



Catalogue

Standard Range of Drytyt Dry Disconnect Couplings



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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

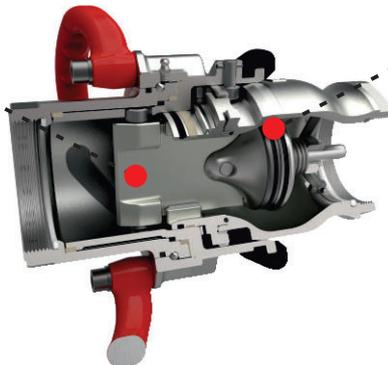


Flanged Connection

- 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:

NOTE: Some seal materials are applicable to tank units only and are not compatible with hose units. Please contact us for more information.

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
915/54XXN	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.

We also supply a selection of rubber dust caps and plugs.

Please contact us for more information.



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

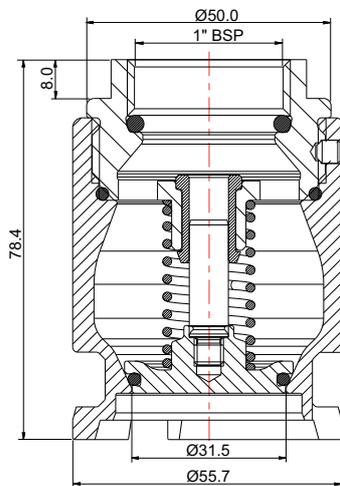
Range

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

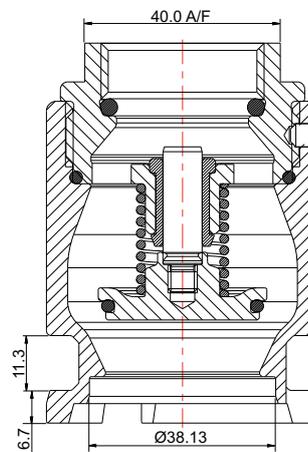
Related Parts

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

Section View



CLOSED POSITION



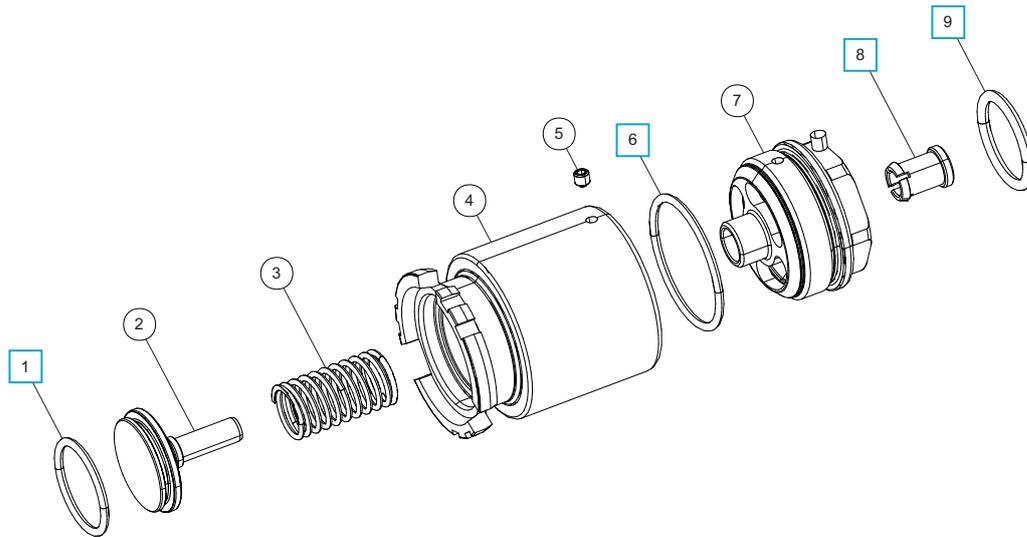
OPEN POSITION



56mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B560A00

Parts Drawing



Parts List

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

NOTE: The tank unit specification changes the Part No.

Seal Kit

Description	Part No.
All parts marked <input type="checkbox"/> in the Parts List	376X/B560XSK

X = The seal material and inlet type change 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

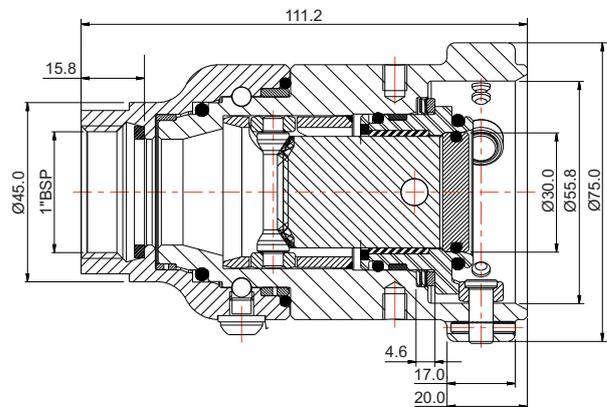
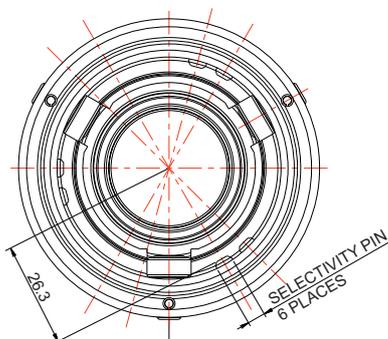
Description	Part No.
1" BSP inlet, Viton seal, no selectivity	895V/B560A00

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

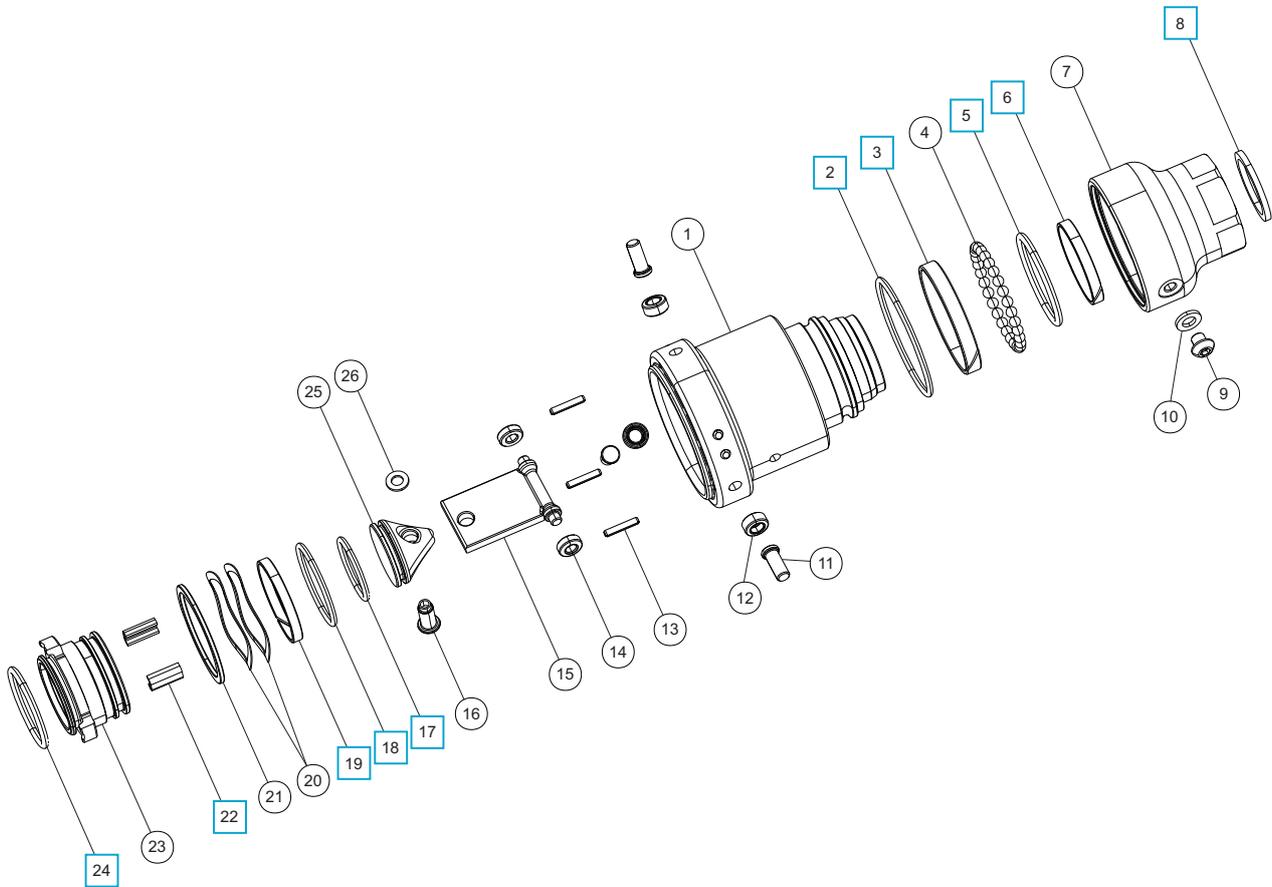




56mm Drytyt Dry Disconnect Hose Unit

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 <input type="checkbox"/>
3	PTFE front bearing	895/5603 <input type="checkbox"/>
4	Ball bearing (30)	10145SS
5	Viton O ring *Note	5005-110 <input type="checkbox"/>
6	PTFE rear bearing	895/5605 <input type="checkbox"/>
7	1" BSP swivel body	895/5601
8	PTFE rear seal	895/B563/1 <input type="checkbox"/>
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 <input type="checkbox"/>
18	Viton O ring *Note	5005-956 <input type="checkbox"/>
19	Poppet bearing	895/B562 <input type="checkbox"/>
20	Wave spring (2)	5104-201

Parts List

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

NOTE: The hose unit specification changes the Part No.

