



## Catalogue

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# Standard Range of Airline Valves





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## Airline Valves

### Catalogue

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# Airline Valve

## 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.

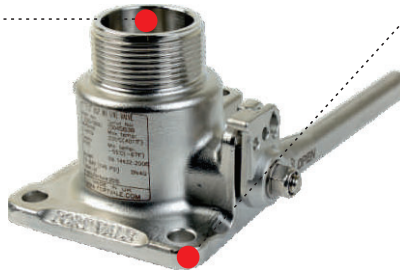
### Design Options

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

#### Nominal Bore

**DN40 (1½"):** Ball valves

**DN50 (2"):** Ball valves & butterfly valves



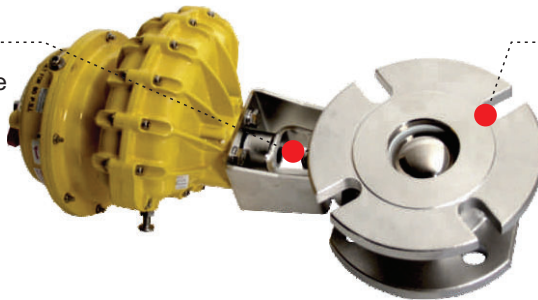
#### Tank Connection

**Flanged:** 4 holes  
Different drilling patterns

#### Operation

**Manually operated:** A range of handles is available

**Pneumatically actuated**



#### Inlet

**Threaded:** 1½" BSP, 2" BSP

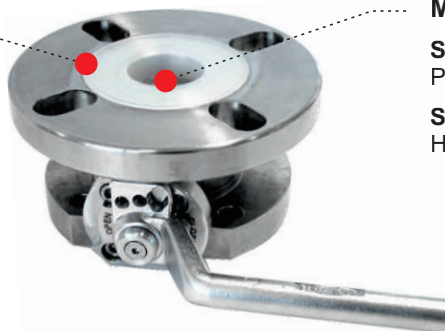
**Dual threaded:** 1½" BSP/1½" NPT

**Flanged:** Closed or open slots

#### Valve Materials

**Standard service conditions:**  
316 stainless steel

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



#### Main Seal

**Standard service conditions:**  
PTFE

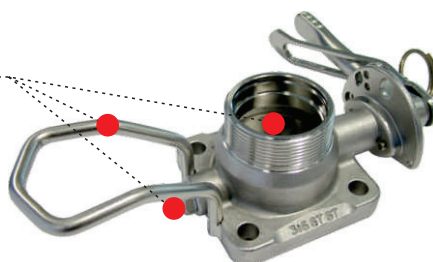
**Special service conditions:**  
High-temperature compatible seals

#### Ancillaries

Gauge guard

Gauze or sintered filter

TIR to gauge inlet plug





## Airline Valve Design Options

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### 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.



# DN32 / 1½" BSP Blacko Airline Ball Valve

Part No: 530/0000



## Specification

### Nominal size

DN32

### Tank connection

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

### Outlet/Process 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.

### Design Code

BS EN14432

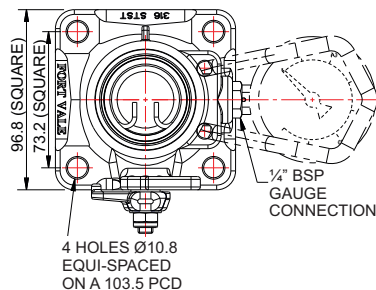
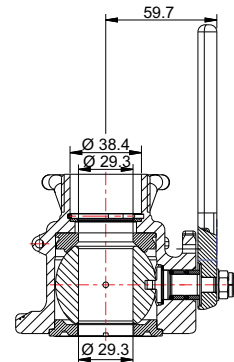
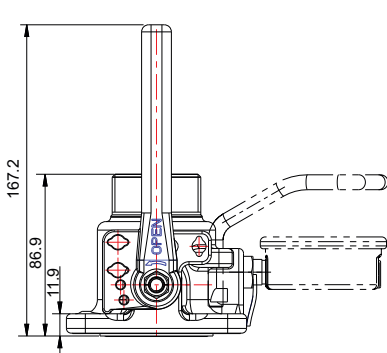
## Range

| 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   |
| Weld-in flange   | 350/0025   |

## Section View

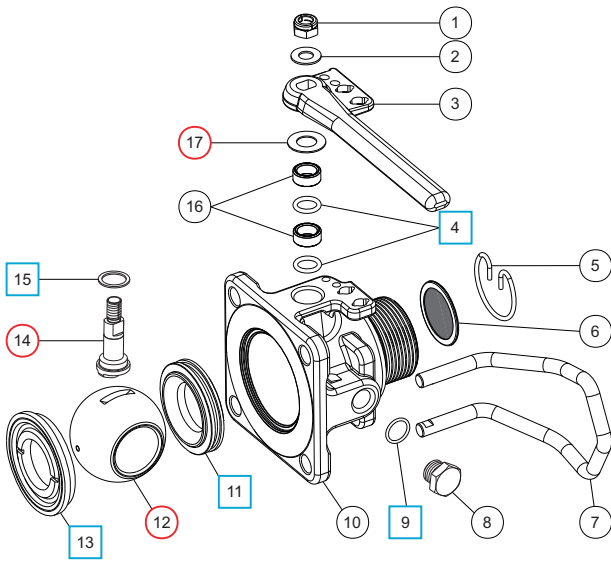




# DN32 / 1½” BSP Blacko Airline Ball Valve

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 |



# DN32 / 1½” Dual Threaded Blacko Airline Ball Valve

Part No: 530/0300



## Specification

### Nominal size

DN32

### Tank connection

Flanged: 4 x 10.7mm holes on a 103.5mm PCD

### Outlet/process connection

Dual threaded: 1½” BSP male & 1½” NPT 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:                 | 3.1 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.

### Design Code

BS EN14432

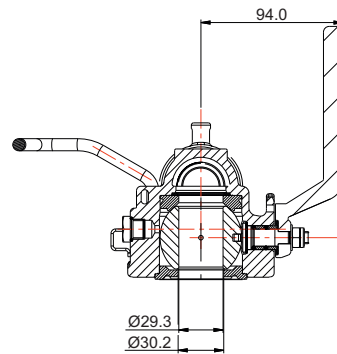
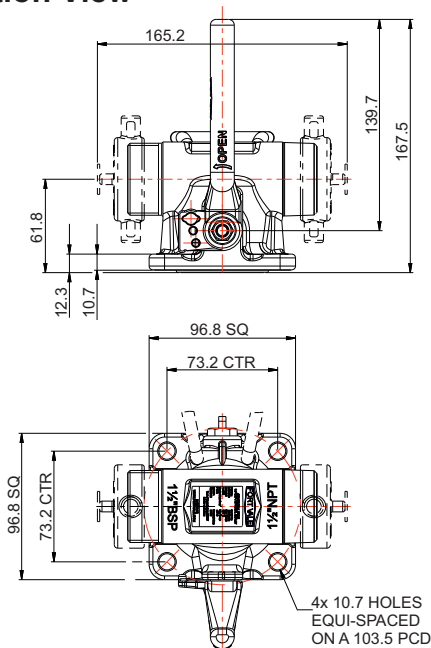
## Range

| Description                | Part No.   |
|----------------------------|------------|
| Standard specification     | 530/0300   |
| With gauze                 | 530/0300F  |
| With gauge guard           | 530/0300G  |
| With gauze and gauge guard | 530/0300FG |

