007 <input type="checkbox"/>
9	Viton poppet seal	860/0008 <input type="checkbox"/>
10	Poppet head	860/0002
11	Dowty washer	860/0014 <input type="checkbox"/>
12	M8 cap screw	5111-214
13	Poppet sleeve	860/0003
14	Buffer ring	860/0011

**SEAL KIT**

Part number **860/00SK** contains all parts marked

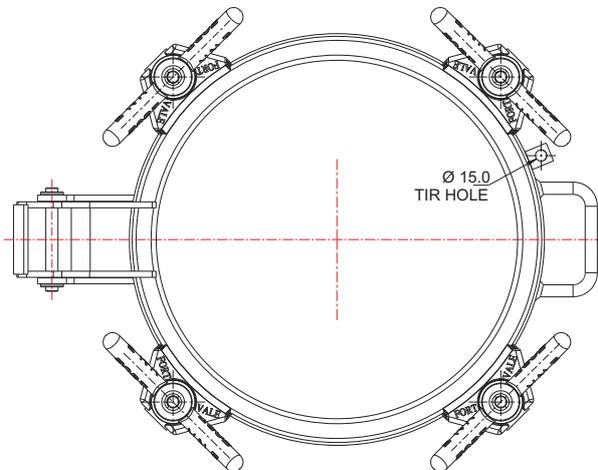
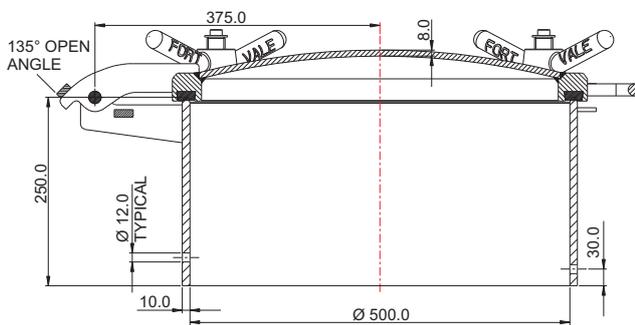


**500mm Rail Manlid Assembly** - 4 point fastening. To suit a MAWP of 3 Bar. 10mm thick x 250mm deep neckring. Contact parts manufactured in 316 stainless steel. Seal supplied separately.

**Options** - Seal data available on request. Various neckring height options available from 100mm to 250mm maximum. Available with DN50 PN16 weld-in flange with blank flange in centre of dome. Assembly with mild steel neckring available.

### Fitting Details

Part Number : 858/5100



### Specification

Weight	78Kgs
Design Pressure (MAWP)	3 Bar (43.5 PSI)
Service Test Pressure	4 Bar (58 PSI)
Design Temperature Range	-29°C to 190°C -20°F to 374°F

**NOTE:** Above data varies according to specification.

**Lloyds Register Design Approval COV 0620226**

**Approved to BS EN12561-6.**

### Range

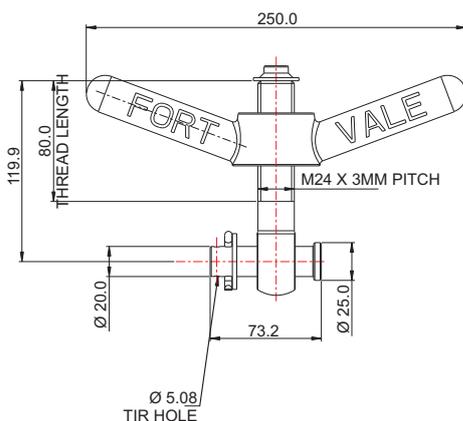
Part No.	Description
858/5100	500mm 316 stainless steel assembly
858/5100MS	500mm mild steel neck/st st lid
858/5200	500mm 316 st/st assembly with DN50 PN16 weld-in & blind flange in dome.

### Associated Parts

Part No.	Description
5005-59XXX	Seal to suit Rail Manlid - material varies

### Ancillary Part

Part Number : 496/FF473



**M24 Forged Swingbolt Assembly** - designed and manufactured in accordance with BS EN12561-6. To suit rail tank manlid assembly. Manufactured in 316 and 304 stainless steel.

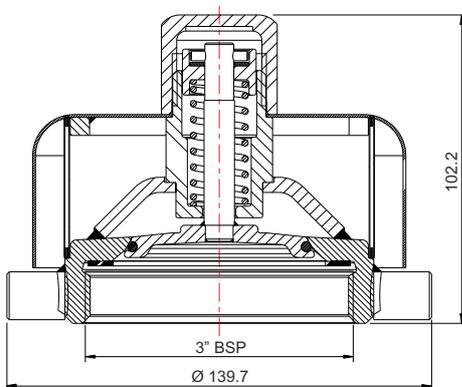


3" BSP Female Vacuum Vent Valve - suitable for a vacuum range of between 0.5"Hg to 6.2"Hg (0.02 Bar to 0.21 Bar). Manufactured in 316 stainless steel fitted with Fortyt seal. Fitted with weatherproof cowl and gauze ring.

Options - supplied less gauze. Flanged version with various drilling options. Flanged and lined version. Available with Viton seal.

**Fitting Details**

Example shown : 81B/X00XXGZ



**Specification**

Weight 1.70 Kg

\*Model numbers 81B/X00XXGZ and 81BF/X00XXXGZ have been end-of-line flame tested to EN12874:2001 using a Group IIA gas to comply with clause 6.3.2.1. of the ADR regulations.

**i** Operating Instructions available - OPIN27

Visual inspection and service (where necessary) is recommended on a 6 monthly basis.

**Range**

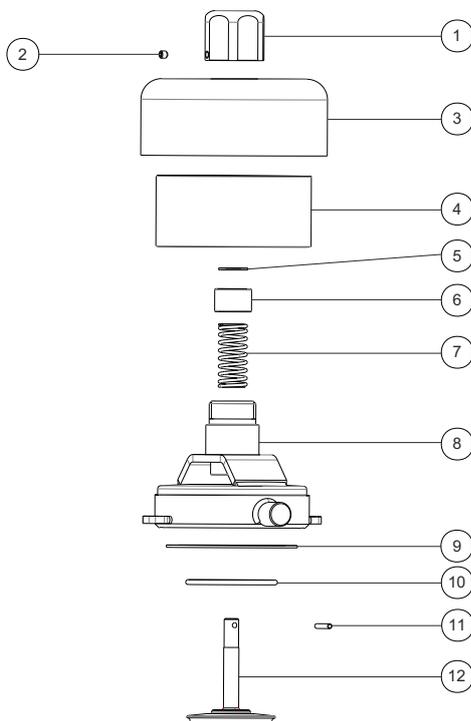
Part No.	Description
81B/X00XX	3" BSPF – no gauze fitted to cowl
<b>81B/X00XXGZ *</b>	3" BSPF – with cowl & gauze
81BF/X00XXX	Flanged – no gauze fitted to cowl
<b>81BF/X00XXXGZ *</b>	Flanged – with cowl & gauze
81BF/X00XXXL	Flanged & lined – no gauze to cowl

\* See note in Specification above.

**Associated Parts**

Part No.	Associated Parts
425/0018	3" BSPT male weld-in nipple

**Parts drawing**



Item	Description	Part No.
1	Top Cap	1780/0580
2	Sockethead set screw	5121-001
3	Weatherproof cowl	1780/0560GZ
4	Gauze ring	10206/2
5	Plain washer	5123-007
6	Spring locator	1780/0570
7	Vacuum spring ( <b>See note</b> )	5104-XXX
8	3" BSP vent valve body	1780/0600
9	PTFE seal	10329TP
10	Fortyt main seal ( <b>See note</b> )	5005-679
11	Retaining pin	5118-020
12	Poppet	1780/0550

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

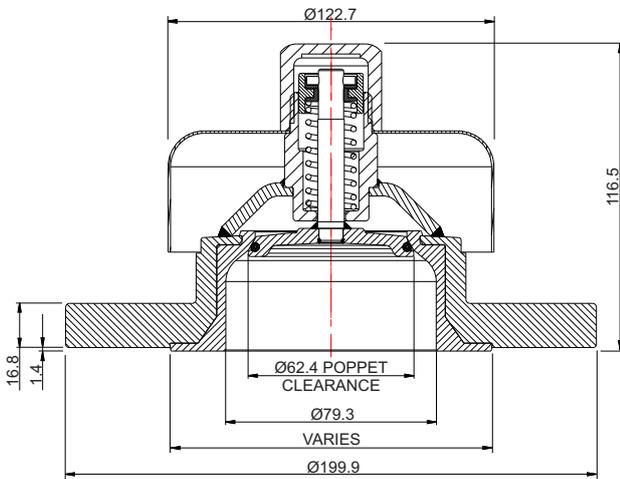


PTFE Lined 80mm NB Flanged Vacuum Vent Valve - flange drilling to suit customer requirements. (See Range) Suitable for a vacuum range of between 0.5"Hg to 6.2"Hg (0.02 Bar to 0.21 Bar) Manufactured in stainless steel fitted with Fortyt seal as standard. Wetted parts of body fitted with a PTFE liner. Poppet manufactured in high nickel alloy. Fitted with weatherproof cowl.

**Options** - Other seal materials are available. Various flange drilling options. Cowl with gauze. Non-lined 3" BSPF stainless steel version available.

## Fitting Details

Example shown : 81BF/X00XXXP



Operating Instructions available - OPIN27

## Specification

Weight	4.5 Kg
Design Pressure (MAWP)	4 Bar (58 PSIG)
Test Pressure	6 Bar (87 PSIG)
Design Temperature Range	-20°C to 150°C (-4°F to 302°F)

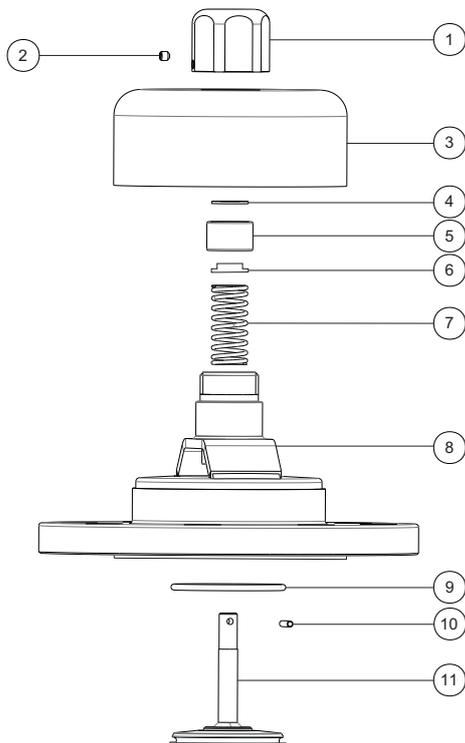
## Range

Part No.	Flange Drilling
81BF/X00XX0P	DIN 65 PN10
81BF/X00XX1P	DIN 80 PN6
81BF/X00XX3P	3.0" B.S. TABLE D
81BF/X00XX4P	2.5" ASA 150
81BF/X00XX5P	3.0" ASA 150
81BF/X00XX7P	DIN 80 PN10

## Associated Parts

Part No.	Associated Parts
1780/0560GZ	Weatherproof cowl to accept gauze ring
10206/2	Gauze ring to fit weatherproof cowl

## Parts drawing



Item	Description	Part No.
1	Top Cap	1780/0580
2	Sockethead set screw	5121-001
3	Weatherproof cowl	1780/0560
4	Plain washer	5123-007
5	Spring locator	1780/0570
6	Continuity bush	1780/0571
7	Vacuum spring (See Note)	5104-XXX
8	Lined flanged body (See Note)	1780/080XX
9	Fortyt main seal	5005-679
	Viton main seal	5005-299
10	Retaining pin	5118-020
11	High nickel alloy poppet	1780/0555H

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



M90 x 2mm 65mm NB MK3 Super Maxi Relief Valve - M90 x 2mm threaded connection with 65mm to 80mm tapered 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 Alloy C276 with Halar coated pressure springs and Alloy C276 vacuum springs. Fitted with Fortyt seals as standard. Complete with rubber/PTFE tank seal.

