



## Catalogue

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# Standard Range of Drytyt Dry Disconnect Couplings





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### Catalogue

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# Drytyt Dry Disconnect Couplings

## Design Options

### Function

Drytyt dry disconnect tank units and hose units provide a fast and safe bulk liquid transfer system where product spillage is not permitted. Drytyt couplings are made to industry standards and are fully compatible with Todo®, Mann-Tek® and Avery Hardoll® couplings.

All industry accepted selectivity systems are available to prevent accidental mixing of cargoes.

### Design Options

The design options below are available on our standard range of dry disconnect couplings.

#### Nominal Size

- 56mm
- 70mm
- 105mm
- 119mm
- 164mm



#### Threaded Connection

- BSP
- NPT
- NPSL

#### Flanged Connection

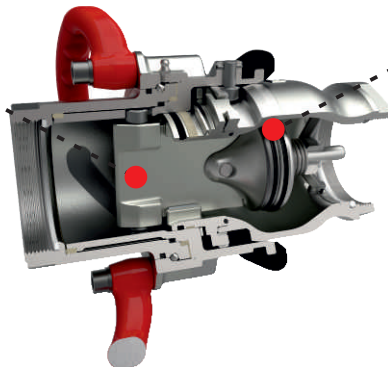
- Compatible with a range of bottom discharge valve assemblies
- A selection of drilling patterns is available

#### Contact Parts

316 stainless steel

#### Special service conditions:

- High nickel alloys
- 904L
- Inconel®
- Titanium



#### Main Seal

Viton as standard

#### Special service conditions:

A selection of seal materials is available, refer to the next page

#### Selectivity

All industry accepted selective positions are available

Please refer to our Coupling Selectivity data sheets



#### Security

- Colour coded
- Your logo



## Drytyt Dry Disconnect Couplings

### Design Options

### Seal Options

The working temperature range of the seal material can change the design temperature limits of the Drytyt coupling. Please refer to the table below:

Seal Code	Seal Material	Seal Temp.Range
915/54XXB	Butyl	-30°C to +120°C
915/54XXE	EPDM	-20°C to +150°C
915/54XXF	Fortyt * <b>Note</b>	-55°C to +200°C
915/54XXK	Kalrez®	-15°C to +200°C
915/54XXN	Nitrile	-20°C to +100°C
915/54XXP	Perfluoroelastomer	-15°C to +200°C
915/54XXQ	Viton FDA approved	-20°C to +200°C
915/54XXV	Viton	-20°C to +200°C

### Related Parts

We recommend our range of compatible pressure-tight caps for tank units. Please refer to the Pressure-Tight Caps data sheet.



# 56mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B560A00



## Specification

### Nominal size

56mm

### Inlet connection

1" BSP

### Outlet/process connection

56mm

### Properties

Fire-safe design. Non-protruding poppet

### Selectivity

None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

### Materials

Contact parts: 316 stainless steel

Poppet O ring: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

Weight: 0.7 Kg  
 Design Pressure (MAWP): 25 Bar  
 Test Pressure: 37.5 Bar  
 Max. Coupling Pressure: specified by the hose unit  
 Design Temp. Min/Max: -40°C / 200°C (metal parts)  
 Design Temp. Min/Max: -20°C / 200°C (Viton O ring)

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

### Design Code

BS EN 14432

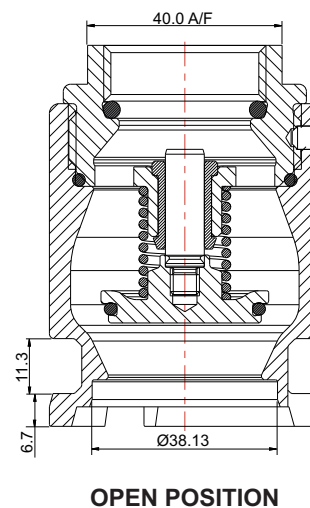
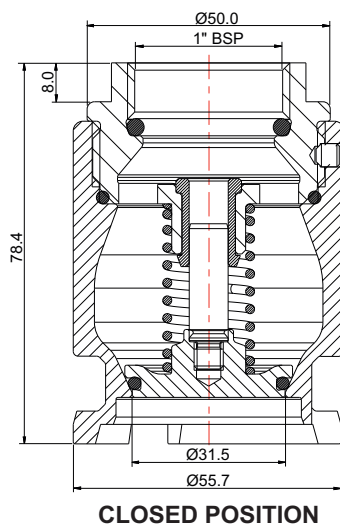
## Range

Description	Part No.
1" BSP inlet, Viton seal, no selectivity	376V/B560A00

## Related Parts

Description	Part No.
56mm pressure-tight cap	915/5410X
56mm/1" BSP hose unit, Viton seal	895V/B560A00

## Section View

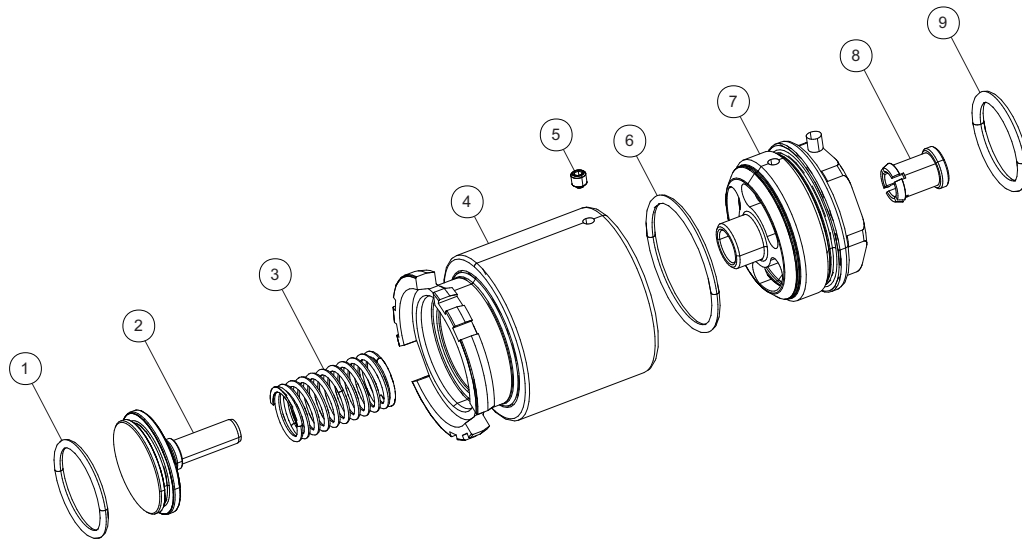




## 56mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B560A00

### Parts Drawing



### Parts List

Item	Description	Part No.
1	Viton poppet O ring <b>*Note</b>	ORB121V
2	Poppet assembly	376/0563
3	Poppet spring	5104-805
4	56mm body (no selectivity) <b>*Note</b>	376/B561A00
5	Sockethead screw	5121-001
6	PTFE O ring	ORB130P0
7	1" BSP body half	376/B566
8	Guide bush	376/0566/1
9	PTFE O ring	ORB215P0

**NOTE:** The tank unit specification changes the Part No.





# 56mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B560A00



## Specification

### Nominal size

56mm

### Inlet connection

1" BSP with swivel

### Outlet connection

56mm

### Selectivity

None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

### Materials

Contact parts: 316 stainless steel

Main seals: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

Weight: 1.7 Kg  
 Design Pressure (MAWP): 25 Bar  
 Test Pressure: 43.8 Bar  
 Max. Coupling Pressure: 7 Bar  
 Design Temp. Min/Max: -40°C / 200°C (**metal parts**)  
 Design Temp. Min/Max: -20°C / 200°C (**Viton seals**)

**NOTE:** The working temperature of the hose unit seals can change the design temperature limits. The Design Conditions and Section View dimensions are for the specified part number only.

### Design Code

BS EN 12516-2

## Range

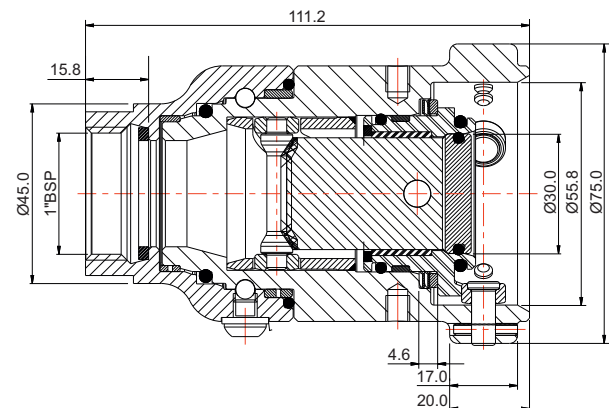
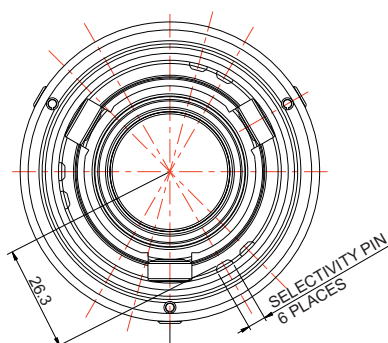
Description	Part No.
1" BSP inlet, Viton seal, no selectivity	895V/B560A00

## Related Parts

Description	Part No.
56mm/1" BSP tank unit, Viton seal	376V/B560A00
Pressure-tight cap for 56mm tank unit	915/5410X

