



THE DIAMOND SINGLE SEAT VALVE USER MANUAL

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Introduction and Contents

The single seat valve is designed on a modular basis sharing common components with all DPL products using the spherical housing. The fully machined housing gives a clean, self-draining and crevice free interior which is gentle on your product. The valves are available as single housing on/off or double housing divert valves.

SECTION 1 OPERATION

Pneumatically activating the valve and NO to NC conversion.

SECTION 2 CONFIGURATIONS

Valve port configurations and liquid flow direction have to be considered as pressure shocks are likely to arise if moving product is stopped suddenly.

SECTION 3 DIMENSIONS

Dimensioned drawings and tables including tube sizes and pressure drops.

SECTION 4 APPLICATIONS

Typical installations.

SECTION 5 INSTALLATION

Please read before installing.

SECTION 6 ASSEMBLY CODES

How to decipher the valve part number

SECTION 7 MATERIALS

Product contact parts, non contact parts and seal options.

SECTION 8 SWITCHBOXES

Limit switch and solenoid valve combinations and wiring.

SECTION 9 MAINTENANCE INSTRUCTIONS

Instructions, part lists and spares packs.

SECTION 1

OPERATION

ACTUATOR DETAILS

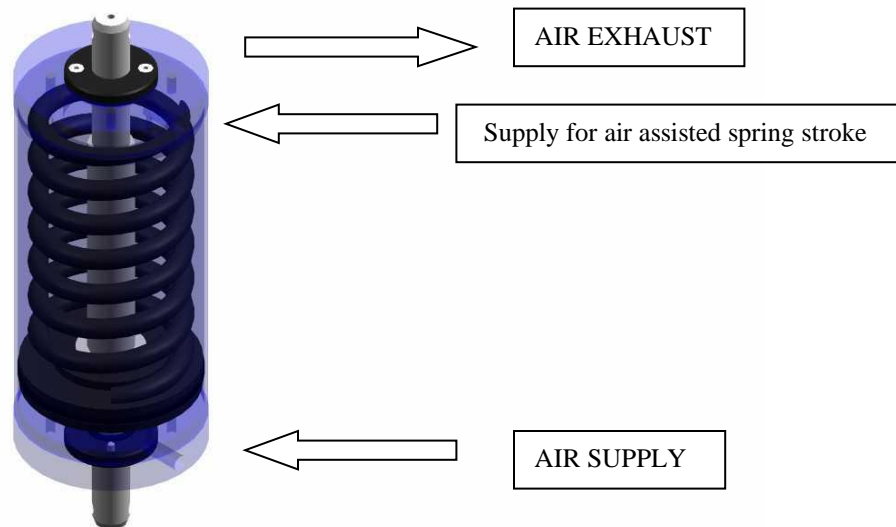
The valve is operated by means of a pneumatic actuator. Three actuator sizes are available, one for 1" valves, one for 1½" and 2" valves and one for 2½" - 4" valves. All actuators are available as spring return or double acting.

The actuator is a factory lubricated sealed unit, requiring no maintenance. It is therefore recommended to operate with filtered air in order to prevent particles from entering the actuator. Although maintenance is not normally required, two external actuator seals are accessible for service, and can be changed if necessary by following the valve maintenance dismantling procedure.

IMPORTANT: To avoid serious injury the actuator cylinder should not be dismantled any further than to replace the two external seals as described above. The actuator cylinder is a sealed unit that houses a powerful spring under compression.

Operating temperature -15°C to 120°C
In sub zero temperature the operating media must be free from moisture.

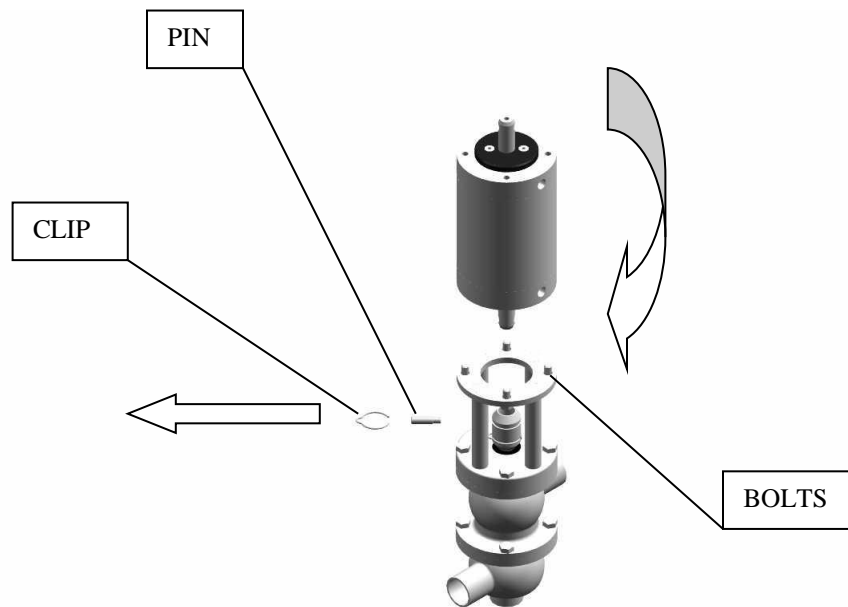
Recommended operating air pressure 5.5 Bar (80 PSI)
Maximum air pressure 6.0 Bar
Air Connections 1/8" BSP Female



FAILSAFE POSITION

As standard, the valves are fitted with the spring return actuator closing the valve spindle down-wards with the spring, this is termed normally closed (NC). The valves can be fitted with the actuator opening the valve spindle up-wards with the spring, this is termed normally open (NO). Normally open or normally closed, is the position that the valve will be returned by the spring at rest or due to an air supply failure. The actuator is easily field reversible for NC or NO.

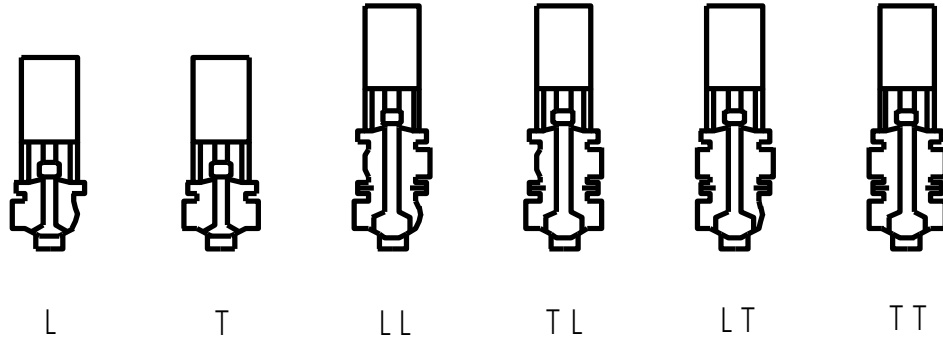
To remove the actuator, simply undo the four bolts and remove the clip and pin from the coupling. See maintenance instructions for full details.



Because the DPL actuator produces equal force at the end of the spring and air stroke at 80 psi, reversing the actuator does not change the pressure rating of the valve.

SECTION 2 CONFIGURATIONS

The most common configurations are shown below.
All common end connections are available including 1"– 4" RJT, IDF, ILC, CLAMP,
FLANGED, WELD AND DIN.



The above schematic diagram shows the number of ports and the 'L' or 'T' configuration. The actual ports on the upper and lower valve bodies are offset at 90° to avoid the end connections interfering with each other. Bodies with weld ends can be assembled without the 90° offset if the pipes can be moved apart for maintenance.

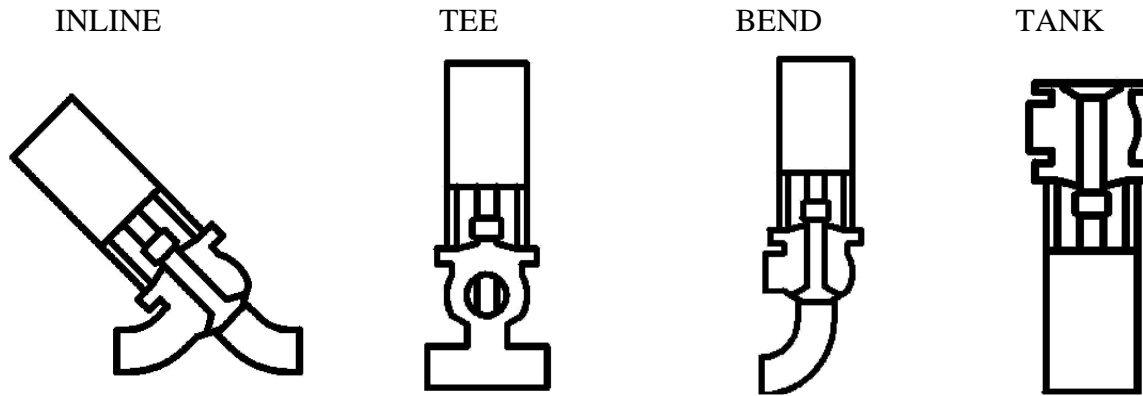


PORTS OFFSET
AT 90°



PORTS CAN ROTATE IN
90° INCREMENTS
(check end connection interference)

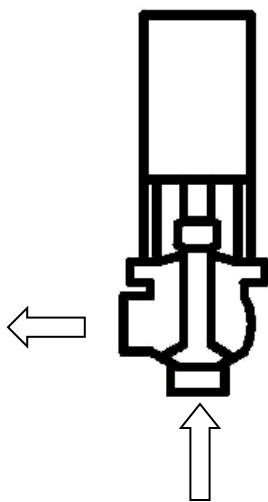
The valves modular design gives many assembly options, some are shown below.