Seal Kit

Description	Part No.
All parts marked <input type="checkbox"/> in the Parts List	895X/B560XSK

X = The seal material and inlet type change 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

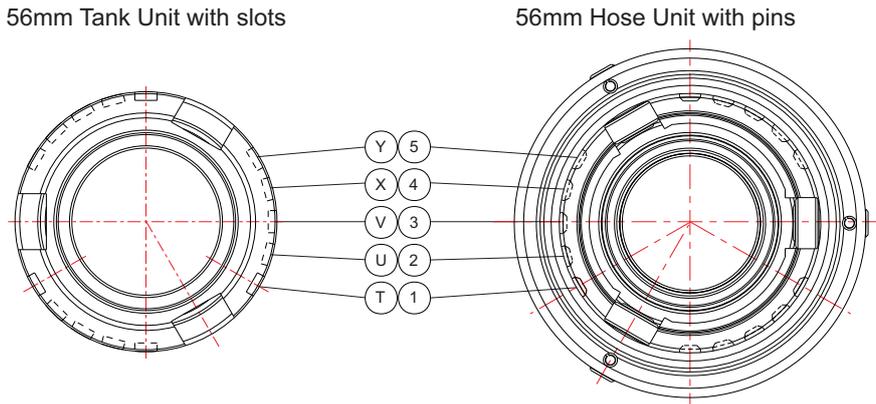


Table 1: 5 Position Selectivity

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.

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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

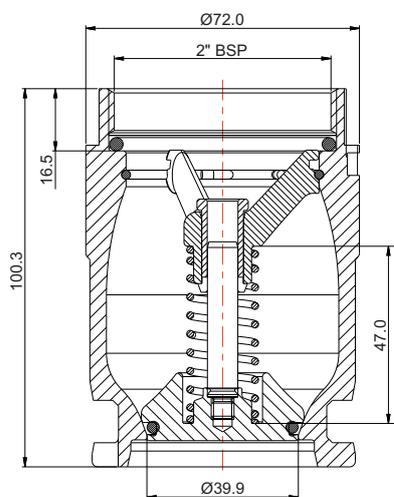
Description	Part No.
2" BSP inlet, Viton seal, no selectivity	376V/B700A00
Flanged inlet, no selectivity *Note	376V/B700X00

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

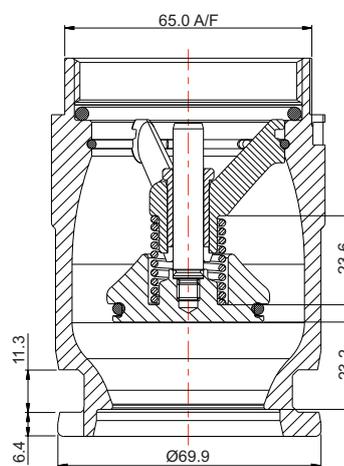
Related Parts

Description	Part No.
70mm pressure-tight cap	915/5420X
70mm/2" BSP hose unit, Viton seal	895V/B700A00
70mm rubber dust cap	915/5172

Section View



CLOSED POSITION



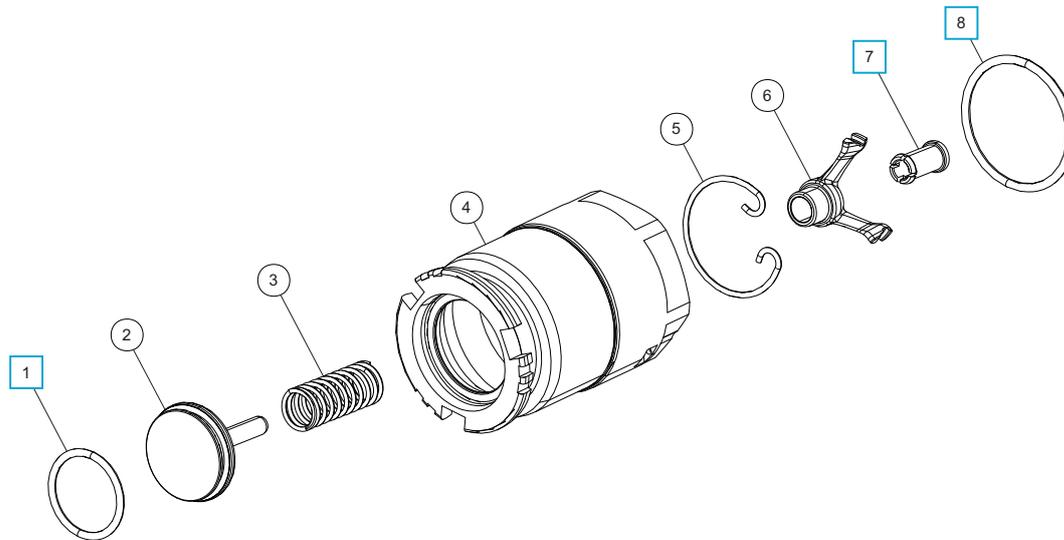
OPEN POSITION



70mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B700A00

Parts Drawing



Parts List

Item	Description	Part No.	
1	Viton poppet O ring *Note	5005-171	☐
2	Poppet assembly	376/B703	
3	Poppet spring	5104-800	
4	70mm body (no selectivity) *Note	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.

Seal Kit

Description	Part No.
All parts marked ☐ in the Parts List	376X/B700XSK

X = The seal material and inlet type change 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: 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

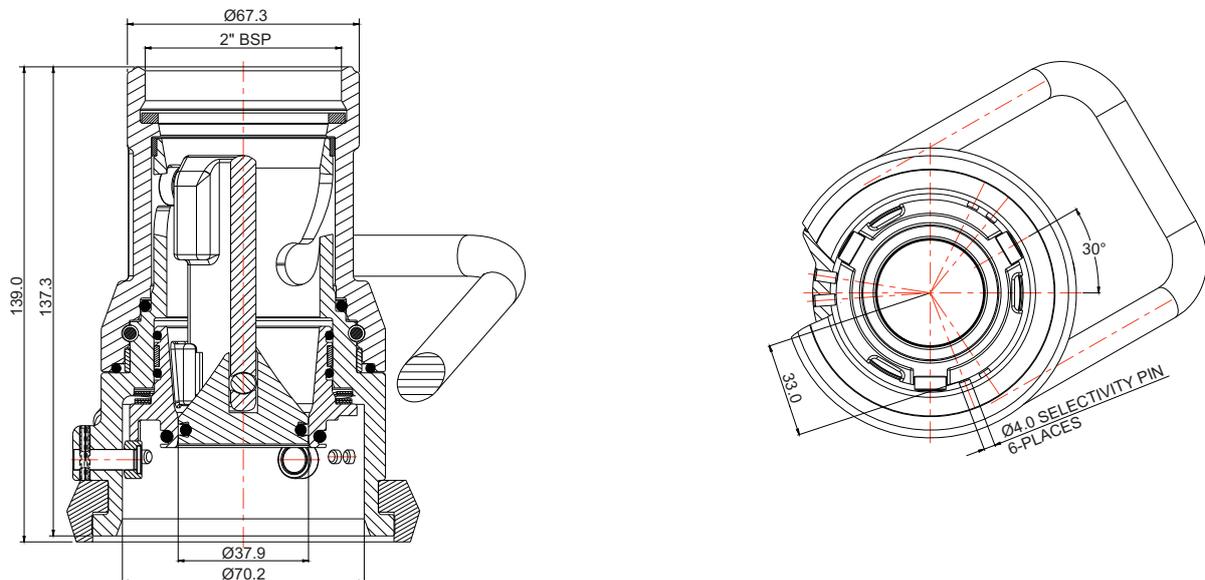
Description	Part No.
2" BSP inlet, Viton seal, no selectivity	895V/B700A00

Related Parts

Description	Part No.
70mm/2" BSP tank unit, Viton seal	376V/B700A00
Pressure-tight cap for 70mm tank unit	915/5420X
70mm rubber dust plug	915/5171

