



Catalogue

Standard Equipment for Tank Containers





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Tank Container Catalogue

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Manlid & Inspection Hatch Assemblies

Tank Container Catalogue





Manlid & Inspection Hatch Assemblies

Design Options

Function

A manlid assembly or inspection hatch assembly is installed on the top of the tank. A manlid assembly is used to give access to personnel to let them clean, examine or repair the inside of the tank. An inspection hatch is used for access to take a sample of cargo and can also be used as access for cleaning equipment.

Design Options

The design options below are available on our standard range of manlid and inspection hatch assemblies.

Nominal Diameter

Inspection Hatch:
170mm, 250mm, 300mm

Manlid:
460mm, 500mm, 600mm



Neckring/Compensating Ring

Height: From ultra-low to extended

Profile: Straight (no profile) or profiled compatible with the tank radius

Compensation: With or without compensating ring

Material thickness: Compatible with the tank shell

Swingbolt Assemblies

Stainless steel swingbolt with naval brass handnut

Stainless steel swingbolt & handnut

Safebolt assembly (at one point) ★

Special service conditions:
Quick-release latches

Hexagonal nuts

Single arm handnuts



Opening Angle

120°: Fixed or liftover

135°: Fixed or liftover

Design Pressure: MAWP

0 Bar to 4 Bar

Special service conditions:
> 4 Bar



Fixing Points

3, 4, 6, 8 points

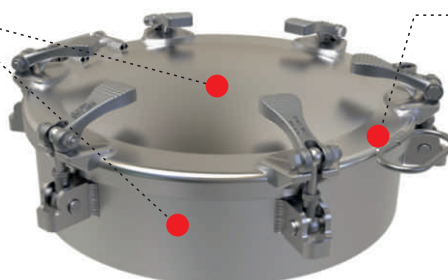
Special service conditions:
10, 12, 20 points

Material: Contact Parts

316 stainless steel

Special service conditions:
High nickel alloys

Carbon steel: Neckring only



Seal

A range of seal materials is available



Manlid & Inspection Hatch Assemblies Design Options

Design Options - continued

Special Options

Where compatible, we can also offer:

Weld-in fittings: E.g. sockets, flanges, breathers, vents, sight glass

Customer logo: Laser etched on cover

Hand polishing: To ultra-high grade

Lining: For corrosive cargo



Manlid Assemblies for Dedicated Service

We offer a range of manlid assemblies for these service conditions and special cargoes:

- Hydrogen peroxide service
- Flat bolted assemblies for high pressure/dangerous cargo
- U.S. tank trucks
- Rail tank cars
- Side-entry manlid assemblies for hygienic service
- Elliptical manlid assemblies for brewery & hygienic service

Please contact us for more information about these assemblies.

Related Parts

We recommend our range of compatible ancillary parts:

- Manlid cover seals
- Safebolts
- Fasteners

Please contact us for more information about these parts.



300mm Ultra Low Profile Inspection Hatch Assembly

Part No: 8PB/2750XXXP



Specification

Nominal size

Ø 300mm

Cover

4 point, double skin

Neckring/compensating ring

8mm thick

Tank radius profiling range: 750mm to 1220mm

Materials

Contact parts: 316 stainless steel

Fasteners: stainless steel swingbolts with naval brass handnuts

Seal: supplied separately

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|---------|
| Weight: | 19.8 Kg |
| Design Pressure (MAWP): | 4 Bar |
| Test Pressure: | 6 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 200°C |

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

Approval

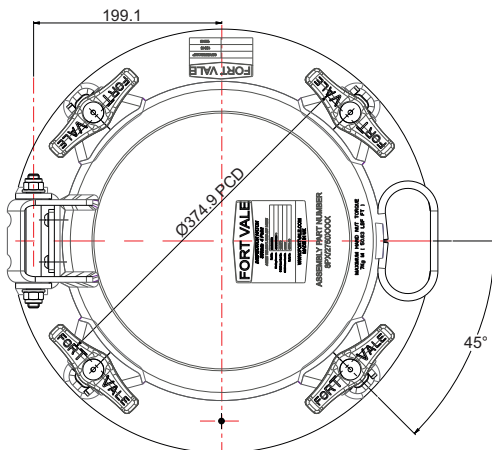
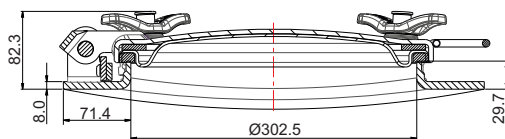
BS EN14025: 730/0600P cover only

Range

| Handnut Material | Part No. |
|------------------|--------------|
| Naval brass | 8PB/2750XXXP |
| Stainless steel | 8PB/2750XXXS |

NOTE: The assembly specification changes the Part No.

Section View

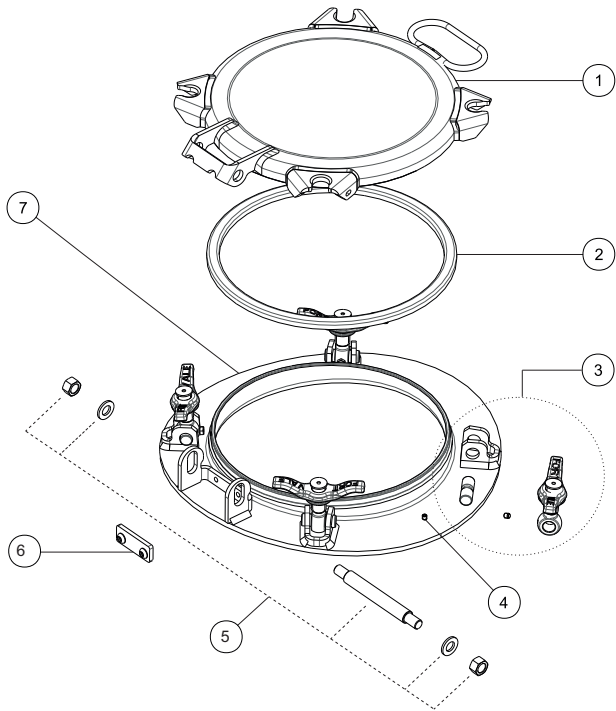




300mm Ultra Low Profile Inspection Hatch Assembly

Part No: 8PB/2750XXXP

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|-------------------------------------|--------------|
| 1 | Cover | 703/0600P |
| 2 | Seal (not included) | See MAN028 |
| 3 | Swingbolt assembly (4) | 496/1260 |
| 4 | Grubscrew | 5111-009 |
| 5 | Hinge pin assembly | 600/1060 |
| 6 | Hinge kit - 135° fixed | 135B |
| 7 | Neck/compensating ring *Note | 63P/2750XXXP |

NOTE: The assembly specification changes the Part No.



500mm Ultra Low Profile Pendle Manlid Assembly

Part No: E4C/85XX025B



Specification

Nominal size

Ø 500mm

Cover

8 point, double skin

Neckring/compensating ring

8mm thick

Tank radius profiling range: 750mm to 1300mm

Materials

Contact parts: 316 stainless steel

Fasteners: stainless steel swingbolts with naval brass handnuts

Seal: supplied separately

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|-------|
| Weight: | 40 Kg |
| Design Pressure (MAWP): | 4 Bar |
| Test Pressure: | 6 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 200°C |

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

Approvals

BS EN14025: 74E/0500 cover only (4 Bar)

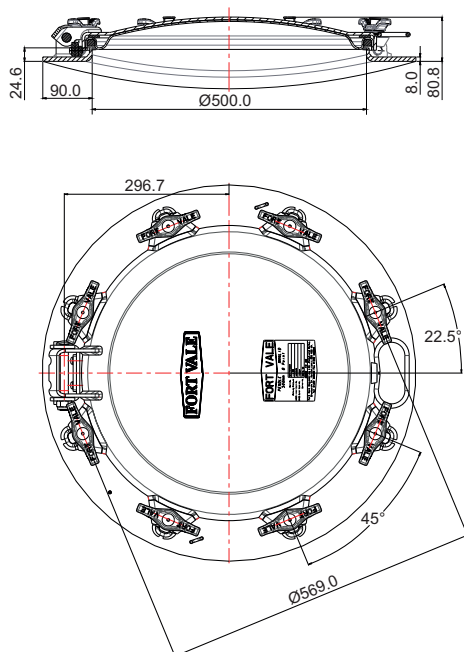
BS EN14025: 73E/0500 cover only (3 Bar)

Range

| Points | MAWP | Part No. |
|--------|-------|--------------|
| 8 | 4 Bar | E4C/85XX025B |
| 6 | 3 Bar | E3C/65XX025B |

NOTE: The assembly specification changes the Part No.

Section View

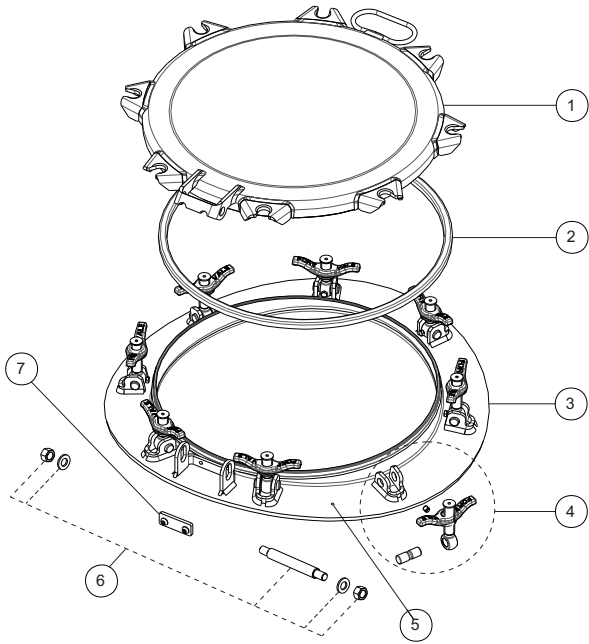




500mm Ultra Low Profile Pendle Manlid Assembly

Part No: E4C/85XX025B

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|---------------------------------------|--------------|
| 1 | Cover | 74E/0500 |
| 2 | Seal (not included) | See MAN028 |
| 3 | Neck/compensating ring *Note | 6EP/7403XXXP |
| 4 | Long swingbolt assy. (4) *Note | 496/XXXX |
| | Short swingbolt assembly (4) | 496/1240 |
| 5 | Grub screw | 5111-009 |
| 6 | Hinge pin assembly | 600/1060 |
| 7 | Hinge kit - 135° fixed | 135B |

NOTE: The assembly specification changes the Part No.



Relief Valves

Tank Container Catalogue





Super Maxi & Hyper Maxi Relief Valves

Design Options

Function

A Super Maxi or Hyper Maxi is a spring-loaded relief valve which is installed in the vapour space of a tank. It is pre-set to be compatible with the service conditions and it vents to protect the tank from accidental over-pressure or unwanted vacuum conditions.

Super Maxi & Hyper Maxi relief valves have a high flow performance to prevent the catastrophic failure of a tank. This type of valve is often used on tanks carrying hazardous cargo.

We offer a range of relief valves for different service conditions and flow requirements. Contact us for more information.

Design Options

The design options below are available on our standard range of Super Maxi & Hyper Maxi relief valves.

Tank Connection

2½" BSP

Flanged with holes or slots

Special service conditions:

DIN11851: 80mm



Special Options

Manual vacuum vent button

Tank Seal

Rubber/PTFE - 2½" BSP only

Other materials are available

Nominal Bore

65mm: Super Maxi

82.5mm: Hyper Maxi

Special service conditions:

Tapered bore: 65mm to 80mm



Body

Standard body:

Super Maxi: ≤ 70 PSIG (4.83 Bar)

Hyper Maxi: ≤ 75 PSIG (5.17 Bar)

Extended body:

Super Maxi: ≥ 66 PSIG (4.55 Bar)

Hyper Maxi: ≥ 75 PSIG (5.17 Bar)

Pressure Setting

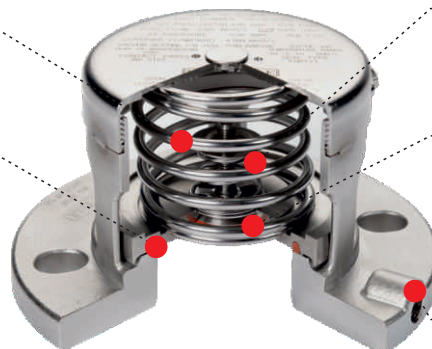
From 2 PSIG to 204 PSIG
(0.14 Bar to 14.07 Bar)

Pressure Seal

Fortyt

Special service conditions:

A range of seal materials is available



Vacuum Setting

From 0.5"Hg to 26"Hg
(0.02 Bar to 0.88 Bar)

Vacuum Seal

Fortyt

Special service conditions:

A range of seal materials is available

Gauge Connection

Flanged valves only:

¼" BSP (standard)

¼" NPT (special)



Super Maxi & Hyper Maxi Relief Valves

Design Options

Design Options - continued

Valve Materials

316 stainless steel

Special service conditions:

Lined/coated wetted parts e.g. PFA

High nickel alloys



Relief Valves for Dedicated Service

We offer a range of relief valves for these service conditions and special cargoes:

- T50 tank containers for liquefied gas
- Rail tank wagons
- U.S. tank trucks
- IBCs and small capacity tanks
- Steam-heating systems for tanks
- Hygienic service
- Food grade for liquid flow

Please contact us for more information about these valves.

Related Parts

We recommend our range of compatible ancillary parts:

- Flame arrester or gauzed cowl
- Burst discs
- Pressure gauges
- Flanges - weld-in and adaptor
- Weld-in sockets
- Gaskets
- Fasteners

Please contact us for more information about these parts.



2½” BSP Super Maxi Relief Valve - Pressure/Vacuum

Part No: 010/1XXXX



Specification

Nominal size

65mm

Tank connection

2½” BSP

Set pressure

From 2 PSI to 75 PSI (0.14 Bar to 5.17 Bar)

Set vacuum

From 0.5”Hg to 26”Hg (0.02 Bar to 0.88 Bar)

Materials

Contact parts: 316 stainless steel

Pressure O ring: Fortyt

Vacuum O ring: Fortyt

Tank seal: Rubber/PTFE envelope

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|----------|
| Weight: | 4.08 Kg |
| Design Pressure (MAWP): | 5.2 Bar |
| Test Pressure: | 10.2 Bar |
| Design Temperature min: | -55°C |
| Design Temperature max: | 200°C |

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

Approval

Design Approval by Lloyds Register of Shipping

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

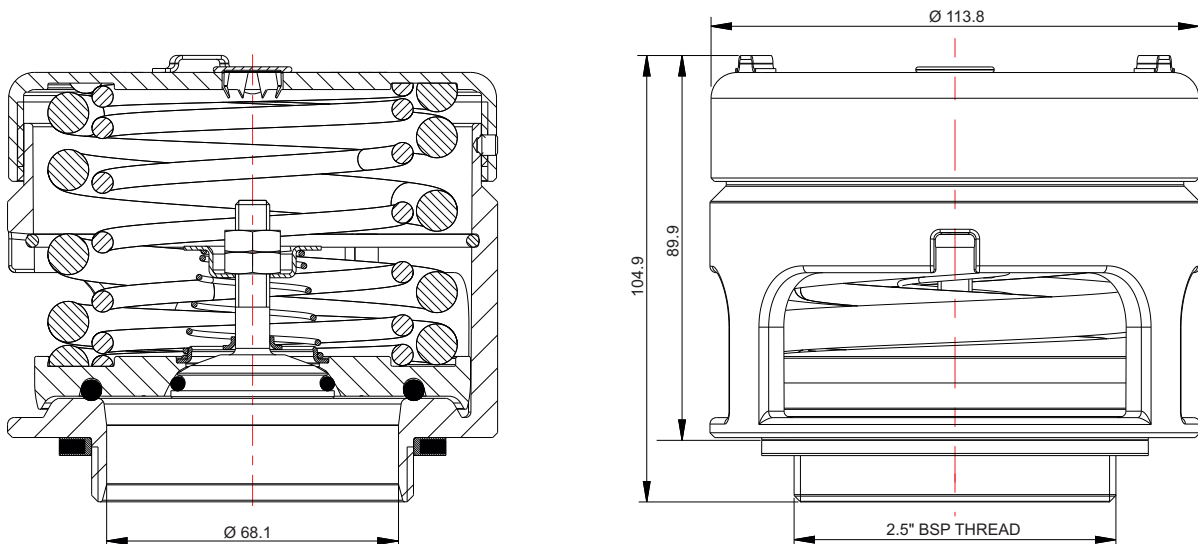
Range

| Standard Settings | Part No. |
|---|-----------|
| 31.8 PSI (2.19 Bar) & 6.2”Hg (0.21 Bar) | 010/13212 |
| 48.0 PSI (3.31 Bar) & 6.2”Hg (0.21 Bar) | 010/14812 |
| 53.8 PSI (3.71 Bar) & 6.2”Hg (0.21 Bar) | 010/15412 |
| 63.8 PSI (4.40 Bar) & 6.2”Hg (0.21 Bar) | 010/16312 |

Related Parts

| Description | Part No. |
|--|------------|
| 2½” BSP weld-in socket | 600/1000 |
| Tank weld-in flange | 176/3150 |
| CNAF/PTFE gasket (adaptor flange) | 5005-398 |
| 0-100 PSI pressure gauge, brass internal parts | 921/07BBSP |
| 0-100 PSI pressure gauge, stainless steel internal parts | 920/07BBSP |
| Flame arrester *Warning | 176/2900 |
| Gauzed cowl *Warning | 176/6000 |

Section View

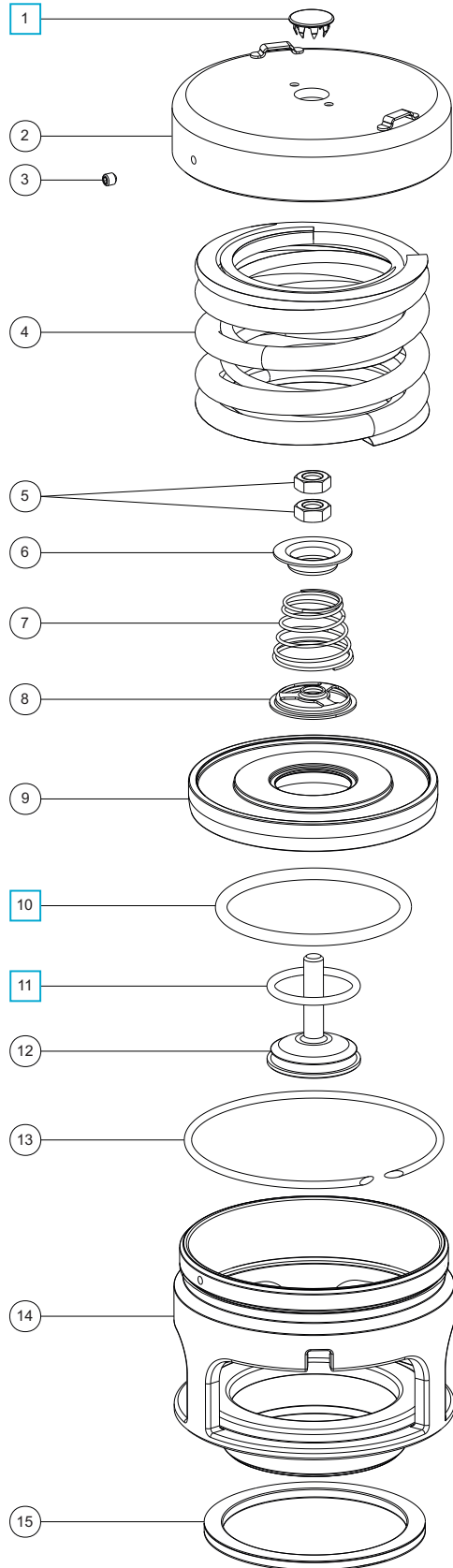




2 1/2" BSP Super Maxi Relief Valve - Pressure/Vacuum

Part No: 010/1XXXX

Parts Drawing



Parts List

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

NOTE: The valve specification changes the Part No.

