

APV DU4 SL

DOUBLE SEAT CHANGE-OVER VALVE

FORM NO.: H345410 REVISION: GB-0

READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS PRODUCT.



We,

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AUTHORIZED REPRESENTATIVE: SPX Flow Europe Ltd.
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Crawley, RH10 9PY

declare under our sole responsibility that the

APV double seal and double seat valves of the series
SD4, SDT4, SDU4, SDMS4, SDMSU4, SDTMS4, SWcip4, DSV, DA4, DA4 DPF, D4 SL, DU4
SL, DT4 SL, DP4 SL, D4, DA3, DA3SLD, DE3, DEU3, DET3, DKR2, DKRT2, DKRH2

APV butterfly valves of the series SV1, SVS1F, SV2, SVS2F, SVL, SVSL, SVE, SVSE

APV ball valves of the series BLV1

APV single seat, diaphragm and spring loaded valves of the series
S2, SW4, SWhp4, SW4DPF, SWmini4, SWT4, SWS4, MF4, MS4, MSP4, AP/T1, CPV, RG4,
RG4DPF, RGMS4, RGE4, RGE4DPF, RGEMS4, PR2, PRD2, SI2, UF/R3, UF/R4, VRA/H

and the valve manifolds installed thereof

meet the requirements of the Machinery Directive 2006/42/EC
& EN ISO 12100-2010, DIN EN ISO 14159-2008-07, DIN EN 1672-2-2009-07.

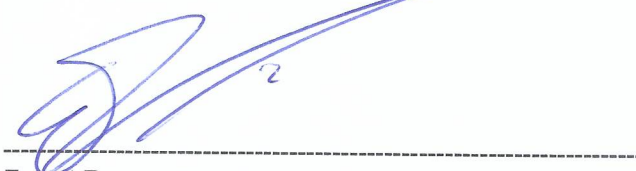
Holzwickede, November 2022



Dr.-Ing. Behdad Ariatabar, Design Center Lead - Valves

meet the requirements of the Supply of Machinery (Safety) Regulations 2008 No. 1597
& BS harmonized standards.

Crawley, November 2022



Ewout Roozendaal, Director Global Pricing

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DU4 SL 1,5"-4", DN40-100	RN 505.047.01

1. General Terms

This instruction manual should be read carefully by the competent operating and maintenance personnel.

We point out that we will not accept any liability for damage or malfunctions resulting from the non-compliance with this instruction manual.

Descriptions and data given herein are subject to technical changes.

2. Safety

2.1 Symbols



Caution!

The technical safety symbol draws your attention to important directions for operating safety. You will find it wherever the activities described are bearing health hazards and risks for persons and / or material assets.



Important Note!

Critical technical information

2.2 Safety Instructions



Opening of the actuators and upper shafts is strictly forbidden. Danger to health and life!

Actuators and upper shafts which are no longer used and/or are defective must be disposed in professional manner.

Defective actuators and upper shafts must be returned to your SPX FLOW company for their professional disposal and free of charge for you.

Please address to your local SPX FLOW company.



- Never touch the valve or pipelines during hot liquid or sterilisation processes!



- Disconnect electric and pneumatic connections, e.g. before maintenance.



- Before any maintenance work, depressurize the line and cleaning system and discharge the lines if possible.

2. Safety



- Observe Service Instructions to ensure safe maintenance of the valve.



- Connections which are not used must be sealed by a plug!



- The safe discharge of the cleaning liquids must be ensured.



- The valves must be assembled, disassembled and reassembled only by persons who have been trained in the valves or by SPX FLOW service team members. If necessary, contact your local SPX FLOW representative.

3. Intended Use

The intended use as field of application of the double seat change-over valve is the safe shut-off and change-over of pipeline sections and the separation of incompatible liquids in the food and beverage industries as well as in pharmaceutical and chemical applications.



Caution! The standard DU4 SL valve must not be used in explosive atmospheres.



Caution! Arbitrary, structural changes at the valves may affect safety as well as the intended functionality of the valves and are not permitted.

SPX FLOW Valves are intended for use in the food and beverage industries, as well as in pharmaceutical and chemical applications.

SPX FLOW Valves (without safety function) are allocated to Category 1 and are evaluated as per Conformity Assessment Module A of the Pressure Equipment Directive 2014/68/EU. According to Article 13, the following allocation applies for the fluids processed in the valves.

Product media – Fluid group 2 – valves in all dimensions.

CIP-cleaning liquids – Fluid group 1 – valves in the dimensions \leq DN100/4" can be used at temperatures up to 140 °C, valves in the dimensions $>$ DN100/4" at temperatures up to 100 °C.

Authorizations and External Approvals

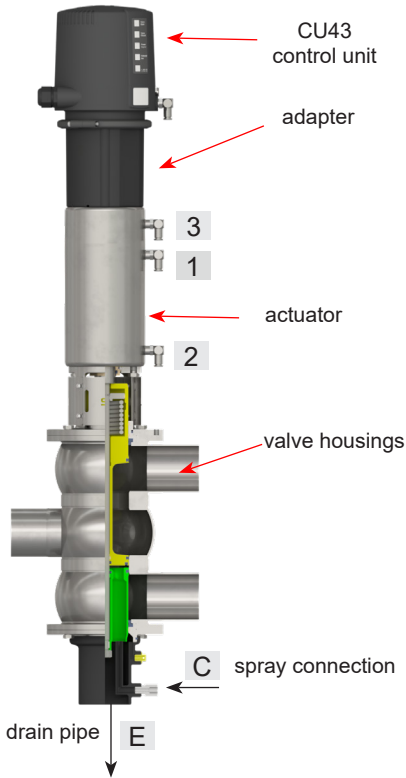
To view the certifications for this and other innovative SPX FLOW products, visit

<https://www.spxflow.com/en/apv/about-us/certifications/>

It is within the responsibility of the plant operator to evaluate and verify the suitability of SPX FLOW products for the intended purpose and service conditions, as well as to determine and follow the applicable laws for the intended applications and areas of application.

4. Mode of Operation

fig. 4.1. DU4 SL valve with control unit

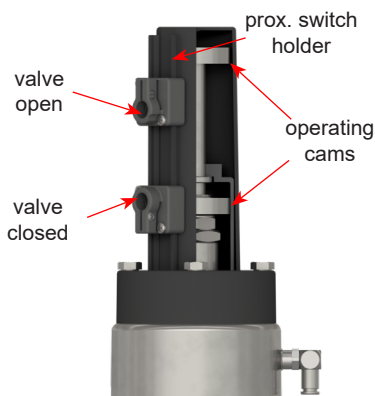


4.1. General terms

Due to its construction and mode of operation as well as to the use of high quality stainless steel and adequate seal materials, the DU4 SL double seat change-over valve is suited for applications in the food and beverage industries as well as in pharmaceutical and chemical applications.

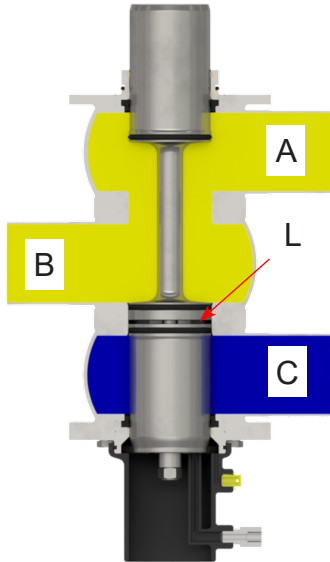
- The DU4 SL valve separates and changes over between two line passages by two balanced and independently operating valve shafts with an intervening leakage chamber.
- The valve opens from the top to the bottom in a low-leakage design.
- Leakages are discharged via the drain pipe (E) in depressurized state.
- The pneumatic actuator opens the valve via the air connection (1). The spring force resets the valve into the “closed” safe position.
- The DU4 SL valve is equipped with an actuator including seat lift function and a CU43 control unit.
- Cleaning of the seat is controlled via the air connections.
2 = to lift upper shaft
3 = to lift lower shaft
- The spray connection (C) cleans the leakage chamber.
- As an option, the closed and open positions of the DU4 SL can be detected via proximity switches.

fig. 4.1.1. valve position indication



4. Mode of Operation

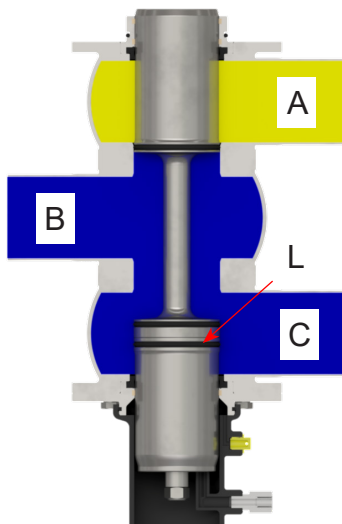
fig. 4.2.



4.2. Valve in "closed" position

The lower and upper valve shafts are in closed position and safely separate the different liquids A/B and C. The leakage chamber L, which is situated between the two valve shafts, provides for a free and depressurized discharge to the bottom. The valve shafts are balanced and thereby protected against pressure hammer. The fluid flows from pipeline B to A.

fig. 4.3.



4.3. Valve in "open" position

The middle seal in the upper valve shaft is pressed against the lower valve shaft by control of the actuator. First, the leakage chamber L is closed against the product chamber. Then the two valve shafts move downwards into the open position. Pipeline A is closed against pipelines B and C by the upper valve seat of the upper valve shaft. The connection between the two pipelines B and C is established.

5. Control Units / Valve Position Indication

5.1. Control unit and adapter

An adapter is required to assemble the control unit on the DU4 SL valve. The following designs are available:

CU43 control unit



Designation		
Ø Air connection	6 mm	1/4" OD
CU43 Control Unit		
CU43 D4 Direct Connect	H336955	H336960
CU43 D4 Direct Connect M12-8pin	H341343	H341352
CU43 D4 AS-i extended	H336957	H336962
CU43 D4 AS-i extended M12-4pin	H338897	H338901
Adapter	CU-D4-adapter cpl.: H337098	
CU4plus Control Unit		
CU43plus D4 V2 Direct Connect	H342452	H342453
CU43plus D4 V2 Direct Connect M12-8pin	H342472	H342473
CU43plus D4 V2 AS-i extended	H338822	H338826
CU43plus D4 V2 AS-i extended M12-4pin	H338867	H338871
Adapter	CU4plus-D4-V2 adapter cpl.: H341891	

5.2. Valve position indication

Proximity switches to signal the closed and open position of the valve can be installed at the proximity switch holder.

We recommend using one of these standard types:

three-wire proximity switch
 operating distance: 5 mm
 diameter: 11 mm
 operating voltage: 10–30 V DC
 pnp pulse-shifting, closing function
 "non-flush" installation

Recommendation:

Proximity switch 24V DC, PNP, 11 mm DIA. (5 m cable): H16223
 Proximity switch 24V DC, PNP, 11 mm DIA. (cable box): H16342

If the customer decides to use valve position indicators other than those listed above, SPX FLOW cannot assume any liability for the functionality of the valve.

6. Cleaning

In the cleaning process of the valves, distinction is made between the following areas: Flow areas, Seat area, and Leakage chamber.