Section View

Shows the selectivity pin position

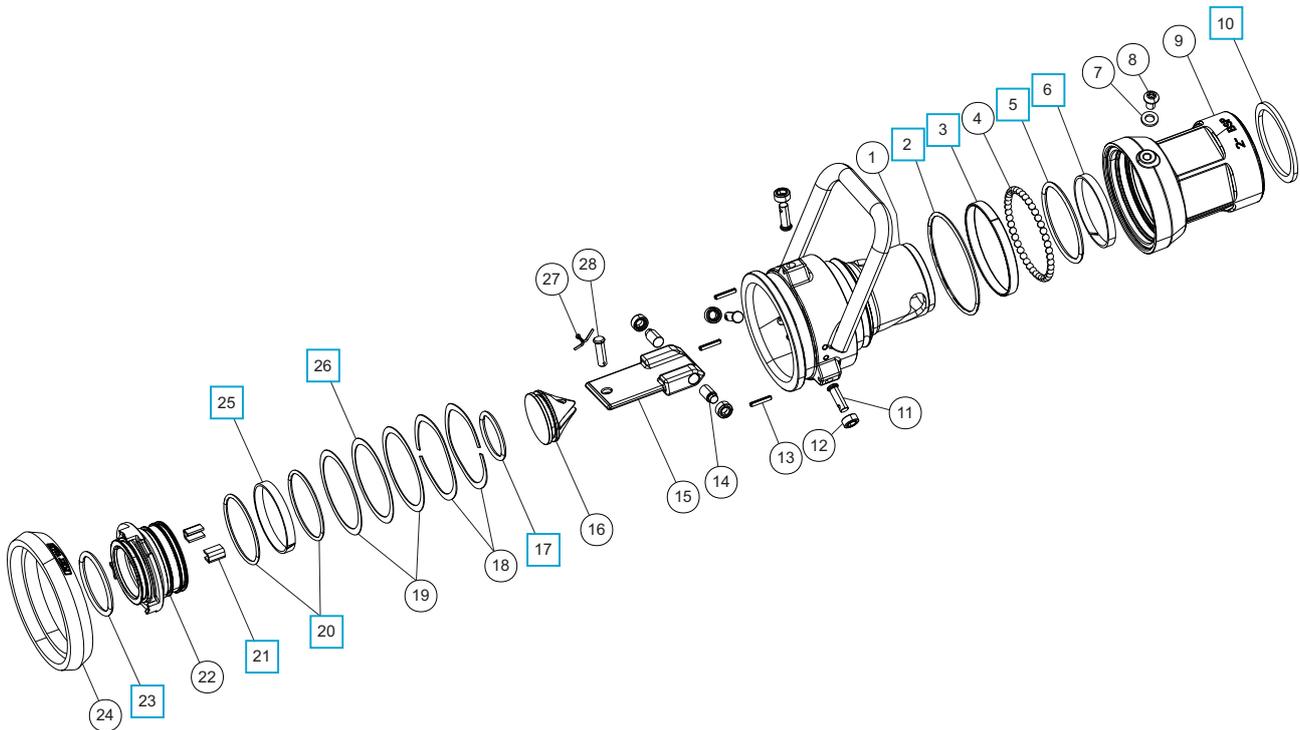




70mm Drytyt Dry Disconnect Hose Unit

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 <input type="checkbox"/>
3	RTFE plain bearing	895/0708/9 <input type="checkbox"/>
4	Ball bearing (42)	10145SS
5	Viton O ring *Note	ORB832VR <input type="checkbox"/>
6	RTFE scarf cut bearing	895/0708/8 <input type="checkbox"/>
7	M6 spring washer	5113-008
8	M6 button screw	5111-610
9	Swivel body	895/B701
10	PTFE gasket	10450P <input type="checkbox"/>
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 <input type="checkbox"/>
18	Wave spring (2)	5104-1002
19	Thrust washer (2)	895/0703/6
20	Viton O ring (2) *Note	ORB134VR <input type="checkbox"/>
21	Slide strip (2)	895/B708/4 <input type="checkbox"/>
22	Piston guide	895/B703
23	Viton O ring *Note	5005-172 <input type="checkbox"/>

Parts List

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

NOTE: The hose unit specification changes the Part No.

Seal Kit

Description	Part No.
All parts marked <input type="checkbox"/> in the Parts List	895X/B700XSK

X = The seal material and inlet type change 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

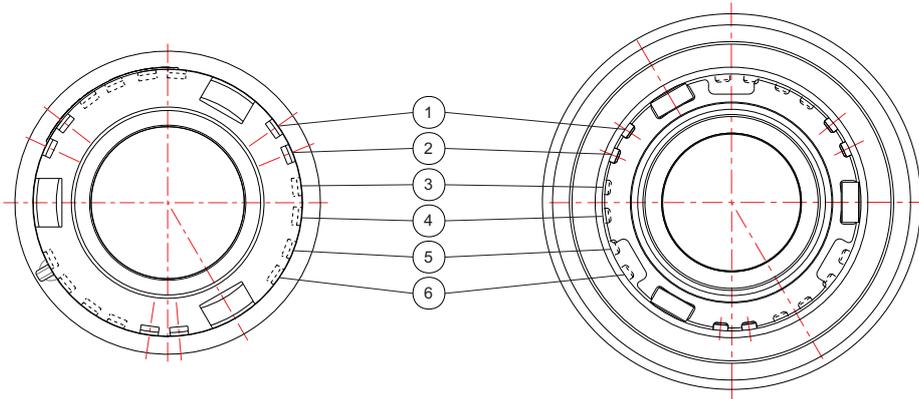


Table 1: 15 Position Selectivity

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

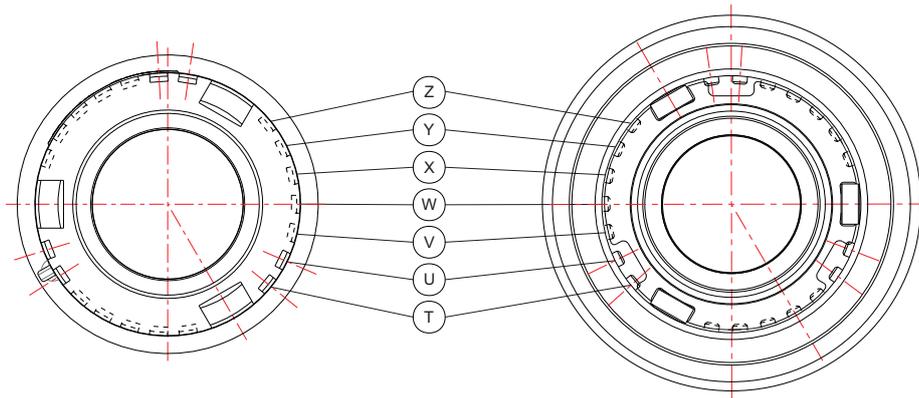


Table 2: 7 Position Selectivity

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

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 (**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

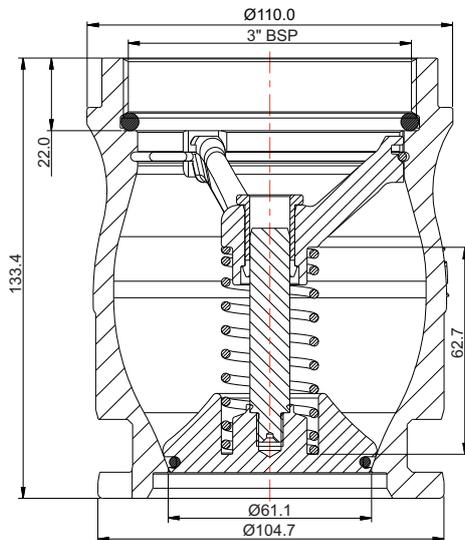
Description	Part No.
3" BSP inlet, Viton seal, no selectivity	376V/B050A00
Flanged inlet, no selectivity *Note	376V/B050X00