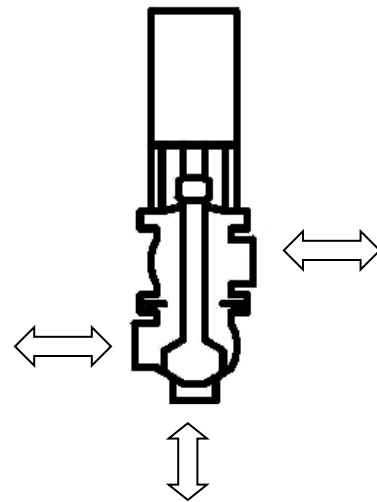
FLOW DIRECTION

Liquid flow direction needs to be considered because pressure shocks are likely to arise if moving product stops suddenly.

An air regulator can be fitted to the actuator inlet to slow down the valve action.

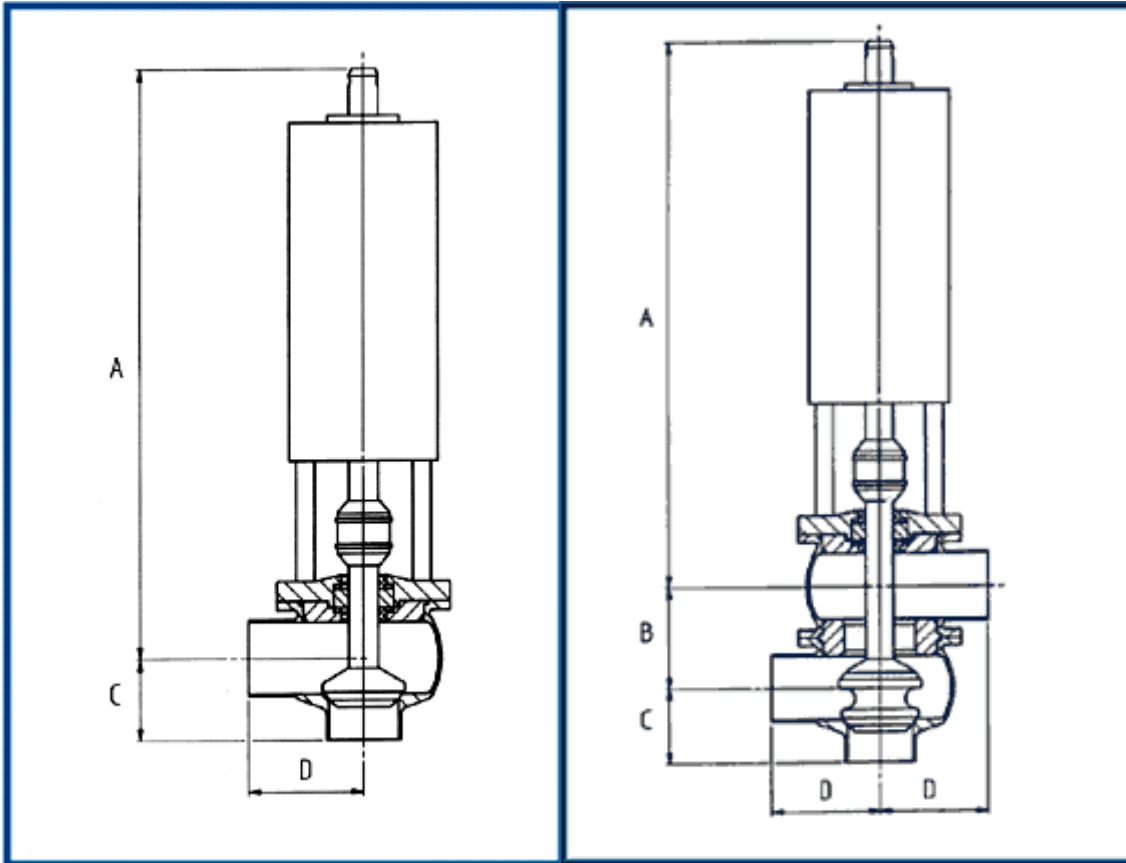


On/Off valve closes into flow.



Divert valve can handle flow
In all directions because
product is diverting not
stopping.

**SECTION 3
DIMENSIONS**



SIZE	1"	1.5"	2.0"	2.5"	3.0"	4.0"
A (mm)	268	416	422	497	503	522
B (mm)	62.5	63.3	76	92.8	105.5	142
C (mm)	30.5	42	45.5	55	59	71
D (mm)	52	75	79	95	99	127
PRESSURE (BAR)	16	7	7	7	7	4.5

Weld end dimensions

1"
1.5"
2"
2.5"
3"
4"

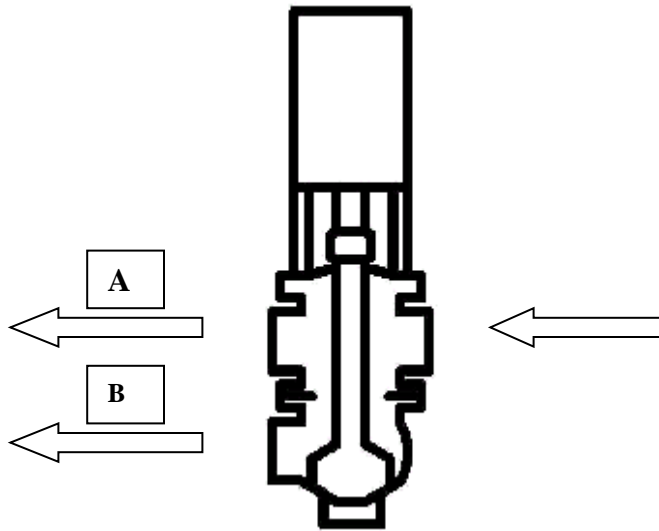
Outside diameter (mm)

25.4
38.1
50.8
63.5
76.2
101.6

Wall thickness (mm)

1.6
1.6
1.6
1.6
1.6
2.0

PRESSURE DROPS



Pressure drop values of valves in equivalent pipe lengths (meters)

SIZE	1"	1.5"	2"	2.5"	3"	4"
A (flow)	1	1.5	1.5	2	2	3
B (flow)	2	4	4	8	8	12

Figures are approximate for flow velocities of 1 – 3 m/s water.