6.1. Flow area

The CIP-fluid cleans the upper, medium and lower passages of the valve during CIP of the connected pipelines.

6.2. Seat area (chapters 6.5. and 6.6.)

The lower seat area and leakage chamber are cleaned through lifting of the individual valve shafts during cleaning of the respective passage.

6.3. Lower seat area and Leakage chamber

CIP spraying cleans the lower seat area and the leakage chamber. The cleaning connection is at item C in fig. 6.3.

CIP spraying does not produce pressure build-up in the leakage chamber. SPX FLOW recommends performing CIP-spraying in the closed valve position; however, it can also be done in the open valve position.

Under standard conditions 15 valves DN 40-100 / 1,5"-4" can be cleaned via one spray distribution line DN 25.

If CIP flushing is not used, respectively close the connection with a plug.

6.4. Cleaning recommendation

Cleaning steps	Seat lifting cycle	CIP spraying
pre-flushing	–	3 x 10 sec.
caustic flushing 80°C	3 x 5 sec.	3 x 10 sec.
intermediate flushing	2 x 5 sec.	2 x 10 sec.
acid flushing	3 x 5 sec.	3 x 10 sec.
subsequent flushing	2 x 5 sec.	2 x 10 sec.

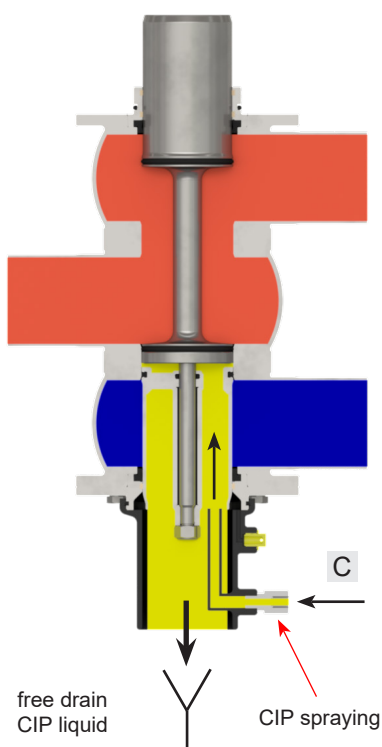
- The lifting cycles refer to a cleaning pressure of $p = 2-5$ bar.
- Depending on the pressure ratio, cleaning temperatures, cleaning steps and degree of soiling, time and number of cycles must be adjusted.
- Flushing quantities per CIP spraying cycle:
 DN40-100/1,5-4" about 1,2 ltr/10s
- Cleaning pressure at CIP cleaning connection: min. 2 bar
 max. 5 bar



Caution!

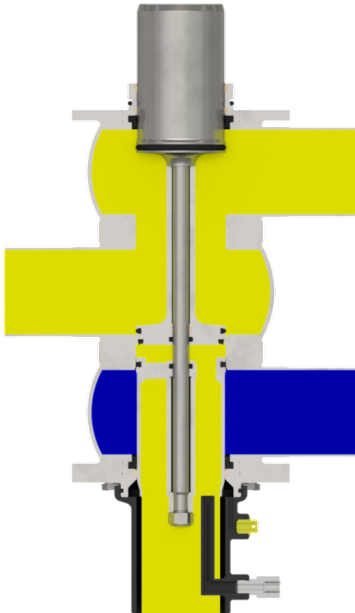
The cleaning liquid applied must be compatible with the respective seal material.

fig. 6.3.



6. Cleaning

fig. 6.5.



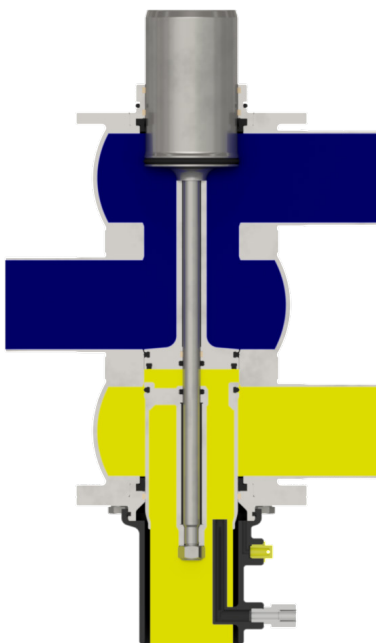
6.5. Cleaning of upper area (fig. 6.5.)

The upper valve shaft is lifted via connection (2), as shown in fig. 4.1. on page 8.

Through the lifting of the upper valve shaft, the cleaning fluid flushes over the lower seat seal of the upper valve shaft and the upper area of the lower valve seat into the leakage chamber and cleans this area. The cleaning fluid is drained off to the bottom in a depressurized state.

The lifting stroke is limited by a stop in the actuator.

fig. 6.6.






6.6. Cleaning of lower area (fig. 6.6.)

The lower valve shaft is lifted via connection (3), as shown in fig. 4.1. on page 8.



Through the lifting of the lower valve shaft, the cleaning fluid flushes over the lower seat seal into the leakage chamber and cleans this area. The cleaning fluid is drained off to the bottom in a depressurized state.

The lifting stroke is limited by a stop in the actuator.

7. Installation and Commissioning

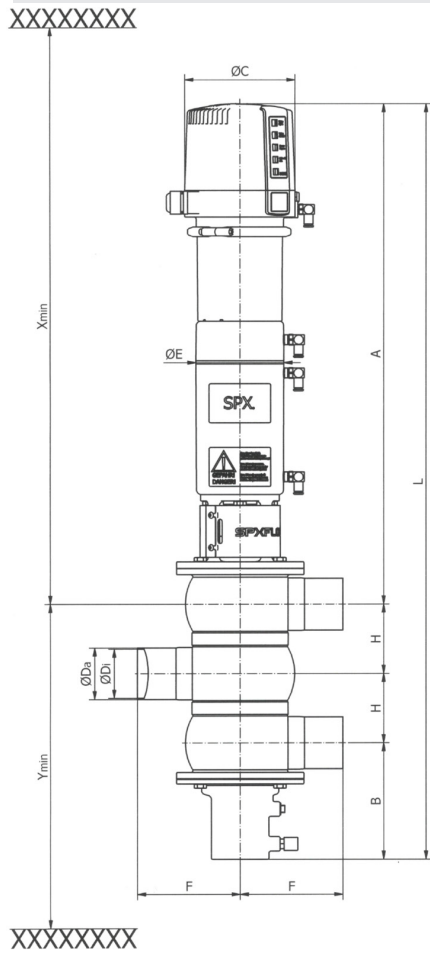
- The valve must be installed in vertical position to ensure that fluids can drain off freely from the valve housing and the leakage chamber.
-  **Caution!** Leakages and fluid losses from seat lifting and CIP-spraying must be safely collected and drained!
- The valve housing can be welded directly into the pipeline (completely removable valve insert).
-  **Note!** Observe welding instructions.
- Observe heights of installation and dismantling!
-  **Caution!**
Before first startup:
- Actuate the valve by applying compressed air. The opening, closing and shaft lifting processes must run smoothly.
 - Check the function of the control unit or valve position indication.
 - Check for possible leakages during commissioning. Replace defective seals.

7.1. Welding Instructions

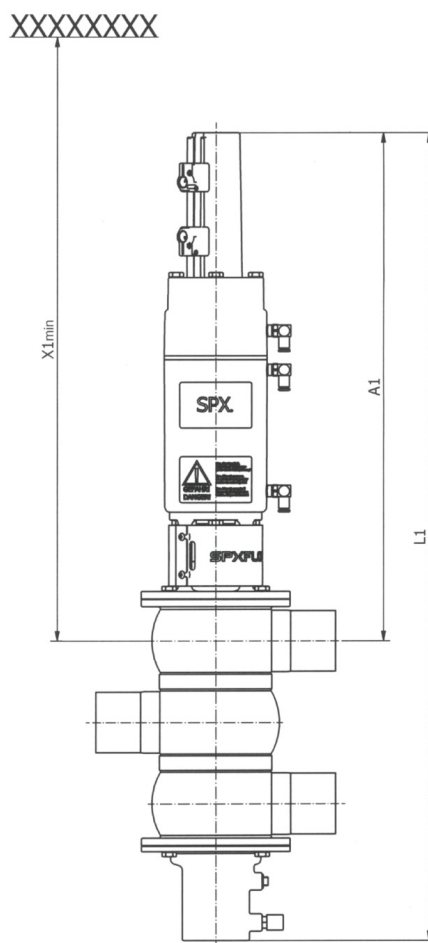
- Before welding the valve, remove the valve insert from the housing.
-  **Caution!** Handle and store the valve insert carefully to avoid damaging the parts.
- Remove the lid of the housing with the lower shaft seal and guide ring.
- Welding should only be carried out by certified welders (DIN EN ISO 9606-1) (seam quality DIN EN ISO 5817).
 - The welding of the valve housings must be undertaken in such a way that the valve body is not deformed.
 - The preparation of the weld seam up to 3 mm thickness must be carried out as a square butt joint without air. Consider shrinkage!
 - TIG orbital welding is recommended.
-  **Caution!** After welding the valve housing or mating flanges, and after performing any work on the piping, do not operate the valves until the corresponding areas of the installation and piping have been cleaned and welding residue has been removed. If the piping is not cleaned before operation, welding residue and dirt particles can settle in the valves and cause damage to the valves and seals.
- If these welding instructions are not followed, any resulting damage will not be covered by the warranty.
 - Welding directives for aseptic applications shall be drawn from the AWS/ANSI Directives and EHEDG Guidelines.