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

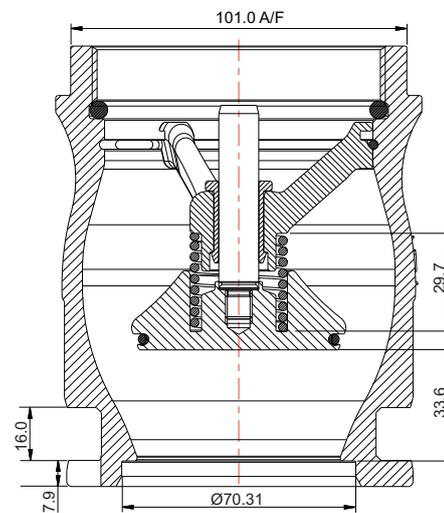
Related Parts

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

Section View



CLOSED POSITION



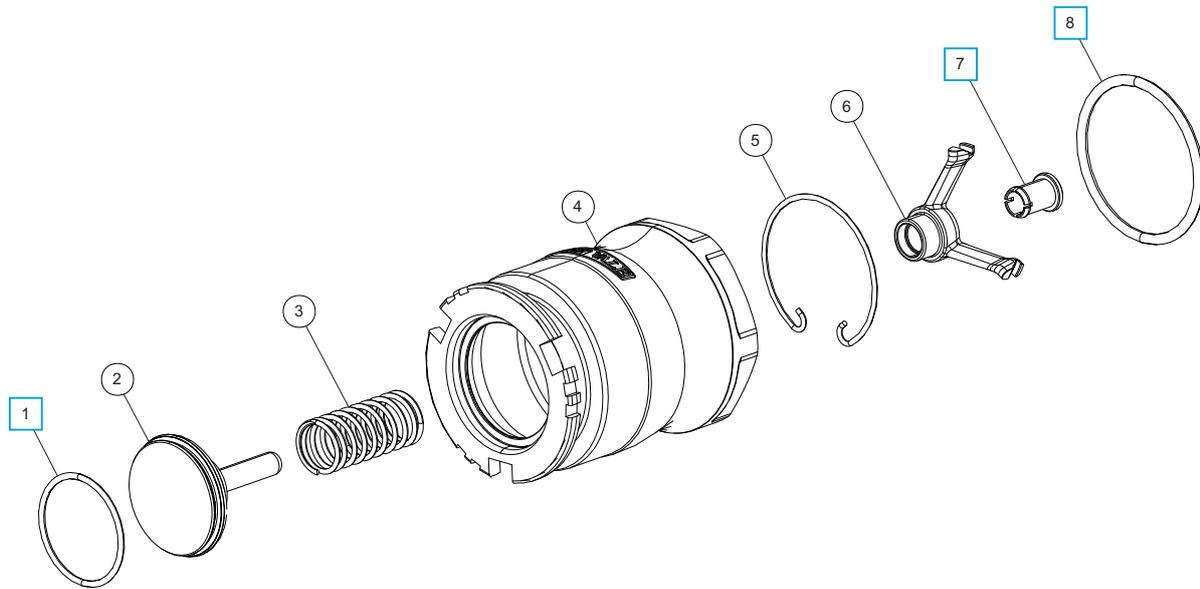
OPEN POSITION



105mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B050A00

Parts Drawing



Parts List

Item	Description	Part No.	
1	Viton poppet O ring *Note	5005-156	☐
2	Poppet assembly	376/B153	
3	Poppet spring	5104-799	
4	105mm body (no selectivity) *Note	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.

Seal Kit

Description	Part No.
All parts marked ☐ in the Parts List	376X/B050XSK

X = The seal material and inlet type change 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

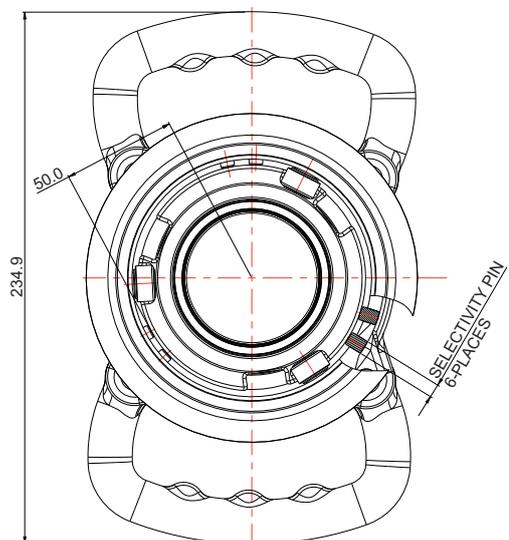
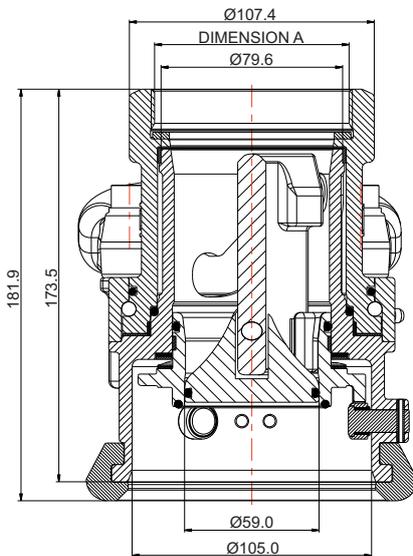
Description	Part No.
2½" BSP inlet, Viton seal, no selectivity	895V/B105B00
3" BSP inlet, Viton seal, no selectivity	895V/B105A00

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



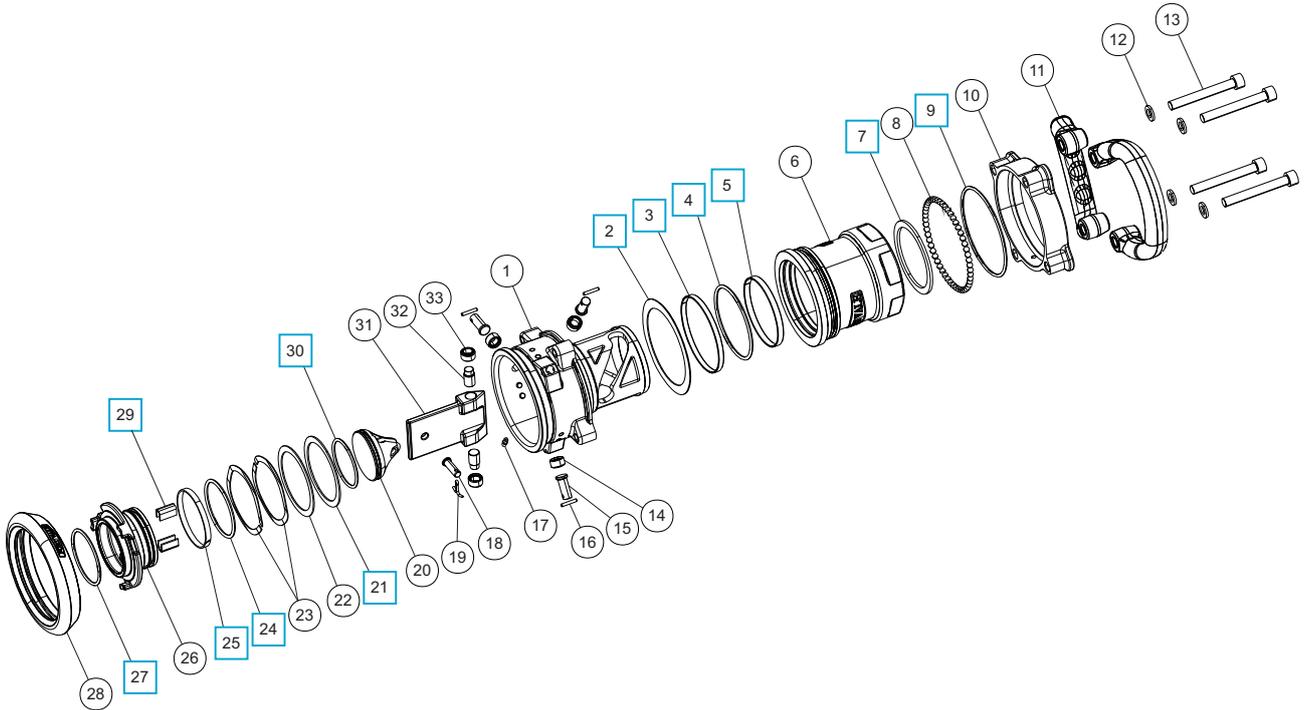
DIMENSION A: 2½" BSP inlet: Part No. 895X/B105BXX
 DIMENSION A: 3" BSP inlet: Part No. 895X/B105AXX



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 <input type="checkbox"/>
3	RTFE plain bearing	895/1058/7 <input type="checkbox"/>
4	Viton O ring * Note	5005-941 <input type="checkbox"/>
5	RTFE plain bearing	895/1058/6 <input type="checkbox"/>
6	Swivel body - 3" BSP Swivel body - 2½" BSP	895/B151 895/B151B
7	PTFE gasket - 3" PTFE gasket - 2½"	10452P 10328P <input type="checkbox"/>
8	Ball bearing (52)	10143SS
9	Viton O ring	5005-658V <input type="checkbox"/>
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 <input type="checkbox"/>
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 <input type="checkbox"/>
25	Scarf cut bearing	895/1058/4 <input type="checkbox"/>
26	Piston guide	895/B153
27	Viton O ring * Note	5005-313 <input type="checkbox"/>
28	Rubber buffer ring	895/1058/2
29	Slide strip (2)	895/B158/5 <input type="checkbox"/>
30	Viton O ring * Note	ORB832VR <input type="checkbox"/>
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.