Options - pressure only version. A range of alternative seal materials are available.

**Specification**

Weight	4.2 Kg
Design Pressure	5.2 Bar (75 PSI)
Service Test Pressure	10.1 Bar (147 PSI)
Max. Design Temperature	See Note/Table below
Min. Design Temperature	See Note/Table below

**Note :** Min/Max Design Temperature depends upon pressure plate/vacuum poppet seal material. Please see Table.

Seal Code	Seal Material	Seal Temp. Range
010/TxxxxMH	PFA	-55°C to +150°C
010/5xxxxMH	Fortyt pressure EPDM vacuum	-20°C to +150°C
010/1xxxxMH	Fortyt	-55°C to +150°C
010/0xxxxMH	Viton	-20°C to +150°C

Design approval by Lloyds Register of Shipping.

Test certificates supplied as standard. Please see separate data sheets for details on flow rates.

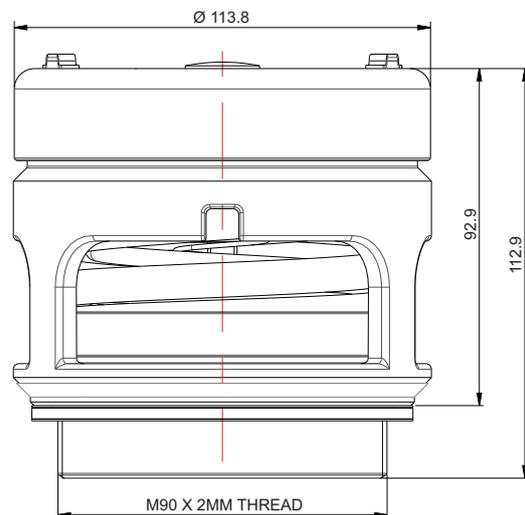
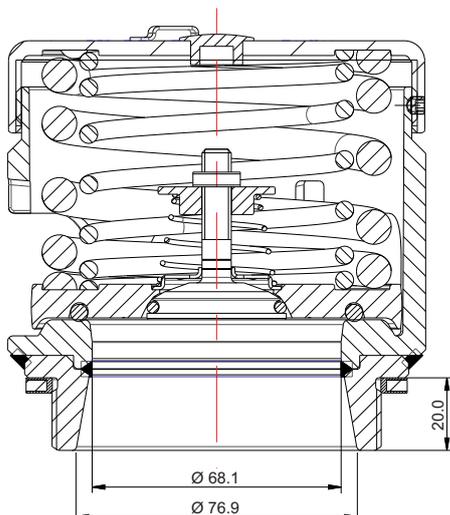
Tests may be witnessed and valves individually stamped by an independent inspectorate by arrangement.

**Associated Parts**

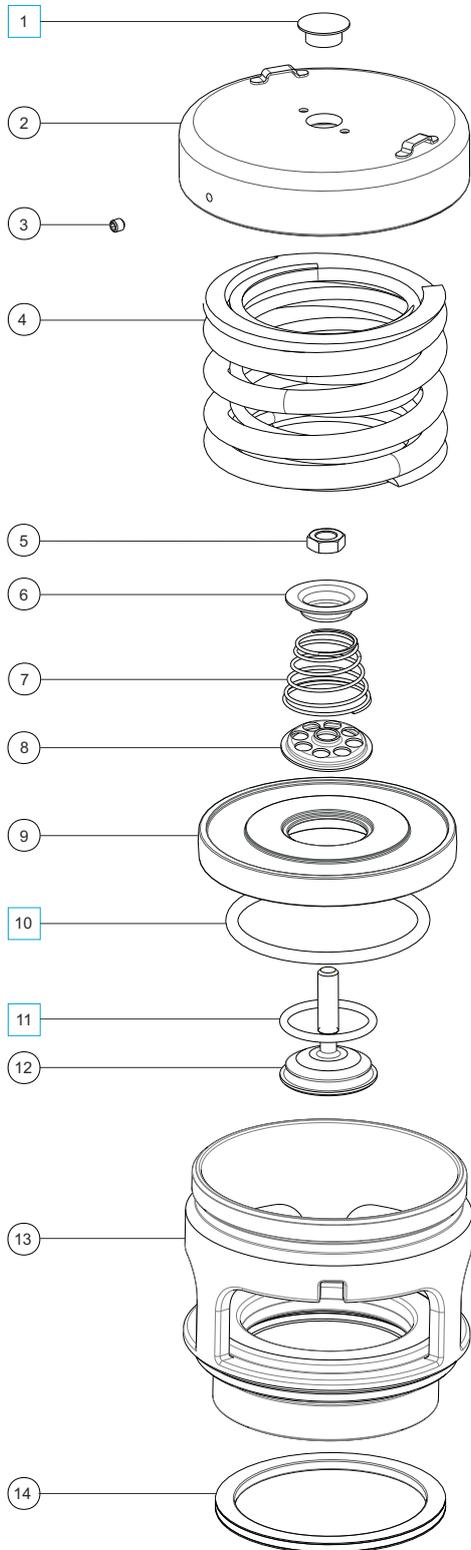
Part No.	Associated Parts
864/XXXX	80mm bursting disc – full range available
921/07BBSP	0-100 PSI pressure gauge, bottom entry, brass internal parts
921/07RBSP	0-100 PSI pressure gauge, rear entry, brass internal parts
920/07BBSP	0-100 PSI pressure gauge, bottom entry, stainless steel internal parts
176/2900	Removable flameproof gauze
176/6000	Gauzed cowl

**Fitting Details**

Example shown : 010/XXXXXXMH



**Parts drawing**



Item	Description	Part No.
1	Plastic plug	10978 <input type="checkbox"/>
2	Cap	1760/0005
3	Setting locking grub screw	5121-001
4	Halar coated pressure spring pair (See Table 1)	6104-XXXXL
5	Alloy C276 M8 nut	5112-001
6	Alloy C276 vacuum spring pad	1860/0005H
7	Alloy C276 vacuum spring (See Table 2)	7104-XXXH
8	Alloy C276 spring pad	10986/3H
9	Alloy C276 pressure plate to suit Fortyt seal	1860/0056H
10	Fortyt pressure O ring	5005-101 <input type="checkbox"/>
11	Fortyt vacuum O ring	5005-108H <input type="checkbox"/>
12	Alloy C276 vacuum poppet	10983V/3H
13	Alloy C276 body	1860/0127MH
14	Rubber/PTFE envelope seal	5005-046-M90

**SEAL KIT**

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

**TABLE 1**

Pressure setting	Pressure springs
31.8 PSI (2.19 Bar)	6104-0252L
48 PSI (3.31 Bar)	6104-0112L & 6104-0252L
53.8 PSI (3.71 Bar)	6104-0422L (Pair)
63.8 PSI (4.40 Bar)	6104-0485C (Pair)

**TABLE 2**

Vacuum setting	Vacuum spring
6.2"Hg (0.21 Bar)	7104-012H

Visual inspection and service (where necessary) is recommended on a 6 monthly basis.

A detailed step-by-step repair manual is available for our Super Maxi Relief Valves. Please contact our Sales team for further information.



Lined 65mm NB Flanged MK3 Super Maxi Relief Valve-flange drilling to suit customer requirements (See Range) Suitable for a pressure setting of between 3 PSI to 66 PSI (0.21 to 4.55 Bar) and a vacuum setting of between 0.5"Hg to 6.2"Hg (0.02 to 0.21 Bar). Manufactured with PFA lined body, pressure plate and vacuum poppet, Halar® coated pressure spring(s) and high nickel alloy vacuum spring. Fitted with Fortyt seal as standard. May be supplied with or without gauge tapping.

**Options** - pressure only version. 80mm NB range. Viton seals available.

## Specification

Weight	5.8 Kg
Design Temperature Range	Fortyt : -55°C to 150°C Viton : -18°C to 150°C
Minimum Design Metal Temperature :	-29°C (-55°C on request)

Design approval by Lloyds Register of Shipping.

Test certificates supplied as standard. Please see separate data sheets for details on flow rates.

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

Visual inspection and service (where necessary) is recommended on a 6 monthly basis.

## Range

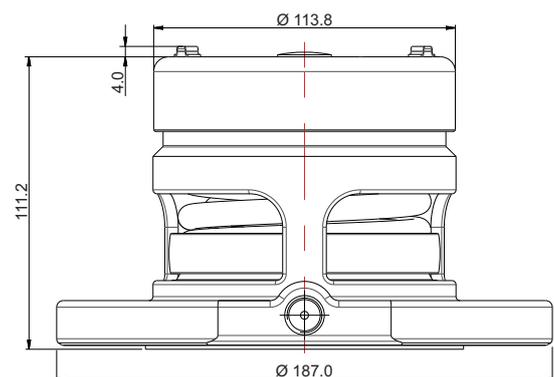
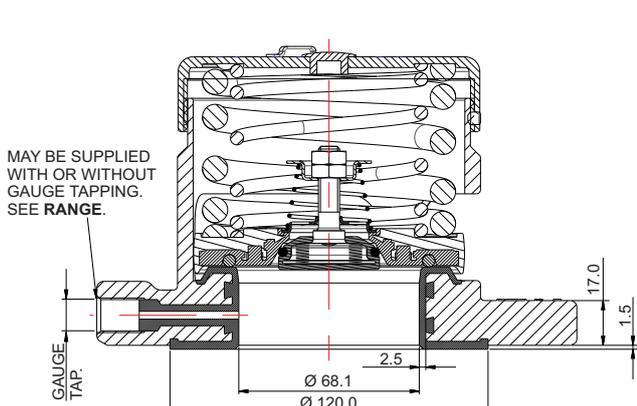
Part No.	Flange Drilling	Gauge tap
0U3/XXXXX6SLB	4 slots on Ø 145 - 152.4	NONE
0U3/XXXXX6SL	4 slots on Ø 145 - 152.4	¼" BSP
0U3/XXXXX659	2.5" ASA 150	⅜" BSP
0U3/XXXXX65N	3" ASA 150	¼" NPT
0U3/XXXXX658	3" ASA 150	NONE
0U3/XXXXX657	DIN 80 PN 10	¼" BSP
0U3/XXXXX655	3" ASA 150	¼" BSP
0U3/XXXXX654	2.5" ASA 150	¼" BSP
0U3/XXXXX653	3" TABLE D	¼" BSP
0U3/XXXXX651	DIN 80 PN 6	¼" BSP
0U3/XXXXX650	DIN 65 PN 10	¼" BSP