8. Dimensions / Weights

DU4 SL valve with control unit



DU4 SL valve with proximity switch



standard housing configurations

DU45/1-7-9



DU46/1-7-10-12



DU47/1-6-8-11



DU48/1-3-6-12



Dimensions in mm												Inst. dim. Xmin	Inst. dim. X1min	Inst. dim. Ymin	Weights in kg with CU
DN	A	A1	B	H	ØDa	ØDi	ØC	ØE	F	L	L1				
40	606,6	523,8	132	63	41	38	134	107	125	864,6	781,8	900	817	280	19,2
50	610,6	527,8	138	75	53	50	134	107	125	898,6	815,8	938	855	310	19,4
65	618,6	535,8	146	91	70	66	134	107	125	946,6	863,8	994	911	350	20,8
80	701,1	618,3	158,5	106	85	81	134	132	142,5	1071,6	988,8	1126	1043	393	32,0
100	710,6	627,8	168	125	104	100	134	132	142,5	1128,6	1045,8	1193	1110	440	33,1
Inch															
1,5"	608,2	525,4	130,4	63	38,1	34,8	134	107	125	864,6	781,8	901	818	278	19,2
2"	611,8	529	136,8	75	50,8	47,6	134	107	125	898,6	815,8	939	856	309	19,4
2,5"	615,8	533	143,15	85,3	63,5	60,3	134	107	125	929,5	846,7	974	891	336	20,5
3"	622,1	539,3	149,45	97,9	76,1	72,9	134	107	125	967,3	884,5	1018	935	367	21,4
4"	711,8	629	166,8	125	101,6	97,6	134	132	142,5	1128,6	1045,8	1194	1111	439	33,1

9. Technical Data

9.1. General data

Product-wetted parts	1.4404, 316L (DIN EN 10088)
Other parts	1.4301,304 (DIN EN 10088)
Seals	
DN40–100/1,5"-4" standard	EPDM
DN40–100/1,5"-4" options	HNBR, FPM
Max. line pressure	10 bar
Max. operating temperature	135 °C EPDM, HNBR FPM*
Short-term load	140 °C EPDM, HNBR FPM* *no steam
Valves > DN100/4"	CIP cleaning liquids up to 100 °C
Tightening torque for stop sleeve	10 Nm
Tightening torque for safety nuts at lower and upper valve shaft	40 Nm
Spray connection	PP (polypropylene)
Ø Cleaning connection DN 40–100/1,5"-4"	8 x 1 mm
Ø Air connection	6 x 1 mm, 1/4" OD
Max. pneumatic air pressure	8 bar
Min. pneumatic air pressure	5 bar

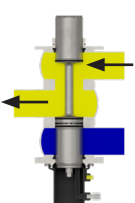
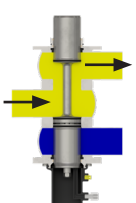
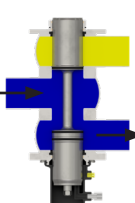
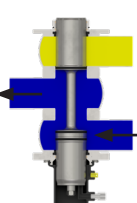
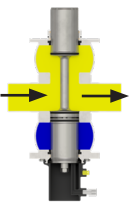
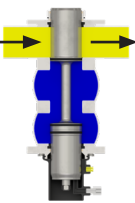
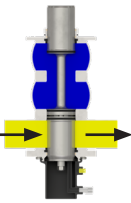
9.2. Compressed air quality

Quality class	acc. to DIN ISO 8573-1
Content of solid particles	quality class 3, max. size of solid particles per m ³ 10000 of 0,5 µm < d < 1,0 µm 500 of 1,0 µm < d < 5,0 µm
Content of water	quality class 3, max. dew point temperature -20°C For installations at lower temperatures or at higher altitudes, consider additional measures to reduce the pressure dew point accordingly.
Content of oil	quality class 1, max. 0,01 mg/m ³

The oil applied must be compatible with Polyurethane elastomer materials.

9. Technical Data

9.3. Kvs values in m³/hr

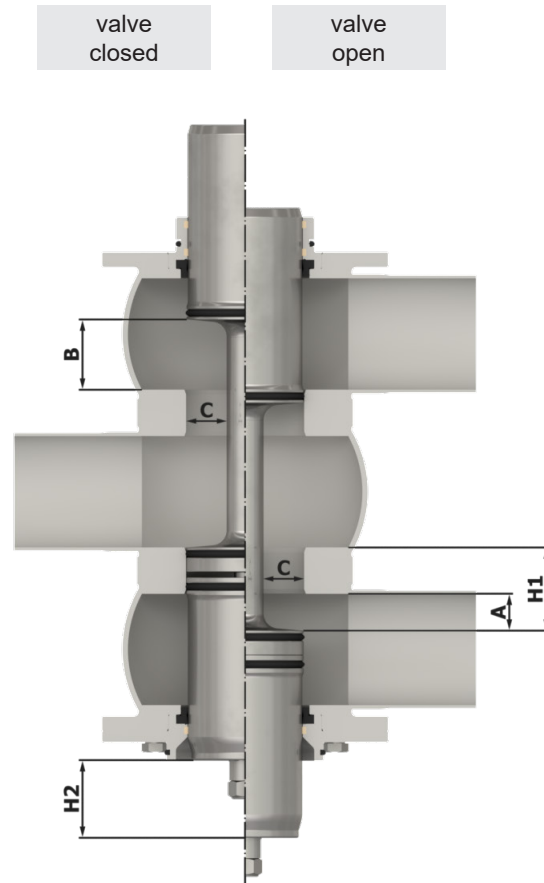
							
	Upper line to mid line	Mid line to upper line	Mid line to lower line	Lower Line to mid line	Mid line valve closed	Upper line valve open	Lower line valve closed
DN							
40	36	34	33	34	42	40	40
50	58	57	56	57	79	66	66
65	85	86	79	79	145	121	121
80	150	141	135	138	221	174	174
100	189	191	170	170	349	246	246
Inch							
1,5"	30	28	28	29	34	34	34
2"	54	52	51	53	71	62	62
2,5"	74	74	71	71	121	103	103
3"	93	96	88	84	188	156	156
4"	184	186	173	166	366	244	244

9.4. Air consumption / Switching times

		Air consumption in dm ³ at 5 bar			Switching times in seconds at 5 bar / CU43	
		Actuator	Seat lift actuator			
DN	Inch	NL/stroke valve open	NL/stroke upper seat lift	NL/stroke lower seat lift	Open	Closed
40	1,5"	1,7	3,4	0,22	1,5	1,7
50 65	2" 2,5" 3"	2	3,4	0,22	1,7	2
80 100	4"	3,7	7,7	0,22	2,6	3,3

9. Technical Data

9.5. Valve stroke / Opening cross section



Dimensions in mm					
	B valve closed	stroke H1 upper shaft	stroke H2 lower shaft	A valve open	C
DN					
40	22	34	31	9	22
50	32	45	42	20	22
65	38	45	42	20	22
80	43	50	47	25	36
100	43	50	47	25	36
Inch					
1,5"	22	34	31	9	22
2"	32	45	42	20	22
2,5"	38	45	42	20	22
3"	38	45	42	20	22
4"	43	50	47	25	36

10. Maintenance



Note!

The maintenance intervals are different depending on the application and must be determined by the operator performing regular checks.

- Compressed air is not required to remove the valve.



Caution!

Do not clean the valve with products containing abrasive or polishing substances. Abrasive and polishing agents are especially harmful to the upper and lower shaft.



Required tools for standard maintenance:

- 1 x wrench SW13, SW24, SW30, SW32
- 1 x wrench SW36
- 2 x wrench SW17
- 1 x Allen key SW3, SW6
- long hook with 45° tip or long nose pliers
- pick tool for O-ring and rubber seal removal
- double joint forceps
- assembly tool for middle seal, see page 24
- assembly tool for seat seals, see page 25
- 2 long M8 hex screws for safe removal of valve insert
- For valve maintenance SPX FLOW offers complete seal kits (see spare parts lists).



Caution!

The use of seal materials being compatible with the product, application and CIP liquids must be ensured. In case of doubt, contact your local SPX FLOW representative.

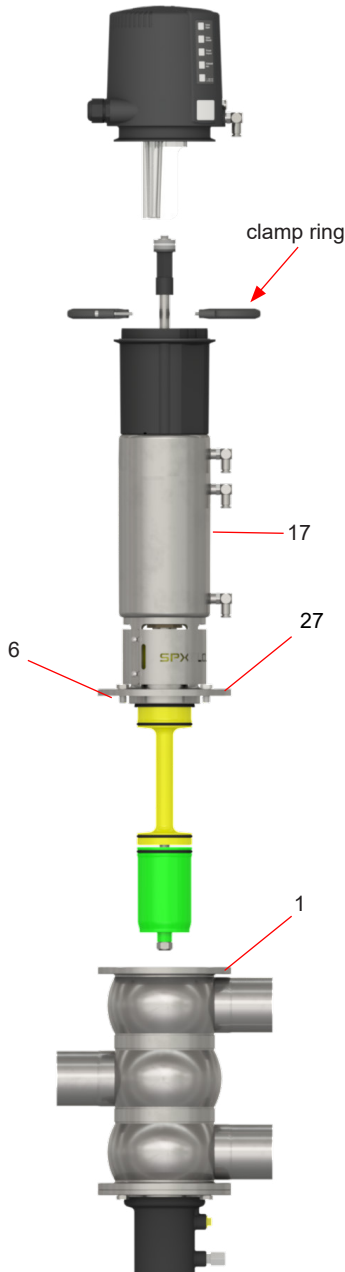
- For seal replacement instructions, see section 11.2 to 11.3.
- Provide all seals with a thin layer of grease before their installation!
Recommendation:
Assembly grease for EPDM, HNBR and FPM (Viton)
0,75 kg/tin - ref.-No. 000 70-01-019/93; H147382
60 g/tube - ref.-No. 000 70-01-018/93; H147381
- Provide all screws and threaded parts with grease before their installation.
Recommendation: Klüber paste UH1 84-201
60 g/Tube - ref.-No. 000 70-01-016/93; H147379
Recommendation for actuator:
Pneumatic grease:
25 ml/tube - ref.-No. 000 70-01-008/93; H164725
- For valve assembly instructions, see section 11.3.

11. Service Instructions

The item numbers refer to the spare parts drawings
 DU4 SL 1,5"-4", DN40-100 RN 505.047.01

For the Disassembly/Assembly tools, see chapter 11.

fig. 11.1.



11.1. Removal from the line system

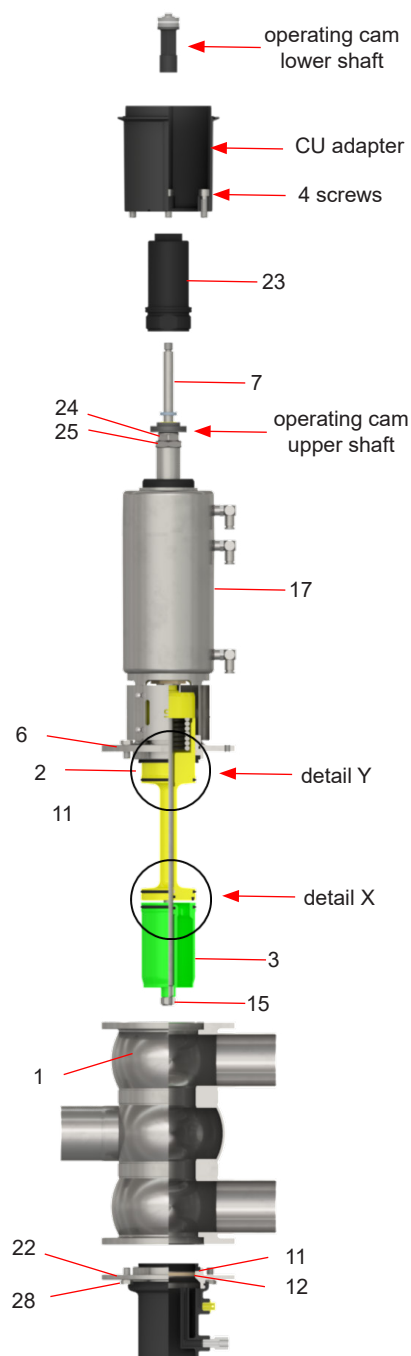


Caution!

1. Shut off the line pressure in the product and cleaning lines, and discharge the pipes if possible.
2. Remove the compressed air lines from the valve actuator (17).
3. Release the 2 screws at the clamp rings and lift the control unit off the adapter.
4. Design with proximity switch holder:
 Release the screws at the proximity switch holder and lift off the proximity switch holder.
5. Remove the flange screws (27) in the yoke (6). For additional safety, replace two flange screws with longer screws that are partially threaded into the flange. Once these longer screws are in place, the other two flange screws can be safely removed.
6. Screw one flange screw (27) into the threaded bore of the yoke (6) to lift the complete valve insert. Do not remove the screw. It helps to re-install the valve insert.
7. Carefully lift the valve insert vertically out of the valve housing (1).