## Related Parts

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

## Section View

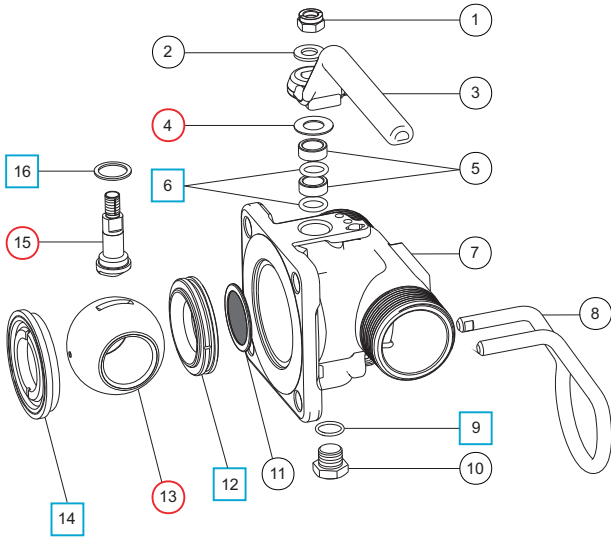




# DN32 / 1½” Dual Threaded Blacko Airline Ball Valve

Part No: 530/0300

## Parts Drawing



## Parts List

| Item | Description                | Part No. |     |
|------|----------------------------|----------|-----|
| 1    | M8 self lock nut           | 5112-031 |     |
| 2    | M8 plain washer            | 5113-005 |     |
| 3    | Handle                     | 530/0020 |     |
| 4    | 8mm Belleville washer      | 5113-036 | ○   |
| 5    | Stuffing collar (2)        | 530/0003 |     |
| 6    | PTFE O ring (2)            | 5005-008 | □ ○ |
| 7    | Body                       | 530/0301 |     |
| 8    | Gauge guard <b>*Note 2</b> | 530/0040 |     |
| 9    | PTFE O ring                | 5005-048 | □ ○ |
| 10   | ¼” BSP plug                | 5128-005 |     |
| 11   | Filter <b>*Note 1</b>      | 353/0010 |     |
| 12   | PTFE front seal            | 5005-006 | □ ○ |
| 13   | Ball                       | 350/0002 | ○   |
| 14   | PTFE rear seal             | 5005-007 | □ ○ |
| 15   | Spindle                    | 530/0001 | ○   |
| 16   | PTFE thrust seal           | 5003-002 | □ ○ |

**NOTE 1:** Optional part, see Range 530/0300F

**NOTE 2:** Optional part, see Range 530/0300G

## Seal Kit

| Description                          | Part No. |
|--------------------------------------|----------|
| All parts marked □ in the Parts List | 530/00SK |

## Repair Kit

| Description                          | Part No. |
|--------------------------------------|----------|
| All parts marked ○ in the Parts List | 530/00RK |



# DN32 Flanged Blacko Airline Ball Valve

Part No: 530/1000



## Specification

### Nominal size

DN32

### Tank connection

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

### Outlet/Process connection

Flanged: 4 x Ø18mm open slots on a 98.4 min. I/D

### Properties

1/4" 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:                 | 4.4 Kg |
| Design Pressure (MAWP): | 7 Bar  |
| Test Pressure:          | 15 Bar |
| Design Temperature Min: | -40°C  |
| Design Temperature Max: | 205°C  |

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

### Design Code

BS EN14432

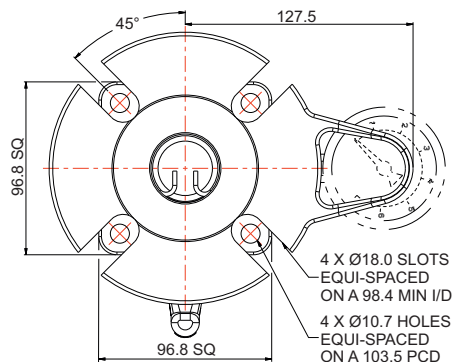
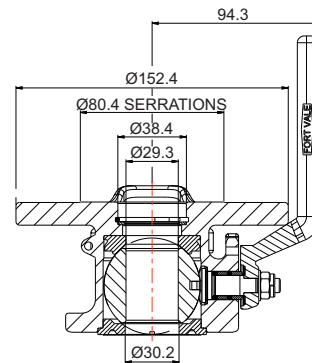
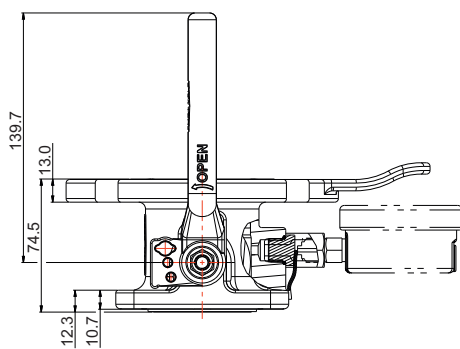
## Range

| Description            | Part No.  |
|------------------------|-----------|
| Standard specification | 530/1000  |
| With gauze             | 530/1000F |

## Related Parts

| Description              | Part No.   |
|--------------------------|------------|
| Pressure gauge           | 920/07BBSP |
| Gauge adaptor            | 352/4004   |
| Blind flange             | 530/8053CM |
| Solid PTFE outlet gasket | 5005-348   |
| Stud kit                 | 350/1300   |
| Weld-in flange           | 350/0025   |

## Section View

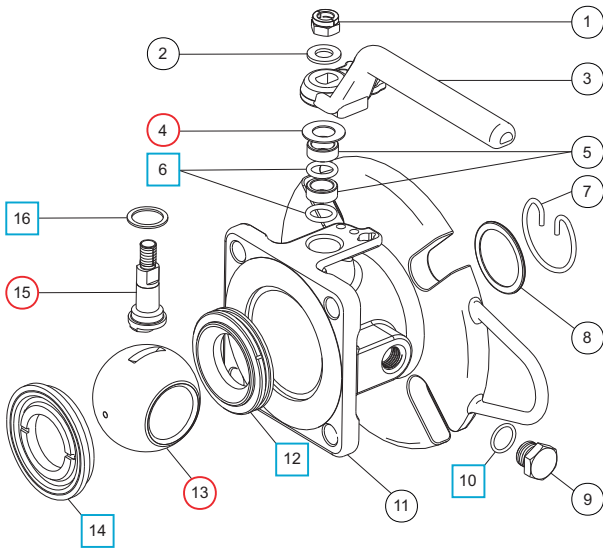




# DN32 Flanged Blacko Airline Ball Valve

Part No: 530/1000

## Parts Drawing



## Parts List

| Item | Description               | Part No. |
|------|---------------------------|----------|
| 1    | Self-locking nut          | 5112-031 |
| 2    | M8 washer                 | 5113-005 |
| 3    | Handle                    | 530/0020 |
| 4    | 8mm Belleville washer     | 5113-036 |
| 5    | Stuffing collar (2)       | 530/0003 |
| 6    | PTFE O ring (2)           | 5005-008 |
| 7    | Snap ring <b>*Note</b>    | 5120-017 |
| 8    | Gauze filter <b>*Note</b> | 353/0010 |
| 9    | 1/4" BSP plug             | 5128-005 |
| 10   | PTFE O ring               | 5005-048 |
| 11   | Body                      | 530/1100 |
| 12   | PTFE front seal           | 5005-006 |
| 13   | Ball                      | 350/0002 |
| 14   | PTFE rear seal            | 5005-007 |
| 15   | Spindle                   | 530/0001 |
| 16   | PTFE thrust seal          | 5003-002 |

**NOTE:** Optional part, see Range 530/1000F

## Seal Kit

| Description   | Part No. |
|---|----------|
| All parts marked <span style="border: 1px solid blue; padding: 0 2px;"> </span> in the Parts List | 530/00SK |