## Associated Parts

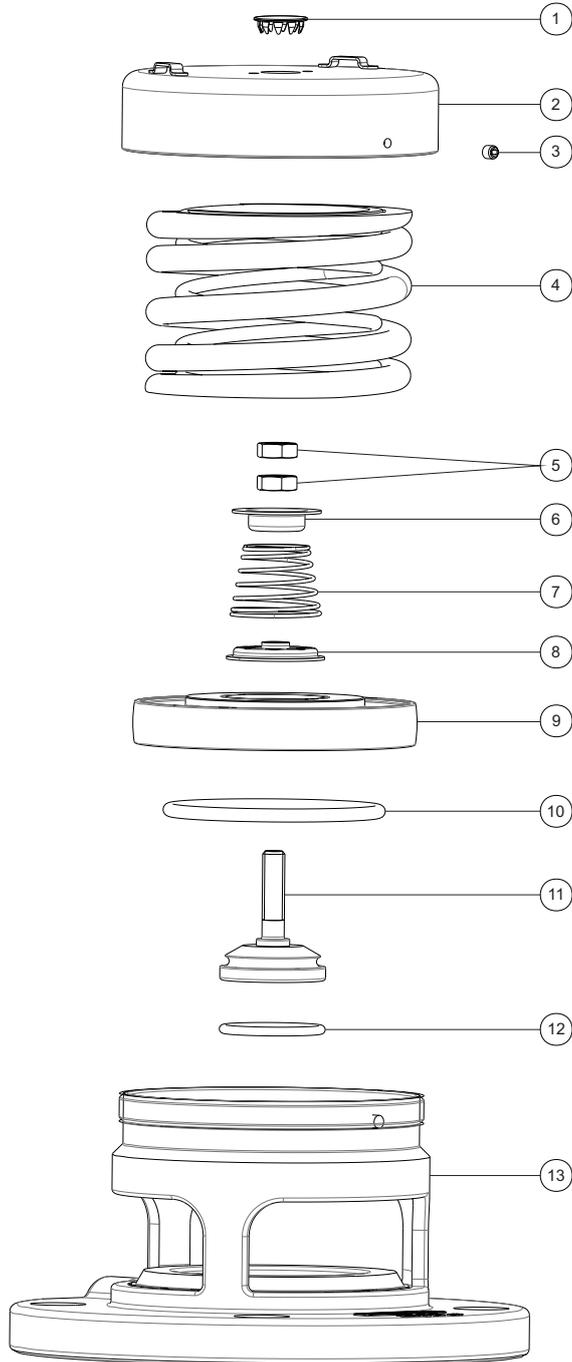
Part No.	Description
921/07BBSP	0-100 PSI pressure gauge, bottom entry, brass internal parts
921/07RBSP	0-100 PSI pressure gauge, rear entry, brass internal parts
920/07BBSP	0-100 PSI pressure gauge, bottom entry, stainless steel internal parts
176/2900	Removable clamped gauze
862/XXXX	65mm bursting disc
311/3700	Stud kit ( 4 x M16)
176/3245L	Tank weld in flange suitable for lining

## Fitting Details

Part number : 0U3/XXXXX65X



Parts Drawing



Item	Description	Part No.
1	Stainless steel plug	10978
2	Cap (See Note)	1860/0046XX
3	Locking grub screw	5121-001
4	Halar® coated pressure spring pair (See Table 1)	6104-XXXX
5	M8 half nut (2)	5112-004
6	Vacuum spring pad	1860/0005
7	High nickel alloy vacuum spring (See Table 2)	7104-XXXH
8	High nickel alloy spring pad	10986/3H
9	PFA lined pressure plate (See Note)	1860/PX56XX
10	Fortyt pressure O ring	5005-101
11	PFA lined vacuum poppet	10983V/P
12	Fortyt vacuum O ring	5005-108H
13	PFA lined body (See Note)	1860/06XXU

**NOTE :** Part numbers vary according to valve specification. Please contact Sales for further information.

**TABLE 1**

Pressure setting	Halar® coated pressure spring(s)
31.8 PSI (2.19 Bar)	6104-252L
44.0 PSI (3.03 Bar)	6104-0090L (Pair)
53.8 PSI (3.71 Bar)	6104-0422L (Pair)
63.8 PSI (4.40 Bar)	6104-0485C (Pair)

**TABLE 2**

Vacuum setting	High nickel alloy vacuum spring
0.5"Hg (0.02 Bar)	7104-001H
1"Hg (0.03 Bar)	7104-001H
1.5"Hg (0.05 Bar)	7104-002H
3"Hg (0.10 Bar)	7104-006H
6"Hg (0.21 Bar)	7104-012H



Above photograph shows 856/6200 vent valve fitted with optional flame arrester.

**3" Vapour Recovery Vent Valve** - for rail tanks. Operated by cable linked to the bottom discharge valve. Inlet flange drilled 4 x 18mm holes on a 160mm PCD. Outlet flange drilled 4 x 18mm holes on a 160mm PCD. Provision for flame arrester (supplied separately). Designed to vent under vacuum conditions to prevent tank implosion. Set pressure 0.4 Bar. Manufactured in 316 stainless steel with Forty seal.

**Options** - Standard vapour recovery vent less flame arrester provision. Externally operated cable version. Alternative seal materials. Hydraulically actuated or pneumatically actuated versions available.

**Specification**

Weight	10.5 Kgs <b>*See note</b>
Design Pressure (MAWP)	4 Bar (58 PSI)
Test Pressure	6 Bar (87 PSI)
Design Temperature	-40°C to +200°C -40°F to +392°F

NB : Weight varies according to specification.

Approved to BS EN14432 & BS EN13445.

**i** Operating Instructions available - OPIN24.

**i** Air flow rate data available for 856/6315 flame arrester. See data sheet REL121\_FLOWRATE.

**Range**

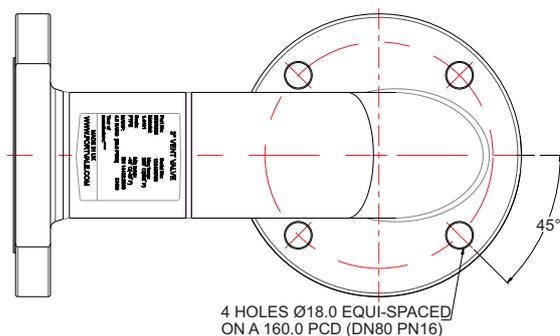
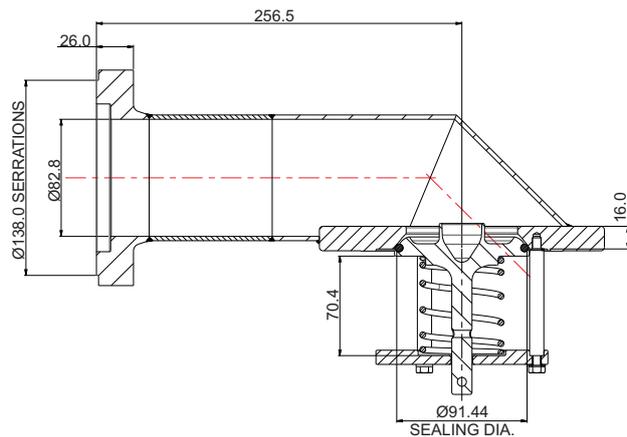
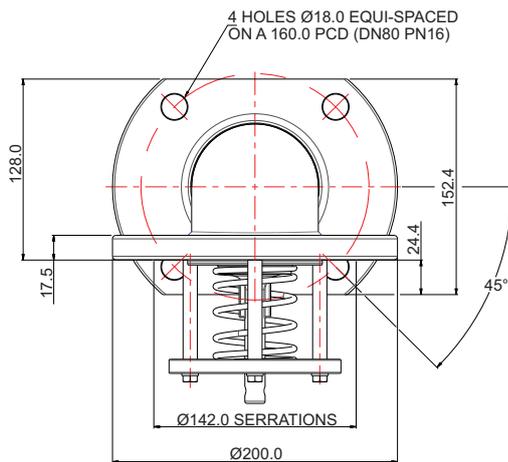
Part No.	Description
856/6500	Standard vapour recovery vent. Operated by internally linked cable.
856/6200	Vapour recovery vent. Operated by internally linked cable. Flame arrester provision.
856/6100	Vapour recovery vent. Operated by externally linked cable.

**Associated Parts**

Description	Part No.
Tank weld-in pad to suit 3" rail vent valve	856/5214
PTFE/CNAF inlet gasket	5005-262
Stud kit for 3" vent valve inlet	856/1100
Flame arrester	856/6315

**Fitting Details**

**Part Number : 856/6200**







490/0200 shown fitted with optional cap.

**Specification**

Weight varies according to valve specification

**Design Condition 1**

Design Pressure 16 Bar (232 PSIG)  
 Test Pressure 24 Bar (348 PSIG)  
 Design Temperature Range -29°C to +150°C (-20°F to +302°F)

**Design Condition 2**

Design Pressure 10 Bar (145 PSIG)  
 Test Pressure 15 Bar (218 PSIG)  
 Design Temperature Range -29°C to +190°C (-20°F to +374°F)

Designed to RID, EN 14432, EN 12516-2  
 Thread coupling complies with EN12561-2:2011 Ch.8

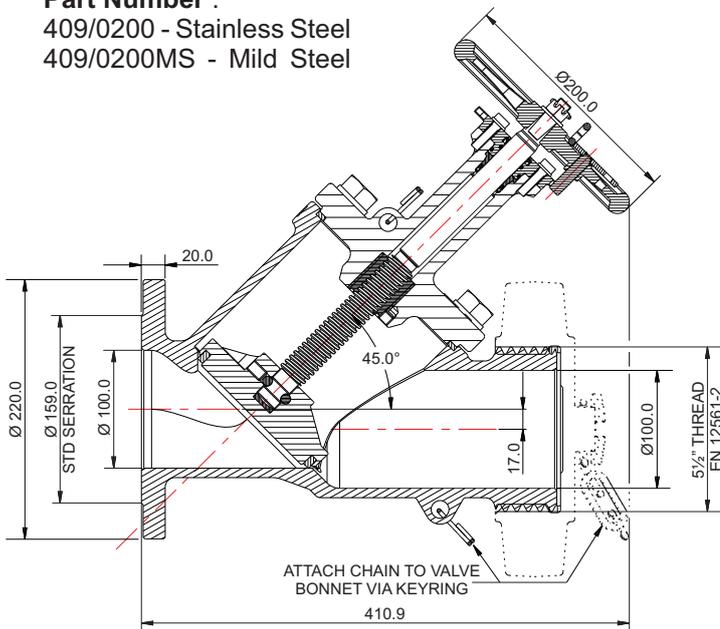
**i** Operating Instructions available - OPIN53.

**Associated Parts**

Associated Parts	Part No.
CNAF/PTFE inlet gasket	6005-105
5½"BSW st/st cap, PTFE seal, chain	10355PSC
5½"BSW mild/st cap, PTFE seal, chain	10355PSCMS

**Fitting Details**

**Part Number :**  
 409/0200 - Stainless Steel  
 409/0200MS - Mild Steel



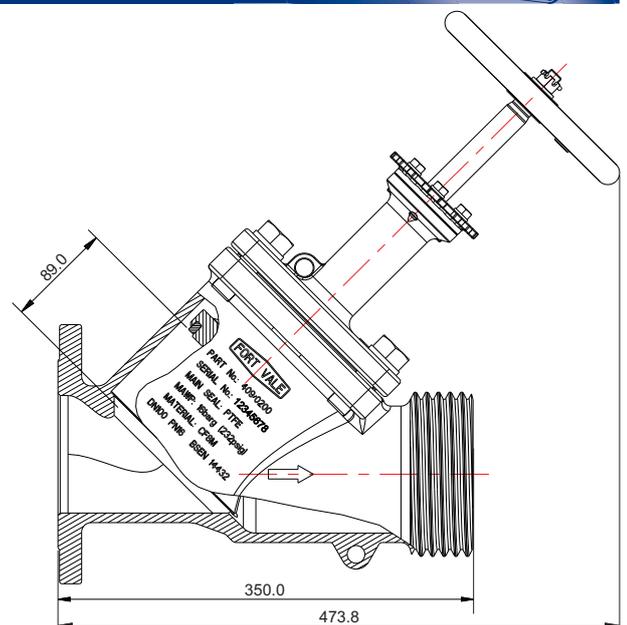
100mm "Y" Pattern Discharge Valve - valve inlet flange drilled 8 x 18mm holes on a 180mm PCD; valve outlet terminating with a 5½" BSW thread. Valve closure plate manually operated via handwheel. Handwheel incorporates a padlock facility and locking pin with retaining chain or wire. Available manufactured in either stainless steel or mild steel. Fitted with PTFE main seal.