Table 1

| Std. Pressure Settings | Pressure Spring Part No. |
|------------------------|--------------------------|
| 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) |

Pressure springs are available from 2 PSI (0.14 Bar) to 75 PSI (5.17 Bar)

Table 2

| Std. Vacuum Setting | Vacuum Spring Part No. |
|---------------------|------------------------|
| 6.2"Hg (0.21 Bar) | 7104-012 |

Vacuum springs are available from 0.5"Hg (0.02 Bar) to 26"Hg (0.88 Bar)

Seal Kit

| Description | Part No. |
|---|-----------|
| All parts marked <input type="checkbox"/> in the Parts List | 000/1PVSK |



82.5mm Flanged Hyper Maxi Relief Valve - Pressure/Vacuum

Part No: 043/XXXXX82S



Specification

Nominal size

82.5mm

Tank connection

Flanged: 4 slots equi-spaced on a 145.0/152.4 min/max PCD. See Flange Drilling & Ancillary Parts

Set pressure

From 2 PSI to 75 PSI (0.14 Bar to 5.17 Bar)

Set vacuum

From 0.5"Hg to 26"Hg (0.02 Bar to 0.88 Bar)

Materials

Contact parts: 316 stainless steel

Pressure O ring: Fortyt

Vacuum O ring: Fortyt

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|----------|
| Weight: | 6.96 Kg |
| Design Pressure (MAWP): | 5.2 Bar |
| Test Pressure: | 10.2 Bar |
| Design Temperature min: | -55°C |
| Design Temperature max: | 200°C |

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

Approval

Design Approval by Lloyds Register of Shipping for valves with a setting of ≥ 25 PSI (1.7 Bar)

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

Flange Drilling & Ancillary Parts

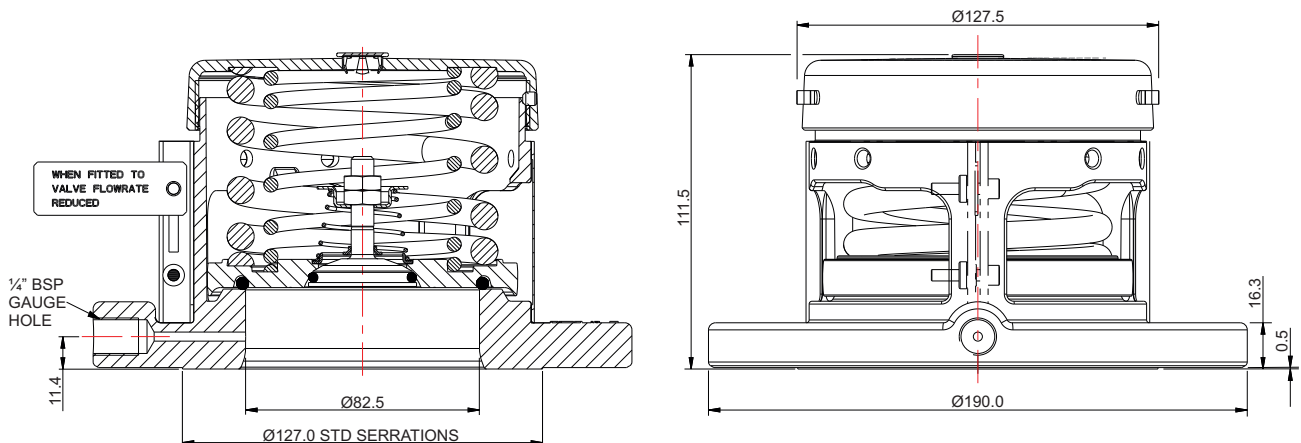
| Drilling Spec. | PCD mm | Weld-in flange | Gasket |
|----------------|--------|----------------|----------|
| DIN65 PN10 | 145.0 | 176/3250 | 5005-332 |
| 3" Table D | 146.1 | 176/3140 | 5005-013 |
| DIN80 PN6 | 150.0 | 176/3158 | 5005-334 |
| 3" ASA 150 | 152.4 | 176/3125 | 5005-204 |

Related Parts

| Description | Part No. |
|--|------------|
| 0-100 PSI pressure gauge, brass internal parts | 921/07BBSP |
| 0-100 PSI pressure gauge, stainless steel internal parts | 920/07BBSP |
| Flame arrester *Warning | 176/2920 |
| M16 stud kit: 150 & 152.4 PCD | 311/3700 |
| M16 cap screw bolt kit: 145 & 146 PCD | 311/3785 |

Section View

Shown with a flame arrester installed

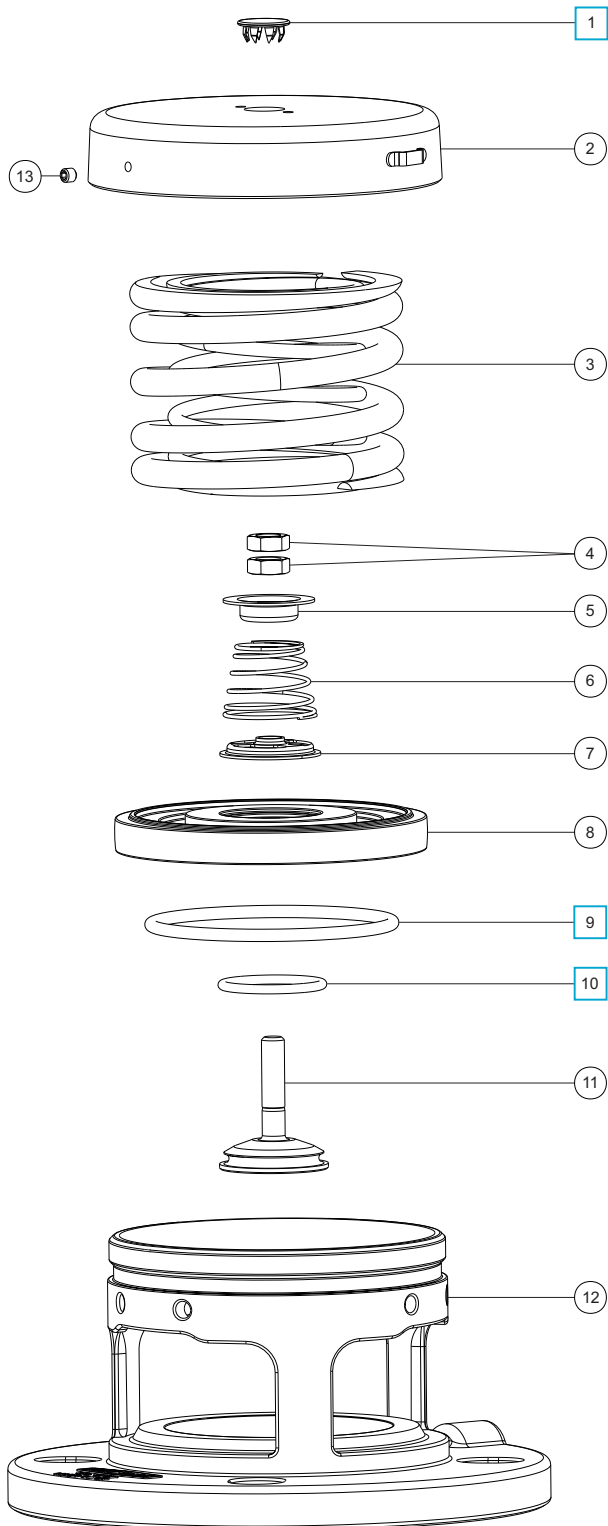




82.5mm Flanged Hyper Maxi Relief Valve - Pressure/Vacuum

Part No: 043/XXXXX82S

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|------------------------|------------------------------------|
| 1 | Stainless steel plug | 10978 <input type="checkbox"/> |
| 2 | Cap *Note | 1860/1008XX |
| 3 | Pressure spring | Refer to Table 1 |
| 4 | M8 half nut (2) | 5112-004 |
| 5 | Vacuum spring pad | 1860/0005 |
| 6 | Vacuum spring | Refer to Table 2 |
| 7 | Spring pad | 10986/3 |
| 8 | Pressure plate *Note | 1860/1071XX |
| 9 | Fortyt pressure O ring | ORB337F0 <input type="checkbox"/> |
| 10 | Fortyt vacuum O ring | 5005-108H <input type="checkbox"/> |
| 11 | Vacuum poppet | 10983V/3 |
| 12 | Body | 1860/19SL |
| 13 | Anti-tamper screw | 5121-001 |

NOTE: The valve specification changes the Part No.

Table 1

| Std. Pressure Settings | Pressure Spring Part No. |
|------------------------|--------------------------|
| 15.0 PSI (1.03 Bar) | 6109-0674 |
| 31.8 PSI (2.19 Bar) | 6104-0048 & 6104-0310 |
| 48.0 PSI (3.31 Bar) | 6104-0485 (Pair) |
| 53.8 PSI (3.71 Bar) | 6104-0570 (Pair) |
| 63.8 PSI (4.40 Bar) | 6104-0665 (Pair) |

Pressure springs are available from 2 PSI (0.14 Bar) to 75 PSI (5.17 Bar)

Table 2

| Std. Vacuum Setting | Vacuum Spring Part No. |
|---------------------|------------------------|
| 6.2"Hg (0.21 Bar) | 7104-012 |

Vacuum springs are available from 0.5"Hg (0.02 Bar) to 26"Hg (0.88 Bar)

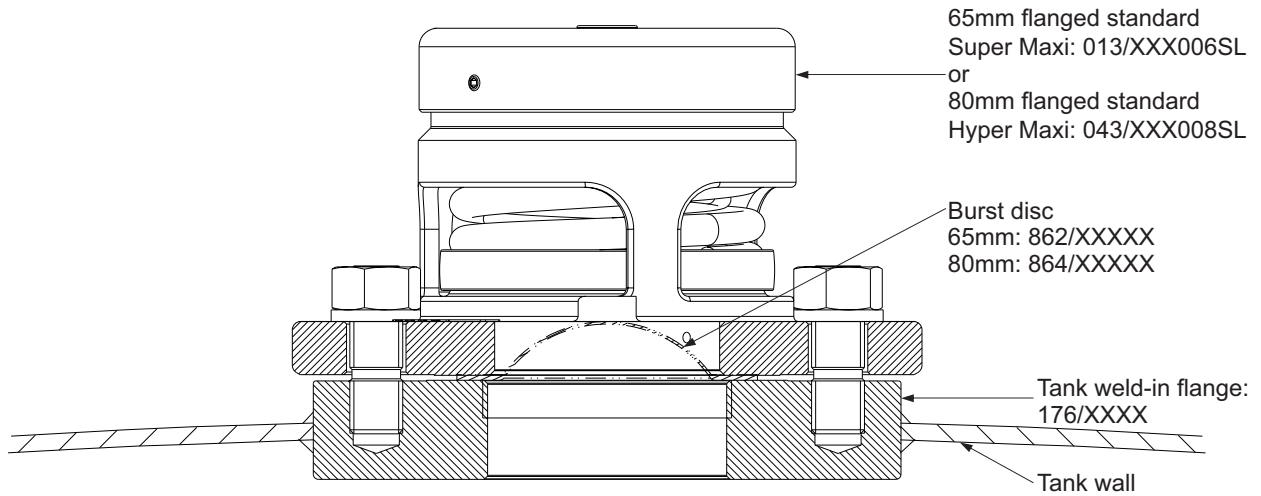
Seal Kit

| Description | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 043/1PVS |

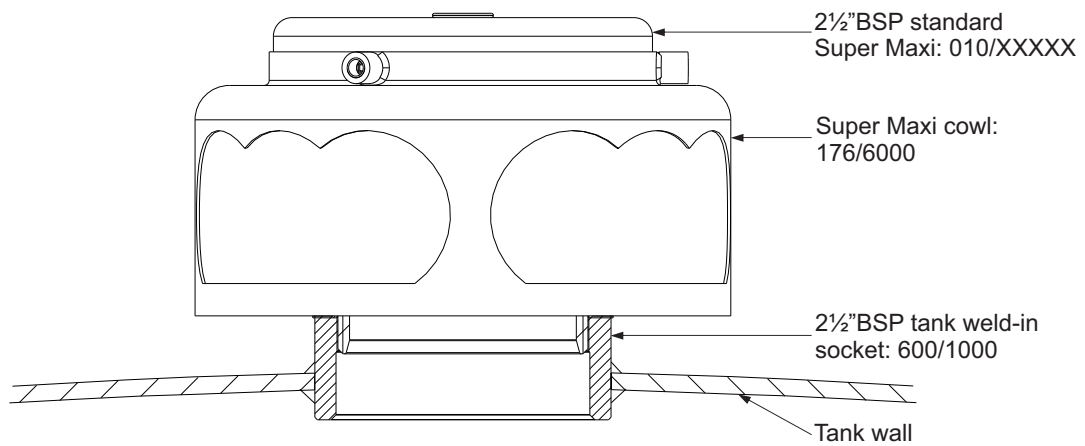


Super Maxi & Hyper Maxi Relief Valve Installation Options

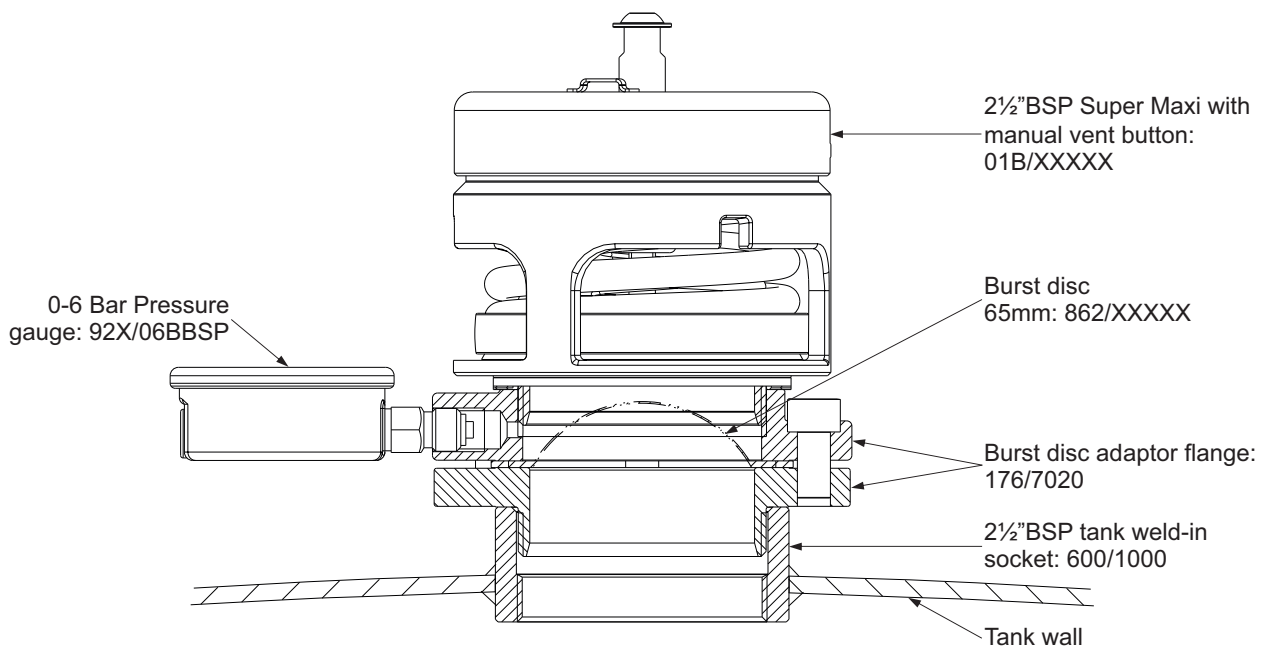
Flanged Super Maxi/Hyper Maxi relief valve with burst disc and tank weld-in flange



2½" BSP Super Maxi with weatherproof cowl and tank weld-in socket



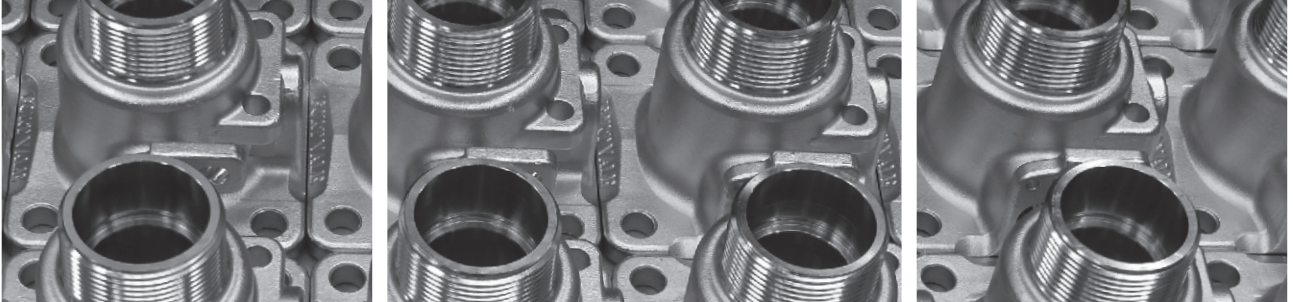
2½" BSP Super Maxi with burst disc, pressure gauge, adaptor flange & weld-in socket





Airline Valves

Tank Container Catalogue





Airline Ball Valves & Butterfly Valves

Design Options

Function

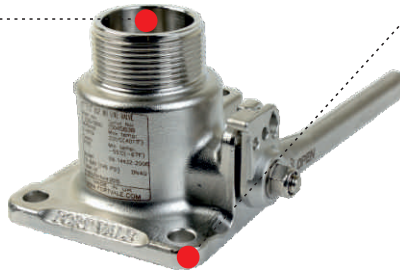
An airline valve is used when the tank is pressurised during testing or discharge and can be used for inert gas blanketing or vapour recovery. We offer ball valves and butterfly valves for airline connections.

Design Options

The design options below are available on our standard range of airline valves.

Nominal Bore

40mm (1½"): Ball valves
50mm (2"): Ball valves & butterfly valves

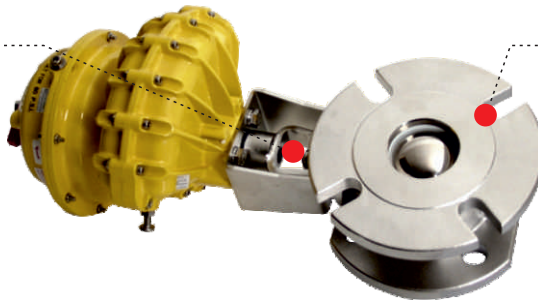


Tank Connection

Flanged: 4 holes
Different drilling patterns

Operation

Manually operated: A range of handles is available
Pneumatically actuated



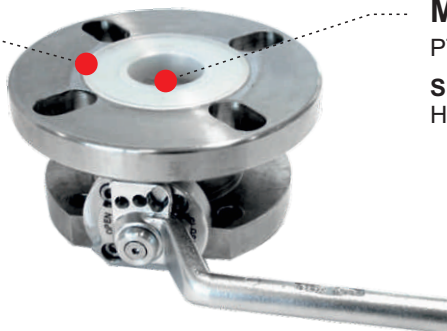
Inlet

Threaded: 1½" BSP, 2" BSP
Dual threaded: 1½" BSP/1½" NPT
Flanged: Closed or open slots

Valve Materials

316 stainless steel

Special service conditions:
Lined wetted parts, e.g. PFA



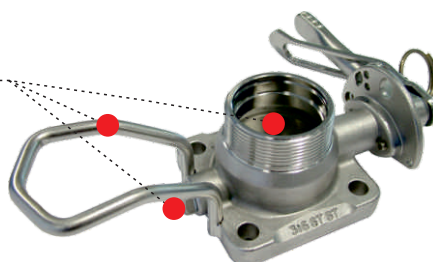
Main Seal

PTFE

Special service conditions:
High-temperature compatible seals

Ancillaries

Gauge guard
Gauze or sintered filter
TIR to gauge inlet plug





Airline Ball Valves & Butterfly Valves

Design Options

Related Parts

We recommend our range of compatible ancillary parts:

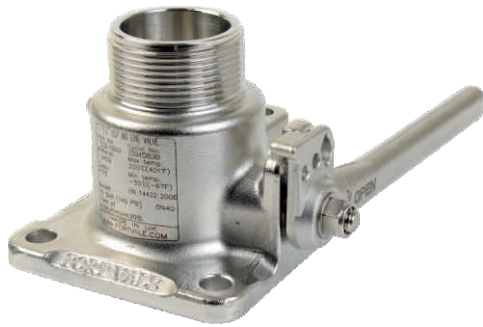
- Pressure gauges
- Filters: gauzed or sintered
- Blank caps
- Flanges - weld-in and adaptor
- Fasteners
- Gaskets

Please contact us for more information about these parts.



1½” BSP Blacko Ball Valve

Part No: 530/0000



Specification

Nominal size

40mm

Tank connection

Flanged: 4 x 10.8mm holes on a 103.5mm PCD

Inlet connection

Threaded: 1½” BSP male

Properties

¼” BSP gauge connection, handle with TIR

Materials

Contact parts: 316 stainless steel

Main seal: PTFE

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|----------|
| Weight: | 2.9 Kg |
| Design Pressure (MAWP): | 10 Bar |
| Test Pressure: | 21.4 Bar |
| Design Temperature min: | -55°C |
| Design Temperature max: | 205°C |

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

Approvals

BS EN14432

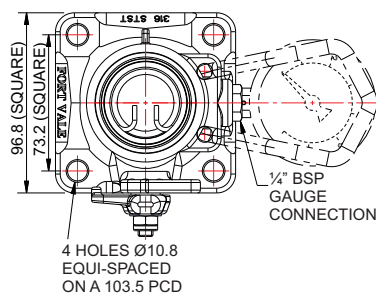
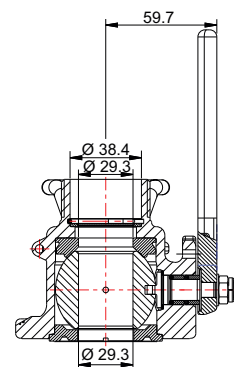
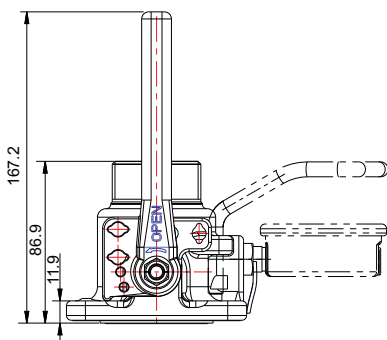
Range

| Description | Part No. |
|------------------------------|------------|
| Standard specification | 530/0000 |
| With gauze | 530/0000F |
| With gauge guard | 530/0000G |
| With gauze and gauge guard | 530/0000FG |
| With TIR wire to ¼” BSP plug | 530/0000W |

Related Parts

| Description | Part No. |
|---------------------|------------|
| Pressure gauge | 920/07BBSP |
| Gauge adaptor | 352/4004 |
| 1½” BSP dust cap | 10300PS |
| Stud kit | 350/1300 |
| Tank weld-in flange | 350/0025 |

Section View

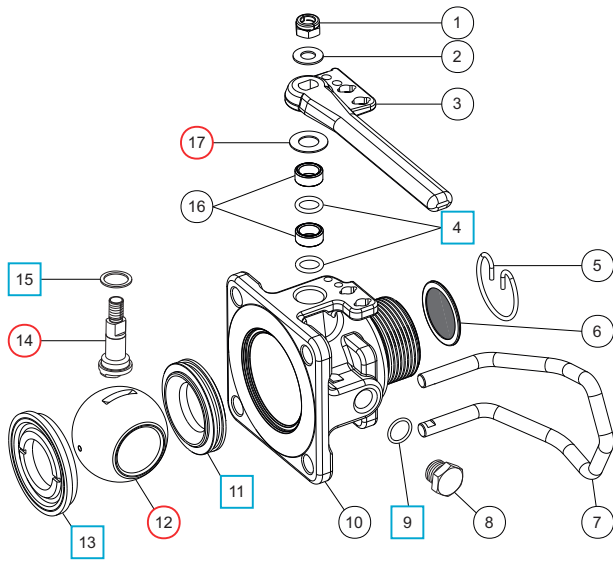




1½” BSP Blacko Ball Valve

Part No: 530/0000

Parts Drawing



Parts List

| 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 * Note 1 | 5120-017 |
| 6 | Gauze filter * Note 1 | 353/0010 |
| 7 | Gauge guard * Note 2 | 530/0040 |
| 8 | ¼” BSP plug | 5128-005 |
| 9 | PTFE O ring | 5005-048 <input type="checkbox"/> <input type="radio"/> |
| 10 | Body | 530/0100 |
| 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"/> |

NOTE 1: Optional part, see Range 530/0000F

NOTE 2: Optional part, see Range 530/0000G

Seal Kit

| Description | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 530/00SK |

Repair Kit

| Description | Part No. |
|--|----------|
| All parts marked <input type="radio"/> in the Parts List | 530/00RK |



2" BSP Airline Butterfly Valve

Part No: 535/0200



Specification

Nominal size

50mm

Tank connection

Flanged: 4 x 10.9mm holes on a 100mm PCD

Inlet connection

Threaded: 2" BSP male

Properties

1/4" BSP gauge connection, gauge guard, handle with TIR

Materials

Contact parts: 316 stainless steel

Main seal: PTFE

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|----------|
| Weight: | 3.7 Kg |
| Design Pressure (MAWP): | 6.9 Bar |
| Test Pressure: | 12.5 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 190°C |