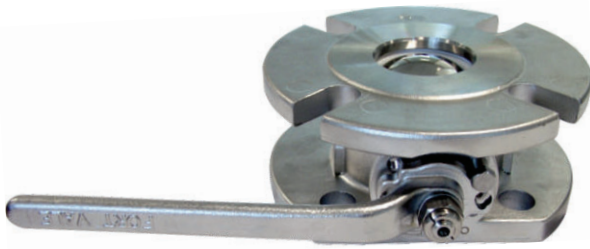
## Repair Kit

| Description  | Part No. |
|--|----------|
| All parts marked <span style="border: 1px solid red; border-radius: 50%; padding: 0 2px;"> </span> in the Parts List | 530/00RK |



# DN50 Flanged Blacko Ball Valve

Part No: 370/0100



## Specification

### Nominal size

DN50

### Tank connection

Flanged: 4 x 18mm holes on a 125mm PCD

### Outlet/Process connection

Flanged: 4 x open slots on a 120.7mm minimum PCD

### Properties

Left hand operated, handle with TIR

### Materials

Contact parts: 316 stainless steel

Main seal: PTFE

Alternatives are available, refer to the Design Options page

## Design Conditions

|                         |          |
|-------------------------|----------|
| Weight:                 | 5.5 Kg   |
| Design Pressure (MAWP): | 7.5 Bar  |
| Test Pressure:          | 13.8 Bar |
| Design Temperature Min: | -40°C    |
| Design Temperature Max: | 205°C    |

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

### Design Codes

Design Approval by Lloyds Register of Shipping  
BS EN14432

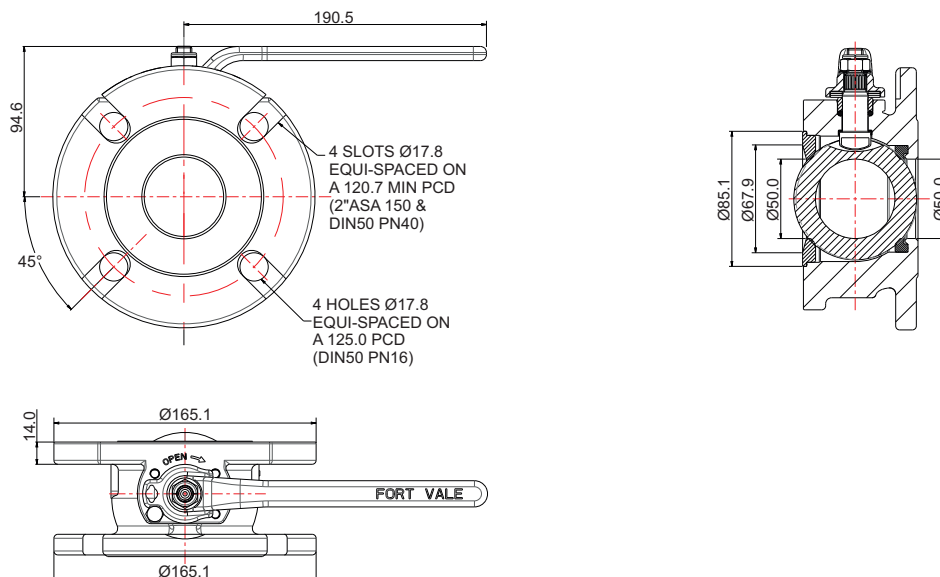
## Range

| Description                               | Part No.   |
|---|------------|
| Standard specification                    | 370/0100   |
| With steam heating chamber                | 370/0100SH |
| DIN80 inlet adaptor & outlet blind flange | 370/0140   |
| With 2" BSP outlet spigot flange          | 370/0150   |
| With outlet blind flange                  | 370/0180   |

## Related Parts

| Description        | Part No.   |
|--------------------|------------|
| Weld-in flange     | 355/3100   |
| Stud kit           | 311/3700   |
| PTFE outlet gasket | 5005-361   |
| Blind flange       | 370/4239CM |

## Section View

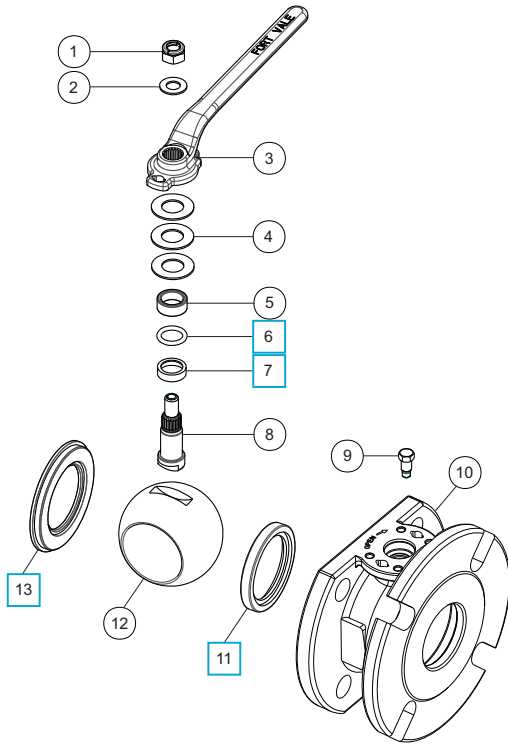




# DN50 Flanged Blacko Ball Valve

Part No: 370/0100

## Parts Drawing



## Parts List

| Item | Description                | Part No. |                          |
|------|----------------------------|----------|--------------------------|
| 1    | M10 self locking nut       | 5112-008 |                          |
| 2    | M10 plain washer           | 5113-009 |                          |
| 3    | Handle                     | 370/0125 |                          |
| 4    | 16mm Belleville washer (3) | 5113-038 |                          |
| 5    | Stuffing collar            | 370/0103 |                          |
| 6    | PTFE O ring                | 5005-688 | <input type="checkbox"/> |
| 7    | Bottom bearing             | 370/0104 | <input type="checkbox"/> |
| 8    | Spindle                    | 370/0120 |                          |
| 9    | Stop bolt                  | 370/0107 |                          |
| 10   | Body                       | 370/0110 |                          |
| 11   | PTFE rear seal             | 370/0102 | <input type="checkbox"/> |
| 12   | 50mm ball                  | 370/3301 |                          |
| 13   | PTFE front seal            | 370/0105 | <input type="checkbox"/> |

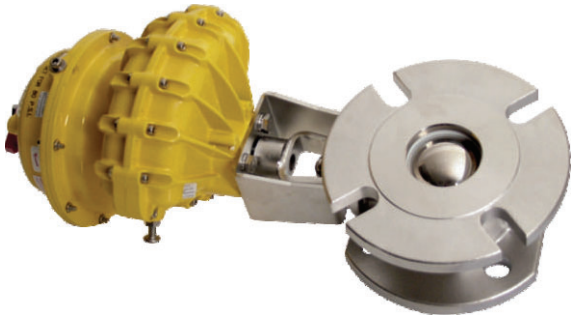
## Seal Kit

| Description   | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 370/01SK |



# DN50 Flanged Blacko Ball Valve - Pneumatic Actuator

Part No: 370/0100PN/1



## Specification

**Nominal size**  
DN50

**Tank connection**  
Flanged: 4 x 18mm holes on a 125mm PCD

**Outlet/Process connection**  
Flanged: 4 x 18mm open slots on a 120.7mm min. PCD compatible with 2" ASA150/DIN50 PN40

**Properties**  
Kinetrol pneumatic actuator with spring return and 1/4" BSP air inlet

**Materials**  
Contact parts: 316 stainless steel  
Main seal: PTFE

Alternatives are available, refer to the Design Options page

## Design Conditions

|                         |                 |
|-------------------------|-----------------|
| Weight:                 | 5.81 Kg         |
| Design Pressure (MAWP): | 7.5 Bar         |
| Test Pressure:          | 13.8 Bar        |
| Design Temperature Min: | Valve: -40°C    |
| Design Temperature Min: | Actuator: -20°C |
| Design Temperature Max: | Valve: 205°C    |
| Design Temperature Max: | Actuator: 80°C  |