Suitable for general purpose and chemical applications.

**Options** - flanged outlet. Stainless steel or mild steel cap available with retaining chain or wire.

**Features & Benefits**

- FORT VALE** Conical sealing seat offers bubble-tight sealing performance.
- FORT VALE** Low handwheel torque compared to conventional flat face sealing seats, allowing ease of manual operation.
- FORT VALE** Spring-energized Variseal® offers exceptional stem sealing performance at low temperature applications.
- FORT VALE** Four bolt bonnet provides a safer, low-torque flange connection compared to a 3 bolt design.
- FORT VALE** Low part count allows for safe and speedy maintenance procedures
- FORT VALE** Locking pin and padlock facility on handwheel prevents unauthorised operation, offering security of cargo.
- FORT VALE** PTFE seals for excellent corrosion resistance with a wide range of cargoes.
- FORT VALE** Specialist "anti-galling" stainless steel used for key components to ensure reliable long-term valve operation, and offering improved wear and corrosion resistance characteristics.



VALVE SHOWN IN THE OPEN POSITION

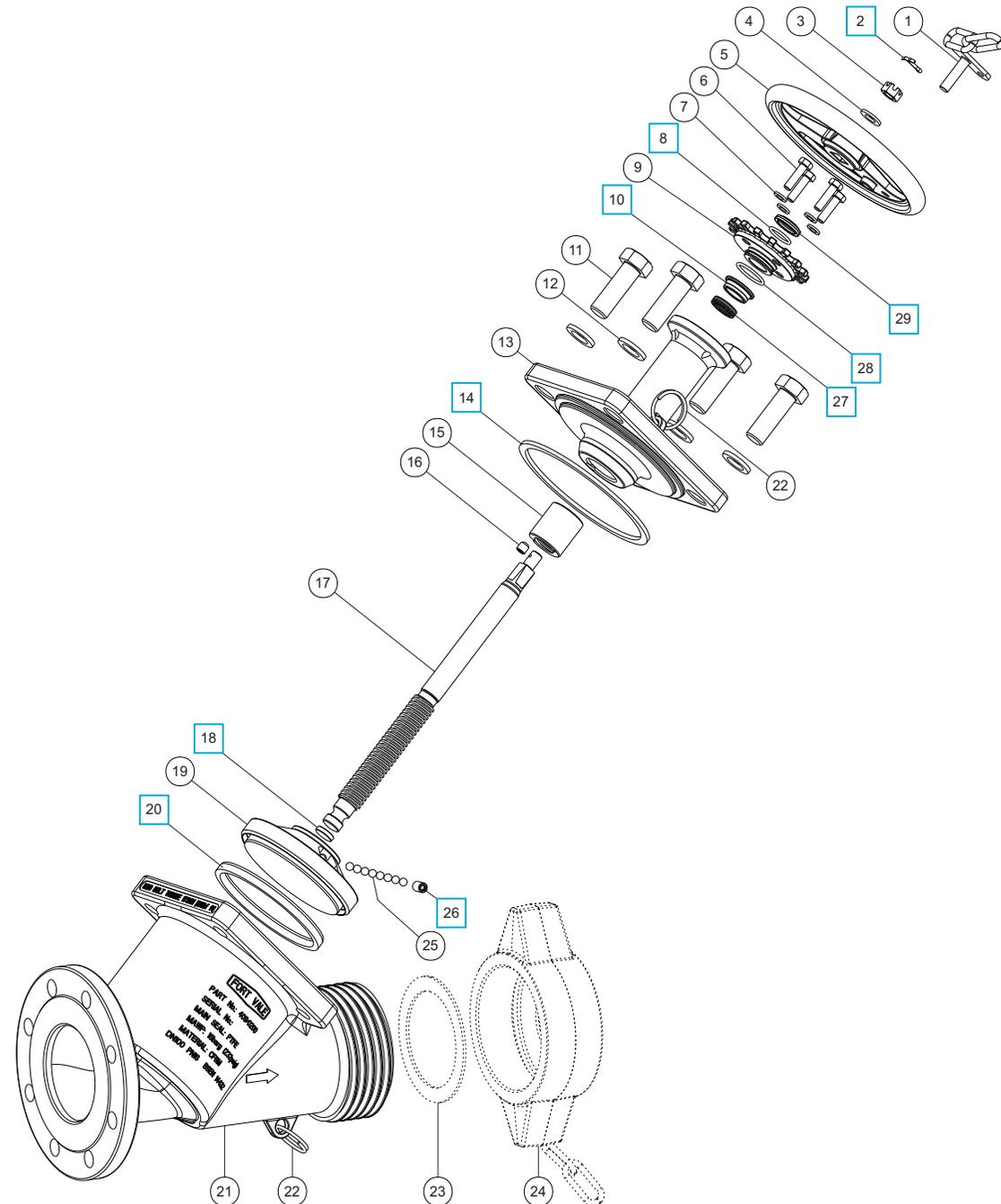
## Parts Drawing

Item	Description	Part No.
1	Locking pin assembly	409/0218
2	Split pin	5228-010 <input type="checkbox"/>
3	M12 Castle nut	M12-CASTLE
4	M12 A2 washer	5123-003
5	Hand wheel	409/0213
6	M8 Hex bolt (4)	5111-038
7	M8 Spring washer (4)	5113-003
8	Viton low temperature O ring	ORB118VL <input type="checkbox"/>
9	Seal cover - Stainless Steel - Mild Steel	409/0209 409/0209MS
10	Stem seal bearing	409/0232 <input type="checkbox"/>
11	M20 Bolt (4)	5111-301
12	M20 Spring washer (4)	5113-016
13	Bonnet - Stainless Steel - Mild Steel	409/0202 409/0202MS
14	PTFE gasket	6005-1641484001 <input type="checkbox"/>
15	Thread bush	409/0205
16	Grub screw	5111-070
17	Screw spindle	409/0204
18	Slide pad	409/0252 <input type="checkbox"/>
19	Piston	409/0246
20	PTFE seal	409/0247 <input type="checkbox"/>
21	Body - Stainless Steel - Mild Steel	409/0201 409/0201MS
22	Split ring (2)	368/0011
23	PTFE cap gasket (incl in item 24)	6005-1301003001
24	Cap (optional) - Stainless Steel - Mild Steel	10355PSC 10355PSCMS
25	Ball bearing (8)	409/0254
26	Grub screw	5111-025A4 <input type="checkbox"/>
27	Variseal	409/0231 <input type="checkbox"/>
28	Viton low temperature O ring	ORB123VL <input type="checkbox"/>
29	FKM scraper	409/0233 <input type="checkbox"/>

## SEAL KIT

Part number **409/0200SK** contains all parts marked

See also data sheet FOOT096 for rail valve seal kit information.





Internal poppet/external operator shown mounted to tank weld-in flange.

**Specification**

Weight - Internal poppet	9.84 Kg
Weight - Operator assembly	14.68 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)

Above information may vary according to specification.

Approved to BS EN14433 & BS EN13445

**i** Operating Instructions available - OPIN56

**5" 180° Rail Footvalve Assembly** - comprising internal poppet and external operator sub-assemblies. Internal poppet flange drilled 6 x 13mm holes on a 175.0 PCD; footvalve operator assembly outlet drilled to DIN125 PN10. Contact parts manufactured in 316 stainless steel, fitted with PTFE/elastomer main poppet seal. Fitted with crank arm but supplied less operating handles. Designed to be connected to a top mounted vent valve via an internal cable system incorporating a roll-over protection feature.

**Options** - alternative seal materials. A carbon steel operator assembly is available and operators with steam heating ports are available.

**Range**

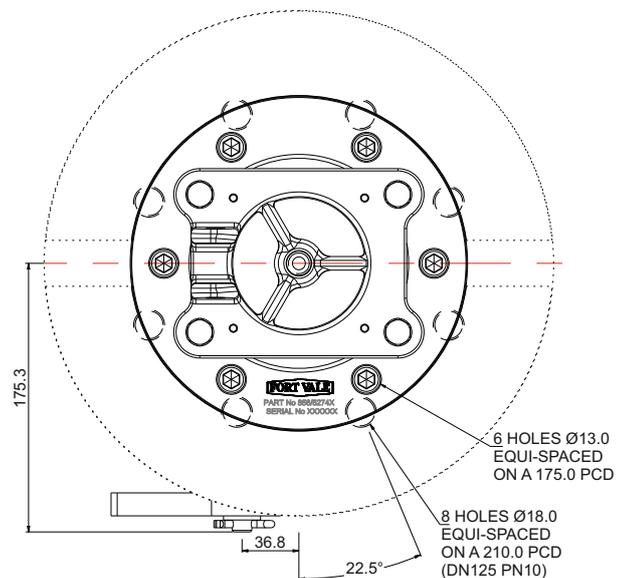
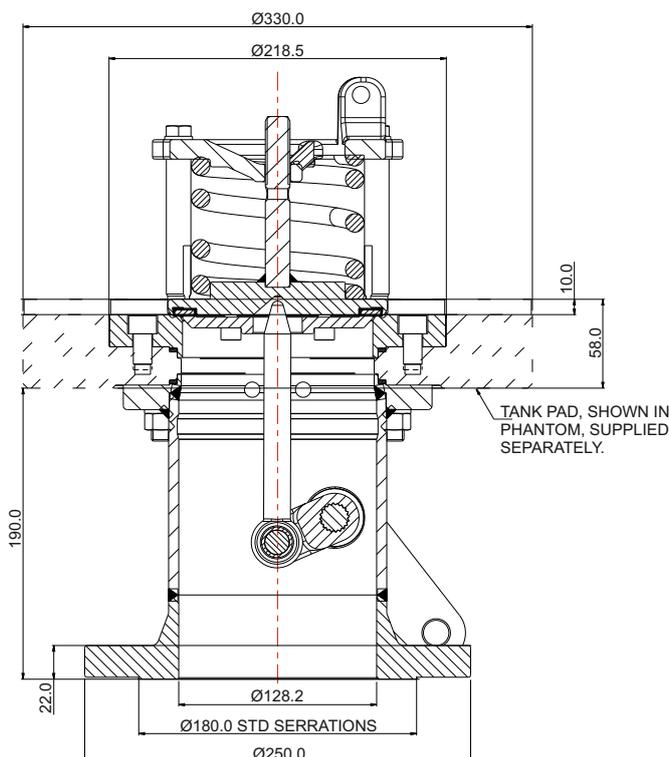
Part No.	Description
856/5274X	5" 180° internal poppet/operator assy - 316 stainless steel contact parts
856/5274MS/X	5" 180° stainless steel internal poppet & carbon steel operator