## Section View

Shows the selectivity pin position

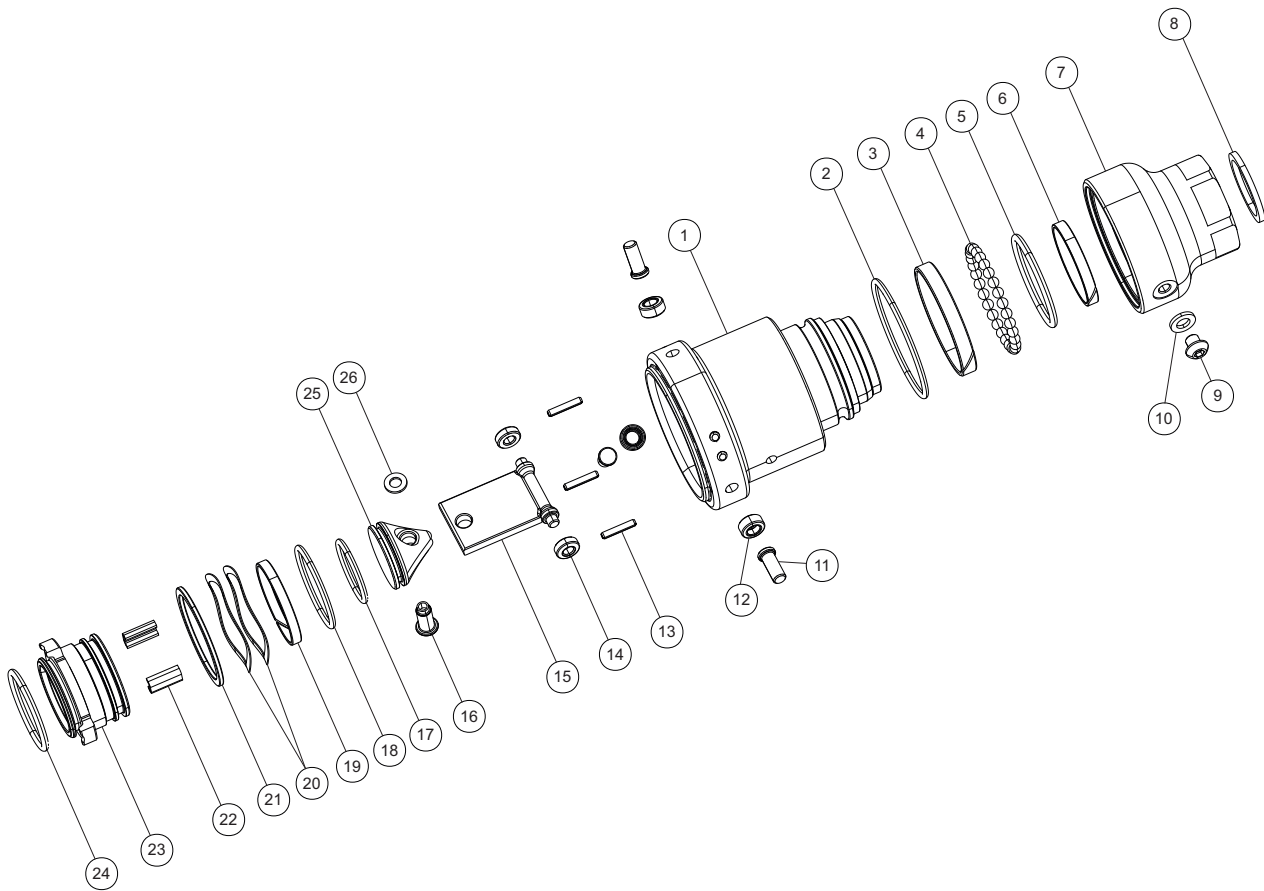




# 56mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B560A00

## Parts Drawing



### Parts List

Item	Description	Part No.
1	56mm body (no selectivity) *Note	895/B56100
2	Fortyt O ring	ORB137F0
3	PTFE front bearing	895/5603
4	Ball bearing (30)	10145SS
5	Viton O ring *Note	5005-110
6	PTFE rear bearing	895/5605
7	1" BSP swivel body	895/5601
8	PTFE rear seal	895/B563/1
9	M6 button screw	5111-613
10	M6 spring washer	5113-008
11	Spindle housing bolt (3)	895/B564
12	Roller (3)	895/B566/1
13	Roll pin (3)	5128-071
14	Roller (2)	895/B566
15	Roller spindle assembly	895/B568
16	Pivot pin	895/B567/1
17	Viton O ring *Note	5005-552
18	Viton O ring *Note	5005-956
19	Poppet bearing	895/B562
20	Wave spring (2)	5104-201

### Parts List

Item	Description	Part No.
21	Backing washer	895/B563
22	Slide strip (2)	895/B568/4
23	Poppet housing assembly	895/B565
24	Viton O ring *Note	ORM033030VR
25	Poppet	895/B567
26	5mm plain washer	5113-015

**NOTE:** The hose unit specification changes the Part No.



# Dry Disconnect Coupling Selectivity: 56mm

## Selectivity Systems

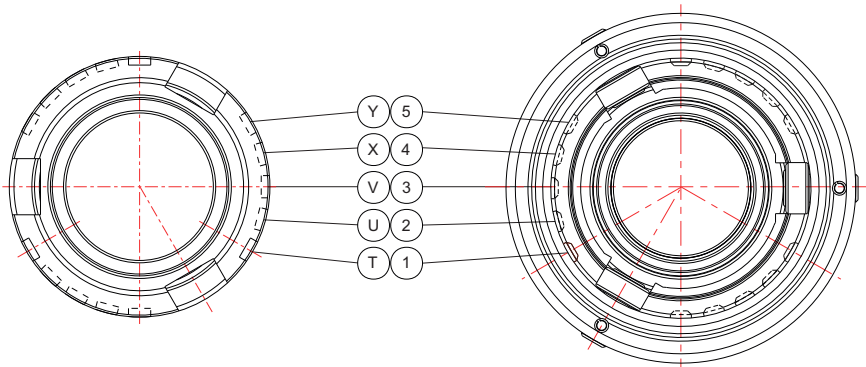
Fort Vale 56mm Drytyt couplings are compatible with Todo® and Mann-Tek® couplings and are available with these selectivity systems to prevent accidental mixing of cargoes:

Selectivity	Compatible	Refer to
5 Position	Fort Vale®, Todo®, Mann-Tek®	Figure 1 and Table 1
10 Position	Fort Vale®, Todo®, Mann-Tek®	Figure 1 and Table 2

**Figure 1: 56mm Tank Unit and 56mm Hose Unit - 5 and 10 Position Selectivity**

56mm Tank Unit with slots

56mm Hose Unit with pins



**Table 1: 5 Position Selectivity**

Pin/Slot Position				
T	U	V	X	Y

**Table 2: 10 Position Selectivity**

Pin/Slot Position									
12	13	14	15	23	24	25	34	35	45

**CAUTION:** A hose unit with one pin (from 5 position selectivity) can engage with a tank unit with two slots (from 10 position selectivity). Check the compatibility of the tank and hose units carefully before you connect them.

## How to Order

To order a 56mm Drytyt tank unit or hose unit with selectivity, select the slot/pin position and add the letter or number code to the end of the tank/hose unit part number. Please refer to the example below:

e.g. tank unit - 5 position selectivity: 376X/B560XT  
 tank unit - 10 position selectivity: 376X/B560X45

e.g. hose unit - 5 position selectivity: 895X/B560AT  
 hose unit - 10 position selectivity: 895X/B560A45

**NOTE:** The seal material and inlet connection change the “X” values in the part numbers above.





# 70mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B700A00



## Specification

### Nominal size

70mm

### Inlet connection

2" BSP

### Outlet/process connection

70mm

### Properties

Fire-safe design. Non-protruding poppet

### Selectivity

None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

### Materials

Contact parts: 316 stainless steel

Poppet O ring: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

Weight: 1.2 Kg  
 Design Pressure (MAWP): 25 Bar  
 Test Pressure: 37.5 Bar  
 Max. Coupling Pressure: specified by the hose unit  
 Design Temp. Min/Max: -40°C / 200°C (**metal parts**)  
 Design Temp. Min/Max: -20°C / 200°C (**Viton O ring**)

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

### Design Code

BS EN 14432

## Range

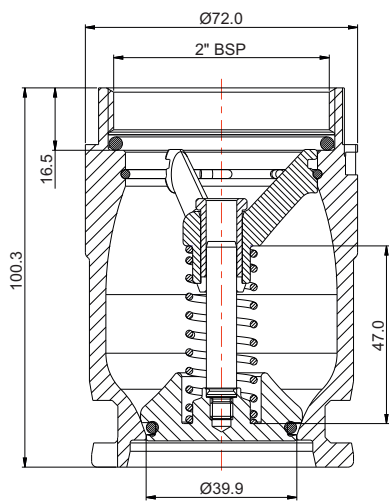
Description	Part No.
2" BSP inlet, Viton seal, no selectivity	376V/B700A00
Flanged inlet, no selectivity <b>*Note</b>	376V/B700X00

**NOTE:** Different flange specifications are available. Please contact Fort Vale.

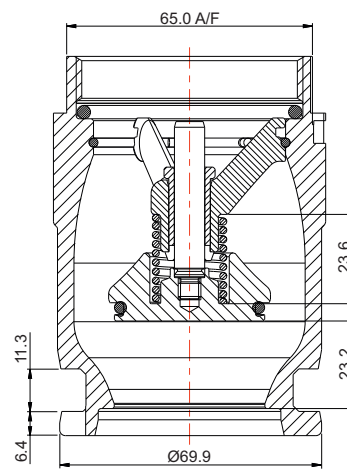
## Related Parts

Description	Part No.
70mm pressure-tight cap	915/5420X
70mm/2" BSP hose unit, Viton seal	895V/B700A00

## Section View



**CLOSED POSITION**



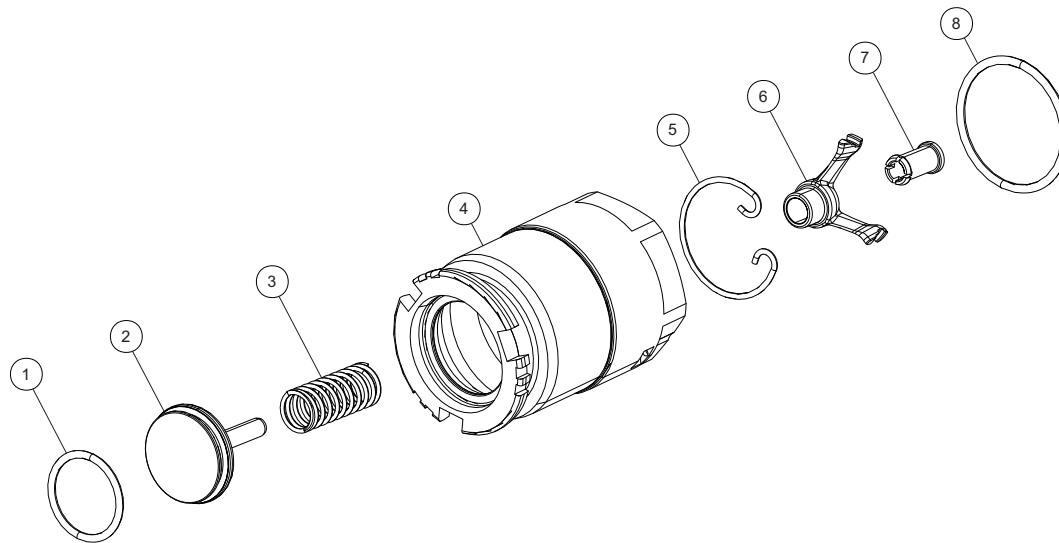
**OPEN POSITION**



# 70mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B700A00

## Parts Drawing



## Parts List

Item	Description	Part No.
1	Viton poppet O ring <b>*Note</b>	5005-171
2	Poppet assembly	376/B703
3	Poppet spring	5104-800
4	70mm body (no selectivity) <b>*Note</b>	376/B701A00
5	Snap ring	5120-081
6	Spider	376/B702
7	Guide bush	376/0702/2
8	PTFE O ring	ORB832P0

**NOTE:** The tank unit specification changes the Part No.



# 70mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B700A00



## Specification

### Nominal size

70mm

### Inlet connection

2" BSP with swivel

### Outlet connection

70mm

### Selectivity

None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

### Materials

Contact parts: 316 stainless steel

Main seals: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

Weight: 3.0 Kg  
 Design Pressure (MAWP): 25 Bar  
 Test Pressure: 42.2 Bar  
 Max. Coupling Pressure: 2 Bar  
 Design Temp. Min/Max: -40°C / 200°C (**metal parts**)  
 Design Temp. Min/Max: -20°C / 200°C (**Viton seals**)

**NOTE:** The working temperature of the hose unit seals can change the design temperature limits. The Design Conditions and Section View dimensions are for the specified part number only.