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

**Design Code**  
BS EN14432

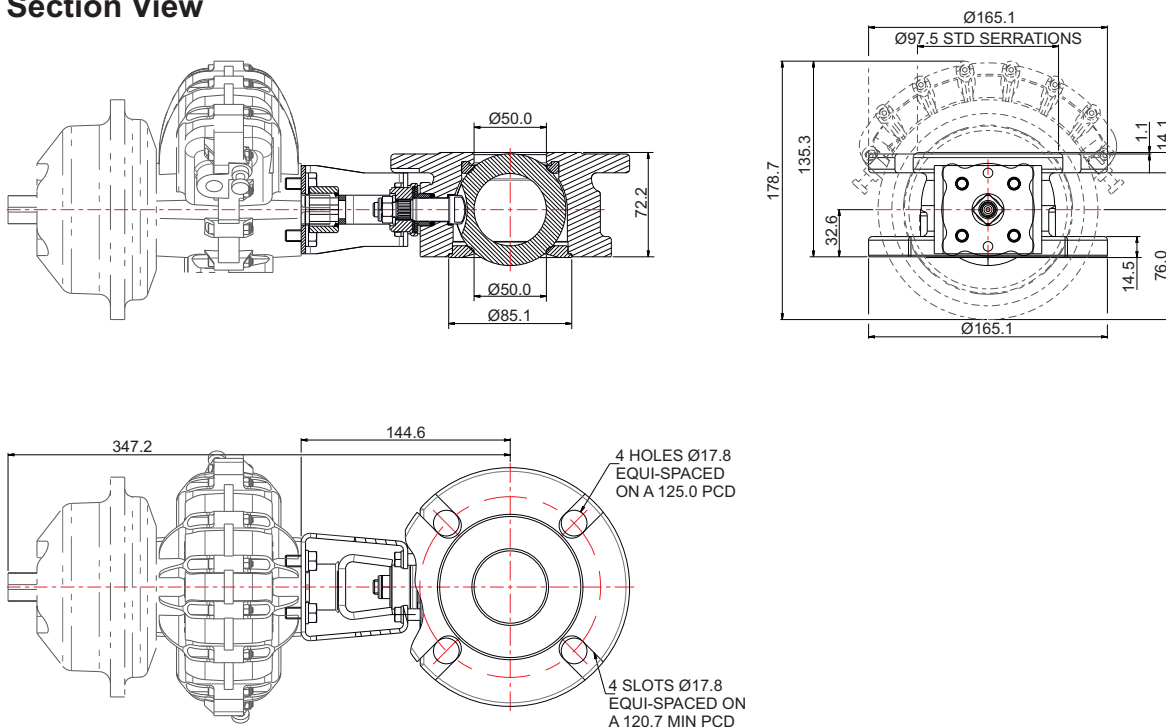
## Range

| Description                       | Part No.     |
|-----------------------------------|--------------|
| DN50 valve pneumatically actuated | 370/0100PN/1 |
| DN50 valve manually operated      | 370/0100     |

## Related Parts

| Description    | Part No.   |
|----------------|------------|
| Mating flange  | 294/0082   |
| Weld-in flange | 355/3100   |
| Stud kit       | 311/3700   |
| Outlet gasket  | 5005-361   |
| Blind flange   | 370/4239CM |

## Section View

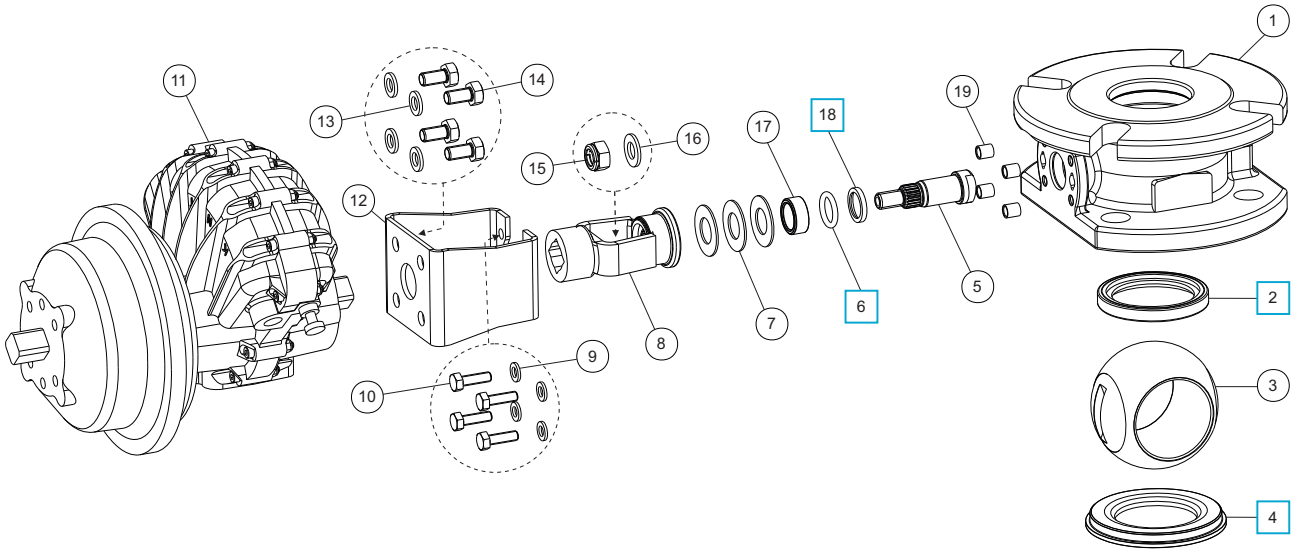




# DN50 Flanged Blacko Ball Valve - Pneumatic Actuator

Part No: 370/0100PN/1

## Parts Drawing



## Parts List

| Item | Description                 | Part No.                          |
|------|-----------------------------|-----------------------------------|
| 1    | Body                        | 370/0110                          |
| 2    | PTFE front seal             | 370/0102 <input type="checkbox"/> |
| 3    | Ø50mm ball                  | 370/3301                          |
| 4    | PTFE rear seal              | 370/0105 <input type="checkbox"/> |
| 5    | Spindle                     | 370/0120                          |
| 6    | PTFE O ring                 | 5005-688 <input type="checkbox"/> |
| 7    | Belleville washer (3)       | 5113-038                          |
| 8    | Spline adaptor assembly     | 370/0209                          |
| 9    | M6 spring washer (4)        | 5113-008                          |
| 10   | M6 hex bolt (4)             | 5111-076                          |
| 11   | Kinetrol pneumatic actuator | 5127-078                          |
| 12   | Mounting bracket            | 370/0208                          |
| 13   | M8 spring washer (4)        | 5113-003                          |
| 14   | M8 hex bolt (4)             | 5111-822                          |
| 15   | M10 self lock nut           | 5112-008                          |
| 16   | M10 plain washer            | 5113-009                          |
| 17   | Stuffing collar             | 370/0103                          |
| 18   | Bottom bearing bush         | 370/0104 <input type="checkbox"/> |
| 19   | Spacer boss (4)             | 370/0163                          |