11. Service Instructions

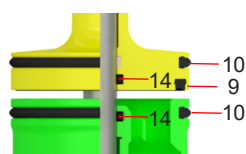
fig. 11.2.



11.2. Removal of product-wetted parts

1. Remove the operating cam from the tie rod (7).
2. In order to take off the CU adapter, remove the four screws.
3. Release the lower safety nut (15). Hold the lower shaft (3) with an SW17 wrench to keep it from turning.
4. After removing the nut (15), lift off the lower shaft (3).
5. Prick the metal point of the pick tool into the seat seal (10) at the lower shaft and pull it out of the groove. Use the pick tool to take the quad ring (14) out of the groove.
6. Remove the stop screw (23).
7. Take the tie rod (7) out through the top of the actuator (17).
8. Remove the operating cam at the upper shaft (2).
9. Unscrew the safety nut (24). Hold up the lock washer (25) with a SW30 wrench to keep it from turning. Remove the lock washer.
10. Slide the upper shaft (2) out through the actuator (17), the yoke (6) and the shaft bearing (4).
11. Slide the shaft bearing (4) out of the yoke.
12. Remove the shaft seal (11) at the shaft bearing (4). Place the metal point of a hook in the gap of the guide rings (12). Slightly turn the hook to lift the guide rings out of the grooves.
13. Prick the metal point of the pick tool into the seat seal (10) at the balancer and pull it out of the groove. Do the same for the seat seal (10) and the middle seal (9) at the bottom part of the upper shaft. Use the pick tool to take the quad ring (14) out of the groove.
14. Remove the 4 screws (28) from the housing lid (22) and take the lid out of the housing (1). Remove the shaft seal (11) and the guide ring (12) from the grooves.

detail X

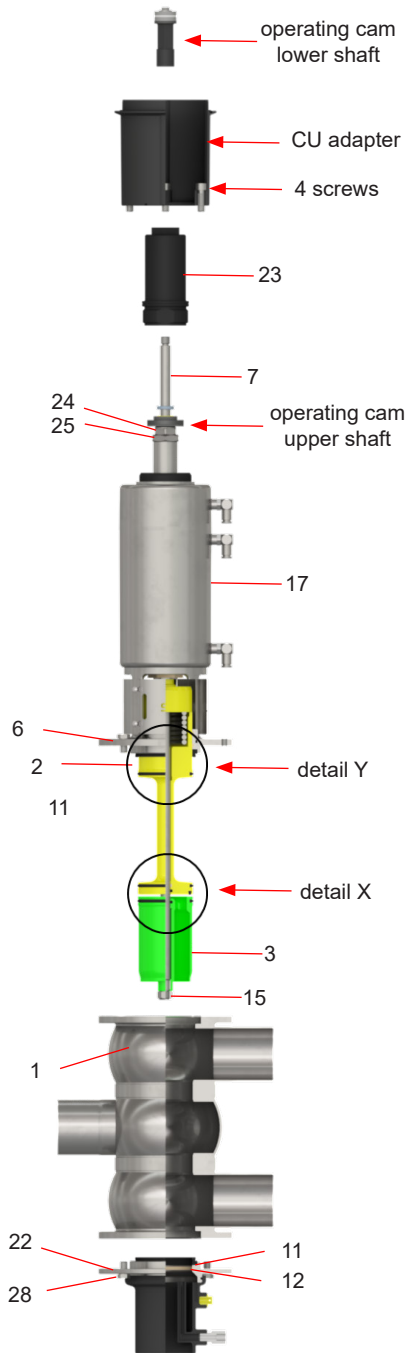


detail Y



11. Service Instructions

fig. 11.3.



11.3. Installation of product-wetted seals and assembly of the valve



Note!

Make sure that all seals and bearing surfaces in the product area are slightly greased before their installation.

1. Install the guide ring (12) and the shaft seal (11) in the housing lid (22).
2. Install the housing lid including the guide ring and the shaft seal in the housing (1) and fasten it with the four screws (28).
3. Install the quad ring (14) in the upper shaft (2) and lower shaft (3).
4. Insert the middle seal (9) in the upper shaft (2) using the assembly tool (see chapter 13.1).
5. Insert the three seat seals (10) in the groves of the upper shaft (2) and lower shaft (3) (see assembly instructions chapter 13.2).
6. Install the shaft seal (11) and the two guide rings (12) in the shaft bearing (4).
7. Slide the shaft bearing (4) into the yoke (6).
8. Slide the upper shaft (2) through the shaft bearing (4) and the actuator (17).
9. Align the square key and fasten the upper valve shaft (2) with the lock washer (25) and safety nut (24). Hold the lock washer (25) with a SW30 wrench to keep the lock washer from turning.
Tightening torque: $M_d = 40 \text{ Nm}$

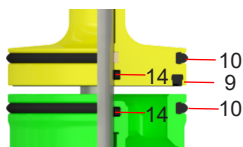


Caution!

Overtightening of the safety nut could result in thread damage on the upper shaft.

10. Screw the operating cam on the upper shaft.
11. Ensure that the square key is secure on the tie rod (7). Slide in the tie rod from the top through the actuator (17) until it stops.
12. Screw in the stop screw (23) until it stops. The collar of the stop screw must be flush with the top of the piston.
Tightening torque: $M_d = 10 \text{ Nm}$
13. Slide the lower shaft (3) on the tie rod (7). Align the lower shaft to the square key on the tie rod and fasten it with the safety nut (15).
Tightening torque: $M_d = 40 \text{ Nm}$
14. Fasten the CU adapter on the actuator with the four screws and ensure that the air fittings on the CU will align properly with the air fittings on the DU4 SL valve.
15. Screw the operating cam on the tie rod (7).

detail X

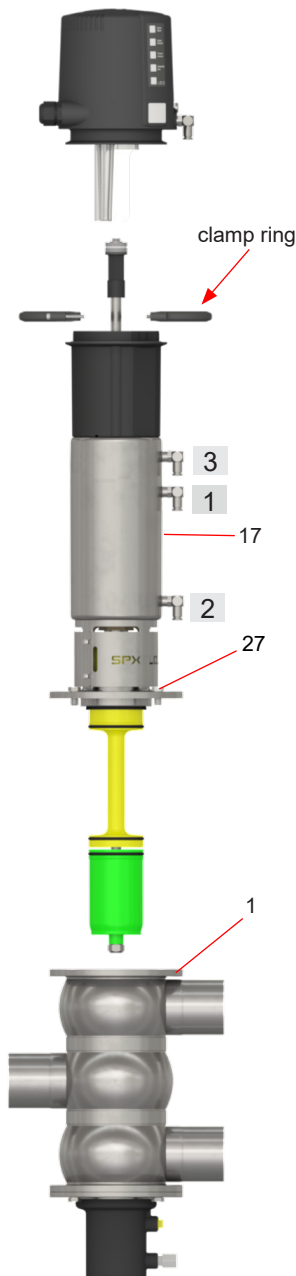


detail Y



11. Service Instructions

fig. 11.4.



11.4. Installation of the valve insert

1. Carefully place the valve insert in the valve housing (1) until the screw stops.
2. Remove the jacking screw and carefully press the valve insert into the housing (1).
3. Screw in the hex. screws (27) and fasten them crosswise.
4. Place the control unit on the adapter. Make sure that the control unit is centered on the adapter.
5. Place the clamp ring and fasten it with the screws.
6. Assemble the compressed air lines.

Air connection 1:	to open valve
Air connection 2:	to lift upper shaft
Air connection 3:	to lift lower shaft
7. Check the valve position indicators:

Closed valve position feedback – sensor 1 controlled

To adjust Hall sensor 1, ensure that the valve is in the closed position, the solenoid / manual override are not activated. The direction of adjustment of Hall sensor 1 has to be done against the closing direction of the DU4 SL valve. Turn the adjustment screw clockwise until the signal is lost. Then turn the adjustment screw anti-clockwise. When the LED appears, we recommend additional 2 x 360° turns of the adjustment screw to tolerate hysteresis and small variations.

Open valve position feedback – sensor 2 controlled

To adjust Hall sensor 2, first activate solenoid valve 1, either manually or electrically. The direction of adjustment of Hall sensor 2 has to be done against the opening direction of the DU4 SL valve. Turn the adjustment screw anti-clockwise until the signal is lost. Then turn the adjustment screw clockwise. When the LED appears, we recommend additional 2 x 360° turns of the adjustment screw to tolerate hysteresis and small variations..

8. Design with proximity switch holder:
 - Set the proximity switch holder (36) in position and fasten it with the screws (39).

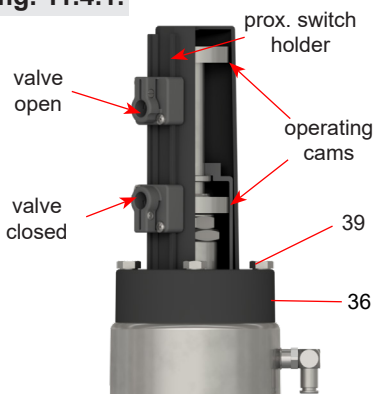
Closed valve position

The adjustment of the proximity switch holder has to be done against the closing direction of the DU4 SL valve. Ensure that the valve is in closed position. First slide the proximity switch in closing direction until the signal of the LED disappears. Then slowly slide against the closing direction. When the LED signal appears, shift another 2 mm to permit hysteresis and small variations.

Open valve position

The adjustment of the proximity switch holder has to be done against the opening direction of the DU4 SL valve. Ensure that the valve is in open position. First slide the proximity switch in opening direction until the signal of the LED disappears. Then slowly slide against the opening direction. When the LED signal appears, shift another 2 mm to permit hysteresis and small variations.

fig. 11.4.1.



12. Maintenance of Actuator

fig. 12.: D4 SL valve actuator



The item numbers refer to the spare parts drawings
 DU4 SL 1,5"-4", DN40-100 RN 505.047.01

12.1 Removing the actuator screws

1. Remove yoke cover and yoke.
2. Unscrew the two actuator screws (19) with an SW36 socket wrench.
3. Remove the V-seals (20) and O-rings (18).

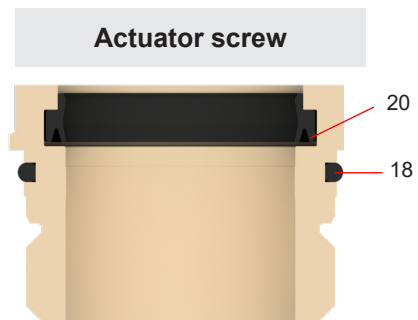
12.2 Installing the seals and assembling the actuator

1. Install the slightly greased O-rings (18) and V-seals (20) in the actuator screws (19). Check the correct installation position of the V-seal (20).

Recommendation for actuator:

Pneumatic grease
 (25 ml /tube - ref.-No. 000 70-01-008/93; H164725)

2. Place the assembly tool (H338580) on the end of the piston rod. Screw the actuator screws (19) with a socket wrench SW36 over the piston rod at both sides of the actuator and fasten them.
3. Re-install yoke and yoke cover.