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

Approvals

BS EN14432

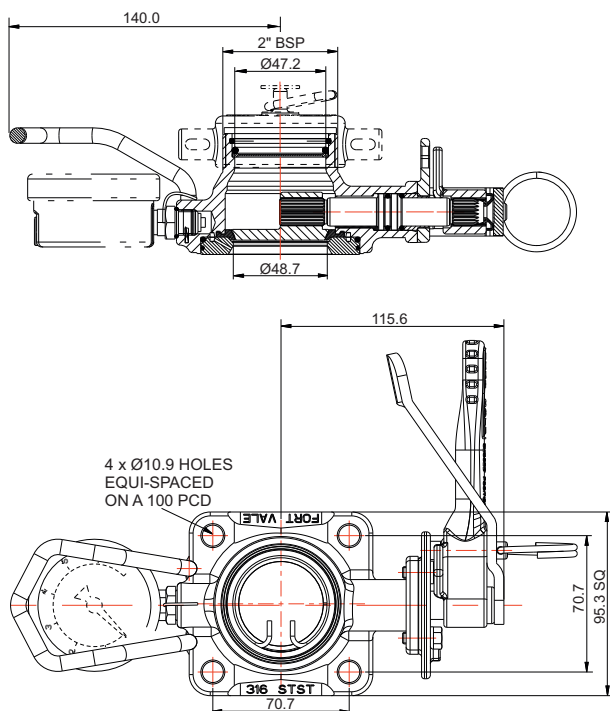
Range

| Description | Part No. |
|------------------------|-----------|
| Standard specification | 535/0200 |
| With gauze filter | 535/0200F |
| With sintered filter | 535/0200S |

Related Parts

| Description | Part No. |
|---------------------|------------|
| Dust cap | 10301PS |
| Pressure gauge | 920/07BBSP |
| Gauge adaptor | 352/4004 |
| Stud kit | 350/1300 |
| Gasket | 5005-500 |
| Tank weld-in flange | 355/1000 |

Section View

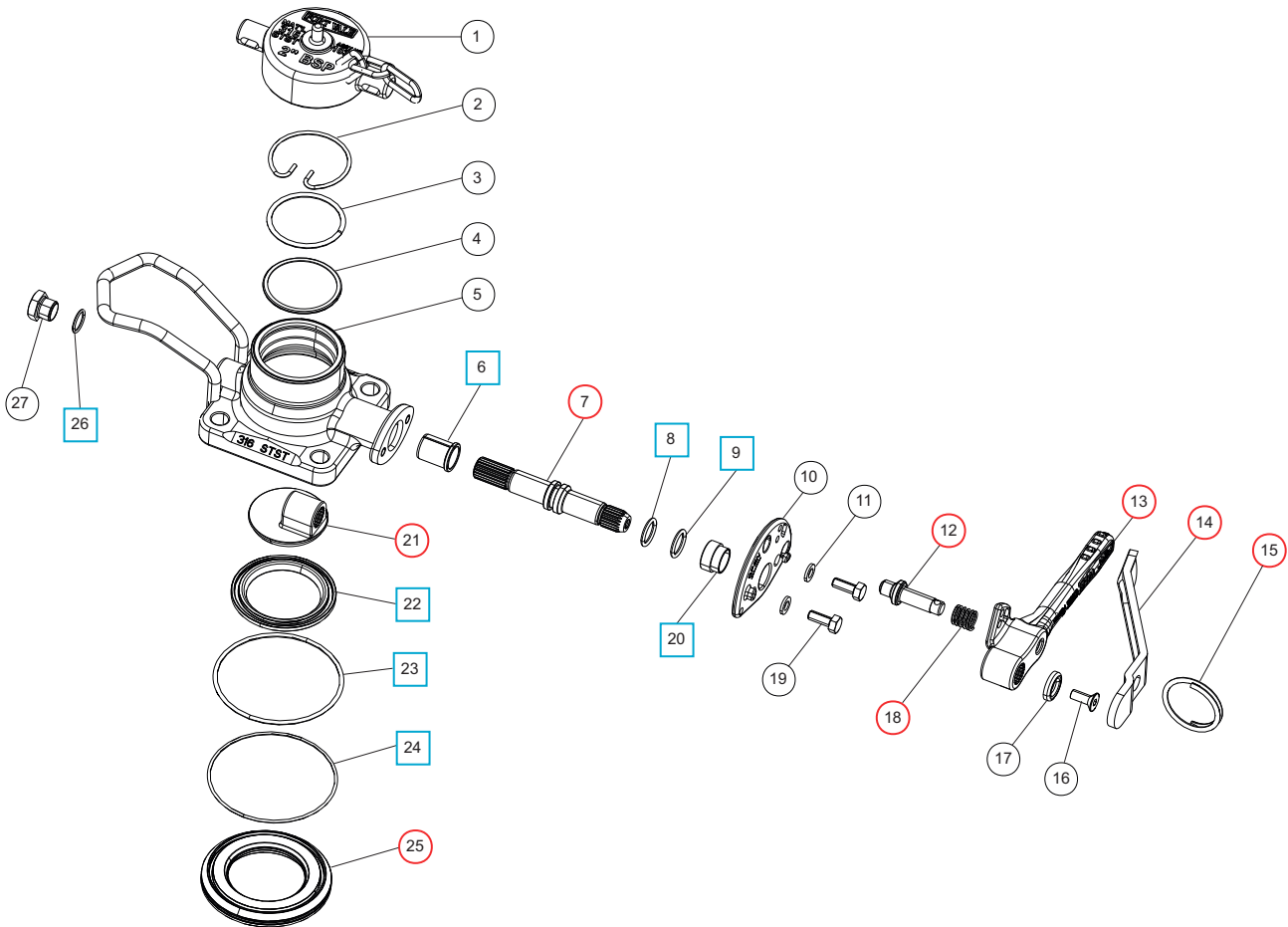




2" BSP Airline Butterfly Valve

Part No: 535/0200

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|---|---|
| 1 | 2" BSP dust cap (supplied separately) | 10301PS |
| 2 | Snap ring * Note 1 & 2 | 5120-005 |
| 3 | Spacer * Note 1 & 2 | 355/0295 |
| 4 | Gauze filter * Note 1 Sintered filter (2) * Note 2 | 355/0010 355/0206 |
| 5 | Body | 535/0215 |
| 6 | PTFE bush | 535/0009 <input type="checkbox"/> <input type="radio"/> |
| 7 | Spindle | 535/0203 <input type="radio"/> |
| 8 | Viton O ring | 20361 <input type="checkbox"/> <input type="radio"/> |
| 9 | PTFE O ring | 20363 <input type="checkbox"/> <input type="radio"/> |
| 10 | Stuffing clamp | 535/0204 |
| 11 | Spring washer (2) | 5113-008 |
| 12 | Handle location pin | 368/0010 <input type="radio"/> |
| 13 | Handle | 535/0050 <input type="radio"/> |
| 14 | Operating lever | 368/9838 <input type="radio"/> |
| 15 | Split ring | 368/0011 <input type="radio"/> |
| 16 | Countersunk bolt | 5111-030 |
| 17 | Retaining washer | 20370 |
| 18 | Handle spring | 368/0012 <input type="radio"/> |

Parts List

| Item | Description | Part No. |
|------|--------------------------|---|
| 19 | Hex bolt (2) | 5111-022 |
| 20 | PTFE stuffing clamp bush | 368/0301 <input type="checkbox"/> <input type="radio"/> |
| 21 | Closure plate | 535/0225 <input type="radio"/> |
| 22 | PTFE main seal | 355/0202 <input type="checkbox"/> <input type="radio"/> |
| 23 | PTFE O ring | 5005-659 <input type="checkbox"/> <input type="radio"/> |
| 24 | EPDM O ring | 5005-664 <input type="checkbox"/> <input type="radio"/> |
| 25 | Clamp plate | 535/0201 <input type="radio"/> |
| 26 | PTFE O ring | 5005-048 <input type="checkbox"/> <input type="radio"/> |
| 27 | 1/4" BSP plug | 5128-005 |

NOTE 1: Optional part, see Range 535/0200F

NOTE 2: Optional part, see Range 535/0200S

Seal Kit

| Description | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 535/00SK |

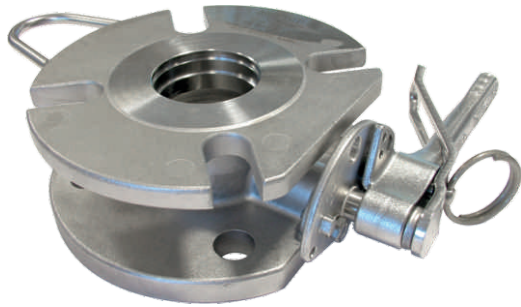
Repair Kit

| Description | Part No. |
|--|----------|
| All parts marked <input type="radio"/> in the Parts List | 535/00RK |



2" MKII Flanged Airline Butterfly Valve

Part No: 535/3000



Specification

Nominal size

50mm

Tank connection

Flanged: 4 x 18mm holes on a 125mm PCD (DIN50 PN10)

Inlet connection

Flanged: 4 x open slots, min. PCD: 2" BSTD

Properties

1/4" BSP gauge connection, gauge guard, handle with TIR

Materials

Contact parts: 316 stainless steel

Main seal: PTFE

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|----------|
| Weight: | 5.9 Kg |
| Design Pressure (MAWP): | 6.9 Bar |
| Test Pressure: | 12.5 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 190°C |

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

Approvals

BS EN14432

Range

| Description | Part No. |
|--------------------------------|-----------|
| Standard specification | 535/3000 |
| With gauze filter | 535/3000F |
| With sintered filter | 535/3000S |
| With TIR wire to 1/4" BSP plug | 535/3000W |

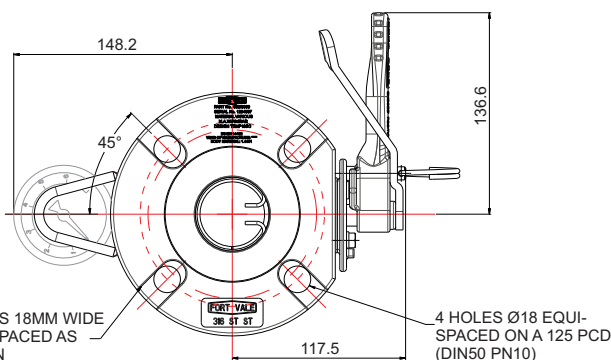
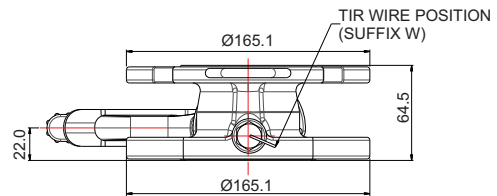
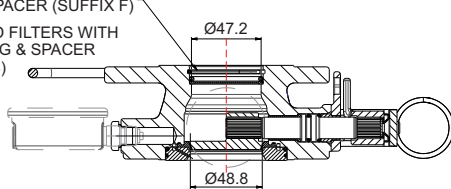
Related Parts

| Description | Part No. |
|---------------------|------------|
| Blind flange | 370/4239CM |
| Inlet gasket | 5005-360 |
| Bolting kit | 311/3000 |
| Pressure gauge | 920/07BBSP |
| Gauge adaptor | 352/4004 |
| Stud kit | 311/3700 |
| Outlet gasket | 5005-361 |
| Tank weld-in flange | 355/3100 |

Section View

GAUZE FILTER WITH SNAP RING & SPACER (SUFFIX F)

SINTERED FILTERS WITH SNAP RING & SPACER (SUFFIX S)

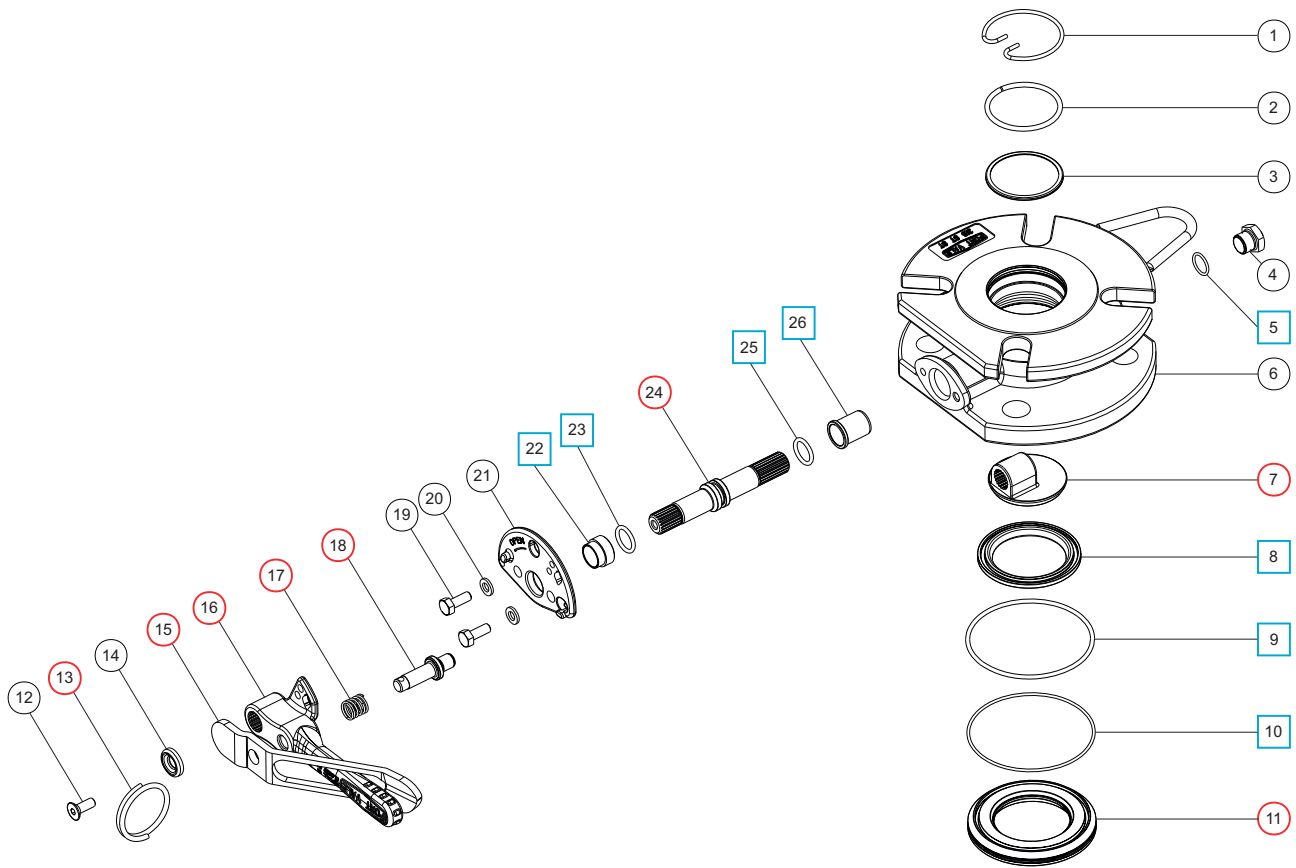




2" MKII Flanged Airline Butterfly Valve

Part No: 535/3000

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|---|---|
| 1 | Snap ring *Note 1 & 2 | 5120-005 |
| 2 | Spacer *Note 1 & 2 | 355/0295 |
| 3 | Gauze filter *Note 1 Sintered filter (2) *Note 2 | 355/0010 355/0206 |
| 4 | 1/4" BSP plug | 5128-005 |
| 5 | PTFE O ring | 5005-048 <input type="checkbox"/> <input type="radio"/> |
| 6 | Body | 535/3015 |
| 7 | Closure plate | 535/0225 <input type="radio"/> |
| 8 | Main seal | 355/0202 <input type="checkbox"/> <input type="radio"/> |
| 9 | PTFE O ring | 5005-659 <input type="checkbox"/> <input type="radio"/> |
| 10 | EPDM O ring | 5005-664 <input type="checkbox"/> <input type="radio"/> |
| 11 | Seal plate | 535/0201 <input type="radio"/> |
| 12 | M6 screw | 5111-030 |
| 13 | Split ring | 368/0011 <input type="radio"/> |
| 14 | Retaining washer | 20370 |
| 15 | Operating lever | 368/9838 <input type="radio"/> |
| 16 | Handle | 535/0050 <input type="radio"/> |
| 17 | Handle spring | 368/0012 <input type="radio"/> |
| 18 | Location pin | 368/0010 <input type="radio"/> |
| 19 | M6 hex bolt (2) | 5111-022 |

Parts List

| Item | Description | Part No. |
|------|----------------------|---|
| 20 | M6 spring washer (2) | 5113-008 |
| 21 | Stuffing clamp | 535/0204C |
| 22 | Stuffing bush | 368/0301 <input type="checkbox"/> <input type="radio"/> |
| 23 | PTFE O ring | 20363 <input type="checkbox"/> <input type="radio"/> |
| 24 | Spindle | 535/0203 <input type="radio"/> |
| 25 | Viton O ring | 20361 <input type="checkbox"/> <input type="radio"/> |
| 26 | PTFE bearing | 535/0009 <input type="checkbox"/> <input type="radio"/> |

NOTE 1: Optional part, see Range 535/3000F

NOTE 2: Optional part, see Range 535/3000S

Seal Kit

| Description | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 535/00SK |

Repair Kit

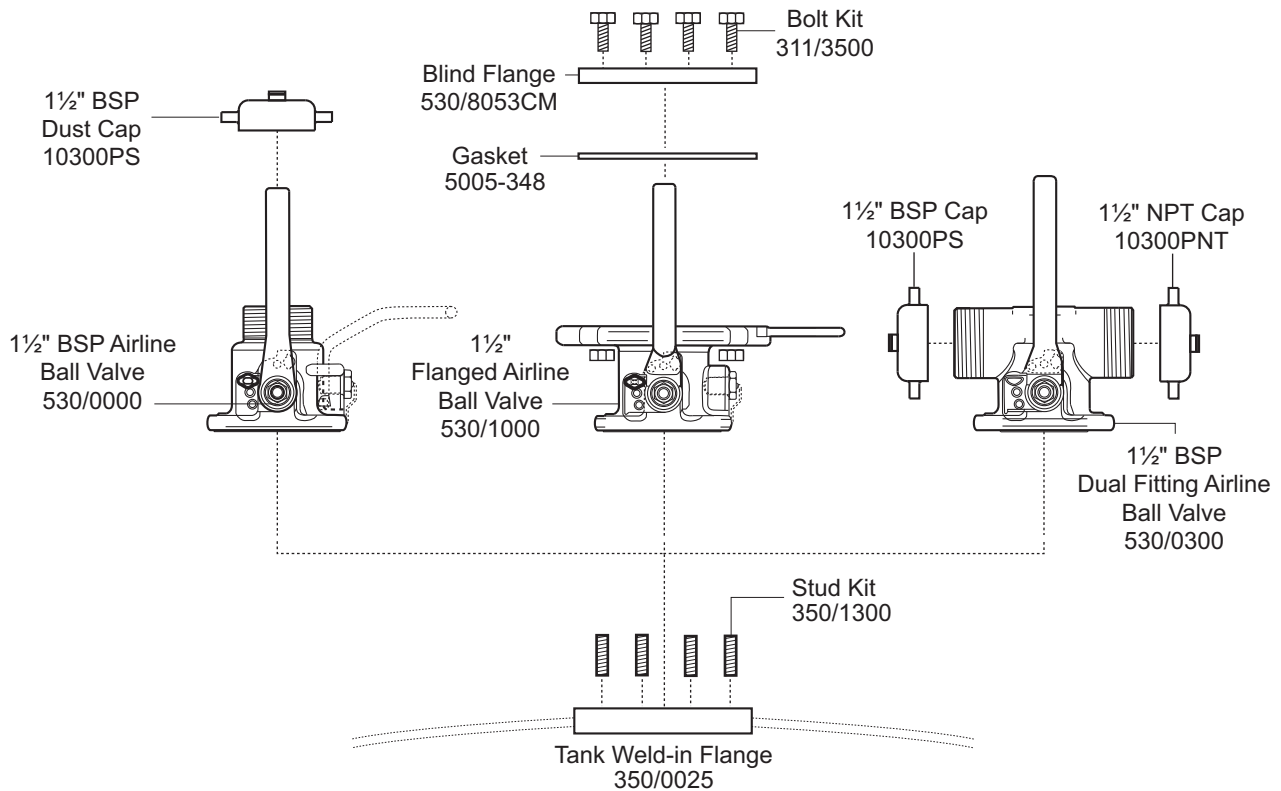
| Description | Part No. |
|--|----------|
| All parts marked <input type="radio"/> in the Parts List | 535/00RK |



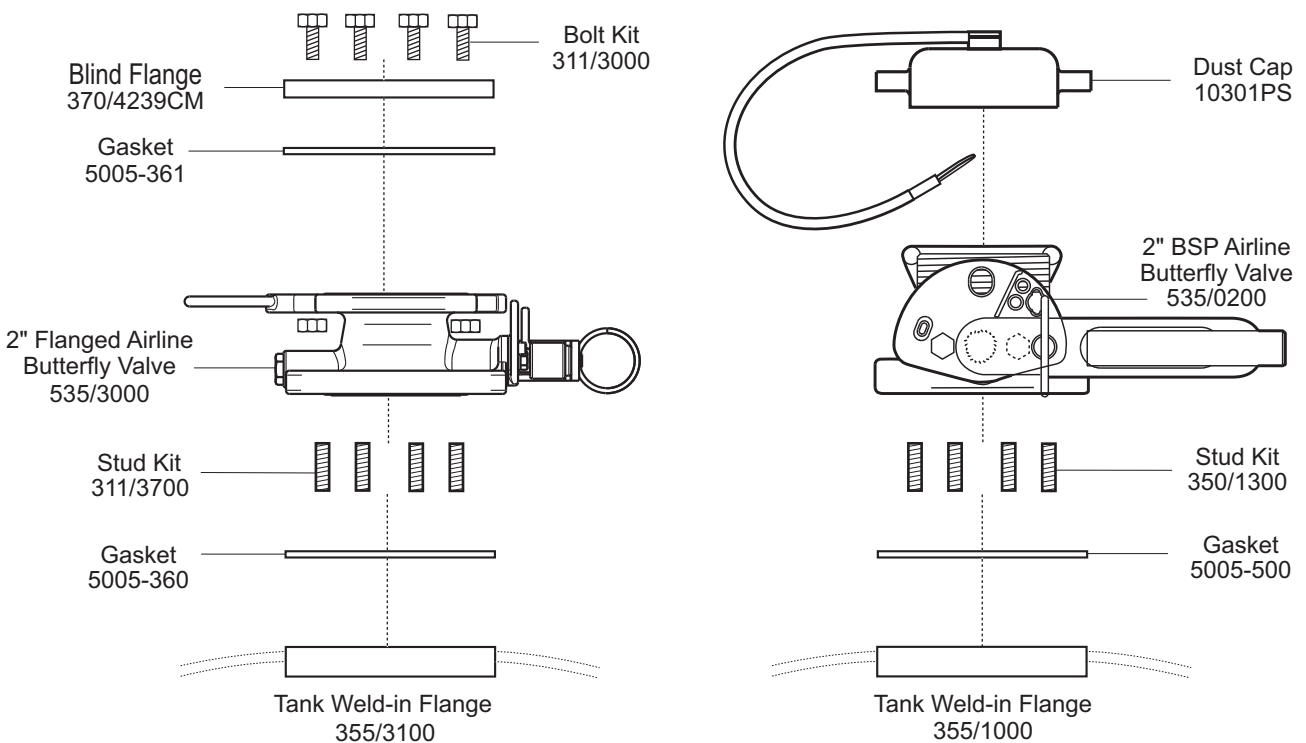
Airline Ball Valves & Airline Butterfly Valves

Installation Options

1½" Airline Ball Valves



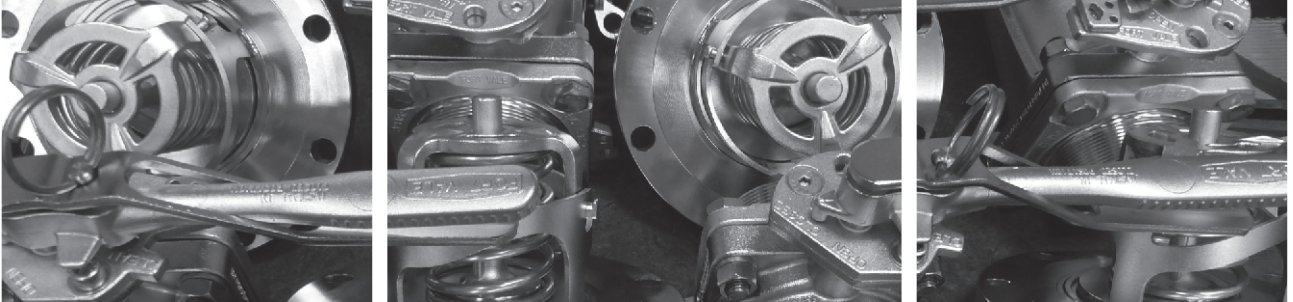
2" Airline Butterfly Valves





Bottom Discharge Valves

Tank Container Catalogue





Footvalves

Design Options

Function

A footvalve is a primary closure valve that is installed at the drain point of a tank. It is used to load and discharge cargo in combination with a secondary closure valve. In our standard range, we offer two main types of footvalve; Cleanflow and Highlift.