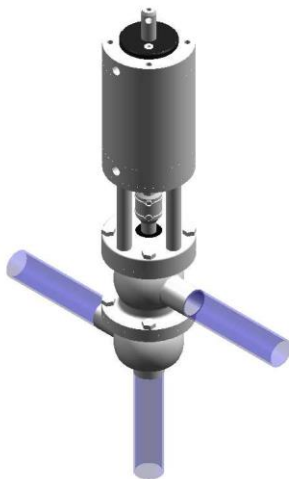
**SECTION 4
APPLICATIONS**



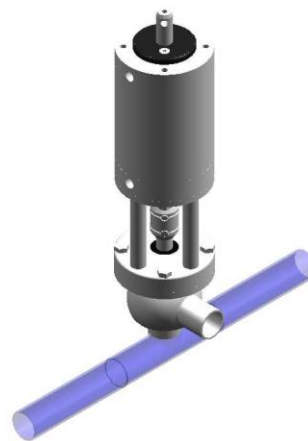
ON/OFF VALVE



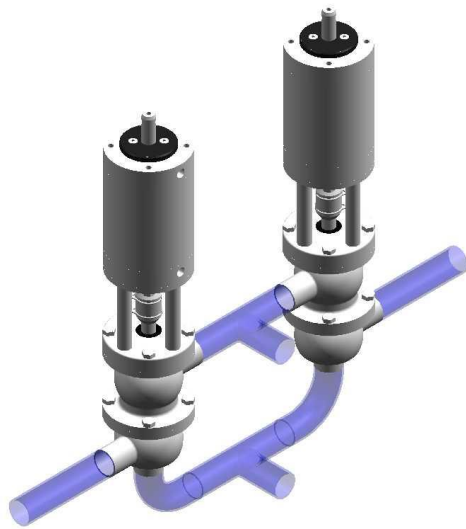
POINT OF USE VALVE



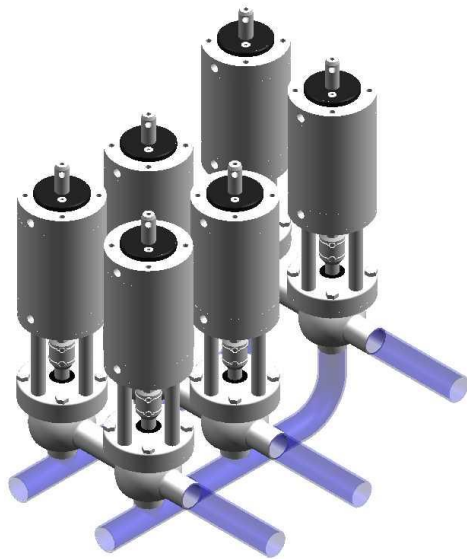
**DIVERT VALVE
REPLACES 2 ON/OFF VALVES
E.G. 2 BUTTERFLY VALVES ON A TEE**



**ON/OFF VALVE WITH A TEE
POINT OF USE VALVE**



TWIN DIVERT VALVES REPLACE 4 ON/OFF VALVES
OR ONE FOUR WAY PLUG VALVE, BUT WITH MORE
FLOW OPTIONS



VALVE MANIFOLD OR MATRIX
TRANSFERS PRODUCT TO AND FROM TANKS/PROCESSES
BODIES CAN BE LEFT IN PLACE DURING MAINTENANCE

SECTION 5 INSTALLATION

A process system can generally be associated with many varying conditions such as water hammer, pressure shock, vibration and thermal expansion due to temperature change. Stress and strain within the pipeline will result and unless such conditions are allowed for at the system design and installation stages, the valve and pipe assembly may be damaged.

When installing the valve into a pipe assembly system, careful consideration must be made to ensure adequate support by means of framework and pipe clip fasteners, for both the valve and the surrounding pipe assembly.

If welding the valve body directly into the pipeline, the valve should be partly disassembled and all seal components removed from the valve body. This will prevent heat damage to the valve seals and other internal components. Gas backed TIG welding is recommended, a minimum weld bead should be produced to minimise the risk of heat distortion within the valve body.

IMPORTANT INFORMATION FOR DOUBLE BODY SINGLE SEAT VALVES

It is preferable that the ports on this type of valve are fitted with couplings. As with all valves of this type, to allow for future maintenance it is advisable **not** to weld **both** the upper and the lower bodies into a pipe assembly. It is strongly recommended that the upper body ports are of a coupling type so that this part of the valve body can be separated from the manifold/line to allow maintenance of the lower seat seal.

Alternately the DPL design will also enable the top body to be welded in line and the lower body be attached to the line with fittings, provided the body can be detached and moved aside to allow access to the bottom seat seals.

ATEX / EQUIVALENT UK REGULATIONS

Please refer to the separate document shown below titled “Diamond Butterfly Valves Installation & Maintenance: ATEX Directive 2014/34/EU & The Equipment & Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 SI 1107” which is to be used in conjunction with this document when installing or maintaining valves that support the “Ex” symbol. This additional information is essential to the safe operation of your valve in hazardous environments.

CONNECTING PIPEWORK MUST BE EARTHED.



Diamond Single Seat Valve Installation & Maintenance: ATEX Directive 2014/34/EU & The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 SI 1107

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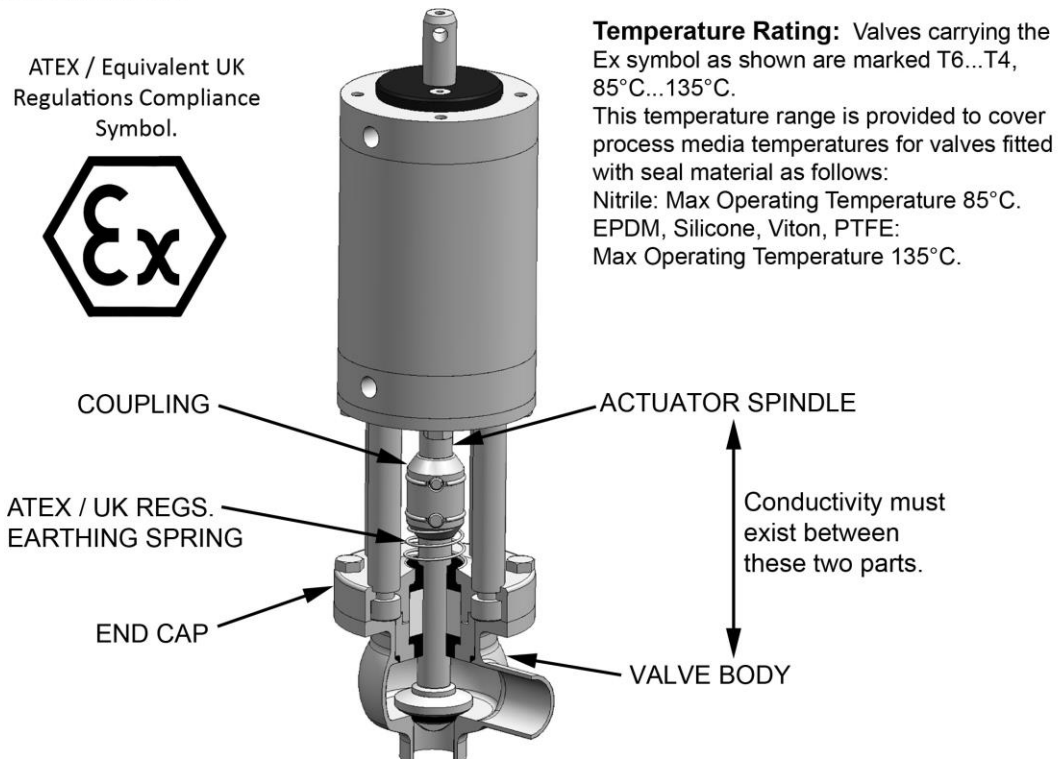
ADDITIONAL INSTRUCTIONS TO BE USED IN CONJUNCTION WITH INSTALLATION & MAINTENANCE INSTRUCTIONS FOR DIAMOND SINGLE SEAT VALVES

IMPORTANT - PLEASE READ CAREFULLY BEFORE INSTALLING YOUR UNIT

ATEX / Equivalent UK regulations compliant valves that support the "Ex" compliance symbol pictured below are fitted with an additional component that is essential to the safe operation of the unit in hazardous environments. When valves are dismantled for installation or maintenance it is important that they are correctly reassembled, with the Earthing Spring in place, as depicted below. The valve shown below is a Single Body seat valve. The same principle applies for Double Body valves. The earthing spring is fitted over the valve shaft and beneath the coupling, in the position shown below on both single and double body variants. The following points must be adhered to when maintaining / installing an ATEX / Equivalent UK regulations Single Seat Valve:

1. When maintenance is performed and the Earthing Spring is removed, it must be re-fitted as shown below. Metal to metal contact must be made between the end cap, the earthing spring, and coupling to ensure electrical conductivity is achieved.
2. Once assembled, check that there is electrical conductivity between the actuator spindle and valve body. A multi-meter should be used to perform this test. If no conductivity exists, the valve should not be used.

Important Note: Pipework that is to be connected to DPL ATEX / equivalent UK regulations compliant valves must be earthed.