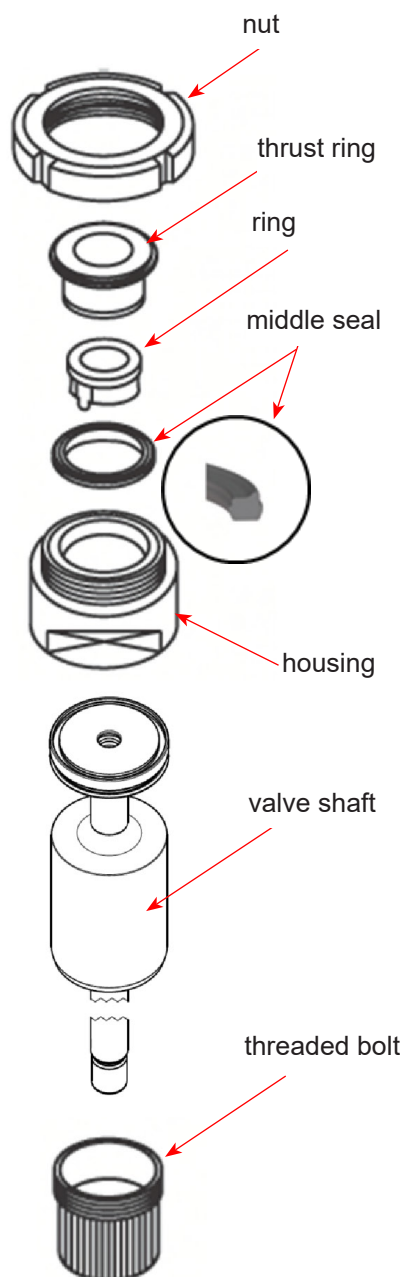


**Assembly tool
 for actuator screw (H338580)**



13. Assembly Instructions and Tools for Seals

13.1. Middle seal



The assembly tool consists of:

- nut
- thrust ring
- ring with venting tip
- housing
- threaded bolt

Installation of the middle seal in the valve shaft

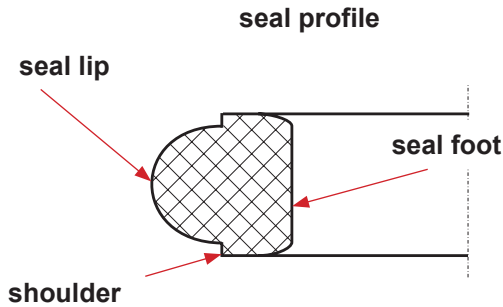
1. Insert the valve shaft into the housing making sure that the seal groove is in the housing.
2. Use the threaded bolt to clamp the shaft into the housing. Clamp the housing into a vice.
3. Slightly grease the middle seal with assembly grease. Then install the seal on the ring.
4. Insert the ring with the installed seat seal into the housing. Make sure that the venting tip is positioned in the seal groove.
5. Insert the thrust ring around the ring in the housing. Screw on the nut and tighten it with a hook spanner until it stops.
6. Release the nut. Take the ring and thrust ring off the housing.
7. Take the housing out of the vice. Take off the threaded bolt. Detach the valve shaft from the housing.

Make sure the middle seal fits evenly.

Assembly tool for middle seal			
DN	Inch	Designation	Reference number
40	1,5"	DA3 - 62	51-13-210/17 H207310
50	2"		
65	2,5" 3"		
80	4"	DA3 - 92	51-13-211/17 H207311
100			

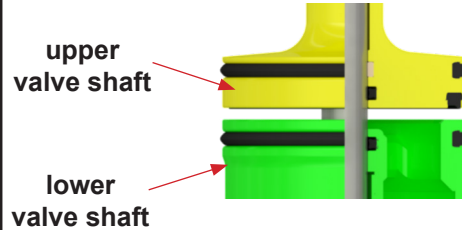
13. Assembly Instructions and Tools for Seals

13.2. Seat seals

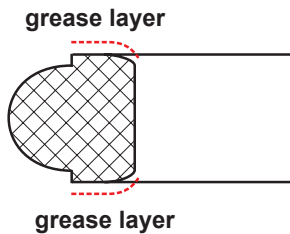


Attention!

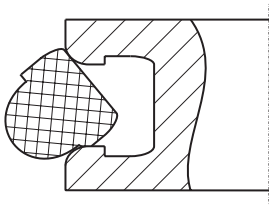
Shoulders of the seat seals must be placed evenly in the seal groove.



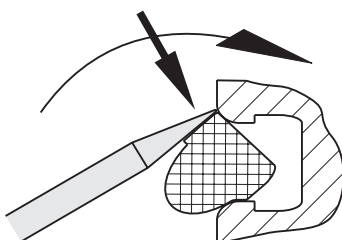
1. Provide the seal shoulder with a thin layer of grease.



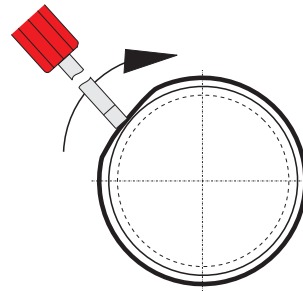
2. Insert the seat seal into the valve shaft; see to an even inclined position of the seal.



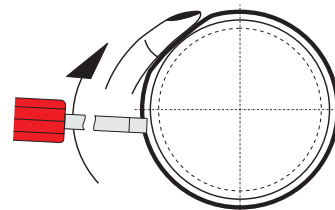
3. Press the seal circumferentially into the groove by means of an assembly tool (use screw driver with round edges). Place the assembly tool at the upper seal shoulder. To get an even fit of the seal, proceed step by step:



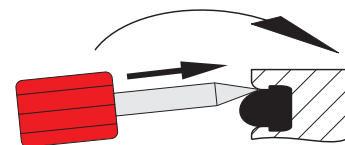
- 3.1. Press a short piece part of the seal into the groove.



- 3.2. Fix the seal - already pressed in - by your finger (to prevent loops). Use the assembly tool to press a short part of the seal into finger direction. Install the seal in the groove circumferences.



4. Press the assembly tool between the seal shoulder and the groove edge (both sides). Proceed around the circumferences. Then proceed around the circumferences of the lower seal shoulder. This is to vent the seal groove and to lock the seal shoulder.



14. Trouble Shooting

Failure	Valve position		Required seal replacement
	closed	open	
Leakage at upper housing flange or yoke	x	x	upper shaft seal (11)
Leakage from the inside of the lower valve shaft	x		seat seals (10)
Leakage from the inside of the lower valve shaft		x	middle seal (9)
Leakage at the outside of the lower valve shaft (remove spray connection for this purpose)	x	x	lower shaft seal (11)

The position numbers refer to the spare parts drawings.

15. Spare Parts Lists

The reference numbers of the spare parts for the different valve designs and sizes are included in the attached spare parts drawings with corresponding lists.

Please indicate the following data to place an order for spare parts:

- number of required parts
- reference number
- designation.

Data are subject to change.

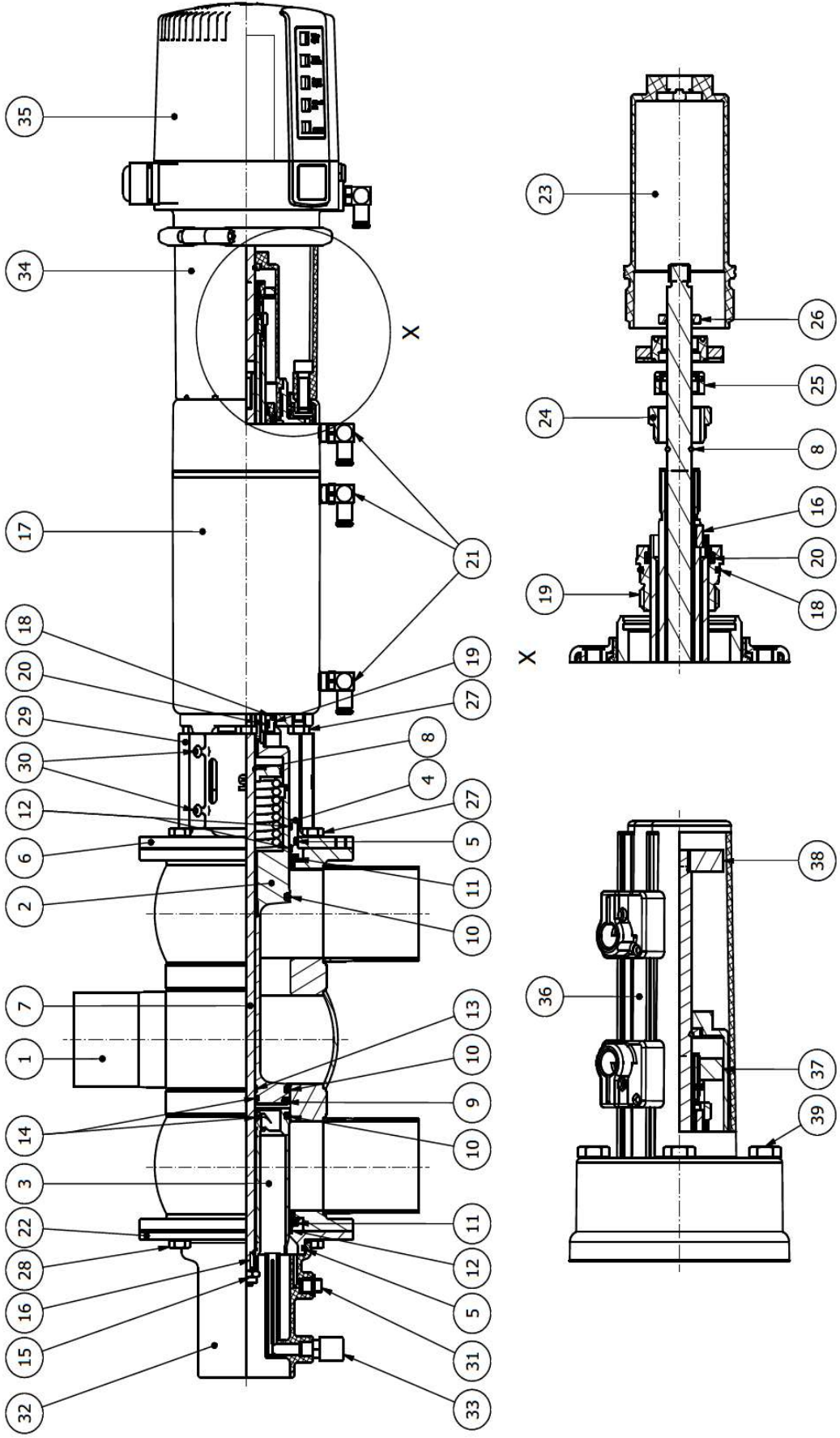
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Spare Parts list

Double seat mix proof valve DU4 SL DN40 - 100 , 1,5" - 4"

Date:	06.08.21	SPX FLOW	
Name:	Trimpop		
Reviewed:			
Date:		Page	1 of 12
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Reviewed:			