Cleanflow

The Cleanflow footvalve does not protrude into the tank. When the valve is open, the poppet does not obstruct the discharge orifice, so the cargo discharges faster.



Highlift

The Highlift footvalve has a traditional internal cage and a spring-loaded poppet with a lifting finger.

Design Options

The design options below are available on our standard range of Cleanflow and Highlift footvalves.

Nominal Bore

80mm (3")

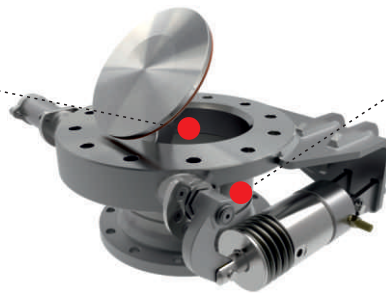
100mm (4")

Special service conditions:

125mm (5")

150mm (6")

Reduced bore: 80mm to 50mm
(3" to 2")



Body Style

Angle between the inlet & outlet flange

30°

45°

90°

180°

Special service conditions:

105° - Cleanflow only

Outlet Flange

Round and square flanges

4, 6 and 8 hole drilling patterns

Flats milled top and bottom



Operation

Manually operated: A range of handles is available

Pneumatically actuated

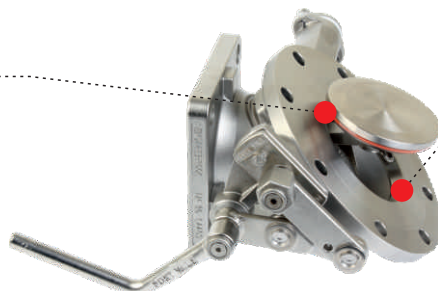
Hydraulically actuated

Main Seal

Fortyt

Special service conditions:

A range of seal materials is available



Inlet/Seat Area

Superseat: Alloy 625 integral seat

Special service conditions:

Replaceable seat: High nickel alloy, e.g. Alloy C276, 904L stainless steel or special metals, e.g. Titanium GR2

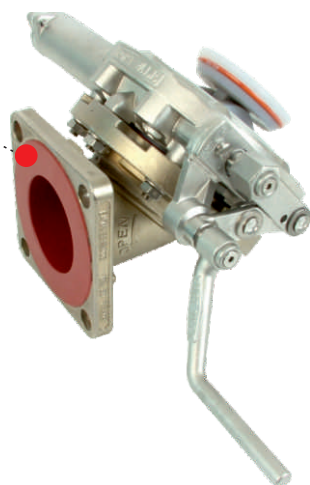
Design Options - continued

Valve Materials

316 stainless steel

Special service conditions:

Lined wetted parts, e.g. PFA, Halar ®



Special Cargoes

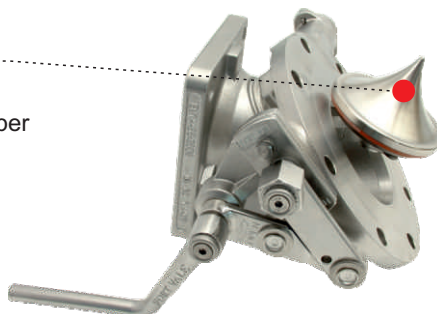
Solidifying cargo:

Body with steam-heating chamber

Conical poppet

Sensitive cargo:

Sample point



Composite Discharge Valve

A composite discharge valve is a combined primary and secondary closure valve. It saves space and reduces the number of joints between valves. Many of our design options are available on composite valves.

Please contact us for more information.

Footvalves for Dedicated Service

We offer a range of footvalves and discharge systems suitable for these service conditions and special cargoes:

- Offshore fuel and chemical tanks
- T50 tank containers for liquefied gas
- Rail tank wagons
- Road tankers carrying hot product (bitumen)
- Road tankers: top operated screwdown valve

Please contact us for more information about these valves.

Related Parts

We recommend our range of compatible ancillary parts:

- Remote closure systems and fusible elements
- Flanges - weld-in and adaptor
- Fasteners
- Gaskets

Please contact us for more information about these parts.



3" 45° Cleanflow Footvalve

Part No: 845/1200A



Specification

Nominal size/body angle

80mm / 45°

Inlet connection

Flanged: 8 x 14mm holes equi-spaced on a 178mm PCD

Outlet connection

Flanged: 4 x 17mm holes on a 160mm PCD

Materials

Seating area: Superseat (alloy 625)

Contact parts: 316 stainless steel

Main seal: Fortyt

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|---------|
| Weight: | 9.87 Kg |
| Design Pressure (MAWP): | 4 Bar |
| Test Pressure: | 6 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 200°C |

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

Approvals

BS EN14433

Design Approval by Lloyds Register of Shipping

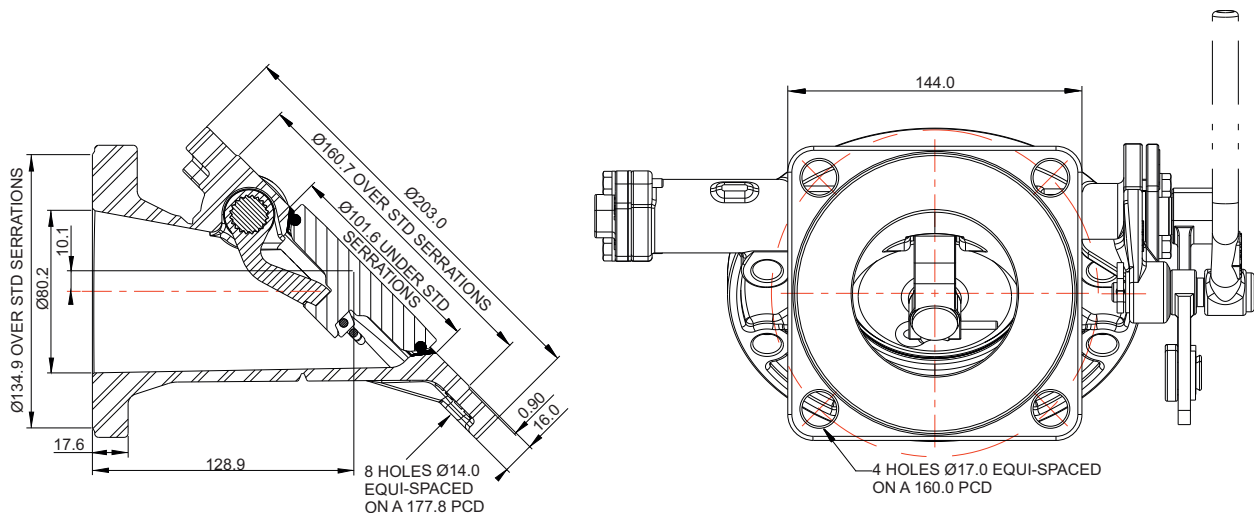
Range

| Description | Part No. |
|------------------------------|-------------|
| Standard specification | 845/1200A |
| With alloy C276 seating area | 845/1200AHS |

Related Parts

| Description | Part No. |
|----------------------------------|----------|
| Tank weld-in flange | 324/9000 |
| Stud kit | 845/2040 |
| Bolting kit - 4 hole outlet | 311/3500 |
| Bolting kit - 6 hole outlet | 360/0300 |
| CNAF/PTFE inlet gasket | 5005-015 |
| CNAF/PTFE outlet gasket | 5005-049 |
| CNAF/PTFE outlet gasket - 6 hole | 5005-169 |
| Valve operation decal | 845/0320 |

Section View

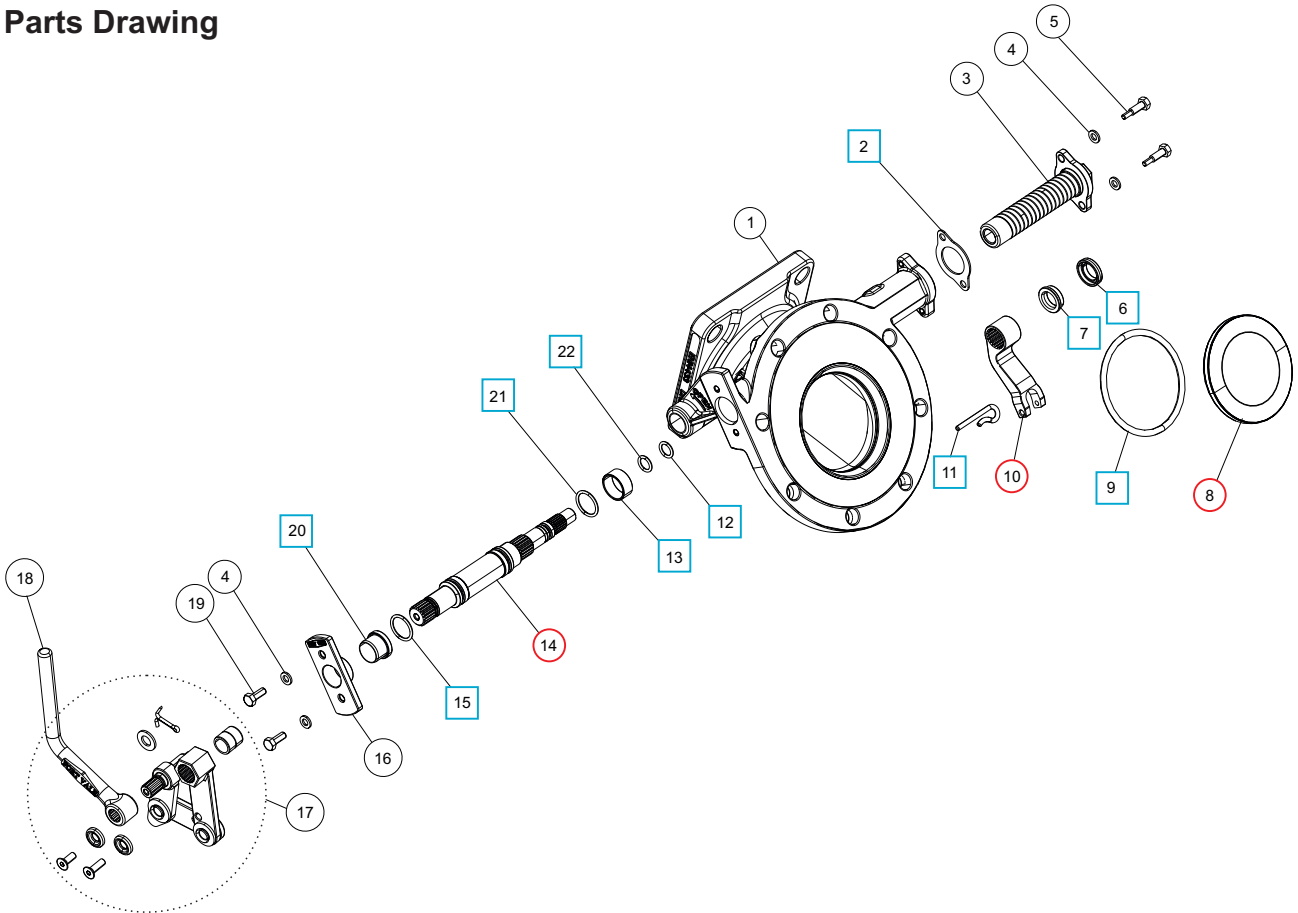




3" 45° Cleanflow Footvalve

Part No: 845/1200A

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|--|---|
| 1 | Body | 845/1100B |
| 2 | Spring housing gasket | 5005-845 <input type="checkbox"/> <input type="radio"/> |
| 3 | Spring assembly | 845/0050 |
| 4 | M6 spring washer (4) | 5113-008 |
| 5 | M6 hex bolt (2) | 845/0017 |
| 6 | Bush seal | 845/0064 <input type="checkbox"/> <input type="radio"/> |
| 7 | Seal energizer | 845/0063 <input type="checkbox"/> <input type="radio"/> |
| 8 | Poppet | 845/0040 <input type="radio"/> |
| 9 | Fortyt O ring | 5005-104 <input type="checkbox"/> <input type="radio"/> |
| 10 | Lifting fork | 845/0010 <input type="radio"/> |
| 11 | Retaining pin | 845/0015 <input type="checkbox"/> <input type="radio"/> |
| 12 | Perlast O ring | 10133PHT <input type="checkbox"/> <input type="radio"/> |
| 13 | Spindle bearing | 845/0062 <input type="checkbox"/> <input type="radio"/> |
| 14 | Spindle | 845/0200 <input type="radio"/> |
| 15 | Viton O ring | 5005-336 <input type="checkbox"/> <input type="radio"/> |
| 16 | Stuffing clamp flange | 845/0016 |
| 17 | Handle linkage assembly | 324/8910 |
| 18 | Handle *Refer to Handle Options Table | |
| 19 | M6 X 16mm hex bolt (2) | 5111-022 |
| 20 | Stuffing seal | 845/0061 <input type="checkbox"/> <input type="radio"/> |
| 21 | Perlast O ring | 5005-384 <input type="checkbox"/> <input type="radio"/> |
| 22 | PTFE O ring | 5005-008 <input type="checkbox"/> <input type="radio"/> |

Footvalve Handle Options

| Specification | Type | Part No. |
|--------------------------|------|----------|
| Std. Cleanflow handle | | 324/8670 |
| Cranked Cleanflow handle | | 324/8671 |
| Std. Highlift handle | | 330/5010 |

Seal Kit

| Description | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 845/00SK |

Repair Kit

| Description | Part No. |
|--|----------|
| All parts marked <input type="radio"/> in the Parts List | 845/00RK |



3" 45° MKIII Highlift Footvalve

Part No: 826/1200A



Specification

Nominal size/body angle

80mm / 45°

Inlet connection

Flanged: 8 x 14mm holes equi-spaced on a 178mm PCD

Outlet connection

Flanged: 4 x 17mm holes on a 160mm PCD

Materials

Seating area: Superseat (alloy 625)

Contact parts: 316 stainless steel

Main seal: Fortyt

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|--------|
| Weight: | 8.9 Kg |
| Design Pressure (MAWP): | 4 Bar |
| Test Pressure: | 6 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 200°C |

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

Approvals

BS EN14433

Design Approval by Lloyds Register of Shipping

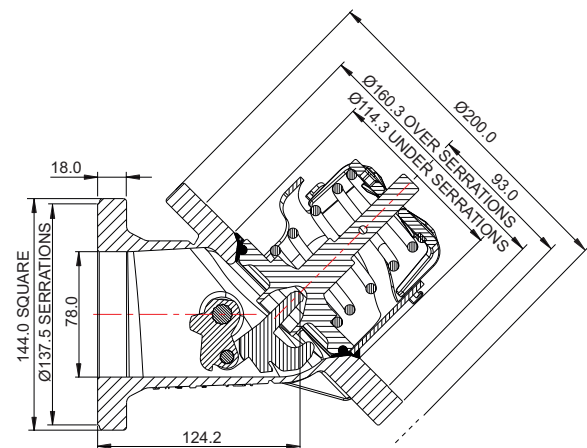
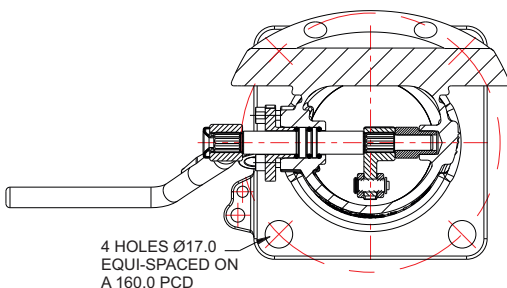
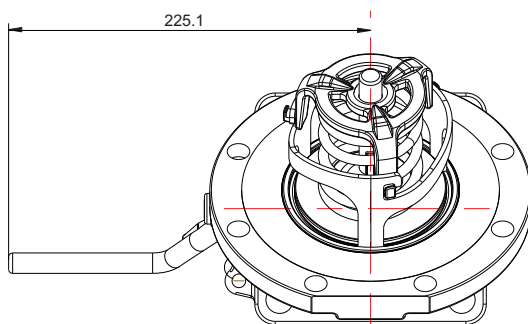
Range

| Description | Part No. |
|------------------------------|-------------|
| Standard specification | 826/1200A |
| With alloy C276 seating area | 826/1200AHS |

Related Parts

| Description | Part No. |
|-----------------------------|----------|
| Tank weld-in flange | 324/9000 |
| Stud kit | 324/2070 |
| Bolting kit - 4 hole outlet | 311/3500 |
| CNAF/PTFE inlet gasket | 5005-015 |
| CNAF/PTFE outlet gasket | 5005-049 |
| Valve operation decal | 326/0300 |

Section View

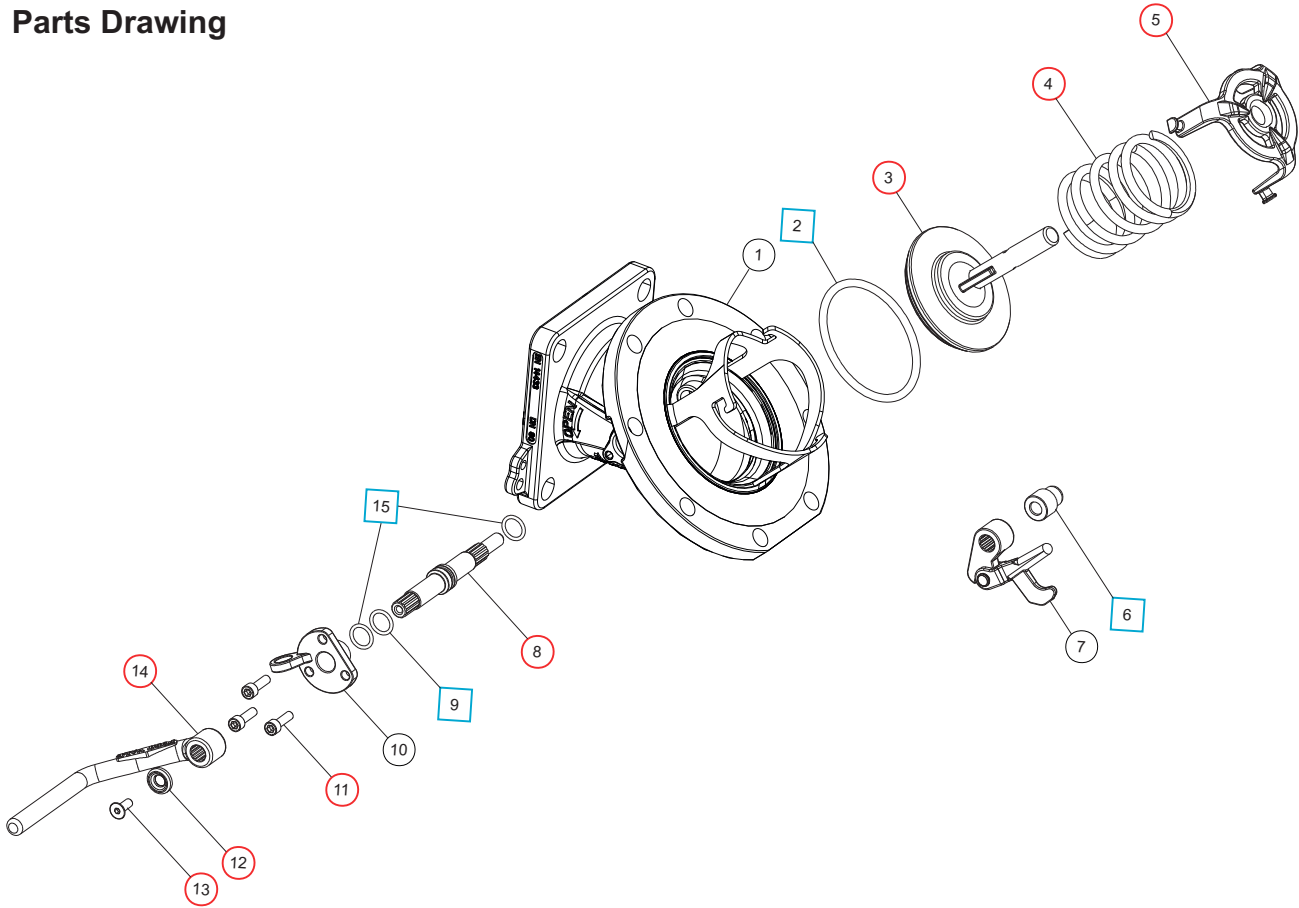




3" 45° MKIII Highlift Footvalve

Part No: 826/1200A

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|--------------------------|---|
| 1 | Body | 826/1100B |
| 2 | Fortyt O ring | 5005-104 <input type="checkbox"/> <input type="radio"/> |
| 3 | Solid poppet | 324/2020 <input type="radio"/> |
| 4 | Spring | 5104-971 <input type="radio"/> |
| 5 | Spring top plate | 290/6104 <input type="radio"/> |
| 6 | PTFE crankshaft end bush | 20362 <input type="checkbox"/> <input type="radio"/> |
| 7 | Crank block assembly | 821/0300 |
| 8 | Spindle | 821/0010 <input type="radio"/> |
| 9 | Viton O ring | 20361 <input type="checkbox"/> <input type="radio"/> |
| 10 | Stuffing clamp | 324/1001 |
| 11 | M6 capscrew (3) | 5111-017 <input type="radio"/> |
| 12 | Handle retaining washer | 20370 <input type="radio"/> |
| 13 | Handle retaining screw | 5111-030 <input type="radio"/> |
| 14 | Handle | 330/5010 <input type="radio"/> |
| 15 | PTFE O ring (2) | 20363 <input type="checkbox"/> <input type="radio"/> |

