PneumaticPlus

MANUAL

DRYSPELL PLUS

Desiccant compressed air dryers

Models 10, 20, 30, 45, 60, 100, 125, 200, 250, 300, 375

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Statement of conformity

- 97/23/EC - Pressurised equipment
- 89/392/CEE-Machine safety
- 89/336/CEE-Electromagnetic compatibility
- 73/23/CEE-Low voltage
- OH6629.5C-CRN
- UL-Listed, RoHs-compliance

Contents

Section 1

Intended use

Dryspell Plus dryers are compressed air drying devices manufactured for industrial & other uses.

Water is invariably found in compressed air in the form of vapour and condensed droplets. Dryspell Plus dryers remove this water.

Section 3

Using this manual

This manual has been specially designed so that you can use your Trident Dryspell Plus dryer optimally and safely. Before you start using the filter, go through this manual thoroughly. It contains vital information regarding the installation, operation and maintenance of the dryer.

All the information, illustrations and specifications in this manual are based on the latest product information at the time of preparation of the manual. Trident reserves the right to make changes in the product at any time without notice.

Ensure that this manual is available at all times to the personnel operating your compressed air system.

Section 4

Functional description

Figure 1. View of Dryspell Plus dryer with canopy and Trident Cleansweep pre-filter. The control panel may be seen in the front, at the top. The pre-filter is fitted on the side.

The following are among the major components of your Dryspell Plus:

- Two desiccant towers
- Top and bottom blocks, including air seals and check valves
- Two solenoid valves
- Two inbuilt after-filters
- One electronic control unit and control panel
- One pressure gauge (optional)
- Two silencers

Your Dryspell Plus dryer may have an optional canopy. There may be an optional pre-filter also. If present, the pre-filter is fitted outside the dryer assembly.

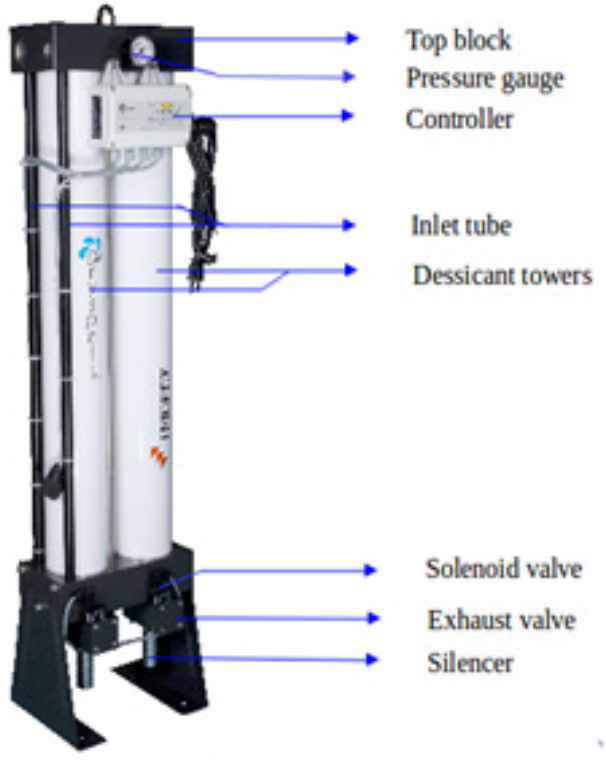
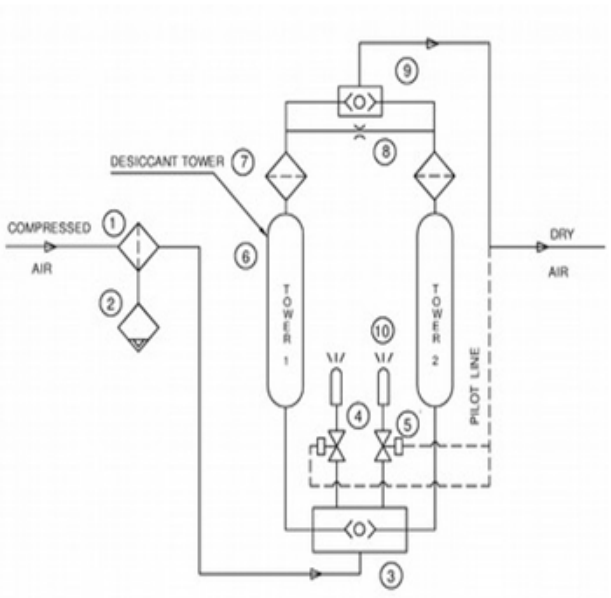


Figure 2. View of Dryspell Plus dryer without canopy

The function of each of the major components is outlined in the following description of the operation of the dryer.

4.1 Description of operation



S. NO	DESCRIPTION	QTY / UNIT
1	PRE- FILTER	1 NO
2	FILTER DRAIN VALVE	1 NO
3	INLET SHUTTLE VALVE	1 NO
4	2 WAY PURGE VALVE	2 NOS
5	EXHAUST SOLENOID VALVE	2 NOS
6	DESICCANT TOWER	2 NOS
7	AFTER FILTER	2 NOS
8	PURGE ORIFICE	1 NO
9	TOP BLOCK	1 NO
10	SILENCER	2 NOS

Figure 3. Schematic of Dryspell Plus dryer

Compressed air containing moisture and oil droplets enters the pre-filter. Bulk liquids are removed from the air by the pre-filter. The air then flows through the inlet shuttle valve, which diverts it to tower 1. The desiccant in tower 1 dries the compressed air to -40°F PDP as it flows through. The dried air leaves tower 1 via the after-filter. A small part (15%) of the compressed air is passed through the purge orifice by means of opening a two-way purge valve and thereby expanded till its pressure is near-atmospheric. This expansion of the already-dry gas (purge air) to near-atmospheric pressure increases its capacity to strip adsorbed water vapour from the desiccant bed in tower 2. The purge-air stream passes through tower 2, removing water vapour from the desiccant. This purge operation is carried out for 1 minute and 30 seconds. Then the purge valve is closed, and the pressure in tower 2 begins to rise again. The repressurisation is carried out for 30 seconds. The purge valve is opened, and purge air passes through tower 1.

During the first 2 minutes of each 4-minute cycle of operation, the following processes take place:

- The online tower (tower 1) dries compressed air for 2 minutes.
- The offline tower (tower 2) regenerates (adsorbed moisture is removed from the desiccant in it) for 1 minute and 30 seconds.
- The offline tower is re-pressurised for 30 seconds.

During the next half of the cycle, these processes are repeated with tower 2 being the online tower and tower 1 the offline tower.

4.2 External dewpoint control

The dryer can be optionally operated under external dewpoint control. In this optional system, a dewpoint meter is fitted at the outlet of the dryer. The dewpoint meter (1) provides an indication of the dewpoint of the dried air and (2) when the dewpoint of the dried air increases (this happens when the water vapour content of the dried air increases because the desiccant is saturated and water vapour cannot be adsorbed any more), it provides a signal to end the cycle. The air is then diverted to the other tower, which contains dry desiccant. Thus the dewpoint meter allows the moisture loading time of each desiccant bed to stretch as long as the desiccant absorbs moisture. In general, there is no fixed cycle time of 4 minutes' duration when external dew point control is used. The operating cycle with external dew point control is referred to as a stretch cycle.

4.3 Purge economiser

In practical situations, the airflow through the dryer is not maintained at the maximum flow value that the equipment is designed for. The moisture load may also vary. At such times, less purge-air may be required to remove the moisture from the desiccant in a tower. The amount of purge-air used can be reduced by reducing the regeneration time.
Dryspell dryers feature a purge economising feature that can reduce the amount of purge air used by changing the regeneration time from the maximum value of 90 seconds. The purge is stopped by the purge economiser after a preprogrammed duration. However, the cycle time is maintained at 4 minutes.

The regeneration flow can be reduced in steps of 20% from 100% to 40% according to the flow through the dryer or the moisture load. The purge optimisation option may be selected from the control panel.

Control panel. The control panel is used to adjust the purge optimiser and external dewpoint control settings. The control panel in models 10, 20, 30, 45 and 60 is different from the panel in models 100, 125, 200, 250, 300 and 375.

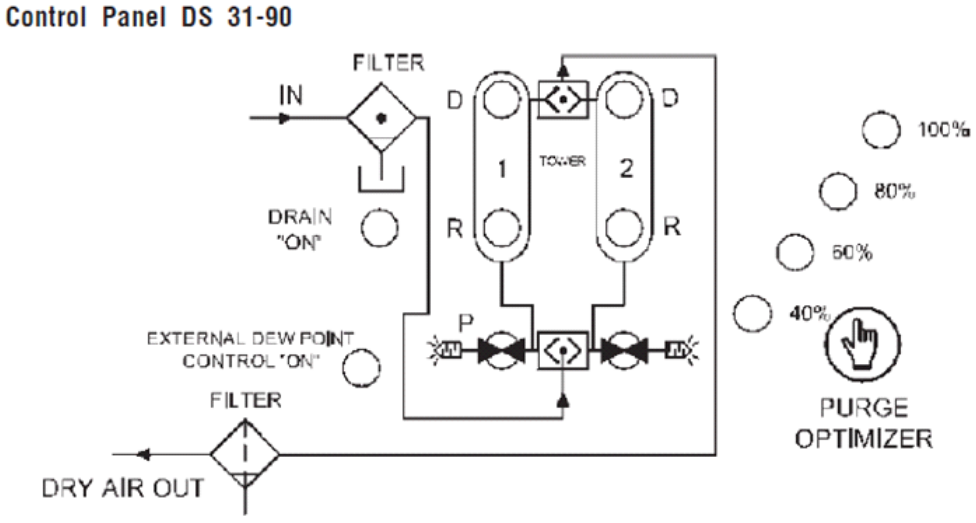


Figure 4. Control panel of Dryspell Plus (models 10, 20, 30, 45 and 60)

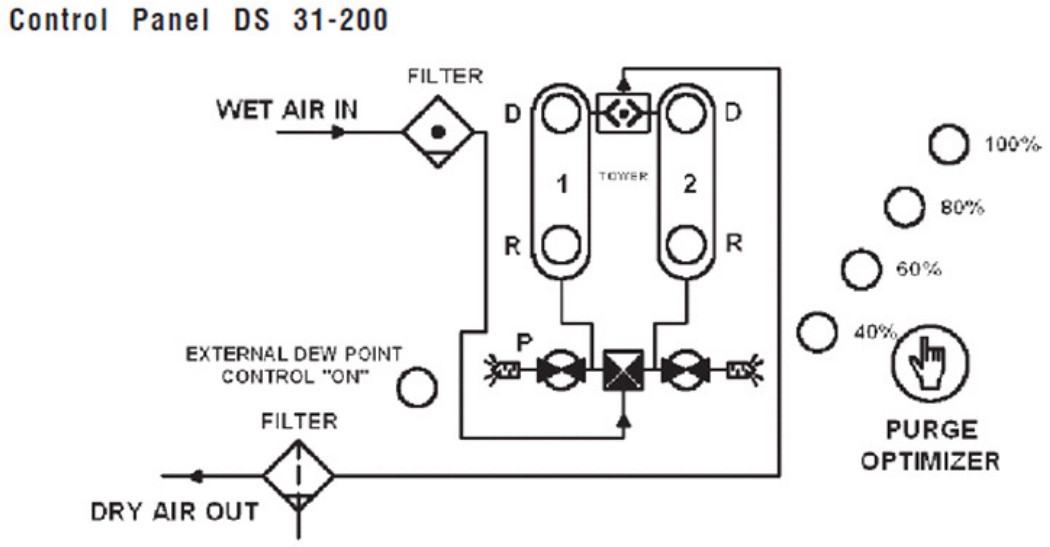


Figure 5. Control panel of Dryspell Plus (models 100, 125, 200, 250, 300 and 375)

The following are found on the control panel:

- A schematic of the dryer
- Two LED indicators for each drying tower-these indicate whether the tower is drying (D) or regenerating/re-pressurising (R).
- One LED indicating the operation of the pre-filter drain (only in models 10, 20, 30, 45 and 60)

To adjust the purge flow, press the button marked 'PURGE OPTIMIZER' continuously for 8 seconds, and then set the purge flow to the required value (40%, 60%, 80% or 100%).

Setting the Purge economizer

Through front panel - Steady conditions

To set the purge economizer please refer the tables below:

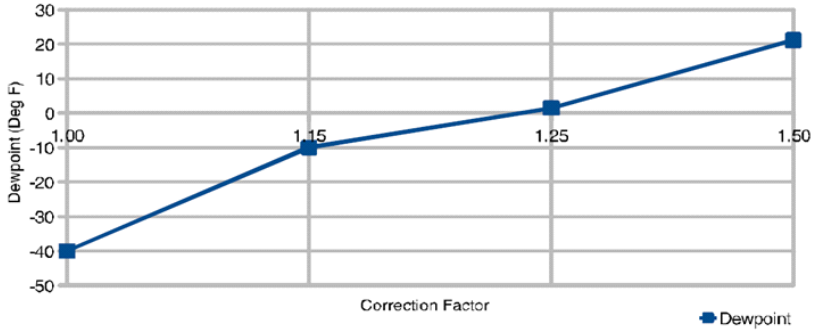
Inlet Pressure Correction Factor

psi (g)	60	80	100	120	140	160	180
bar (g)	4.1	5.5	6.9	8.3	9.7	11	12.4
Factor	0.65	0.83	1	1.18	1.37	1.52	1.7

Temperature Correction Factor

°F	90	95	100	105	110	115	120
°C	32	35	38	41	43	46	49
Factor	1.35	1.16	1	0.85	0.74	0.64	0.56

Dewpoint Correction



Principle

Pressure swing adsorption dryers purge 15% compressed air at 100 PSI pressure and 1000F inlet compressed air temperature. This is required to regenerate the bed of adsorbent. The requirement of purge is from basic physical laws and cannot be altered substantially. Purge loss is a function of Dew point required, Inlet air temperature, Operating pressure and rated flow. These parameters are have certain values as per standards and Dryers are designed for same. The common standards are ISO 7183 or CAGI which specifies the standard inlet conditions for the dryer as air temperature 38 deg (1000F) C and pressure of 7 bar (g) (100 PSI). In practice this is very different. Further a dryer will never be used at its rated flow. When a dryer is not used at its rated capacity the purge still happens at 15% of the rated capacity. For e.g a Dryspell Plus 100 would purge 15 scfm at 7 bar irrespective of the flow through the dryer. Hence the above dryer with a 80% flow ie 60 scfm would still be purging 15 scfm making the actual purge loss to 25%. This is a common problem with all dyers. Dryspell plus series dryers come with a front panel purge economizer. Select the Purge economiser switch and the purge flow is correspondingly reduced. This is done changing the purge time. The purge flow requirement is governed by the Flow rate, Inlet air temperature, Air pressure and dew point.

Purge optimizer setting = Percentage of rated flow/ (Pressure correction factor * temperature correction factor * Dew point correction factor) e.g In a given system the Pressure is 120 PSI, Temperature is 1000F, Dew point requirement is -400F and flow is 80% of rated flow.

Purge optimizer setting = 80/(1.18 x 1 x 1.15) = 58.9 =60%. This saves 40% of purge air. When conditions are not known or stable set purge optimizer at 100% to ensure dew point.

Through Dewpoint controller - Dynamic Conditions The second method of saving purge is to interface the Dryspell controller with a dew point switch. A potential free contact of the dew point switch is connected to the controller terminals. The controller purges correct quantity of air and stops purging. It remains at this state till the dew point at the outlet of the dryer falls below the set value. At this point the controller changes over to the fresh desiccant tower and starts purge to regenerate the saturated tower. With this interface highly fluctuating load, varying temperature and pressure can also factored to save purge air. Please refer user manual for terminal details. This interface also guarantees dew point.

Section 5

Technical specifications

5.1 Recommended ratings

Pre-filter rating : 0.01 micron (coalescer)

After-filter rating (built-in) : 25 microns (within the diffuser screen or compactor plate)

5.2 Physical description

Model	Overall dimensions (mm)			
	Height	Width	Depth	Weight (kg)
Dryspell Plus 10	1038	330	150	21
Dryspell Plus 20	963	371	213	29
Dryspell Plus 30	1227	371	213	39
Dryspell Plus 45	999	497	313	49
Dryspell Plus 60	1192	523	313	61
Dryspell Plus 100	1603	439	372	106
Dryspell Plus 125	1913	439	372	119
Dryspell Plus 200	1615	449	582	214
Dryspell Plus 250	1925	449	582	238
Dryspell Plus 300	1615	457	764	256
Dryspell Plus 375	1925	457	764	286

5.3 Operating conditions

Maximum pressure : 16 bar g (225 psi g)

Rated operating pressure : 7 bar g (100 psi g)

Rated operating temperature : 38°C (100°F)

Cycle time : 4 minutes

Purge loss : 15%

5.4 Power

Voltage : 100-240 V AC, 50/60 Hz, 1 phase

Maximum power consumption : 20 W

Length of power cord : 10 feet * (Optional for US suppliers only)

5.5 Capacity

Model	Nominal inlet flow (cfm)
Dryspell Plus 10	10
Dryspell Plus 20	20
Dryspell Plus 30	30
Dryspell Plus 45	45
Dryspell Plus 60	60
Dryspell Plus 100	100
Dryspell Plus 125	125
Dryspell Plus 200	200
Dryspell Plus 250	250
Dryspell Plus 300	300
Dryspell Plus 375	375

5.6 Air inlet conditions

Rated operating temperature : 38°C (100°F)

Rated operating pressure : 7 bar g (100 psi g)

Oil should be less than 2 ppm

** As per ISO 7183 option B rated condition

5.7 Air outlet conditions

-40°C (-40°F) PDP (ISO 8573-1:2010 (E) Class 2)

Section 6

Installation

6.1 General

- Make sure that the dryer is not close to any equipment that does not comply with EU directive 2004/108/EC (relating to electromagnetic compatibility) and that may affect the operation of the dryer.
- Do not drop the dryer or lift it by the piping or control panel. Doing so may damage the dryer.
- Ensure that the dryer is installed in the vertical position.

6.2 Location

- Install the dryer in a closed, clean, dry room protected from freezing
- Access to the room should be restricted to personnel qualified in the maintenance and operation of Dryspell Plus dryers
- The room must be adequately ventilated
- The dryer must not be directly exposed to sources of heat
- The temperature of the room must not exceed 43°C (109°F)

6.3 Layout

- There must be a minimum distance of 3 feet between the dryer and any other equipment around it that uses electricity

6.4 Air line

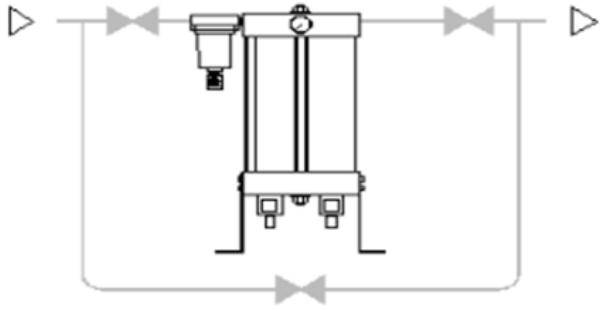


Figure 6. Bypass arrangement to be provided on air line

- Install a system of bypass valves between the dryer inlet and outlet as shown in Figure 6 so that the dryer can be serviced without having to interrupt the compressed air supply from the circuit
- If the dryer has been bought without a pre-filter, install a suitable filter ahead of the dryer
- The upstream and downstream valves must be closed during installation

6.5 Manpower required

- One skilled technician

6.6 Tools required

- Standard tool set

6.7 Procedure

- Secure the dryer by bolting it down
- Connect a drain line to the pre-filter
- Check for leaks after all connections have been made

Section 7

Operation

⚠ **Warning :** Dryspell Plus dryers are designed and manufactured for drying compressed air. Under no circumstances should they be used to dry any other gases.

⚠ **Warning :** The adsorbents used in the dryer are non-toxic. However, they may cause respiratory problems if they are inhaled as dust. The use of dust masks is sufficient to protect personnel.

⚠ **Warning:** This dryer should be used for drying only filtered compressed air. Ensure that the air supplied to the inlet of this air dryer is filtered. Failure to follow this instruction can lead to serious injury or death.

7.1 Do's and don'ts

- Do not turn on or operate the dryer if there is a leak.
- Make sure that the dryer's protection rating matches the conditions at your installation
- Verify that the voltage of the power supply matches the voltage marked on the data label
- Do not operate the dryer at pressures above the maximum allowable limits marked on the data label. This label is found on the leg of the dryer

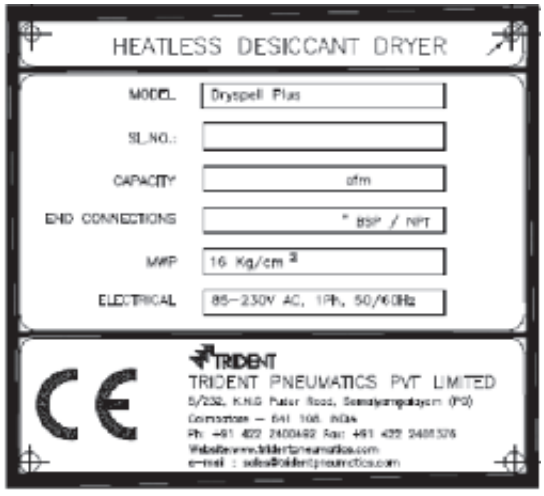


Figure 7. Name plate of Dryspell Plus dryer

7.2 Turning the dryer on

Always pressurise the dryer before powering it up:

- Make sure that the power supply to the dryer is turned off
- Open the bypass valve and close the outlet valve
- Open the inlet valve and pressurise the dryer
- Open the outlet and close the bypass valve
- Turn on the power to the dryer

7.3 Running

The LEDs on the control panel light up as shown in the accompanying table.

Lighting sequence of LEDs on control panel during a 4-minute cycle

Stage of cycle	Tower 1		Tower 2	
	D	R	D	R
I (90 seconds)	On	Off	Off	On
II (30 seconds)	On	Off	Off	Blinks
III (90 seconds)	Off	On	On	Off
IV (30 seconds)	Off	Blinks	On	Off

⚠ Caution: Each time that a regeneration tower depressurises, a loud noise is produced. This occurs every 2 minutes.

In dryer models with pre-filters and electronic auto-drains, every 4 minutes, the valve at the bottom of the pre-filter opens automatically and discharges condensate for 4 seconds.

The cycle times are fixed and cannot be adjusted by the user.

7.4 Shutting down

Follow this procedure when shutting the dryer down:

- Open the bypass valve.
- Close the inlet valve.
- Close the outlet valve.
- Turn off power to the dryer.

Section 8

Maintenance

⚠ **Warning:** Only experienced and licensed electricians who are trained to handle compressed air systems should service or repair Trident products.

Adsorption dryers are robust, reliable machines. To ensure uninterrupted, problem-free operation, perform the inspections described in the following sections at the specified intervals.

In this section, the item codes of the various parts of the dryer are marked on the respective illustrations. Refer to the list of spares (Section 11. Recommended parts and consumables) in this manual for details. Cite the item codes when obtaining spares.

Before starting up or performing any maintenance on any Trident air dryer, filter, drain system or other equipment, you must first turn off and disconnect the electrical power supply to the equipment at the main switch. Also, be sure to bypass and depressurise the dryer to 0 psi g.

8.1 Monthly inspections

- Verify that the drying-and-regeneration cycle is normal (as described in the section 'Running' in the chapter 'Operation'. If it is found that the operating cycle is not normal, use the troubleshooting section of this manual (Section 10. Troubleshooting) to address the problem
- Verify that the silencers are not clogged. There will be no air flow through a silencer that is clogged. A clogged silencer must be replaced with a new silencer. The silencer may be removed by unscrewing it. Fit the new silencer on the exhaust valve and tighten it

8.2 Semi-annual inspections

- Verify that the dryer is cycling normally
- Verify that the silencers are not clogged.
- Replace clogged silencers with new silencers as described under 'Monthly inspections'Replace the filter elements of the filters

8.3 Annual inspections

- Verify that the dryer is cycling normally as described in this manual.
- Verify that the silencers are not clogged. If any silencer is clogged, replace it with a new silencer.
- Replace the filter elements of the filters.
- nspect and determine the state of the desiccant. If the desiccant is brown (this indicates oil pollution) or if there is a lot of dust in the desiccant (this condition is caused by disintegration of the desiccant), then change the desiccant (see following section).
- Replace the O-rings of the top and bottom blocks.

