Dryers

Compressed air and its purification from generation to application

Compressed air is an essential power source that is widely used throughout industry. This safe, powerful and reliable utility can be the most important part of your production process. However, your compressed air will contain water, dirt, wear particles and even degraded lubricating oil which all mix together to form an unwanted condensate. This condensate often acidic, rapidly wears tools and pneumatic machinery, blocks valves and orifices causing high maintenance and costly air leaks. It also corrodes piping systems and can bring your production process to an extremely expensive standstill!

The quality of air required throughout a typical compressed air system can vary.

It is highly recommended that the compressed air is treated prior to entry into the distribution system as well as at each usage point or application.

This approach to system design provides the most cost effective solution to system purification as it not only removes the contamination already in the distribution system, it ensures that only the most critical areas receive air treated to the highest level.

In many instances the compressed air system will be supplying air to more than one application and although the purification equipment specified in the compressor room would remain unchanged, the point of use protection will vary depending upon the air quality requirements of each application.

In many cases this action alone is not enough, as modern production systems and processes demand an even higher level of air quality. Where required, “point of use” filtration, refrigeration or desiccant air dryers can provide the correct air quality, without the need for drying the complete compressed air installation, which can be both costly and totally unnecessary.

Sources of contamination found in a compressed air system

Contaminants in a compressed air system can generally be attributed to the following:

The quality of air being drawn into the compressor
Air compressors draw in a large volume of air from the surrounding atmosphere containing large numbers of airborne contaminants.

The type and operation of the air compressor
The air compressor itself can also add contamination, from wear particles to coolants and lubricants.

Compressed air storage devices and distribution systems
The air receiver and system piping are designed to store and distribute the compressed air. As a consequence, they will also store the large amounts of contaminants drawn into the system. Additionally, piping and air receivers will also cool the moist compressed air forming condensate which causes damage and corrosion.

Types of contamination found in a compressed air system

Atmospheric Dirt

Atmospheric air in an industrial environment typically contains 183 million per yd^3 (140 million per m^3) of dirt particles. 80% of these particles are less than 2 microns in size and are too small to be captured by the compressor intake filter, therefore passing directly into the compressed air system.

Water Vapor, Condensed Water And Water Aerosols

Atmospheric air contains water vapor (water in a gaseous form). The ability of compressed air to hold water vapor is dependent upon it's temperature. The higher the temperature, the more water vapor that can be held by the air. During compression, the air temperature is increased significantly, which allows it to easily retain the incoming moisture. After the compression stage, air is normally cooled to a usable temperature. This reduces the airs ability to retain water vapor, resulting in a proportion of the water vapor being condensed into liquid water which is removed by a condensate drain fitted to the compressor after-cooler. The air leaving the after-cooler is now 100% saturated with water vapor and any further cooling of the air will result in more water vapor condensing into liquid water. Condensation occurs at various stages throughout the system as the air is cooled further by the air receiver, piping and the expansion of valves, cylinders, tools and machinery. The condensed water and water aerosols cause corrosion to the storage and distribution system, damage production equipment and the end product. It also reduces production efficiency and increases maintenance costs. Water in any form must be removed to enable the system to run correctly and efficiently.

Rust and Pipescale

Rust and pipescale can be found in air receivers and the piping of “wet systems” (systems without adequate purification equipment) or systems which were operated “wet” prior to purification being installed. Over time, this contamination breaks away to cause damage or blockage in production which can also contaminate final product and processes.

Micro-Organisms

Bacteria and viruses will also be drawn into the compressed air system through the compressor intake and warm, moist air provides an ideal environment for the growth of micro-organisms. If only a few micro-organisms were to enter a clean environment, a sterile process or production system, enormous damage could be caused that not only diminishes product quality, but may even render a product entirely unfit for use and subject to recall.

Liquid Oil And Oil Aerosols

Most air compressors use oil in the compression stage for sealing, lubrication and cooling. During operation, lubricating oil is carried over into the compressed air system as liquid oil and aerosols. This oil mixes with water vapor in the air and is often very acidic, causing damage to the compressed air storage and distribution system, production equipment and final product.

Oil Vapor

In addition to dirt and water vapor, atmospheric air also contains oil in the form of unburned hydrocarbons. The unburned hydrocarbons drawn into the compressor intake as well as vaporized oil from the compression stage of a lubricated compressor will carry over into a compressed air system where it can cool and condense, causing the same contamination issues as liquid oil.