Pos. 34/35 please refer to CU4 manual



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Spare parts list

Double seat mix proof change-over valve DU4 SL - 1,5"

Date:	06.08.21
Name:	Trimpop
Reviewed:	
Date:	
Name:	
Reviewed:	

SPX FLOW	
Page	2 of 12
RN 505.047.01	

pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825
22	1	Lid housing DU4-62		1.4404	H344272
23	1	Stop screw D4		Grivory GVN-5H	H334382
24	1	Safety ring D4		1.4301	H335172
25	1	Safety nut D3		A2-70	H147640
26	1	Thrust ring		1.4057	H123151
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768
29	1	Yoke cover D4-62	30	1.4301	H341311
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707
31	1	Venting Plug G1/8"		PE-Hard	H16218
32	1	Spray connection DE3-62		PP GF30	H168321
33	1	G-union 8x1-G1/8"		PVDF-black	H16388
34	1	CU-D4-adapter cpl.		PA 6.6 GF30	H337098
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675
Control Units see on page 12					
pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
1	1	Housing DU45-1,5"/1-7-9		1.4404	H344262
	1	Housing DU45-1,5"/1-X-Y		1.4404	on request
	1	Housing DU46-1,5"/1-7-10-12		1.4404	H345033
	1	Housing DU48-1,5"/1-3-6-12		1.4404	H345053
	1	Housing DU47-1,5"/1-6-8-11		1.4404	H345043
2	1	Upper valve shaft DU4-40/1,5" SL	13, 16, 25	1.4404	H345217
3	1	Lower valve shaft D4-40/1,5"		1.4404	H334986
4	1	Shaft bearing D4-62		1.4301	H334381
5	2	O-Ring 69-3		EPDM CAT 2	H77039
6	1	Yoke D4-62		1.4305	H334383
7	1	Tie rod DU4-40/1,5"	8, 15, 16	1.4571	H345224
8	2	Retainer ring		1.4310	H14883
	1	Middle seal 58-33-998/93		EPDM	H327602
	1	Middle seal 58-33-998/33		HNBR	H332652
	1	Middle seal 58-33-998/73		FPM	H332653
	3	Seat seal 58-33-132/93		EPDM	H168192
	3	Seat seal 58-33-132/33		HNBR	H171561
	3	Seat seal 58-33-132/71		FPM	H326493
	2	Shaft seal 58-33-400/93		EPDM	H337476
	2	Shaft seal 58-33-400/33		HNBR	H337478
	2	Shaft seal 58-33-400/73		FPM	H337477
12	3	Piston ring D4-62		Iglidur A500	H334863
13	1	Guide band d12x1,55x3,9		Acoflon M 100 / TFM1610	H334865
14	2	Quad ring 12,37x 2,62		EPDM	H311646
15	1	self locking nut M10x1 ISO10511		A2-70	H118903
16	2	Square key DIN6885-A - 3x3x10		A2-70	H335171
17	1	Actuator D4-100/34 SL	18, 19, 20	1.4301 / PBT	H335469
18	2	O-ring 30x2,5		NBR	H337897
19	2	Actuator screw D4		Iglidur J350	H334376
20	2	NIPSL 210 28x33,5x5		NBR	H334379
Pos. 9, 10, 11, 12, 14 available as complete seal kits only					
		Seal kit DU4-Ø62		EPDM	H345205
		Seal kit DU4-Ø62		HNBR	H345206
		Seal kit DU4-Ø62		FPM	H345207

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Spare parts list

Double seat mix proof change-over valve DU4 SL - DN40

Date:	06.08.21
Name:	Trimpop
Reviewed:	
Date:	
Name:	
Reviewed:	

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Page 3 of 12

RN 505.047.01

pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825
22	1	Lid housing DU4-62		1.4404	H344272
23	1	Stop screw D4		Grivory GVN-5H	H334382
24	1	Safety ring D4		1.4301	H335172
25	1	Safety nut D3		A2-70	H147640
26	1	Thrust ring		1.4057	H123151
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768
29	1	Yoke cover D4-62	30	1.4301	H341311
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707
31	1	Venting Plug G1/8"		PE-Hard	H16218
32	1	Spray connection DE3-62		PP GF30	H168321
33	1	G-union 8x1-G1/8"		PVDF-black	H16388
34	1	CU-D4-adapter cpl.		PA 6.6 GF30	H337098
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675
Control Units see on page 12					
pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
1	1	Housing DU45-40/1-7-9		1.4404	H344257
	1	Housing DU45-40/1-X-Y		1.4404	on request
	1	Housing DU46-40/1-7-10-12		1.4404	H345028
	1	Housing DU48-40/1-3-6-12		1.4404	H345048
	1	Housing DU47-40/1-6-8-11		1.4404	H345038
2	1	Upper valve shaft DU4-40/1,5" SL	13, 16, 25	1.4404	H345217
3	1	Lower valve shaft D4-40/1,5"		1.4404	H334986
4	1	Shaft bearing D4-62		1.4301	H334381
5	2	O-Ring 69-3		EPDM CAT 2	H77039
6	1	Yoke D4-62		1.4305	H334383
7	1	Tie rod DU4-40/1,5"	8, 15, 16	1.4571	H345224
8	2	Retainer ring		1.4310	H14883
	1	Middle seal 58-33-998/93		EPDM	H327602
	1	Middle seal 58-33-998/33		HNBR	H332652
	1	Middle seal 58-33-998/73		FPM	H332653
	3	Seat seal 58-33-132/93		EPDM	H168192
	3	Seat seal 58-33-132/33		HNBR	H171561
	3	Seat seal 58-33-132/71		FPM	H326493
	2	Shaft seal 58-33-400/93		EPDM	H337476
	2	Shaft seal 58-33-400/33		HNBR	H337478
	2	Shaft seal 58-33-400/73		FPM	H337477
12	3	Piston ring D4-62		Iglidur A500	H334863
13	1	Guide band d12x1,55x3,9		Acoflon M 100 / TFM1610	H334865
14	2	Quad ring 12,37x 2,62		EPDM	H311646
15	1	self locking nut M10x1 ISO10511		A2-70	H118903
16	2	Square key DIN6885-A - 3x3x10		A2-70	H335171
17	1	Actuator D4-100/34 SL	18, 19, 20	1.4301 / PBT	H335469
18	2	O-ring 30x2,5		NBR	H337897
19	2	Actuator screw D4		Iglidur J350	H334376
20	2	NIPSL 210 28x33,5x5		NBR	H334379
Pos. 9, 10, 11, 12, 14 available as complete seal kits only					
		Seal kit DU4-Ø62		EPDM	H345205
		Seal kit DU4-Ø62		HNBR	H345206
		Seal kit DU4-Ø62		FPM	H345207

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Spare parts list

Double seat mix proof change-over valve DU4 SL - 2"

Date:	06.08.21
Name:	Trimpop
Reviewed:	
Date:	
Name:	
Reviewed:	

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RN 505.047.01	

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pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825
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23	1	Stop screw D4		Grivory GVN-5H	H334382
24	1	Safety ring D4		1.4301	H335172
25	1	Safety nut D3		A2-70	H147640
26	1	Thrust ring		1.4057	H123151
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768
29	1	Yoke cover D4-62	30	1.4301	H341311
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707
31	1	Venting Plug G1/8"		PE-Hard	H16218
32	1	Spray connection DE3-62		PP GF30	H168321
33	1	G-union 8x1-G1/8"		PVDF-black	H16388
34	1	CU-D4-adapter cpl.		PA 6.6 GF30	H337098
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675
Control Units see on page 12					
pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
1	1	Housing DU45-2"/1-7-9		1.4404	H344263
	1	Housing DU45-2"/1-X-Y		1.4404	on request
	1	Housing DU46-2"/1-7-10-12		1.4404	H345034
	1	Housing DU48-2"/1-3-6-12		1.4404	H345054
	1	Housing DU47-2"/1-6-8-11		1.4404	H345044
2	1	Upper valve shaft DU4-50/2" SL	13, 16, 25	1.4404	H345218
3	1	Lower valve shaft D4-50/2"		1.4404	H334987
4	1	Shaft bearing D4-62		1.4301	H334381
5	2	O-Ring 69-3		EPDM CAT 2	H77039
6	1	Yoke D4-62		1.4305	H334383
7	1	Tie rod DU4-50/2"	8, 15, 16	1.4571	H345225
8	2	Retainer ring		1.4310	H14883
	1	Middle seal 58-33-998/93		EPDM	H327602
	1	Middle seal 58-33-998/33		HNBR	H332652
	1	Middle seal 58-33-998/73		FPM	H332653
	3	Seat seal 58-33-132/93		EPDM	H168192
	3	Seat seal 58-33-132/33		HNBR	H171561
	3	Seat seal 58-33-132/71		FPM	H326493
	2	Shaft seal 58-33-400/93		EPDM	H337476
	2	Shaft seal 58-33-400/33		HNBR	H337478
	2	Shaft seal 58-33-400/73		FPM	H337477
12	3	Piston ring D4-62		Iglidur A500	H334863
13	1	Guide band d12x1,55x3,9		Acoflon M 100 / TFM1610	H334865
14	2	Quad ring 12,37x 2,62		EPDM	H311646
15	1	self locking nut M10x1 ISO10511		A2-70	H118903
16	2	Square key DIN6885-A - 3x3x10		A2-70	H335171
17	1	Actuator D4-100/45 SL	18, 19, 20	1.4301 / PBT	H334394
18	2	O-ring 30x2,5		NBR	H337897
19	2	Actuator screw D4		Iglidur J350	H334376
20	2	NIPSL 210 28x33,5x5		NBR	H334379
Pos. 9, 10, 11, 12, 14 available as complete seal kits only					
		Seal kit DU4-Ø62		EPDM	H345205
		Seal kit DU4-Ø62		HNBR	H345206
		Seal kit DU4-Ø62		FPM	H345207

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Spare parts list

Double seat mix proof change-over valve DU4 SL - DN50

Date:	06.08.21
Name:	Trimpop
Reviewed:	
Date:	
Name:	
Reviewed:	