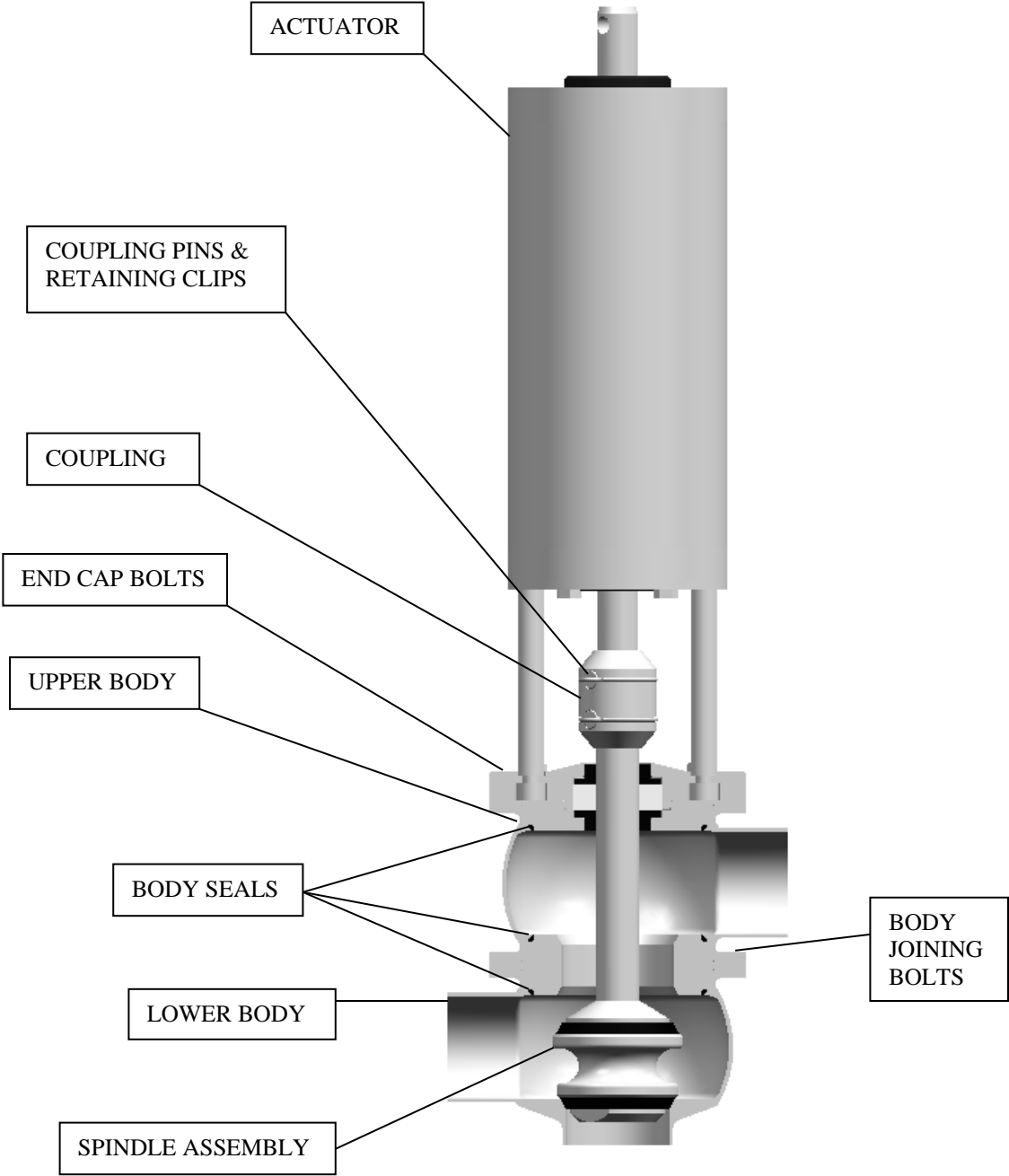


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SINGLE SEAT VALVE DOUBLE BODY VERSION



TO DISASSEMBLE THE VALVE FOR WELDING THE LOWER BODY IN LINE

1. NORMALLY CLOSED VALVES ONLY (spring pushing down)

The following procedure to remove the actuator from the valve involves actuating the valve (using compressed air) to the closed position. Great care must be taken when introducing air pressure to the actuator. As the valve is actuated the central valve/ actuator shaft will move. Hands/fingers and loose clothing should be kept away from the moving parts of the valve wherever possible, as the valve is actuated.

Start by locating a suitable airline feed with a 5.5 bar supply pressure. Ensure that the airline pressure is zero, then connect to the lower air connection of the valve actuator. The 5.5 bar supply pressure should be maintained during the next procedure that follows.

For the single body valve: - Using an appropriate size spanner, undo and remove the valve body end cap bolts. Lift off the actuator taking with it the spindle, guide and seat assembly as one unit.

For the double body valve: - Using an appropriate size spanner, undo and remove the 4 bolts that join the valve bodies together. Lift off the actuator and the upper valve body assembly, taking with it the spindle, guide and seat assembly.

Check that the body seals came out with the assembly removed. The valve body can now be welded in place.

On completion, clean the welds and seating areas and reassemble the top assembly in the reverse procedure. Ensure the 'O' ring body seal is in place on the spindle guide disc for ease of assembly and correct location. **Tip;** process compatible grease can help hold the seal in position.

Ensure that hands/fingers and other body parts are clear of the valve then disconnect the airline supply. The valve spindle will move returning the valve seat position to closed.

2. NORMALLY OPEN VALVES ONLY (spring pulling up)

Use the same procedure as per above (section 1) but no air connection is required, the valve does not need to be air actuated.

3. ADDITIONAL STEPS REQUIRED TO WELD THE **TOP** BODY IN PLACE

These steps are in addition to the above procedure enabling the top body to be safely disassembled. See front of this section:

IMPORTANT INFORMATION FOR DOUBLE BODY SINGLE SEAT VALVES
Continued....

NOTE: The NORMALLY OPEN valve should next be actuated from the top air connection in order to remove the pins it may be necessary to relieve any force from the actuator assembly that may be holding them in place.

Remove the lower coupling clip and then remove the pin.

Using an appropriate size spanner, undo and remove the top valve body end cap bolts. Lift off the actuator taking with it the spindle coupling. Pull through the seat spindle and the top and bottom guides and body seals can be removed.

On completion, clean the welds and seating areas and reassemble the top assembly in the reverse procedure. Place the 'O' ring body seals on the spindle guide discs for ease of assembly and correct location. **Tip:** process compatible grease can help hold the seals in position.

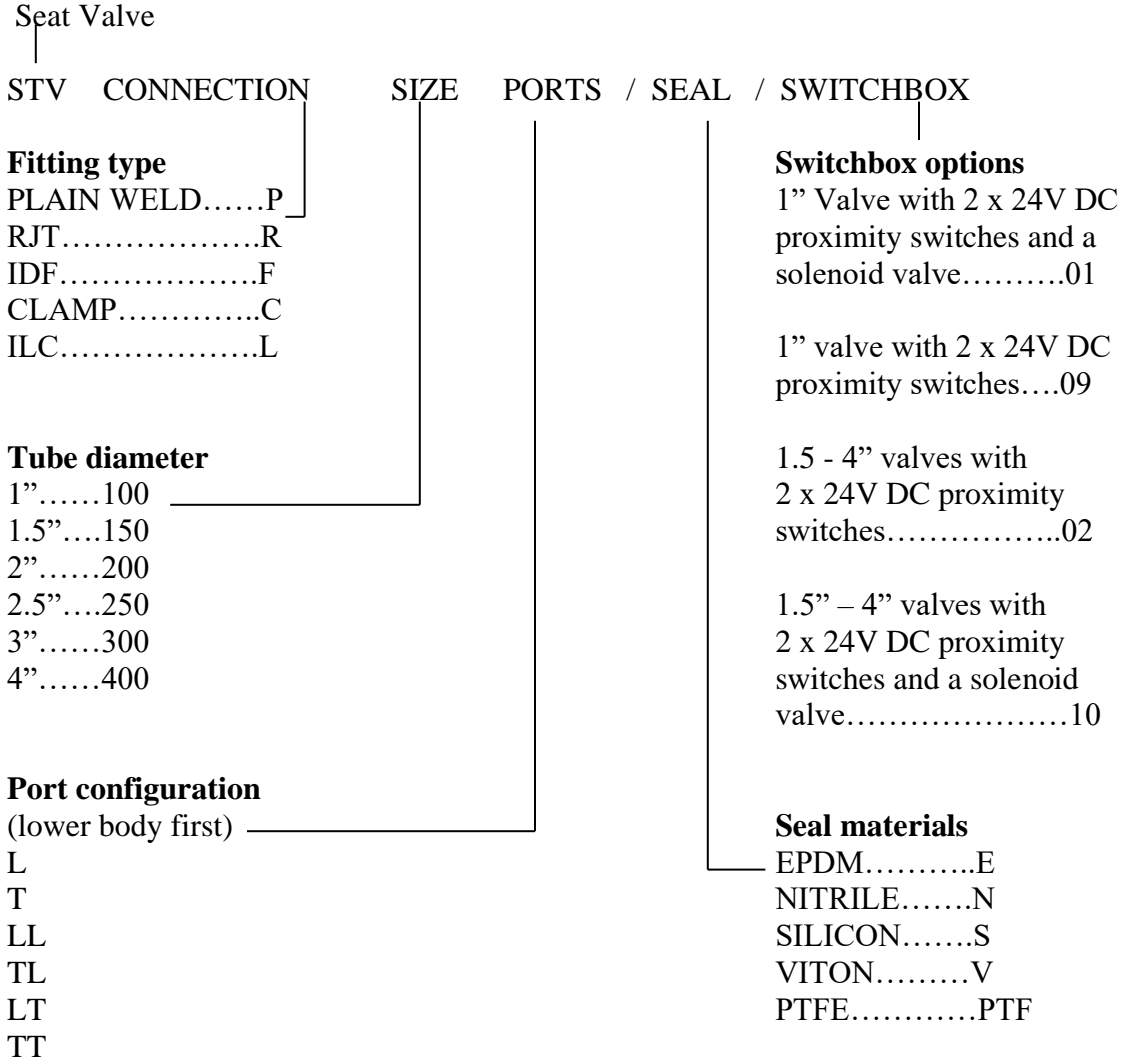
Check the coupling pins and retaining clips are put back safely in place the correct way around.