**Associated Parts**

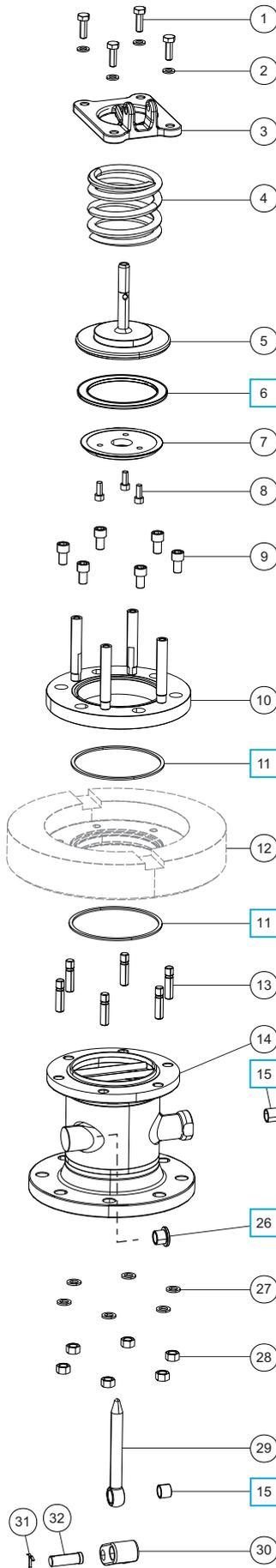
Description	Part No.
Tank weld-in pad – stainless steel	856/5520
Tank weld-in pad – carbon steel	856/5520MS
Tank weld-in pad – aluminium	856/5520AL
PTFE intermediary gasket	856/5176
Pivot arm/shear pin assembly	856/5220
4mm footvalve/vent valve cable kit	856/6290/04
6mm rollover safeguard cable kit	856/6295/06
Poppet mesh cover kit	856/5187K

**Fitting Details**

Part number : 856/5274X



Parts drawing

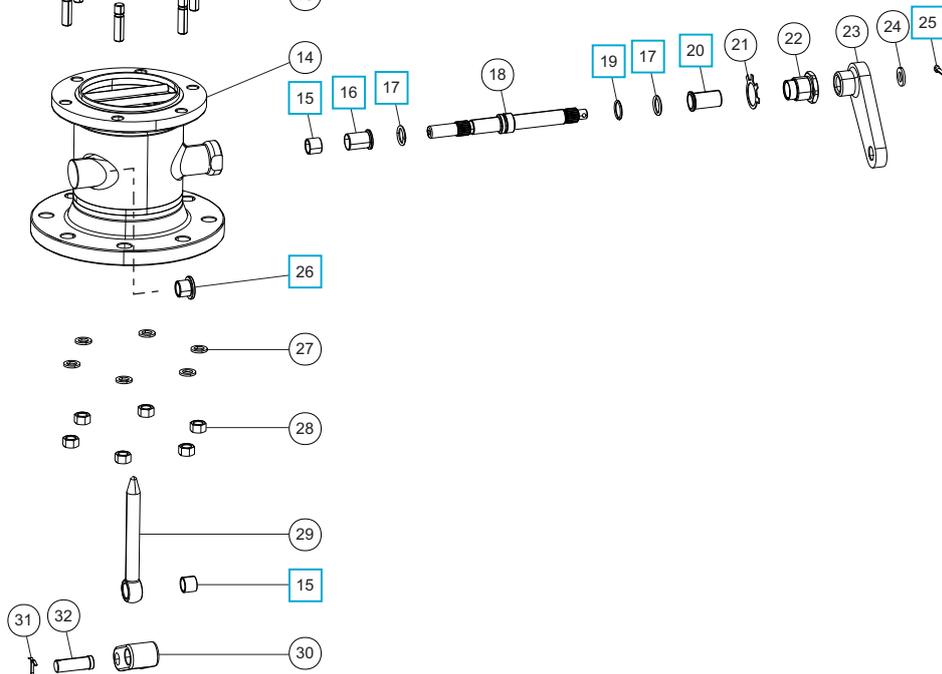


Item	Description	Part No.
1	M10 x 30mm hex bolt (4)	5111-003
2	M10 washer (4)	5113-002A4
3	Pivot arm casting	856/5017
4	Spring	5104-981
5	Poppet	856/5034
6	Poppet seal *See Note	856/5035X <input type="checkbox"/>
7	Seal clamp plate	856/5001
8	M8 cap screw (3)	5111-010A4
9	M12 cap screw (6)	5111-066
10	Poppet seat assembly	856/5182
11	Intermediary gasket (2)	856/5176 <input type="checkbox"/>
12	Weld-in flange-supplied separate	856/5520XX
13	M12 stud (6)	312/1007
14	Operator body - stainless steel carbon steel	856/5174 856/5190MS
15	Support bush (2)	856/5004 <input type="checkbox"/>
16	Spindle guide bush	853/7022 <input type="checkbox"/>
17	PTFE O ring (2)	5005-113 <input type="checkbox"/>
18	Spindle	856/5003
19	Low temperature FKM O ring	5005-336MF <input type="checkbox"/>
20	Spindle guide bush	856/5045 <input type="checkbox"/>
21	Locking washer	853/7029
22	Stuffing gland nut	853/7021
23	Crank arm	856/5490
24	M12 washer	5113-006
25	3/16" split pin	5118-043 <input type="checkbox"/>
26	Back guide bush	856/5013 <input type="checkbox"/>
27	M12 spring washer (6)	5113-010A4
28	M12 full nut (6)	5112-045
29	Push rod	856-5115
30	Spline boss	856/5002
31	1/8" split pin	5118-010
32	Clevis pin	856/5007

Note : Part number varies according to specification.

**SEAL KIT**

Part number **856/5274PSK** contains all items marked





5" 180° Rail Footvalve - with dual handle assembly. Inlet flange drilled 8 x 18mm holes on a 210mm PCD. Outlet flange drilled 8 x 18mm holes on a 200mm PCD. Contact parts manufactured in 316 stainless steel. Fitted with PTFE/Elastomer main seal. Non contact parts manufactured in 304 stainless steel / mild steel.

Options - Low temperature fluorocarbon seal available. Footvalve be linked to the Vapour Recovery Valve or the Vent Valve via externally linked or internally linked operating cable incorporating roll-over protection feature.

- See example assembly on separate data sheet ref. FOOT074.

### Specification

Weight	58.8 Kg
Design Pressure (MAWP)	4 Bar (58 PSI)
Hydraulic Test Pressure	6 Bar (87 PSI)
Design Temperature Range	-40°C to +200°C -40°F to +392°F

Approved to BS EN14433 & BS EN13445.

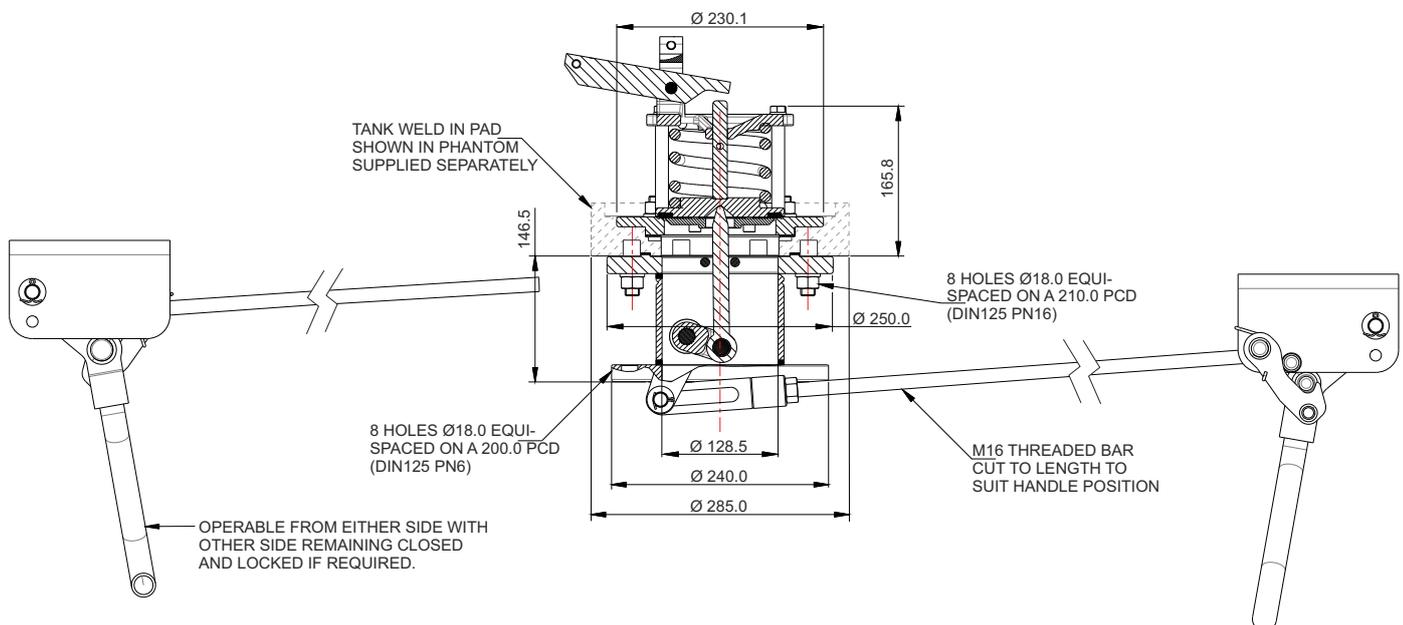
**i** Operating Instructions available - OPIN24.

### Associated Parts

Description	Part No.
Tank weld-in pad – stainless steel	856/5080
Tank weld-in pad – mild steel	856/5080MS
PTFE inlet seal	856/5006
PTFE inlet gasket	856/5005

### Fitting Details

Part Number : 856/5250X - Valve shown in the closed position.



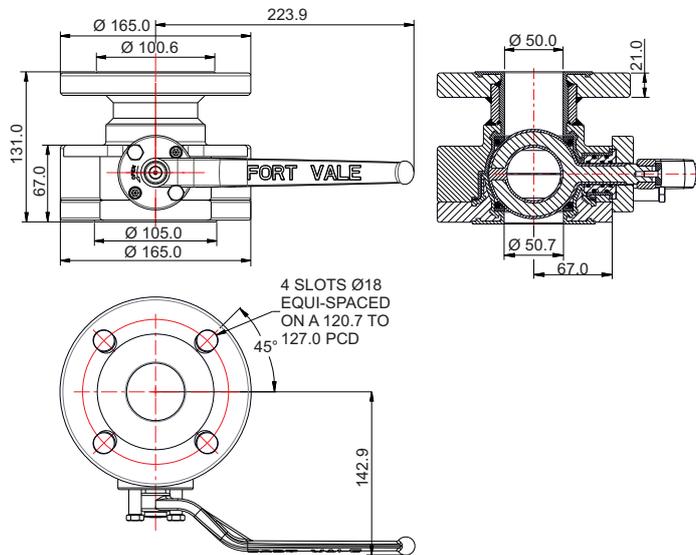


PFA Lined 50mm Full Bore Flanged Ball Valve - inlet flange drilled 4 x 18mm holes on a 126mm PCD; outlet flange drilled 4 x 18mm slots on a 120.7mm to 127mm PCD. Valve manufactured in stainless steel with PTFE main seal. All parts in contact with the cargo lined with PFA.

Options - range of PFA lined ball valves (See RANGE)

## Fitting Details

Part number : 370/P100



## Specification

Weight	12.15 Kg
Design Pressure (MAWP)	6.9 Bar (100 PSI)
Test Pressure	10.3 Bar (150 PSI)
Design Temperature Range	-40°C to 200°C (-40°F to 392°F)

Valve complies with EN14432 and RID norms.