## Seal Kit

| Description   | Part No. |
|---|----------|
| All parts marked <input type="checkbox"/> in the Parts List | 370/01SK |



# DN50 / 2" BSP Airline Butterfly Valve

Part No: 535/0200X



## Specification

### Nominal size

DN50

### Tank connection

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

### Outlet/Process 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.

### Design Code

BS EN 14432

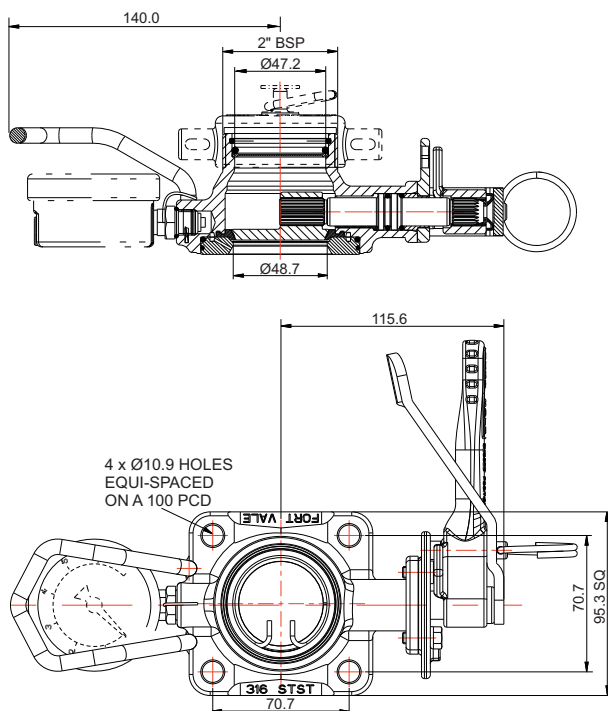
## Range

| 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   |
| Weld-in flange | 355/1000   |

## Section View

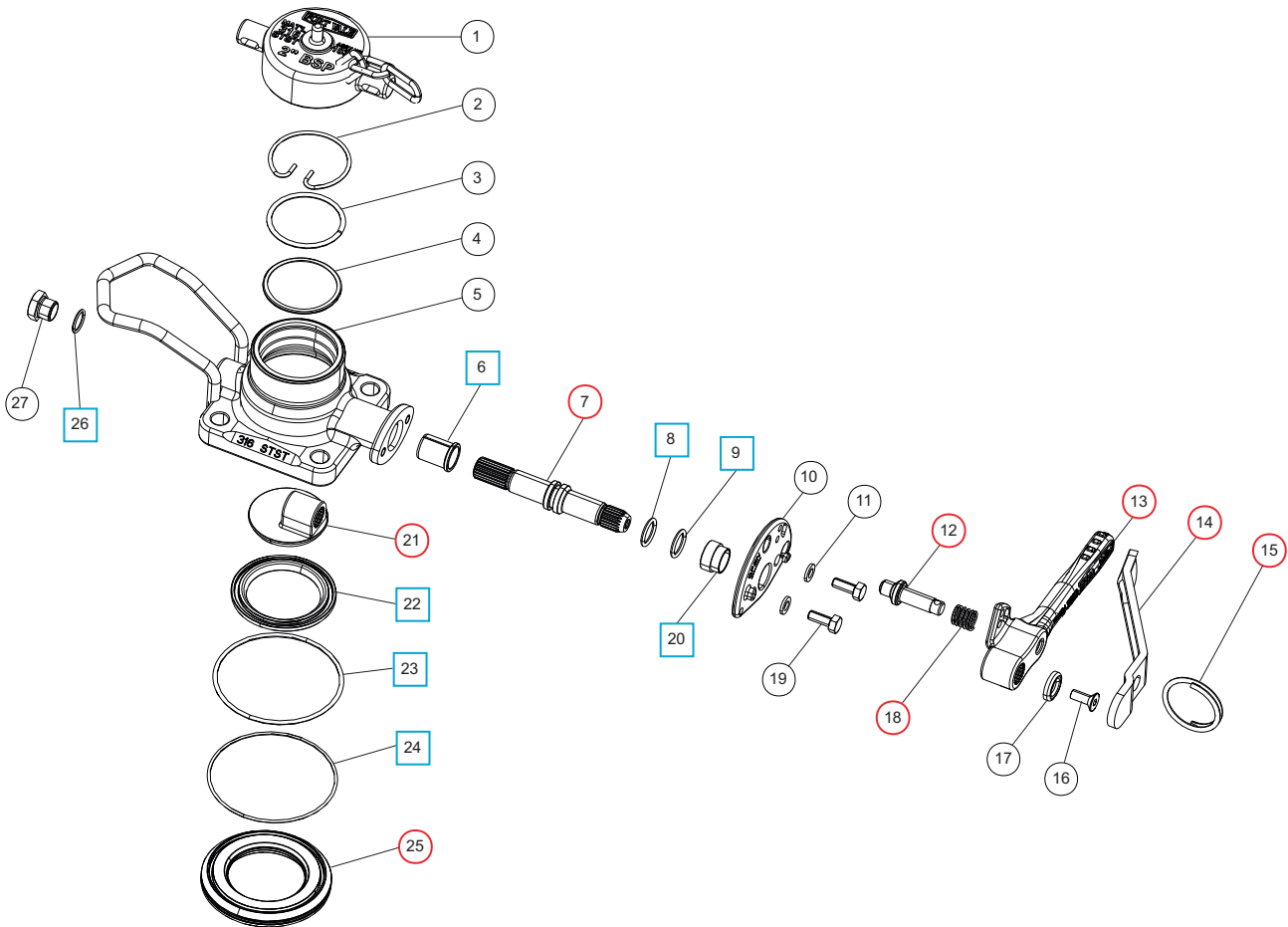




# DN50 / 2" BSP Airline Butterfly Valve

Part No: 535/0200X

## Parts Drawing



### Parts List

| Item | Description   | Part No.  |
|------|---|---|
| 1    | 2" BSP dust cap<br>(supplied separately)                            | 10301PS   |
| 2    | Snap ring * <b>Note 1 &amp; 2</b>                                   | 5120-005  |
| 3    | Spacer * <b>Note 1 &amp; 2</b>                                      | 355/0295  |
| 4    | Gauze filter * <b>Note 1</b><br>Sintered filter (2) * <b>Note 2</b> | 355/0010<br>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 |

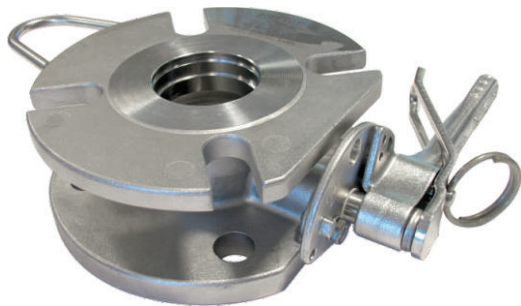
### Repair Kit

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



# DN50 Flanged Airline Butterfly Valve

Part No: 535/3000



## Specification

### Nominal size

DN50

### Tank connection

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

### Outlet/Process 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:          | 12.6 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.