Note: The compressor and the dryer must be shut down when the state of the desiccant and the state of the O-rings are inspected. It is recommended that all personnel present wear dust masks when desiccant is replaced.

8.4 Replacing the desiccant

In models 10, 20 and 30, the towers must be filled directly with desiccant. In all other models, desiccant bags must be used. The graphic here explains which procedure applies to your model, the item code to be cited when ordering the desiccant and the quantity required.

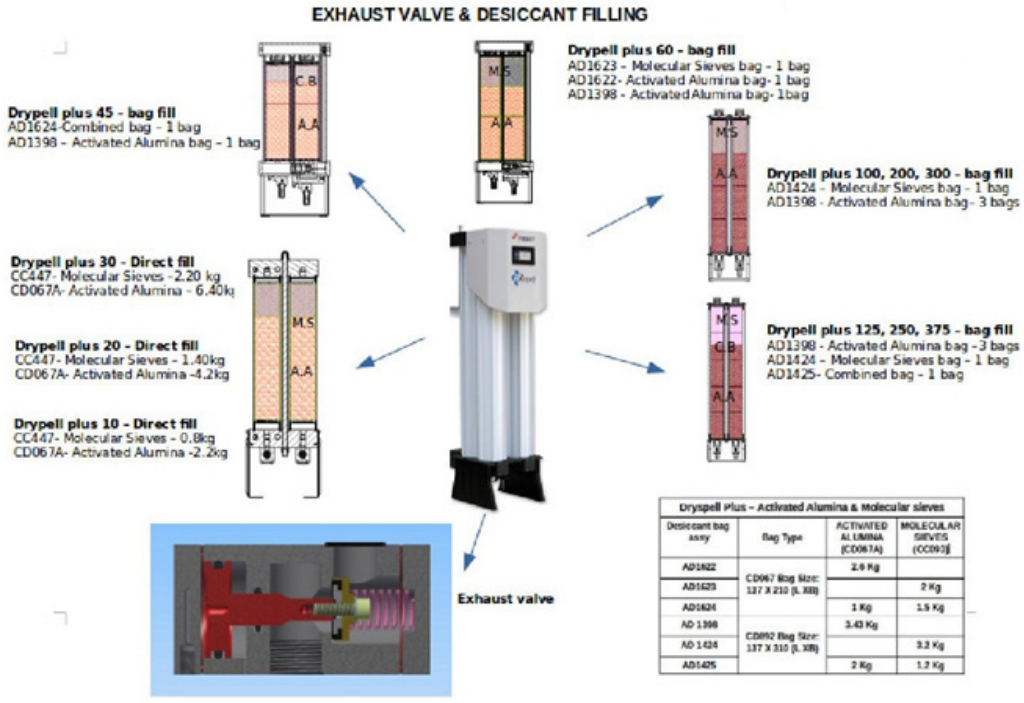


Figure 8. Changing the desiccant in the Dryspell Plus range of models-types of filling, item codes and quantities of desiccant required

8.5 Service procedures

The procedures to be followed for servicing/replacement of sub-assemblies in Dryspell Plus dryers are described in this section. Servicing/replacement must be carried out when there is failure of the respective parts and if found necessary during the monthly, semi-annual and annual inspections.

8.5.1 Dryspell Plus model 10

DRYSPELL PLUS 10
Drw. No.PD237

PARTS LIST

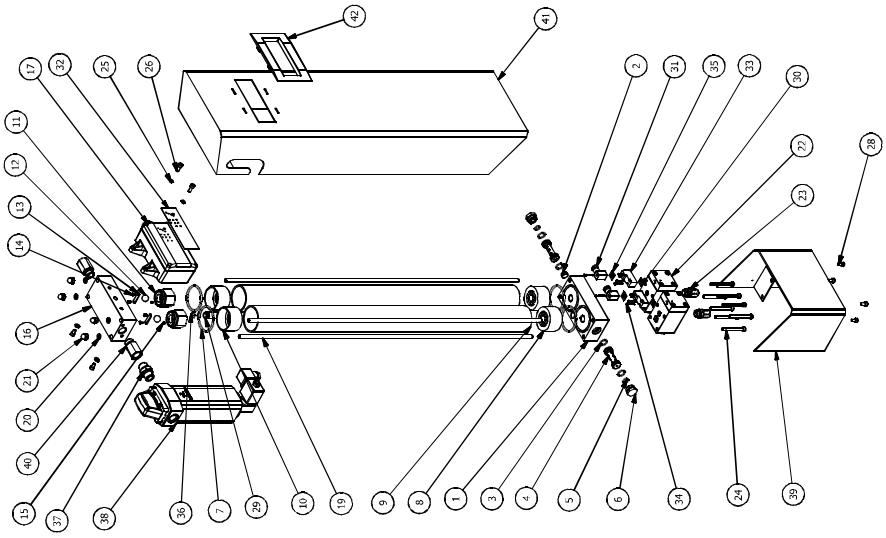
ITEM	PART NUMBER	PART NUMBER	QTY
1	CD961	BOTTOM BLOCK	1
2	AD261A	SHUTTLE	1
3	CD078	CHAMBER BOTTOM NOZZLE O-RING (15.4 X 2.21)	4
4	CD656	CHAMBER BOTTOM NOZZLE	2
5	CD067	CHAMBER BASE PLUG O-RING (10 X 2.62)	2
6	CD005	CHAMBER BASE PLUG	2
7	CD017	TOWER SEAL (O-RING 55.4 X 4)	4
8	AD221	DIFFUSER SCREEN	2
9	AD1430	TOWER PIPE (DRYSPELL 10+10)	2
10	AD827	TOP NYLON DIFFUSER	2
11	CD156	DIFFUSER CONNECTION	2
12	AD259	RUBBER BALL	2
13	CD658	NRV PLATE	2
14	CP170	CHEESE HEAD SCREW M3 X 6	4
15	CD073	NOZZLE	2
16	CD692	TOP BLOCK	1
17	AD1348	CONTROLLER UL (MODEL DS31-90)	1
19	AD285	TIE ROD	4
20	CF011	SPRING WASHER M8	4
21	CD657	DOOM NUT	4
22	AD1520	EXHAUST VALVE ASSEMBLY	2

PARTS LIST

ITEM	PART NUMBER	PART NUMBER	QTY
23	AD046	MUFFLER	2
24	CF200	SOCKET HEAD CAP SCREW M6 X 60	8
25	CH090	SPRING WASHER M6	2
26	CF201	SOCKET HEAD CAP SCREW M6 X 16	2
28	CF202	SOCKET HEAD CAP SCREW M6 X 10	6
29	AD1429	INLET AIR TRANSFER TUBE	1
30	AS079A	SOLENOID VALVE GASKET PAD	2
31	CE417	DIN CONNECTOR	2
32	CP276	DISPLY STICKER	1
33	AS079	SOLENOID VALVE	2
34	CH193	CHEESE HEAD SCREW M3 X 20	4
35	CE417A	DIN CONNECTOR GASKET	2
36	CD077	INLET AIR TRANSFER TUBE O-RING (10.6 X 1.83)	4
37	CC043	CONNECTOR 1/2" BSP (M) x 1/2" BSP (M)	1
38	PF149B	CLEANSWEEP T100Y EA	1
39	AD1495	COVER BOTTOM DRYSPELL PLUS 10	1
40	AD1494	CONNECTOR IN & OUT	2
41	AD1496	COVER TOP DRYSPELL PLUS 10	1
42	AD1500	BEZZEL DRYSPELL PLUS	1
43	CF262	PLATE WASHER M6	2

SPARE KIT

4	AS701	FILTER ELEMENT ASSEMBLY T100Y	CD201	O-RING (62 X 2.4)	2
			CD944	SEAL RUBBER	1
			AG151	FILTER ELEMENT T100Y	1
3	SK278A	SEAL KIT WITH DESICCANT DRYSPELL PLUS 10	SK210A	SEALS AND O-RING SPARE KIT DPS-10	1
			AD827	TOP DIFFUSER SCREEN	2
			DP 072 S-1	DIFFUSER SCREEN	2
2	SK 220 A	EXHAUST VALVE SPARE KIT DPS-10	CD067A	ACTIVATED ALUMINA	2.2 KGS
			CC417	MOLECULAR SIEVES	0.8 KGS
			CD009	PLUG O-RING (31.6 X 2.4)	2
			CD074	SEALING O-RING-1 (6.02 X 2.62)	2
			CD087	SEALING O-RING-2 (10 X 2.62)	2
			CD067	PISTON O-RING-2 (10 X 2.62)	2
			CD002	PISTON O-RING-1 (28.17 X 3.53)	2
			AD745	POPPET ASSY	2
			AD548	SPRING COMP.	2
1	SK210A	SEALS AND O-RING SPARE KIT DPS-10	AG012	GASKET NON-METAL	2
			AD259	RUBBER BALL	2
			SK210A-3	INLET AIR TRANSFER TUBE O-RING (10.6 X 1.83)	4
			SK210A-1	CHAMBER BASE PLUG O-RING (10.0 X 2.62)	2
			SK210A-2	CHAMBER BOTTOM NOZZLE O-RING (15.4 X 2.21)	4
			SK212A-4	TOWE SEAL (O-RING 55.4 X 4)	4
			SK212A-3	SHUTTLE	1
ITEM	PART NUMBER	DESCRIPTION	SPARE KIT CONSISTING OF		



8.5.1.1 Changing the desiccant

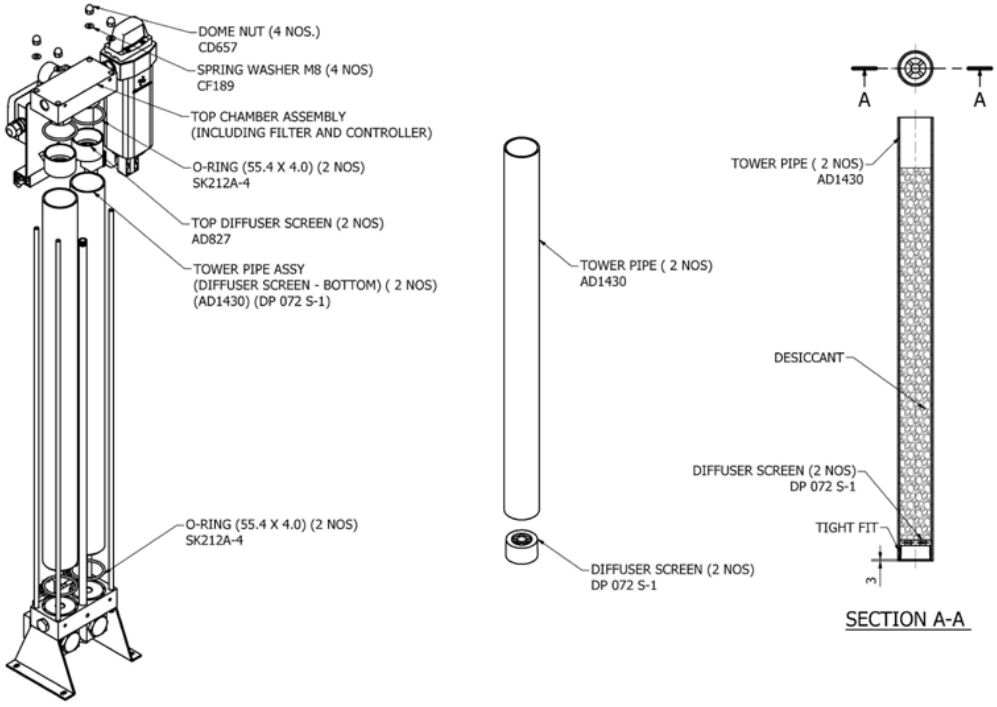


Figure 9. Changing desiccant-Dryspell Plus model 10

- Using a screwdriver, disconnect the controller wire from the exhaust solenoid valve and prefilter solenoid valve
- Remove the dome nuts and M8 washers
- Remove the top chamber with the filter and controller
- Discard the O-ring (55.4 mm * 4 mm)
- Discard the top diffuser screens (two)
- Remove the tower assembly. (The bottom screen fits tightly in the bottom assembly)
- Discard the O-ring (55.4 mm * 4 mm).
- Detach the bottom diffusers by pushing them using the rod passing through the tower. Discard the bottom diffusers.
- Empty the desiccant in the tower.
- Fill the desiccant tower with Activated alumina CD067A and then Molecular sieves CC447
- Replace the discarded parts with corresponding new components. Reassemble all the parts. Tighten the screws and dome nuts

8.5.1.2 Servicing the bottom shuttle

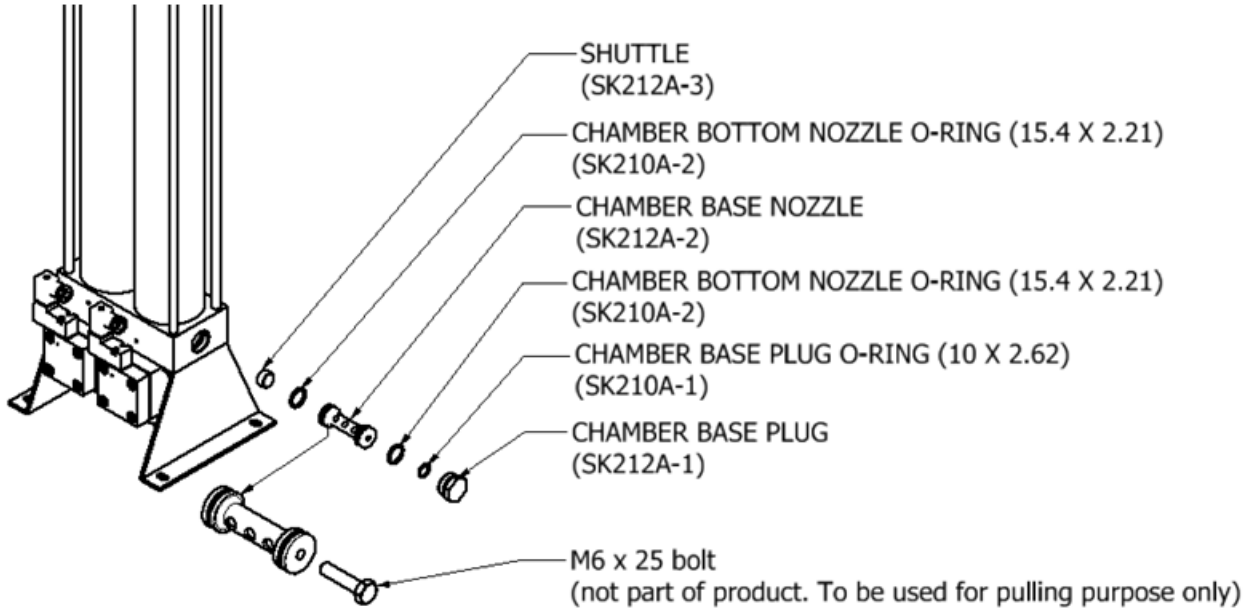


Figure 10. Exploded view of bottom shuttle of Dryspell Plus 10

- Remove the chamber base plug (use spanner no. 21)
- Remove the chamber base plug O-ring (10 mm * 2.62 mm). Discard the ring
- Replace it with a new O-ring (10 mm * 2.62 mm)
- Pull out the chamber base nozzle using an M6 * 25 bolt
- Remove the nozzle O-rings (15.4 mm * 2.21 mm, two) and discard them
- Clean the chamber base nozzle and replace the two O-rings (15.4 mm * 2.21 mm, two)
- Remove the shuttle and discard it
- Replace it with a new shuttle
- Coat the nozzle and all the O-rings with food-grade grease
- Fasten an M6 * 25 bolt in the chamber base nozzle and draw the bolt out
- Secure the chamber base plug with O-rings (15.4 mm * 2.21 mm and 10 mm * 2.62 mm)

8.5.1.3 Servicing the exhaust valve

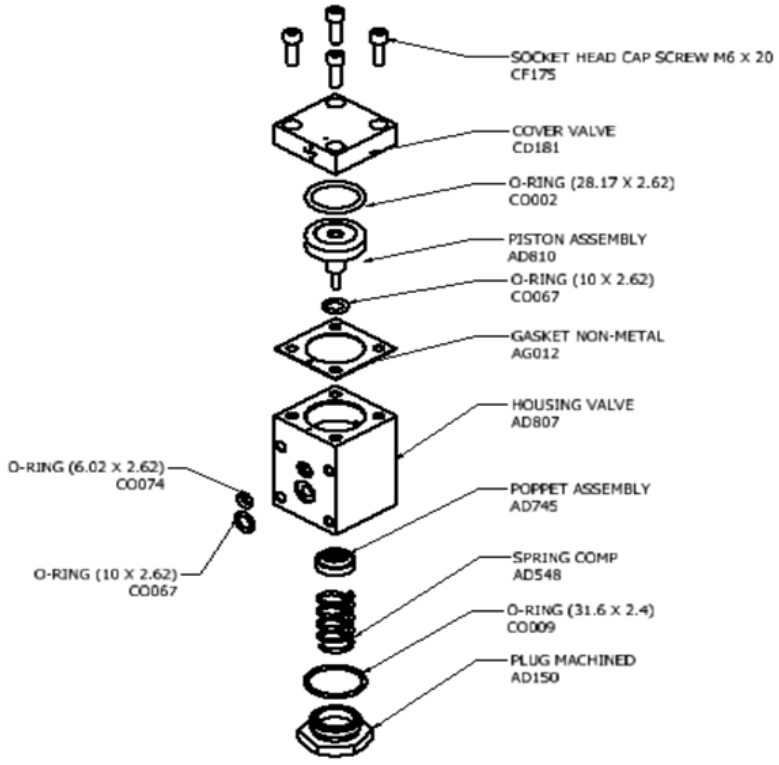


Figure 11. Exploded view of exhaust valve of Dryspell Plus model 10

- Using a no. 38 spanner, remove the plug at the bottom of the assembly. Clean the plug
- Discard the O-ring (31.6 mm * 2.4 mm)
- Discard the spring and poppet assembly
- Using a 5 mm Allen key, remove the four socket head cap screws
- Remove the top cover
- Discard the gasket
- Push the piston assembly from below
- Discard the piston O-ring (28.17 mm * 2.62 mm)
- Clean the piston and install a new O-ring (28.17 mm * 2.62 mm)
- Discard the O-ring (10 mm * 2.62 mm) inside the valve body
- Coat the piston and O-ring with food- grade grease
- Reassemble the parts, replacing the discarded components with new spares
- The vent hole in the cover should be aligned with the vent hole in the housing

8.5.1.4 Servicing the non-return valve

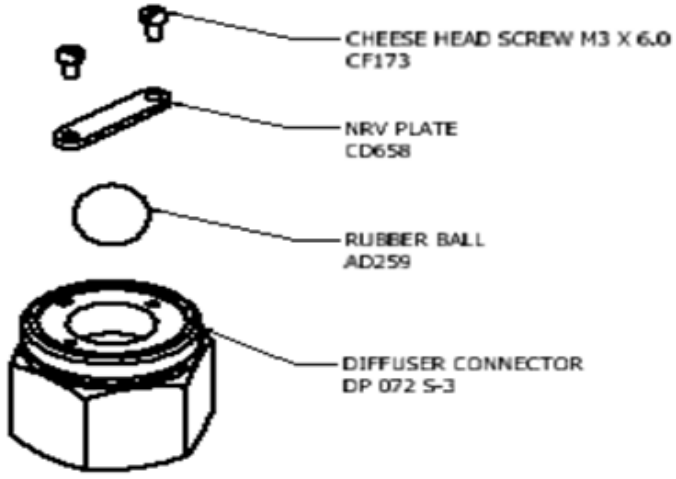


Figure 12. Exploded view of non-return valve

- Using a no. 38 spanner, remove the two M3 * 6.0 cheese head screws
- Clean the NRV plate
- Replace the rubber ball with a new one
- Clean the diffuser connector and re-install it
- Re-install the NRV plate and fasten the cheese head screws

8.5.1.5 Changing the inlet tube

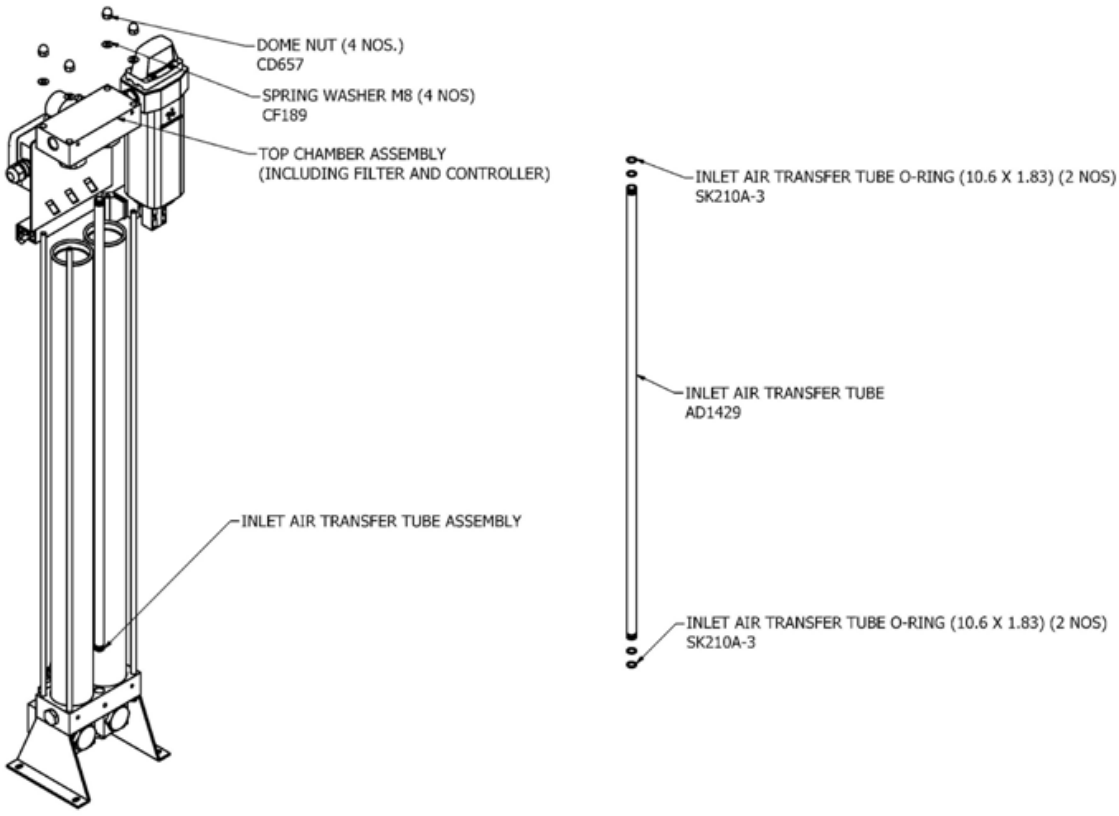


Figure 13. Views showing inlet air tube and associated components-
Dryspell Plus model 10

- Using a screwdriver, disconnect the controller wire from the exhaust solenoid valve and prefilter solenoid valve
- Remove the dome nuts and spring washers
- Remove the top block
- Discard the inlet air transfer tube
- Discard the O-rings (10.6 mm * 1.83 mm)
- Replace the inlet transfer tube with a new one
- Fix the inlet tube on the bottom block with new O-rings
- Replace the top block
- Complete the reassembly with the spring washers and dome nuts