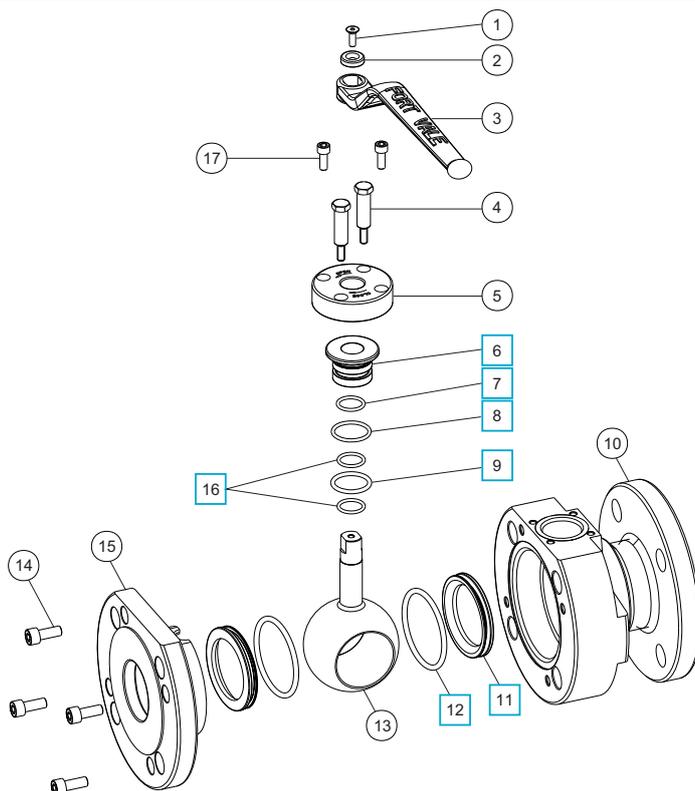
## Range

Part No.	Description
530/P100	25mm PFA lined reduced bore ball valve
370/P100	50mm PFA lined full bore ball valve
360/P030X	80mm PFA lined full bore ball valve

## Associated Parts

Part No.	Associated Parts
311/3790	Stud kit
311/3590	Bolting kit
370/4239PFA	PFA lined blind flange

## Fitting Details



Item	Description	Part No.
1	M5 screw	5111-113
2	Retaining washer	20370/5
3	Handle	370/3306/1
4	Stop pin (2)	370/P107
5	Stuffing plate	370/P114
6	Seal carrier	370/P113 <input type="checkbox"/>
7	Viton O ring	ORB115VL <input type="checkbox"/>
8	Viton O ring	ORB121VL <input type="checkbox"/>
9	Perfluoroelastomer O ring	5005-214PER <input type="checkbox"/>
10	PFA lined body	370/P110
11	PTFE ball seal (2)	370/P115 <input type="checkbox"/>
12	Fortyt O ring (2)	ORM0580400F0 <input type="checkbox"/>
13	PFA lined obturator	370/P101
14	M8 cap screw (4)	5111-010
15	PFA lined clamp plate	370/P111
16	Perfluoroelastomer O ring (2)	5005-370P <input type="checkbox"/>
17	M6 cap screw (2)	5111-015

### SEAL KIT

Part number 370/P100SK contains all parts marked



PFA Lined 80mm Full Bore Ball Valve - inlet flange drilled 4 x 18mm holes on a 160mm PCD; outlet flange drilled 4 x 18mm slots equi-spaced on a 146 to 160mm PCD. (3" BSTD to DIN80) Left hand operated with TIR to handle. Valve manufactured in stainless steel with PTFE main seal. All parts in contact with the cargo lined with PFA.

Options - right hand operated version. Range of PFA lined ball valves (See RANGE)

**Specification**

Weight	12.9 Kg
Design Pressure (MAWP)	6.9 Bar (100 PSI)
Test Pressure	10.34 Bar (150 PSI)
Design Temperature Range	-40°C to 130°C -40°F to 266°F

Valve complies with EN14432:2006 and RID norms.

**Range**

Part No.	Description
530/P100	25mm PFA lined reduced bore ball valve
370/P100	50mm PFA lined full bore ball valve
360/P030X	80mm PFA lined full bore ball valve

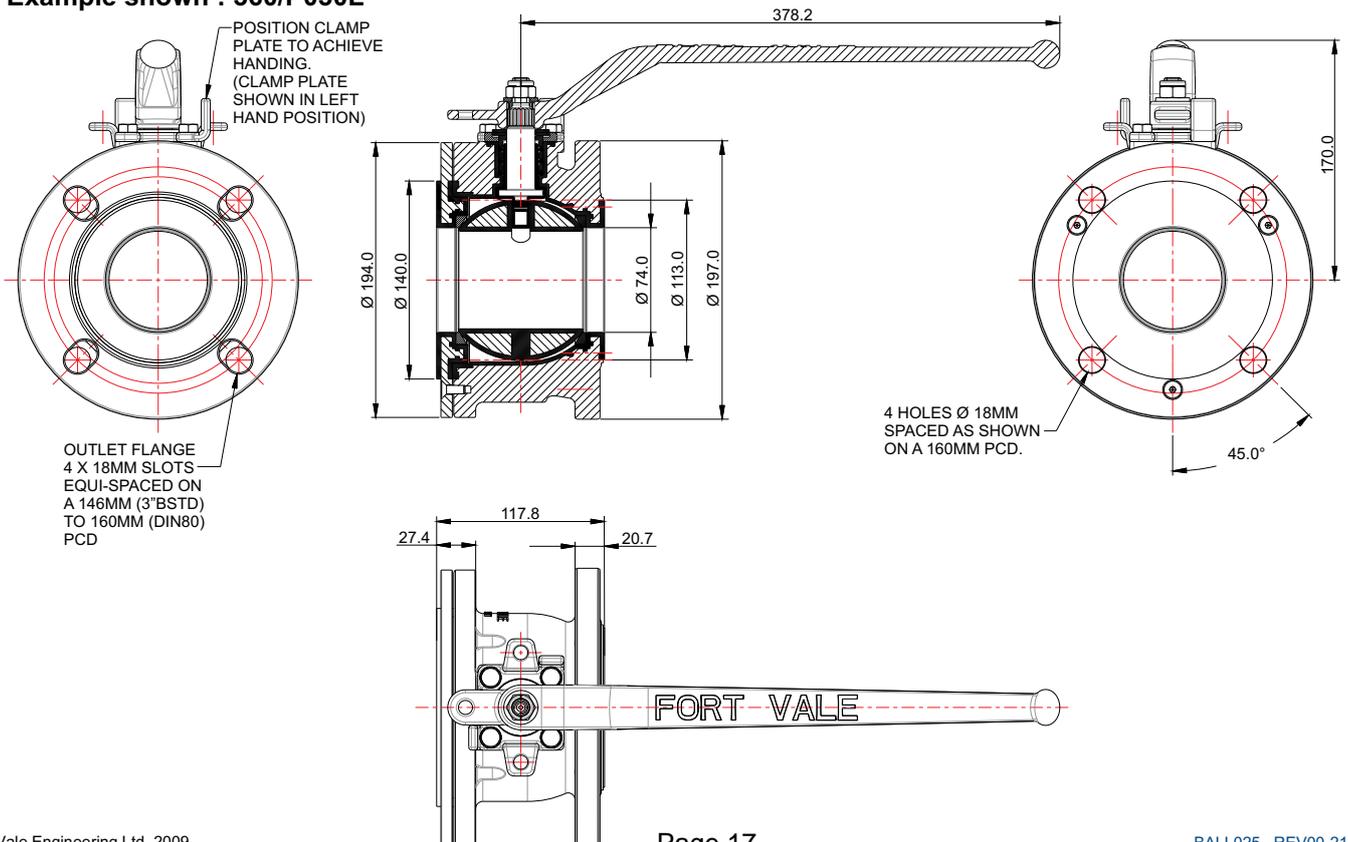
X in part number denotes whether left (L) or right (R) hand valve.

**Associated Parts**

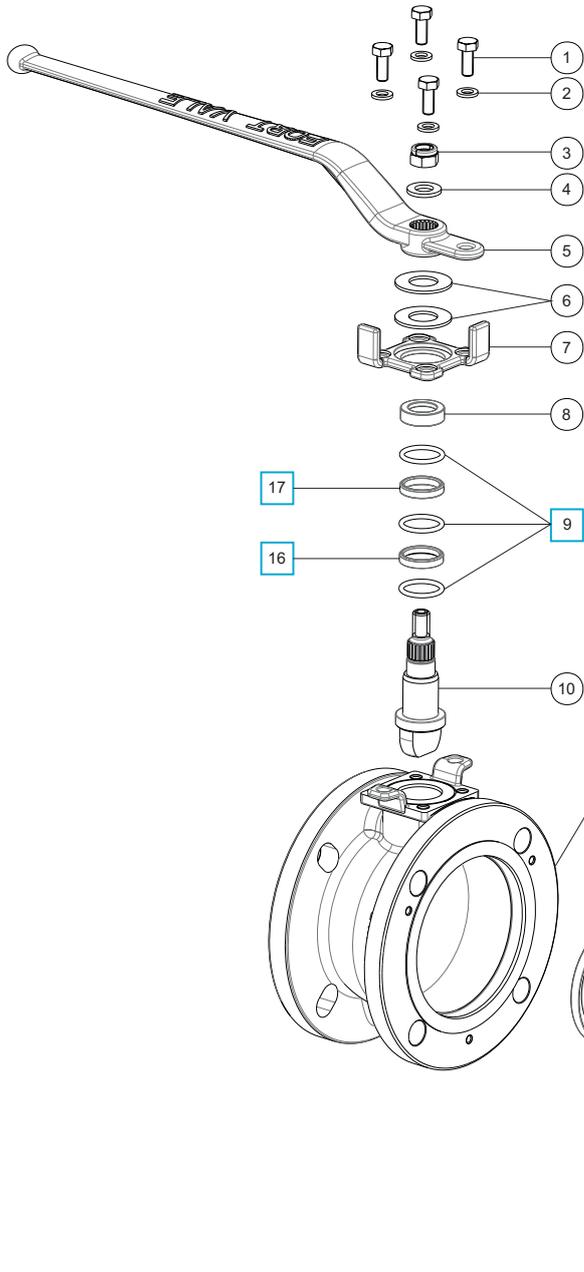
Part No.	Associated Parts
368/0500P	3" BSP PFA lined outlet flange
368/8047L	3" BSP Halar lined eccentric outlet flange
5005-417	Solid PTFE outlet gasket
360/8095P	PFA lined blind flange

**Fitting Details**

Example shown : 360/P030L



Parts drawing



Item	Description	Part No.	
1	M8 hex bolt (4)	5111-046	
2	M8 spring washer (4)	5113-003	
3	M12 locking nut	5112-007	
4	M12 washer	5123-003	
5	Handle	360/3416	
6	20mm washer (2)	5113-041	
7	Clamp plate	360/3406/1	
8	Stainless steel stuffing collar	360/3464	
9	PTFE O ring (3)	5005-654	<input type="checkbox"/>
10	PFA lined spindle	360/3422PL	
11	PFA lined body	360/P020	
12	PTFE front & rear seal (2)	360/3402/5	<input type="checkbox"/>
13	PFA coated ball	360/3401PL	
14	PFA lined clamp plate	360/3462PL	
15	M6 countersunk bolt (3)	5111-030	
16	Bottom stuffing collar	360/3413/1	<input type="checkbox"/>
17	Top stuffing collar	360/3412/1	<input type="checkbox"/>

SEAL KIT

Part number 360/P0SK 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.