### Design Code

BS EN 14432

## Range

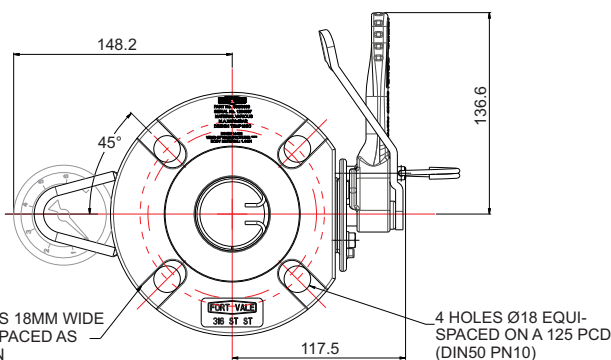
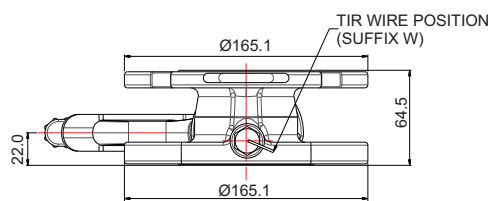
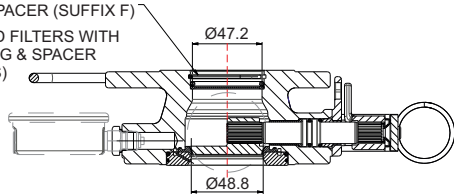
| Description                    | Part No.  |
|--------------------------------|-----------|
| Standard specification         | 535/3000  |
| With gauze filter              | 535/3000F |
| With sintered filter           | 535/3000S |
| With TIR wire to 1/4" BSP plug | 535/3000W |

## Related Parts

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

## Section View

GAUZE FILTER WITH SNAP RING & SPACER (SUFFIX F)  
SINTERED FILTERS WITH SNAP RING & SPACER (SUFFIX S)

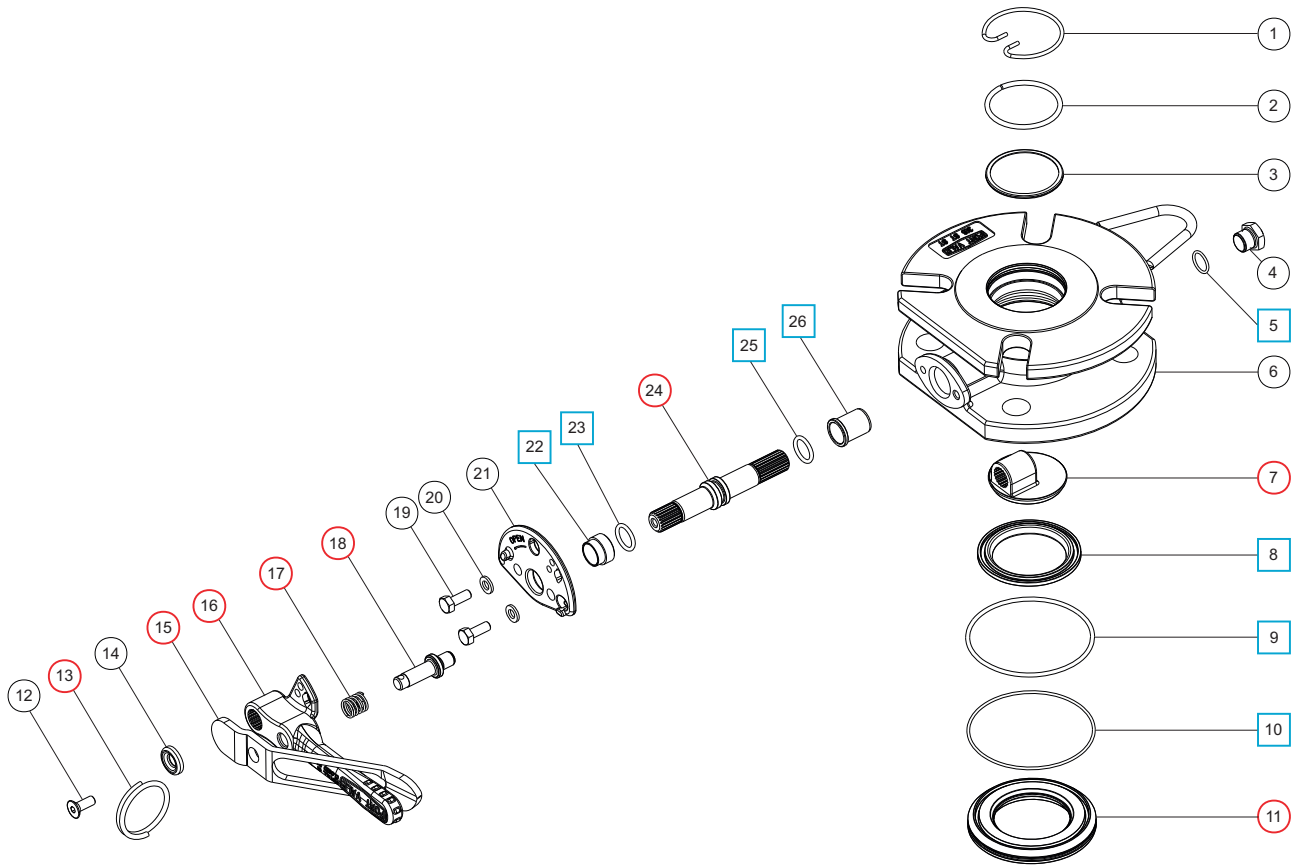




# DN50 Flanged Airline Butterfly Valve

Part No: 535/3000

## Parts Drawing



### Parts List

| Item | Description                         | Part No.  |
|------|-------------------------------------|---|
| 1    | Snap ring * <b>Note 1 &amp; 2</b>   | 5120-005  |
| 2    | Spacer * <b>Note 1 &amp; 2</b>      | 355/0295  |
| 3    | Gauze filter * <b>Note 1</b>        | 355/0010  |
|      | Sintered filter (2) * <b>Note 2</b> | 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 |



# 1½” BSP to Flanged Airline Ball Valve Adaptor Kit

## Accessories & Spare Parts



### Specification

The 1½” airline ball valve adaptor kit lets you change an airline ball valve with a 1½” BSP outlet/process connection to a DN40 PN16 or DN50 PN16 flanged outlet/process connection.

The kit includes these parts:

- BSP to DN adaptor flange
- blind flange
- bent handle
- envelope gasket
- bolting kit

**NOTE:** The ball valve is not included in the kit.

You can buy only the adaptor flange if you do not need the complete kit.

### Range

| Description                         | Part No.      |
|-------------------------------------|---------------|
| 1½” BSP to DN40 adaptor kit         | 530/ADAP40KIT |
| 1½” BSP to DN40 adaptor flange only | 530/ADAP40    |
| 1½” BSP to DN50 adaptor kit         | 530/ADAP50KIT |
| 1½” BSP to DN50 adaptor flange only | 530/ADAP50    |



## Pressure Gauges Accessories & 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, 0-40 Bar

#### Material options - internal parts

Brass, stainless steel

### Standard Pressure Gauge

| Pressure Range<br>Bar | 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 |
| 0-40                  | 0-580 | St/steel       | 920/40BBSP |

### Tell-Tale Pressure Gauge

| Pressure Range<br>Bar | 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 |
| 0-40                  | 0-580 | St/steel       | 920/40TTBBSP |