Seal Kit

Description	Part No.
All parts marked <input type="checkbox"/> in the Parts List	895X/B105XSK

X = The seal material and inlet type change 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

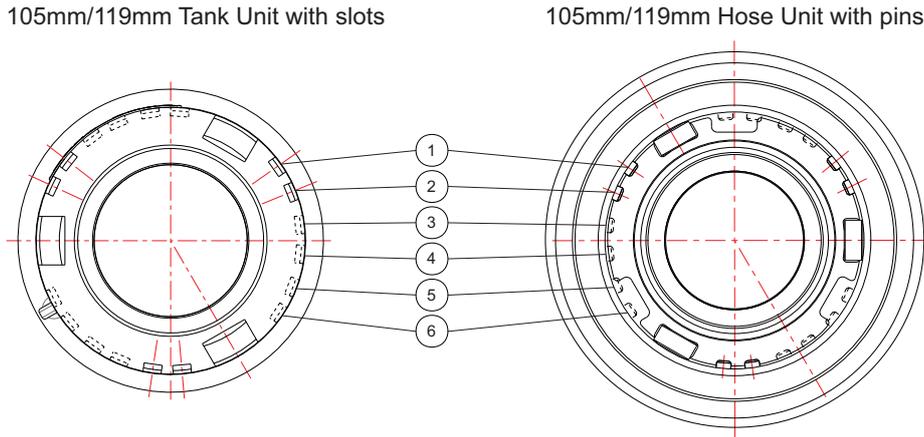


Table 1: 15 Position Selectivity

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

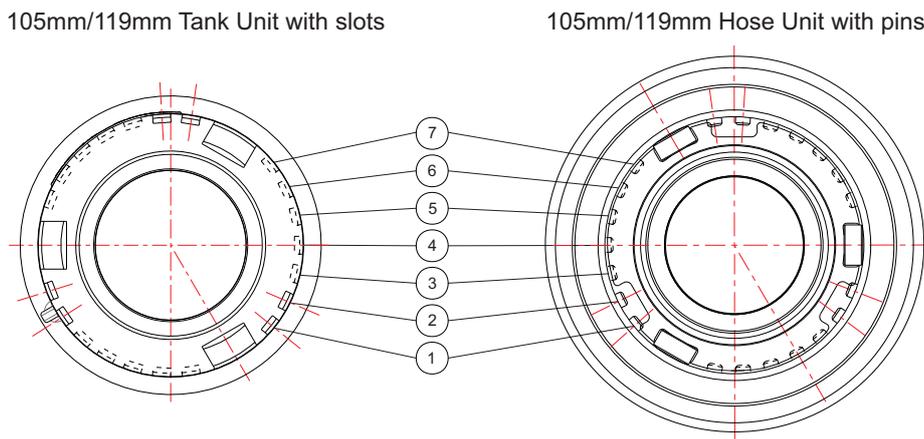


Table 2: 7 Position Selectivity

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 (**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

STANAG 3756 (Edition 4) NATO Standardization Agency

Range

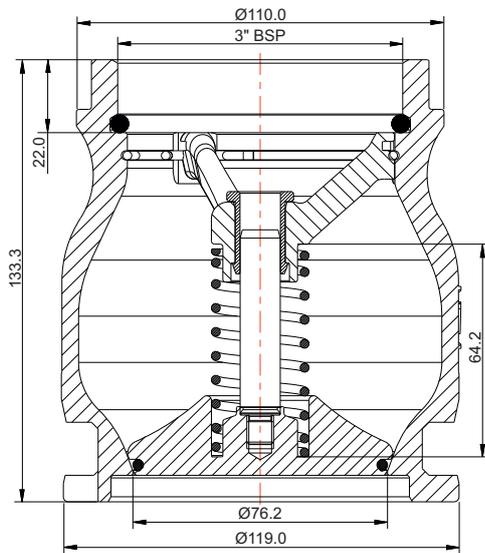
Description	Part No.
3" BSP inlet, Viton seal, no selectivity	376V/B190A00
Flanged inlet, no selectivity *Note	376V/B190X00

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

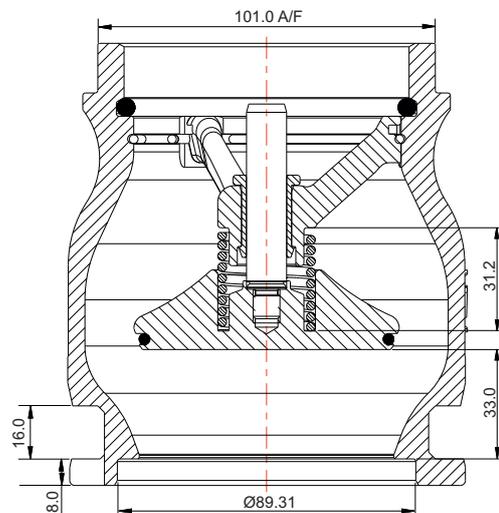
Related Parts

Description	Part No.
119mm pressure-tight cap	915/5470X
119mm/3" BSP hose unit, Viton seal	895V/B190A00
119mm rubber dust cap	915/5175

Section View



CLOSED POSITION



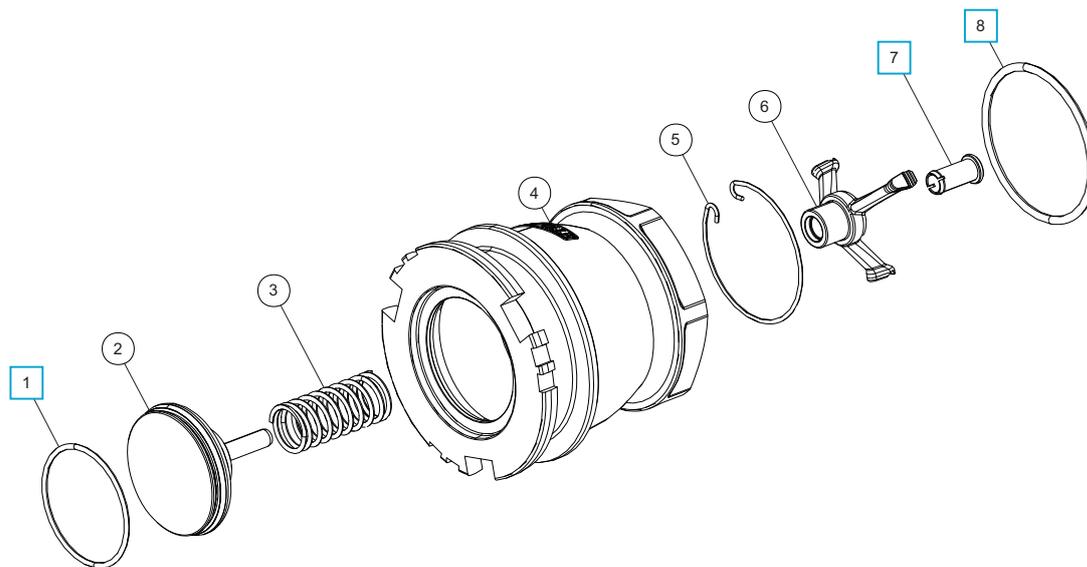
OPEN POSITION



119mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B190A00

Parts Drawing



Parts List

Item	Description	Part No.	
1	Viton poppet O ring *Note	5005-730	☐
2	Poppet assembly	376/B193	
3	Poppet spring	5104-799	
4	119mm body (no selectivity) *Note	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.

Seal Kit

Description	Part No.
All parts marked ☐ in the Parts List	376X/B190XSK

X = The seal material and inlet type change 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

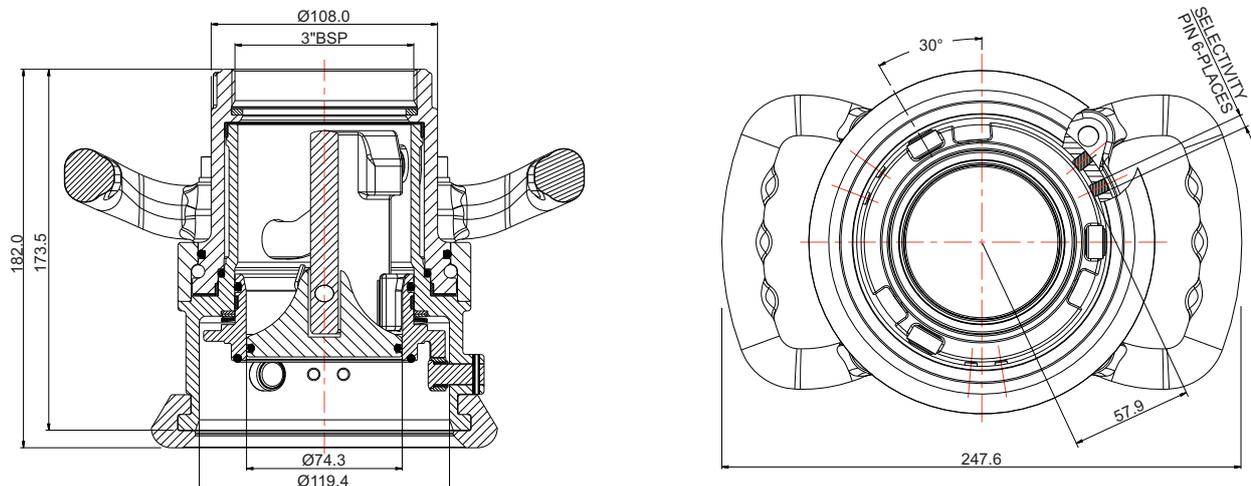
Description	Part No.
3" BSP inlet, Viton seal, no selectivity	895V/B190A00

Related Parts

Description	Part No.
119mm/3" BSP tank unit, Viton seal	376V/B190A00
Pressure-tight cap for 119mm tank unit	915/5470X
119mm rubber dust plug	915/5173