Seal Kit

| Description | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 826/00SK |

Repair Kit

| Description | Part No. |
|--|-----------|
| All parts marked <input type="radio"/> in the Parts List | 826/00RKA |

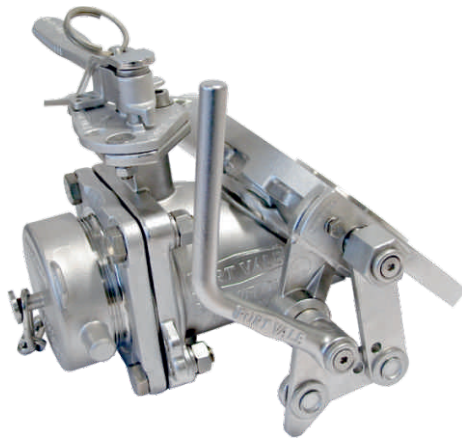
Spare Parts

| Description | Type | Part No. |
|---|------|----------|
| Spindle & crank block assy Item 6, 7, 8, 9, & 15 | | 821/0200 |



3" 45° Uniflow Bottom Discharge Assembly

Part No: 806/4000



Specification

Nominal size/body angle

80mm / 45°

Inlet connection

Flanged: 8 x 14mm holes equi-spaced on a 178mm PCD

Outlet connection

3" BSP spigot flange with cap

Properties

Cleanflow footvalve with integral butterfly valve

Materials

Seating area: Superseat (alloy 625)

Contact parts: 316 stainless steel

Footvalve main seal: Fortyt

Butterfly valve main seal: PTFE

Cap seal: PTFE

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|---------|
| Weight: | 13.0 Kg |
| Design Pressure (MAWP): | 4 Bar |
| Test Pressure: | 6 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 200°C |

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

Approvals

BS EN14432

BS EN14433

Design Approval by Lloyds Register of Shipping

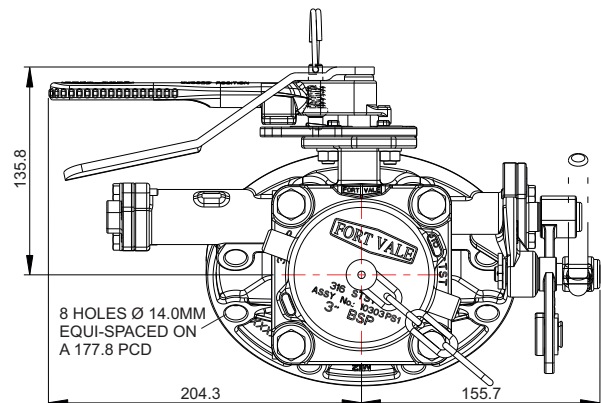
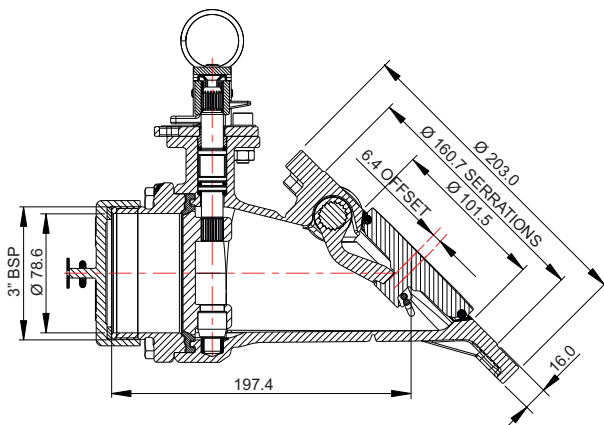
Range

| Description | Part No. |
|------------------------------------|------------|
| Standard specification: 80mm / 45° | 806/4000 |
| With alloy C276 seating area | 806/4000HS |
| Standard specification: 80mm / 30° | 807/4000 |

Related Parts

| Description | Part No. |
|------------------------|----------|
| Tank weld-in flange | 324/9000 |
| Stud kit | 845/2040 |
| CNAF/PTFE inlet gasket | 5005-015 |
| Valve operation decal | 326/0303 |

Section View

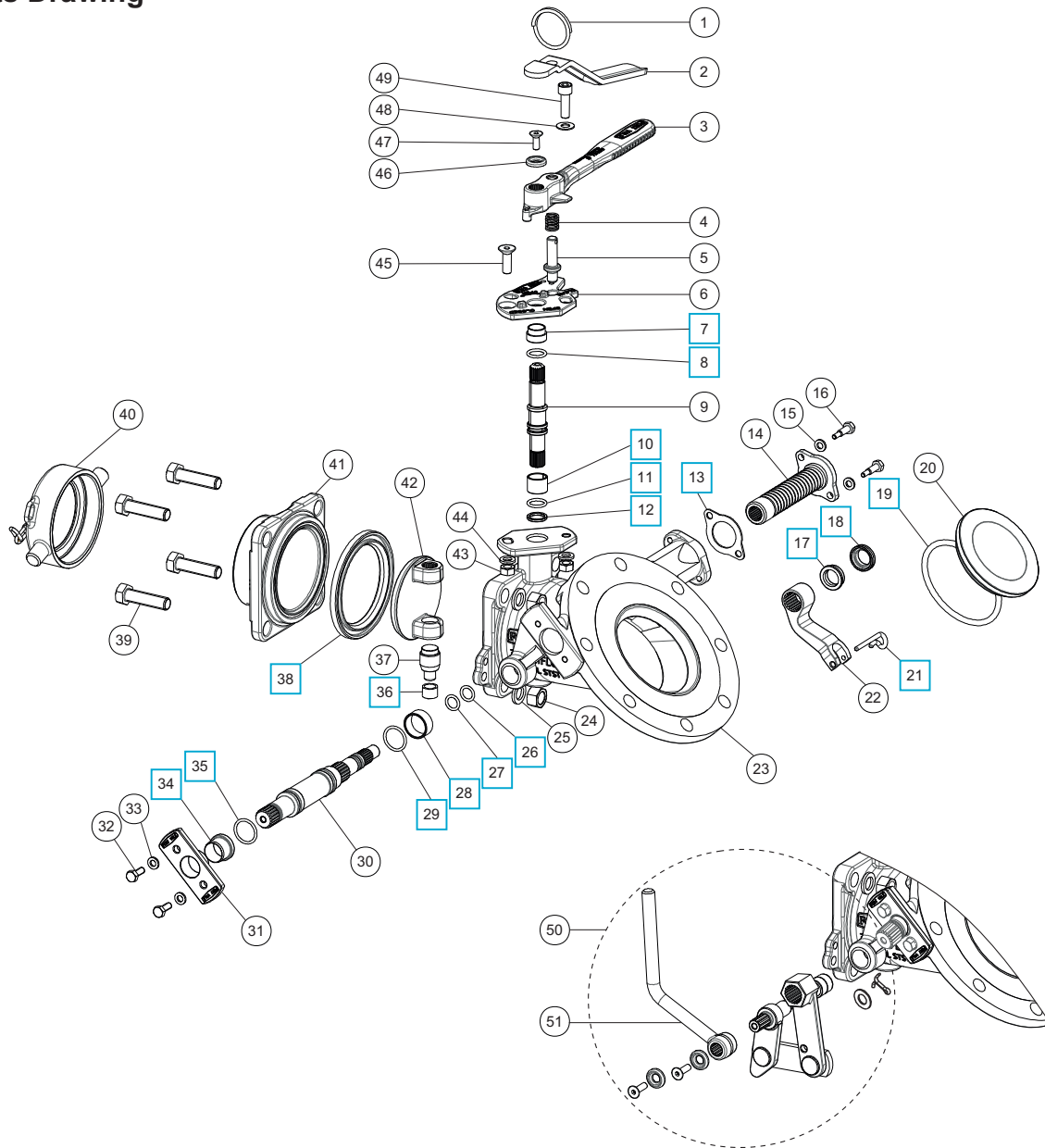




3" 45° Uniflow Bottom Discharge Assembly

Part No: 806/4000

Parts Drawing





3" 45° Uniflow Bottom Discharge Assembly

Part No: 806/4000




Parts List

| Item | Description | Part No. | |
|------|--------------------------------|-----------|--------------------------|
| 1 | Split ring | 368/0011 | |
| 2 | Handle lever | 368/9837 | |
| 3 | Butterfly valve handle | 368/0057 | |
| 4 | Handle location spring | 368/0012 | |
| 5 | Handle location pin | 368/0010 | |
| 6 | Stuffing clamp | 368/0047 | |
| 7 | Stuffing clamp bush | 368/0301 | <input type="checkbox"/> |
| 8 | PTFE O ring | 20363 | <input type="checkbox"/> |
| 9 | Spindle | 368/0201 | |
| 10 | Split bearing | 252/0517 | <input type="checkbox"/> |
| 11 | Viton O ring | 20361 | <input type="checkbox"/> |
| 12 | PTFE spindle seat | 368/0009 | <input type="checkbox"/> |
| 13 | Spring boss gasket | 5005-845 | <input type="checkbox"/> |
| 14 | Spring assembly | 845/0050 | |
| 15 | Spring washer (2) | 5113-008 | |
| 16 | Clamp screw (2) | 845/0017 | |
| 17 | Seal energizer | 845/0063 | <input type="checkbox"/> |
| 18 | Bush seal | 845/0064 | <input type="checkbox"/> |
| 19 | Fortyt O ring | 5005-104 | <input type="checkbox"/> |
| 20 | Poppet | 845/0040 | |
| 21 | Retaining pin | 845/0015 | <input type="checkbox"/> |
| 22 | Lifting fork | 845/0010 | |
| 23 | Body | 845/1107B | |
| 24 | M12 full nut (4) | 5112-006 | |
| 25 | M12 spring washer (4) | 5113-010 | |
| 26 | Perfluoroelastomer O ring | 10133PHT | <input type="checkbox"/> |
| 27 | PTFE O ring | 5005-008 | <input type="checkbox"/> |
| 28 | Spindle bearing | 845/0062 | <input type="checkbox"/> |
| 29 | Perlast O ring | 5005-384 | <input type="checkbox"/> |
| 30 | Spindle | 845/0200 | |
| 31 | Stuffing clamp | 845/0016 | |
| 32 | Clamp bolt (2) | 5111-022 | |
| 33 | Spring washer (2) | 5113-008 | |
| 34 | Stuffing seal | 845/0061 | <input type="checkbox"/> |
| 35 | Viton O ring | 5005-336 | <input type="checkbox"/> |
| 36 | PTFE bottom bush | 368/0035 | <input type="checkbox"/> |
| 37 | Bottom spindle | 368/0036 | |
| 38 | PTFE butterfly valve main seal | 368/0002 | <input type="checkbox"/> |
| 39 | M12 hex bolt (4) | 5111-023 | |
| 40 | 3" BSP cap with chain & seal | 10303PS1 | |
| 41 | Outlet flange | 368/5129 | |
| 42 | Closure plate | 368/0400 | |
| 43 | M8 full nut (2) | 5112-001 | |
| 44 | M8 spring washer (2) | 5113-003 | |
| 45 | M8 countersunk bolt | 5111-085 | |
| 46 | Retaining washer | 20370 | |
| 47 | M6 set screw | 5111-030 | |

Parts List

| Item | Description | Part No. |
|------|---------------------------------------|----------|
| 48 | M8 plain washer | 5113-005 |
| 49 | M8 cap screw | 5111-148 |
| 50 | Handle linkage assembly | 324/8910 |
| 51 | Handle *Refer to Handle Options Table | |

Footvalve Handle Options

| Specification | Type | Part No. |
|--------------------------|---|----------|
| Std. Cleanflow handle |  | 324/8670 |
| Cranked Cleanflow handle |  | 324/8671 |
| Std. Highlift handle |  | 330/5010 |

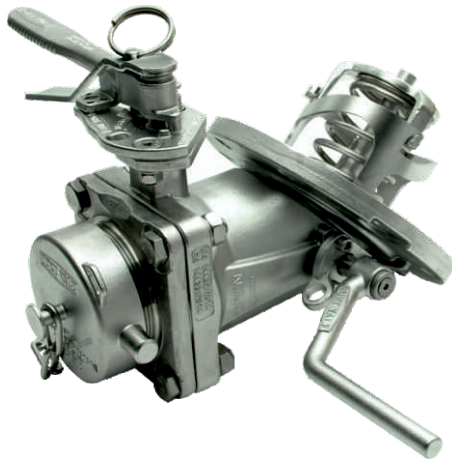
Seal Kit

| Description | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 806/40SK |



3" 45° Univalve Bottom Discharge Assembly

Part No: 804/4000A



Specification

Nominal size/body angle

80mm / 45°

Inlet connection

Flanged: 8 x 14mm holes equi-spaced on a 178mm PCD

Outlet connection

3" BSP spigot flange with cap

Properties

Highlift footvalve with integral butterfly valve

Materials

Seating area: Superseat (alloy 625)

Contact parts: 316 stainless steel

Footvalve main seal: Fortyt

Butterfly valve main seal: PTFE

Cap seal: PTFE

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|---------|
| Weight: | 12.5 Kg |
| Design Pressure (MAWP): | 4 Bar |
| Test Pressure: | 6 Bar |
| Design Temperature min: | -55°C |
| Design Temperature max: | 200°C |

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

Approvals

BS EN14432

BS EN14433

Design Approval by Lloyds Register of Shipping

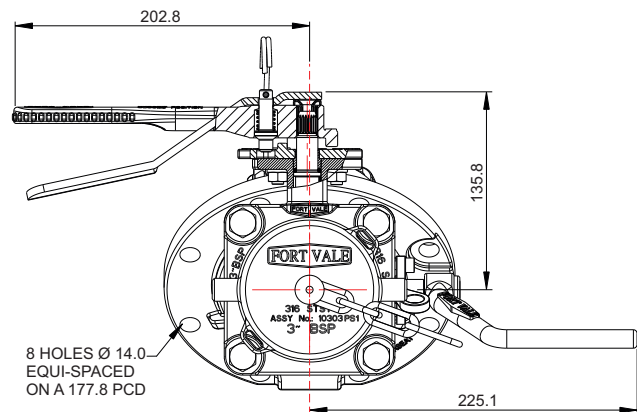
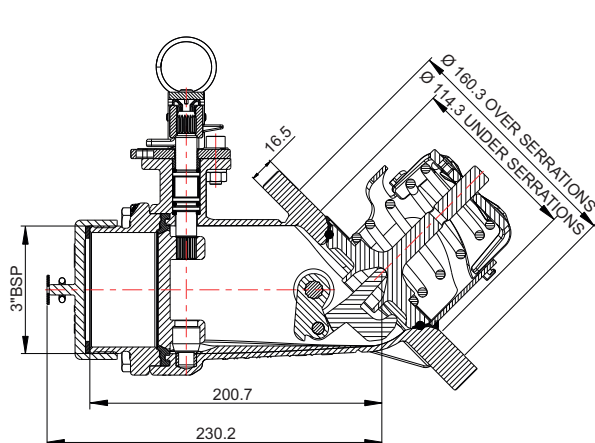
Range

| Description | Part No. |
|------------------------------------|-------------|
| Standard specification | 804/4000A |
| With alloy C276 seating area | 804/4000AHS |
| Superseat; 3" camlock outlet & cap | 804/4020A |

Related Parts

| Description | Part No. |
|------------------------|----------|
| Tank weld-in flange | 324/9000 |
| Stud kit | 324/2070 |
| CNAF/PTFE inlet gasket | 5005-015 |
| Valve operation decal | 326/0302 |

Section View

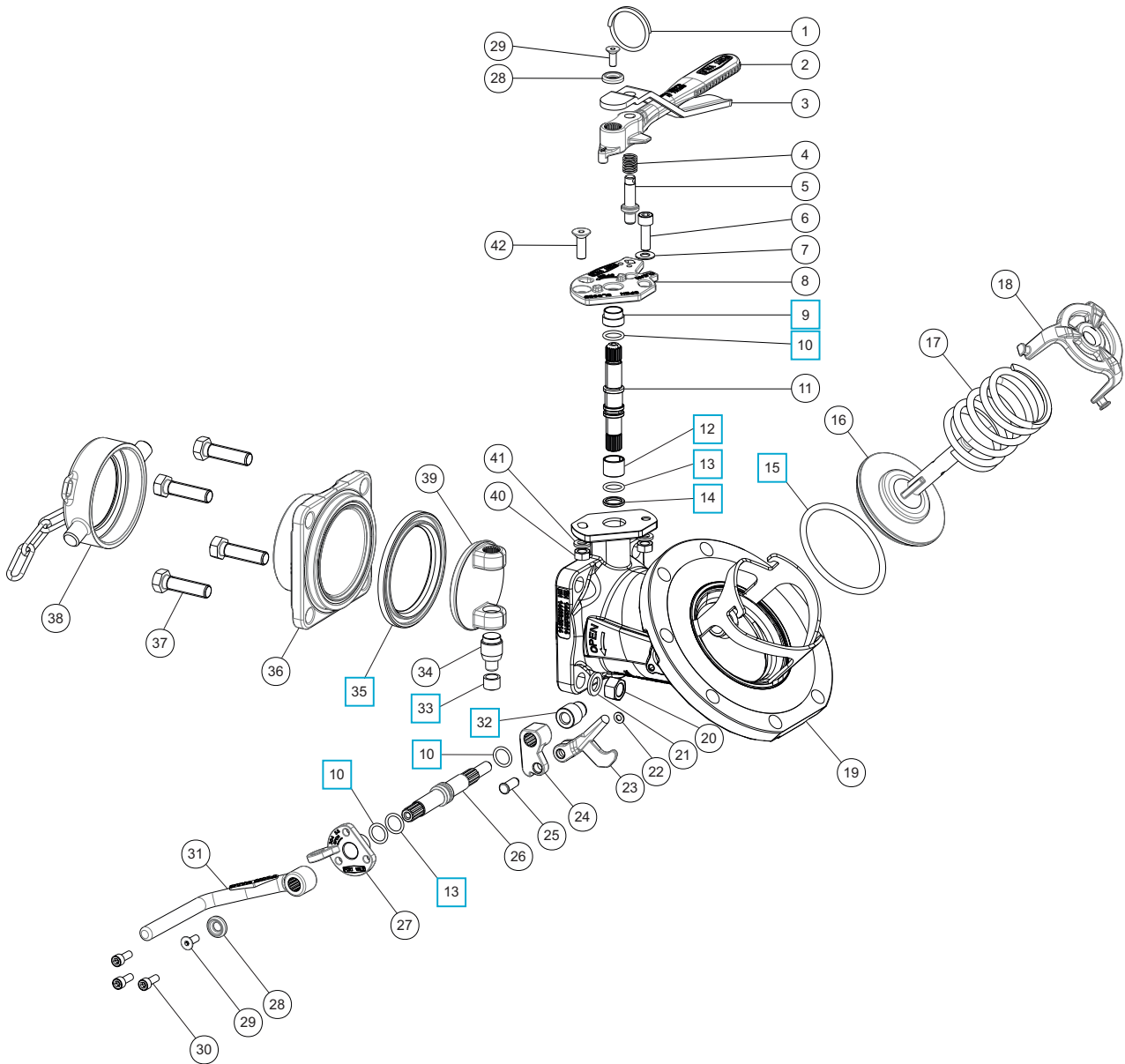




3" 45° Univalve Bottom Discharge Assembly

Part No: 804/4000A

Parts Drawing





3" 45° Univalve Bottom Discharge Assembly

Part No: 804/4000A

Parts List

| Item | Description | Part No. | |
|------|--------------------------------|-----------|--------------------------|
| 1 | Split ring | 368/0011 | |
| 2 | Butterfly valve handle | 368/0057 | |
| 3 | Handle lever | 368/9837 | |
| 4 | Handle location spring | 368/0012 | |
| 5 | Handle location pin | 368/0010 | |
| 6 | M8 cap screw | 5111-148 | |
| 7 | M8 plain washer | 5113-005 | |
| 8 | Stuffing clamp | 368/0047 | |
| 9 | Stuffing clamp bush | 368/0301 | <input type="checkbox"/> |
| 10 | PTFE O ring (3) | 20363 | <input type="checkbox"/> |
| 11 | Spindle | 368/0201 | |
| 12 | Split bearing | 252/0517 | <input type="checkbox"/> |
| 13 | Viton O ring (2) | 20361 | <input type="checkbox"/> |
| 14 | PTFE spindle seat | 368/0009 | <input type="checkbox"/> |
| 15 | Fortyt O ring | 5005-104 | <input type="checkbox"/> |
| 16 | Poppet | 324/2020 | |
| 17 | Closure spring | 5104-971 | |
| 18 | Spring top plate | 290/6104 | |
| 19 | Body assembly | 826/1252B | |
| 20 | M12 full nut (4) | 5112-006 | |
| 21 | M12 spring washer (4) | 5113-010 | |
| 22 | 5mm plain washer | 5113-015 | |
| 23 | Lifting finger | 821/0033 | |
| 24 | Crank block | 821/0025 | |
| 25 | Pivot pin | 821/0034 | |
| 26 | Spindle | 821/0010 | |
| 27 | Stuffing clamp | 324/1001 | |
| 28 | Retaining washer (2) | 20370 | |
| 29 | M6 bolt (2) | 5111-030 | |
| 30 | M6 cap screw (3) | 5111-017 | |
| 31 | Footvalve handle | 330/5010 | |
| 32 | PTFE crankshaft end bush | 20362 | <input type="checkbox"/> |
| 33 | PTFE bottom bush | 368/0035 | <input type="checkbox"/> |
| 34 | Bottom spindle | 368/0036 | |
| 35 | PTFE butterfly valve main seal | 368/0002 | <input type="checkbox"/> |
| 36 | Outlet flange | 368/5129 | |
| 37 | M12 hex bolt (4) | 5111-023 | |
| 38 | 3" BSP cap with chain & seal | 10303PS1 | |
| 39 | Closure plate | 368/0400 | |
| 40 | M8 full nut (2) | 5112-001 | |
| 41 | M8 spring washer (2) | 5113-003 | |
| 42 | M8 countersunk bolt | 5111-085 | |

Seal Kit

| Description | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 804/40SK |



Discharge Butterfly Valves

Design Options

Function

A discharge butterfly valve is used to load and discharge cargo. It is usually a secondary closure valve that is installed onto a footvalve (primary closure valve) at the drain point of a tank. A butterfly valve can also be used as a primary closure valve on the top of a tank.