8.5.2 Dryspell Plus models 20 and 30

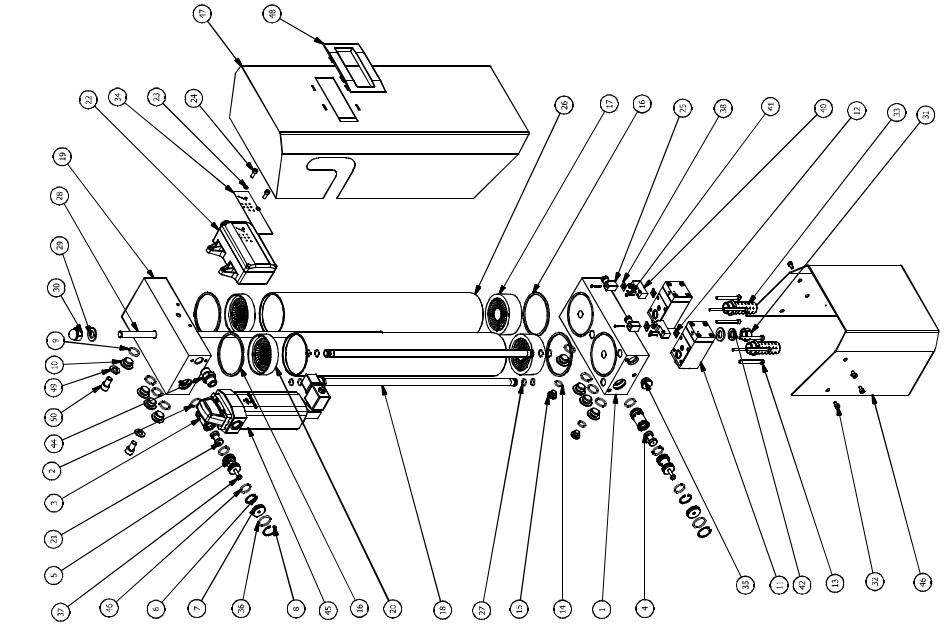
DRYSPELL PLUS 20, 30
Drw. No.PD238, PD239

PARTS LIST

ITEM	PART NUMBER	DESCRIPTION	QTY
1	CD066	BOTTOM BLOCK	1
2	CD066	SHUTTLE GUIDE-RING (21.82 x 3.0)	2
3	CD315	GUIDE BUSH	2
4	A0261	ROTOR SHUTTLE	1
5	CD117	GUIDE BUSH	2
6	CD208	GUIDE BUSH CIRCLIP	2
7	CD956	END BUSH	2
8	CD307	END BUSH CIRCLIP	2
9	CD062	PLUG MACHINED O-RING (21.5 x 3.0)	8
10	A0243	PLUG MACHINED	9
11	A0144	EXHAUST VALVE ASSEMBLY	2
12	A3079A	SOLENOID VALVE GASKET PAD	2
13	CF075	SOCKET HEAD CAP SCREW M6 x 60	8
14	CD063	PLUG MACHINED O-RING -2 (13.5 x 3.0)	2
15	A0195	PLUG MACHINED -2	2
16	CD107	TOWER GASKET	4
17	A0222	DIFFUSER SCREEN	2
18	A01445	INLET AIR TRANSFER TUBE DRYSPELL PLUS 30 (OR)	2
	A01434	INLET AIR TRANSFER TUBE DRYSPELL PLUS 20	
19	CD959	TOP BLOCK	1
20	A0628	NYLON DIFFUSER TOP	2
21	A0785	TOP SHUTTLE - DRYSPELL PLUS 30 (OR)	1
	A0784	TOP SHUTTLE - DRYSPELL PLUS 20	
22	A02348	CAM ROLLER BOX ASSY LL	1
23	CF013	SPRING WASHER M6	2
24	CF015	SOCKET HEAD CAP SCREW M6 X 16	2
25	CF417	DIN CONNECTOR	2
26	A01446	TOWER PIPE DRYSPELL PLUS 30 (OR)	2
	A01436	TOWER PIPE DRYSPELL PLUS 20	
27	CD064	O-RING (13 x 2.0)	2
28	A01433	TIE ROD DRYSPELL PLUS 20	1
29	CD114	WASHER	2
30	CD113	DOOM NUT	1
31	CD108	NUT MACHINED	1
32	CF021	SOCKET HEAD CAP SCREW (M6 x 10)	6
33	A0615	MUFFLER	2
34	CF276	DISPLAY STICKER	1
35	A0241	PLUG MACHINED	1
36	CD065	END BUSH O-RING (26.5 x 3.0)	2
37	CF029	HEX SCREW (M6 x 35)	2
38	CE417A	DIN CONNECTOR GASKET	2
39	CF194	STAR HEAD SCREW M3 x 25	2
40	A3079	SOLENOID VALVE 24V DC	2
41	CF193	CHEESE HEAD SCREW M3 x 20	4
42	CF038	SPRING WASHER M16	1
43	CD066	GUIDE BUSH O-RING (21.82 X 3.0)	4
44	CC093	CONNECTOR 1/2" BSP (M) x 1/2" BSP (M)	1
45	PF1498	CLEANSWEEP 1100 TEA	1
46	A01497	COVER BOTTOM DRYSPELL PLUS 20 & 30	1
47	A01498	COVER TOP DRYSPELL PLUS 20	1
48	A01500	COVER DRYSPELL PLUS	1
49	CF130	WASHER M12	2
50	CF318	SOC. HD. CAP SCREW M12 X 20	2

SPARE KIT

ITEM	PART NUMBER	DESCRIPTION		QTY
4	A5701	FILTER ELEMENT ASSEMBLY 100Y	CD101	O-RING (60 X 2.4)	2
			CD044	SEAL RUBBER	1
			AC151	FILTER ELEMENT 100Y	1
3	SK280A	DESICCANT WITH SEAL KIT - DRYSPELL PLUS 30	SK282A	SEALS AND O-RING SPARE KIT - DRYSPELL PLUS 30 (OR)	1
	SK279A	DESICCANT WITH SEAL KIT - DRYSPELL PLUS 20	SK281A	SEALS AND O-RING SPARE KIT - DRYSPELL PLUS 20	
			A0808	TOP DIFFUSER SCREEN	2
			DP 005 S	DIFFUSER SCREEN	2
	CD567A	ACTIVATED ALUMINA - DRYSPELL PLUS 30 (OR)			6.4 kgs
		ACTIVATED ALUMINA - DRYSPELL PLUS 20			4.2 kgs
	CC447	MOLECULAR SIEVES - DRYSPELL PLUS 30			2.2 kgs
		MOLECULAR SIEVES - DRYSPELL PLUS 20			1.4 kgs
2	SK 222 A	EXHAUST VALVE SPARE KIT DPS-20, 30 & 45	CD002	PISTON O-RING-2 (28.17 X 3.53)	2
			CD067	PISTON O-RING -1 (10 X 2.62)	2
			CD009	PLUG O-RING (31.6 X 2.4)	2
			A0745	POPPET ASSY	2
			A0548	SPRING COMP.	2
			CD116	GASKET RUBBER	2
			AG012	GASKET	2
1	SK282A	SEALS AND O-RING SPARE KIT - DRYSPELL PLUS 30	CD064	O-RING-2 (13.0 x 2.0)	8
	SK281A	SEALS AND O-RING SPARE KIT - DRYSPELL PLUS 20	SK211A-9	PLUG MACHINED O-RING-2 (13.5 x 3.0)	2
			SK211A-12	PLUG MACHINED O-RING (21.5 X 3.0)	8
			SK211A-8	SHUTTLE GUIDE O-RING (21.82 X 3.0)	2
			SK211A-15	END BUSH O-RING (26.5 x 3.0)	2
			SK211A-4	GUIDE BUSH O-RING (21.99 x 3.0)	4
			SK211A-1	END BUSH CIRCLIP	2
			SK211A-3	GUIDE BUSH CIRCLIP	2
			SK215A-2	TOWER GASKET	4
			SK257A	BOTTOM SHUTTLE	1
			SK256A	TOP SHUTTLE - DRYSPELL PLUS 30 (OR)	1
			SK256A	TOP SHUTTLE - DRYSPELL PLUS 20	
				SPARE KIT CONSISTING OF	



8.5.2.1 Changing the desiccant

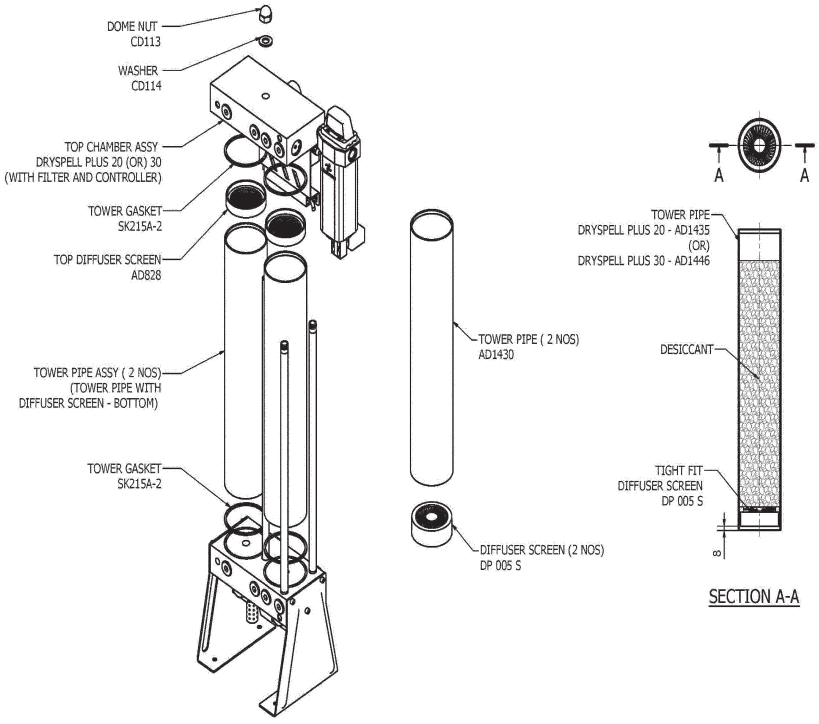


Figure 14. Changing desiccant-Dryspell Plus models 20 and 30

- Remove the dome nut and washer
- Remove the top chamber with the filter and controller
- Discard the tower gaskets (top)
- Remove the top diffuser screens
- Remove the tower pipe assembly (The bottom screen fits tightly in the bottom.)
- Discard the tower gaskets (bottom)
- Remove the old dessicant from the tower
- Using the rods passing through the towers, push the bottom diffusers to detach them from the towers
- Fill the desiccant tower with Activated alumina CD067A and then Molecular sieves CC447. Fix new top diffusers
- Reassemble the towers in the bottom chamber. Replace the discarded components with corresponding new parts. Reassemble the top chamber and fasten with the dome nut

8.5.2.2 Servicing the bottom shuttle

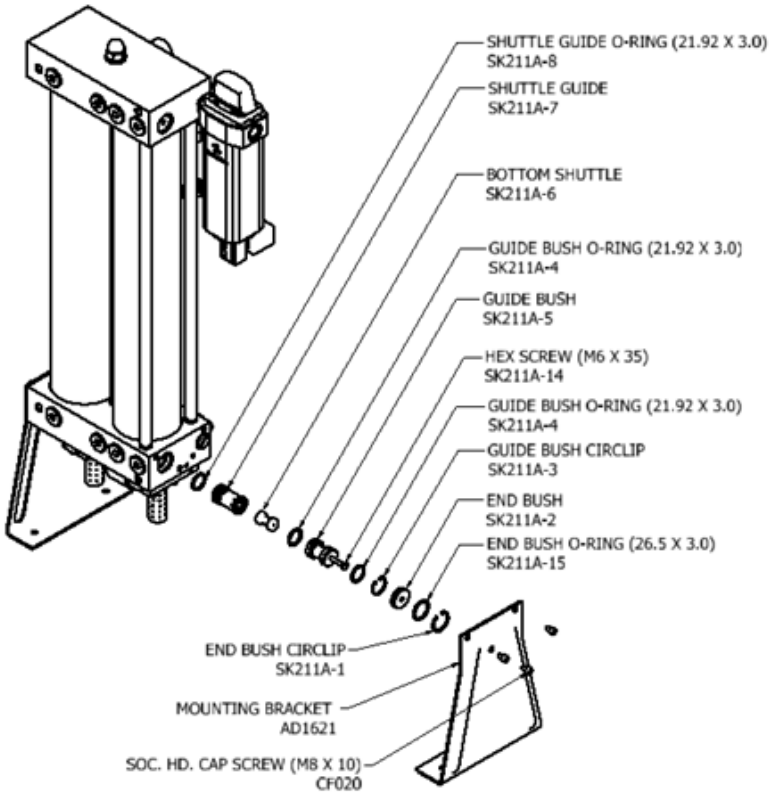


Figure 15. Exploded view of bottom shuttle-Dryspell Plus models 20 and 30

- Unscrew the socket head cap screw (M8) and remove the mounting bracket of the dryer
- Remove the circlip on the end bush and discard it
- Remove the O-ring (26.5 mm * 3 mm) and discard it
- Remove the end bush
- Discard the circlip on the guide bush
- Remove the hex screw assembly
- Remove the guide bush. Discard the O-ring (21.92 mm * 3 mm)
- Remove the shuttle and discard it
- Remove the shuttle guide and clean it. Discard the O-ring (21.92 mm * 3 mm)
- Apply grease on the various parts
- Reassemble the parts of the assembly, replacing the discarded parts with new components

8.5.2.3 Servicing the exhaust valve

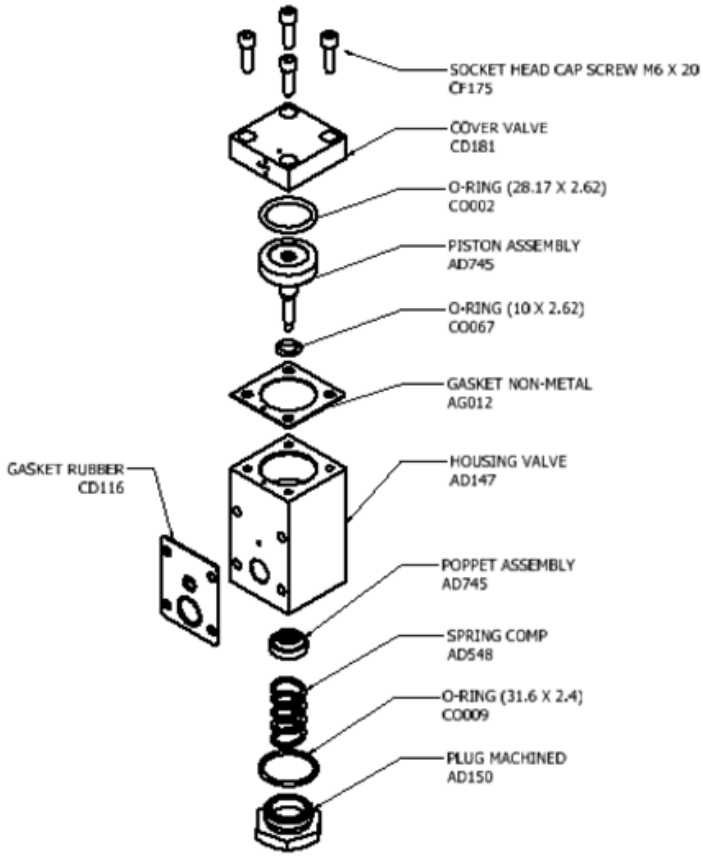


Figure 16. Exploded view of exhaust valve- Dryspell Plus models 20 and 30

- Using a no. 38 spanner, remove the plug. Clean the plug
- Discard the O-ring (31.6 mm * 2.4 mm)
- Discard the spring and poppet assembly
- Using a 5 mm Allen key, unscrew the four socket head cap screws holding the valve assembly together
- Remove the top cover
- Discard the gaskets (AG012 and CD116)
- Push the piston assembly from below
- Clean the piston. Apply food-grade grease on the piston
- Discard the piston O-ring (28.17 mm * 2.62 mm)
- Discard the O-ring (10 mm * 2.62 mm) inside the valve body
- Replace the discarded components with new spares. Coat the piston O-ring with food-grade grease
- Reassemble the exhaust valve

8.5.2.4 Servicing the top shuttle

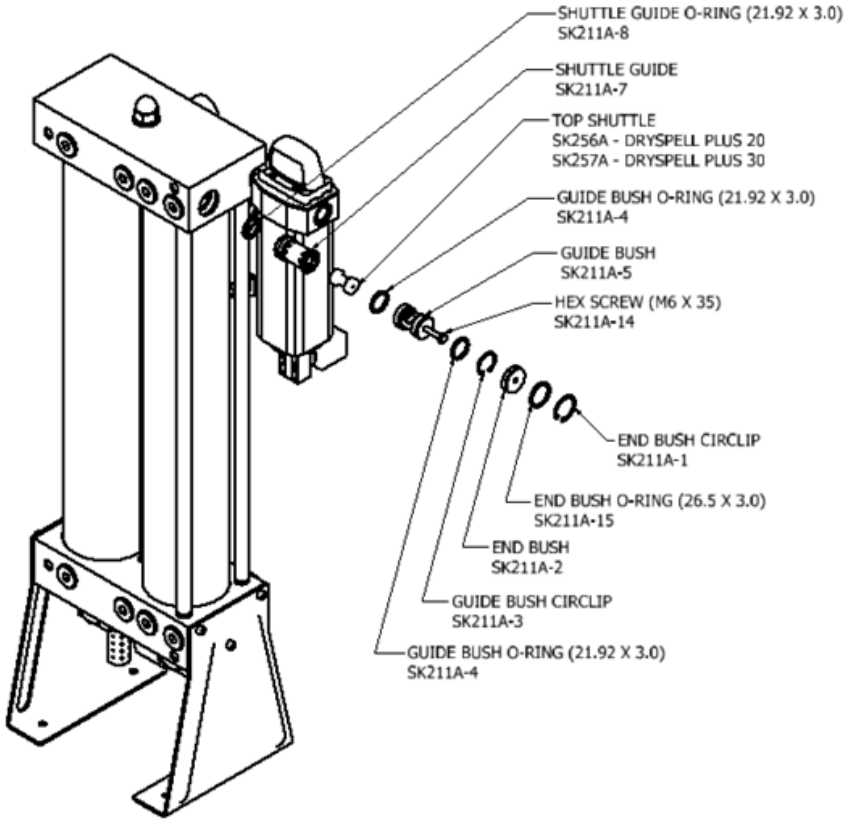


Figure 17. Exploded view to illustrate servicing of top shuttle in Dryspell Plus models 20 and 30

- Using circlip pliers, remove the end bus circlip. Discard the circlip
- Discard the end bush O-ring
- Remove the end bush using an M6 screw
- Discard the guide bush circlip
- Draw the hex screw assembly using an M6 * 25 bolt
- Remove the guide bush and guide bush O-ring (21.92 mm * 3 mm). Discard the O-ring
- Remove the shuttle guide O-ring
- Discard the top shuttle
- Clean and replace the shuttle guide with a new O-ring (21.92 mm * 3 mm)
- Reassemble the parts. Use new parts in place of the discarded components

8.5.2.5 Changing the inlet tube

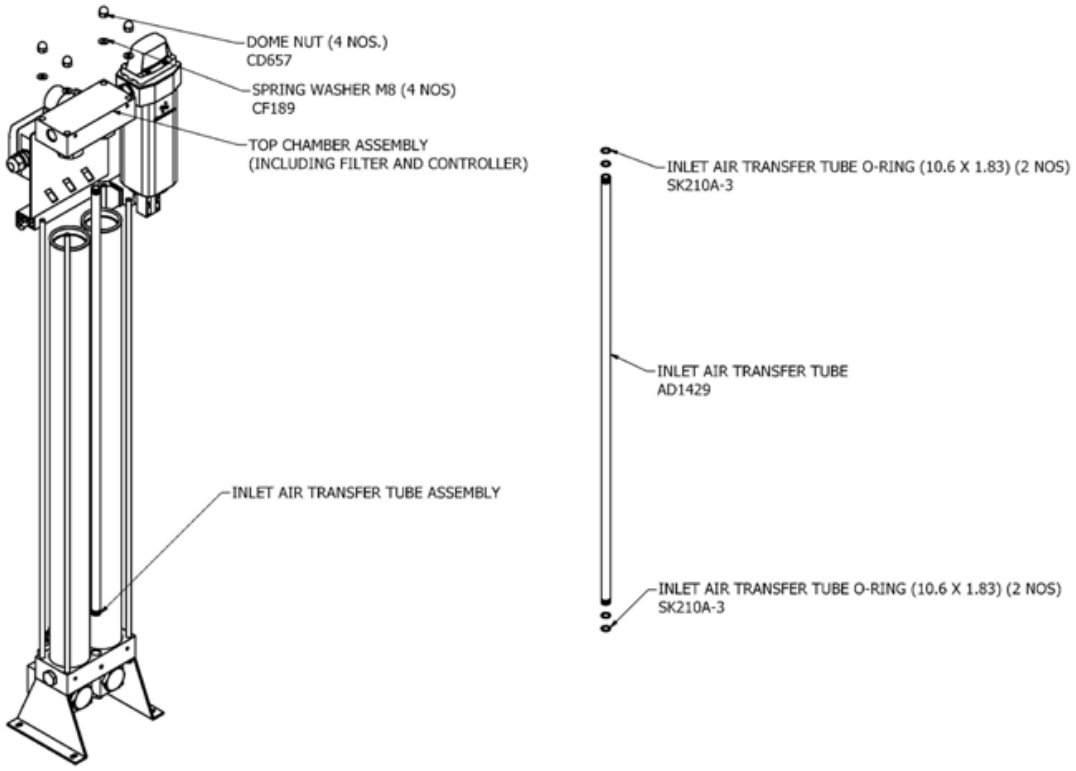
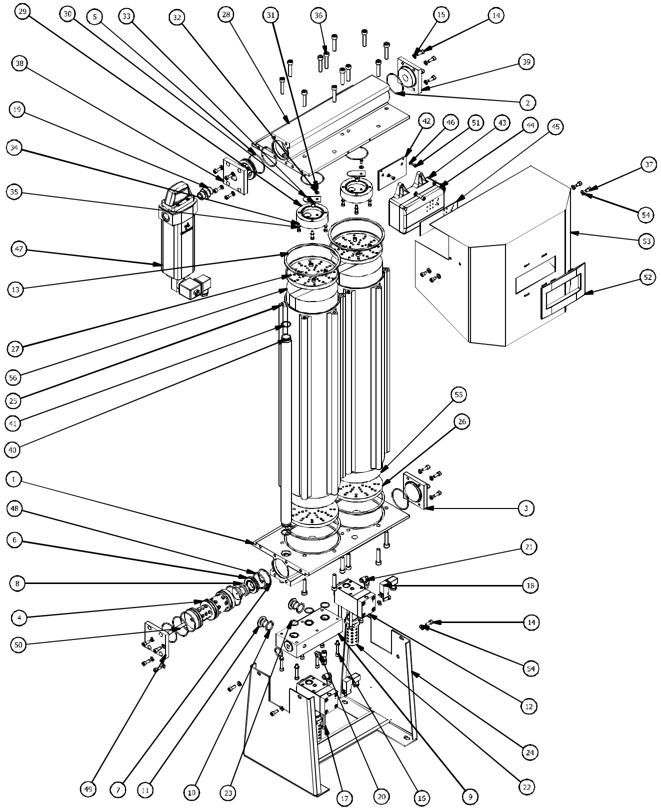


Figure 18. Exploded view of Dryspell Plus models 20 and 30

- Unfasten the dome nuts, and remove the washers
- Remove the top block with the filter and controller
- Discard the inlet air transfer tube
- Discard the O-rings (10.6 * 1.83)
- Fix a new inlet air transfer tube on the bottom block with new O-rings
- Fix the top block
- Fasten the dome nuts with the washers