Ensure that hands/fingers and other body parts are clear of the valve then disconnect the 5.5 bar airline supply. The valve spindle will move returning the valve seat position to closed.

4. The user should establish a maintenance programme for valves depending on the type of product and frequency of valve use. For valves in constant use DPL recommends replacement of seals and wear related parts at least every two years.

SECTION 6 ASSEMBLY CODES

Part numbering of single seat valves.



EXAMPLE

Single seat valve, plain ends, 2", LL ports, EPDM seals fitted with two proximity switches in a switchbox.....STVP200LL/E/02

The RJT, IDF and ILC fittings are male as standard.

Many other options are available not covered by the part numbering system including switchboxes populated to customers exact requirements.

Valves should be ordered by description not by number and stating the failsafe position, Normally open or Normally closed.

SECTION 7 MATERIALS

PRODUCT CONTACT PARTS

Body: 316L, fully machined from a forging

Spindle: 316L, ground bar

Guide: 316L, fully machined from bar

NON CONTACT PARTS

304 Machined

SEALS

All DPL polymers are food quality, approved by USDA and comply with FDA's Code of Federal Register – Title 21, part 177.

Temperature range

EPDM -50°C to +140°C

VITON -20°C to +200°C

SILICONE -50°C to +200°C

PTFE -10°C to +230°C

NITRILE -30°C to + 90°C

Maximum application temperature in dry atmospheric air.

	Caustic Soda Up to 5%	Nitric Acid Up to 2%	Milk fat<15%	Milk >15%	Beer Cold	Wort 100°C	Hot water Steam
EPDM	A	A	A	C	A	A	A
VITON	B	A	A	A			C
SILICONE	B	B	A	A	A	B	A
PTFE	A	A	A	A	A	A	C

A Resistant

B Some resistance

C Not suitable

Nitrile has been replaced in most applications by EPDM which offers a wider temperature range and a lower compression set, Nitrile has superior resistance to fats and some oils/greases.

The above values refer to typical examples, it is recommended that materials are tested on actual processes.

SECTION 8 SWITCHBOXES

The DPL range of seat valve switchboxes can be populated with many combinations of switches and solenoid valves to suit exact specifications including a wide range of voltages, ASI ,Intrinsically safe, etc.

Some of the more common switchboxes are listed below:

S/Box No	Valve	Micro switch	Proximity switch	Solenoid
STV102/01	0.5-1"	-	2 x 24V DC	24VDC
STV102/02	1.5-4"	-	2 x 24V DC	24VDC
STV102/05	0.5-2"	2 x AC/DC	-	24V DC
STV102/06	2.5-4"	2 x AC/DC	-	24V DC
STV102/09	0.5-1"	-	2 x 24V DC	-
STV102/10	1.5-4"	-	2 x 24V DC	-
STV102/13	0.5-2"	2 x AC/DC	-	-
STV102/14	2.5-4"	2 x AC/DC	-	-

CONSTRUCTION

BASE	ACETAL	Machined from bar
CLEAR TOP	ACRYLIC	Moulded
FASTENERS	STAINLESS STEEL	
BRACKETS	STAINLESS STEEL	

CONNECTIONS

Two PG9 electrical connections, one with a cable gland, the other with a removable plug

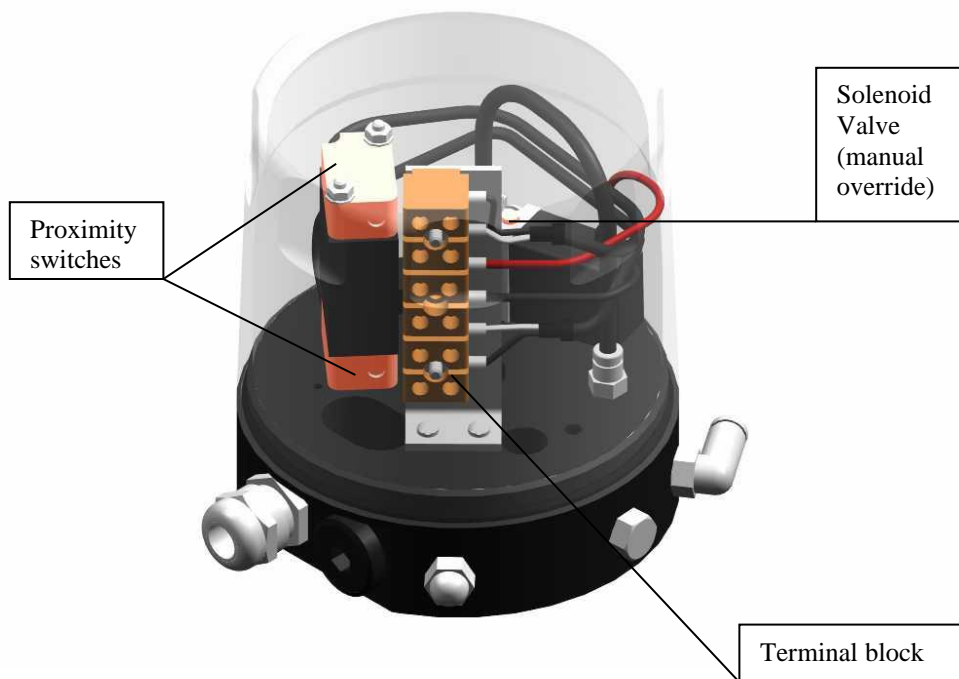
Air connections are 1/8" BSP female fitted with connectors to suit 6 mm OD airline.

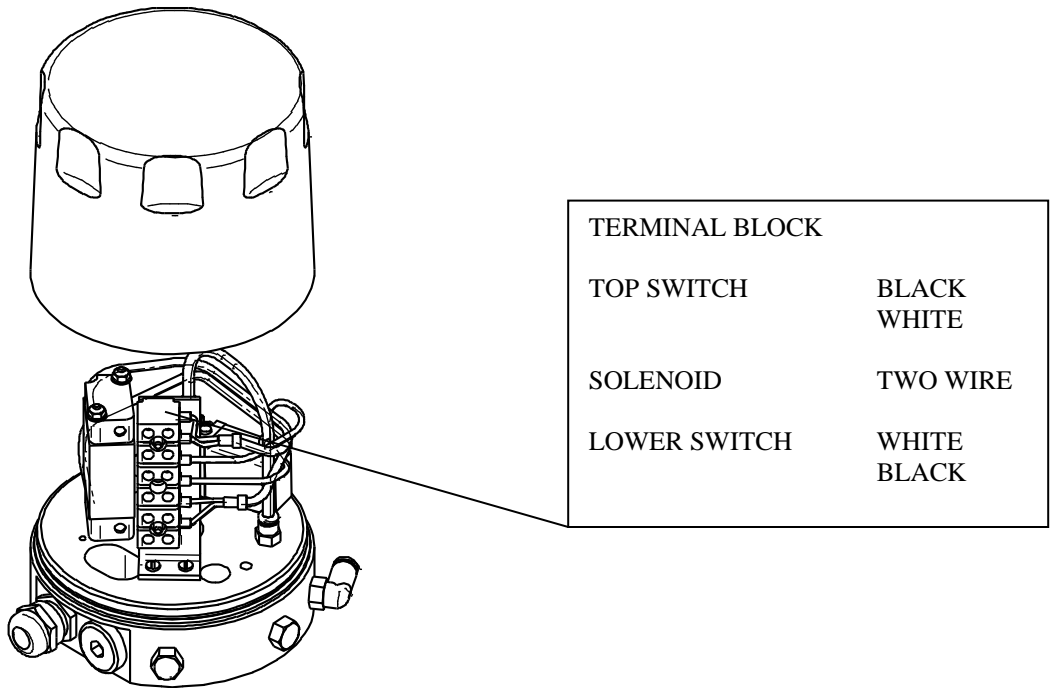
Switchboxes are fitted with a pressure relief vent to avoid pressurisation inside the box.