NOTE: Refer to a separate page for discharge butterfly valves dedicated to Road Tankers.

Design Options

The design options below are available on our standard range of discharge butterfly valves.

Clamped Body

Scrolled face, installed between two flanges



Flanged Body

4 or 6 hole drilling patterns
Dual-drilled hole patterns
Open slots



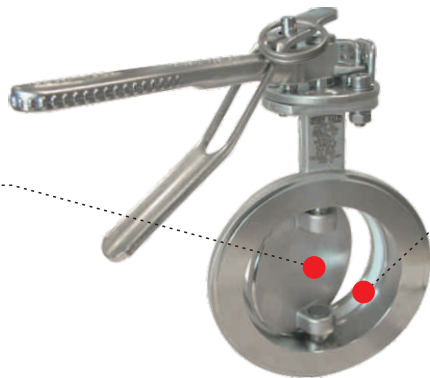
TW Drilled Body

Compatible with Tankwagen drilling pattern



Nominal Bore

50mm (2")
80mm (3")
100mm (4")



Main Seal

PTFE

Special service conditions:
High-temperature compatible seals

Operation

Manually operated
Lockable handle
Left hand or right hand operation
Pneumatically actuated





Discharge Butterfly Valves Design Options

Design Options - continued

Valve Materials

316 stainless steel

Special service applications:

Lined wetted parts, e.g. PFA

Wetted parts in high nickel alloys,
e.g. 904L stainless steel, Alloy C276



Special Cargoes

Solidifying cargo:

Body with steam-heating connections

Hemispherical poppet



Discharge Butterfly Valves for Dedicated Service

We offer a range of discharge butterfly valves suitable for these service conditions and special cargoes:

- Road Tankers
- Hygienic service

Please contact us for more information about these valves.

Related Parts

We recommend our range of compatible ancillary parts:

- Flanges - inlet, adapter, outlet, blind
- Tertiary closures
- Fasteners
- Gaskets

Please contact us for more information about these parts.



3" Clamped Widdop Butterfly Valve

Part No: 368/7000B



Specification

Nominal size

80mm

Body type

Clamped

Properties

Left hand operated, handle with TIR and padlock slots

Materials

Contact parts: 316 stainless steel

Main seal: PTFE

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|--------|
| Weight: | 3.5 Kg |
| Design Pressure (MAWP): | 6 Bar |
| Test Pressure: | 10 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 200°C |

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

Approvals

BS EN14432

Design Approvals:

Lloyds Register of Shipping

Rijksdienst

SNCF

RMRS

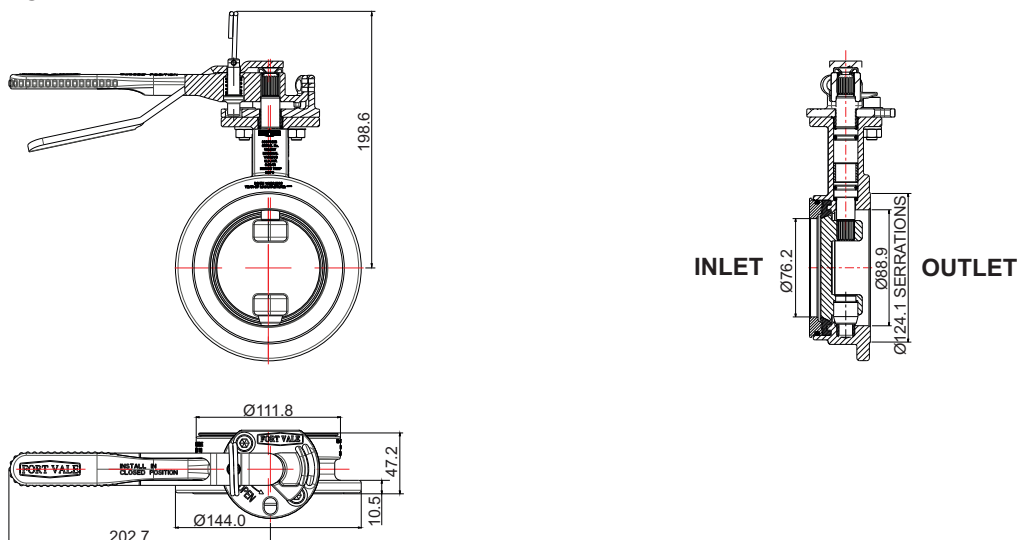
Range

| Description | Part No. |
|---|-----------|
| Standard specification | 368/7000B |
| With hemi-spherical closure plate | 368/9110B |
| Std. specification, right hand operated | 368/4000A |

Related Parts

| Description | Part No. |
|---------------------------------------|----------|
| CNAF/PTFE inlet gasket | 5005-049 |
| CNAF/PTFE outlet gasket | 5005-490 |
| CNAF/PTFE 4 hole square inlet gasket | 5005-198 |
| CNAF/PTFE 4 hole square outlet gasket | 5005-195 |
| Bolting kit | 368/1100 |
| 3" BSP outlet flange | 368/8047 |
| 3" BSP blank cap with PTFE seal | 10303PS |
| 3" camlock outlet flange | 368/8058 |
| 3" camlock blank cap | 90/DC300 |
| 3" NPT outlet flange | 368/8049 |
| 3" NPT blank cap with PTFE washer | 425/3250 |

Section View

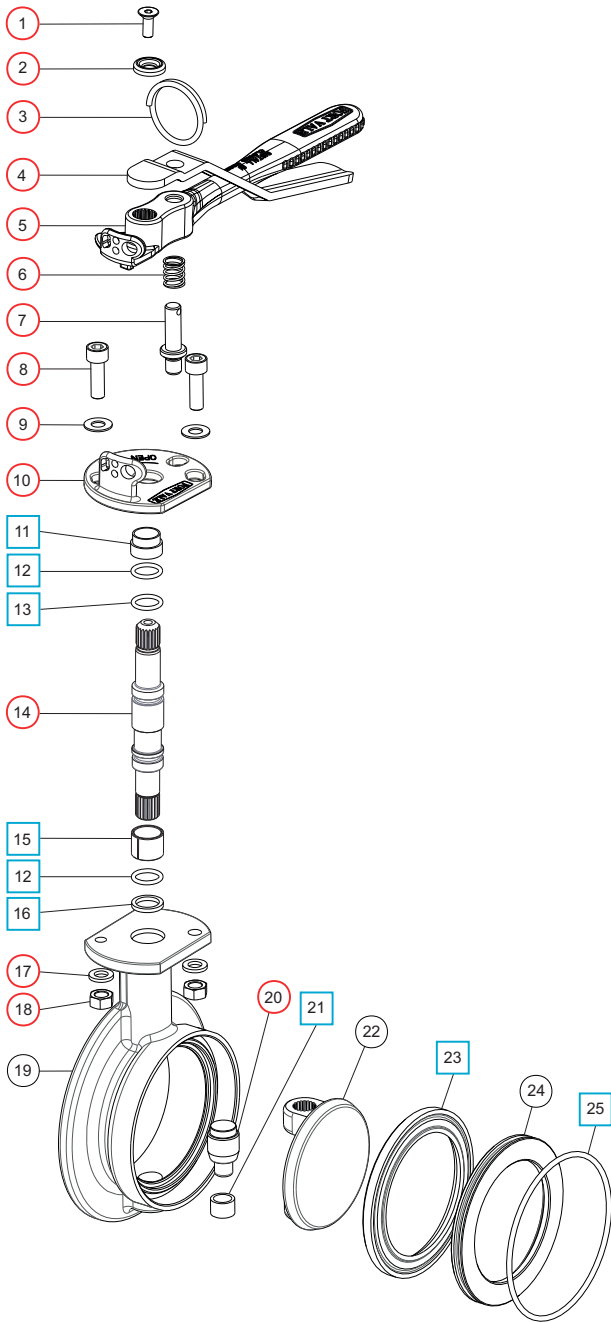




3" Clamped Widdop Butterfly Valve

Part No: 368/7000B

Parts Drawing



Parts List

| Item | Description | Part No. | |
|------|--------------------------|----------|-----|
| 1 | M6 set screw | 5111-030 | ○ |
| 2 | Washer | 20370 | ○ |
| 3 | Split ring | 368/0011 | ○ |
| 4 | Operating lever | 368/9837 | ○ |
| 5 | Handle | 368/0050 | ○ |
| 6 | Handle location spring | 368/0012 | ○ |
| 7 | Handle location pin | 368/0010 | ○ |
| 8 | M8 cap screw (2) | 5111-148 | ○ |
| 9 | M8 plain washer (2) | 5113-005 | ○ |
| 10 | Stuffing clamp | 368/0040 | ○ |
| 11 | PTFE stuffing clamp bush | 368/0301 | □ ○ |
| 12 | PTFE O ring (2) | 20363 | □ ○ |
| 13 | Viton O ring | 20361 | □ ○ |
| 14 | Spindle | 368/0200 | ○ |
| 15 | Split bearing | 252/0517 | □ ○ |
| 16 | PTFE spindle seat | 368/0009 | □ ○ |
| 17 | M8 spring washer (2) | 5113-003 | ○ |
| 18 | M8 full nut (2) | 5112-001 | ○ |
| 19 | Body | 368/0150 | |
| 20 | Bottom spindle | 368/0036 | ○ |
| 21 | PTFE bottom bush | 368/0035 | □ ○ |
| 22 | Closure plate | 368/0400 | |
| 23 | PTFE main seal | 368/0002 | □ ○ |
| 24 | Seal clamp plate | 368/0045 | |
| 25 | Nitrile O ring | 5005-342 | □ ○ |

Seal Kit

| Description | Part No. |
|--------------------------------------|----------|
| All parts marked □ in the Parts List | 368/00SK |

Repair Kit

| Description | Part No. |
|--------------------------------------|-----------|
| All parts marked ○ in the Parts List | 368/00RKA |



3" Clamped Widdop Butterfly Valve - High Temperature

Part No: 368/71HTB



Specification

Nominal size

80mm

Body type

Clamped

Properties

Left hand operated, handle with TIR and padlock slots

Materials

Contact parts: 316 stainless steel

Main seal: Flexityt

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|-------------|
| Weight: | 3.7 Kg |
| Design Pressure (MAWP): | 6.9 Bar |
| Test Pressure: | 10.35 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 260°C *Note |

NOTE: The maximum design temperature may be decreased by the maximum working temperature of the inlet/outlet gaskets. Design Conditions and Section View dimensions are for the specified part number only.

Approvals

BS EN14432

Design Approvals:

Lloyds Register of Shipping

Rijksdienst

SNCF

RMRS

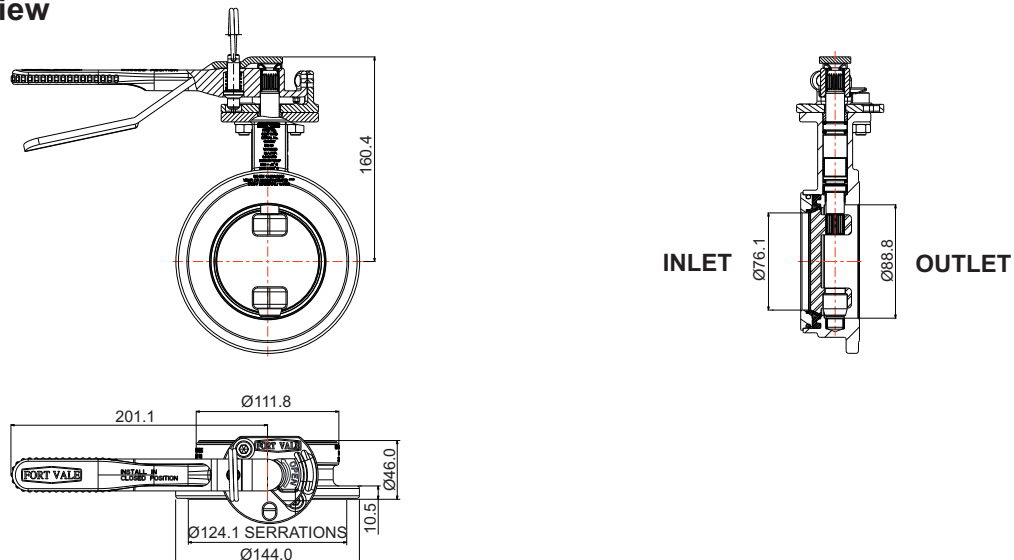
Range

| Description | Part No. |
|-----------------------------------|-----------|
| Standard specification | 368/71HTB |
| With hemi-spherical closure plate | 368/91HTB |

Related Parts

| Description | Part No. |
|---------------------------------------|------------|
| CNAF/PTFE inlet gasket | 5005-049HT |
| CNAF/PTFE outlet gasket | 5005-490HT |
| CNAF/PTFE 4 hole square inlet gasket | 5005-198HT |
| CNAF/PTFE 4 hole square outlet gasket | 5005-195HT |
| Bolting kit | 368/1100 |
| 3" BSP outlet flange | 368/8047 |
| 3" BSP blank cap with PTFE seal | 10303PS |
| 3" camlock outlet flange | 368/8058 |
| 3" camlock blank cap | 90/DC300 |
| 3" NPT outlet flange | 368/8049 |
| 3" NPT blank cap with PTFE washer | 425/3250 |

Section View

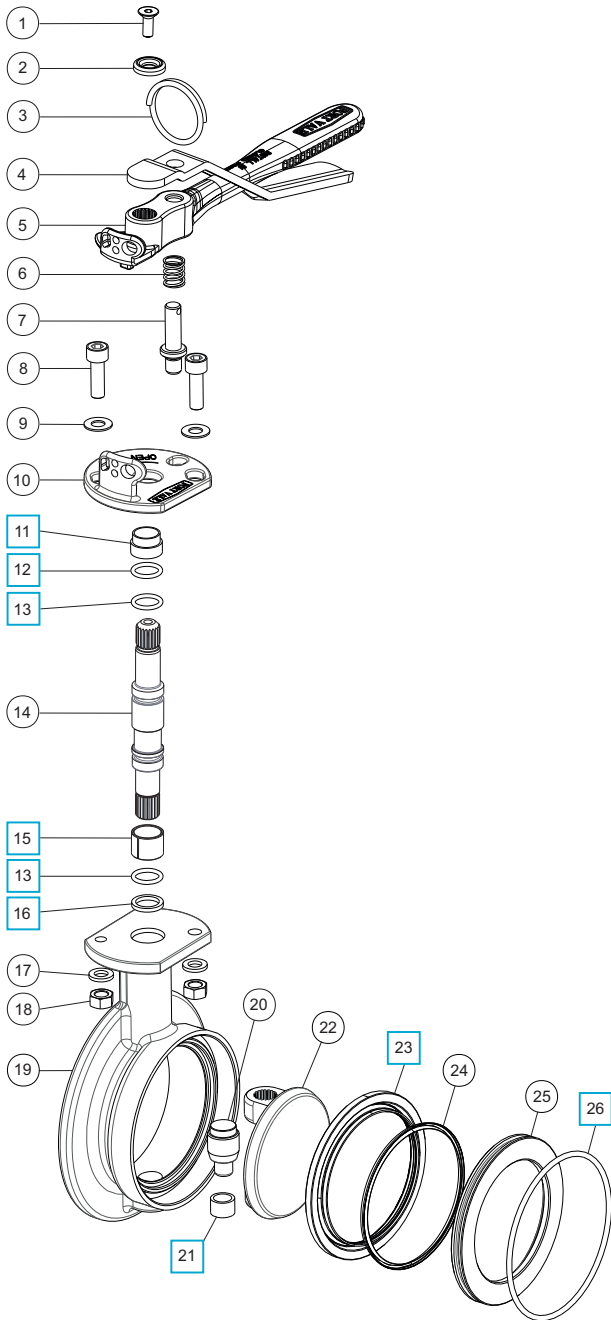




3" Clamped Widdop Butterfly Valve - High Temperature

Part No: 368/71HTB

Parts Drawing



Parts List

| Item | Description | Part No. | |
|------|-------------------------------|--------------|--------------------------|
| 1 | M6 set screw | 5111-030 | |
| 2 | Washer | 20370 | |
| 3 | Split ring | 368/0011 | |
| 4 | Operating lever | 368/9837 | |
| 5 | Handle | 368/0050 | |
| 6 | Handle location spring | 368/0012 | |
| 7 | Handle location pin | 368/0010 | |
| 8 | M8 cap screw (2) | 5111-148 | |
| 9 | M8 plain washer (2) | 5113-005 | |
| 10 | Stuffing clamp | 368/0040 | |
| 11 | PTFE stuffing clamp bush | 368/0301 | <input type="checkbox"/> |
| 12 | RTFE O ring | 20363HT | <input type="checkbox"/> |
| 13 | Perfluoroelastomer O ring (2) | 5005-586 | <input type="checkbox"/> |
| 14 | Spindle | 368/0205 | |
| 15 | RTFE spindle bearing | 368/0039 | <input type="checkbox"/> |
| 16 | RTFE spindle seat | 368/0009HT/1 | <input type="checkbox"/> |
| 17 | M8 spring washer (2) | 5113-003 | |
| 18 | M8 full nut (2) | 5112-001 | |
| 19 | Body | 368/0150 | |
| 20 | Bottom spindle | 368/0038 | |
| 21 | RTFE bottom bush | 368/0037 | <input type="checkbox"/> |
| 22 | Closure plate | 368/0400 | |
| 23 | RTFE main seal | 368/0002HT/5 | <input type="checkbox"/> |
| 24 | Seal spring | 368/0031 | |
| 25 | Seal clamp plate | 368/0033 | |
| 26 | Silicone O ring | 5005-342S | <input type="checkbox"/> |

Seal Kit

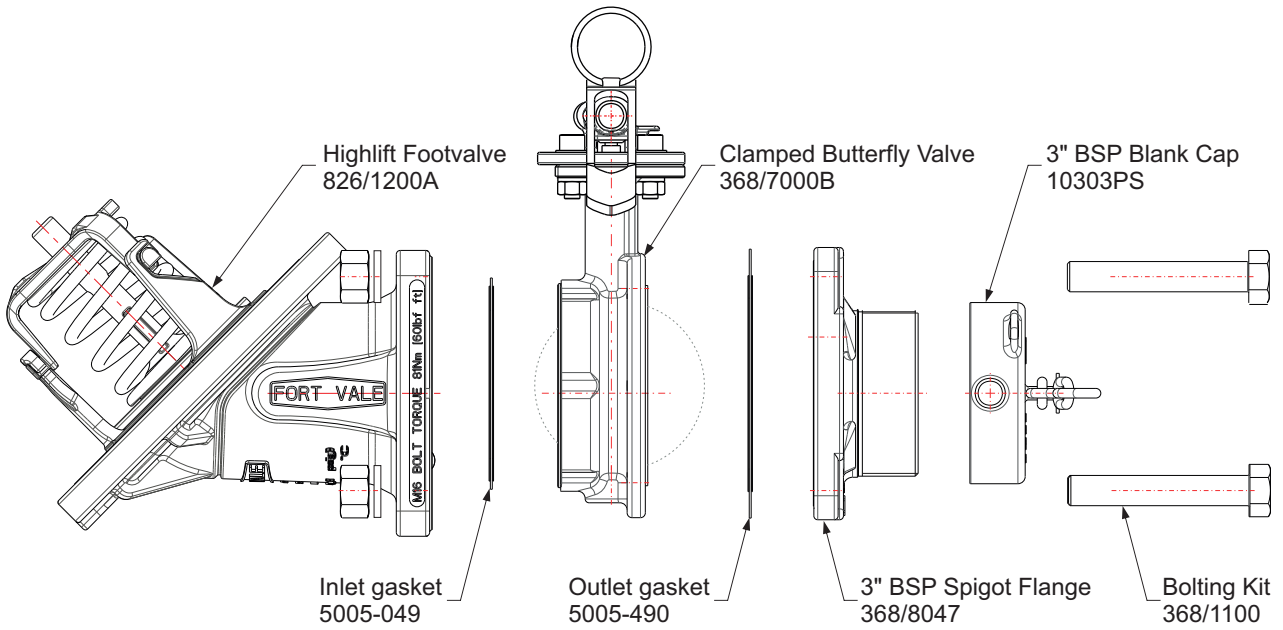
| Description | Part No. |
|---|-----------|
| All parts marked <input type="checkbox"/> in the Parts List | 368/71SKB |



Bottom Discharge Assembly

Installation Options

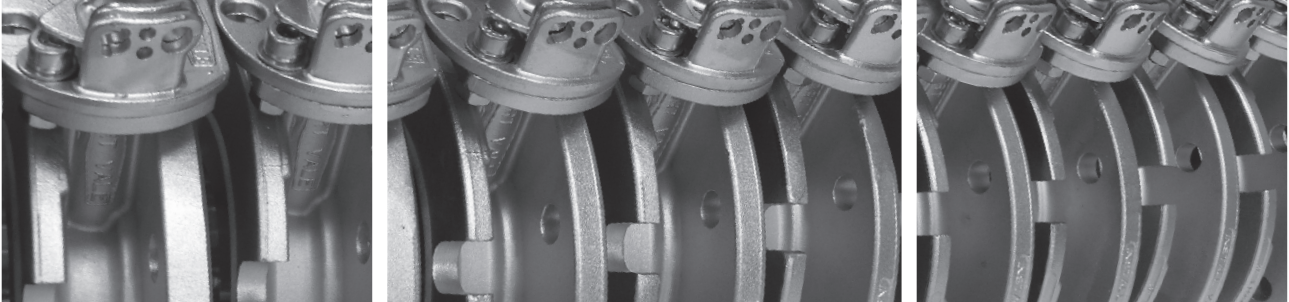
Example 3" 3-Closure Bottom Discharge Assembly





Top Discharge Provision

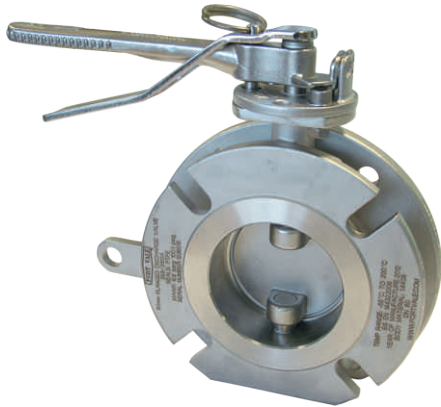
Tank Container Catalogue





3" Flanged Widdop Butterfly Valve

Part No: 368/3160A



Specification

Nominal size

80mm

Tank connection

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

Outlet connection

Flanged: 4 x open slots on a 146mm minimum PCD

Properties

Left hand operated, handle with TIR and padlock slots

Materials

Contact parts: 316 stainless steel

Main seal: PTFE

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|----------|
| Weight: | 7.0 Kg |
| Design Pressure (MAWP): | 6.9 Bar |
| Test Pressure: | 12.6 Bar |
| Design Temperature min: | -55°C |
| Design Temperature max: | 200°C |