8.5.3 Dryspell Plus models 45 and 60

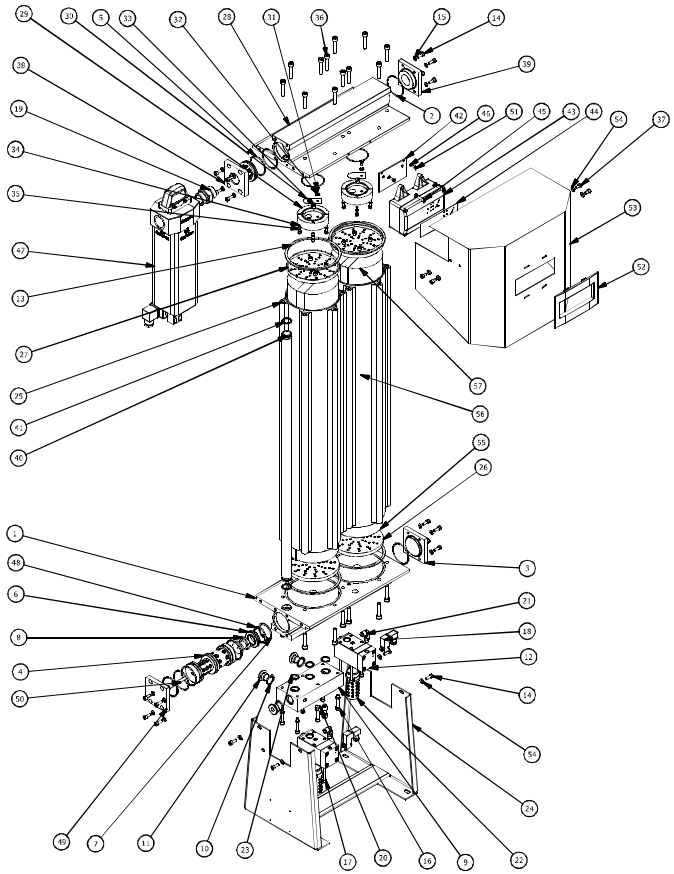


DRYSPELL PLUS 45 EXPLODED VIEW
Drw. No.PD240

PARTS LIST				PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION				DESCRIPTION
1	1	AD1452	BOTTOM BLOCK DRYSPELL PLUS 45 & 60	29	2	AD1473	NRV HOUSING
2	4	CO187	O-RING (56 X 2.0)	30	2	AD1474	NRV PLATE
3	1	AD1075	END COVER	31	2	CF315	SOC. HD. CAP SCREW M5 X 8 (SS)
4	1	AD1463	SHUTTLE GUIDE DRYSPELL PLUS 45 & 60	32	2	CF269	PLATE WASHER M5
5	6	CO202	O-RING (51.6 x 2.4)	33	2	AD1475	PURGE ORIFICE DRYSPELL PLUS 45
6	1	AD914	SHUTTLE CLOSER	34	8	CF104	SOC. HD. CAP SCREW M5 x 20 (SS)
7	1	CC146	CIRCLIP B-45	35	8	CF283	SPRING WASHER M5 (SS)
8	1	CD662	SHUTTLE INLET	36	24	CF141	SOC. HD. CAP SCREW M8 X 40 (SS)
9	1	AD1466	TRANSFER BED DRYSPELL PLUS 45 & 60	37	4	CF202	SOC. HD. CAP SCREW M6 x 10 (SS)
10	3	CO062	O-RING (31.5 x 3.0)	38	1	AD1489	END COVER INLET DRYSPELL PLUS 45 - BSP
11	3	AD243	PLUG MACHINED	39	1	AD1490	END COVER OUTLET DRYSPELL PLUS 45 - BSP
12	2	AD1467	EXHAUST VALVE ASSY DRYSPELL PLUS 45 & 60	40	1	AD1478	TRANSFER TUBE DRYSPELL PLUS 45
13	4	CD192	DRYING TOWER GASKET	41	2	CO047	O-RING (21.95 X 1.78)
14	20	CF201	SOC. HD. CAP SCREW M6 x 16 (SS)	42	1	AD1479	BRACKET MOUNTING CONTROLLER BOX
15	24	CF205	SPRING WASHER M6 (SS)	43	1	AD1348	CONTROLLER UL (MODEL DS31-90)
16	6	CF314	SOC. HD. CAP SCREW M6 x 40 (SS)	44	2	CF175	SOC. HD. CAP SCREW M6 x 20 (SS)
17	8	CF200	SOC. HD. CAP SCREW M6 x 60 (SS)	45	1	CP362	DISPLAY STICKER UL DS31-200
18	2	AS079	SOLENOID VALVE 24V DC	46	2	CF299	PLATE WASHER M4 (SS)
19	1	CC043	CONNECTOR 1/2" TO 1/2"	47	1	PF160	CLEAN SWEEP T100Y EA
20	1	AC013	ONE TOUCH TEE 1/8" MALE	48	1	CO079	O-RING 39.34 x 2.62
21	2	AC15	ONE TOUCH ELBOW 1/8" MALE	49	1	AD1486	END COVER BOTTOM -1 DRYSPELL PLUS 45 & 60
22	2	AD617	MUFFLER 1"	50	1	CF142	SOC. HD. CAP SCREW M8 x 65 (SS)
23	3	CO182	O-RING 20 X 1.5	51	2	CF223	SOC. HD. CAP SCREW M4 x 12 (SS)
24	1	AD1470	MOUNTING BRACKET ASSEMBLY	52	1	AD1500	BEZZEL DRYSPELL PLUS
25	2	AD1471	TOWER DRYSPELL PLUS 45	53	1	AD1501	TOP COVER DRYSPELL PLUS 45 & 60
26	2	AD641	BOTTOM DIFFUSER ASSY	54	8	CF320	PLATE WASHER M6 - SS
27	2	AD642	TOP COMPACTOR PLATE	55	2	AD1397	ACTIVATED ALUMINA BAG ASSY
28	1	AD1472	TOP BLOCK DRYSPELL PLUS 45 & 60	56	2	AD1624	DESICCANT + MOLECULAR SIEVES BAG ASSY DRYSPELL PLUS 45 & 60

SPARE KIT

ITEM	PART NUMBER	DESCRIPTION		SPARE KIT CONSISTING OF	
4	AS701	FILTER ELEMENT ASSEMBLY T100Y	CO201	O-RING (62 X 2.4)	2
			CD944	SEAL RUBBER	1
			AC151	FILTER ELEMENT T100Y	1
3	SK284A	SEAL KIT WITH DESICCANT - DRYSPELL PLUS 45	SK283A	SEALS AND O-RING SPARE KIT - DRYSPELL PLUS 45	1
			AD642	TOP COMPACTOR PLATE	2
			AD641	BOTTOM DIFFUSER	2
			AD1398	ACTIVATED ALUMINA BAG ASSY	2
			AD1624	ACTIVATED ALUMINA BAG + MOLECULAR SIEVES BAG ASSY DRYSPELL PLUS 45 & 60	2
2	SK222 A	EXHAUST VALVE SPARE KIT DPS-20, 30 & 45	CO002	PISTON O-RING-2 (28.17 X 3.53)	2
			CO067	PISTON O-RING -1 (10 X 2.62)	2
			CO009	PLUG O-RING (31.6 X 2.4)	2
			AD745	POPPET ASSY	2
			AD548	SPRING COMP.	2
			CD116	GASKET RUBBER	2
			AG012	GASKET	2
1	SK283A	SEALS AND O-RING SPARE KIT - DRYSPELL PLUS 45	CC146	CIRCLIP B-45	1
			AD1474	NRV PLATE	2
			CO182	O-RING (20 X 1.5)	3
			CO047	O-RING (21.95 X 1.78)	2
			CO079	O-RING (39.34 x 2.62)	1
			CO187	O-RING (56 X 2.0)	4
			CO062	O-RING (21.5 x 3.0)	3
			CO202	O-RING (51.6 x 2.4)	6
			AD1475	PURGE ORIFICE DRYSPELL PLUS 45	2
			CD192	DRYING TOWER GASKET	4
			CD662	SHUTTLE INLET	1



DRYSPELL PLUS 60 EXPLODED VIEW
Drw. No.PD241

PARTS LIST				PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AD1452	BOTTOM BLOCK DRYSPELL PLUS 45 & 60	29	2	AD1473	NRV HOUSING
2	4	CO187	O-RING (56 X 2.0)	30	2	AD1474	NRV PLATE
3	1	AD1075	END COVER	31	2	CF315	SOC. HD. CAP SCREW M5 X 8 (SS)
4	1	AD1463	SHUTTLE GUIDE DRYSPELL PLUS 45 & 60	32	2	CF269	PLATE WASHER M5
5	6	CO202	O-RING (51.6 x 2.4)	33	2	AD1482	PURGE ORIFICE DRYSPELL PLUS 60
6	1	AD914	SHUTTLE CLOSER	34	8	CF104	SOC. HD. CAP SCREW M5 x 20 (SS)
7	1	CC146	CIRCLIP B-45	35	8	CF283	SPRING WASHER M5 (SS)
8	1	CD662	SHUTTLE INLET	36	24	CF141	SOC. HD. CAP SCREW M8 X 40 (SS)
9	1	AD1466	TRANSFER BED DRYSPELL PLUS 45 & 60	37	4	CF202	SOC. HD. CAP SCREW M6 x 10 (SS)
10	3	CO062	O-RING (31.5 x 3.0)	38	1	AD1491	END COVER INLET DRYSPELL PLUS 60 - BSP
11	2	AD243	PLUG MACHINED	39	1	AD1492	END COVER OUTLET DRYSPELL PLUS 60 - BSP
12	2	AD1467	EXHAUST VALVE ASSY DRYSPELL PLUS 45 & 60	40	1	AD1485	TRANSFER TUBE DRYSPELL PLUS 60
13	4	CD192	DRYING TOWER GASKET	41	2	CO047	O-RING (21.95 X 1.78)
14	20	CF201	SOC. HD. CAP SCREW M6 x 16 (SS)	42	1	AD1479	BRACKET MOUNTING CONTROLLER BOX
15	24	CF205	SPRING WASHER M6 (SS)	43	1	AD1348	CONTROLLER UL (MODEL DS31-90)
16	6	CF314	SOC. HD. CAP SCREW M 6 x 40 (SS)	44	1	CP362	DISPLAY STICKER UL DS31-200
17	8	CF200	SOC. HD. CAP SCREW M 6 x 60 (SS)	45	2	CF175	SOC. HD. CAP SCREW M6 x 20 (SS)
18	2	AS079	SOLENOID VALVE 24V DC	46	2	CF299	PLATE WASHER M4 (SS)
19	1	CD019	CONNECTOR 1 BSP x 1 BSP	47	1	PP161	CLEANSWEEP T250Y EA
20	1	AC013	ONE TOUCH TEE 1/8" MALE	48	1	CO079	O-RING (39.34 x 2.62)
21	2	AC15	ONE TOUCH ELBOW 1/8" MALE	49	1	AD1486	END COVER BOTTOM -1 DRYSPELL PLUS 45 & 60
22	2	AD617	MUFFLER 1"	50	1	CF142	SOC. HD. CAP SCREW M8 x 65 (SS)
23	3	CO182	O-RING 20 X 1.5	51	2	CF223	SOC. HD. CAP SCREW M4 x 12 (SS)
24	1	AD1470	MOUNTING BRACKET ASSEMBLY	52	1	AD1500	BEZZEL DRYSPELL PLUS
25	2	AD1481	TOWER DRYSPELL PLUS 60	53	1	AD1501	TOP COVER DRYSPELL PLUS 45 & 60
26	2	AD641	BOTTOM DIFFUSER ASSY	54	8	CF320	PLATE WASHER M6 - SS
27	2	AD642	TOP COMPACTOR PLATE	55	2	AD1398	ACTIVATED ALUMINA BAG ASSY
28	1	AD1472	TOP BLOCK DRYSPELL PLUS 45 & 60	56	2	AD1622	ACTIVATED ALUMINA BAG ASSY DRYSPELL PLUS 45 & 60
				57	2	AD1623	MOLECULAR SIEVES BAG ASSY DRYSPELL PLUS 45 & 60

SPARE KIT

ITEM	PART NUMBER	DESCRIPTION			
4	AS693	FILTER ELEMENT ASSEMBLY T250Y	CO200	O-RING (78 X 3.0)	2
			CD943	SEAL RUBBER	1
			AC143	FILTER ELEMENT T250Y	1
3	SK286A	SEAL KIT WITH DESICCANT - DRYSPELL PLUS 60	SK285A	SEALS AND O-RING SPARE KIT - DRYSPELL PLUS 60	1
			AD642	TOP COMPACTOR PLATE	2
			AD641	BOTTOM DIFFUSER	2
			AD1398	ACTIVATED ALUMINA BAG ASSY	2
			AD1622	ACTIVATED ALUMINA BAG ASSY DRYSPELL PLUS 45 & 60	2
			AD1623	MOLECULAR SIEVES BAG ASSY DRYSPELL PLUS 45 & 60	2
2	SK222 A	EXHAUST VALVE SPARE KIT DPS-20, 30 & 45	CO002	PISTON O-RING-2 (28.17 X 3.53)	2
			CO067	PISTON O-RING -1 (10 X 2.62)	2
			CO009	PLUG O-RING (31.6 X 2.4)	2
			AD745	POPPET ASSY	2
			AD548	SPRING COMP.	2
			CD116	GASKET RUBBER	2
			AG012	GASKET	2
1	SK285A	SEALS AND O-RING SPARE KIT - DRYSPELL PLUS 60	CC146	CIRCLIP B-45	1
			AD1474	NRV PLATE	2
			CO182	O-RING (20 X 1.5)	3
			CO047	O-RING (21.95 X 1.78)	2
			CO079	O-RING (39.34 x 2.62)	1
			CO187	O-RING (56 X 2.0)	4
			CO062	O-RING (21.5 x 3.0)	3
			CO202	O-RING (51.6 x 2.4)	6
			AD1482	PURGE ORIFICE DRYSPELL PLUS 60	2
			CD192	DRYING TOWER GASKET	4
			CD662	SHUTTLE INLET	1
ITEM	PART NUMBER	DESCRIPTION		SPARE KIT CONSISTING OF	

8.5.3.1 Changing the desiccant

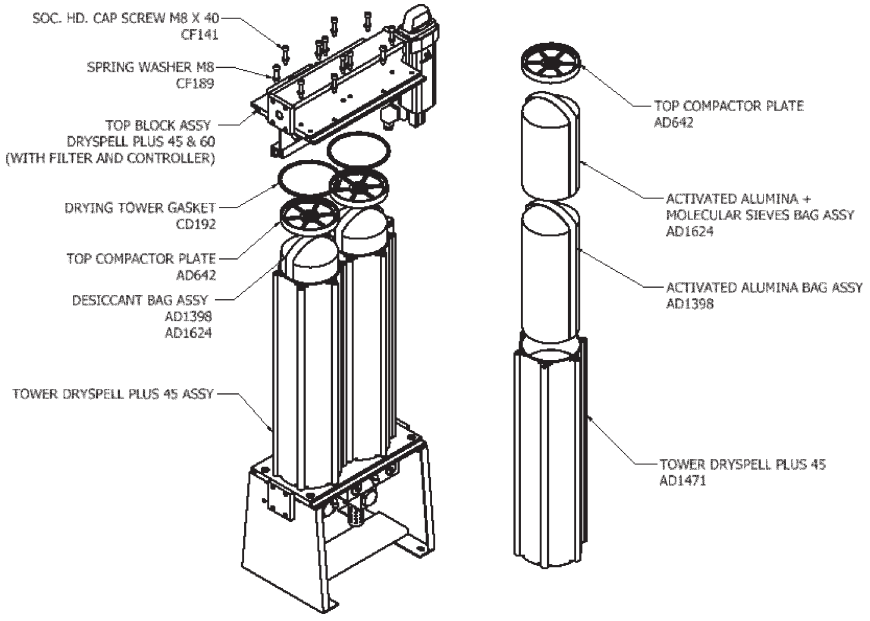


Figure 19. Changing desiccant-Dryspell Plus model 45

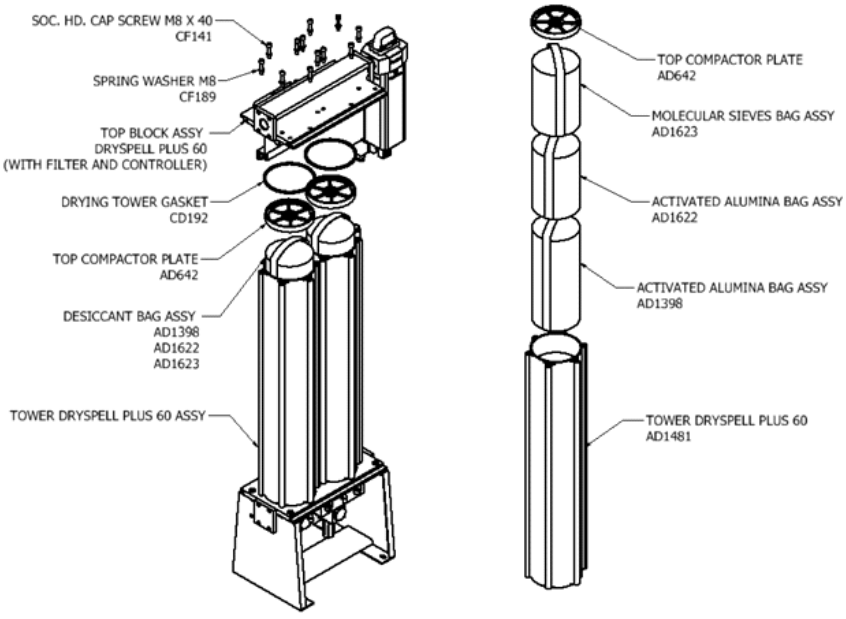


Figure 20. Changing desiccant-Dryspell Plus model 60

- Remove the socket head cap screws
- Remove the top chamber with the filter and controller
- Remove the top compactor plates (two)
- Remove the old desiccant bags
- Replace the drying tower gaskets and the bottom diffuser assemblies with new ones
- Fasten the towers in the bottom by tightening the screws
- Filling the Desiccant bag assembly :

Dryspell Plus model 45:

Fill the desiccant bag assembly firstly with a bag of Activated Alumina AD1398 followed by a bag of mixed Activated alumina and molecular sieves AD1624 as shown in the figure 19.

Dryspell Plus model 60:

Fill the desiccant bag assembly firstly with 2 bags of Activated Alumina AD1398, AD1622, lastly with a bag of Molecular sieves AD1623 as shown in the figure 20

- Reassemble the top compactor plates and the drying tower gaskets
- Fix the top chamber
- Fasten it by tightening the screws

8.5.3.2 Servicing the bottom shuttle

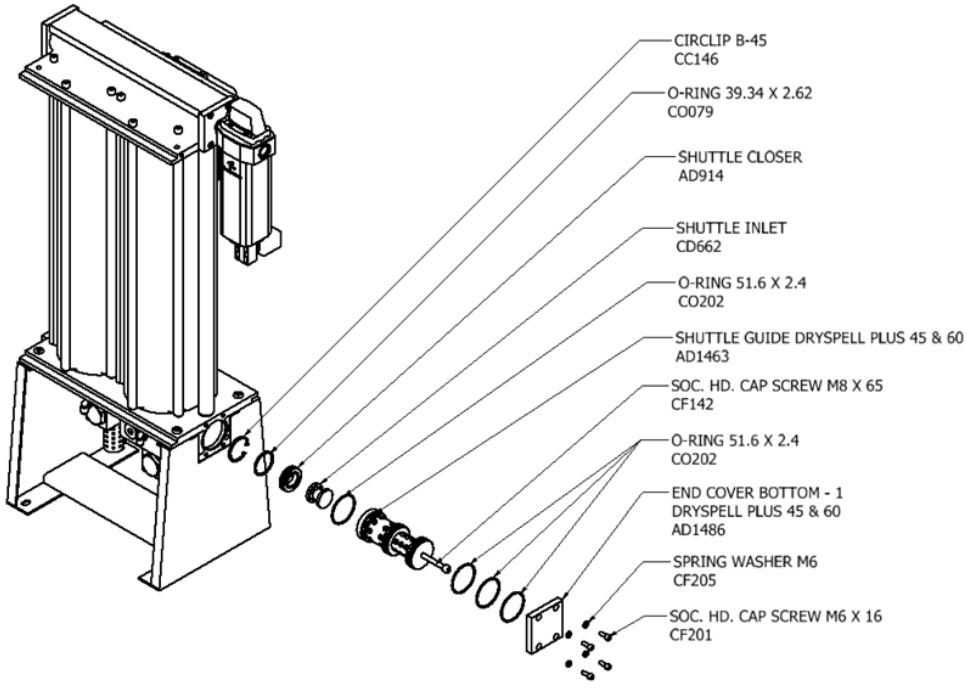


Figure 21. Exploded view of bottom shuttle-Dryspell Plus models 45 and 60

- Remove the socket head cap screws using a 5 mm Allen key
- Remove the spring washer and the end cover
- Discard the three O-rings (51.6 mm * 2.4 mm)
- Draw the shuttle guide out using a 6 mm bolt
- Clean the shuttle guide
- Discard the O-ring (51.6 mm * 2.4 mm)
- Remove the shuttle closer and o-ring (39.34 * 2.62) and discard it Replace it with new one
- Remove the shuttle inlet and the shuttle closer
- Discard the circlip and replace it with a new circlip
- Reassemble the parts. Replace the discarded parts with new components

8.5.3.3 Servicing the exhaust valve

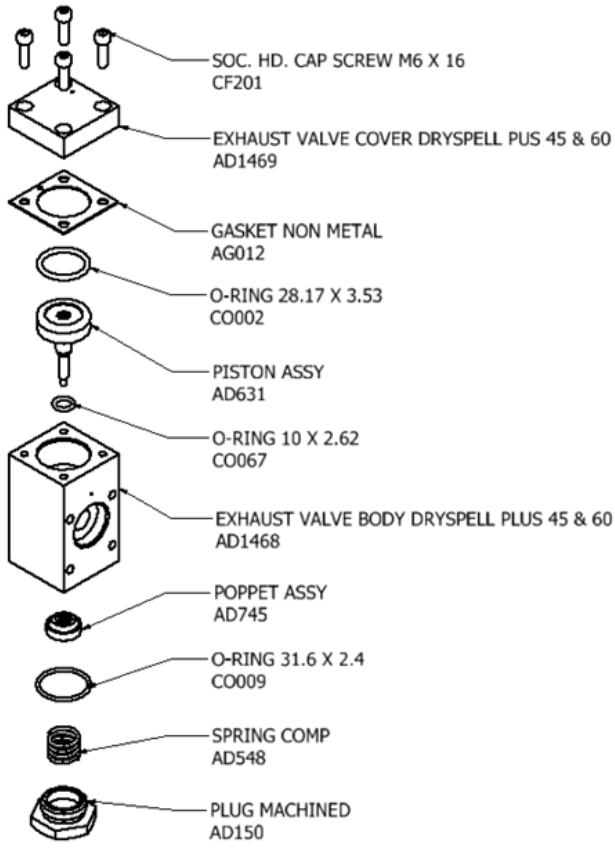


Figure 22. Exploded view of exhaust valve- Dryspell Plus models 45 and 60

- Using a no. 38 spanner, remove the plug. Clean the plug
- Discard the O-ring
- Discard the spring and poppet assembly
- Using a 5 mm Allen key, remove the four socket head cap screws on the top cover
- Remove the top cover from the body
- Discard the gasket
- Push the piston assembly from below
- Discard the piston O-ring
- Clean the piston. Coat the piston with food-grade grease. Reassemble the piston assembly with a new O-ring. Coat the piston O-ring food-grade grease before assembly
- Discard the O-ring (10 mm * 2.62 mm) inside the valve body
- Reassemble the exhaust valve with new components in place of the discarded ones
- Replace the plug

