

SUPER DELIQUESCENT DRYERS

Ideal for construction, painting, lumber mills, sand-blasting, mining and other remote area applications.

No electricity is required for operations

Dew Point Suppression up to 70°F/38.9°C

Why a Super Deliquescent Dryer:

These are the only deliquescent dryers capable of suppressing, or reducing, compressed air dew points by up to 70°F/38.9°C. This is important because *dew point* is the temperature at which moisture begins to condense. In a compressed air system, measurement of dew point under pressure is termed the *pressure dew point* (PDP). Knowing the required PDP is critical for the proper sizing and operation of your Super Deliquescent Dryer.

A Super Deliquescent Dryer requires minimum capital outlay, is easy to install, requires little maintenance and requires no electrical connection.

The Pioneer Air Super Deliquescent Dryer has a number of advantages:

- **Built-in Pre-filter** – the Desiccant Saver pre-filters the air/gas, thus eliminating the need for an external pre-filter system.
- **Minimum Desiccant Consumption** – a unique Desiccant Saver reduces desiccant consumption to a minimum. More than 50% of the moisture is removed in the first three steps of the drying process, none of which require additional desiccant. This reduces the desiccant usage in relation to the water removed, to less than half of competitive systems.
- **Prevents Drain Clogging** – the Desiccant Saver filters the condensate and prevents drain clogging.
- **Quicker Desiccant Filling** – Models SD100 and larger have an oversized manway for desiccant filling
- **Minimum Maintenance** – Inspection of the Super Deliquescent Dryer is required no more often than once a week to assure that desiccant is maintained at or above the installed sight glass.
- **Exceptional Reliability** – There are no moving parts or electrical connections
- **Low Pressure Drop** – Approximately 1.0 psid/0.07 barg.
- **Energy Efficient** – No electrical parts in the dryer
- **Easy Inspection** – Two sight glasses are installed.

Super Deliquescent Dryer standard features:

- **Initial Fill of Veri-Dri 40 Plus Desiccant** – included
- **Four-Step Drying** – The air is dried four times to give the highest quality of clean, dry air.
- **Superior Desiccant** – Veri-Dri 40 Plus is the only desiccant capable of achieving 70°F/38.9°C PDP suppression. It can absorb up to four times its weight in water. And, even as a liquid mixture in the vessel, it continues to absorb large amounts of moisture.
- **Desiccant Saver** – Desiccant which is wasted in competitive dryers is used to increase drying capacity and reduce desiccant consumption. This feature also prevents clogging.
- **Five-Year Prorated Vessel Warranty**
- **Epoxy Coated Vessel Interior**
- **ASME Vessels** – All models are designed to meet ASME pressure vessel code and larger vessels are manufactured and Code stamped in Pioneer's ASME Code shop.
- **Drain** – a manual drain is standard. For automatic operation a Motorized Drain is available as an option.
- **Desiccant Sight Glass**
- **Condensate Sight Glass**
- **Stainless Steel Outlet Screen** – for longevity

OPTIONAL FEATURES:

- One micron pre/post filters
- Oil-Alert Filter
- Stainless Steel Motorized Drain
- High pressure dryers – up to 3000 psig/206 barg
- Low pressure dryers – to atmospheric pressure
- Natural gas dehydrators
- Portable systems

Applications:

- Remote locations
- Explosive/Classified areas
- Natural gas drying
- Biogas drying
- Second-stage drying
- Lumber mills
- Mines
- Construction sites
- Intermittent air usage

<u>Model</u>	Capacity at 100psig and 40 F PDP	Inlet/ Outlet	Dimensions Height - width	Pressure Rating	Vessel Weight	Dessicant Weight
	<u>Suppression-scfm</u>	<u>Size In.</u>	<u>Inches</u>	<u>psig</u>	<u>Lb/Kg</u>	<u>Lb/Kg</u>
SD10	10	1/2"	32 - 10	200	45/20	9lb 4kg
SD15	15	1/2"	42 - 10	200	60/27	15/7
SD20	20	1/2"	45 - 10	200	68/31	19/8.7
SD25	25	1/2"	48 - 10	200	75/36	23/10.5
SD30	35	1/2"	53 - 10	200	90/41	30/14
SD50	50	3/4"	75 - 10	200	120/54	45/20.5
SD75	75	1"	66 - 8.5	200	160/72	68/31
SD100	100	1"	80 - 8.5	200	240/108	90/41
SD150	150	1"	79 - 10.6	200	300/136	135/61
SD200	200	1 1/2"	78 - 12.75	200	350/159	180/82
SD250	250	1 1/2"	84 - 12.75	200	380/172	225/102
SD300	300	2"	71 - 15	150	450/294	270/122.5
SD400	400	2"	84 - 15	150	525/238	360/163
SD500	500	3"	85 - 18	150	600/272	450/204
SD625	625	3"	72 - 25.5	150	690/313	563/255
SD750	750	3"	80 - 25.5	150	820/373	675/306
SD1000	1000	3"	90 - 24	150	1045/474	900/408
SD1250	1250	3"	85 - 30	150	1250/567	1125/510
SD1500	1500	4"	86 - 35	150	1600/726	1350/612
SD1750	1750	4"	85 - 35	150	2000/907	1575/714
SD2000	2000	4"	89 - 42	125	2500/1134	1800/817
SD2250	2250	4"	92 - 42	125	2800/1280	2050/937
SD2500	2500	4"	95 - 42	125	3100/1406	2250/1021
SD2750	2750	4"	94 - 48	125	3300/1508	2500/1142
SD3000	3000	6"	97 - 48	125	3700/1678	2700/1225