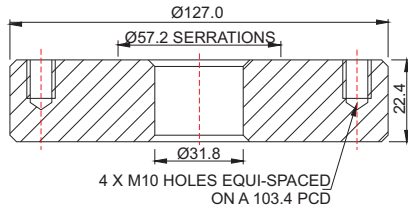
## Weld-In Flanges for Airline Valves

### Accessories & Spare Parts

**Part No: 350/0025**



#### Section View



#### Specification

**Flange type**

Weld-in flange

**Nominal size**

DN32

**Flange drilling**

4 x M10 holes equi-spaced on a 103.4mm PCD

**Material**

316L stainless steel

**Compatible valve**

DN32 airline ball valve

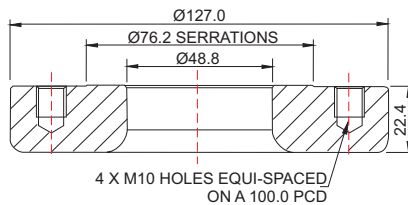
#### Related Parts

| Description | Part No. |
|-------------|----------|
| Stud kit    | 350/1300 |

**Part No: 355/1000**



#### Section View



#### Specification

**Flange type**

Weld-in flange

**Nominal size**

DN50

**Flange drilling**

4 x M10 holes equi-spaced on a 100.0mm PCD

**Material**

316L stainless steel

**Compatible valve**

DN50 airline butterfly valve

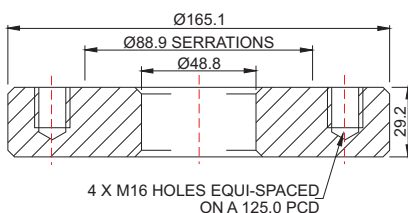
#### Related Parts

| Description | Part No. |
|-------------|----------|
| Stud kit    | 350/1300 |

**Part No: 355/3100**



#### Section View



#### Specification

**Flange type**

Weld-in flange

**Nominal size**

DN50

**Flange drilling**

4 x M16 holes equi-spaced on a 125.0mm PCD

**Material**

316L stainless steel

**Compatible valve**

DN50 flanged butterfly valve

DN50 flanged ball valve

#### Related Parts

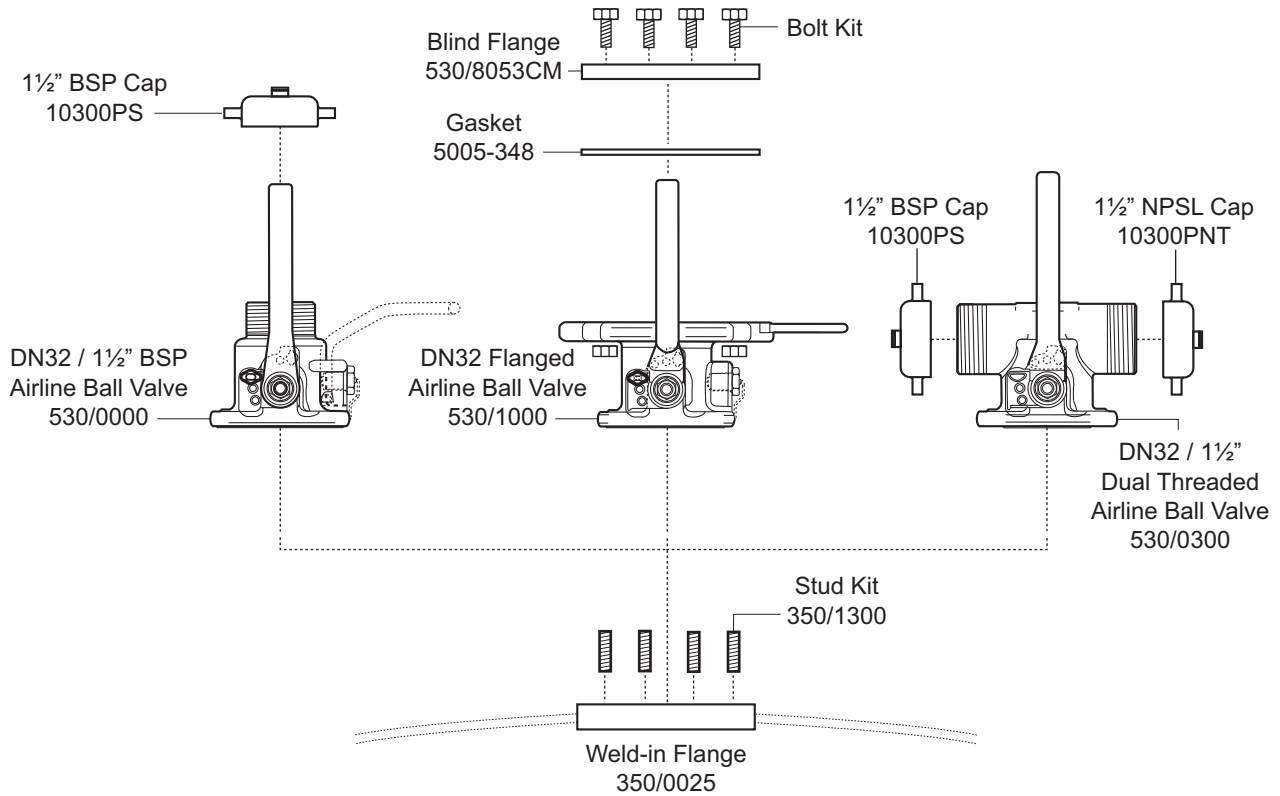
| Description | Part No. |
|-------------|----------|
| Stud kit    | 311/3700 |



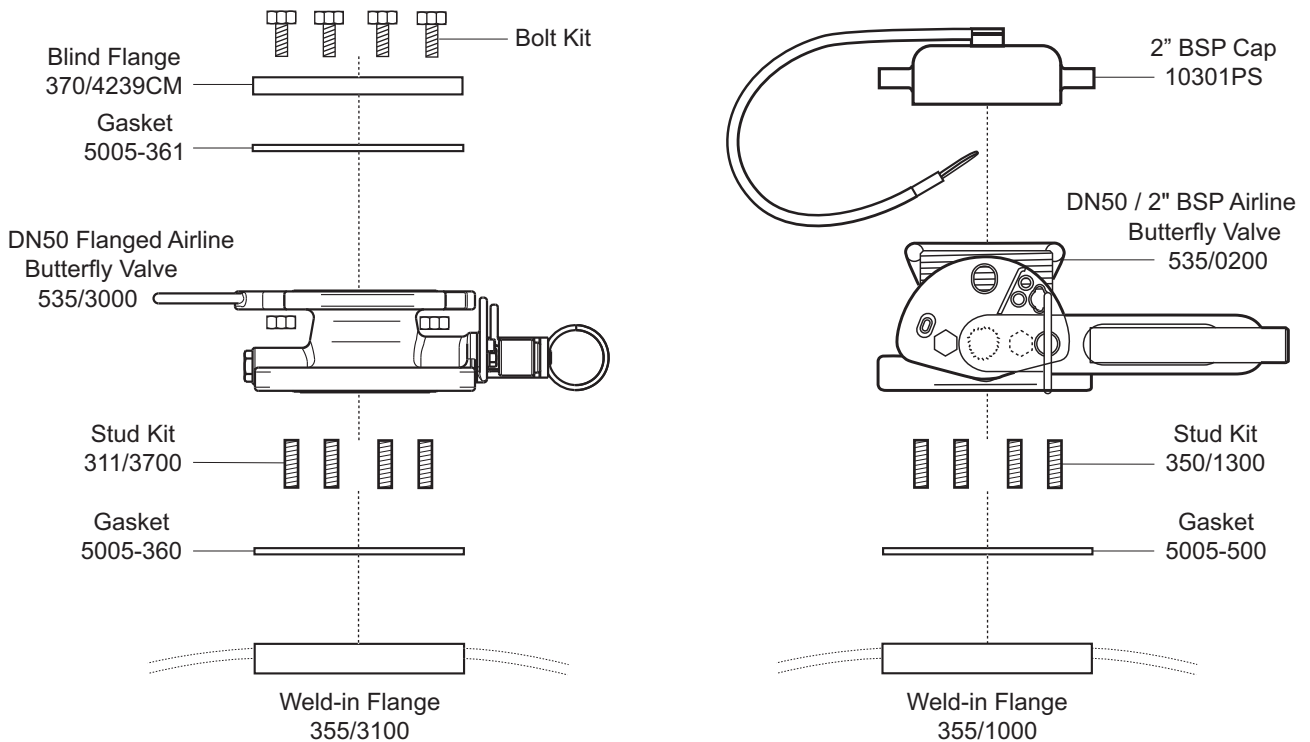
# Airline Ball Valves & Airline Butterfly Valves