Up to 99% of the total liquid contamination found in a compressed air system is water.

Oil is perceived to cause the most problems as it is seen emanating from open drain points and exhausting valves, however, in the majority of instances, it is actually oily condensate (oil mixed with water) that is being observed.

How much water can be found in a typical compressed air system?

The amount of water in a compressed air system is staggering. A small 100 SCFM (2.8m^3/min) compressor and refrigeration dryer combination, operating for 4,000 hours in typical climatic conditions can produce approximately 2,200 gallons (8,328 liters) of liquid condensate per year.

If the compressor is oil lubricated with a typical 2ppm (2 mg/m^3) oil carryover, then although the resulting condensate would visually resemble oil, oil would in fact account for less than 0.1% of the overall volume and it is this resemblance to oil to which a false association is made.

The example above assumes uses a small compressor to highlight the large volume of condensate produced. If a compressed air system was operated in warmer, more humid climates, or with larger compressors installed, running for longer periods, the volume of condensate would increase significantly.

Contamination and types of compressors

It is often believed that the level of compressed air purification equipment required in a system is dependent upon the type of compressor used. Contamination in a compressed air system originates from many sources and is not related solely to the compressor or it's lubricants. No matter what compressor type is selected, adequate filtration and separation products will be required to remove the large volume of dirty contaminated water as well as the dirt, rust, pipescale and microbiological contamination in the system.

Preventative maintenance provides you with the following benefits:

- Lowest operating costs
- Superior compressed air quality
- Continued protection of downstream equipment and processes
- Peace of mind

Compressed air and it’s purification

Having identified the different types of contamination that can be found within a compressed air system, we can now examine the purification technologies available for it’s removal.

Particle and coalescing filters

Coalescing filters are probably the most important items of purification equipment in any compressed air system. They are designed to remove oil and water aerosols using mechanical filtration techniques and have the additional benefit of removing solid particulate to very low levels (as small as 0.01micron in size). Installed in pairs, most users believe one to be an oil removal filter and the other to be a particulate filter, when in fact, the pair of filters both perform the same function. The first filter, a general purpose filter is used to protect the high efficiency filter against bulk contamination. This "dual filter" installation ensures a continuous supply of high quality compressed air with low operational costs and minimal maintenance time.

Bulk liquid removal high efficiency water separators

Used to protect filters in systems where excessive cooling takes place in distribution piping. Water Separators will remove in excess of 98% of bulk liquid contamination through centrifugal separation techniques.

Refrigeration dryers

Refrigeration dryers work by cooling the air, so are limited to positive pressure dewpoint ratings to prevent freezing of the condensed liquid. Ideal for general purpose applications, they typically provide pressure dewpoints of 38˚F (3˚C), 45˚F (7˚C) or 50˚F (10˚C) pdp. Air is reheated before it re-enters the system to prevent piping from “sweating” in humid conditions. Refrigeration dryers are not suitable for installations where piping is installed in ambient temperatures below the dryer dewpoint i.e. systems with external piping.

Adsorption (desiccant) dryers

Water vapor is water in a gaseous form and is removed from compressed air using a dryer, with dryer performance being measured as pressure dewpoint. Adsorption or desiccant dryers remove moisture by passing air over a regenerative adsorbent material which strips the moisture from the air. This type of dryer is extremely efficient and typical pressure dewpoint ratings are -40˚F (-40˚C) or -100˚F (-70˚C) pdp. This means that for water vapor to condense into a liquid, the air temperature would have to drop below -40˚F (-40˚C) to -100˚F (-70˚C) respectively (the actual air temperature after an adsorption dryer is not the same as it's dewpoint).

Beneficially, a pressure dewpoint of -15˚F (-26˚C) or better will not only prevent corrosion, but will also inhibit the growth of microorganisms within the compressed air system.

Important note regarding compressed air dryers

As adsorption and refrigeration dryers are designed to remove only water vapor and not water in a liquid form, they require the use of particulate and coalescing filters, and possibly a bulk liquid separator to work efficiently.

Compressed air quality standards – ISO 8573

ISO 8573 is the group of International standards relating to the quality of compressed air and consists of nine separate parts. Part 1 specifies the quality requirements of the compressed air and parts 2 - 9 specify the methods of testing for a range of contaminants.

ISO 8573.1 : 2010 is the primary document used from the ISO 8573 series and it is this document which allows the user to specify the air quality or purity required at key points in a compressed air system.