8.5.3.4 Servicing the non-return valve plate

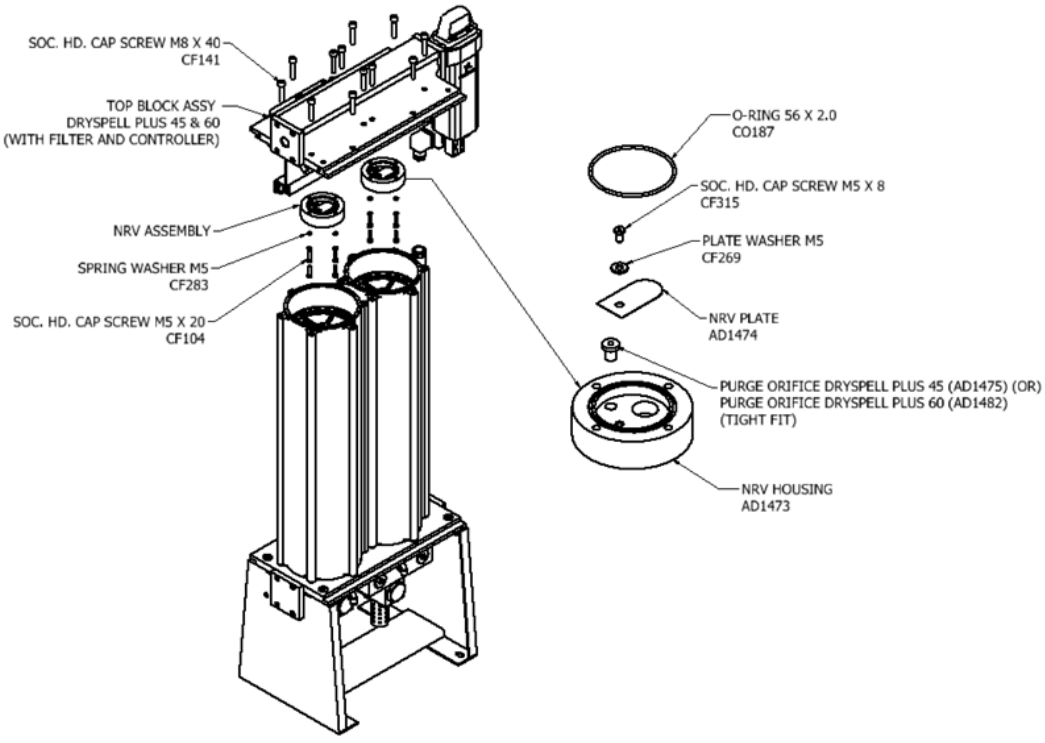


Figure 23. Exploded view to illustrate servicing of non-return valve plate-
Dryspell Plus models 20 and 30

- Using a 6 mm Allen key, remove the socket head cap screws.
- Remove the top block assembly.
- Discard the spring washer and cap screw.
- Using a 4 mm Allen key, remove the NRV assembly. Discard the NRV assembly.
- Push the purge orifice from below. Discard the purge orifice.
- Clean the NRV housing.
- Discard the O-ring (56 mm × 2 mm).
- Reassemble the NRV housing with new components.
- Fix the NRV housing in the top block and reassemble the parts

8.5.3.5 Changing the inlet tube

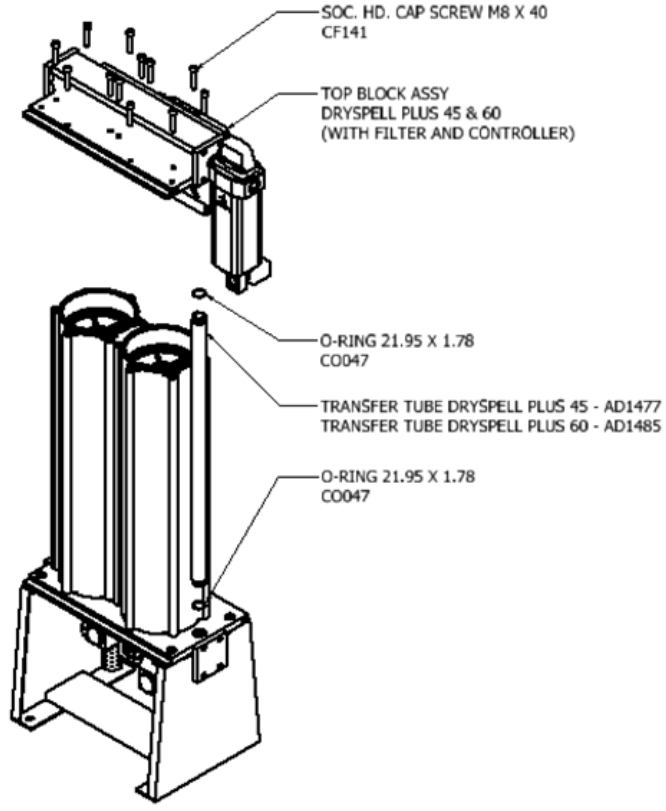


Figure 24: Changing the inlet tube--Dryspell Plus models 45 and 60

- Using a 6 mm Allen key, remove the socket head cap screws.
- Remove the top block with the filter and set them aside.
- Discard the inlet tube and two O-rings.
- Fix a new inlet tube in the bottom block with new O-rings.
- Reasemble the top block.
- Fasten the socket head cap screws using a 6 mm Allen key.

8.5.4 Dryspell Plus models 100 & 125

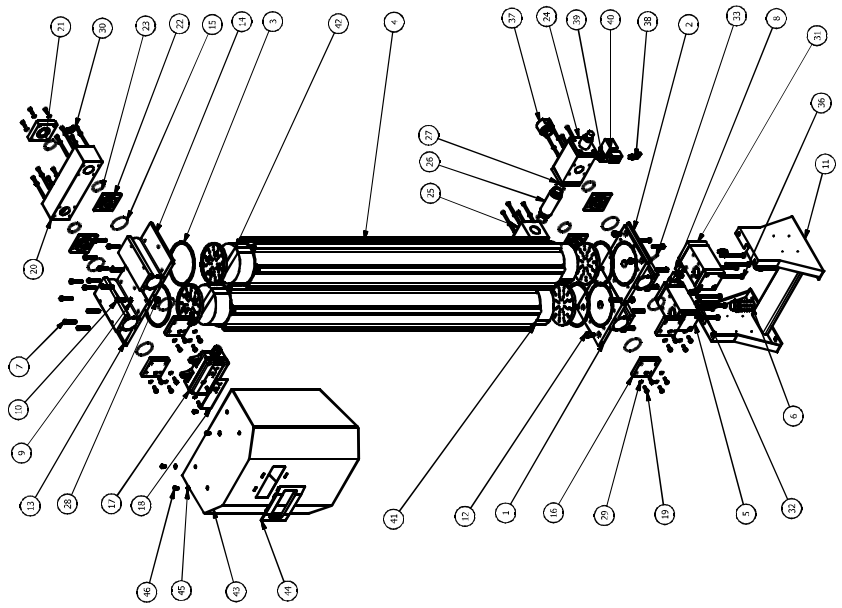
DRYSPELL PLUS 100 EXPLODED VIEW
Drw. No.PD242

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AD1524	BOTTOM CHAMBER LEFT
2	1	AD1525	BOTTOM CHAMBER RIGHT
3	4	CD192	DRYING TOWER GASKET
4	2	AD1487	DRYING TOWER DRYSPELL PLUS 100
5	1	AD1542	EXHAUST VALVE ASSY LEFT
6	2	A7658	MUFFLER ASSY. 1"
7	24	CF141	SOC. HD. CAP SCREW M8 X 40
8	2	AS079	SOLENOID VALVE ASSY
9	4	CF189	SPRING WASHER M8
10	4	CF103	SOC. HD. CAP SCREW M8 x 30
11	1	AD1528	ASSY MOUNTING BRACKET DPS 100
12	4	CF246	SOC. HD. CAP SCREW M10 X 20
13	1	AD1572	TOP CHAMBER LEFT
14	1	AD1573	TOP CHAMBER RIGHT
15	8	CD187	O-RING (56 X 2.0)
16	4	AD1533	END COVER BOTTOM
17	1	AD1349	CONTROLLER - UL (MODEL DS31-200)
18	1	CP362	DISPLAY STICKER UL DS31-200
19	22	CF201	SOC. HD. CAP SCREW M6 x 16
20	1	AD1455	SHUTTLE VALVE ASSY. DRYSPELL PLUS 100
21	1	AD1529	OUTLET COVER 1" BSP
22	4	AD1531	CONNECTOR PLATE
23	5	CD064	O-RING 36.5 X 3.53
24	1	AD1540	INLET VALVE ASSY 1"
25	1	AD1527	CONNECTOR
26	1	AD1526	CONNECTING BUSH
27	2	CD002	O-RING 28.17 X 3.53
28	4	CF250	HEX NUT M8
29	38	CF090	SPRING WASHER M6
30	16	CF258	SOC. HD. CAP SCREW M6 X 90
31	1	AD1541	EXHAUST VALVE ASSY. RIGHT
32	5	AC115	ONE TOUCH ELBOW 1/8" MALE
33	1	AD224	ONE TOUCH TUBE
34	2	AD941	BOTTOM DIFFUSER
35	2	AD942	TOP COMPACTOR PLATE
36	8	CF245	SOC. HD. CAP SCREW M8 X 90
37	1	AD1530	INLET CONNECTOR 1/4" TO 1/4
38	1	AC031	ONE TOUCH ELBOW 1/4" MALE
39	1	CC021	CONNECTOR 1/4" TO 1/4
40	1	AD614	24V SOLENOID VALVE
41	6	AD1398	ACTIVATED ALUMINA BAG
42	2	AD1424	MOLECULAR SIEVES BAG
43	1	AD1502	TOP COVER DRYSPELL PLUS 100 & ABOVE
44	1	AD1500	BEZZEL DRYSPELL PLUS
45	4	CF320	PLATE WASHER M6 SS
46	4	CF320	SOC. HD. CAP SCREW M6 x 10 SS

SPARE KIT

SL NO.	PART NUMBER	DESCRIPTION	CODE	DESCRIPTION	QTY
			CD260	O-RING (78 X 3.0)	2
6	AS693	FILTER ELEMENT ASSEMBLY 230V	CD943	SEALS RUBBER	1
			AC143	FILTER ELEMENT 230V	1
5	SK272A	DESICCANT WITH SEAL KIT - DRYSPELL PLUS 100	SK238A	SEALS AND O-RING SPARE KIT DPS-100	1
			AD642	TOP COMPACTOR PLATE	2
			AD641	BOTTOM DIFFUSER	2
			AD1398	ACTIVATED ALUMINA 3A45	6
			AD1424	MOLECULAR SIEVES BAG	6
4	SK266A	SHUTTLE VALVE ASSY DRYSPELL PLUS 100	CD054	O-RING (56.5 X 3.53)	3
			CC091	CIRCLIP E-45	3
			AD1441	TOP SHUTTLE	1
3	SK240A	INLET VALVE ASSY SPARE KIT 1"	AD1099	POPPET MOULDED	1
			CD127	O-RING (48 X 3.0)	1
			AD1063	SPRING COMP	1
			CD041	O-RING (67.2 X 5.33)	1
			CD118	O-RING (77.6 X 2.4)	2
			CD119	O-RING (72.3 X 2.4)	1
			CD120	U-RING	1
			CD121	O-RING (37.9 x 3.53)	1
2	SK239A	EXHAUST VALVE SPARE KIT DPS-100	CD192A	GASKET NON-METAL	4
			CC302	SEAL RING	2
			AD637	SPRING COMP	2
			CD042	O-RING (18.77 X 3.53)	2
			CD041	O-RING (47.2 X 5.33)	2
			CD118	O-RING (77.6 x 2.4)	2
			CD009	O-RING (31.6 X 2.4)	2
1	SK238A	SEALS AND O-RING SPARE KIT DPS-100	CD192	DRYING TOWER GASKET	4
			CD187	O-RING (56 X 2.0)	8
			CD064	O-RING (36.5 X 3.53)	5
			CD002	O-RING (28.17 X 3.53)	2
				SPARE KIT CONSISTING OF	

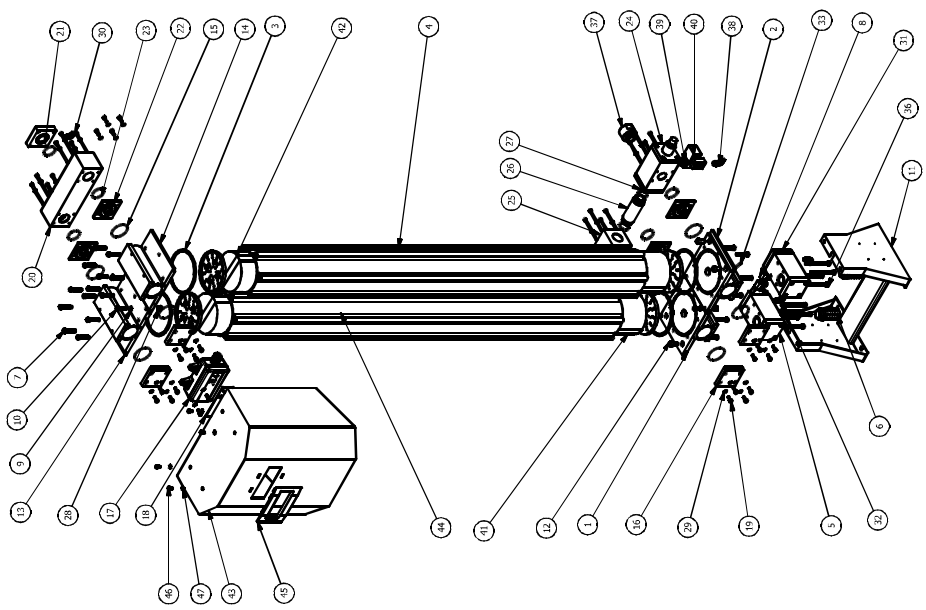


DRYSPELL PLUS 125 EXPLODED VIEW
Drw. No. PD243

ITEM	QTY	PART NUMBER	DESCRIPTION
		Parts List	
1	1	AD1524	BOTTOM CHAMBER LEFT
2	1	AD1525	BOTTOM CHAMBER RIGHT
3	4	CD192	DRYING TOWER GASKET
4	2	AD1488	DRYING TOWER DRYSPELL PLUS 125
5	1	AD1542	EXHAUST VALVE ASSY LEFT
6	2	AD568	MUFFLER ASSY.
7	24	CF441	SOC. HD. CAP SCREW M8 X 40
8	2	AS079	SOLENOID VALVE ASSY
9	4	CF189	SPRING WASHER M8
10	4	CF103	SOC. HD. CAP SCREW M8 x 30
11	1	AD1528	ASSY MOUNTING BRACKET DPS 100
12	4	CF248	SOC. HD. CAP SCREW M10 X 20
13	1	AD1522	TOP CHAMBER LEFT
14	1	AD1523	TOP CHAMBER RIGHT
15	8	CD187	O-RING (56 X 2.0)
16	4	AD1533	END COVER BOTTOM
17	1	AD1349	CONTROLLER - UL (MODEL DS31-200)
18	1	CP362	DISPLAY STICKER UL DS31 200
19	22	CF201	SOC. HD. CAP SCREW M6 x 16
20	1	AD1460	SHUTTLE VALVE ASSY. DRYSPELL PLUS 125
21	1	AD1529	OUTLET COVER 1" BSP
22	4	AD1531	CONNECTOR PLATE
23	5	CD054	O-RING 38.5 X 3.53
24	1	AD1540	INLET VALVE ASSY 1"
25	1	AD1527	CONNECTOR
26	1	AD1526	CONNECTING BUSH
27	2	CD092	O-RING 18.17 X 3.53
28	2	CF580	HEX NUT M8
29	38	CF590	SPRING WASHER M6
30	16	CF258	SOC. HD. CAP SCREW M6 X 90
31	1	AD1541	EXHAUST VALVE ASSY. RIGHT
32	5	AC115	ONE TOUCH ELBOW 1/8" MALE
33	1	AD224	ONE TOUCH TUBE
34	2	AD641	BOTTOM DIFFUSER
35	2	AD642	TOP COMPACTOR PLATE
36	8	CF247	SOC. HD. CAP SCREW M8 X 90
37	1	AD1538	INLET CONNECTOR 1" BSP
38	1	AC011	ONE TOUCH ELBOW 1/4" MALE
39	1	CD021	CONNECTOR 1/4" TO 1/4
40	1	AD614	24V SOLENOID VALVE
41	6	AD1398	ACTIVATED ALUMINA BAG
42	2	AD424	MOLECULAR SIEVES BAG
43	1	AD1502	TOP COVER DRYSPELL PLUS 100 & ABOVE
44	2	AD1425	ACTIVATED ALUMINA + MOLECULAR SLEEVES BAG
45	1	AD1500	BEZZEL DRYSPELL PLUS
46	4	CF202	SOC. HD. CAP SCREW M6 x 10 - SS
47	4	CF320	PLATE WASHER M6 - SS

SPARE KIT

SL NO.	PART NUMBER	DESCRIPTION			
		SPARE KIT CONSISTING OF			
6	AS693	FILTER ELEMENT ASSEMBLY T250Y	CD300	O-RING (78 X 3.0)	2
			CD943	SEAL RUBBER	1
			AC143	FILTER ELEMENT T250Y	1
5	SK273A	DESICCANT WITH SEAL KIT - DRYSPELL PLUS 125	SK238A	SEALS AND O-RING SPARE KIT DPS-100	1
			AD642	TOP COMPACTOR PLATE	2
			AD641	BOTTOM DIFFUSER	2
			AD1398	ACTIVATED ALUMINA BAG	2
			AD1425	ACTIVATED ALUMINA + MOLECULAR SLEEVES BAG	6
			AD1424	MOLECULAR SLEEVES BAG	2
4	SK767A	SHUTTLE VALVE ASSY SAPRE KIT - DRYSPELL PLUS 125	AD1424	MOLECULAR SLEEVES BAG	2
			CD054	O-RING (38.5 X 3.53)	3
			CC301	CIRCLIP B-45	1
			AD1459	TOP SHUTTLE	1
3	SK240A	INLET VALVE ASSY SPARE KIT 1"	AD1059	POPPET MODIFIED	1
			CD127	O-RING (48 X 3.0)	1
			AD1063	SPRING COMP.	1
			CD041	O-RING (47.2 X 5.33)	1
			CD118	O-RING (7.6 X 2.4)	2
			CD119	O-RING (12.3 X 2.4)	1
			CD120	U-RING	1
			CD121	O-RING (37.9 x 3.53)	1
			CD193A	GASKET NON METAL	4
2	SK239A	EXHAUST VALVE SPARE KIT DPS-100	CC302	SEAL RING	2
			AD637	SPRING COMP	2
			CD042	O-RING (18.72 X 3.53)	2
			CD041	O-RING (47.2 X 5.33)	2
			CD118	O-RING (7.6 X 2.4)	2
			CD009	O-RING (31.6 X 2.4)	2
1	SK238A	SEALS AND O-RING SPARE KIT DPS-100	CD192	DRYING TOWER GASKET	4
			CD187	O-RING (56 X 2.0)	8
			CD054	O-RING (38.5 X 3.53)	5
			CD002	O-RING (28.17 X 3.53)	2



8.5.4.1 Changing the desiccant

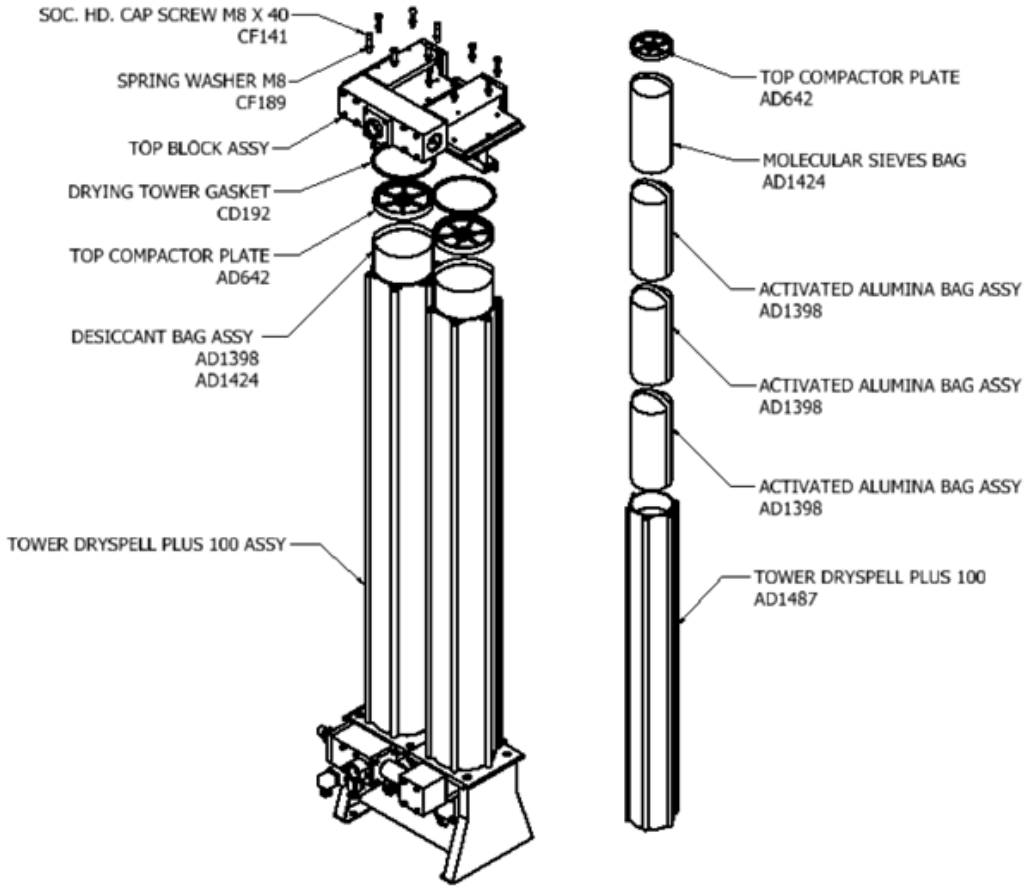


Figure 25. Changing desiccant-Dryspell Plus model 100

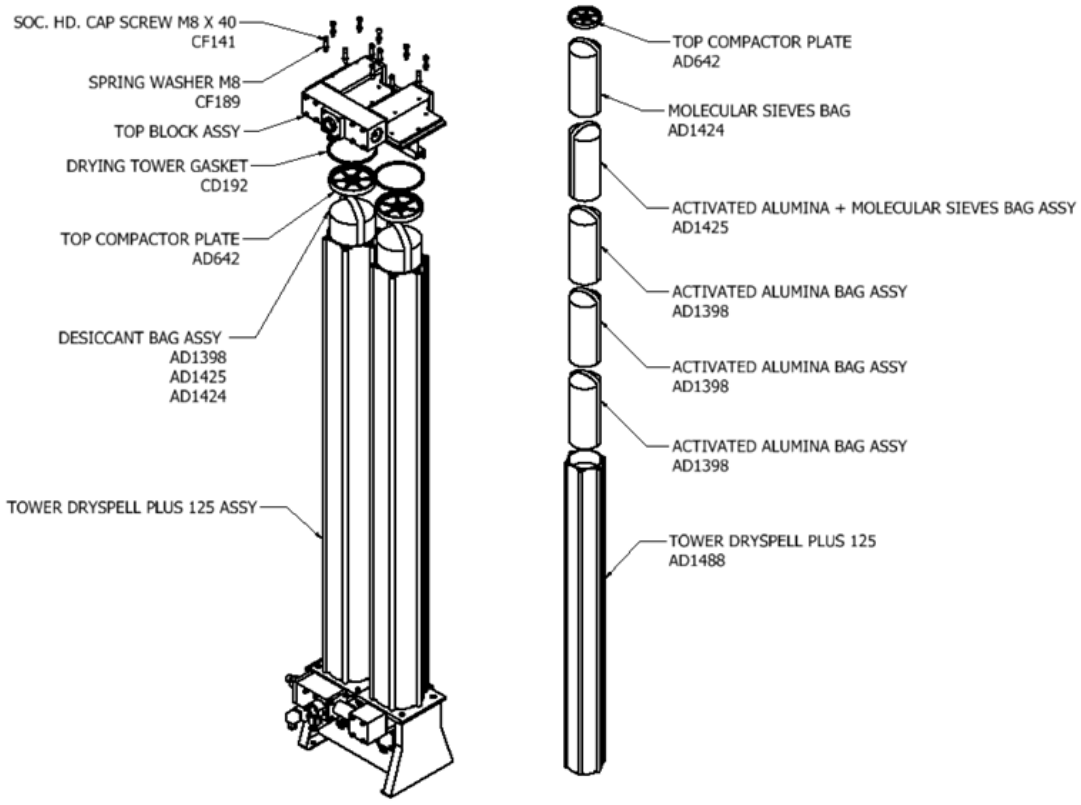


Figure 26. Changing desiccant-Dryspell Plus model 125

- Disconnect the solenoid coil and inlet valve wire connection
- Remove the pilot air connection from the top block assembly
- Remove the socket head cap screws M8 * 40
- Remove the top chamber with the controller
- Remove the drying tower gasket and replace with new ones
- Remove the top compactor plates (two)
- Remove the old desiccant bags
- Clean the drying towers
- Filling the Desiccant bag assembly :