SPX FLOW	
Page	5 of 12
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pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825
22	1	Lid housing DU4-62		1.4404	H344272
23	1	Stop screw D4		Grivory GVN-5H	H334382
24	1	Safety ring D4		1.4301	H335172
25	1	Safety nut D3		A2-70	H147640
26	1	Thrust ring		1.4057	H123151
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768
29	1	Yoke cover D4-62	30	1.4301	H341311
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707
31	1	Venting Plug G1/8"		PE-Hard	H16218
32	1	Spray connection DE3-62		PP GF30	H168321
33	1	G-union 8x1-G1/8"		PVDF-black	H16388
34	1	CU-D4-adapter cpl.		PA 6.6 GF30	H337098
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675
Control Units see on page 12					
1	1	Housing DU45-50/1-7-9		1.4404	H344258
1	1	Housing DU45-50/1-X-Y		1.4404	on request
1	1	Housing DU46-50/1-7-10-12		1.4404	H345029
1	1	Housing DU48-50/1-3-6-12		1.4404	H345039
1	1	Housing DU47-50/1-6-8-11		1.4404	H345218
2	1	Upper valve shaft DU4-50/2" SL	13, 16, 25	1.4404	H334987
3	1	Lower valve shaft D4-50/2"		1.4404	H334381
4	1	Shaft bearing D4-62		1.4301	H77039
5	2	O-Ring 69-3		EPDM CAT 2	H334383
6	1	Yoke D4-62		1.4305	H345225
7	1	Tie rod DU4-50/2"	8, 15, 16	1.4571	H14883
8	2	Retainer ring		1.4310	H327602
1	1	Middle seal 58-33-998/93		EPDM	H332652
1	1	Middle seal 58-33-998/33		HNBR	H332653
1	1	Middle seal 58-33-998/73		FPM	H168192
3	3	Seat seal 58-33-132/93		EPDM	H171561
3	3	Seat seal 58-33-132/33		HNBR	H326493
3	3	Seat seal 58-33-132/71		FPM	H337476
2	2	Shaft seal 58-33-400/93		EPDM	H337478
2	2	Shaft seal 58-33-400/33		HNBR	H337477
2	2	Shaft seal 58-33-400/73		FPM	H334863
3	3	Piston ring D4-62		Iglidur A500	H334865
1	1	Guide band d12x1,55x3,9		Acoflon M 100 / TFM1610	H311646
2	2	Quad ring 12,37x 2,62		EPDM	H118903
1	1	self locking nut M10x1 ISO10511		A2-70	H335171
2	2	Square key DIN6885-A - 3x3x10		A2-70	H334394
1	1	Actuator D4-100/45 SL	18, 19, 20	1.4301 / PBT	H337897
2	2	O-ring 30x2,5		NBR	H334376
2	2	Actuator screw D4		Iglidur J350	H334379
2	2	NIPSL 210 28x33,5x5		NBR	

Pos. 9, 10, 11, 12, 14 available as complete seal kits only

	Seal kit DU4-Ø62	EPDM	H345205
	Seal kit DU4-Ø62	HNBR	H345206
	Seal kit DU4-Ø62	FPM	H345207

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Spare parts list

Date: 06.08.21
 Name: Trimpop
 Reviewed:

Date:
 Name:
 Reviewed:

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Double seat mix proof change-over valve DU4 SL - 2,5"

pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
1	1	Housing DU45-2,5"/1-7-9		1.4404	H344264
	1	Housing DU45-2,5"/1-X-Y		1.4404	on request
	1	Housing DU46-2,5"/1-7-10-12		1.4404	H345035
	1	Housing DU48-2,5"/1-3-6-12		1.4404	H345045
	1	Housing DU47-2,5"/1-6-8-11		1.4404	H345219
2	1	Upper valve shaft DU4-2,5" SL	13, 16, 25	1.4404	H335391
3	1	Lower valve shaft D4-2,5"		1.4301	H334381
4	1	Shaft bearing D4-62		EPDM CAT 2	H77039
5	2	O-Ring 69-3		1.4305	H334383
6	1	Yoke D4-62		1.4571	H345226
7	1	Tie rod DU4-2,5"	8, 15, 16	1.4310	H14883
8	2	Retainer ring		EPDM	H327602
	1	Middle seal 58-33-998/93		HNBR	H332652
	1	Middle seal 58-33-998/33		FPM	H332653
	1	Middle seal 58-33-998/73		EPDM	H168192
10	3	Seat seal 58-33-132/93		HNBR	H171561
	3	Seat seal 58-33-132/33		FPM	H326493
	3	Seat seal 58-33-132/71		EPDM	H337476
11	2	Shaft seal 58-33-400/93		HNBR	H337478
	2	Shaft seal 58-33-400/33		FPM	H337477
	2	Shaft seal 58-33-400/73		Iglidur A500	H334863
12	3	Piston ring D4-62		Acoflon M 100 / TFM1610	H334865
13	1	Guide band d12x1,55x3,9		EPDM	H311646
14	2	Quad ring 12,37x 2,62		A2-70	H118903
15	1	self locking nut M10x1 ISO10511		A2-70	H335171
16	2	Square key DIN6885-A - 3x3x10		1.4301 / PBT	H334394
17	1	Actuator D4-100/45 SL	18, 19, 20	NBR	H337897
18	2	O-ring 30x2,5		Iglidur J350	H334376
19	2	Actuator screw D4		NBR	H334379
20	2	NIPSL 210 28x33,5x5			

pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825
22	1	Lid housing DU4-62		1.4404	H344272
23	1	Stop screw D4		Grivory GVN-5H	H334382
24	1	Safety ring D4		1.4301	H335172
25	1	Safety nut D3		A2-70	H147640
26	1	Thrust ring		1.4057	H123151
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768
29	1	Yoke cover D4-62	30	1.4301	H341311
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707
31	1	Venting Plug G1/8"		PE-Hard	H16218
32	1	Spray connection DE3-62		PP GF30	H168321
33	1	G-union 8x1-G1/8"		PVDF-black	H16388
34	1	CU-D4-adapter cpl.		PA 6.6 GF30	H337098
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675

Control Units see on page 12					
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675

Pos. 9, 10, 11, 12, 14 available as complete seal kits only

		Seal kit DU4-Ø62		EPDM	H345205
		Seal kit DU4-Ø62		HNBR	H345206
		Seal kit DU4-Ø62		FPM	H345207

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Spare parts list

Double seat mix proof change-over valve DU4 SL - DN65

Date:	06.08.21
Name:	Trimpop
Reviewed:	
Date:	
Name:	
Reviewed:	

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pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825
22	1	Lid housing DU4-62		1.4404	H344272
23	1	Stop screw D4		Grivory GVN-5H	H334382
24	1	Safety ring D4		1.4301	H335172
25	1	Safety nut D3		A2-70	H147640
26	1	Thrust ring		1.4057	H123151
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768
29	1	Yoke cover D4-62	30	1.4301	H341311
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707
31	1	Venting Plug G1/8"		PE-Hard	H16218
32	1	Spray connection DE3-62		PP GF30	H168321
33	1	G-union 8x1-G1/8"		PVDF-black	H16388
34	1	CU-D4-adapter cpl.		PA 6.6 GF30	H337098
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675
Control Units see on page 12					
pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
1	1	Housing DU45-65/1-7-9		1.4404	H344259
	1	Housing DU45-65/1-X-Y		1.4404	on request
	1	Housing DU46-65/1-7-10-12		1.4404	H345030
	1	Housing DU48-65/1-3-6-12		1.4404	H345040
	1	Housing DU47-65/1-6-8-11		1.4404	H345221
2	1	Upper valve shaft DU4-65 SL	13, 16, 25	1.4404	H334446
3	1	Lower valve shaft D4-65		1.4301	H334381
4	1	Shaft bearing D4-62		EPDM CAT 2	H77039
5	2	O-Ring 69-3		1.4305	H334383
6	1	Yoke D4-62		1.4571	H345228
7	1	Tie rod DU4-65	8, 15, 16	1.4310	H14883
8	2	Retainer ring		EPDM	H327602
	1	Middle seal 58-33-998/93		HNBR	H332652
	1	Middle seal 58-33-998/33		FPM	H332653
	1	Middle seal 58-33-998/73		EPDM	H168192
	3	Seat seal 58-33-132/93		HNBR	H171561
	3	Seat seal 58-33-132/33		FPM	H326493
	3	Seat seal 58-33-132/71		EPDM	H337476
	2	Shaft seal 58-33-400/93		HNBR	H337478
	2	Shaft seal 58-33-400/33		FPM	H337477
	2	Shaft seal 58-33-400/73		Iglidur A500	H334863
12	3	Piston ring D4-62		Acoflon M 100 / TFM1610	H334865
13	1	Guide band d12x1,55x3,9		EPDM	H311646
14	2	Quad ring 12,37x 2,62		A2-70	H118903
15	1	self locking nut M10x1 ISO10511		A2-70	H335171
16	2	Square key DIN6885-A - 3x3x10		1.4301 / PBT	H334394
17	1	Actuator D4-100/45 SL	18, 19, 20	NBR	H337897
18	2	O-ring 30x2,5		Iglidur J350	H334376
19	2	Actuator screw D4		NBR	H334379
20	2	NIPSL 210 28x33,5x5			
Pos. 9, 10, 11, 12, 14 available as complete seal kits only					
		Seal kit DU4-Ø62		EPDM	H345205
		Seal kit DU4-Ø62		HNBR	H345206
		Seal kit DU4-Ø62		FPM	H345207

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Spare parts list

Double seat mix proof change-over valve DU4 SL - 3"

Date:	06.08.21
Name:	Trimpop
Reviewed:	
Date:	
Name:	
Reviewed:	

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pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825
22	1	Lid housing DU4-62		1.4404	H344272
23	1	Stop screw D4		Grivory GVN-5H	H334382
24	1	Safety ring D4		1.4301	H335172
25	1	Safety nut D3		A2-70	H147640
26	1	Thrust ring		1.4057	H123151
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768
29	1	Yoke cover D4-62	30	1.4301	H341311
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707
31	1	Venting Plug G1/8"		PE-Hard	H16218
32	1	Spray connection DE3-62		PP GF30	H168321
33	1	G-union 8x1-G1/8"		PVDF-black	H16388
34	1	CU-D4-adapter cpl.		PA 6.6 GF30	H337098
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675
Control Units see on page 12					
1	1	Housing DU45-3"/1-7-9		1.4404	H344265
1	1	Housing DU45-3"/1-X-Y		1.4404	on request
1	1	Housing DU46-3"/1-7-10-12		1.4404	H345036
1	1	Housing DU48-3"/1-3-6-12		1.4404	H345046
1	1	Housing DU47-3"/1-6-8-11		1.4404	H345220
2	1	Upper valve shaft DU4-3" SL	13, 16, 25	1.4404	H335392
3	1	Lower valve shaft D4-3"		1.4404	H334381
4	1	Shaft bearing D4-62		1.4301	H77039
5	2	O-Ring 69-3		EPDM CAT 2	H334383
6	1	Yoke D4-62		1.4305	H345227
7	1	Tie rod DU4-3"	8, 15, 16	1.4571	H14883
8	2	Retainer ring		1.4310	H327602
1	1	Middle seal 58-33-998/93		EPDM	H332652
1	1	Middle seal 58-33-998/33		HNBR	H332653
1	1	Middle seal 58-33-998/73		FPM	H168192
3	3	Seat seal 58-33-132/93		EPDM	H171561
3	3	Seat seal 58-33-132/33		HNBR	H326493
3	3	Seat seal 58-33-132/71		FPM	H337476
2	2	Shaft seal 58-33-400/93		EPDM	H337478
2	2	Shaft seal 58-33-400/33		HNBR	H337477
2	2	Shaft seal 58-33-400/73		FPM	H334863
3	3	Piston ring D4-62		Iglidur A500	H334865
1	1	Guide band d12x1,55x3,9		Acoflon M 100 / TFM1610	H311646
2	2	Quad ring 12,37x 2,62		EPDM	H118903
1	1	self locking nut M10x1 ISO10511		A2-70	H335171
2	2	Square key DIN6885-A - 3x3x10		A2-70	H334394
1	1	Actuator D4-100/45 SL	18, 19, 20	1.4301 / PBT	H337897
2	2	O-ring 30x2,5		NBR	H334376
2	2	Actuator screw D4		Iglidur J350	H334379
2	2	NIPSL 210 28x33,5x5		NBR	
Pos. 9, 10, 11, 12, 14 available as complete seal kits only					
		Seal kit DU4-Ø62		EPDM	H345205
		Seal kit DU4-Ø62		HNBR	H345206
		Seal kit DU4-Ø62		FPM	H345207