### Design Code

BS EN 12516-2

## Range

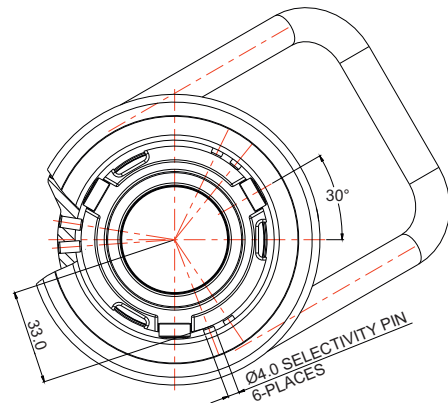
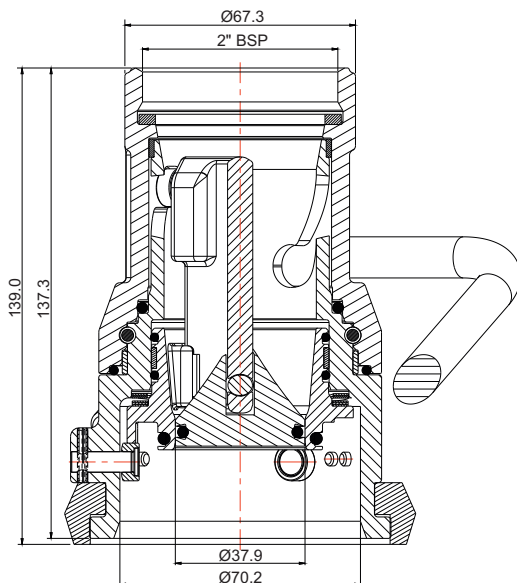
Description	Part No.
2" BSP inlet, Viton seal, no selectivity	895V/B700A00

## Related Parts

Description	Part No.
70mm/2" BSP tank unit, Viton seal	376V/B700A00
Pressure-tight cap for 70mm tank unit	915/5420X

## Section View

Shows the selectivity pin position

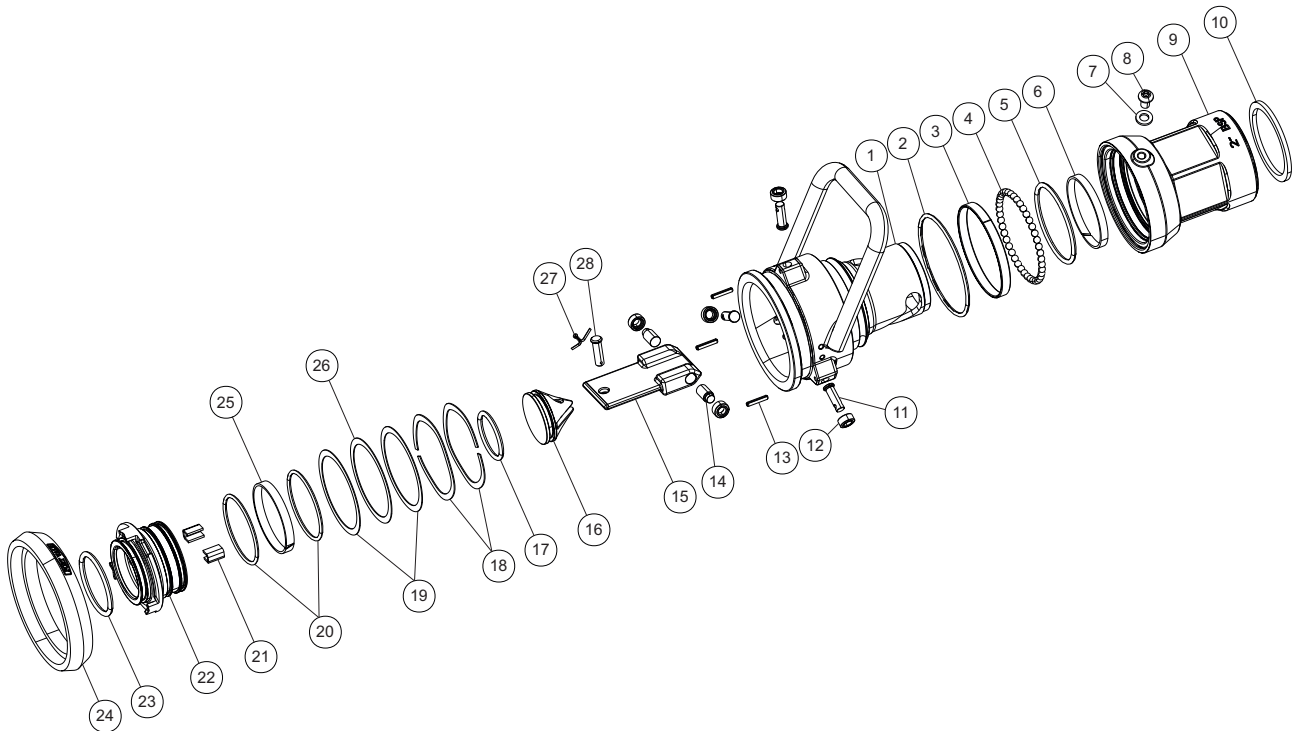




# 70mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B700A00

## Parts Drawing



### Parts List

Item	Description	Part No.
1	70mm body (no selectivity) *Note	895/B70200
2	Fortyt O ring	ORB149F1
3	RTFE plain bearing	895/0708/9
4	Ball bearing (42)	10145SS
5	Viton O ring *Note	5005-156
6	RTFE scarf cut bearing	895/0708/8
7	M6 spring washer	5113-008
8	M6 button screw	5111-610
9	Swivel body	895/B701
10	PTFE gasket	10450P
11	Roller spindle pin (3)	895/0707
12	Roller (5)	895/0706
13	Roll pin (3)	5128-071
14	Piston spindle (2)	895/B705/6
15	Piston plate	895/B705/5
16	Poppet head	895/B705/1
17	Viton O ring *Note	5005-173
18	Wave spring (2)	5104-1002
19	Thrust washer (2)	895/0703/6
20	Viton O ring (2) *Note	ORB134VR
21	Slide strip (2)	895/B708/4
22	Piston guide	895/B703
23	Viton O ring *Note	5005-172

### Parts List

Item	Description	Part No.
24	Rubber buffer ring	895/0708/2
25	RTFE inner housing bearing	895/0708/6
26	PTFE thrust bearing	895/0708/7
27	Split pin	5118-012
28	Clevis pin	895/0705/8

**NOTE:** The hose unit specification changes the Part No.





# Dry Disconnect Coupling Selectivity: 70mm

## Selectivity Systems

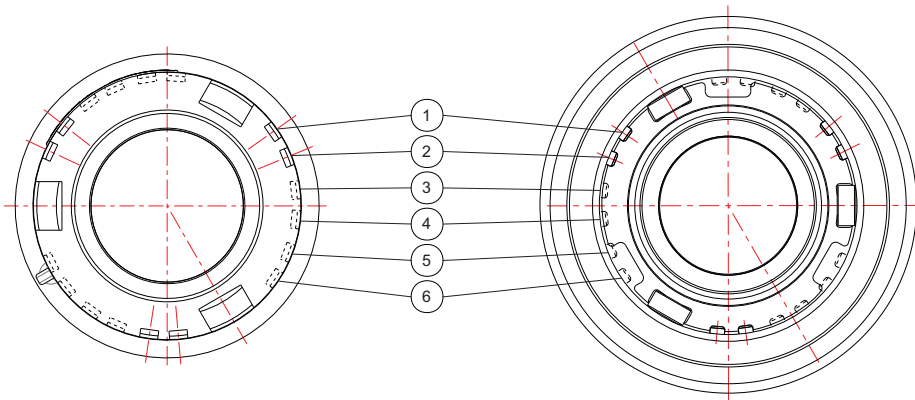
Fort Vale 70mm Drytyt couplings are compatible with Todo®, Mann-Tek® and Avery Hardoll® couplings and are available with these selectivity systems to prevent accidental mixing of cargoes:

Selectivity	Compatible	Refer to
15 Position	Fort Vale®	Figure 1 and Table 1
7 Position	Todo®, Mann-Tek®, Avery Hardoll®	Figure 2 and Table 2
21 Position	Todo®, Mann-Tek®, Avery Hardoll®	Figure 2 and Table 3

**Figure 1: 70mm Tank Unit and 70mm Hose Unit - 15 Position Selectivity**

70mm Tank Unit with slots

70mm Hose Unit with pins



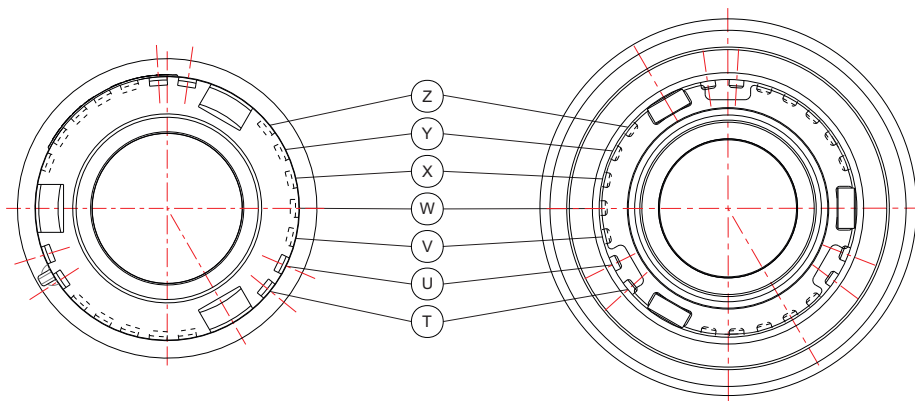
**Table 1: 15 Position Selectivity**

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

**Figure 2: 70mm Tank Unit and 70mm Hose Unit - 7 and 21 Position Selectivity**

70mm Tank Unit with slots

70mm Hose Unit with pins



**Table 2: 7 Position Selectivity**

Pin/Slot Position						
T	U	V	W	X	Y	Z

**Table 3: 21 Position Selectivity**

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

**CAUTION:** A hose unit with one pin (from 7 position selectivity) can engage with a tank unit with two slots (from 21 position selectivity). Check the compatibility of the tank and hose units carefully before you connect them.



## Dry Disconnect Coupling Selectivity: 70mm

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### How to Order

To order a 70mm Drytyt tank unit or hose unit with selectivity, select the slot/pin position and add the letter or number code to the end of the tank/hose unit part number. Please refer to the example below:

e.g. tank unit - 7 or 15 position selectivity: 376X/B700XQ  
tank unit - 21 position selectivity: 376X/B700XTU

e.g. hose unit - 7 or 15 position selectivity: 895X/B700XQ  
hose unit - 21 position selectivity: 895X/B700XTU

**NOTE:** The seal material and inlet connection change the "X" values in the part numbers above.



# 105mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B050A00



## Specification

### Nominal size

105mm

### Inlet connection

3" BSP

### Outlet/process connection

105mm

### Properties

Fire-safe design. Non-protruding poppet

### Selectivity

None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

### Materials

Contact parts: 316 stainless steel

Poppet O ring: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

Weight:	3.3 Kg
Design Pressure (MAWP):	25 Bar
Test Pressure:	37.5 Bar
Max. Coupling Pressure:	specified by the hose unit
Design Temp. Min/Max:	-40°C / 200°C ( <b>metal parts</b> )
Design Temp. Min/Max:	-20°C / 200°C ( <b>Viton O ring</b> )

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

### Design Code

BS EN 14432

## Range

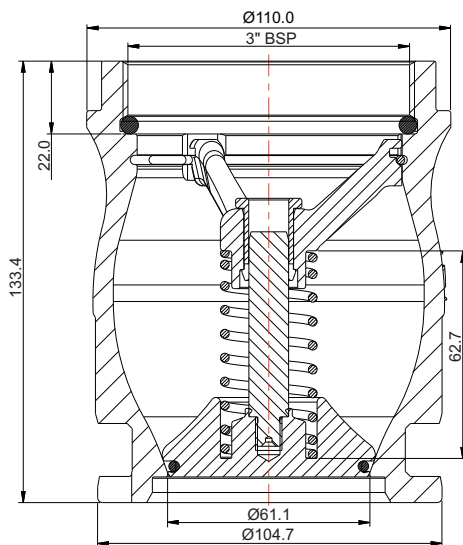
Description	Part No.
3" BSP inlet, Viton seal, no selectivity	376V/B050A00
Flanged inlet, no selectivity <b>*Note</b>	376V/B050X00

**NOTE:** Different flange specifications are available. Please contact Fort Vale.

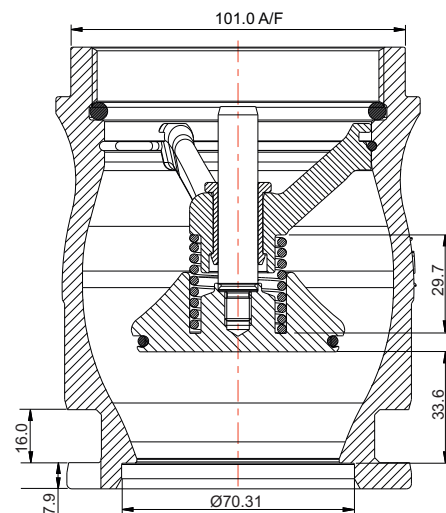
## Related Parts

Description	Part No.
105mm pressure-tight cap	915/5480X
105mm/3" BSP hose unit, Viton seal	895V/B105A00