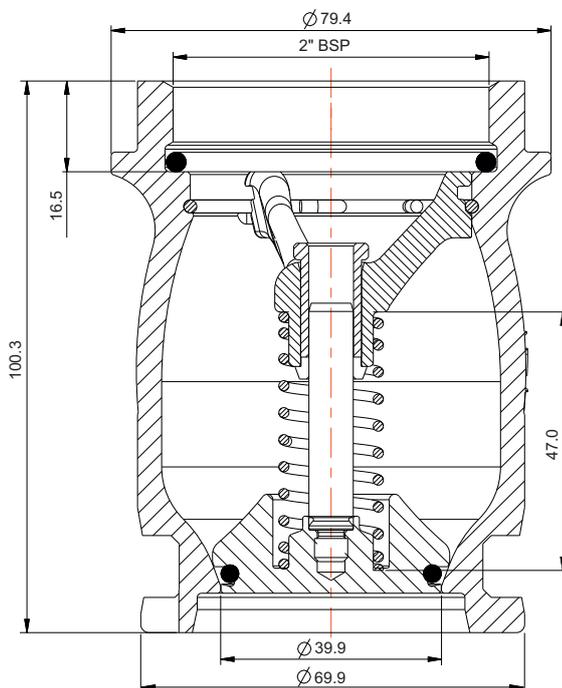
Approved to BS EN12516-2 & BS EN14432.

### Associated Parts

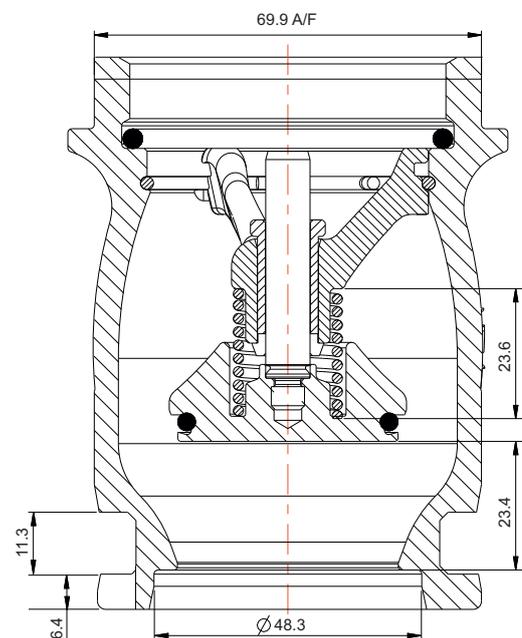
Part No.	Description
915/5420X	70mm pressure-tight cap, st/st
895X/0700AXX	70mm hose unit, threaded inlet

### Fitting Details

Part number : 376X/B700AXX



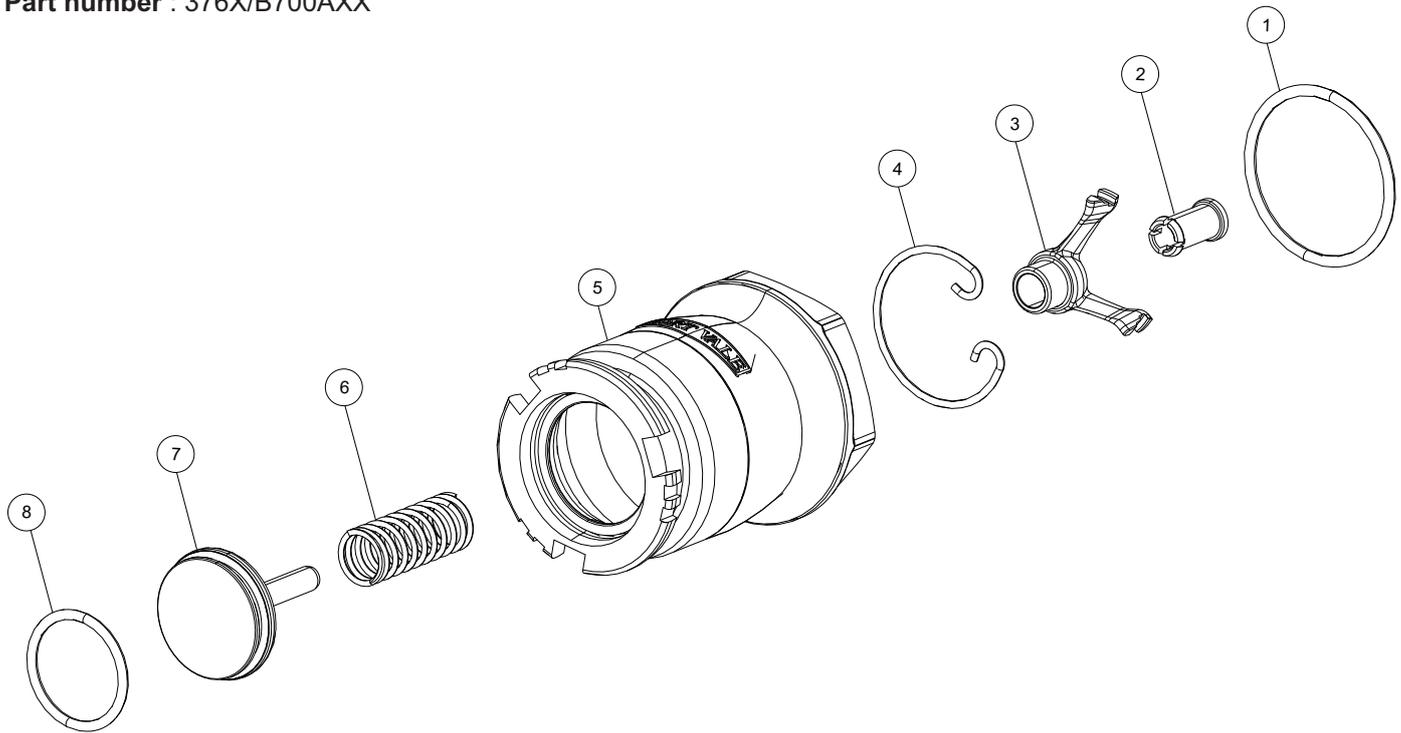
CLOSED POSITION



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

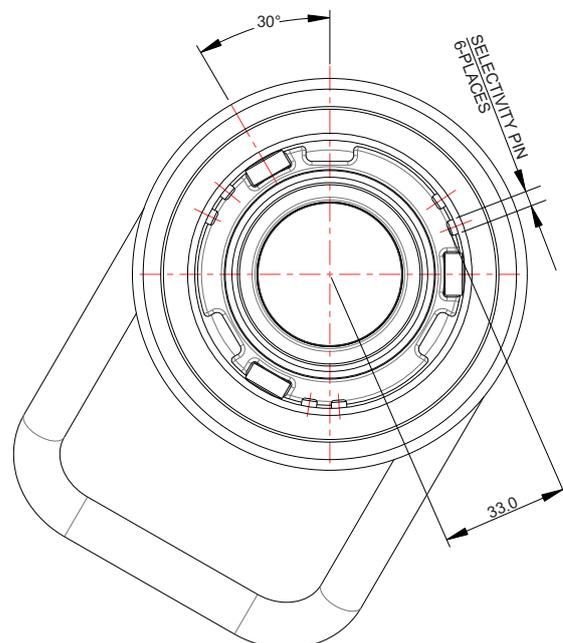
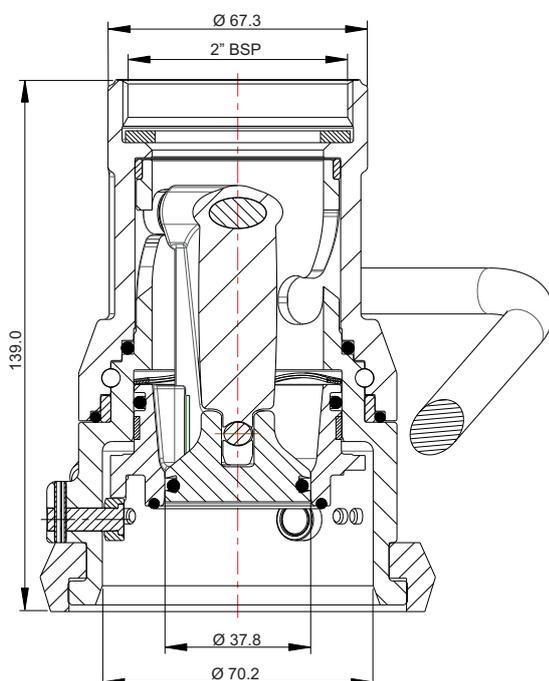
Approved to BS EN12516-2.

### 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

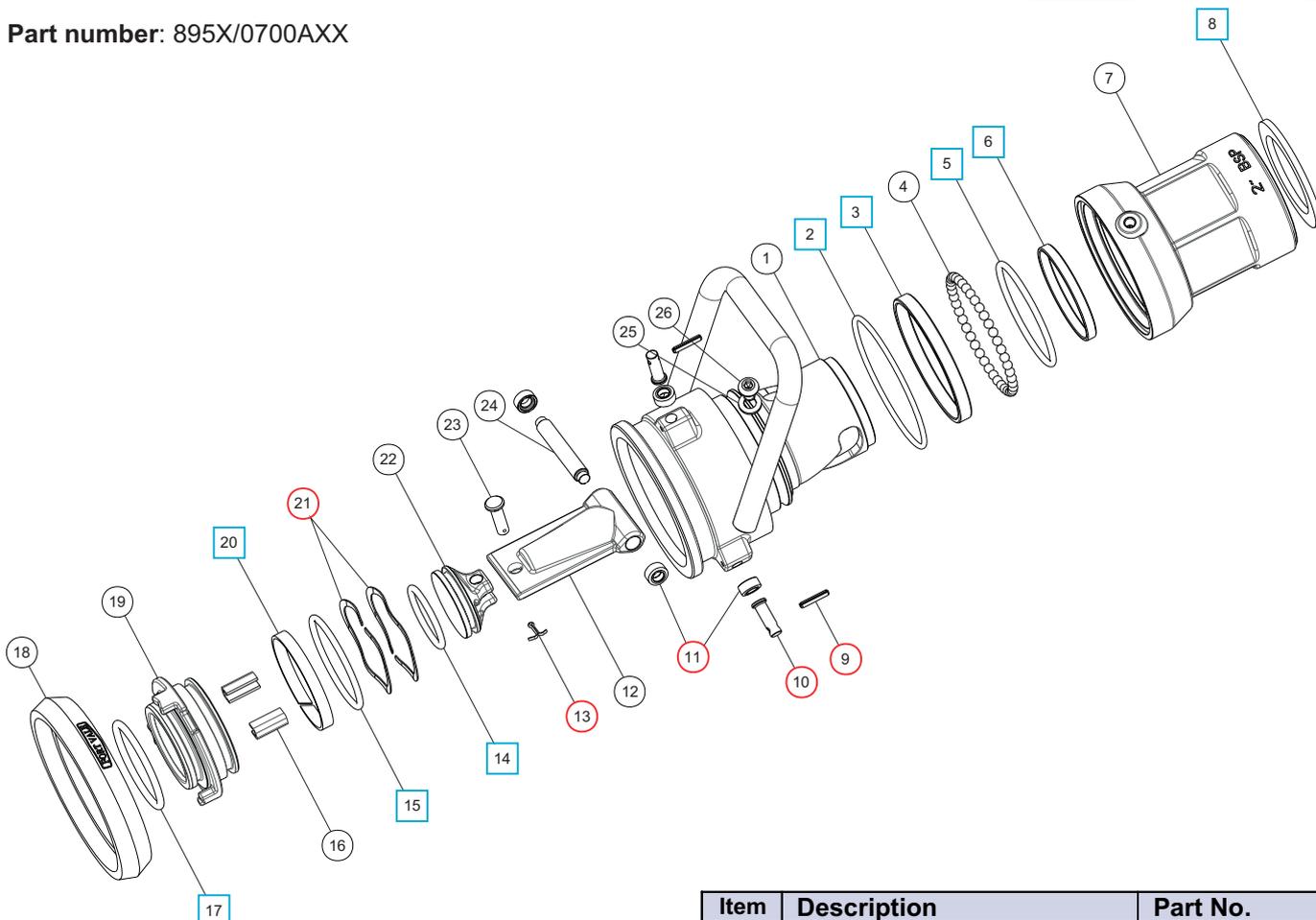


TABLE 1

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	See Table 1 <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	See Table 2 <input type="checkbox"/> <input type="radio"/>
15.	O ring	See Table 3 <input type="checkbox"/> <input type="radio"/>
16.	Slide strip (2)	895/0708/4
17.	O ring	See Table 4 <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)