ADJUSTMENT

The switchbox is factory set on the valve it is mounted on. If the switchbox is transferred onto another valve the switch point can be adjusted by loosening a screw and moving the switch activating collar. This allows the switches to remain in the same position.

Switchbox shown below is a STV102/02 fitted with 2 x 24V DC proximity switches and 24V DC 3/2 solenoid valve.





The DPL switchbox is fitted with Quadronorm proximity switches as standard
PROGRAMMING

Quadronorm 2 wire proximity sensors can be programmed to either normally open, normally closed, PNP or NPN by the choice of the wire connection as shown below.

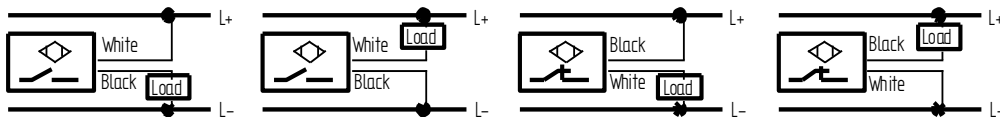
Switch status/connection active face uncovered

PNP switching
Normally open

NPN switching
normally open

PNP switching
normally closed

NPN switching
normally closed



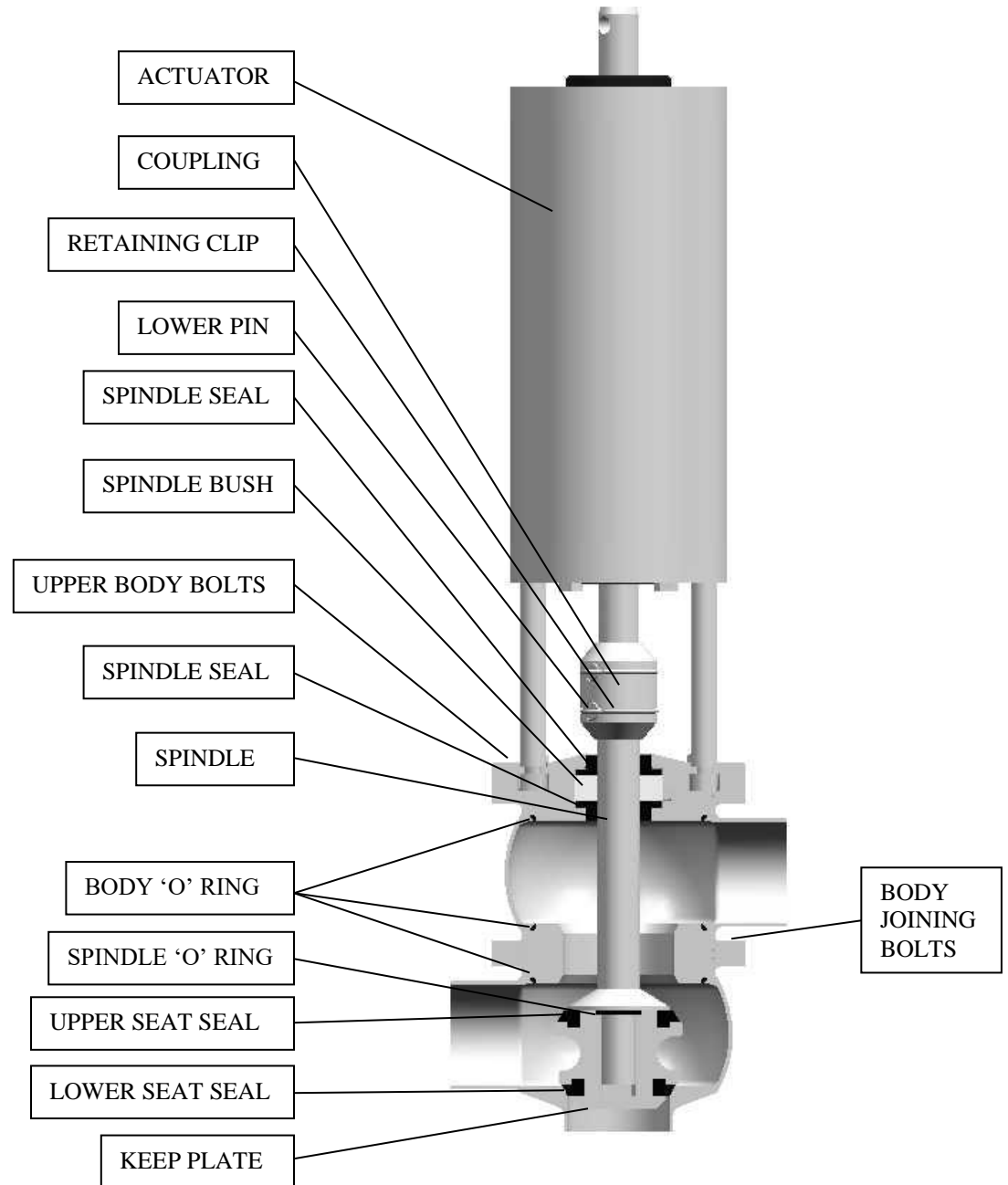
NOTE

2 Wire quadronorm sensors require a minimum load current of 4 mA.

Other switches and wiring diagrams are available on request.

SECTION 9 MAINTENANCE INSTRUCTIONS

SINGLE SEAT DOUBLE BODY VALVE.



TO DISASSEMBLE THE VALVE

1. NORMALLY CLOSED VALVES ONLY (spring pushing down)

The following procedure to remove the actuator from the valve involves actuating the valve (using compressed air) to the closed position. Great care must be taken when introducing air pressure to the actuator. As the valve is actuated the central valve/ actuator shaft will move. Hands/fingers and loose clothing should be kept away from the moving parts of the valve wherever possible, as the valve is actuated.

Start by locating a suitable airline feed with a 5.5 bar supply pressure. Ensure that the airline pressure is zero, then connect to the lower air connection of the valve actuator. The 5.5 bar supply pressure should be maintained during the next procedure that follows.

Using an appropriate size spanner, undo and remove the 4 bolts that join the valve bodies together. Lift off the actuator and the upper valve body assembly, taking with it the spindle, guide and seat assembly.

Check that the body seals came out with the assembly removed.

Ensure that hands/fingers and other body parts are clear of the valve then disconnect the airline supply. The valve spindle will move returning the valve seat position to closed.

2. NORMALLY OPEN VALVES ONLY (spring pulling up)

Use the same procedure as per above (section 1) but no air connection is required, the valve does not need to be air actuated.

3. NOTE: The NORMALLY OPEN valve should next be actuated from the top air connection, the NORMALLY CLOSED VALVE should have the air removed and the spring will return the spindle to this position. This is necessary because in order to remove the coupling pin it is recommended to relieve any force from the actuator assembly that may be holding them in place.

Remove the lower coupling clip and then remove the pin.

Using an appropriate size spanner, undo and remove the top valve body end cap bolts.

Lift off the actuator taking with it the spindle coupling. Pull through the seat spindle and the top and bottom guides and body seals can be removed.

Continued.....

Unscrew the spindle bottom keep plate using an appropriate size ring spanner or vice and a pin through the cross hole at the top of the spindle. Now all of the replaceable seals will be accessible, these can now be replaced.

Clean and reassemble in the reverse procedure. Place the 'O' ring body seals on the spindle guide discs for ease of assembly and correct location. **Tip:** process compatible grease can help hold the seals in position.

Check the coupling pins and retaining clips are put back safely in place the correct way around.