ISO8573-1 lists the main contaminants as Solid Particulate, Water and oil. The purity levels for each contaminant are shown in separate tables, however for ease of use, this document combines all three contaminants into one easy to use table.

ISO8573-1:2010 Class	Solid Particulate				Water		Oil
	Maximum number of particles per m^3			Concentration	Vapor	Liquid	Total oil (aerosol, liquid and vapor)
	0.1 - 0.5 micron	0.5 - 1 micron	1 - 5 micron	mg/m^3	Pressure Dewpoint	g/m^3	ppm (mg/m^3)
0	As specified by the equipment user or supplier and more stringent than Class 1						
1	⩽ 20,000	⩽ 400	⩽ 10	–	⩽ -94°F (-70°C)	–	0.008 (0.01)
2	⩽ 400,000	⩽ 6,000	⩽ 100	–	⩽ -40°F (-40°C)	–	0.08 (0.1)
3	–	⩽ 90,000	⩽ 1,000	–	⩽ -4°F (-20°C)	–	0.83 (1)
4	–	–	⩽ 10,000	–	⩽ 37°F (3°C)	–	4.2 (5)
5	–	–	⩽ 100,000	–	⩽ 45°F (7°C)	–	–
6	–	–	–	⩽ 5	⩽ 50F (10°C)	–	–
7	–	–	–	5 - 10	–	⩽ 0.5	–
8	–	–	–	–	–	0.5 - 5	–
9	–	–	–	–	–	5 - 10	–
X	–	–	–	⩽ 10	–	⩽ 10	⩽ 10

Specifying Air Purity In Accordance With ISO 8573-1:2010

When specifying the purity of air required, the standard must always be referenced, followed by the purity class selected for each contaminant (a different purity class can be selected for each contaminant if required). An example of how to write an air quality specification is shown below:

Example:

ISO 8573-1:2010 Class 1.2.1

ISO8573-1:2010 refers to the standard document and its revision, the three digits refer to the purity classifications selected for solid particulate, water and total oil. Selecting an air purity class of 1.2.1 would specify the following air quality when operating at the standard's reference conditions:

Class 1, Particulate
In each cubic meter of compressed air, the particulate count should not exceed 20,000 particles in the 0.1 - 0.5 micron size range, 400 particles in the 0.5 - 1 micron size range and 10 particles in the 1 - 5 micron size range.

Class 2, Water
A pressure dewpoint (PDP) of -40°F (-40°C) or better is required and no liquid water is allowed.

Class 1, Oil
In each cubic meter of compressed air, not more than 0.01mg of oil is allowed. This is a total level for liquid oil, oil aerosol and oil vapor.

Cost Effective System Design

To achieve the stringent air quality levels required for today's modern production facilities, a careful approach to system design, commissioning and operation must be employed.

Treatment at one point alone is not enough and it is highly recommended that the compressed air is treated in the compressor room to a level that will provide general purpose air to the site and also protect the distribution piping.

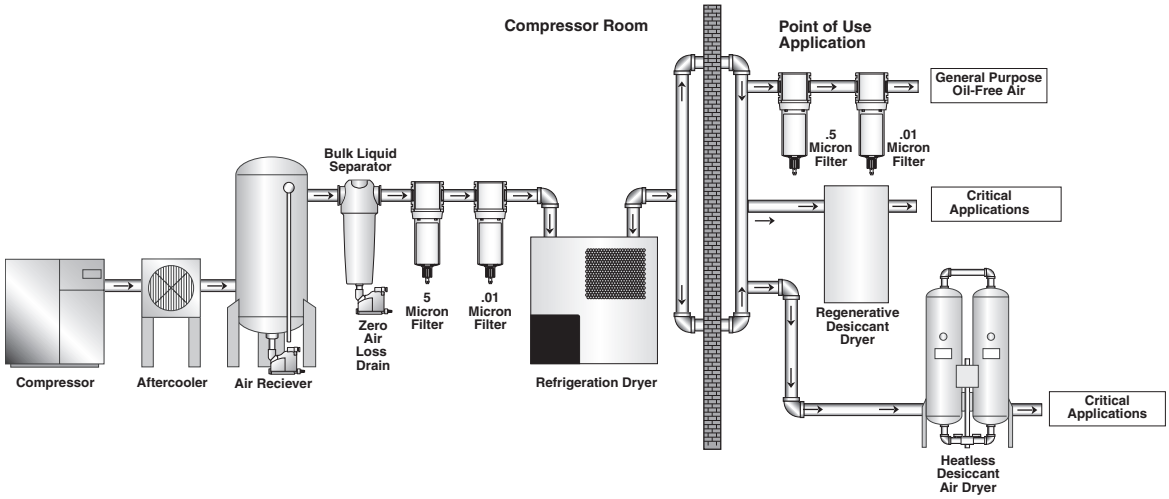
Point of use purification should also be employed,not only to remove any contamination remaining in the distribution system, but also with specific attention on the quality of air required by each application. This approach to system design ensures that air is not "over treated" and provides the most cost effective solution to high quality compressed air.