## Section View



**CLOSED POSITION**



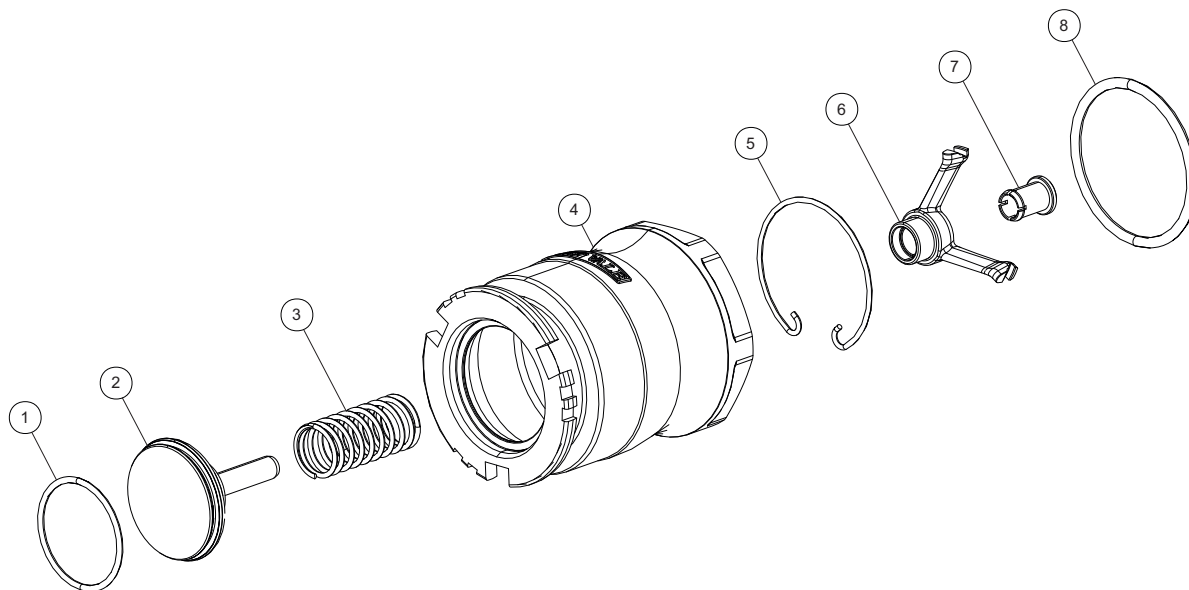
**OPEN POSITION**



# 105mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B050A00

## Parts Drawing



## Parts List

Item	Description	Part No.
1	Viton poppet O ring <b>*Note</b>	5005-156
2	Poppet assembly	376/B153
3	Poppet spring	5104-799
4	105mm body (no selectivity) <b>*Note</b>	376/B051A00
5	Snap ring	5120-082
6	Spider	376/B192
7	Guide bush	376/1052/2
8	PTFE O ring	5005-103

**NOTE:** The tank unit specification changes the Part No.



# 105mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B105X00



## Specification

**Nominal size**  
105mm

**Inlet connection options**  
2½" BSP with swivel  
3" BSP with swivel

**Outlet connection**  
105mm

**Selectivity**  
None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

**Materials**  
Contact parts: 316 stainless steel  
Main seals: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

Weight: 8.9 Kg  
Design Pressure (MAWP): 25 Bar  
Test Pressure: 37.5 Bar  
Max. Coupling Pressure: 2 Bar  
Design Temp. Min/Max: -40°C / 200°C (metal parts)  
Design Temp. Min/Max: -20°C / 200°C (Viton seals)

**NOTE:** The working temperature of the hose unit seals can change the design temperature limits. The Design Conditions and Section View dimensions are for the specified part number only.

**Design Code**  
BS EN 12516-2

## Range

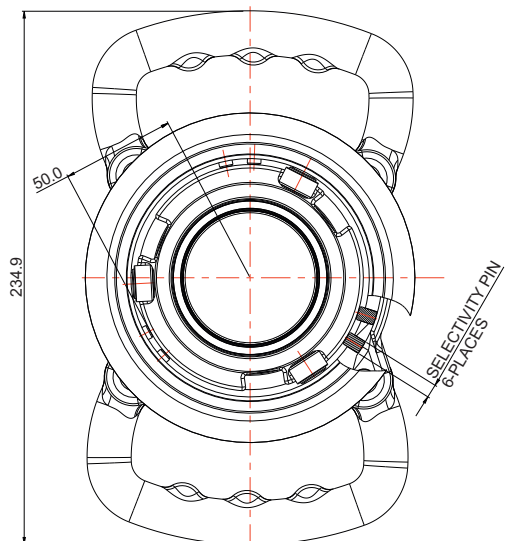
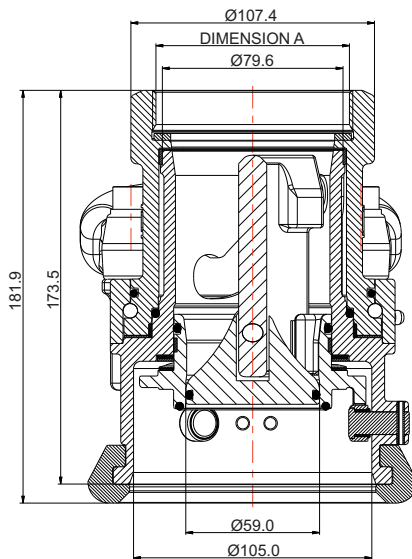
Description	Part No.
2½" BSP inlet, Viton seal, no selectivity	895V/B105B00
3" BSP inlet, Viton seal, no selectivity	895V/B105A00

## Related Parts

Description	Part No.
105mm/3" BSP tank unit, Viton seal	376V/B050A00
Pressure-tight cap for 105mm tank unit	915/5480X

## Section View

Shows the selectivity pin position



DIMENSION A: 2½" BSP inlet: Part No. 895X/B105BXX

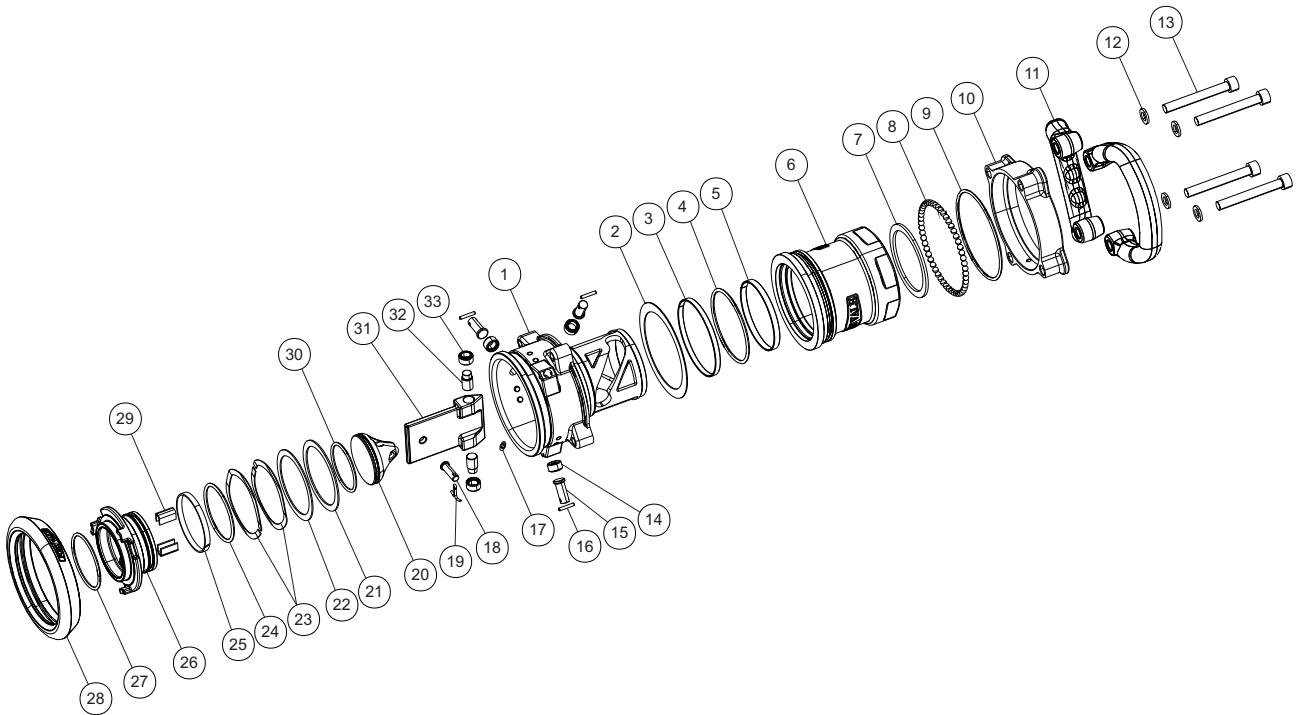
DIMENSION A: 3" BSP inlet: Part No. 895X/B105AXX



# 105mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B105X00

## Parts Drawing



### Parts List

Item	Description	Part No.
1	105mm body (no selectivity) *Note	895/B19200
2	RTFE thrust bearing	895/1058/8
3	RTFE plain bearing	895/1058/7
4	Viton O ring *Note	5005-941
5	RTFE plain bearing	895/1058/6
6	Swivel body - 3" BSP Swivel body - 2½" BSP	895/B151 895/B151B
7	PTFE gasket - 3" PTFE gasket - 2½"	10452P 10328P
8	Ball bearing (52)	10143SS
9	Viton O ring	5005-658V
10	Bearing outer body	895/1054
11	Plastic coated handle (2)	895/1199L
12	Spring washer (4)	5113-029
13	Cap head bolt (4)	5111-183
14	Roller (3)	895/1196/1
15	Roller spindle pin (3)	895/1197/2
16	Roll pin (3)	5128-002
17	Grease nipple	5128-026
18	Clevis pin	895/1195/8
19	Split pin	5118-017
20	Poppet head	895/B155/1
21	RTFE face bearing	895/B105
22	Face bearing plate	895/B105/1

### Parts List

Item	Description	Part No.
23	Wavey washer (2)	5111-186
24	Viton O ring *Note	5005-996
25	Scarf cut bearing	895/1058/4
26	Piston guide	895/B153
27	Viton O ring *Note	5005-313
28	Rubber buffer ring	895/1058/2
29	Slide strip (2)	895/B158/5
30	Viton O ring *Note	ORB832VR
31	Piston plate	895/B155/4
32	Roller spindle (2)	895/B155/6
33	Piston roller (2)	895/1196

**NOTE:** The hose unit specification changes the Part No.



# Dry Disconnect Coupling Selectivity: 105mm & 119mm

## Selectivity Systems

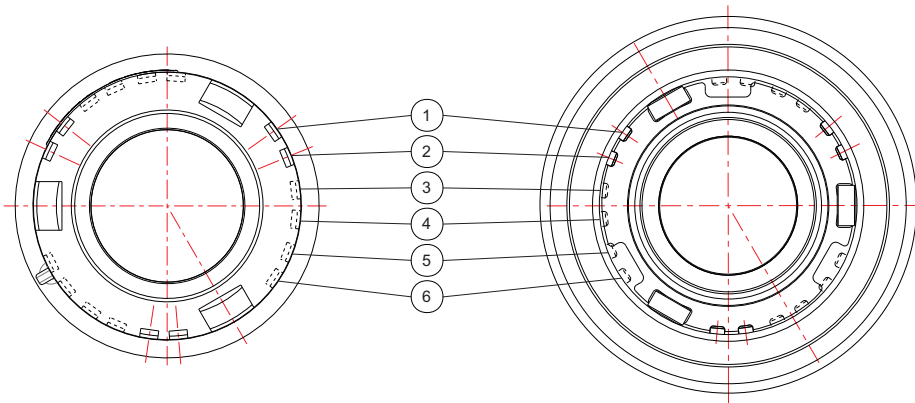
Fort Vale 105mm and 119mm Drytyt couplings are compatible with Todo®, Mann-Tek® and Avery Hardoll® couplings and are available with these selectivity systems to prevent accidental mixing of cargoes:

Selectivity	Compatible	Refer to
15 Position	Fort Vale®	Figure 1 and Table 1
7 Position	Todo®, Mann-Tek®, Avery Hardoll®	Figure 2 and Table 2
21 Position	Todo®, Mann-Tek®, Avery Hardoll®	Figure 2 and Table 3

**Figure 1: 105mm/119mm Tank Unit and 105mm/119mm Hose Unit - 15 Position Selectivity**

105mm/119mm Tank Unit with slots

105mm/119mm Hose Unit with pins



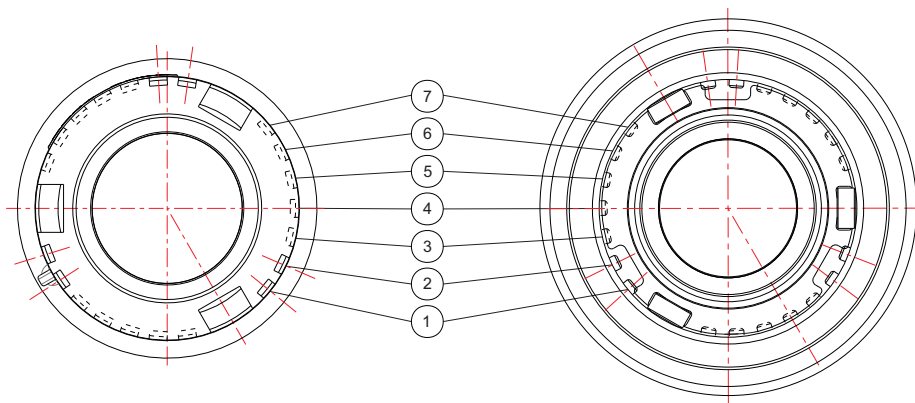
**Table 1: 15 Position Selectivity**

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

**Figure 2: 105mm/119mm Tank Unit and 105mm/119mm Hose Unit - 7 and 21 Position Selectivity**

105mm/119mm Tank Unit with slots

105mm/119mm Hose Unit with pins



**Table 2: 7 Position Selectivity**

Pin/Slot Position						
1	2	3	4	5	6	7

**Table 3: 21 Position Selectivity**

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

**CAUTION:** A hose unit with one pin (from 7 position selectivity) can engage with a tank unit with two slots (from 21 position selectivity). Check the compatibility of the tank and hose units carefully before you connect them.



## Dry Disconnect Coupling Selectivity: 105mm & 119mm

---

### How to Order

To order a 105mm or a 119mm Drytyt tank unit or hose unit with selectivity, select the slot/pin position and add the letter or number code to the end of the tank/hose unit part number. Please refer to the example below:

e.g. 105mm tank unit - 7 or 15 position selectivity: 376X/B050XQ  
119mm tank unit - 21 position selectivity: 376X/B190XTU

e.g. 105mm hose unit - 7 or 15 position selectivity: 895X/B105XQ  
119mm hose unit - 21 position selectivity: 895X/B190XTU

**NOTE:** The seal material and inlet connection change the "X" values in the part numbers above.





# 119mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B190A00



## Specification

### Nominal size

119mm

### Inlet connection

3" BSP

### Outlet/process connection

119mm

### Properties

Fire-safe design. Non-protruding poppet

### Selectivity

None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

### Materials

Contact parts: 316 stainless steel

Poppet O ring: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

Weight:	3.7 Kg
Design Pressure (MAWP):	25 Bar
Test Pressure:	37.5 Bar
Max. Coupling Pressure:	specified by the hose unit
Design Temp. Min/Max:	-40°C / 200°C ( <b>metal parts</b> )
Design Temp. Min/Max:	-20°C / 200°C ( <b>Viton O ring</b> )

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

### Design Code

BS EN 14432

STANAG 3756 (Edition 4) NATO Standardization Agency

## Range

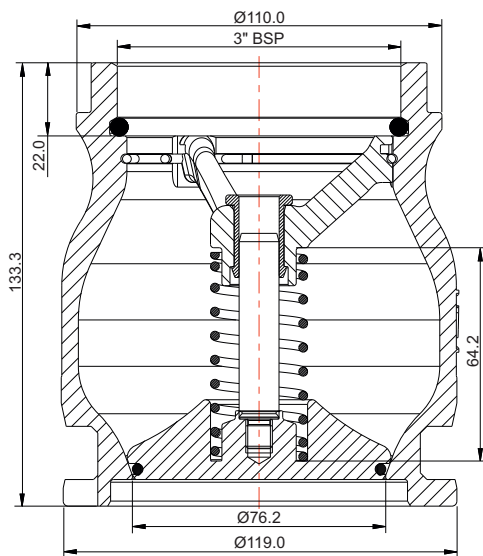
Description	Part No.
3" BSP inlet, Viton seal, no selectivity	376V/B190A00
Flanged inlet, no selectivity <b>*Note</b>	376V/B190X00

**NOTE:** Different flange specifications are available. Please contact Fort Vale.

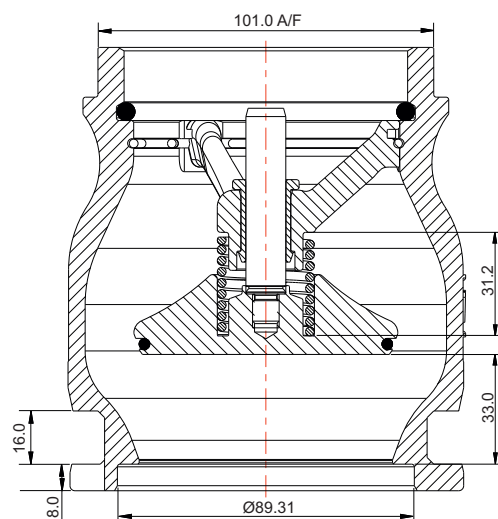
## Related Parts

Description	Part No.
119mm pressure-tight cap	915/5470X
119mm/3" BSP hose unit, Viton seal	895V/B190A00

## Section View



**CLOSED POSITION**



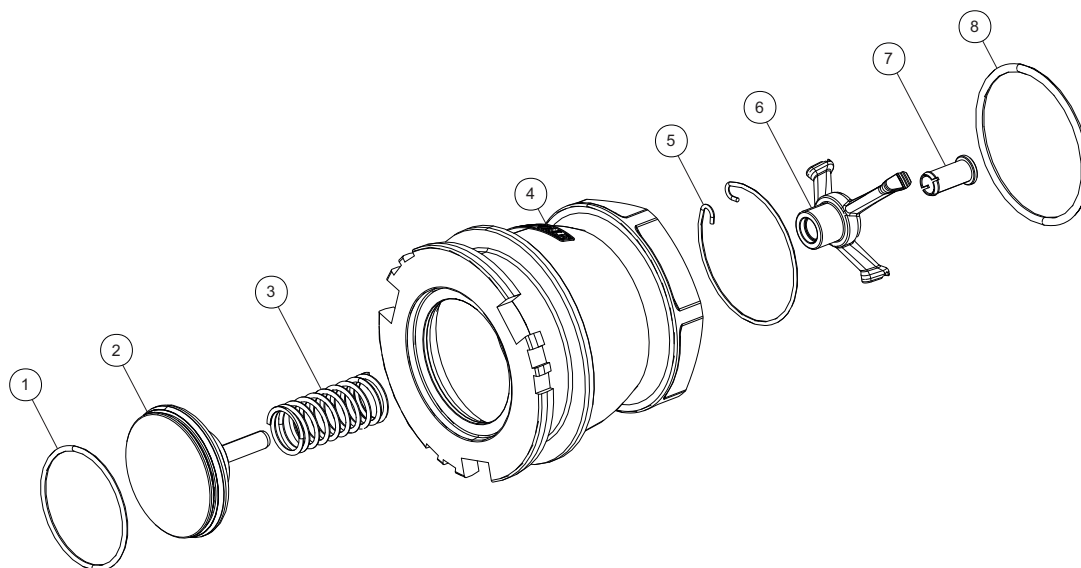
**OPEN POSITION**



# 119mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B190A00

## Parts Drawing



## Parts List

Item	Description	Part No.
1	Viton poppet O ring <b>*Note</b>	5005-730
2	Poppet assembly	376/B193
3	Poppet spring	5104-799
4	119mm body (no selectivity) <b>*Note</b>	376/B191A00
5	Snap ring	5120-082
6	Spider	376/B192
7	Guide bush	376/1052/2
8	PTFE O ring	5005-103

**NOTE:** The tank unit specification changes the Part No.



# 119mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B190A00



## Specification

### Nominal size

119mm

### Inlet connection

3" BSP with swivel

### Outlet connection

119mm

### Selectivity

None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

### Materials

Contact parts: 316 stainless steel

Main seals: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

### Design Condition 1: 20 Barg

Design Pressure (MAWP): 20 Bar

Test Pressure: 33.8 Bar

Design Temp. Min/Max: -40°C / 200°C (metal parts)

### Design Condition 2: 25 Barg

Design Pressure (MAWP): 25 Bar

Test Pressure: 35 Bar

Design Temp. Min/Max: -40°C / 100°C (metal parts)

Weight: 9.9 Kg

Max. Coupling Pressure: 2 Bar

Design Temp. Min/Max: -20°C / 200°C (Viton seals)

**NOTE:** The working temperature of the hose unit seals can change the design temperature limits. The Design Conditions and Section View dimensions are for the specified part number only.

### Design Code

BS EN 12516-2

STANAG 3756 (Edition 4) - 119mm size only

## Range

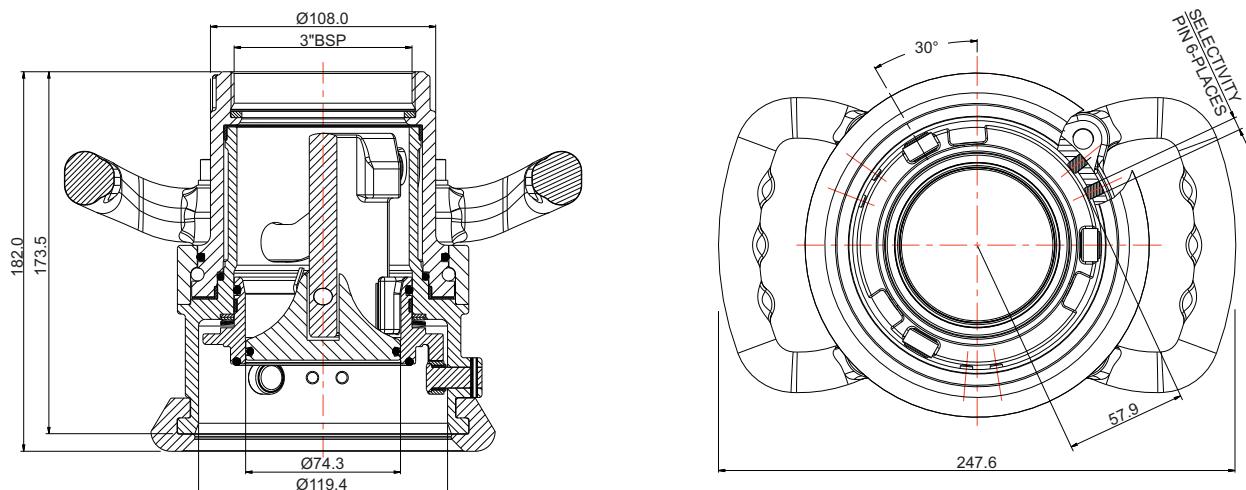
Description	Part No.
3" BSP inlet, Viton seal, no selectivity	895V/B190A00