Dryspell Plus model 100:

Fill the desiccant bag assembly firstly with 3 bags of Activated Alumina AD1398 followed by a bag of molecular sieves AD1424 as shown in the figure 25

Dryspell Plus model 125:

Fill the desiccant bag assembly firstly with 3 bags of Activated Alumina AD1398 followed by a bag of mixed Activated alumina and Molecular Sieves AD1425, lastly with a bag of molecular sieves AD1424 as shown in the figure 26

- Replace the top compactor plate with new one
- Fix the top block assembly and tighten the cap screws
- Connect the solenoid coil , inlet valve and pilot air connections

8.5.4.2 Changing the top shuttle

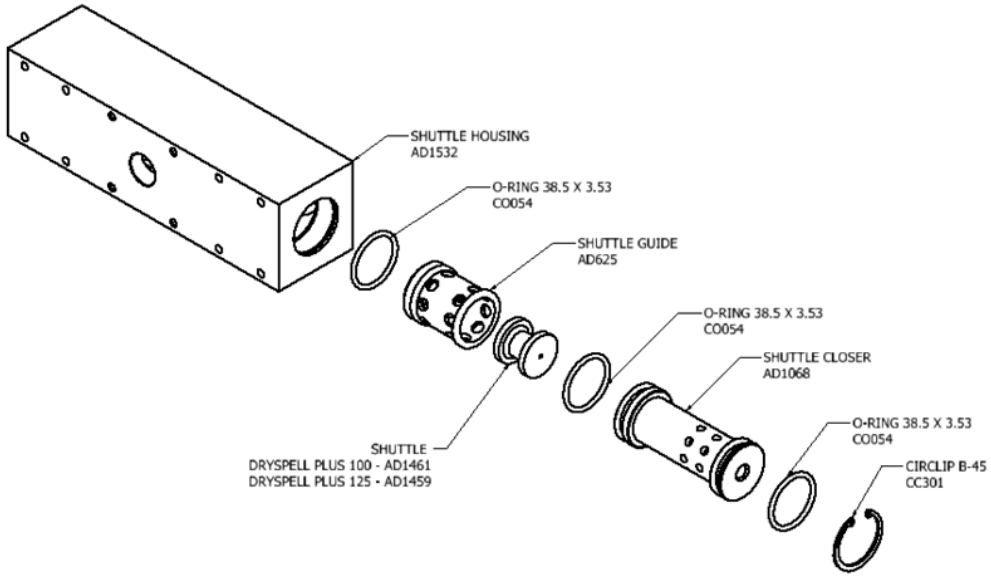


Figure 27. Exploded view of top shuttle-Dryspell Plus 100 & 125

- Using circlip pliers, remove the circlip B 45
- Using an M12 bolt, push the shuttle closer assembly out.
- Discard and replace the O-ring (38.5 mm * 3.53 mm) in the shuttle closure
- Clean the shuttle closer
- Take the shuttle guide out of the shuttle housing.
- Clean the shuttle guide
- Discard and replace the O-ring (38.5 mm * 3.53 mm) in the shuttle guide
- Replace with new shuttle
- Reassemble the parts in the shuttle housing

8.5.4.3 Changing the inlet valve assembly in Dryspell Plus model

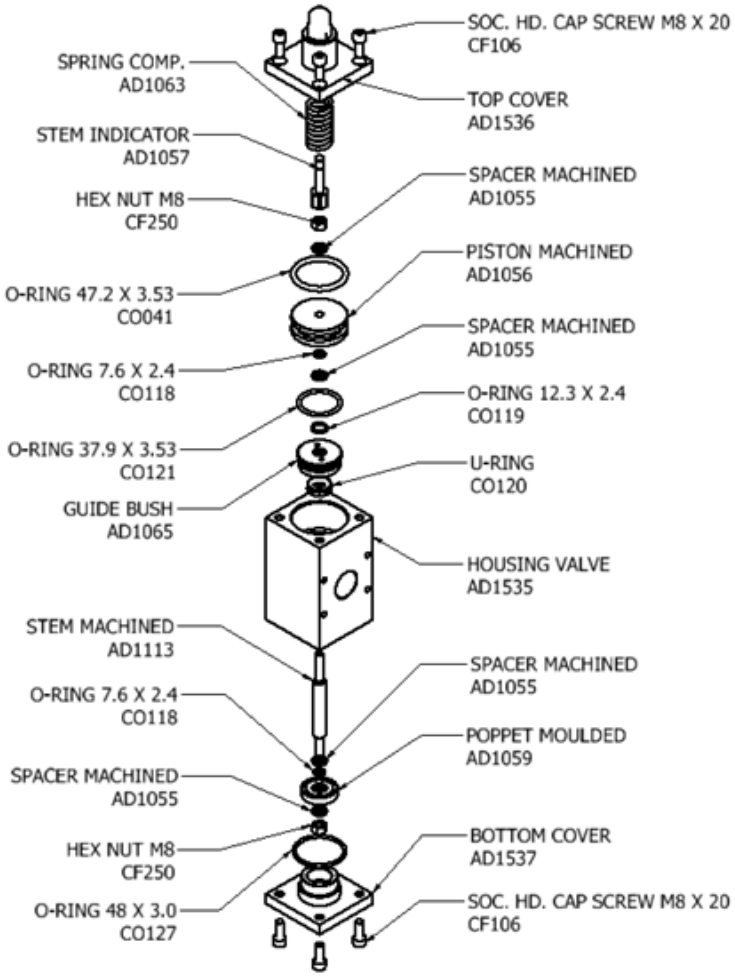


Figure 28. Exploded view of inlet valve assembly-Dryspell Plus models 100 & 125

- Using an Allen key, remove the screws M8 *20 at the bottom cover assembly
- Remove the bottom cover and clean it.
- Discard the O- ring (48 mm × 3.0 mm)
- Remove the M8 hex nut and take out the spacer machined. Clean the spacer machined
- Remove and discard the poppet moulded AD1059
- Discard the O-ring (7.6 mm × 2.4 mm).
- Remove the spacer machined and clean it.
- Using an Allen key, remove the screws at the top of the assembly.

- Remove the top cover and clean it.
- Remove the spring.
- Take the piston assembly out by pushing the stem machined AD1113 from bottom side
- Remove and clean the stem indicator AD1057, hex nut M8 and piston machined
- Discard the O-rings (47.2 mm × 3.53 mm and 7.6 mm × 2.4 mm) and remove the spacer machined
- Take out the stem machined AD1113
- Rotate and remove the guide bush using the two holes.
- Discard the O-ring (12.3 mm × 2.4 mm) that is exposed.
- Discard the O- ring (37.9 mm × 3.53 mm) and U-ring.
- Reassemble the guide bush assembly with new components and place it in the valve housing.
- Grease the stem machined AD1113 and fit it inside the Housing valve AD1535
- Reassemble the stem indicator AD1057 and spacer machined with new O-rings and a new poppet moulded
- Replace the spring and reassemble the top cover
- Reassemble the spacer machined AD1055
- Fix the new poppet moulded in the stem machined AD1113
- Tighten the nut and reassemble the bottom cover

8.5.4.4 Servicing the exhaust valve 100 & above

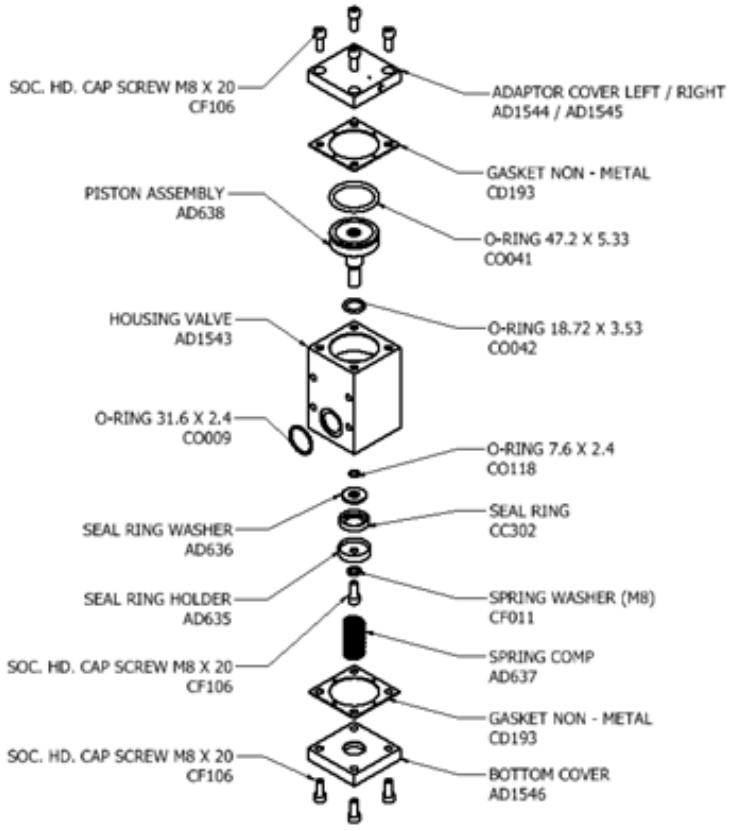


Figure 29. Exploded view of exhaust valve- Dryspell Plus models 100 & above

- Remove M8 * 20 cap screw
- Remove the bottom cover and discard & replace the gasket non metal
- Remove the spring compression
- Remove the cap screw M8 * 20 and spring washer
- Remove seal ring washer and holder
- Replace the seal ring
- Remove the o -ring 7.6 *2.4 from the valve housing
- Remove M * 20 cap screw to remove the adapter cover
- Remove the adapter cover and discard the gasket non metal and replace with new one
- Push the poppet assembly outside
- Replace the O- ring 47.2 * 5.33 andO - ring 18.72 *3.53
- Reassemble the piston assembly into housing valve
- Fix the top adaptor cover
- Reassemble the O- ring 7.6*2.4 into the housing valve
- Reassemble the Seal ring assembly and fix the new spring
- Fit the Gasket non-metal
- Reassemble the bottom cover and tighten the screws

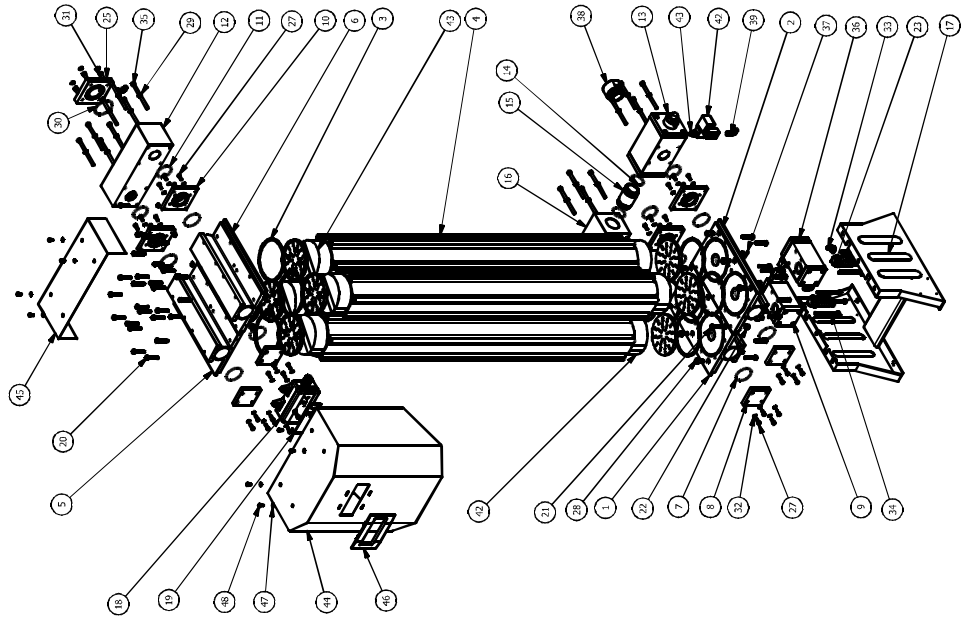
8.5.5 Dryspell Plus models 200 & 250

DRYSPELL PLUS 200 EXPLODED VIEW
Drw. No. PD244

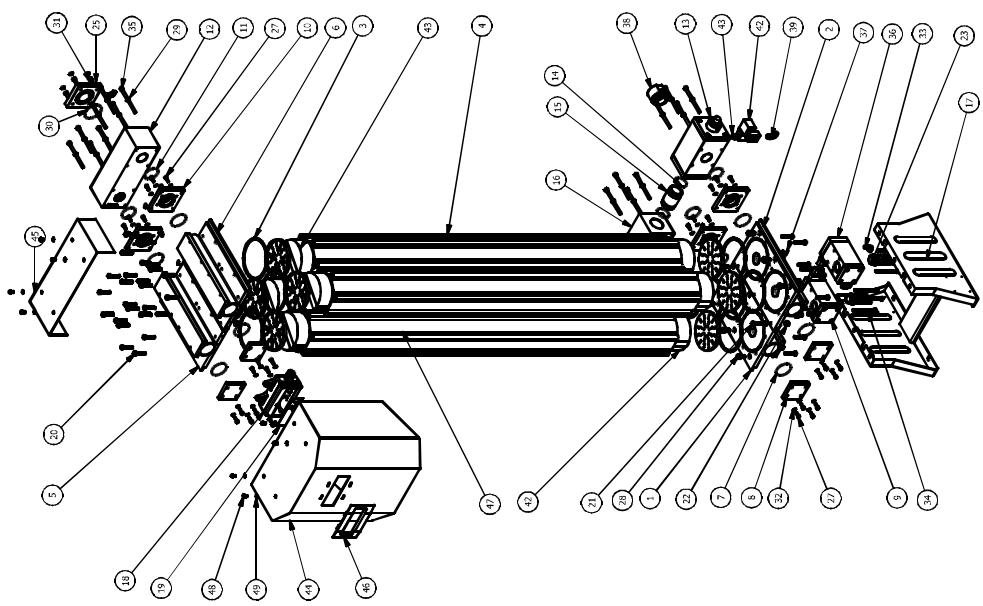
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AD1547	BOTTOM CHAMBER LEFT
2	1	AD1548	BOTTOM CHAMBER RIGHT
3	8	CD192	DRYING TOWER GASKET
4	4	AD1487	DRYING TOWER DRYSPELL PLUS 100
5	1	AD1549	TOP CHAMBER LEFT
6	1	AD1550	TOP CHAMBER RIGHT
7	8	CD187	O-RING 156 X 2.0)
8	4	AD1533	END COVER BOTTOM
9	1	AD1542	EXHAUST VALVE ASSY LEFT
10	4	AD1551	CONNECTOR PLATE
11	4	CD126	O-Ring 49 X 3.53
12	1	AD1456	SHUTTLE VALVE ASSY DRYSPELL PLUS 200
13	1	AD1564	INLET VALVE ASSY 1 1/2"
14	2	CD124	O-RING 42.5 X 3.0
15	1	AD1553	CONNECTING RUSH
16	1	AD1552	CONNECTOR
17	1	AD1554	ASSY MOUNTING BRACKET DPS 150 - 200
18	1	AD1349	CONTROLLER BOX ASSY UL - DS31-200
19	1	GP362	DISPLAY STICKER UL DS31-200
20	48	CF141	SOC. HD. CAP SCREW M8 X 40
21	6	CF103	SOC. HD. CAP SCREW M8 X 30
22	6	CF250	HEX NUT M8
23	2	AD658	MUFFLER ASSY. 1"
24	4	CD670	BOTTOM DIFFUSER
25	1	AD1556	OUTLET CONNECTOR
26	4	AD642	TOP COMPACTOR PLATE
27	31	CF201	SOC. HD. CAP SCREW M6 x 16
28	6	CF248	SOC. HD. CAP SCREW M10 X 20
29	26	CF189	SPRING WASHER M6
30	1	CD125	O-Ring 62 x 3.0
31	4	CF106	SOC. HD. CAP SCREW M8 X 20
32	34	CF890	SPRING WASHER M6
33	5	AC126	ONE TOUCH ELBOW 1/8" MALE
34	8	CF247	SOC. HD. CAP SCREW M8 X 90
35	16	CF249	SOC. HD. CAP SCREW M8 X 115
36	1	AD1541	EXHAUST VALVE ASSY RIGHT
37	1	AD224	ONE TOUCH TUBE
38	1	AD1562	INLET CONNECTOR
39	1	AC011	ONE TOUCH ELBOW 1/4" MALE
40	1	AD614	SOLENOID VALVE 24V
41	1	CC021	CONNECTOR 1/4" TO 1/4"
42	12	AD1398	ACTIVATED ALUMINA BAG
43	4	AD1424	MOLECULAR SIEVES BAG
44	1	AD1502	TOP COVER DRYSPELL PLUS 100 & ABOVE
45	1	AD1503	BACK COVER DRYSPELL PLUS 200
46	1	AD1500	BEZEL DRYSPELL PLUS
47	8	CF320	PLATE WASHER M6 - SS
48	8	CF202	SOC. HD. CAP SCRE M6 x 19 - SS

SPARE KIT

SL NO.	PART NUMBER	DESCRIPTION			
6	AS697	FILTER ELEMENT ASSEMBLY T600Y	CD300	O-RING (78 X 3.0)	2
			CD943	SEAL RUBBER	1
			AC457	FILTER ELEMENT T600Y	1
5	SK274A	DESICCANT WITH SEAL KIT - DRYSPELL PLUS 200	SK243A	SEALS AND O-RING SPARE KIT DPS 200 & 250	1
			AD642	TOP COMPACTOR PLATE	4
			AD641	BOTTOM DIFFUSER	4
			AD398	ACTIVATED ALUMINA BAG	12
			AD424	MOLECULAR SIEVES BAG	4
4	SK268A	SHUTTLE VALVE ASSY SPARE KIT - DRYSPELL PLUS 200	CD123	O-RING (66.03 X 3.53)	3
			CD566	CIRCLIP B-75	1
			AD457	TOP SHUTTLE	1
3	SK344A	INLET VALVE ASSY SPARE KIT 1 1/2"	AD1090	POPPET MOULDED	1
			CD128	O-RING (65 X 3.0)	1
			AD1095	SPRING COMP	1
			CD122	O-RING (69.2 X 5.33)	1
			CD118	O-RING (7.8 X 2.4)	2
			CD119	O-RING (12.3 X 2.4)	1
			CD120	U-Ring	1
			CD121	O-RING (37.9 x 3.53)	1
2	SK239A	EXHAUST VALVE SPARE KIT DPS-100	CD193A	GASKET NON-METAL	4
			CC307	SEAL RING	2
			AD637	SPRING COMP	2
			CD942	O-RING (18.72 X 3.53)	2
			CD041	O-RING (47.2 X 3.33)	2
			CD118	O-RING (7.6 X 2.4)	2
			CD069	O-RING (31.6 X 2.4)	2
1	SK243A	SEALS AND O-RING SPARE KIT DPS 200 & 250	CD192	DRYING TOWER GASKET	8
			CD125	O-RING (62 X 3.0)	1
			CD187	O-RING (156 X 2.0)	8
			CD126	O-RING (49 X 3.53)	4
			CD124	O RING (42.5 X 3.0)	2
		SPARE KIT CONSISTING OF			



DRYSPELL PLUS 250 EXPLODED VIEW
Drw. No. PD245



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AD1547	BOTTOM CHAMBER LEFT
2	1	AD1548	BOTTOM CHAMBER RIGHT
3	8	CD192	DRYING TOWER GASKET
4	4	AD1488	DRYING TOWER DRYSPELL PLUS 125
5	1	AD1549	TOP CHAMBER LEFT
6	1	AD1550	TOP CHAMBER RIGHT
7	8	CD187	O-RING (56 X 2.0)
8	4	AD1533	END COVER BOTTOM
9	1	AD1542	EXHAUST VALVE ASSY -LEFT
10	4	AD1551	CONNECTOR PLATE
11	4	CD126	O-Ring 49 X 3.53
12	1	AD1450	SHUTTLE VALVE ASSY DRYSPELL PLUS 250
13	1	AD1554	INLET VALVE ASSY 1 1/2"
14	2	CD124	O-RING 42.5 X 3.0
15	1	AD1553	CONNECTING BUSH
16	1	AD1552	CONNECTOR
17	1	AD1554	ASSY MOUNTING BRACKET DPS 150 - 200
18	1	AD1349	CONTROLLER BOX ASSY UL - DS 31-200
19	1	CP367	DISPLAY STICKER UL DS31-200
20	48	CF141	SOC. HD. CAP SCREW M8 X 40
21	6	CF103	SOC. HD. CAP SCREW M8 X 30
22	6	CF350	HEX NUT M8
23	2	AD658	MUFFLER ASSY 1"
24	4	CD070	BOTTOM DIFFUSER
25	1	AD1556	OUTLET CONNECTOR
26	4	AD642	TOP COMPACTOR PLATE
27	34	CF201	SOC. HD. CAP SCREW M6 x 16
28	6	CF248	SOC. HD. CAP SCREW M10 X 20
29	26	CF189	SPRING WASHER M8
30	1	CD125	O-Ring 62 x 3.0
31	4	CF106	SOC. HD. CAP SCREW M8 X 20
32	34	CF080	SPRING WASHER M6
33	5	AC126	ONE TOUCH ELBOW 7/8" MALE
34	8	CF247	SOC. HD. CAP SCREW M8 X 90
35	16	CF259	SOC. HD. CAP SCREW M8 X 115
36	1	AD1541	EXHAUST VALVE ASSY RIGHT
37	1	AD724	ONE TOUCH TUBE
38	1	AD1562	INLET CONNECTOR
39	1	AC011	ONE TOUCH ELBOW 1/4" MALE
40	1	AD614	SOLENOID VALVE 24V
41	1	CC021	CONNECTOR 1/4" TO 1/4"
42	12	AD1398	ACTIVATED ALUMINA BAG
43	4	AD1424	MOLECULAR SIEVES BAG
44	1	AD1502	TOP COVER DRYSPELL PLUS 100 & ABOVE
45	1	AD1503	BACK COVER DRYSPELL PLUS 200
46	1	AD1500	BEZEL DRYSPELL PLUS
47	4	AD1455	ACTIVATED ALUMINA + MOLECULAR SIEVES BAG
48	8	CF402	SOC. HD. CAP SCREW M6 x 10 - SS
49	8	CF320	PLATE WASHER M6 - SS