Section View

Shows the selectivity pin position

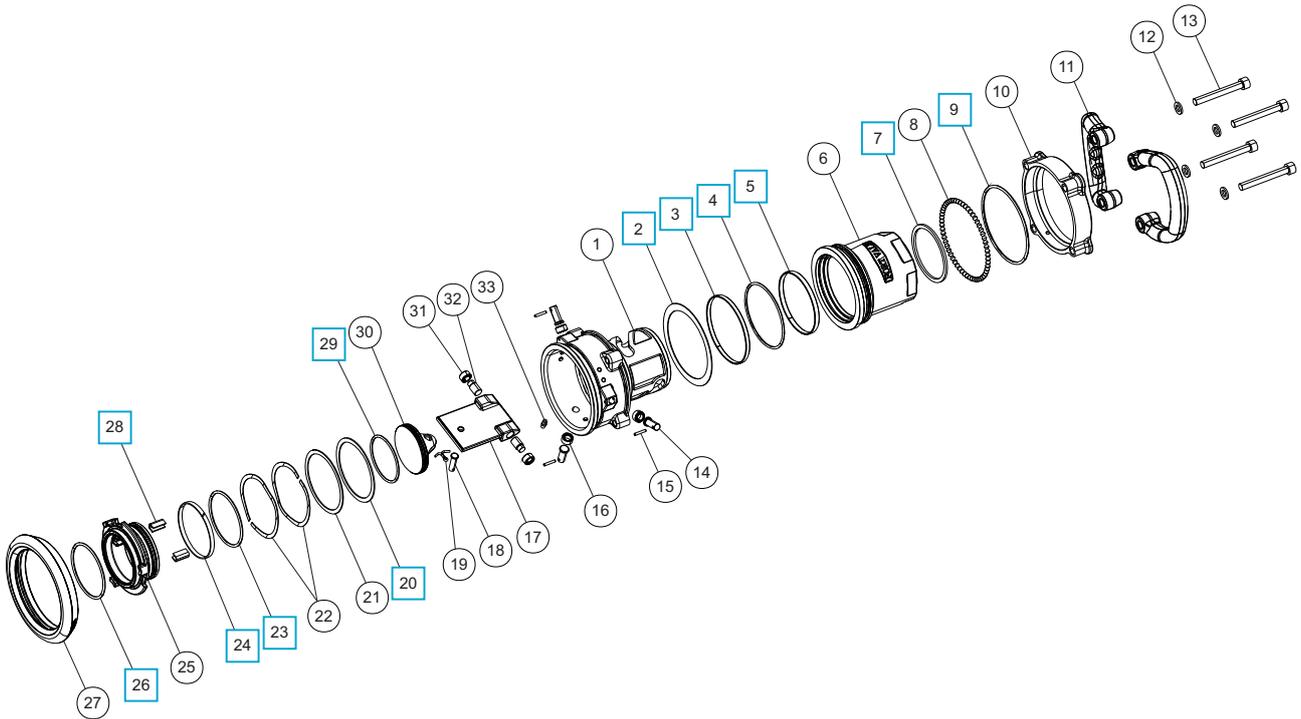




119mm Drytyt Dry Disconnect Hose Unit

Part No: 895V/B190A00

Parts Drawing



Parts List

Item	Description	Part No.
1	119mm body (no selectivity) *Note	895/B19200
2	RTFE thrust bearing	895/1198/8 <input type="checkbox"/>
3	RTFE plain bearing	895/1198/7 <input type="checkbox"/>
4	Viton O ring *Note	5005-315 <input type="checkbox"/>
5	RTFE plain bearing	895/1198/6 <input type="checkbox"/>
6	Swivel body	895/B191
7	PTFE gasket	10454P <input type="checkbox"/>
8	Ball bearing (58)	10143SS
9	Viton O ring	5005-934 <input type="checkbox"/>
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 <input type="checkbox"/>
21	Thrust bearing	895/B198/1
22	Wavy washer (2)	5111-184
23	Viton O ring *Note	5005-551V <input type="checkbox"/>

Parts List

Item	Description	Part No.
24	RTFE scarf cut bearing	895/1198/4 <input type="checkbox"/>
25	Piston guide	895/B193
26	Viton O ring *Note	5005-936 <input type="checkbox"/>
27	Rubber buffer ring	895/1198/2
28	Slide strip (2)	895/B198/5 <input type="checkbox"/>
29	Viton O ring *Note	5005-314 <input type="checkbox"/>
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.

Seal Kit

Description	Part No.
All parts marked <input type="checkbox"/> in the Parts List	895X/B190XSK

X = The seal material and inlet type change 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: 17 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

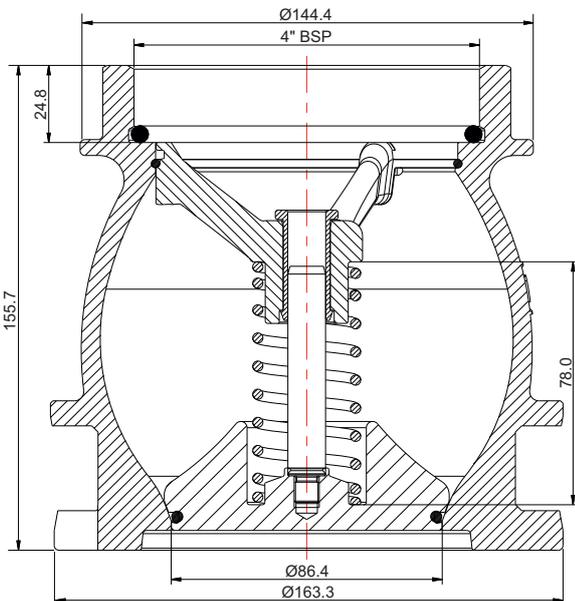
Description	Part No.
4" BSP inlet, Viton seal, no selectivity	376V/B640A00
Flanged inlet, no selectivity *Note	376V/B640X00

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

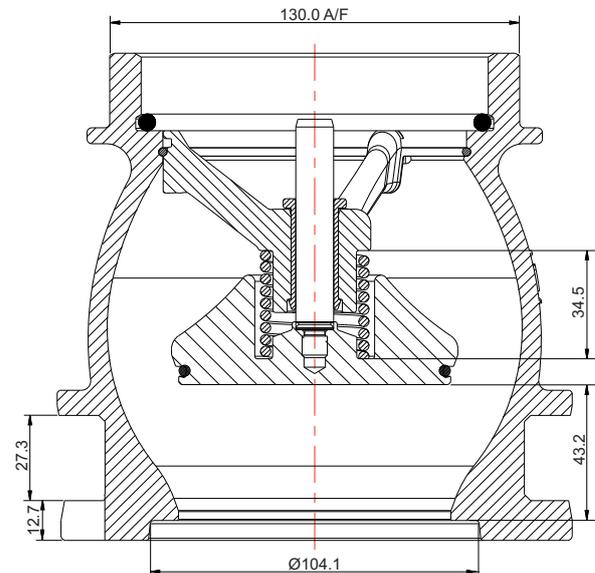
Related Parts

Description	Part No.
164mm pressure-tight cap	915/5490X
164mm/4" BSP hose unit, Viton seal	895V/B164A00
164mm rubber dust cap	915/5176

Section View



CLOSED POSITION



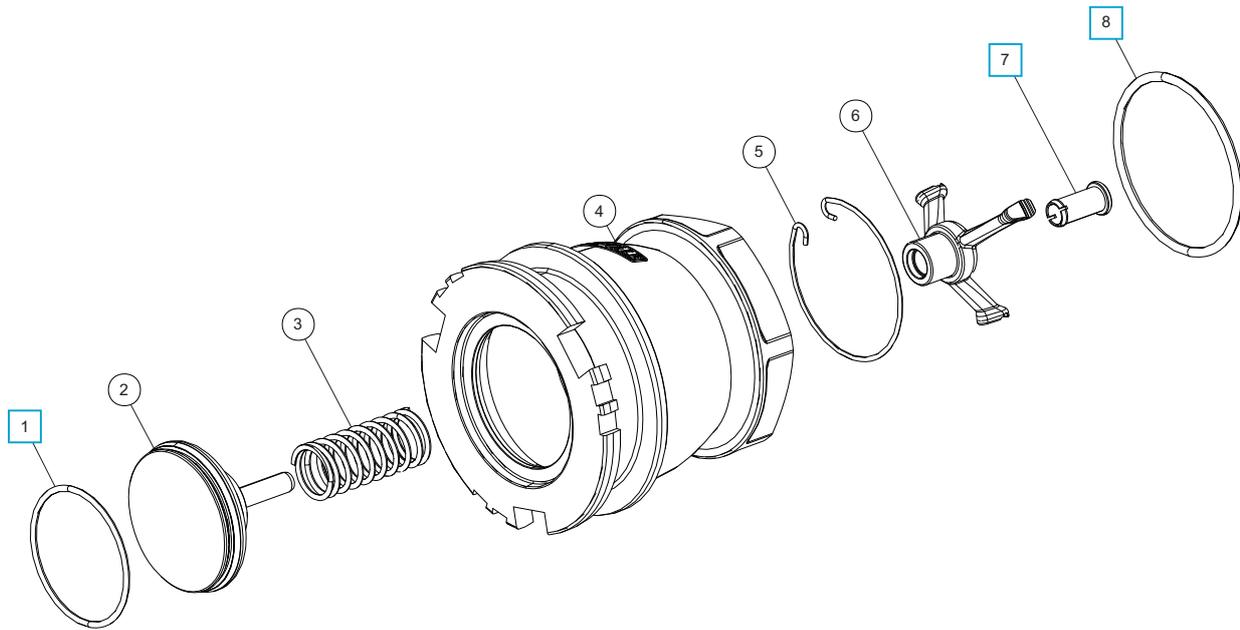
OPEN POSITION



164mm Drytyt Dry Disconnect Tank Unit

Part No: 376V/B640A00

Parts Drawing



Parts List

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

NOTE: The tank unit specification changes the Part No.