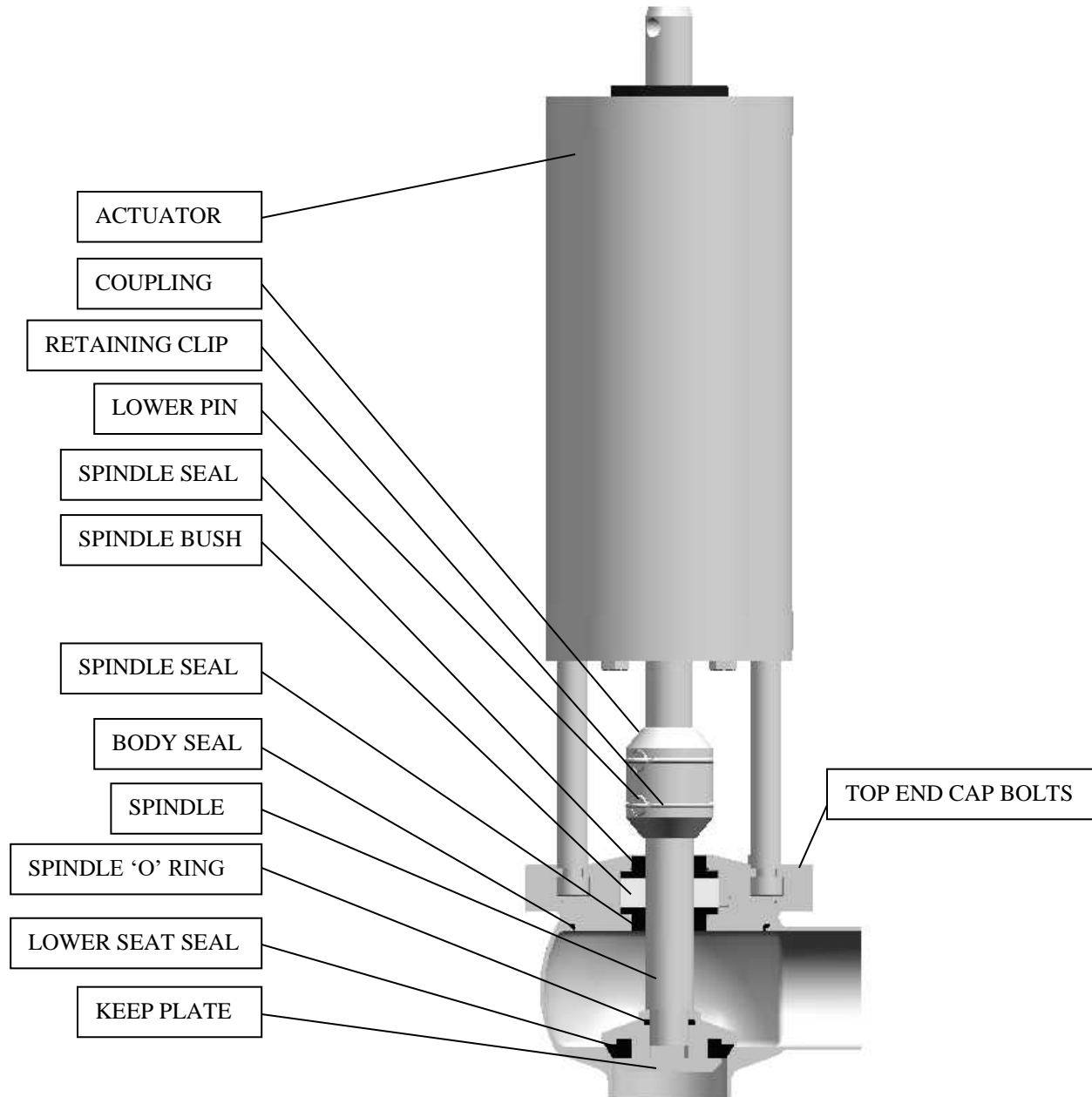
Ensure that hands/fingers and other body parts are clear of the valve then disconnect the 5.5 bar airline supply.

SEAT VALVE SPARES KIT
SINGLE SEAT DOUBLE BODY

VALVE SIZE	KIT NUMBER
1"	KSVD 10
1.5"	KSVD 15
2"	KSVD 20
2.5"	KSVD 25
3"	KSVD 30
4"	KSVD 40

Spares Kit number is etched on valves manufactured after April 2000
The seal material should be stated when ordering.

SINGLE SEAT SINGLE BODY VALVE



TO DISASSEMBLE A SINGLE BODY SEAT VALVE

1. NORMALLY CLOSED VALVES ONLY (spring pushing down)

The following procedure to remove the actuator from the valve involves actuating the valve (using compressed air) to the closed position. Great care must be taken when introducing air pressure to the actuator. As the valve is actuated the central valve/ actuator shaft will move. Hands/fingers and loose clothing should be kept away from the moving parts of the valve wherever possible, as the valve is actuated.

Start by locating a suitable airline feed with a 5.5 bar supply pressure. Ensure that the airline pressure is zero, then connect to the lower air connection of the valve actuator. The 5.5 bar supply pressure should be maintained during the next procedure that follows.

Using an appropriate size spanner, undo and remove the 4 top valve body end cap bolts. Lift off the actuator taking with it the spindle, guide and seat assembly.

Check that the body seals came out with the assembly removed.

Unscrew the spindle bottom keep plate using an appropriate size ring spanner or vice and a pin through the cross hole at the top of the spindle. Now all of the replaceable seals will be accessible, these can now be replaced.

Clean and reassemble in the reverse procedure. Place the 'O' ring body seal on the spindle guide discs for ease of assembly and correct location. **Tip:** process compatible grease can help hold the seals in position.

Ensure that hands/fingers and other body parts are clear of the valve then disconnect the airline supply. The valve spindle will move returning the valve seat position to closed.

1. NORMALLY OPEN VALVES ONLY (spring pulling up)

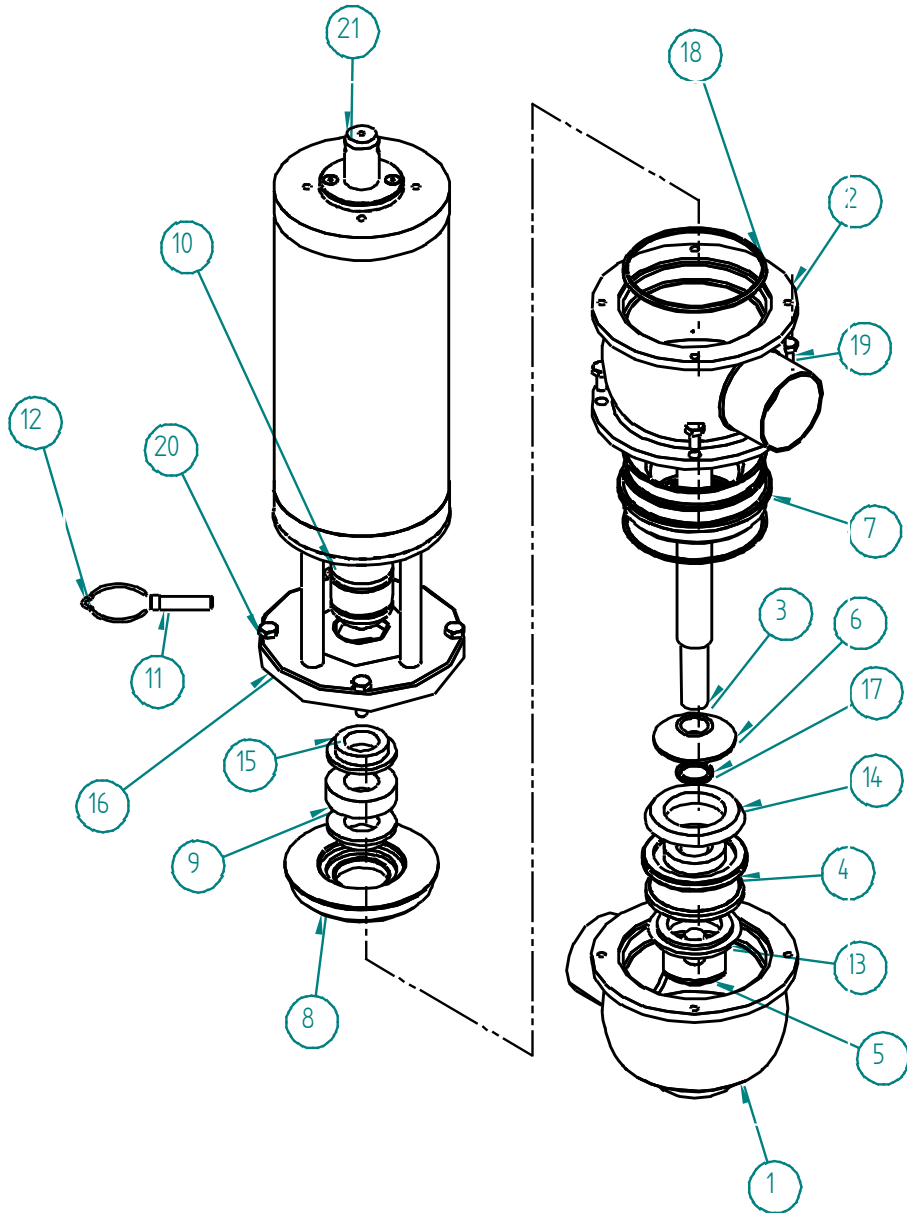
Use the same procedure as per above (section 1) but no air connection is required, the valve does not need to be air actuated.

SEAT VALVE SPARES KIT SINGLE SEAT SINGLE BODY

VALVE SIZE	KIT NUMBER
1"	KSVS 10
1.5"	KSVS 15
2"	KSVS 20
2.5"	KSVS 25
3"	KSVS 30
4"	KSVS 40

Spares Kit number is etched on valves manufactured after April 2000
The seal material should be stated when ordering.