Correction Factor – Actual Capacity = Correction Factor x nominal capacity

Dew Point Suppression	30°F/16.7°C	40°F/22.2°C	50°F/27.8°C	60°F/33.3°C
	1.1	1.0	0.9	0.8

<u>Inlet Pressure psig</u>	5.0	10.0	20.0	30.0	40.0	70.0	100	125	150	200
<u>Correction Factor</u>	0.20	0.28	0.36	0.44	0.52	0.76	1.0	1.20	1.40	1.80

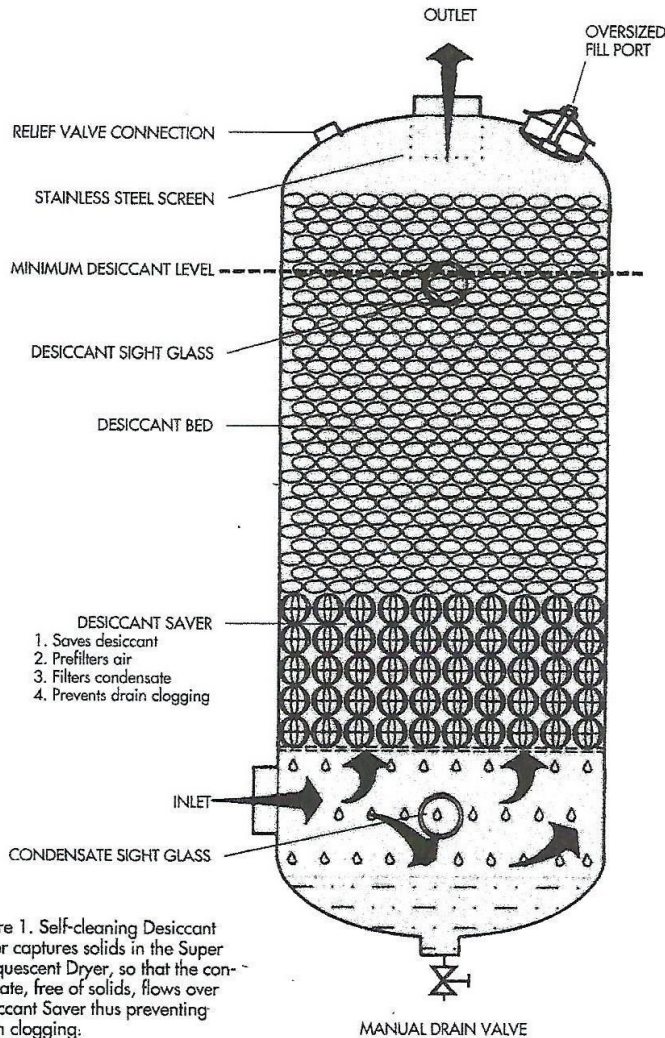


Figure 1. Self-cleaning Desiccant Saver captures solids in the Super Deliquescent Dryer, so that the condensate, free of solids, flows over Desiccant Saver thus preventing drain clogging.

Four-step drying process for superior performance

STEP 4

Solid desiccant section

The air reaches its final dryness by coming in contact with a deep bed of solid desiccant briquettes where the last traces of moisture are absorbed.

STEP 3

Semi-solid desiccant section

Prevents fusing, bridging and channelling of desiccant common in competitive dryers. Also lowers desiccant consumption and prevents drain clogging.

STEP 2

Liquid desiccant section

Holds desiccant in liquid phase. Saves desiccant consumption by pre-drying the air/gas with desiccant that is wasted in competitive dryers. Also, filters air/gas flowing up and condensate flowing down.

STEP 1

Separator section

Incoming air/gas enters the vessel near the base in liquid sump area. Due to sudden expansion, free liquid droplets and large particles settle at the bottom.