Seal Kit

Description	Part No.
All parts marked <input type="checkbox"/> in the Parts List	376X/B640XSK

X = The seal material and inlet type change 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 Pressure Bar	Test Pressure Bar	Design Temp. Min/Max °C Metal Parts Only
10.0	15.0	-40 / 200
18.9	28.35	-40 / 175
21.0	31.5	-40 / 100

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

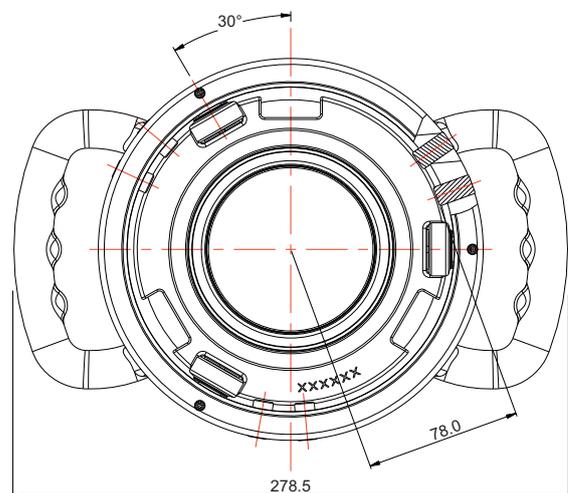
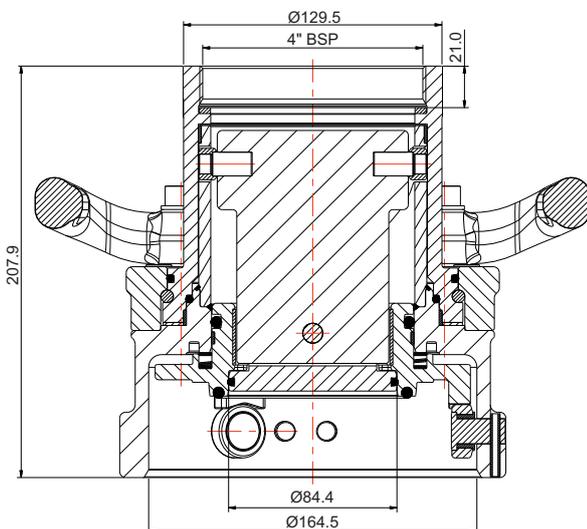
Description	Part No.
4" BSP inlet, Viton seal, no selectivity	895V/B164A00

Related Parts

Description	Part No.
164mm/4" BSP tank unit, Viton seal	376V/B640A00
Pressure-tight cap for 164mm tank unit	915/5490X
164mm rubber dust plug	915/5174

Section View

Shows the selectivity pin position

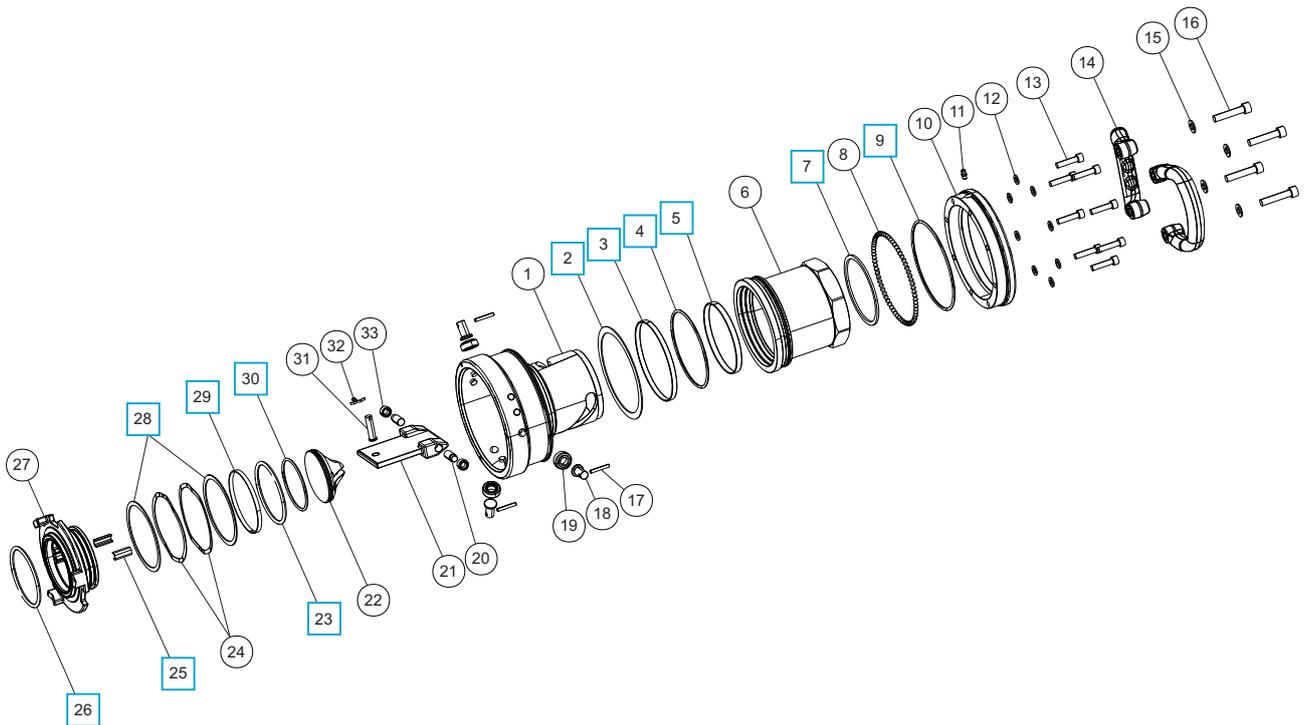




164mm Drytyt Dry Disconnect Hose Unit

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 <input type="checkbox"/>
3	RTFE plain bearing	895/1648/7 <input type="checkbox"/>
4	Viton O ring *Note	5005-958 <input type="checkbox"/>
5	RTFE plain bearing	895/1648/6 <input type="checkbox"/>
6	Swivel body	895/B641
7	PTFE gasket	10456P <input type="checkbox"/>
8	Ball bearing (70)	10143SS
9	Viton O ring	5005-943 <input type="checkbox"/>
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 <input type="checkbox"/>

Parts List

Item	Description	Part No.
24	Wavey washer (2)	5111-192
25	Slide strip (2)	895/B648/5 <input type="checkbox"/>
26	Viton O ring *Note	5005-942 <input type="checkbox"/>
27	Piston guide	895/B643
28	Spring face bearing (2)	895/1649 <input type="checkbox"/>
29	RTFE scarf cut bearing	895/1648/4 <input type="checkbox"/>
30	Viton O ring *Note	5005-683V <input type="checkbox"/>
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.

Seal Kit

Description	Part No.
All parts marked <input type="checkbox"/> in the Parts List	895X/B164XSK

X = The seal material and inlet type change 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

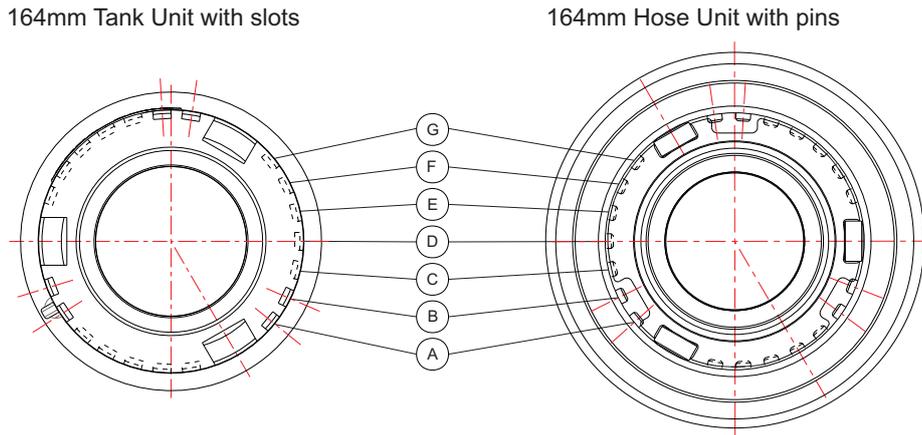


Table 1: 7 Position Selectivity

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.



Dust Caps & Plugs for Drytyt Dry Disconnect Couplings Accessories & Spare Parts



Specification

Caps for tank units have a ring and tab to attach it to the tank unit.

Plugs for hose units have a 3mm hole to attach a keyring and chain or wire.