DOUBLE BODY SINGLE SEAT VALVE PARTS LIST



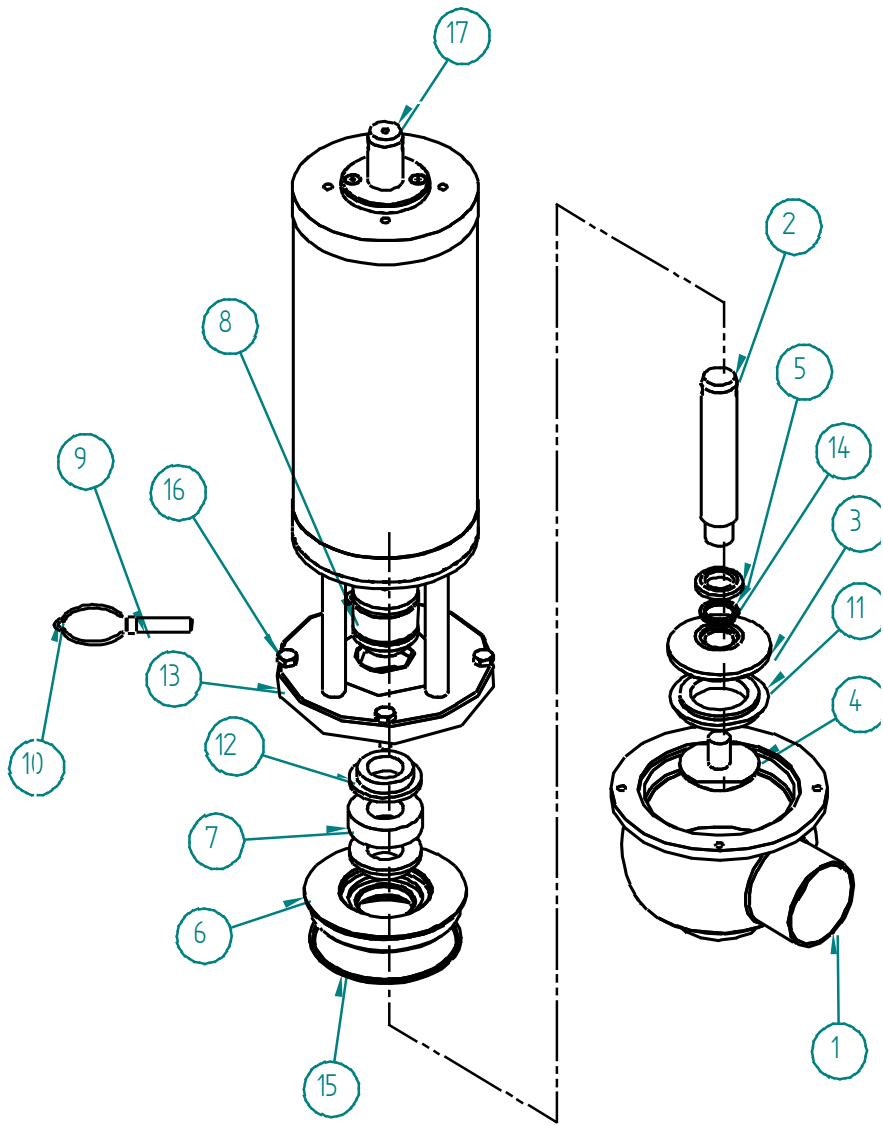
ITEM No	1"	1.5"	2"	2.5"	3"	4"	QTY
1	STV10101	STV15101	STV20101	STV25101	STV30101	STV40101	1
2	STV10102	STV15102	STV20102	STV25102	STV30102	STV40102	1
3	STV10103	STV15103	STV20103	STV25103	STV30103	STV40103	1
4	STV10104	STV15104	STV20104	STV25104	STV30104	STV40104	1
&				STV30105	STV30105	STV40105	1
5	STV10106	STV15106	STV20106	STV25106	STV30106	STV40106	1
6	STV10107	STV20107	STV20107	STV30107	STV30107	STV40107	1
7	STV10108	STV20108	STV20108	STV30108	STV30108	STV40108	1
8	STV10109	STV20109	STV20109	STV30109	STV30109	STV40109	1
9	STV10110	STV30110	STV30110	STV30110	STV30110	STV40110	1
10	STV10114	STV40114	STV40114	STV40114	STV40114	STV40114	1
11	STV10115	STV40115	STV40115	STV40115	STV40115	STV40115	2
12	STV10116	STV40116	STV40116	STV40116	STV40116	STV40116	2
13	STV10117	STV15117	STV20117	STV25117	STV30117	STV40117	1
14	STV10118	STV20118	STV20118	STV30118	STV30118	STV40118	1
15	STV10119	STV40119	STV40119	STV40119	STV40119	STV40119	2
16	STV10120	STV20120	STV20120	STV30120	STV30120	STV40120	1
17	WBS012	WBS114	WBS114	WBS114	WBS114	WBS114	1
18	WBS128	WBS151	WBS151	WBS155	WBS155	WBS161	3
19	WCHHSSM612 1" to 2" 8 off, WCHHSSM816 2.5" to 3" 8 off, WCHHSSM1020 4" 4 off						
20	WCHHSSM620 1" to 2", WCHHSSM825 2.5" to 3", WCHHSSM1025 4"						4
&	WCHHSSM816 4"						4
21	STVA101	STVA201	STVA201	STVA301	STVA301	STVA301	1

The seal part numbers are shown without a material suffix. The material should be stated when ordering a spares kit.

PART DESCRIPTION

ITEM NUMBER	DESCRIPTION
1	LOWER BODY
2	CENTRE BODY
3	LOWER SPINDLE
4	LOWER SPACER
5	INSERT
6	LOWER CAP
7	CENTRE SEAT
8	GUIDE
9	PTFE BUSH
10	COUPLING
11	PIN
12	RETAINING RING
13	LOWER SEAT SEAL
14	UPPER SEAT SEAL
15	SPINDLE SEAL
16	LANTERN
17	'O' RING
18	'O' RING
19	HEX HEAD BOLT
20	HEX HEAD BOLT
21	ACTUATOR

SINGLE BODY SINGLE SEAT VALVE PARTS LIST



ITEM No	1"	1.5"	2"	2.5"	3"	4"	QTY
1	STV10101	STV15101	STV20101	STV25101	STV30101	STV40101	1
2	STV10121	STV15121	STV20121	STV25121	STV30121	STV40121	1
3	STV10122	STV15122	STV20122	STV25104	STV30104	STV40104	1
4	STV10106	STV15106	STV20106	STV25106	STV30106	STV40106	1
5	STV10123	STV20123	STV20123	STV40123	STV40123	STV40123	1
6	STV10109	STV20109	STV20109	STV30109	STV30109	STV40109	1
7	STV10110	STV30110	STV30110	STV30110	STV30110	STV40110	1
8	STV10114	STV40114	STV40114	STV40114	STV40114	STV40114	1
9	STV10115	STV40115	STV40115	STV40115	STV40115	STV40115	2
10	STV10116	STV40116	STV40116	STV40116	STV40116	STV40116	2
11	STV10117	STV15117	STV20117	STV25117	STV30117	STV40117	1
12	STV10119	STV40119	STV40119	STV40119	STV40119	STV40119	2
13	STV10120	STV20120	STV20120	STV30120	STV30120	STV40120	1
14	WBS012	WBS114	WBS114	WBS114	WBS114	WBS114	1
15	WBS128	WBS151	WBS151	WBS155	WBS155	WBS161	1
16	WCHHSSM60 1" to 2", WCHHSSM825 2.5" to 3", WCHHSSM1020 4"						4
&	WCHHSSM612 1" to 2", WCHHSSM816 2.5" to 4"						4
17	STVA101	STVA201	STVA201	STVA301	STVA301	STVA301	1

The seal part numbers are shown without a material suffix. The material should be stated when ordering a spares kit.

PART DESCRIPTION

ITEM NUMBER	DESCRIPTION
1	LOWER BODY
2	SINGLE SPINDLE
3	SINGLE SPACER
4	INSERT
5	SINGLE CAP
6	GUIDE
7	PTFE BUSH
8	COUPLING
9	PIN
10	RETAINING RING
11	LOWER SEAT SEAL
12	SPINDLE SEAL
13	LANTERN
14	'O' RING
15	'O' RING
16	HEX HEAD BOLT
17	ACTUATOR

If you require further information on this or any other product within our range, please contact us and we will be please to assist. Tel. 01799 522885. Web www.dpluk.co.uk