## Related Parts

Description	Part No.
119mm/3" BSP tank unit, Viton seal	376V/B190A00
Pressure-tight cap for 119mm tank unit	915/5470X

## Section View

Shows the selectivity pin position

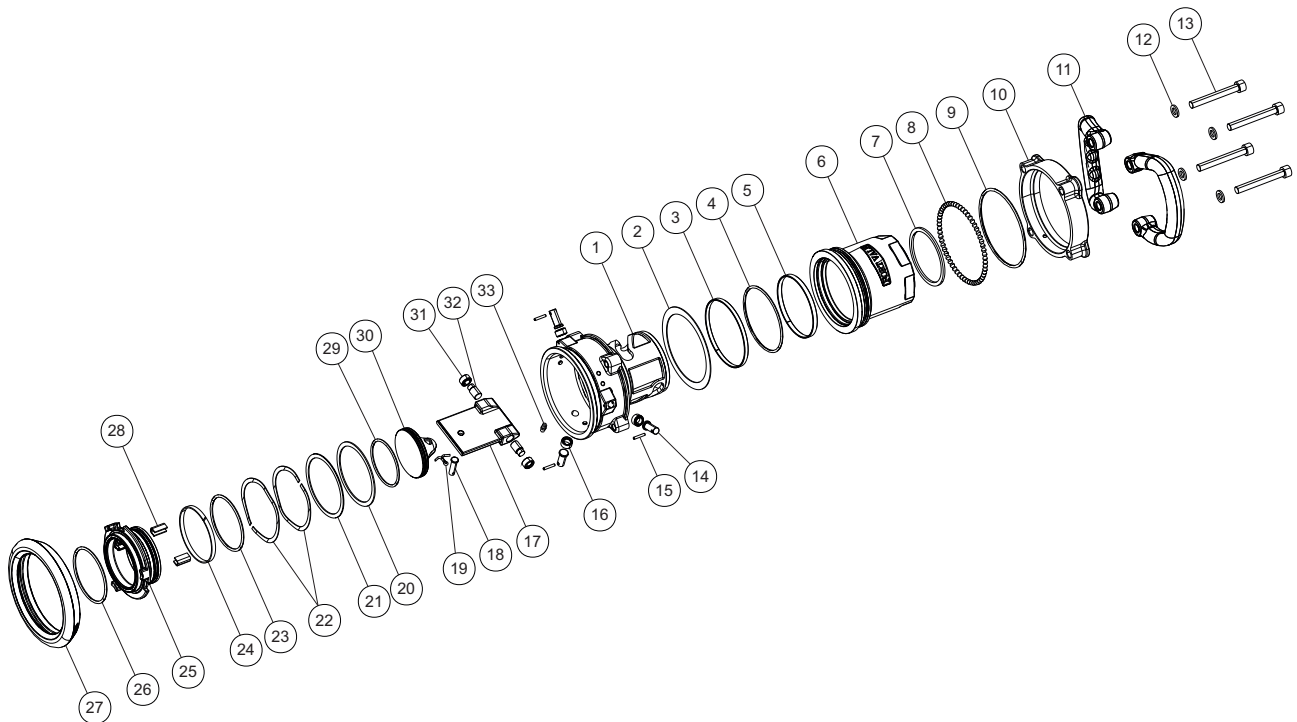




# 119mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B190A00

## Parts Drawing



### Parts List

Item	Description	Part No.
1	119mm body (no selectivity) * <b>Note</b>	895/B19200
2	RTFE thrust bearing	895/1198/8
3	RTFE plain bearing	895/1198/7
4	Viton O ring * <b>Note</b>	5005-315
5	RTFE plain bearing	895/1198/6
6	Swivel body	895/B191
7	PTFE gasket	10454P
8	Ball bearing (58)	10143SS
9	Viton O ring	5005-934
10	Bearing outer body	895/1194
11	Plastic coated handle (2)	895/1199L
12	Spring washer (4)	5113-029
13	Cap head bolt (4)	5111-183
14	Roller spindle pin (3)	895/1197/2
15	Roll pin (3)	5128-002
16	Roller (3)	895/1196/1
17	Piston plate	895/B195/4
18	Clevis pin	895/B195/8
19	Split pin	5118-050
20	RTFE spring face bearing	895/1649/1
21	Thrust bearing	895/B198/1
22	Wavy washer (2)	5111-184
23	Viton O ring * <b>Note</b>	5005-551V

### Parts List

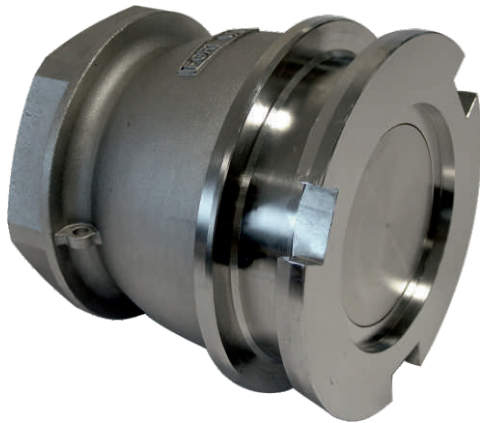
Item	Description	Part No.
24	RTFE scarf cut bearing	895/1198/4
25	Piston guide	895/B193
26	Viton O ring * <b>Note</b>	5005-936
27	Rubber buffer ring	895/1198/2
28	Slide strip (2)	895/B198/5
29	Viton O ring * <b>Note</b>	5005-314
30	Piston head	895/B195/1
31	Piston roller (2)	895/1196
32	Roller spindle (2)	895/B155/6
33	Grease nipple	5128-026

**NOTE:** The hose unit specification changes the Part No.



# 164mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B640A00



## Specification

### Nominal size

164mm

### Inlet connection

4" BSP

### Outlet/process connection

164mm

### Properties

Fire-safe design. Non-protruding poppet

### Selectivity

None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

### Materials

Contact parts: 316 stainless steel

Poppet O ring: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

Weight:	7.4 Kg
Design Pressure (MAWP):	10 Bar
Test Pressure:	16 Bar
Max. Coupling Pressure:	specified by the hose unit
Design Temp. Min/Max:	-40°C / 200°C ( <b>metal parts</b> )
Design Temp. Min/Max:	-20°C / 200°C ( <b>Viton O ring</b> )

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

### Design Code

BS EN 14432

## Range

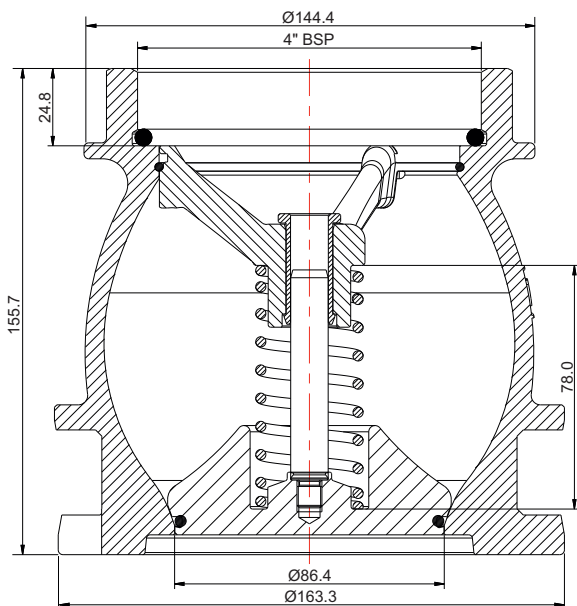
Description	Part No.
4" BSP inlet, Viton seal, no selectivity	376V/B640A00
Flanged inlet, no selectivity <b>*Note</b>	376V/B640X00

**NOTE:** Different flange specifications are available. Please contact Fort Vale.

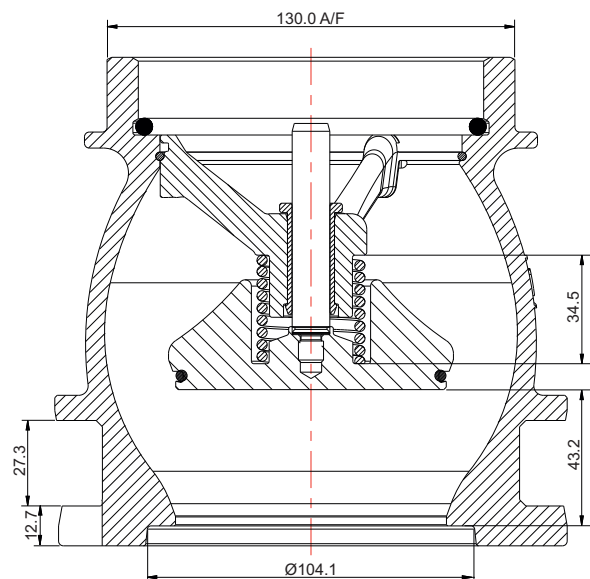
## Related Parts

Description	Part No.
164mm pressure-tight cap	915/5490X
164mm/4" BSP hose unit, Viton seal	895V/B164A00

## Section View



**CLOSED POSITION**



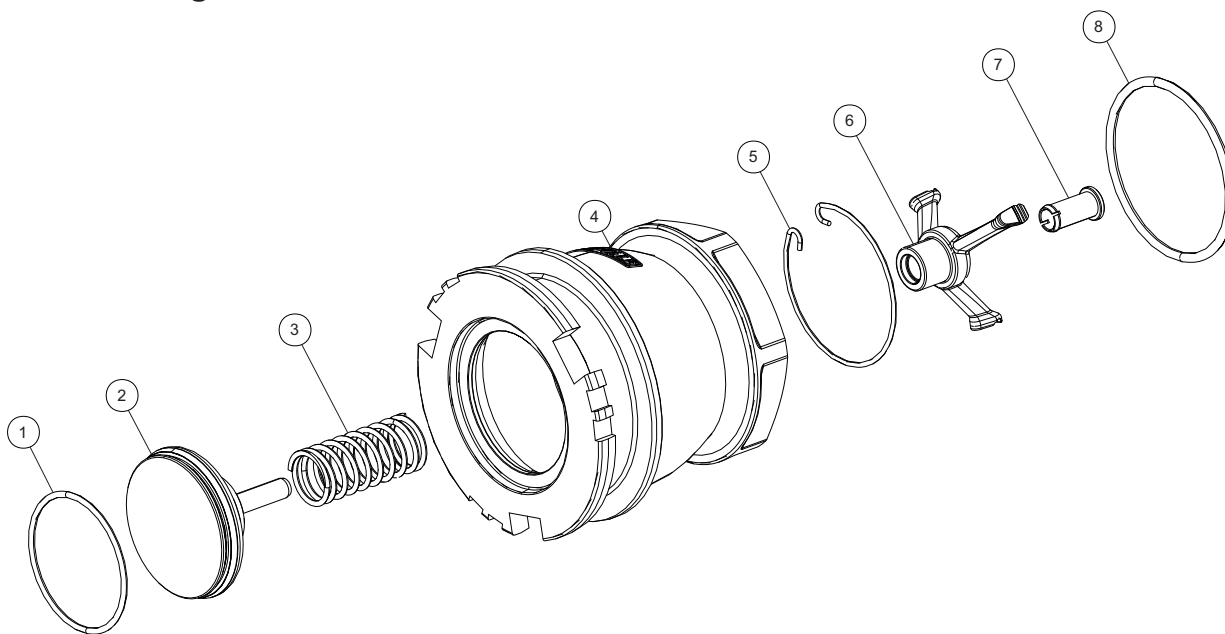
**OPEN POSITION**



# 164mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B640A00

## Parts Drawing



## Parts List

Item	Description	Part No.
1	Viton poppet O ring <b>*Note</b>	5005-551V
2	Poppet assembly	376/B643
3	Poppet spring	5104-807
4	164mm body (no selectivity) <b>*Note</b>	376/B641A00
5	Snap ring	5120-072
6	Spider	376/B642
7	Guide bush	376/1642/2
8	PTFE O ring	ORB345P0

**NOTE:** The tank unit specification changes the Part No.



# 164mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B164A00



## Specification

### Nominal size

164mm

### Inlet connection

4" BSP with swivel

### Outlet connection

164mm

### Selectivity

None as standard. All industry accepted selective positions are available, refer to the Selectivity data sheet

### Materials

Contact parts: 316 stainless steel

Main seals: Viton

Alternatives are available, refer to the Design Options page

## Design Conditions

### Design Condition 1: 10 Barg

Design Pressure (MAWP): 10 Bar

Test Pressure: 15 Bar

Design Temp. Min/Max: -40°C / 200°C (metal parts)

### Design Condition 2: 18.9 Barg

Design Pressure (MAWP): 18.9 Bar

Test Pressure: 28.4 Bar

Design Temp. Min/Max: -40°C / 175°C (metal parts)

Weight: 16.7 Kg

Max. Coupling Pressure: 4 Bar

Design Temp. Min/Max: -20°C / 200°C (Viton seals)

**NOTE:** The working temperature of the hose unit seals can change the design temperature limits. The Design Conditions and Section View dimensions are for the specified part number only.