Nominal sizes

70mm, 119mm, 164mm

Material

Black EPDM rubber

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

Dust Caps - For Tank Units

Size	Part No.
70mm	915/5172
119mm	915/5175
164mm	915/5176

Dust Plugs - For Hose Units

Size	Part No.
70mm	915/5171
119mm	915/5173
164mm	915/5174



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

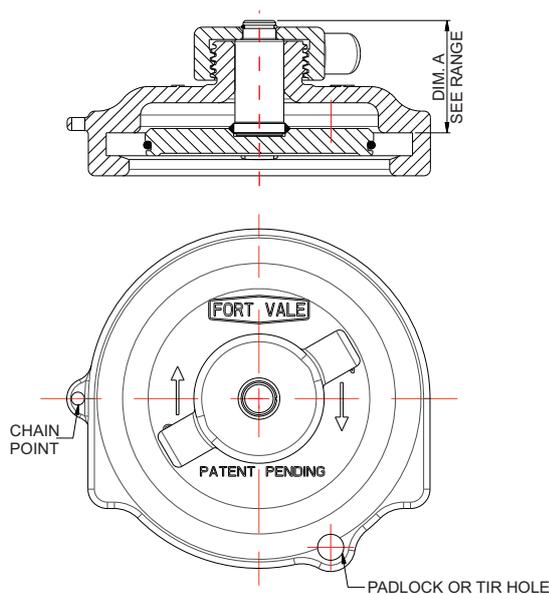
Materials

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
915/54XXN	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

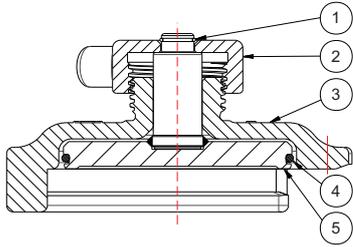


Pressure-Tight Caps for Drytyt Tank Units

Accessories & Spare Parts

Parts Drawing

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



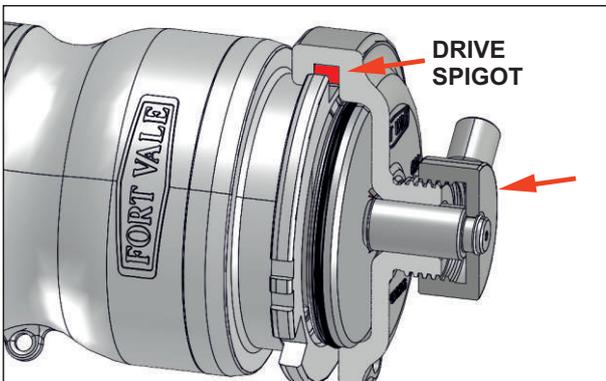
Parts List

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



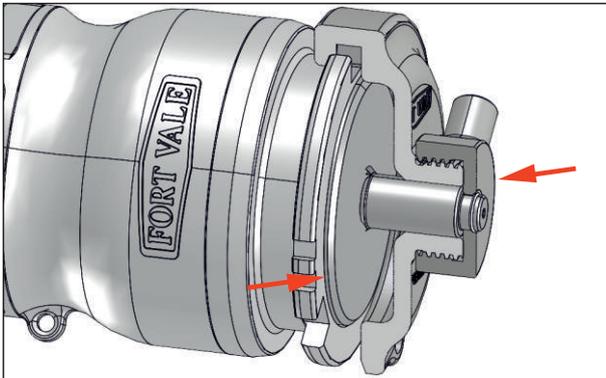
How to install the pressure-tight cap assembly

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.



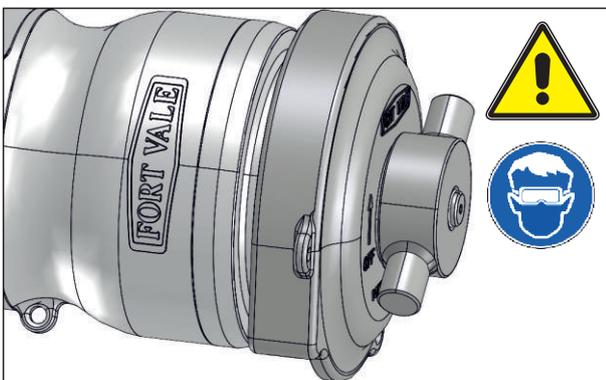
Tighten the top cap.

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.



APPENDIX

Catalogue

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

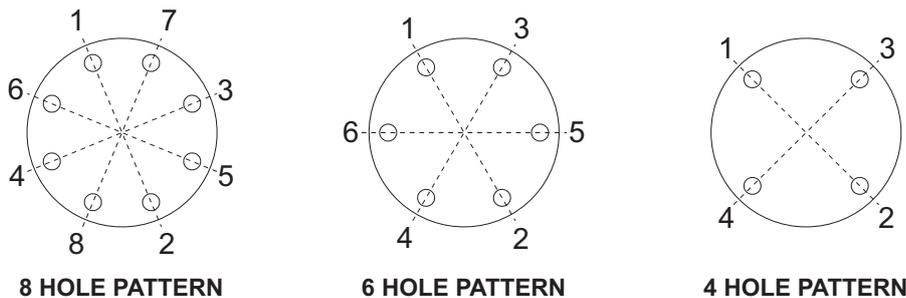
To install flanged parts correctly:

- 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

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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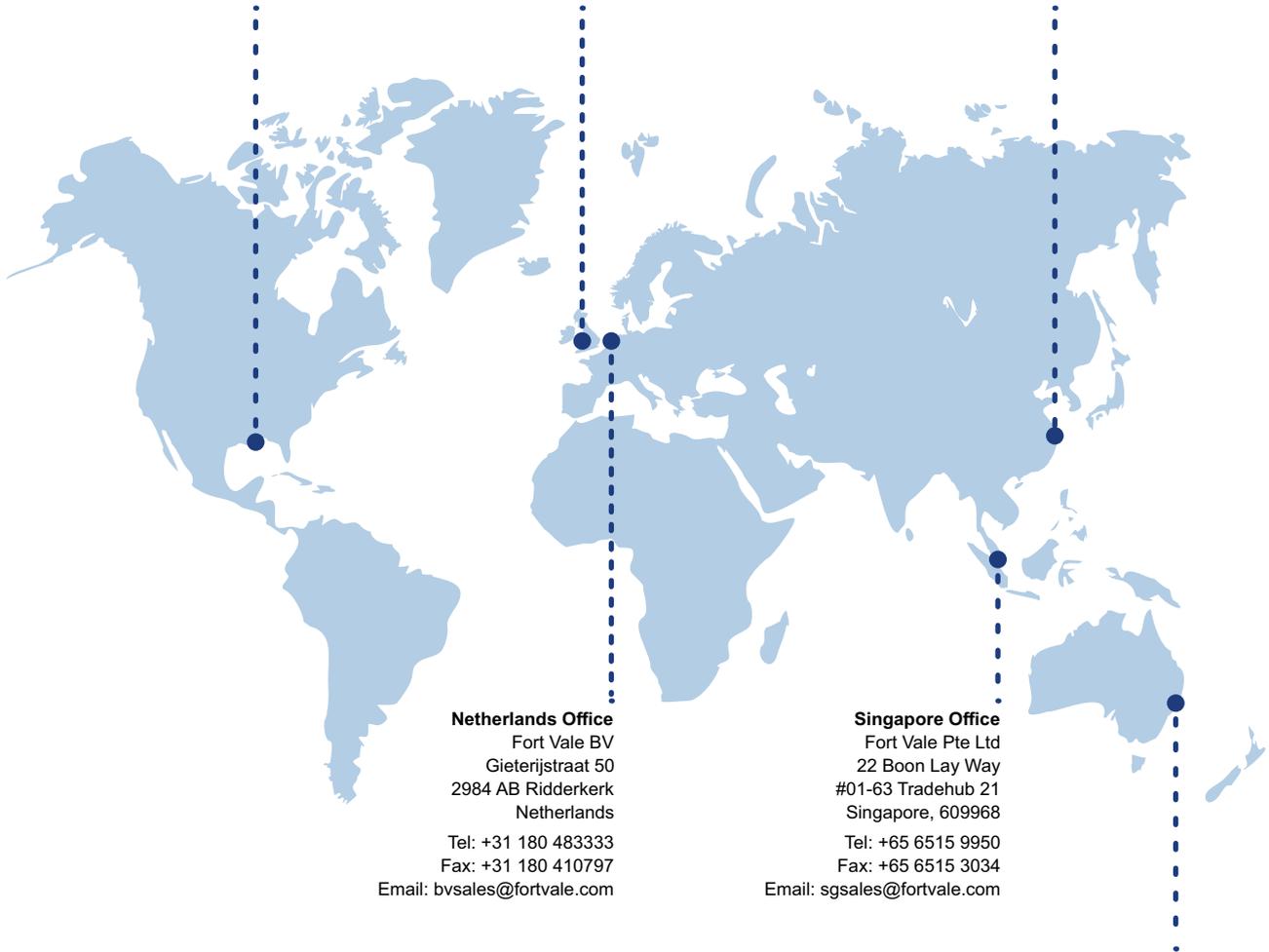
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