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Spare parts list

Double seat mix proof change-over valve DU4 SL - DN80

Date:	06.08.21
Name:	Trimpop
Reviewed:	
Date:	
Name:	
Reviewed:	

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pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.																																																																																																																								
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825																																																																																																																								
22	1	Lid housing DU4-92		1.4404	H344273																																																																																																																								
23	1	Stop screw D4		Grivory GVN-5H	H334382																																																																																																																								
24	1	Safety ring D4		1.4301	H335172																																																																																																																								
25	1	Safety nut D3		A2-70	H147640																																																																																																																								
26	1	Thrust ring		1.4057	H123151																																																																																																																								
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772																																																																																																																								
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768																																																																																																																								
29	1	Yoke cover D4-92	30	1.4301	H341312																																																																																																																								
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707																																																																																																																								
31	1	Venting Plug G1/8"		PE-Hard	H16218																																																																																																																								
32	1	Spray connection DE3-92		PP GF30	H168322																																																																																																																								
33	1	G-union 8x1-G1/8"		PVDF-black	H16388																																																																																																																								
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37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386																																																																																																																								
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pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.																																																																																																																								
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18	2	O-ring 30x2,5		NBR	H345208																																																																																																																								
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20	2	NIPSL 210 28x33,5x5		NBR	H345210																																																																																																																								

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Spare parts list

Double seat mix proof change-over valve DU4 SL - DN100

Date:	06.08.21
Name:	Trimpop
Reviewed:	
Date:	
Name:	
Reviewed:	

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pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825
22	1	Lid housing DU4-92		1.4404	H344273
23	1	Stop screw D4		Grivory GVN-5H	H334382
24	1	Safety ring D4		1.4301	H335172
25	1	Safety nut D3		A2-70	H147640
26	1	Thrust ring		1.4057	H123151
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768
29	1	Yoke cover D4-92	30	1.4301	H341312
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707
31	1	Venting Plug G1/8"		PE-Hard	H16218
32	1	Spray connection DE3-92		PP GF30	H168322
33	1	G-union 8x1-G1/8"		PVDF-black	H16388
34	1	CU-D4-adapter cpl.		PA 6.6 GF30	H337098
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675
Control Units see on page 12					
pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
1	1	Housing DU45-100/1-7-9		1.4404	H344261
	1	Housing DU45-100/1-X-Y		1.4404	on request
	1	Housing DU46-100/1-7-10-12		1.4404	H345032
	1	Housing DU48-100/1-3-6-12		1.4404	H345042
	1	Housing DU47-100/1-6-8-11		1.4404	H345223
2	1	Upper valve shaft DU4-100/4" SL	13, 16, 25	1.4404	H335394
3	1	Lower valve shaft D4-100/4"		1.4301	H335713
4	1	Shaft bearing D4-92		EPDM CAT 2	H77061
5	2	O-Ring 100-3		1.4305	H335994
6	1	Yoke D4-92		1.4571	H345230
7	1	Tie rod DU4-100/4"	8, 15, 16	1.4310	H14883
8	2	Retainer ring		EPDM	H327985
	1	Middle seal 58-33-997/93		HNBR	H332649
	1	Middle seal 58-33-997/33		FPM	H332648
	1	Middle seal 58-33-997/73		EPDM	H168153
	3	Seat seal 58-33-133/93		HNBR	H171565
	3	Seat seal 58-33-133/33		FPM	H326494
	2	Shaft seal 58-33-405/93		EPDM	H337668
	2	Shaft seal 58-33-405/33		HNBR	H337670
	2	Shaft seal 58-33-405/73		FPM	H337669
10	3	Piston ring D4-92		Iglidur A500	H335702
11	1	Guide band d12x1,55x3,9		Acoflon M 100 / TFM1610	H334865
12	2	Quad ring 12,37x 2,62		EPDM	H311646
13	1	self locking nut M10x1 ISO10511		A2-70	H118903
14	2	Square key DIN6885-A - 3x3x10		A2-70	H335171
15	1	Actuator D4-125/50 SL	18, 19, 20	1.4301 / PBT	H335862
16	2	O-ring 30x2,5		NBR	H337897
17	2	Actuator screw D4		Iglidur J350	H334376
18	2	NIPSL 210 28x33,5x5		NBR	H334379
Pos. 9, 10, 11, 12, 14 available as complete seal kits only					
		Seal kit DU4-Ø92		EPDM	H345208
		Seal kit DU4-Ø92		HNBR	H345209
		Seal kit DU4-Ø92		FPM	H345210

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Spare parts list

Double seat mix proof change-over valve DU4 SL - 4"

Date: 06.08.21
 Name: Trimpop
 Reviewed:

Date: _____
 Name: _____
 Reviewed: _____

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SPX FLOW

pos. item	Quantity	Description, product contacted seals with reference number	included in spare parts (pos.)	Material	Part no.
1	1	Housing DU45-4"/1-7-9		1.4404	H344266
	1	Housing DU45-4"/1-X-Y		1.4404	on request
	1	Housing DU46-4"/1-7-10-12		1.4404	H345037
	1	Housing DU48-4"/1-3-6-12		1.4404	H345057
	1	Housing DU47-4"/1-6-8-11		1.4404	H345047
2	1	Upper valve shaft DU4-100/4" SL	13, 16, 25	1.4404	H345223
3	1	Lower valve shaft D4-100/4"		1.4404	H335394
4	1	Shaft bearing D4-92		1.4301	H335713
5	2	O-Ring 100-3		EPDM CAT 2	H77061
6	1	Yoke D4-92		1.4305	H335994
7	1	Tie rod DU4-100/4"	8, 15, 16	1.4571	H345230
8	2	Retainer ring		1.4310	H14883
	1	Middle seal 58-33-997/93		EPDM	H327985
	1	Middle seal 58-33-997/33		HNBR	H332649
	1	Middle seal 58-33-997/73		FPM	H332648
	3	Seat seal 58-33-133/93		EPDM	H168153
	3	Seat seal 58-33-133/33		HNBR	H171565
	3	Seat seal 58-33-133/71		FPM	H326494
	2	Shaft seal 58-33-405/93		EPDM	H337668
	2	Shaft seal 58-33-405/33		HNBR	H337670
	2	Shaft seal 58-33-405/73		FPM	H337669
12	3	Piston ring D4-92		Iglidur A500	H335702
13	1	Guide band d12x1,55x3,9		Acoflon M 100 / TFM1610	H334865
14	2	Quad ring 12,37x 2,62		EPDM	H311646
15	1	self locking nut M10x1 ISO10511		A2-70	H118903
16	2	Square key DIN6885-A - 3x3x10		A2-70	H335171
17	1	Actuator D4-125/50 SL	18, 19, 20	1.4301 / PBT	H335862
18	2	O-ring 30x2,5		NBR	H337897
19	2	Actuator screw D4		Iglidur J350	H334376
20	2	NIPSL 210 28x33,5x5		NBR	H334379
21	3	W-Union G1/8" Ø6mm		hard nickel-plated	H208825
22	1	Lid housing DU4-92		1.4404	H344273
23	1	Stop screw D4		Grivory GVN-5H	H334382
24	1	Safety ring D4		1.4301	H335172
25	1	Safety nut D3		A2-70	H147640
26	1	Thrust ring		1.4057	H123151
27	8	Hexagon screw M8x16 DIN933		A2-70	H78772
28	4	Hexagon screw M8x14 DIN933		A2-70	H78768
29	1	Yoke cover D4-92	30	1.4301	H341312
30	4	Savetix head screw M4x8 and washer M4 as set		A2-70	H336707
31	1	Venting Plug G1/8"		PE-Hard	H16218
32	1	Spray connection DE3-92		PP GF30	H168322
33	1	G-union 8x1-G1/8"		PVDF-black	H16388
34	1	CU-D4-adapter cpl.		PA 6.6 GF30	H337098
35	1	CU4plus-D4-V2 adapter cpl.		PA 6.6 GF30	H341891
36	1	Prox. switch holder D4 cpl.		PA12 GF30	H336751
37	1	Operating cam D4 bottom		1.4523 / 444FR	H334386
38	1	Operating cam D4 top		1.4523 / 444FR	H334387
39	4	Hexagon screw M8x40 ISO4014		A2-70	H336675
Control Units see on page 12					
Pos. 9, 10, 11, 12, 14 available as complete seal kits only					
		Seal kit DU4-Ø92		EPDM	H345208
		Seal kit DU4-Ø92		HNBR	H345209
		Seal kit DU4-Ø92		FPM	H345210

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Spare parts list

Double seat mix proof change-over valve DU4 SL - Control Units

Date:	06.08.21				
Name:	Trimpop				
Reviewed:					
Date:				Page	12 of 12
Name:				RN 505.047.01	
Reviewed:					

pos. item	Description, product contacted seals with reference number	air connections	Material	Part no.
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Quantity	Description, product contacted seals with reference number	air connections	Material	Part no.
Standard Control Units (Hall-Sensors)				
1	CU43 D4 Direct Connect	6 mm	PA6.6 GF30	H336955
1	CU43 D4 Direct Connect M12-8pin	6 mm	PA6.6 GF30	H341343
1	CU43 D4 Direct Connect	1/4" OD	PA6.6 GF30	H336960
1	CU43 D4 Direct Connect M12-8pin	1/4" OD	PA6.6 GF30	H341352
1	CU43 D4 AS-i extended	6 mm	PA6.6 GF30	H336957
1	CU43 D4 AS-i extended M12-4pin	6 mm	PA6.6 GF30	H338897
1	CU43 D4 AS-i extended	1/4" OD	PA6.6 GF30	H336962
1	CU43 D4 AS-i extended M12-4pin	1/4" OD	PA6.6 GF30	H338901
Plus Control Units (Linear-Sensors)				
1	CU43 plus D4 V2 Direct Connect	6 mm	PA6.6 GF30	H342452
1	CU43 plus D4 V2 Direct Connect M12-8pin	6 mm	PA6.6 GF30	H342472
1	CU43 plus D4 V2 Direct Connect	1/4" OD	PA6.6 GF30	H342453
1	CU43 plus D4 V2 Direct Connect M12-8pin	1/4" OD	PA6.6 GF30	H342473
1	CU43 plus D4 V2 AS-i extended	6mm	PA6.6 GF30	H338822
1	CU43 plus D4 V2 AS-i extended M12-4pin	6mm	PA6.6 GF30	H338867
1	CU43 plus D4 V2 AS-i extended	1/4" OD	PA6.6 GF30	H338826
1	CU43 plus D4 V2 AS-i extended M12-4pin	1/4" OD	PA6.6 GF30	H338871

pos. item	Description, product contacted seals with reference number	air connections	Material	Part no.
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APV DU4 SL

DOUBLE SEAT CHANGE-OVER VALVE



SPX FLOW

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