### Design Code

BS EN 12516-2

## Range

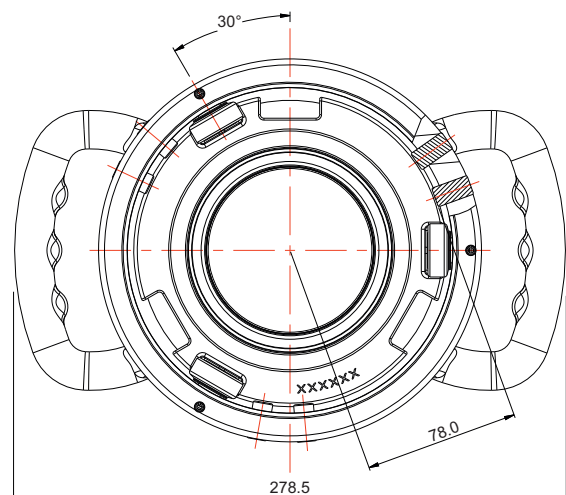
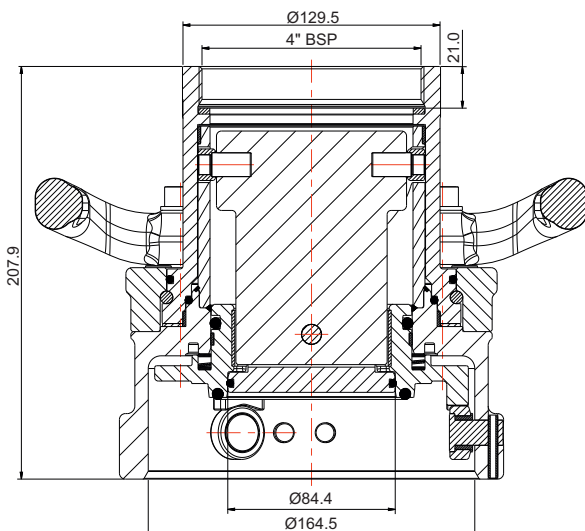
Description	Part No.
4" BSP inlet, Viton seal, no selectivity	895V/B164A00

## Related Parts

Description	Part No.
164mm/4" BSP tank unit, Viton seal	376V/B640A00
Pressure-tight cap for 164mm tank unit	915/5490X

## Section View

Shows the selectivity pin position

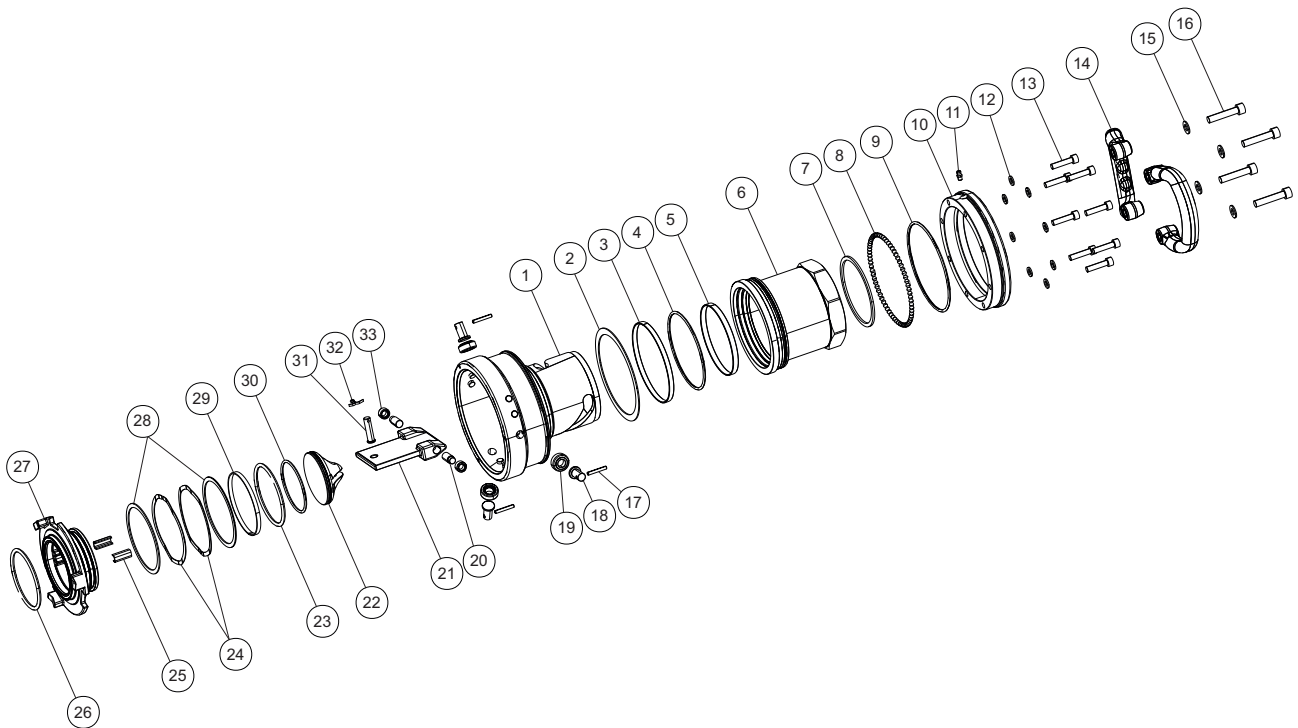




# 164mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B164A00

## Parts Drawing



### Parts List

Item	Description	Part No.
1	164mm body (no selectivity) *Note	895/B64200
2	RTFE thrust bearing	895/1648/8
3	RTFE plain bearing	895/1648/7
4	Viton O ring *Note	5005-958
5	RTFE plain bearing	895/1648/6
6	Swivel body	895/B641
7	PTFE gasket	10456P
8	Ball bearing (70)	10143SS
9	Viton O ring	5005-943
10	Bearing gland	895/B644
11	Grease nipple	5128-026
12	M8 spring washer (8)	5113-003
13	M8 cap screw (8)	5111-0054
14	Plastic coated handle (2)	895/1199L
15	M10 plain washer (4)	5113-009
16	M10 cap head bolt (4)	5111-601
17	Roll pin (3)	5128-001
18	Roller spindle pin (3)	895/1647
19	Roller bush (3)	895/1646/1
20	Roller spindle (2)	895/B645/6
21	Piston plate	895/B645/4
22	Poppet head	895/B645/1
23	Viton O ring *Note	5005-426V

### Parts List

Item	Description	Part No.
24	Wavey washer (2)	5111-192
25	Slide strip (2)	895/B648/5
26	Viton O ring *Note	5005-942
27	Piston guide	895/B643
28	Spring face bearing (2)	895/1649
29	RTFE scarf cut bearing	895/1648/4
30	Viton O ring *Note	5005-683V
31	Clevis pin	895/1645/8
32	Split pin	5118-050
33	Roller (2)	895/1196

**NOTE:** The hose unit specification changes the Part No.





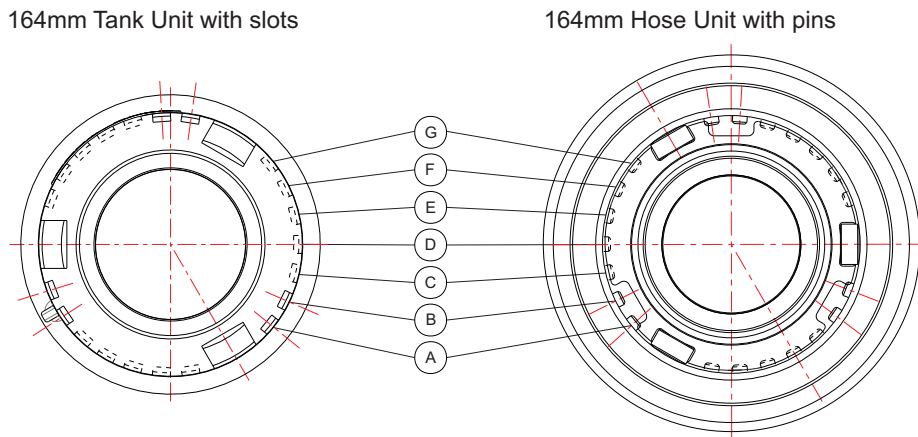
## Dry Disconnect Coupling Selectivity: 164mm

### Selectivity Systems

Fort Vale 164mm Drytyt couplings are compatible with Todo®, Mann-Tek® and Avery Hardoll® couplings and are available with these selectivity systems to prevent accidental mixing of cargoes:

Selectivity	Compatible	Refer to
7 Position	Fort Vale®, Todo®, Mann-Tek®, Avery Hardoll®	Figure 1 and Table 1
21 Position	Fort Vale®, Todo®, Mann-Tek®, Avery Hardoll®	Figure 1 and Table 2

**Figure 1: 164mm Tank Unit and 164mm Hose Unit - 7 and 21 Position Selectivity**



**Table 1: 7 Position Selectivity**

Pin/Slot Position						
A	B	C	D	E	F	G

**Table 2: 21 Position Selectivity**

Pin/Slot Position						
AB	AC	AD	AE	AF	AG	BC
BD	BE	BF	BG	CD	CE	CF
CG	DE	DF	DG	EF	EG	FG

**CAUTION:** A hose unit with one pin (from 7 position selectivity) can engage with a tank unit with two slots (from 21 position selectivity). Check the compatibility of the tank and hose units carefully before you connect them.

### How to Order

To order a 164mm Drytyt tank unit or hose unit with selectivity, select the slot/pin position and add the letter or number code to the end of the tank/hose unit part number. Please refer to the example below:

e.g. tank unit - 7 position selectivity: 376X/B640X**G**  
 tank unit - 21 position selectivity: 376X/B640X**AB**

e.g. hose unit - 7 position selectivity: 895X/B164X**G**  
 hose unit - 21 position selectivity: 895X/B164X**AB**

**NOTE:** The seal material and inlet connection change the “X” values in the part numbers above.





# Pressure-Tight Caps for Drytyt Tank Units

## Accessories & Spare Parts



Example shown: 119mm cap, Part No. 915/5470X

The pressure-tight cap protects the tank unit outlet face from damage and can be used as a secondary or a tertiary closure. The top cap/seal plate assembly lets you safely release pressure that can be inside the tank unit.

All pressure-tight caps are fire-safe designed and seal metal-to-metal when installed onto the tank unit. The seal plate O ring makes a gas-tight and liquid-tight seal. (Refer to Seal Options NOTE).

Please read the Installation Instructions on the next page.

### Design Conditions

**56mm, 70mm, 105mm, 119mm only**

Design Pressure (MAWP): 25.0 Bar

Test Pressure: 37.5 Bar

**164mm only**

Design Pressure (MAWP): 10.0 Bar

Test Pressure: 16.0 Bar

Design Temp. Min/Max: -40°C / 200°C (**metal parts**)

**NOTE:** The design temperature conditions are for metal parts only. The working temperature of the seal plate O ring can change the design temperature limits. Refer to Seal Options.