SPARE KIT

SL NO.	PART NUMBER	DESCRIPTION		
			SPARE KIT CONSISTING OF	
6	AS697	FILTER ELEMENT ASSEMBLY T600Y	CD124	O RING (42.5 X 3.0) 2
			CD200	O-RING (78 X 3.0) 2
5	SK275A	DESICCANT WITH SEAL KIT - DRYSPELL PLUS 250	CD943	SEAL RUBBER 1
			AC147	FILTER ELEMENT T600Y 1
			SK243A	SEALS AND O-RING SPARE KIT DRYSPELL PLUS - 200 & 2B 1
			AD642	TOP COMPACTOR PLATE 4
			AD641	BOTTOM DIFFUSER 4
			AD1398	ACTIVATED ALUMINA BAG 12
			AD1425	ACTIVATED ALUMINA + MOLECULAR SIEVES BAG 4
			AD1424	MOLECULAR SIEVES BAG 4
4	SK269A	SHUTTLE VALVE ASSY SPARE KIT - DRYSPELL PLUS 250	CD123	O-RING (66.02 X 3.53) 3
			CC066	C-CLIP B-75 1
			AD1448	TOP SHUTTLE 1
			AD1090	POPPET MOULDED 1
3	SK244A	INLET VALVE ASSY SPARE KIT 1 1/2"	CD128	O-RING (65 X 3.0) 1
			AD1095	SPRING COMP. 1
			CD122	O-RING (69.4 X 5.33) 1
			CD118	O-RING (7.6 X 2.4) 2
			CD119	O-RING (12.3 X 2.4) 1
			CD120	U-RING 1
			CD121	O-RING (37.9 X 3.53) 1
2	SK239A	EXHAUST VALVE SPARE KIT DPS-100	CD193A	GASKET NON-METAL 4
			CC302	SEAL RING 2
			AD637	SPRING COMP. 2
			CD042	O-RING (18.72 X 3.53) 2
			CD041	O-RING (47.2 X 5.33) 2
			CD118	O-RING (7.6 X 2.4) 2
			CD009	O RING (31.6 X 2.4) 2
1	SK243A	SEALS AND O RING SPARE KIT DRYSPELL PLUS 200 & 250	CD192	DRYING TOWER GASKET 8
			CD125	O-RING (62 X 3.0) 1
			CD187	O RING (56 X 2.0) 8
			CD126	O RING (49 X 3.53) 4

8.5.5.1 Changing the desiccant

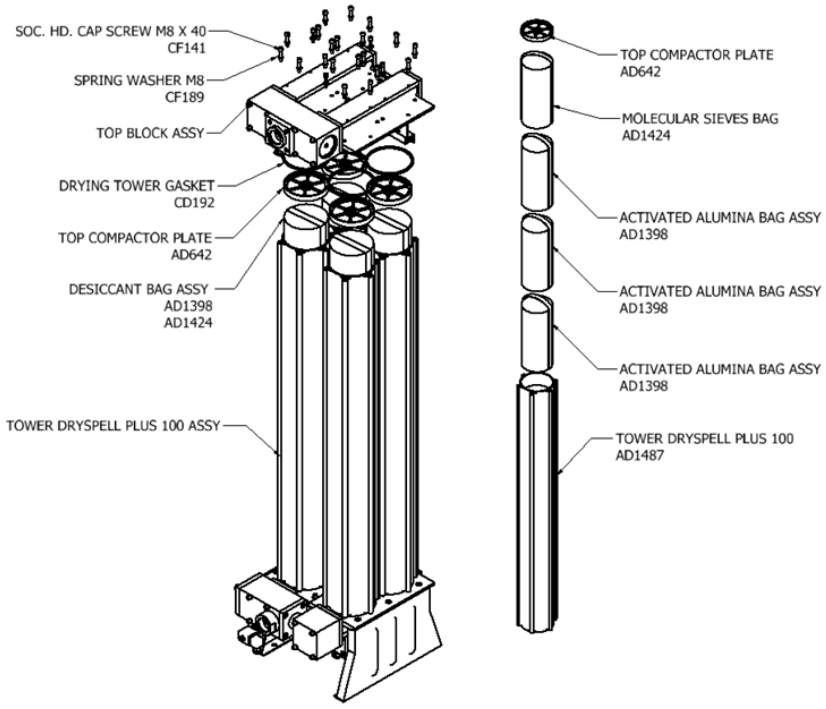


Figure 30. Changing desiccant-Dryspell Plus model 200

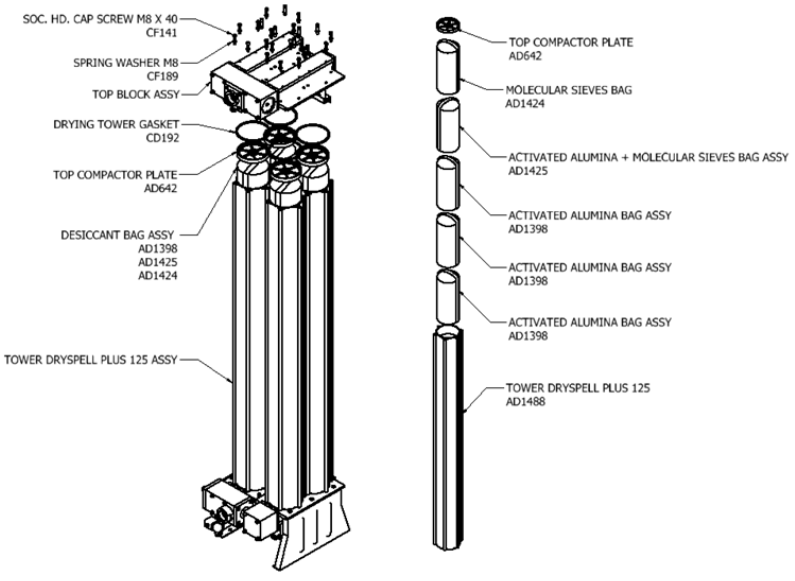


Figure 31. Changing desiccant-Dryspell Plus model 250

- Disconnect the solenoid coil and inlet valve wire connection
- Remove the pilot air connection from the top block assembly
- Remove the socket head cap screws M8 * 40
- Remove the top chamber with the controller
- Remove the drying tower gasket from the top block and replace with new ones
- Remove the top compactor plates (FOUR)
- Remove the old desiccant bags
- Clean the drying towers
- Filling the Desiccant bag assembly :

Dryspell Plus model 200:

Fill the desiccant bag assembly firstly with 3 bags of Activated Alumina AD1398 followed by a bag of molecular sieves AD1424 as shown in the figure 30

Dryspell Plus model 250:

Fill the desiccant bag assembly firstly with 3 bags of Activated Alumina AD1398 followed by a bag of mixed Activated alumina and Molecular Sieves AD1425, lastly with a bag of molecular sieves AD1424 as shown in the figure 31

- Replace the top compactor plate with new one
- Fix the top block assembly and tighten the cap screws
- Connect the solenoid coil, inlet valve and pilot air connections

8.5.5.2 Changing the top shuttle 200-375

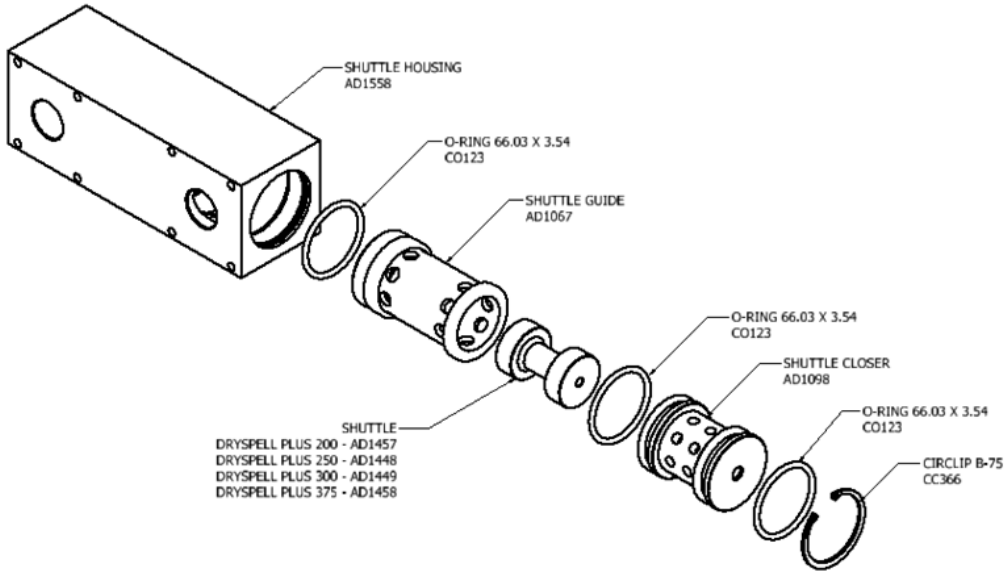


Figure 32. Exploded view of top shuttle-Dryspell Plus 200-375

- Using circlip pliers, remove the circlip B 75
- Using an M12 bolt, push the shuttle closer assembly out
- Discard and replace the O-ring (66.03 mm × 3.54 mm) in the shuttle closure
- Clean the shuttle closer
- Take the shuttle guide out of the shuttle housing.
- Clean the shuttle guide
- Discard and replace the O-ring (66.03 mm × 3.54 mm) in the shuttle guide
- Replace with new shuttle
- Reassemble the parts in the shuttle housing

8.5.5.3 Changing the inlet valve assembly

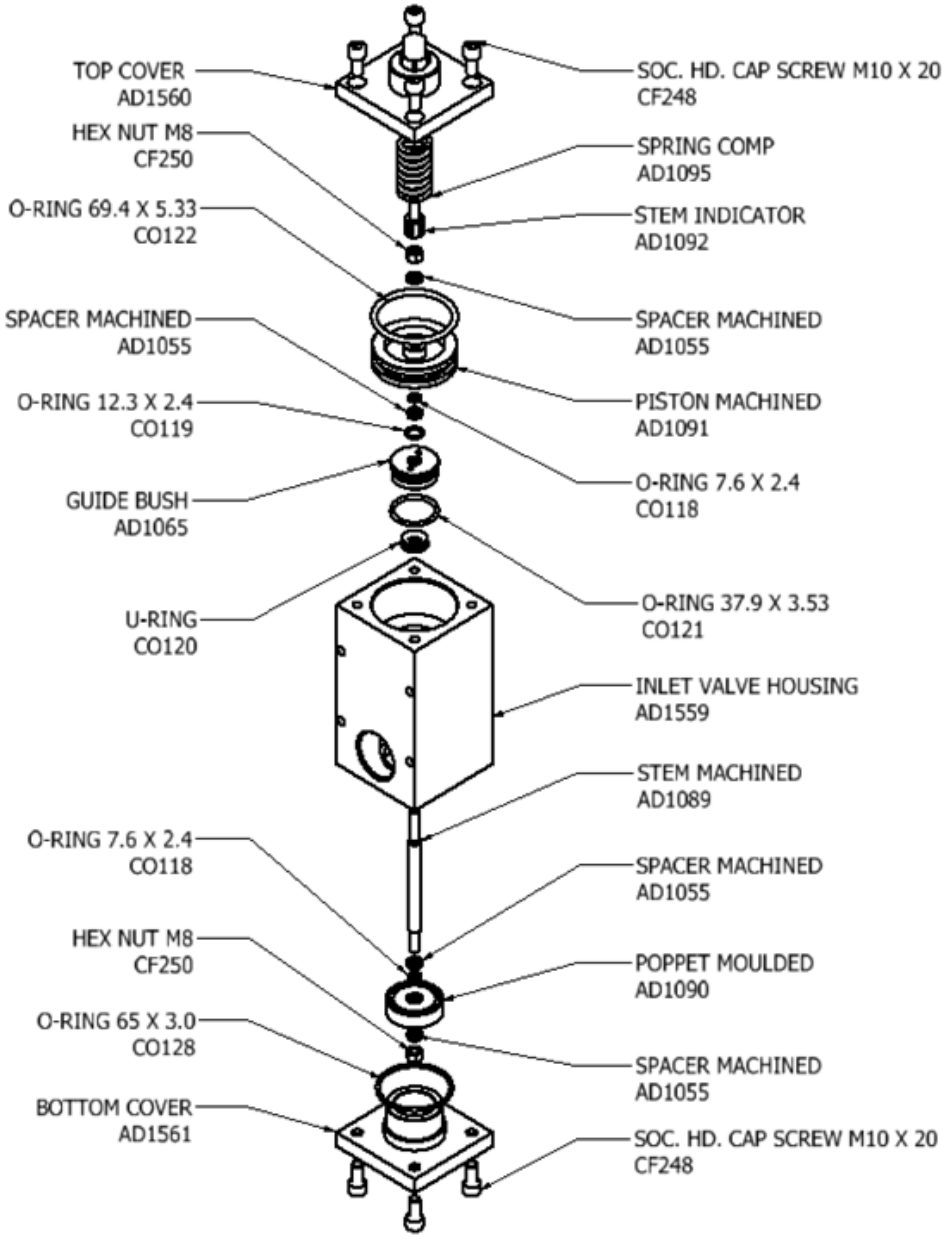
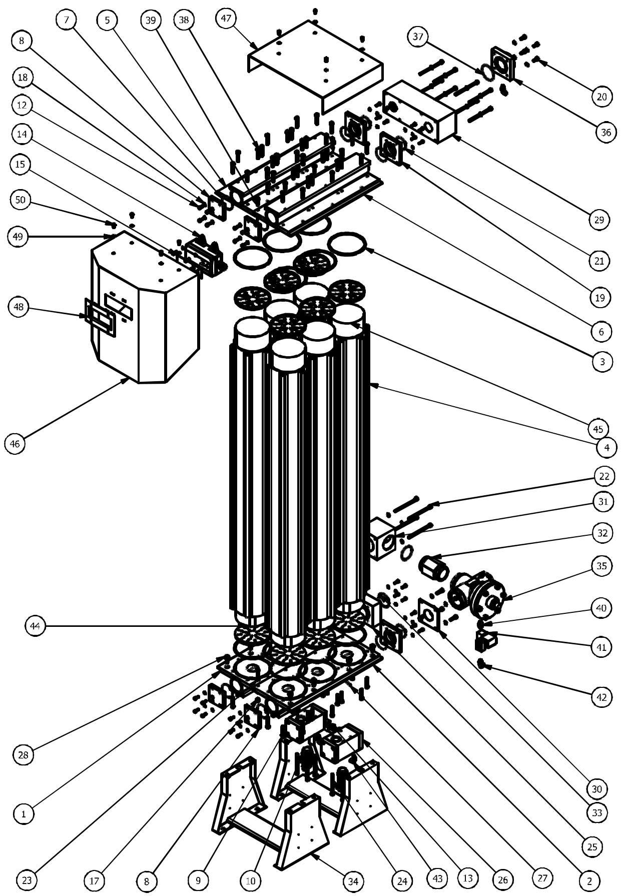


Figure 33. Exploded view of inlet valve assembly-Dryspell Plus model 200 & 250

- Using an Allen key, remove the screws M10 *20 at the bottom cover assembly
- Remove the bottom cover and clean it
- Discard the O- ring (65 mm * 3.0 mm)
- Remove the M8 hex nut and take out the spacer machined. Clean the spacer machined
- Remove and discard the poppet moulded AD1090
- Discard the O-ring (7.6 mm * 2.4 mm)
- Remove the spacer machined and clean it
- Using an Allen key, remove the screws at the top of the assembly.
- Remove the top cover and clean it
- Remove the spring
- Take the piston assembly out by pushing the stem machined AD1089 from bottom side
- Remove and clean the stem indicator AD1092, hex nut M8 and piston machined
- Discard the O-rings (69.4 mm * 5.33 mm and 7.6 mm * 2.4 mm) and remove the spacer machined
- Take out the stem machined AD1089
- Rotate and remove the guide bush using the two holes
- Discard the O-ring (12.3 mm * 2.4 mm) that is exposed
- Discard the O- ring (37.9 mm × 3.53 mm) and U-ring
- Reassemble the guide bush assembly with new components and place it in the valve housing
- Grease the stem machined AD1089 and fit it inside the Inlet Housing valve AD1559
- Reassemble the stem indicator AD1092 and spacer machined with new O-rings and a new poppet moulded
- Replace the spring and reassemble the top cover
- Reassemble the spacer machined AD1055
- Fix the new poppet moulded in the stem machined AD1089
- Tighten the nut and reassemble the bottom cover

For servicing the Exhaust valve in dryspell plus models 200 & 250 refer section 8.5.4.4

8.5.6 Dryspell Plus models 300 & 375



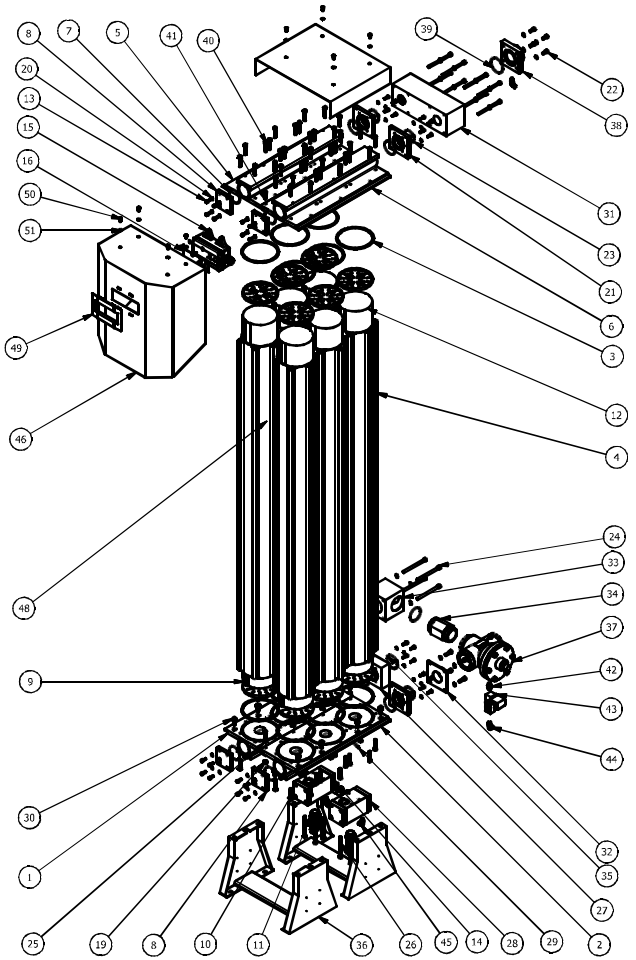
DRYSPELL PLUS 300 EXPLODED VIEW
Drw. No. PD246

ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AD1568	BOTTOM CHAMBER LEFT	26	1	AD1541	EXHAUST VALVE ASSY RIGHT
2	1	AD1567	BOTTOM CHAMBER RIGHT	27	---	AD224	ONE TOUCH TUBE
3	12	CD192	DRYING TOWER GASKET	28	8	CF248	SOC. HD. CAP SCREW M10 X 20
4	6	AD1487	DRYING TOWER DRYSPELL PLUS 100	29	1	AD1451	SHUTTLE VALVE ASSY DRYSPELL PLUS 300
5	1	AD1566	TOP CHAMBER LEFT	30	1	AD1571	CONNECTOR PLATE INLET 2"
6	1	AD1565	TOP CHAMBER RIGHT	31	1	AD1569	CONNECTOR 2"
7	8	CO187	O-RING (56 X 2.0)	32	1	AD1570	CONNECTING BUSH 2"
8	4	AD1533	END COVER BOTTOM	33	2	CO140	O-RING 54.5 X 3.0
9	1	AD1542	EXHAUST VALVE LEFT	34	2	AD1528	ASSY MOUNTING BRACKET DPS 100
10	2	AD658	MUFFLER ASSY. 1"	35	1	AD1578	PILOT OPERATED VALVE 3 WAY- 2 " BSP
11	6	AD641	BOTTOM DIFFUSER ASSY	36	1	AD1573	OUTLET COVER 2" BSP
12	34	CF201	SOC. HD. CAP SCREW M6 X 16	37	1	CO125	O-RING 62 x 3.0
13	2	AS079	SOLENOID VALVE ASSY	38	72	CF141	SOC. HD. CAP SCREW M8 X 40
14	1	AD1349	CONTROLLER BOX ASSY UL DS30-200	39	12	CF103	SOC. HD. CAP SCREW M8 X 30
15	1	CP362	DISPLAY STICKER UL DS31-200	40	1	CC021	CONNECTOR 1/4" x 1/4"
16	6	AD642	TOP COMPACTOR PLATE	41	1	AD614	24V SOLENOID VALVE
17	8	CF250	HEX NUT M8	42	1	AC011	ONE TOUCH ELBOW 1-4 MALE
18	34	CF090	SPRING WASHER M6	43	5	AC115	ONE TOUCH ELBOW 1-8 MALE
19	3	AD1551	CONNECTOR PLATE	44	18	AD1398	DESICCANT BAG
20	4	CF106	SOC. HD. CAP SCREW M8 X 20	45	6	AD1424	MOLECULAR SIEVES BAG
21	3	CO126	O-RING 49 x 3.53	46	1	AD1502	TOP COVER DRYSPELL PLUS 100 & ABOVE
22	12	CF259	SOC. HD. CAP SCREW M8 X 115	47	1	AD1503	BACK COVER DRYSPELL PLUS 300
23	24	CF189	SPRING WASHER M8	48	1	AD1500	BEZZEL DRYSPELL PLUS
24	8	CF247	SOC. HD. CAP SCREW M8 X 90	49	8	CF320	PLATE WASHER M6 - SS
25	1	AD1574	CONNECTOR PLATE INLET 2 INCH TOWER 1	50	8	CF202	SOC. HD. CAP SCREW M6 x 10 - SS

SPARE KIT

SL NO.	PART NUMBER	DESCRIPTION	SPARE KIT CONSISTING OF		
6	AS697	FILTER ELEMENT ASSEMBLY T600Y	CO200	O-RING (78 X 3.0)	2
			CD943	SEAL RUBBER	1
			AC147	FILTER ELEMENT T600Y	1
5	SK276A	DESICCANT WITH SEAL KIT - DRYSPELL PLUS 300	SK249A	SEALS AND O-RING SPARE KIT DPS-300	1
			AD642	TOP COMPACTOR PLATE	6
			AD641	BOTTOM DIFFUSER	6
			AD1398	ACTIVATED ALUMINA BAG	18
			AD1424	MOLECULAR SIEVES BAG	6
4	SK270A	SHUTTLE VALVE ASSY SAPRE KIT - DRYSPELL PLUS 300	CO123	O-RING (66.03 X 3.53)	3
			CC366	CIRCLIP B-75	1
			AD1449	TOP SHUTTLE	1
3	SK251A	PILOT OPERATED VALVE ASSY SPARE KIT	AD1400	POPPET MOULDED	1
			AD1399	SPRING COMP.	1
			CO196	O-RING (85.3 X 5.7)	1
			CO197	O-RING (71.2 X 3.53)	2
			CO198	O-RING (9.6 X 2.4)	2
			CO119	O-RING (12.3 X 2.4)	1
			CO120	U-RING	1
2	SK239A	EXHAUST VALVE SPARE KIT DPS-100	CD193A	GASKET NON-METAL	2
			CC302	SEAL RING	2
			AD637	SPRING COMP	2
			CO042	O-RING (18.72 X 3.53)	2
			CO041	O-RING (47.2 X 5.33)	2
			CO118	O-RING (7.6 X 2.4)	2
			CO009	O-RING (31.6 X 2.4)	2
1	SK249A	SEALS AND O-RING SPARE KIT DPS-300	CD192	DRYING TOWER GASKET	12
			CO125	O-RING (62 X 3.0)	1
			CO187	O-RING (56 X 2.0)	8
			CO126	O-RING (49 X 3.53)	3
			CO140	O-RING (54.5 X 3.0)	2