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

Approvals

BS EN14432
 Design Approvals:
 Lloyds Register of Shipping
 Rijksdienst
 SNCF
 RMRS

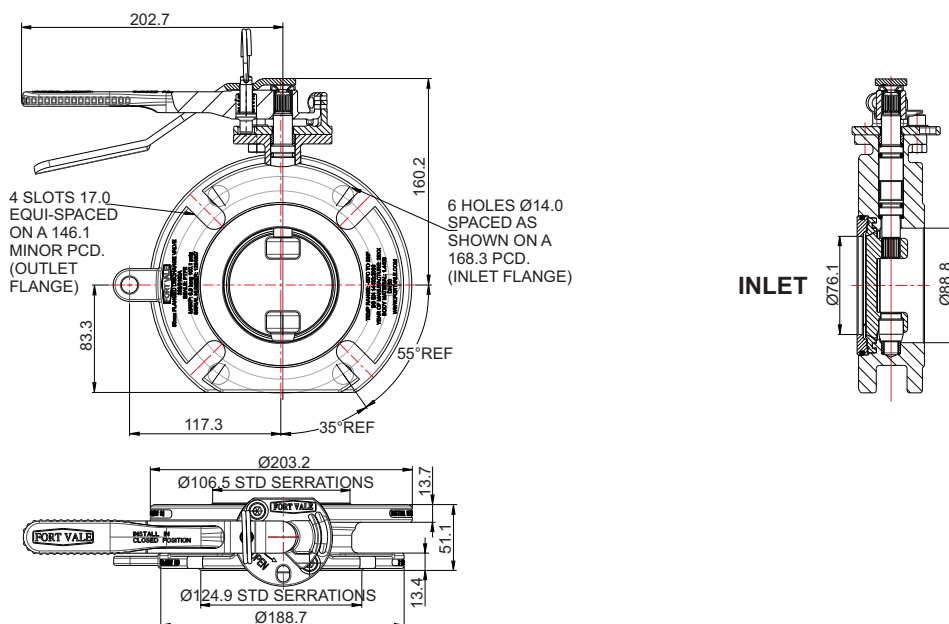
Range

| Description | Part No. |
|--|-----------|
| Standard specification | 368/3160A |
| Inlet flange dual drilled: 4 hole/4 hole | 368/3180A |
| Inlet flange dual drilled: 6 hole/4 hole | 368/3280A |

Related Parts

| Description | Part No. |
|------------------------------------|------------|
| Tank weld-in flange | 368/0800 |
| CNAF/PTFE syphon tube inlet gasket | 5005-222 |
| Syphon tube | 368/0810 |
| Stud kit | 312/1000 |
| CNAF/PTFE inlet gasket | 5005-169 |
| Solid PTFE outlet gasket | 5005-417 |
| Dished blind flange | 312/0022CM |
| Outlet bolting kit | 311/3500 |
| Pivot pin for blind flange | 368/7506 |

Section View

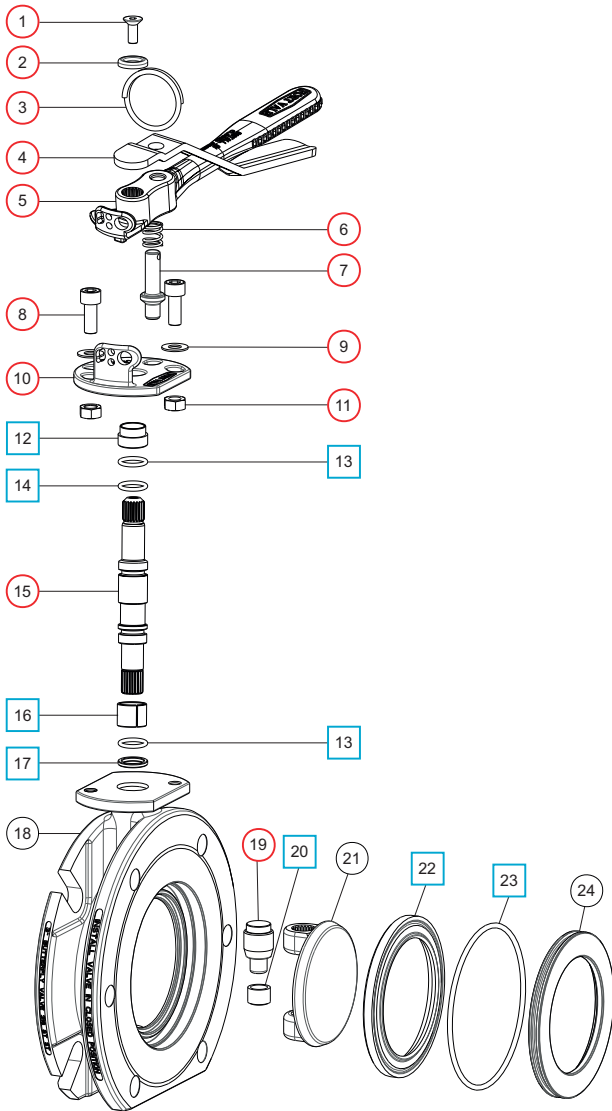




3" Flanged Widdop Butterfly Valve

Part No: 368/3160A

Parts Drawing



Parts List

| Item | Description | Part No. | |
|------|--------------------------|----------|-----|
| 1 | M6 set screw | 5111-030 | ○ |
| 2 | Washer | 20370 | ○ |
| 3 | Split ring | 368/0011 | ○ |
| 4 | Operating lever | 368/9837 | ○ |
| 5 | Handle | 368/0050 | ○ |
| 6 | Handle location spring | 368/0012 | ○ |
| 7 | Handle location pin | 368/0010 | ○ |
| 8 | M8 cap screw (2) | 5111-255 | ○ |
| 9 | M8 plain washer (2) | 5113-005 | ○ |
| 10 | Stuffing clamp | 368/0040 | ○ |
| 11 | M8 full nut (2) | 5112-001 | ○ |
| 12 | PTFE stuffing clamp bush | 368/0301 | □ ○ |
| 13 | PTFE O ring (2) | 20363 | □ ○ |
| 14 | Viton O ring | 20361 | □ ○ |
| 15 | Spindle | 368/0200 | ○ |
| 16 | Split bearing | 252/0517 | □ ○ |
| 17 | PTFE spindle seat | 368/0009 | □ ○ |
| 18 | Body | 368/9141 | |
| 19 | Bottom spindle | 368/0036 | ○ |
| 20 | PTFE bottom bush | 368/0035 | □ ○ |
| 21 | Closure plate | 368/0400 | |
| 22 | PTFE main seal | 368/0002 | □ ○ |
| 23 | Nitrile O ring | 5005-342 | □ ○ |
| 24 | Seal clamp plate | 368/9148 | |

Seal Kit

| Description | Part No. |
|--------------------------------------|----------|
| All parts marked □ in the Parts List | 368/00SK |

Repair Kit

| Description | Part No. |
|--------------------------------------|------------|
| All parts marked ○ in the Parts List | 368/316RKA |



3" Flanged Widdop Butterfly Valve - Dual Drilled Inlet

Part No: 368/3280A



Specification

Nominal size

80mm

Tank connection

Dual-drilled flange: 6 x 14mm holes on a 168.3mm PCD & 4 x 18mm holes on a 160mm PCD

Outlet connection

Flanged: 4 x open slots on a 146mm minimum PCD

Properties

Left hand operated, handle with TIR and padlock slots

Materials

Contact parts: 316 stainless steel

Main seal: PTFE

Alternatives are available, refer to the Design Options page

Design Conditions

| | |
|-------------------------|-----------|
| Weight: | 6.9 Kg |
| Design Pressure (MAWP): | 6.9 Bar |
| Test Pressure: | 10.35 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 200°C |

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

Approvals

BS EN14432

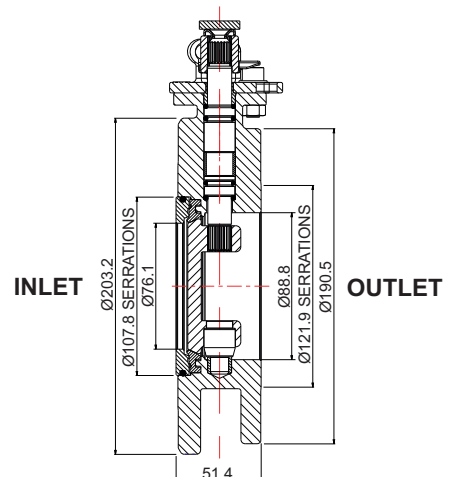
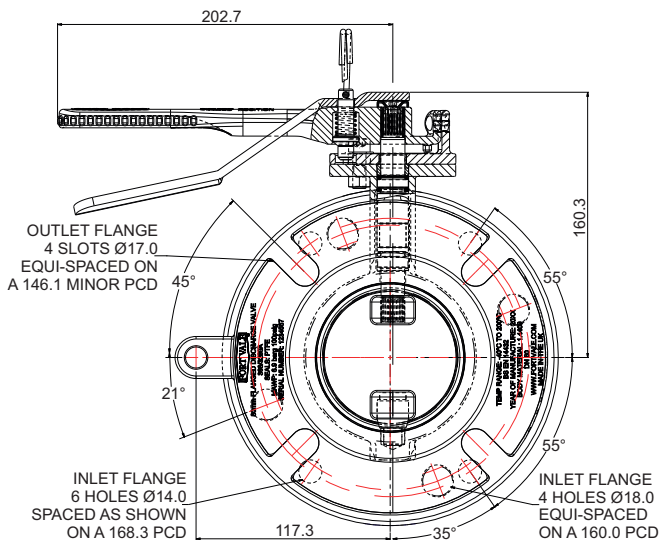
Range

| Description | Part No. |
|--|-----------|
| Inlet flange dual drilled: 6 hole/4 hole | 368/3280A |
| Inlet flange dual drilled: 4 hole/4 hole | 368/3180A |
| Inlet flange with flat, drilled 6 holes | 368/3160A |

Related Parts

| Description | Part No. |
|-------------------------------------|------------|
| CNAF/PTFE dual drilled inlet gasket | 5005-770 |
| CNAF/PTFE 6 hole inlet gasket | 5005-222 |
| CNAF/PTFE 4 hole inlet gasket | 5005-034 |
| Solid PTFE outlet gasket | 5005-417 |
| Dished blind flange | 312/0022CM |
| Outlet bolting kit | 311/3500 |
| Pivot pin for blind flange | 368/7506 |

Section View

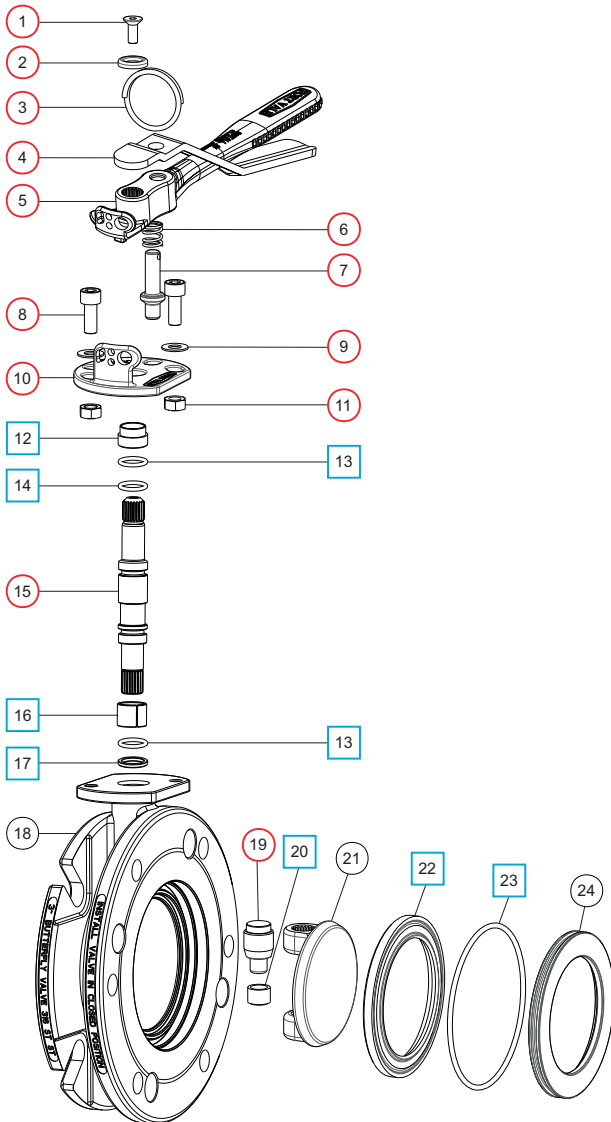




3" Flanged Widdop Butterfly Valve - Dual Drilled Inlet

Part No: 368/3280A

Parts Drawing



Parts List

| Item | Description | Part No. | |
|------|--------------------------|----------|-----|
| 1 | M6 set screw | 5111-030 | ○ |
| 2 | Washer | 20370 | ○ |
| 3 | Split ring | 368/0011 | ○ |
| 4 | Operating lever | 368/9837 | ○ |
| 5 | Handle | 368/0050 | ○ |
| 6 | Handle location spring | 368/0012 | ○ |
| 7 | Handle location pin | 368/0010 | ○ |
| 8 | M8 cap screw (2) | 5111-255 | ○ |
| 9 | M8 plain washer (2) | 5113-005 | ○ |
| 10 | Stuffing clamp | 368/0040 | ○ |
| 11 | M8 full nut (2) | 5112-001 | ○ |
| 12 | PTFE stuffing clamp bush | 368/0301 | □ ○ |
| 13 | PTFE O ring (2) | 20363 | □ ○ |
| 14 | Viton O ring | 20361 | □ ○ |
| 15 | Spindle | 368/0200 | ○ |
| 16 | Split bearing | 252/0517 | □ ○ |
| 17 | PTFE spindle seat | 368/0009 | □ ○ |
| 18 | Body | 368/9192 | |
| 19 | Bottom spindle | 368/0036 | ○ |
| 20 | PTFE bottom bush | 368/0035 | □ ○ |
| 21 | Closure plate | 368/0400 | |
| 22 | PTFE main seal | 368/0002 | □ ○ |
| 23 | Nitrile O ring | 5005-342 | □ ○ |
| 24 | Seal clamp plate | 368/9148 | |

Seal Kit

| Description | Part No. |
|--------------------------------------|----------|
| All parts marked □ in the Parts List | 368/00SK |

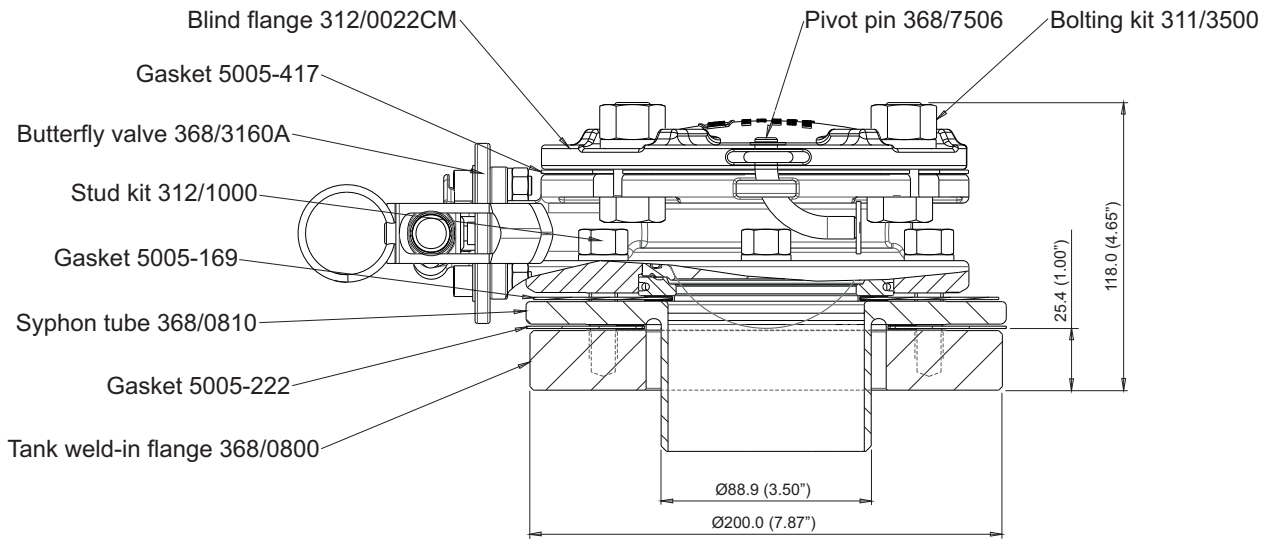
Repair Kit

| Description | Part No. |
|--------------------------------------|------------|
| All parts marked ○ in the Parts List | 368/316RKA |



Butterfly Valve Top Discharge Assembly Installation Options

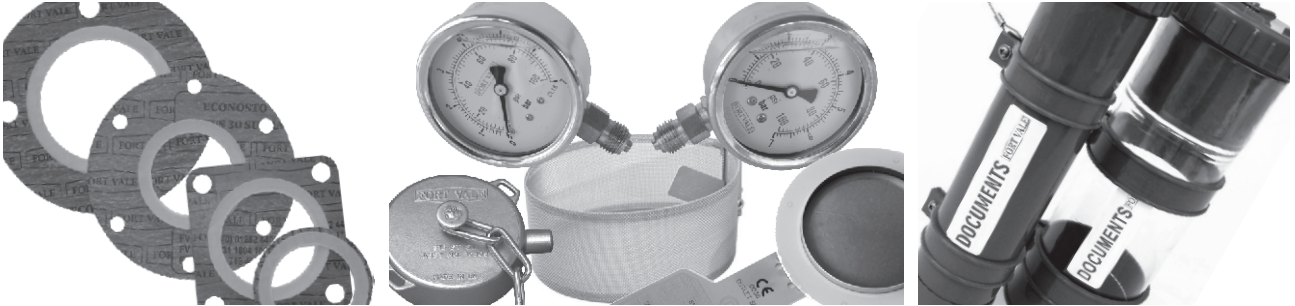
Example 3" Flanged Butterfly Valve Top Discharge Assembly





Ancillaries

Tank Container Catalogue





3/4" BSPT Steam Tell-Tale Valve

Part No: 56/0XXX0



Specification

Nominal size

20mm

Tank connection

3/4" BSPT (taper)

Set pressure

From 3 PSI to 150 PSI (0.21 Bar to 10.34 Bar)

Materials

Contact parts: 316 stainless steel

Pressure O ring: Viton

Alternatives are available, refer to Range

Design Conditions

Weight: 0.1 Kg
 Design Pressure (MAWP): 10.3 Bar
 Design Temperature max: 200°C

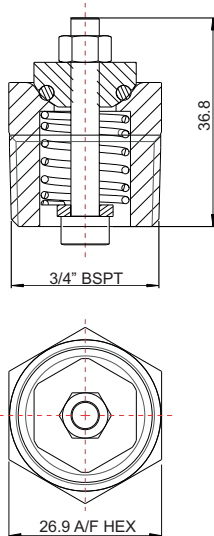
NOTE: The Design Conditions and Section View dimensions are for the specified part number only.

Range

| Description | Part No. |
|----------------------------|-----------|
| Standard specification | 56/0XXX0 |
| With TIR tab on valve body | 56/0XXX0T |
| 3/4" NPTM connection | 52/0XXX0 |

NOTE: The pressure setting changes the Part No.

Section View

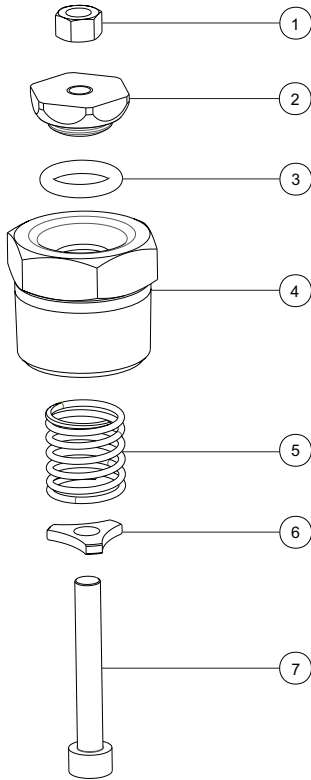




3/4" BSPT Steam Tell-Tale Valve

Part No: 56/0XXX0

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|---------------------|------------|
| 1 | M5 nut | 5112-010 |
| 2 | Poppet head | 54/00003 |
| 3 | Viton O ring | 5005-650 |
| 4 | Body | 54/00001 |
| 5 | Spring *Note | 5104-XXXXA |
| 6 | Spring locator | 54/00002 |
| 7 | M5 cap screw | 5111-128 |

NOTE: The pressure setting changes the Part No.



3/4" BSPT Steam Relief Valve

Part No: 58/0XXX00



Specification

Nominal size

20mm

Tank connection

3/4" BSPT (taper)

Set pressure

From 5 PSI to 225 PSI (0.34 Bar to 15.52 Bar)

Materials

Contact parts: 316 stainless steel

Pressure O ring: Viton GFLT

Alternatives are available, refer to Range

Design Conditions

| | |
|-------------------------|----------|
| Weight: | 0.6 Kg |
| Design Pressure (MAWP): | 16.5 Bar |
| Design Temperature min: | -40°C |
| Design Temperature max: | 200°C |

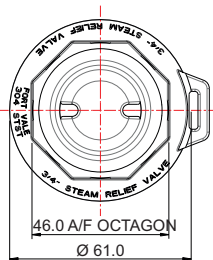
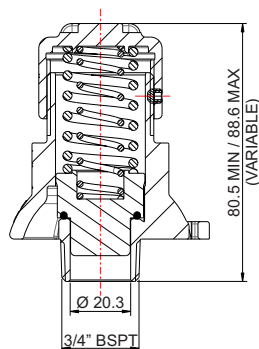
NOTE: The minimum re-seal temperature is -25°C.
The Design Conditions and Section View dimensions are for the specified part number only.

Range

| Description | Part No. |
|------------------------|-----------|
| Standard specification | 58/0XXX00 |

NOTE: The pressure setting changes the Part No.