## Installation Options

### DN32 Airline Ball Valves



### DN50 Airline Butterfly Valves





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# APPENDIX

## Catalogue

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|   |  |
|---|--|
| A | Bolt Torque Guide & Step Loading Procedure     |
| B | Client Responsibilities - Valves & Accessories |

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# Bolt Torque Guide & Step Loading Procedure

## Installation & Operating Instructions

### Flange Bolting

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

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

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

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

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

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

### Bolt Torque

#### Bolt Torque Values

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

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

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

#### Bolt Torque Procedure

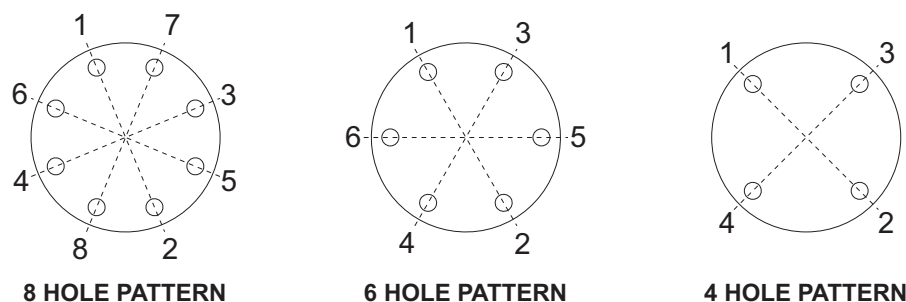
To install flanged parts correctly:

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

**Table BT1**

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

**Figure BT1**





## **Bolt Torque Guide & Step Loading Procedure**

### **Installation & Operating Instructions**

---

## **Step Loading Procedure**

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

### **Install**

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

### **Round 1**

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

### **Round 2**

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

### **Round 3**

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

### **Round 4**

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

### **Round 5**

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



## Client Responsibilities - Valves & Accessories

### Installation, Operation & Maintenance Instructions

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## Compatibility

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

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

## Maintenance and Inspection

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

### Inspections at regular intervals:

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

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

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

### Inspections after 2½ years of service or a minor incident:

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

### Inspections after 5 years of service or a major incident:

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

## Replacement Parts

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

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

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

## External Fire

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

## Compatibility of Accessories

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

## Mis-use

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

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Our subsidiaries are located in:

**US Office**

126 N. Virginia  
La Porte  
TX 77571  
USA

Tel: +1 281 471 8100

Fax: +1 281 471 8116

Email: [ussales@fortvale.com](mailto:ussales@fortvale.com)

**Head Office**

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

Tel: +44 (0) 1282 687120

Fax: +44 (0) 1282 687110

Email: [sales@fortvale.com](mailto:sales@fortvale.com)

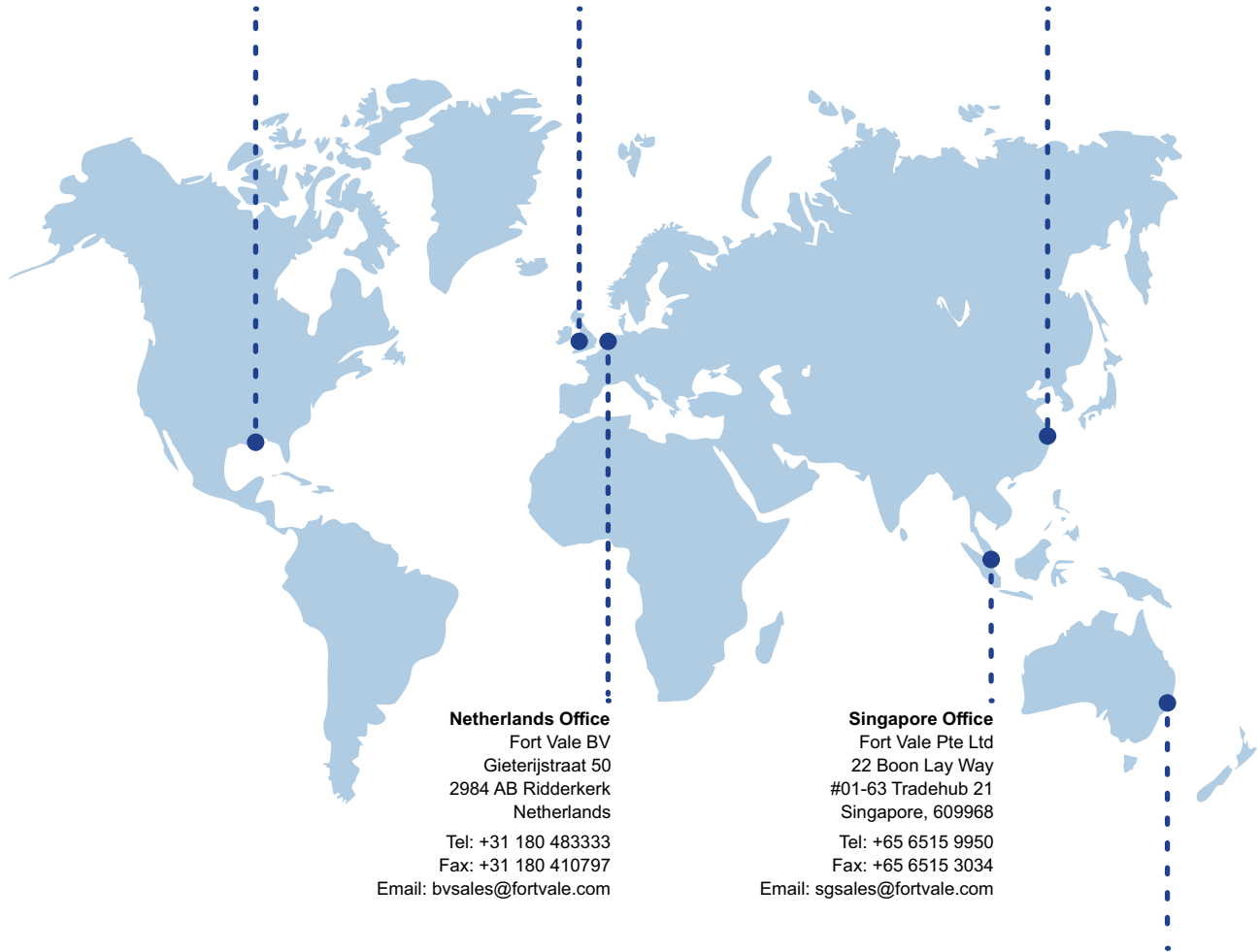
**China Office**

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

Tel: +86 21 6442 1367

Fax: +86 21 6442 1376

Email: [cnsales@fortvale.com](mailto:cnsales@fortvale.com)



**Netherlands Office**

Fort Vale BV  
Gieterijstraat 50  
2984 AB Ridderkerk  
Netherlands

Tel: +31 180 483333

Fax: +31 180 410797

Email: [bvsales@fortvale.com](mailto:bvsales@fortvale.com)

**Singapore Office**

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

Tel: +65 6515 9950

Fax: +65 6515 3034

Email: [sgsales@fortvale.com](mailto:sgsales@fortvale.com)

**Australia Office**

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

Tel: +61 7 3189 5059

Email: [ausales@fortvale.com](mailto:ausales@fortvale.com)

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