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**

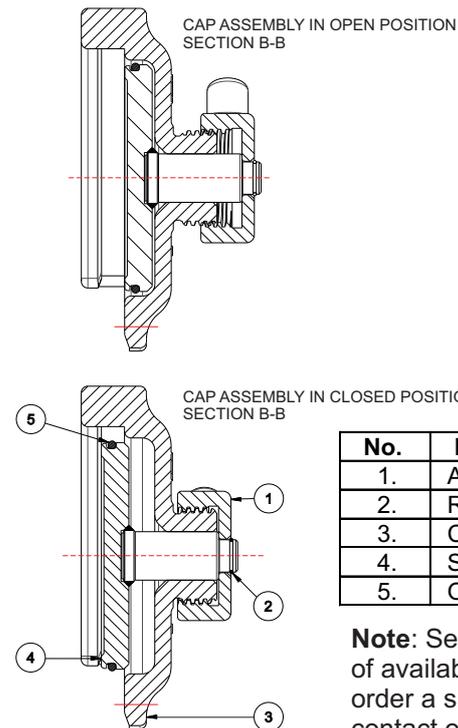
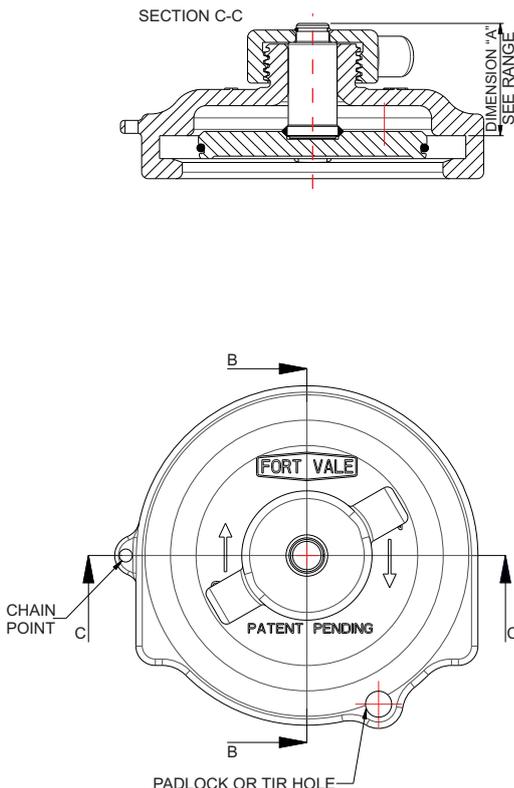
Part No.	Size	Weight	Dimension "A"
915/5410X	56mm	0.91 Kg	45.1 mm
915/5420X	70mm	1.07 Kg	42.1 mm
915/5480X	105mm	1.92 Kg	44.1 mm
915/5470X	119mm	2.33 Kg	44.1 mm
915/5490X	164mm	3.68 Kg	44.1 mm

"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



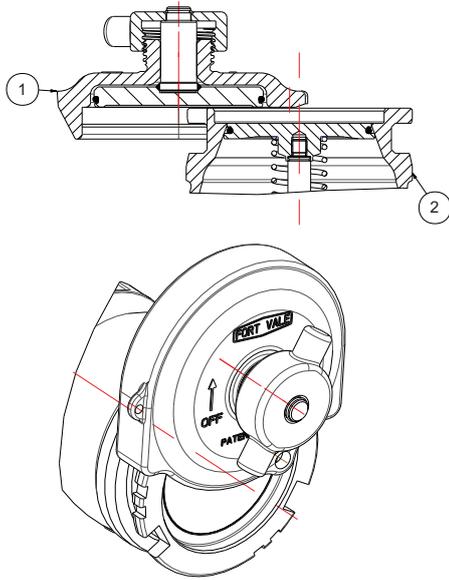
No.	Description
1.	Anti-galling top cap
2.	Retaining clip
3.	Cap body
4.	Sealing plate
5.	O ring (see Note)

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

## Operating Instructions



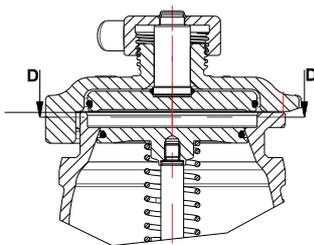
**Example shown:** 119mm pressure-tight cap ref. 915/5470X (1), and 119mm "Drytyt" tank unit ref. 376X/B190AXX (2).



## TO INSTALL THE CAP ASSEMBLY

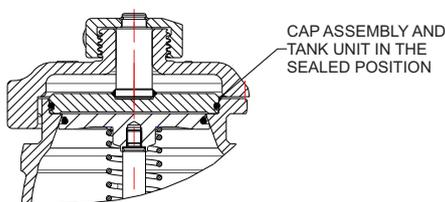
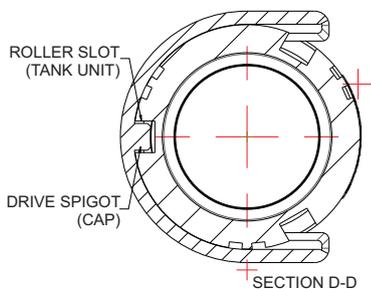
## STEP 1

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



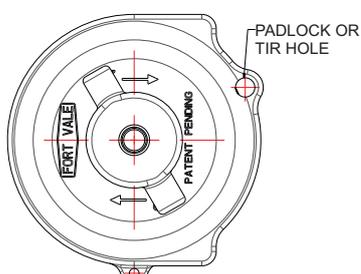
## STEP 2

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.



## TO REMOVE THE CAP ASSEMBLY

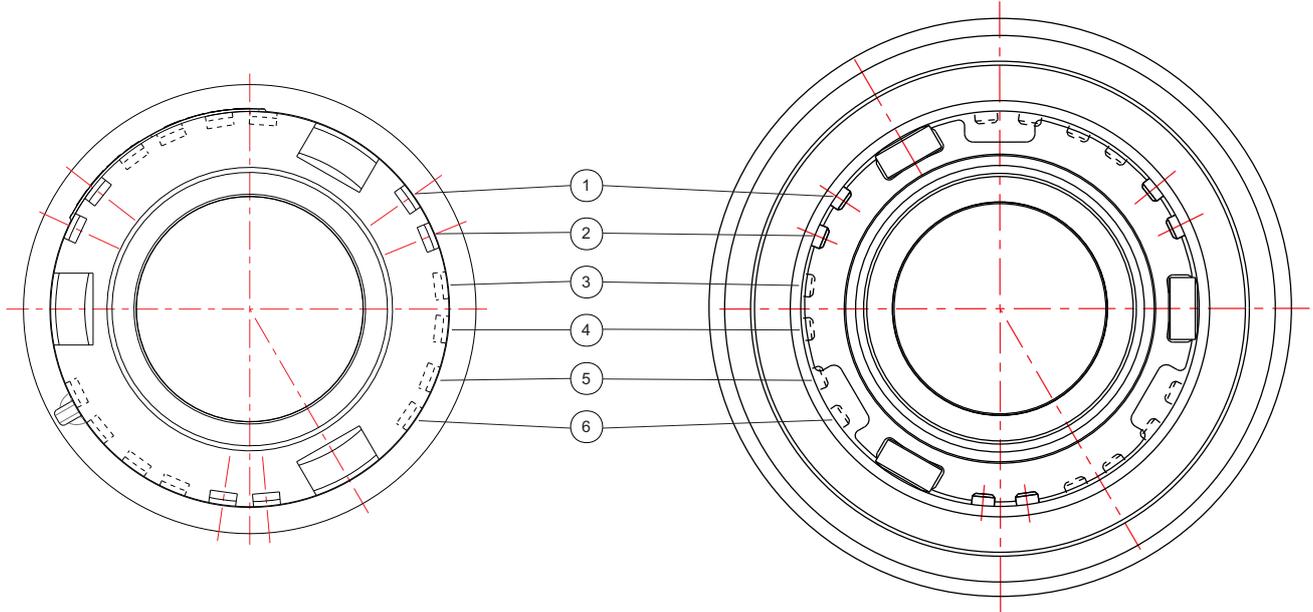
**CAUTION:** Keep your face away from the cap.

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.

## 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

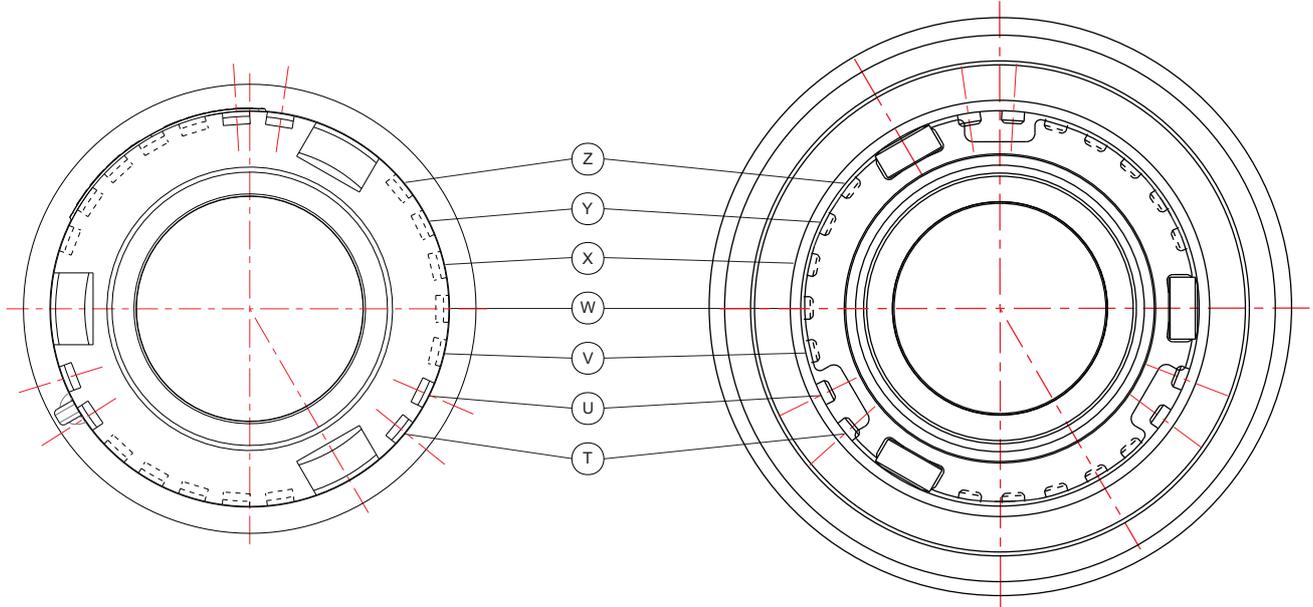
### 15 Position Selectivity

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).



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