Section View

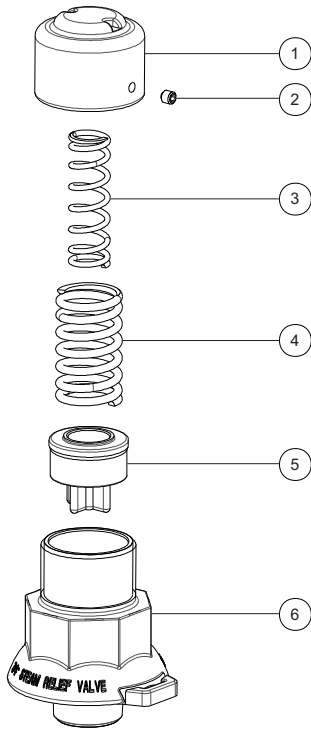




3/4" BSPT Steam Relief Valve

Part No: 58/0XXX00

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|--|-----------|
| 1 | Cap | 58/03650 |
| 2 | Set screw | 5121-001 |
| 3 | Inner spring *Note | 5104-90XX |
| 4 | Outer spring *Note | 5104-9XXX |
| 5 | Poppet assembly with Viton GFLT seal *Note | 58/0362X |
| 6 | Body | 58/03640 |

NOTE: The pressure setting changes the Part No.



Threaded Blank Caps

Ancillaries & Spare Parts



Specification

Caps are supplied with a washer and a security wire or heavy duty chain as standard.

Nominal sizes

From 1/2" to 4"

Thread Options

BSP, NPT, NPSL

Material Options

Cap: stainless steel, aluminium

Washer: PTFE, leather

If the type you need is not shown, please contact us.

Stainless Steel Caps - BSP Thread

Supplied as standard with a PTFE washer and a stainless steel chain or wire to prevent loss/theft.

| Size | Wire or Chain | Part No. |
|------------|---------------|----------|
| 1/2" BSP | Wire | 10316PS |
| 3/4" BSP | Chain | 10306PS |
| 1" BSP | Chain | 10305PS |
| 1 1/2" BSP | Chain | 10300PS |
| 2" BSP | Chain | 10301PS |
| 2 1/2" BSP | Wire | 10302PS |
| 3" BSP | Chain | 10303PS |
| 4" BSP | Wire | 10304PSC |

Spare Parts - Washers

| Description | Part No. Leather | Part No. PTFE |
|---------------|---------------------|------------------|
| 1/2" washer | - | 10335P |
| 3/4" washer | 10331L | 10331P |
| 1" washer | 10319L | 10319P |
| 1 1/2" washer | 10326L | 10326P |
| 2" washer | 10327L | 10327P |
| 2 1/2" washer | 10328L | 10328P |
| 3" washer | 10329L | 10329P |

NPT & NPSL Caps

Supplied as standard with a washer and a chain to prevent loss/theft.

| Size | Cap | Washer | Chain | Part No. |
|------------|-----------|---------|-------|-----------|
| 1 1/2" NPT | st/st | PTFE | st/st | 10300NPTP |
| 2" NPT | st/st | PTFE | st/st | 10301NPTP |
| 3" NPSL | st/st | PTFE | st/st | 425/3240 |
| 3" NPT | aluminium | leather | brass | 10711NPT |

Aluminium Caps - BSP Thread

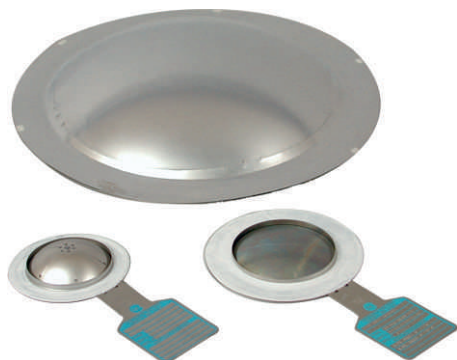
Supplied as standard with a leather washer and a brass chain to prevent loss/theft.

| Size | Part No. |
|------------|----------|
| 3/4" BSP | 10706AL |
| 1" BSP | 10707AL |
| 1 1/2" BSP | 10708AL |
| 2" BSP | 10709AL |
| 2 1/2" BSP | 10710AL |
| 3" BSP | 10711AL |



Burst Discs

Ancillaries & Spare Parts



Specification

Nominal sizes

65mm, 65mm XL, 80mm, 80mm XL, 89mm, 250mm

Disc Options

Forward Acting: a cross-scored solid metal disc

Forward Composite: a multi-layered disc for burst settings of less than 3.67 Bar

Reverse Acting: compatible with gas service

WARNING: If you install a burst disc, it will decrease the air flow capacity of the relief valve. Thus, you must calculate to make sure that the decreased air flow capacity of the relief valve and burst disc will give sufficient protection to your vessel/system. Refer to Fort Vale for more information.

NOTE: The disc specification changes the Part No.

65mm XL Burst Discs

Compatible with general purpose tank containers and road tankers.

| Burst Pressure Bar | Burst Temperature °C | Part No. |
|--------------------|----------------------|-----------|
| 2.28 | 20 | 862/X0228 |
| 2.41 | 20 | 862/X0241 |
| 2.69 | 20 | 862/X0269 |
| 3.10 | 20 | 862/X0310 |
| 3.67 | 20 | 862/X0367 |
| 4.10 | 20 | 862/X0410 |
| 4.40 | 20 | 862/X0440 |
| 4.84 | 20 | 862/X0484 |

80mm XL Burst Discs

Compatible with general purpose tank containers and road tankers.

| Burst Pressure Bar | Burst Temperature °C | Part No. |
|--------------------|----------------------|-----------|
| 3.67 | 20 | 864/X0367 |
| 4.10 | 20 | 864/X0410 |
| 4.84 | 20 | 864/X0484 |

89mm Reverse Acting Burst Discs

Compatible with compressed liquefied gas tank containers.

| Burst Pressure Bar | Burst Temperature °C | Part No. |
|--------------------|----------------------|-----------|
| 12.10 | 55 | 864/X1210 |
| 15.00 | 55 | 864/X1500 |
| 22.00 | 55 | 864/X2200 |
| 27.50 | 55 | 864/X2750 |
| 34.50 | 55 | 864/X3450 |

250mm Standard Burst Discs

Compatible with hydrogen peroxide service.

| Burst Pressure Bar | Burst Temperature °C | Part No. |
|--------------------|----------------------|----------|
| 4.50 | 20 | 865/1200 |
| 4.50 | 60 | 865/1250 |
| 6.00 | 20 | 865/1400 |



Document Holders

Ancillaries & Spare Parts



Specification

Nominal sizes

75mm and 110mm

Body Material Options

Opaque plastic

Transparent plastic

Fixing Bracket Options

Plastic

Stainless steel

Cap

All document holders are supplied with a plastic cap as standard which is attached by a stainless steel wire to prevent loss/theft.

Document Holders

| Size | Body | Brackets | Part No. |
|-------|-------------|----------|--------------|
| 75mm | Opaque | Plastic | 360/1101 |
| 75mm | Transparent | Plastic | 360/1101T |
| 75mm | Opaque | St/steel | 360/1101ABSS |
| 75mm | Transparent | St/steel | 360/1101TBSS |
| 110mm | Transparent | Plastic | 460/1101T |
| 110mm | Transparent | St/steel | 460/1101TBSS |

Spare Parts - Plastic Caps

All caps are supplied with a stainless steel cable.

| Size | Part No. |
|-------|----------|
| 75mm | 360/1010 |
| 110mm | 460/1010 |

Spare Parts - Fixing Brackets

| Size | Material | Part No. |
|-------|-----------------|------------|
| 75mm | Plastic | 360/1007 |
| 75mm | Stainless steel | 360/1007SS |
| 110mm | Plastic | 460/1007 |
| 110mm | Stainless steel | 460/1007SS |



Fusible Link Assembly

Part No: 324/5760



Specification

A fusible link assembly automatically closes a footvalve if there is a fire. The device is installed onto the tank frame and attaches to the footvalve remote closure cable. The fusible element will melt at 100°C. This makes the spring-loaded chain operate the remote closure cable to close the footvalve.

Compatibility

All tank designs and most types of footvalve

Material

304/316 stainless steel

Design Conditions

Weight: 0.5 Kg

Fusible Element:

Operating Temperature: 100°C

Maximum load: 18.14 Kg

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

Approvals

Complies with US DOT CFR49 - Ch. 178275 [d]

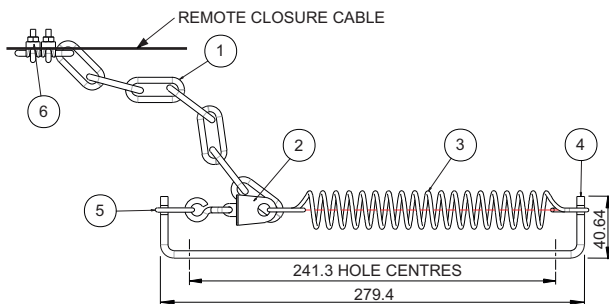
Related Parts

| Description | Part No. |
|--|----------|
| 2.5mm 7x7 strand st/st wire, 6.5m length | 6110-022 |
| Remote closure tension spring | 5104-203 |
| Footvalve handle remote operating lever | 324/7610 |

Important Precautions

- A fusible element is designed for a straight pull load, it is not compatible with a radial or twisting load.
- Keep the fusible link assembly in a cool, dry area.
- Do not use the fusible element where the load or temperature will be more than 18.14 Kg and 100°C.
- Do not apply paint or any coating material to the fusible element as this can prevent correct operation.
- Do not apply cleaning chemicals to the fusible element. Cover the element with a clean, wet cloth during cleaning.

Parts Drawing



Parts List

| Item | Description | Part No. |
|------|------------------------|----------|
| 1 | Stainless steel chain | 6128-016 |
| 2 | 100°C fusible element | 324/5616 |
| 3 | Tension spring | 252/3272 |
| 4 | Remote closure bracket | 324/5765 |
| 5 | Solid ring | 613/6150 |
| 6 | Wire clamp (2) | 324/5341 |



Relief Valve Flame Arresters

Ancillaries & Spare Parts



Specification

A relief valve flame arrester attaches around the ports of the relief valve body. It prevents an external flame from being transmitted into the tank on relief valves with a vacuum setting of ≤ 0.21 Bar (6"Hg).

For relief valves with a vacuum setting of > 0.21 Bar (6"Hg), a flame arrester is frequently used to prevent debris going into the tank through the relief valve.

Nominal sizes

Compatible with 1", 1½" 2½", 65mm and 80mm relief valves

Material

Stainless steel

WARNING: If you install a flame arrester, it will decrease the air flow capacity of the relief valve. Thus, you must calculate to make sure that the decreased air flow capacity of the relief valve and flame arrester will give sufficient protection to your vessel/system. Refer to Fort Vale for more information.

Flame Arresters

Each flame arrester is compatible for the specified relief valve type only. Flame arresters are not interchangeable between relief valve types.

IMPORTANT: Refer to the air flow decrease data for your valve type. (See **WARNING**)

| Compatible Relief Valve | Air Flow Decrease | Part No. |
|-------------------------|-------------------|----------|
| 1" Minnow | 17% to 20% | 179/0300 |
| 1½" Twinact | See Note | 200/5000 |
| 2½" Twinact | See Note | 130/5000 |
| 2½" & 65mm Super Maxi | 1% | 176/2900 |
| 80mm Hyper Maxi | 5.4% | 176/2920 |

NOTE: For the air flow decrease data for Twinact relief valves, please contact Fort Vale.



Pressure Gauges

Ancillaries & Spare Parts

Standard Pressure Gauge



Tell-Tale Pressure Gauge



Specification

We supply standard pressure gauges and tell-tale pressure gauges. Tell-tale pressure gauges have a secondary pointer to indicate if there has been an increase in pressure, even if the pressure subsequently decreases.

All pressure gauges have a 1/4" BSP bottom connection and are glycerine filled.

Pressure Range Options

0-6 Bar, 0-10 Bar, 0-16 Bar

Material Options - Internal Parts

Brass, stainless steel

Standard Pressure Gauge

| Pressure Range Bar | Pressure Range PSI | Internal Parts | Part No. |
|-----------------------|-----------------------|----------------|------------|
| 0-6 | 0-90 | Brass | 921/06BBSP |
| 0-6 | 0-90 | St/steel | 920/06BBSP |
| 0-10 | 0-150 | Brass | 921/10BBSP |
| 0-10 | 0-150 | St/steel | 920/10BBSP |

Tell-Tale Pressure Gauge

| Pressure Range Bar | Pressure Range PSI | Internal Parts | Part No. |
|-----------------------|-----------------------|----------------|--------------|
| 0-6 | 0-90 | Brass | 921/06TTBBSP |
| 0-6 | 0-90 | St/steel | 920/06TTBBSP |
| 0-10 | 0-150 | Brass | 921/10TTBBSP |
| 0-10 | 0-150 | St/steel | 920/10TTBBSP |
| 0-16 | 0-230 | St/steel | 920/16TTBBSP |



Temperature Gauges Ancillaries & Spare Parts

Analogue Temperature Gauge - Capillary



Specification

Temperature Range Options

-20°C to 160°C

-20°C to 200°C

-50°C to 200°C - digital only

NOTE: The temperature range refers to the capillary or probe only

Gauge Display Options

Analogue

Digital

Temperature Monitoring Options

2500mm capillary

250mm stainless steel tube with brass thermowell probe

Gauge Fill Options

Silicone oil filled

Not filled

Analogue Temperature Gauge - Probe



Digital Temperature Gauge - Capillary



Analogue Temperature Gauges

| Temperature Range | | Capillary or Probe | Oil Filled | Part No. |
|-------------------|-----------|--------------------------|---------------|--------------|
| °C | °F | | | |
| -20 to 200 | -4 to 392 | Capillary | Yes | 922/TEMP200 |
| -20 to 160 | -4 to 320 | Capillary | Yes | 922/TEMP160 |
| -20 to 200 | -4 to 392 | Probe | No | 922/TEMPT200 |
| -20 to 160 | -4 to 320 | Probe | No | 922/TEMPT160 |

NOTE: The temperature range refers to the capillary/probe only.

Digital Temperature Gauge

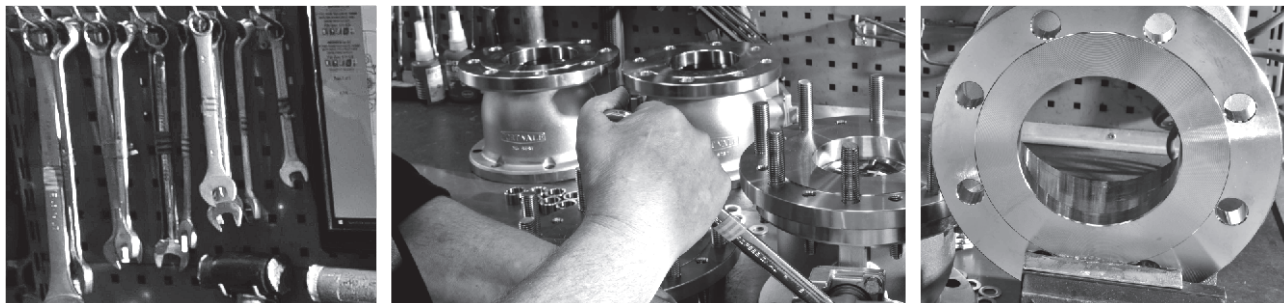
| Temperature Range | | Capillary or Probe | Part No. |
|-------------------|------------|--------------------------|--------------|
| °C | °F | | |
| -50 to 200 | -58 to 392 | Capillary | 944/TEMPDIGI |

NOTE: The temperature range refers to the capillary/probe only.



After Sales Service

Tank Container Catalogue



We offer a refurbishment and repair services for all our valves. We can also provide you with technical support if you want to do your own maintenance. Please contact us for more information about maintenance instruction manuals and special tools and equipment.

We keep a wide range of spare parts and ancillary items in stock at our Fort Vale worldwide locations. We also have authorised distributors around the world who can supply you with replacement and consumable parts, and help you with after sales service.



Valve Repair and Maintenance Ancillaries & Spare Parts



We supply a range of special tools and repair kits to do scheduled maintenance and repair procedures to our valves.

We recommend that you use the correct special tools to help you do maintenance and repairs quickly and easily without causing damage to the valve or the new spare parts.

A selection of step-by-step maintenance instruction manuals is also available, please contact us.

CAUTION: Valve maintenance and repair can be dangerous. To do maintenance, you must have experience and qualifications related to valve installation on pressure vessels and systems.

Relief Valve Pressure/Vacuum Test Rig Part No: 400/8000



Specification

You can use the relief valve test rig to test the pressure and vacuum setting of Hyper Maxi, Super Maxi, Twinact, Uniact, Minnow and Steam relief valves.

Valve connection

2½" BSP.

We supply adaptors to change to other BSP and flanged connections.

Test rig supply connection

¼" BSP female socket

Test range

From -0.7 Bar to 6.9 Bar (-10 PSI to 100 PSI)

Related documents

Operating Instructions: OPIN26. Please contact us.

Footvalve & Relief Valve Seat Repair Kit Part No: 400/2600



Specification

You can use the seat repair kit to re-surface the seating face of a 2½" BSP Super Maxi relief valve and the 3" Cleanflow and Highlift footvalves if there is damage caused by corrosion.

Connection

Compatible with power tools with a ½" chuck

Kit contents

Selection of grinding and polishing discs

Selection of face-forming tools

Instruction manual

Related documents

Operating Instructions: OPIN70. Please contact us.

Spare Parts

| Description | Part No. |
|---------------------------------------|----------|
| 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 500 grit polishing discs | 400/2640 |



Valve Repair and Maintenance Ancillaries & Spare Parts



Relief Valve Tool Kits

| Description | Part No. |
|---|----------|
| Test rig adaptor flange - adapts 2½" BSP to 3" ASA150, DIN65 PN10 & DIN80 PN6 | 425/1000 |
| C spanner - to install/remove Twinact relief valves | 400/3000 |
| C spanner - to install/remove Super Maxi relief valves | 400/3001 |
| Tightening tool for MKIII Super Maxi relief valves | 400/8380 |
| Tool kit - 1½" & 2½" Twinact valves | 400/2000 |
| Tool kit - 2½" Maxi & Highflow valves | 400/8100 |
| Tool kit - 65mm & 80mm Super Maxi | 400/8300 |



Footvalve Tool Kits

| Description | Part No. |
|---------------------------------|----------|
| 3" Cleanflow footvalve tool kit | 400/2150 |
| 3" Highlift footvalve tool kit | 400/2450 |



Ball Valve Tool Kits

| Description | Part No. |
|-------------------------|----------|
| 1½" ball valve tool kit | 400/2500 |
| 3" ball valve tool kit | 400/2200 |

Butterfly Valve Tool Kits

| Description | Part No. |
|-----------------------------|----------|
| 2" butterfly valve tool kit | 400/2300 |
| 3" butterfly valve tool kit | 400/2700 |



Client Responsibilities - Valves & Ancillaries

Installation, Operation & Maintenance Instructions

Compatibility

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

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

Maintenance

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

Visual checks at regular intervals:

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

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

As well as the visual checks, schedule suitable maintenance intervals for the valve based on how frequently the valve is used, the type of cargo and the service conditions.

After 2½ years of service, do the checks that follow:

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

After 5 years of service do the checks that follow:

1. Disassemble and clean the valve.
2. Replace all the valve seals.

Replacement Parts

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

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

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

External Fire

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

Compatibility of Accessories

Accessory components must cause no interference with the function of the valve. Accessory components must be made from compatible materials that will not cause damage to the valve.

Mis-use

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



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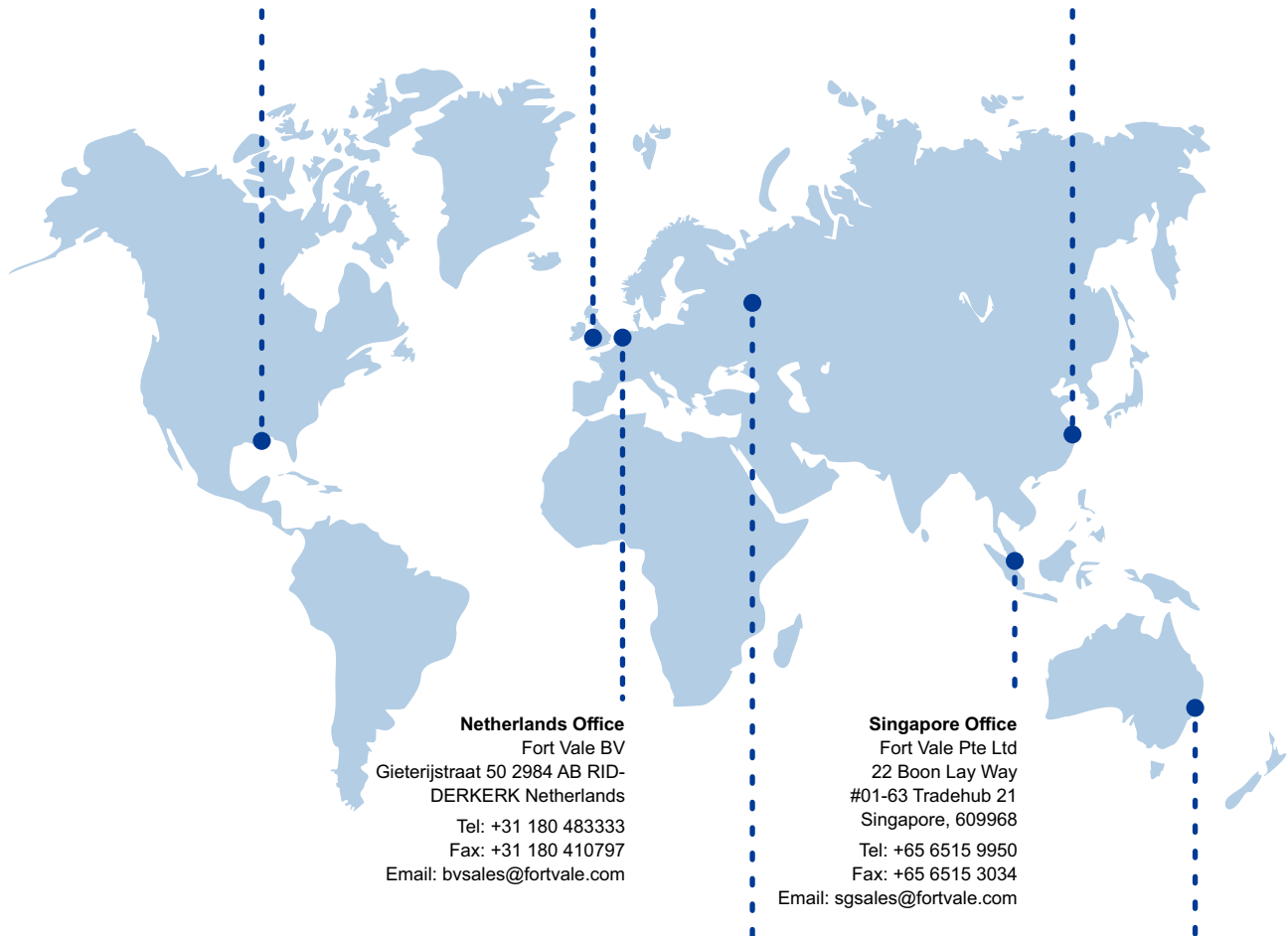
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