### Design Codes

BS EN 14432

### Specification

#### Nominal sizes

56mm, 70mm, 105mm, 119mm, 164mm

#### Compatibility

Fort Vale Drytyt, Todo®, Mann-Tek®, Avery Hardoll®

#### Properties

Chain point and TIR/padlock hole

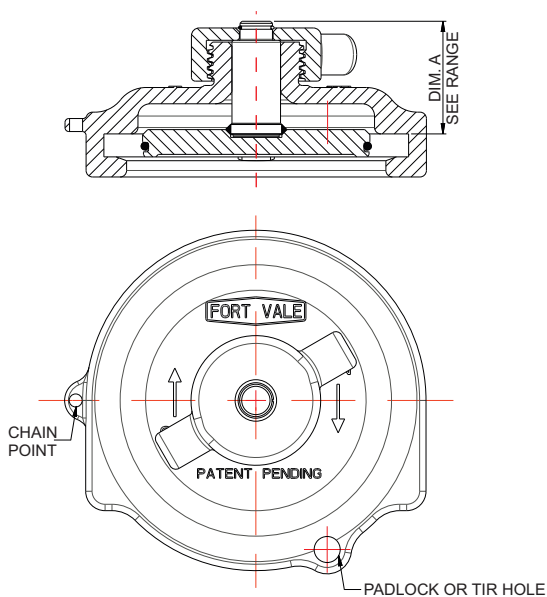
#### Materials

Contact parts: 316 stainless steel

Seal plate O ring: refer to Seal Options

### Section View

119mm cap (915/5470X) shown in the closed position



### Range

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

The Part No. suffix X refers to the seal material code - refer to Seal Options

### Seal Options

Seal Code	Seal Material	Seal Temp.Range
915/54XXB	Butyl	-30°C to +120°C
915/54XXE	EPDM	-20°C to +150°C
915/54XXF	Fortyt *Note	-55°C to +200°C
915/54XXK	Kalrez®	-15°C to +200°C
915/54XXN	Nitrile	-20°C to +100°C
915/54XXP	Perfluoroelastomer	-15°C to +200°C
915/54XXQ	Viton FDA approved	-20°C to +200°C
915/54XXV	Viton	-20°C to +200°C

**NOTE:** Fortyt is liquid-tight but is not bubble-tight

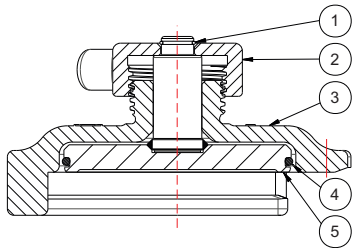


# Pressure-Tight Caps for Drytyt Tank Units

## Accessories & Spare Parts

### Parts Drawing

119mm cap (915/5470X) shown in the open position



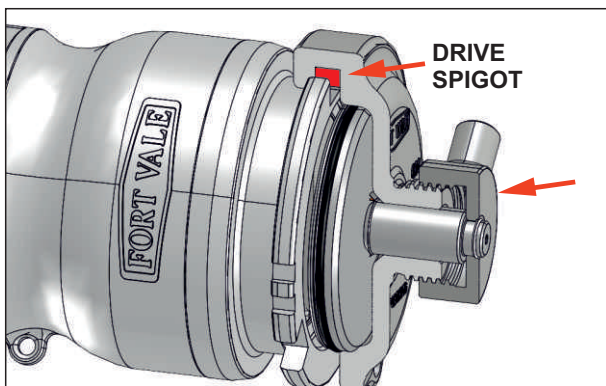
### Parts List

Item	Description	Part No.
1	Retaining clip	5120-056
2	Anti-galling top cap *Note	915/54X4
3	Cap body *Note	915/54XX
4	O ring *Note	XXXXXXXX
5	Seal plate *Note	915/54XX

**NOTE:** The cap specification changes the Part No.

### Installation Instructions

Example shown: 119mm cap and tank unit



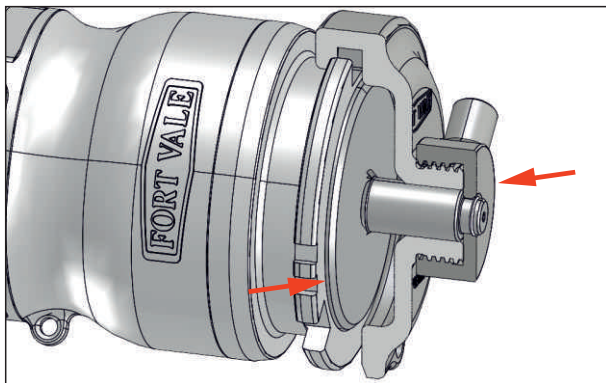
#### How to install the pressure-tight cap assembly

Move the top cap to the top of its thread.

Note the drive spigot position.

Align the drive spigot with a roller slot on the tank unit and move the cap assembly down to install it onto the tank unit.

Make sure the drive spigot engages with the slot.



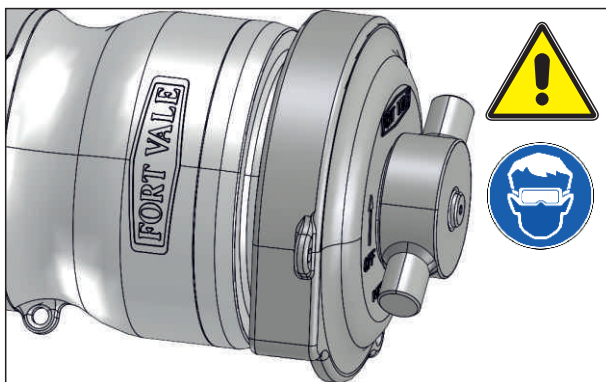
Tighten the top cap.

The seal plate will move into the recess in the tank unit.

When the top cap is fully tight, the assembly is locked and sealed.

**NOTE:** A Fortyt O ring will give a liquid-tight seal, but will not give a bubble-tight seal.

Attach a chain as necessary.



#### How to remove the pressure-tight cap assembly

**CAUTION:** There can be pressure inside the tank unit. Keep your face away from the cap and wear PPE.

Loosen the top cap and unscrew it until it is at the top of its thread.

The seal plate will retract into the cap body. If there is pressure inside the tank unit, it will be safely released.

When the pressure is released, move the cap assembly up to remove it from the tank unit.



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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, a flange with distortion, you must re-calculate the torque value.

#### Bolt Torque Procedure

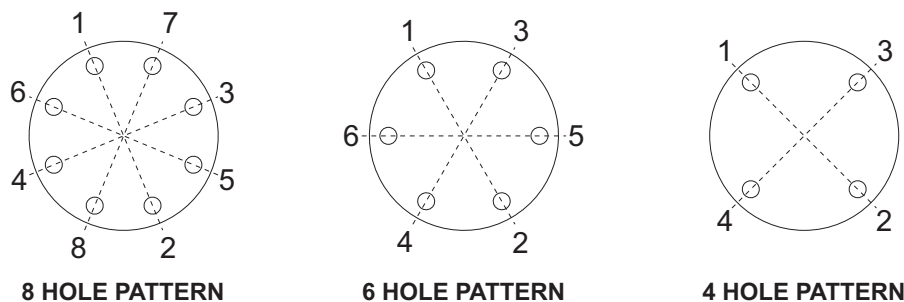
To install flanged parts correctly:

- 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. See Figure BT1.
- Obey the Step Loading Procedure (ASME PCC-1-2000). See 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**

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### **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

## 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/gas/liquid flow capacity
- maximum allowable working pressure
- test pressure
- minimum/maximum design temperatures
- materials of construction.

## Maintenance

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 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 with very corrosive cargo, or 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

An accessory component must cause no interference with the valve function. It must be made from compatible materials that will not cause damage to the valve materials. Do not install an accessory that will cause an increased load on the valve, i.e. mechanical, static, dynamic, thermal.

## 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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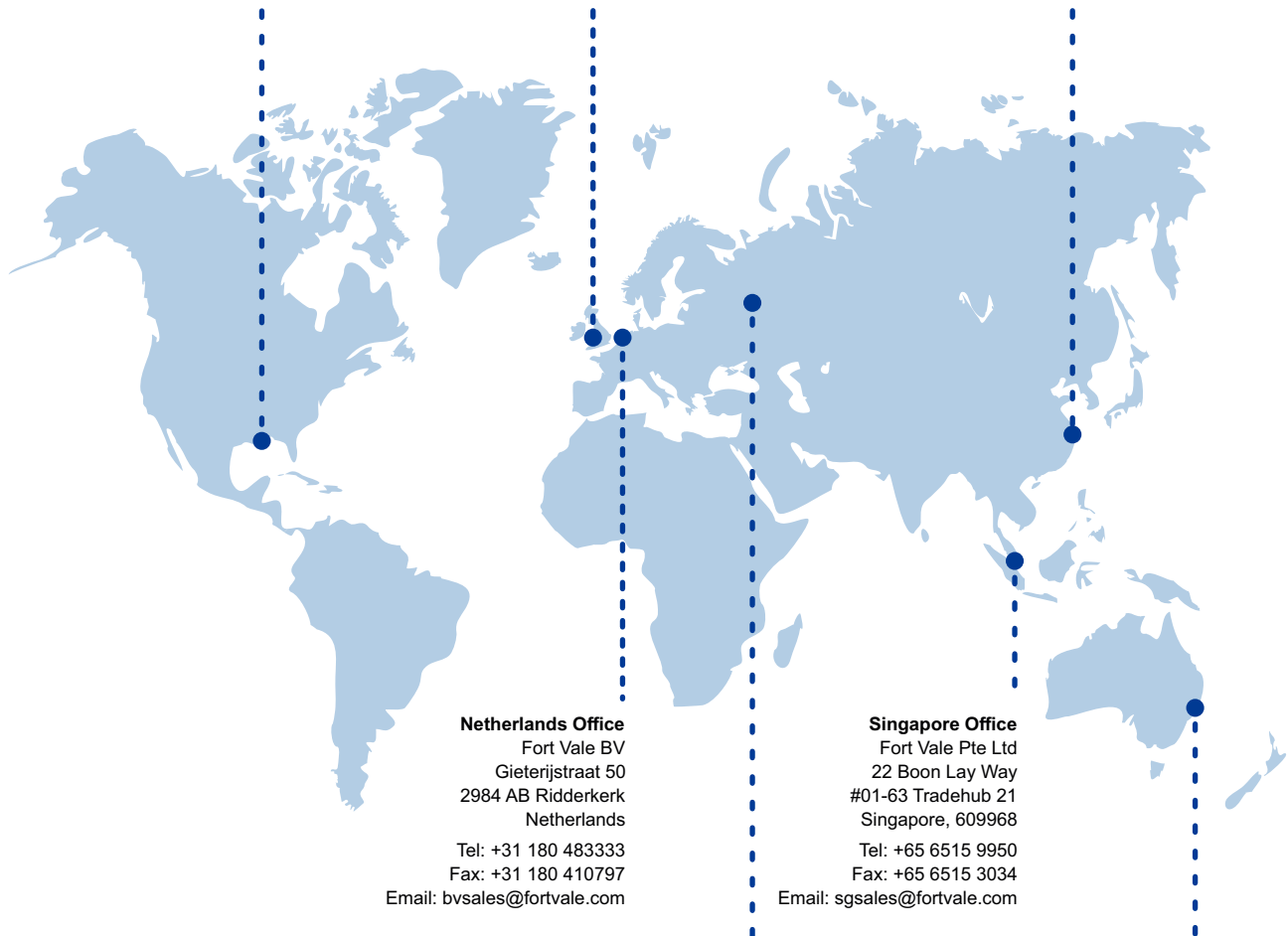
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