DRYSPELL PLUS 375 EXPLODED VIEW
Drw. No. PD247



Parts List				Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AD1568	BOTTOM CHAMBER LEFT	26	8	CF247	SOC. HD. CAP SCREW M8 X 90
2	1	AD1567	BOTTOM CHAMBER RIGHT	27	1	AD1574	CONNECTOR PLATE INLET 2 INCH TOWER 1
3	12	CD192	DRYING TOWER GASKET	28	1	AD1541	EXHAUST VALVE ASSY RIGHT
4	6	AD1488	DRYING TOWER DRYSPELL PLUS 125	29	---	AD224	ONE TOUCH TUBE
5	1	AD1566	TOP CHAMBER LEFT	30	8	CF248	SOC. HD. CAP SCREW M10 X 20
6	1	AD1565	TOP CHAMBER RIGHT	31	1	AD1451	SHUTTLE VALVE ASSY DRYSPELL PLUS 375
7	8	CO187	O-RING (56 X 2.0)	32	1	AD1571	CONNECTOR PLATE INLET 2"
8	4	AD1533	END COVER BOTTOM	33	1	AD1569	CONNECTOR 2"
9	18	AD1398	DESICCANT BAG	34	1	AD1570	CONNECTING BUSH 2"
10	1	AD1542	EXHAUST VALVE LEFT	35	2	CO140	O-RING 54.5 X 3.0
11	2	AD658	MUFFLER ASSY. 1"	36	2	AD1528	ASSY MOUNTING BRACKET DPS 100
12	6	AD1424	MOLECULAR SIEVES BAG	37	1	AD1578	PILOT OPERATED VALVE 3 WAY- 2 " BSP
13	34	CF201	SOC. HD. CAP SCREW M6 X 16	38	1	AD1573	OUTLET COVER 2" BSP
14	2	AS079	SOLENOID VALVE ASSY	39	1	CO125	O-RING 62 x 3.0
15	1	AD1349	CONTROLLER BOX ASSY UL DS30-200	40	72	CF141	SOC. HD. CAP SCREW M8 X 40
16	1	CP362	DISPLAY STICKER UL DS31-Z00	41	12	CF103	SOC. HD. CAP SCREW M8 X 30
17	6	AD641	BOTTOM DIFFUSER ASSY	42	1	CO021	CONNECTOR 1/4" x 1/4"
18	6	AD642	TOP COMPACTOR PLATE	43	1	AD614	24V SOLENOID VALVE
19	8	CF250	HEX NUT M8	44	1	AC011	ONE TOUCH ELBOW 1-4 MALE
20	34	CF090	SPRING WASHER M6	45	5	AC115	ONE TOUCH ELBOW 1-8 MALE
21	3	AD1551	CONNECTOR PLATE	46	1	AD1502	TOP COVER DRYSPELL PLUS 100 & ABOVE
22	4	CF106	SOC. HD. CAP SCREW M8 X 20	47	1	AD1504	BACK COVER 300 & 375
23	3	CO126	O-RING 49 x 3.53	48	6	AD1425	ACTIVATED ALUMINA + MOLECULAR SIEVES BAG
24	12	CF259	SOC. HD. CAP SCREW M8 X 115	49	1	AD1500	BEZZEL DRYSPELL PLUS
25	24	CF189	SPRING WASHER M8	50	8	CF202	SOC. HD. CAP SCREW M6 x 10 - SS
				51	8	CF320	PLATE WASHER M6 -SS

SPARE KIT

SL NO.	PART NUMBER	DESCRIPTION	SPARE KIT CONSISTING OF		
6	AS697	FILTER ELEMENT ASSEMBLY T600Y	CO200	O-RING (78 X 3.0)	2
			CD943	SEAL RUBBER	1
			AC147	FILTER ELEMENT T600Y	1
5	SK277A	DESICCANT WITH SEAL KIT- DRYSPELL PLUS 375	SK249A	SEALS AND O-RING SPARE KIT DPS 300 - 375	1
			AD642	TOP COMPACTOR PLATE	6
			AD641	BOTTOM DIFFUSER	6
			AD1398	ACTIVATED ALUMINA BAG	18
			AD1425	ACTIVATED ALUMINA + MOLECULAR SIEVES BAG	6
			AD1424	MOLECULAR SIEVES BAG	6
4	SK271A	SHUTTLE VALVE ASSY SAPRE KIT - DRYSPELL PLUS 375	CO123	O-RING (66.03 X 3.53)	3
			CC366	CIRCLIP B-75	1
			AD1458	TOP SHUTTLE	1
3	SK251A	PILOT OPERATED VALVE ASSY SPARE KIT	AD1400	POPPET MOULDED	1
			AD1399	SPRING COMP.	1
			CO196	O-RING (85.3 X 5.7)	1
			CO197	O-RING (71.2 X 3.53)	2
			CO198	O-RING (9.6 X 2.4)	2
			CO119	O-RING (12.3 X 2.4)	1
			CO120	U-RING	1
2	SK239A	EXHAUST VALVE SPARE KIT DPS-100	CD193A	GASKET NON-METAL	2
			CC302	SEAL RING	2
			AD637	SPRING COMP	2
			CO042	O-RING (18.72 X 3.53)	2
			CO041	O-RING (47.2 X 5.33)	2
			CO118	O-RING (7.6 X 2.4)	2
			CO009	O-RING (31.6 X 2.4)	2
1	SK249A	SEALS AND O-RING SPARE KIT DPS-300 - 375	CD192	DRYING TOWER GASKET	12
			CO125	O-RING (62 X 3.0)	1
			CO187	O-RING (56 X 2.0)	8
			CO126	O-RING (49 X 3.53)	3
			CO140	O-RING (54.5 X 3.0)	2

8.5.6.1 Changing the desiccant

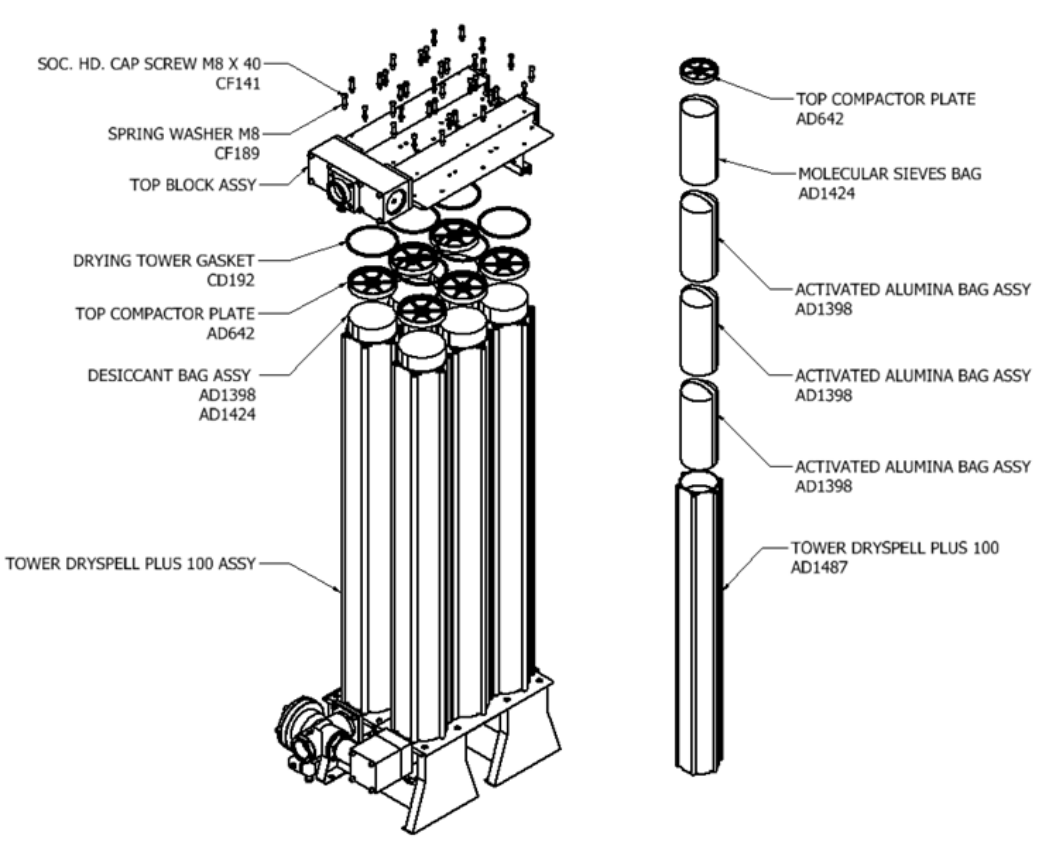


Figure 34. Changing desiccant-Dryspell Plus model 300

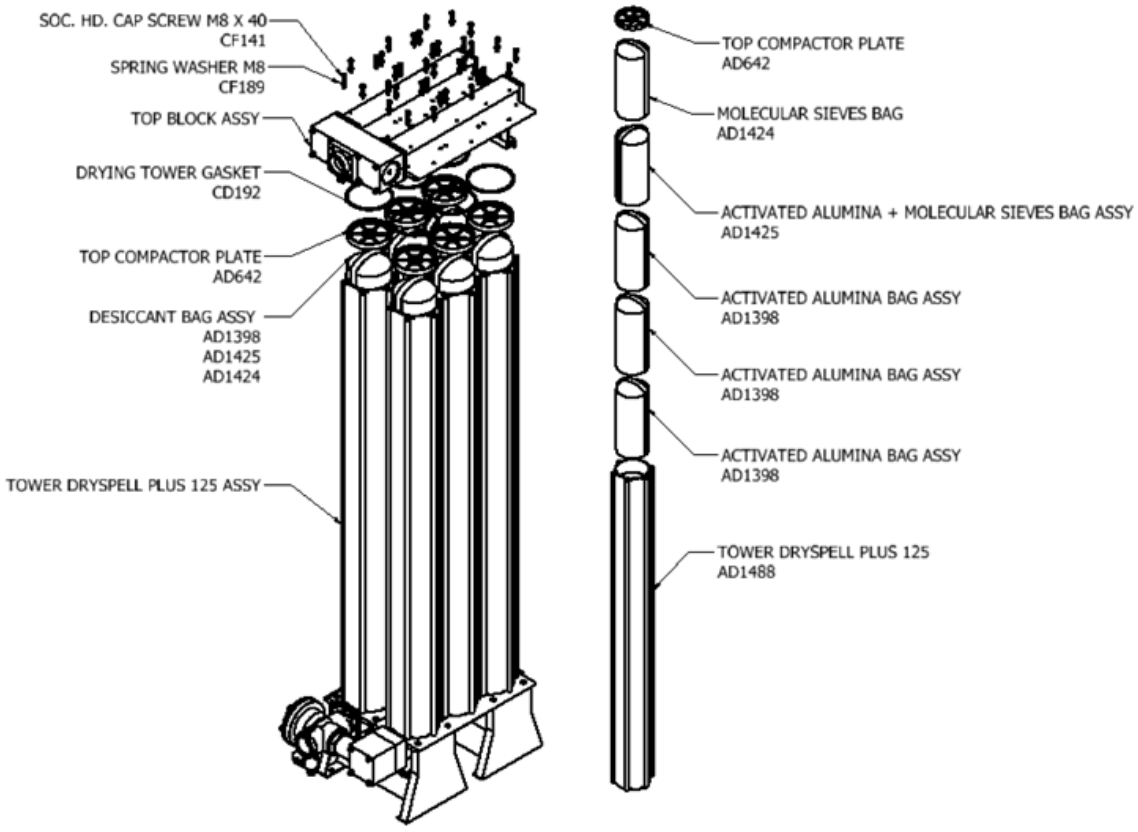


Figure 35. Changing desiccant-Dryspell Plus model 375

- Disconnect the solenoid coil and inlet valve wire connection
- Remove the pilot air connection from the top block assembly
- Remove the socket head cap screws M8 * 40
- Remove the top chamber with the controller.
- Remove the drying tower gasket and replace with new ones
- Remove the top compactor plates (Six)
- Remove the old desiccant bags.
- Clean the drying towers
- Filling the desiccant bag assembly :

Dryspell plus model 300:

Fill the desiccant bag assembly firstly with 3 bags of Activated Alumina AD1398 followed by a bag of molecular sieves AD1424 as shown in the figure 34.

Dryspell plus model 375:

Fill the desiccant bag assembly firstly with 3 bags of Activated Alumina AD1398 followed by a bag of mixed Activated alumina and Molecular Sieves AD1425, lastly with a bag of molecular sieves AD1424 as shown in the figure 35.

- Replace the top compactor plate with new one
- Fix the top block assembly and tighten the cap screws
- Connect the solenoid coil, inlet valve and pilot air connections
- Fasten the towers in the bottom by tightening the screws.

For changing the top shuttle in dryspell plus models 300 & 375 refer section 8.5.5.2

8.5.6.2 Changing the inlet valve assembly

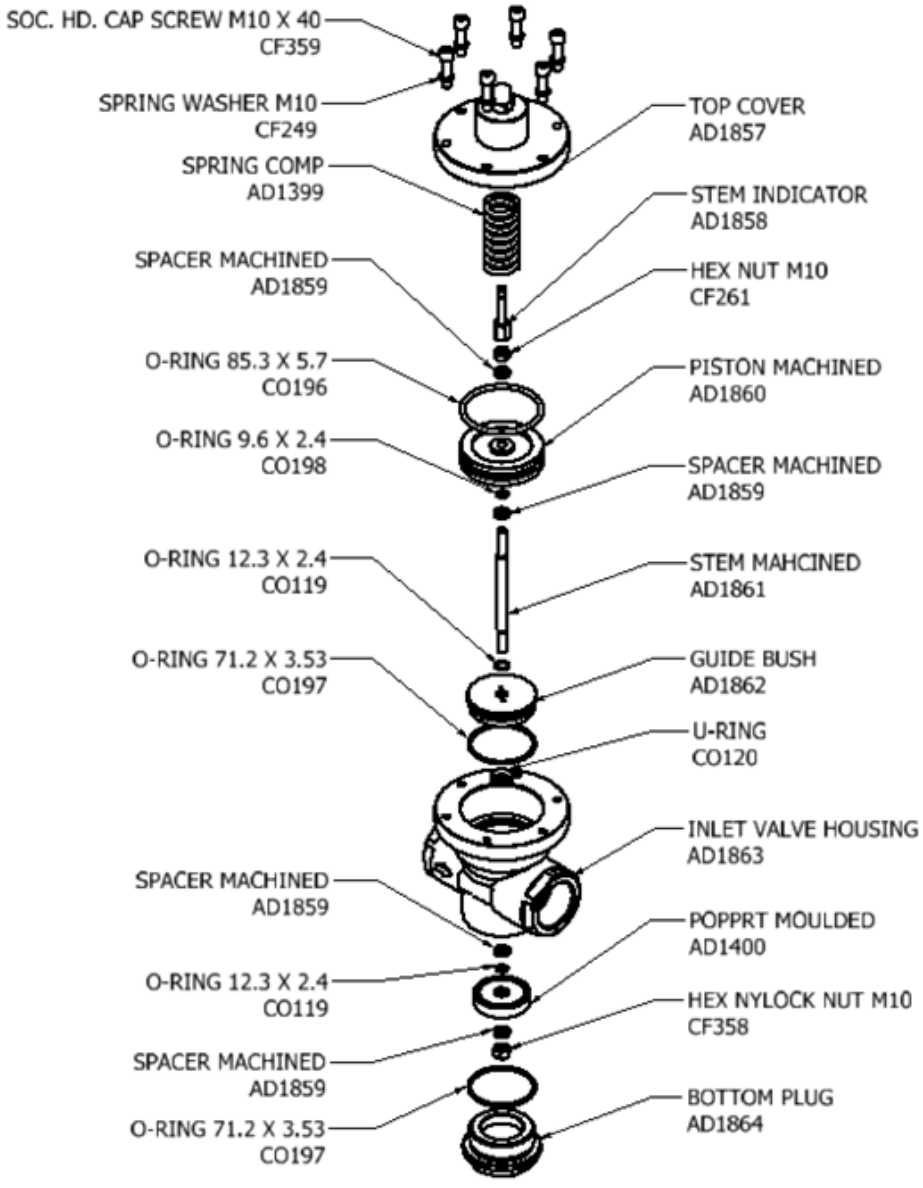


Figure 36. Exploded view of inlet valve assembly-Dryspell Plus model 300 & 375

- Using an Allen key, remove the screws M10 *40 at the top cover
- Remove the top cover and clean it
- Remove the spring comp
- Remove and clean the stem indicator
- Remove M10 hex nut
- Remove Spacer machined and piston machined
- Discard and replace the o- ring 85.3 * 5.7 & 9.6 * 2.4
- Remove the spacer machined
- Remove bottom plug by using spanner
- Discard and replace the o- ring 71.2 * 3.53
- Remove M10 Nylock nut
- Remove spacer machined and poppet moulded
- Discard and replace the o-ring 12.3 * 2.4
- Remove spacer machined
- Remove stem machined AD1861
- Remove guide bush
- Discard and replace the o- ring 71.2 * 3.53 and 12.3 * 2.4
- Discard and replace the u-ring
- Reassemble all the parts

For servicing the Exhaust valve in dryspell plus models 300 & 375 refer section 8.5.4.4

Section 9

Disposal of consumables and replaced parts

Disposal of the condensate, desiccant, filter elements and other spare parts of the dryer is to be done in accordance with the pollution control norms prevailing at the time of dryer installation or use.

Dryer parts that are replaced have metal and rubber components. These may be disposed in accordance with the pollution control regulations.

Section 10

Troubleshooting

Problem	Possible Cause	Solution
LEDS not lighting up	Loose connections or incorrect voltage	Attend to the power supply.
Tower-status LED not changing	1) Controller faulty 2) Solenoid valve faulty	1) Change the controller 2) Replace the solenoid valve.*
Status LEDs change but towers not switching	1) Faulty coil connection at DIN and terminal connector in the controller	1) Change the controller.* 2) Replace the solenoid valve.*
No purging	1) Faulty solenoid valve 2) Faulty exhaust valve 3) Silencer not clean	1) Replace the solenoid valve.* 2) Clean the exhaust valve. 3) Clean the silencer.
Continuous purging at tower 1	1) Shuttle not closing 2) Exhaust valve not closing	1) Clean the shuttle valve. 2) Call Trident for service support.
Purge loss excessive	1) Outlet shuttle not closing 2) Silencer choked	1) Clean the shuttle. 2) Clean the silencer.
High pressure drop across dryer	1) Pre-filter clogged. 2) Dryer overflowing	1) Replace filter elements. 2) Reduce the flow rate.
Moisture at the outlet or low dewpoint	1) Purge economiser mode not at 100% or at calculated percentage of load factor 2) Valves not functioning properly or dryer not cycling as in normal operation 3) Pre-filtering of air not adequate 4) Desiccant degraded	1) Set the economiser mode at the correct value 2) Call Trident for service support. 3) Replace the filter element. 4) Replace the desiccant.

* Call Trident for this action.

Section 11

Recommended parts and consumables

S. No.	Item Code	For Models	Description of Spare Part
1	AS701	Dryspell Plus 10	Filter element assembly T 100 Y
2	SK278A		Seal kit with desiccant-Dryspell Plus 10
3	SK220A		Exhaust valve spare kit Dryspell Plus 10
4	SK210A		Seals and O-ring spare kit-Dryspell Plus 10
5	AS701	Dryspell Plus 20, 30	Filter element assembly T 100P
6	SK280A		Desiccant with seal kit-Dryspell Plus 30
7	SK279A		Desiccant with seal kit-Dryspell Plus 20
8	SK222A		Exhaust valve spare kit Dryspell Plus 20, 30 and 45
9	SK282A		Seals and O-Ring spare kit-Dryspell Plus 30
10	SK281A		Seals and O-Ring spare kit-Dryspell Plus 20
11	AS701	Dryspell Plus 45	Filter element assembly T100P
12	SK284A		Seal kit with desiccant-Dryspell Plus 45
13	SK222A		Exhaust valve spare kit Dryspell Plus 20, 30 and 45
14	SK283A		Seals and O-ring spare kit-Dryspell Plus 45
15	AS693	Dryspell Plus 60	Filter element assembly T250P
16	SK286A		Seal kit with desiccant-Dryspell Plus 60
17	SK222A		Exhaust valve spare kit-Dryspell Plus 20, 30 and 45
18	SK285A		Seals and O-ring spare kit-Dryspell Plus 60
19	AS693	Dryspell Plus 100	Filter element assembly T250P
20	SK272A		Desiccant with seal kit-Dryspell Plus 100
21	SK266A		Shuttle valve assembly spare kit-Dryspell Plus 100
22	SK240A		Inlet valve assembly spare kit (1”)
23	AD1540		Inlet valve assembly
24	SK239A		Exhaust valve spare kit-Dryspell Plus 100
25	AD1541		Exhaust valve assembly-right
26	AD1542		Exhaust valve assembly-left
27	SK238A		Seals and O-ring spare kit Dryspell Plus 100
28	AS693	Dryspell Plus 125	Filter element assembly T250P
29	SK273A		Desiccant with seal kit-Dryspell Plus 125
30	SK267A		Shuttle valve assembly spare kit-Dryspell Plus 125
31	SK240A		Inlet valve assembly spare kit (1”)
32	SK239A		Exhaust valve spare kit-Dryspell Plus 100
33	SK238A		Seals and O-ring spare kit-Dryspell Plus 100

34	AS697	Dryspell Plus 200	Filter element assembly T600P
35	SK274A		Desiccant with seal kit-Dryspell Plus 200
36	SK268A		Shuttle valve assembly spare kit-Dryspell Plus 200
37	SK244A		Inlet valve assembly spare kit (1½")
38	AD1540		Inlet valve assembly
39	SK239A		Exhaust valve spare kit-Dryspell Plus 100
40	AD1541		Exhaust valve assembly-right
41	AD1542		Exhaust valve assembly-left
42	SK243A		Seals and O-ring spare kit-Dryspell Plus 200 and 250
43	AS697	Dryspell Plus 250	Filter element assembly T600P
44	SK275A		Desiccant with seal kit-Dryspell Plus 250
45	SK269A		Shuttle valve assembly spare kit-Dryspell Plus 250
46	SK244A		Inlet valve assembly spare kit (1½")
47	SK239A		Exhaust valve spare kit-Dryspell Plus 100
48	SK243A		Seals and O-ring spare kit-Dryspell Plus 200 and 250
49	AS697	Dryspell Plus 300	Filter element assembly T600P
50	SK276A		Desiccant with seal kit-Dryspell Plus 300
51	SK270A		Shuttle valve assembly spare kit-Dryspell Plus 300
52	SK251A		Pilot-operated valve assembly spare kit
53	AD1540		Inlet valve assembly
54	SK239A		Exhaust valve spare kit-Dryspell Plus 100
55	AD1541		Exhaust valve assembly-right
56	AD1542		Exhaust valve assembly-left
57	SK249A		Seals and O-ring spare kit DPS-300
58	AS697	Dryspell Plus 375	Filter element assembly T600P
59	SK277A		Desiccant with seal kit-Dryspell Plus 375
60	SK271A		Shuttle valve assembly spare kit-Dryspell Plus 375
61	SK251A		Pilot-operated valve assembly spare kit
62	SK239A		Exhaust valve spare kit-Dryspell Plus 100
63	SK249A		Seals and O-ring spare kit-Dryspell Plus 300 and 375

Section 12

Sales and Services

PneumaticPlus

1300 E. 223rd st #505
Carson, CA 90745
Tel: 800-658-3579
Email: Sales@Pneumaticplus.com

Appendix

Conversion tables

Unit Conversion

CONVERT TO FROM	Pressure Multiplying Factors						
	PSI	mm(HG)Torr	ATMOS	BAR	kgf/cm^2	pascal	Kpa
Psi (lbf/in2)	1	27.6779	0.068046	0.06895	0.070307	6894.76	6.89476
mmHg (Torr)	0.019337	1	0.0013158	0.00133	0.0013591	133.322	0.13332
Atmos	14.6959	406.781	1	1.01325	1.03323	101325	101.325
Bar	14.504	401.463	0.9869	1	1.0197	100000	100
Kg/cm2	14.2233	393.7	0.967841	0.980665	1	98066.5	98.0665
Pascal	0.000145	0.004015	0.0000099	0.00001	0.0000102	1	0.001
Kpa	0.14504	7.501	0.0099	0.01	0.0102	1000	1

Flow

CONVERT TO FROM	FLOW MULTIPLYING FACTORS			
–	Litre/min	m3/min	m3/hour	scfm
Litre/min	1	0.001	0.060	0.035315
m3/sec	60000	60	3600	2118.88
m3/min	1000	1	60	35.32
m3/hour	16.6667	0.0166667	1	0.588578
scfm	28.31682	0.0283168	1.699	1