General purpose oil free air

Bulk contamination is removed to an adequate level prior to the air entering the distribution system.
Point of use particulate filter(s) are used for removal of contamination within the distribution system.
Point of use adsorption dryer installed where lower dewpoints are required.

Typical Applications

- Plant Automation
- Air Logistics
- Pneumatic Tools
- General Instrumentation
- Air Conveying
- Air Motors
- Temperature Control Systems
- Blow Guns
- Gauging Equipment
- Raw Material Mixing
- Sand / Bead Blasting

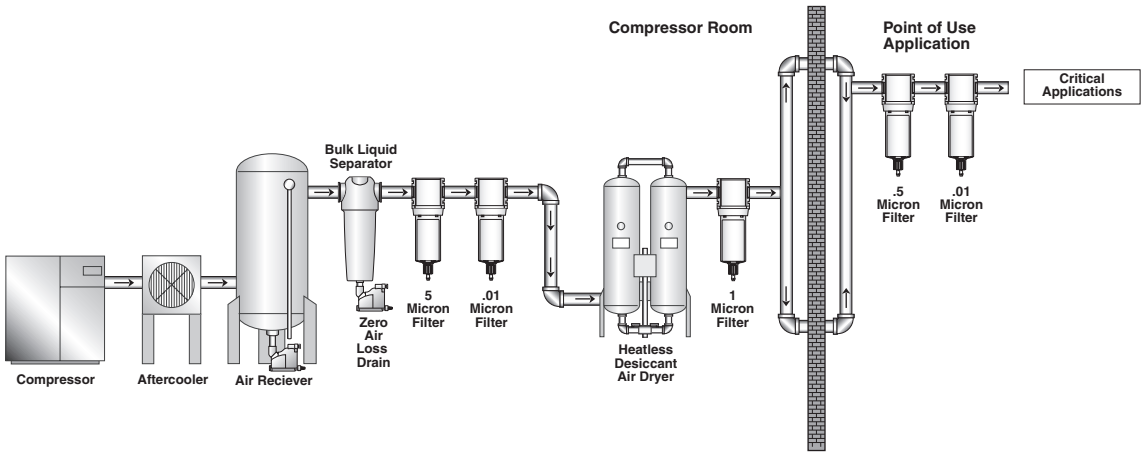


High quality oil free air

Bulk contamination is removed to an adequate level prior to the air entering the distribution system.
Point of use particulate filter(s) are used for removal of contamination within the distribution system.
Adsorbtion dryers are used for critical applications where lower dewpoints are required.

Typical Applications

- Blow Molding of Plastics e.g.. P.E.T. Bottles
- Film Processing
- Critical Instrumentation
- Advanced Pneumatics
- Air Blast Circuit Breakers
- Decompression Chambers
- Cosmetic Production
- Medical Air
- Dental Air
- Lasers and Optics
- Robotics
- Spray Painting
- Air Bearings
- Pipeline Purging
- Measuring Equipment



SPE010 - SPE0250

- "Plug & Play" design for easy installation and operation
- Small space saving design
- High reliability, easy to use and maintain
- All models equipped standard with a digital controller
  - controls integral timed drain
  - various warning and alarms
  - on/off indicator
- Drain has access from both sides
- Non cycling dryer

DRD325 - DRD2400

= **"Most Popular"**

- Optimum dewpoint levels for highest system performance
- Advanced patented design solutions
- High reliability, easy to use and maintain
- Unique 4-in-1 SmartPack heat exchanger
- Integral drain
- Extremely low pressure drop design
- SmartControl energy saving function (cycling dryer)
- Excellent dewpoint performances
- Advanced compliant scroll compressor

Capacity SCFM @ 100 psig (m^3/min @ 6.9 bar)	Primary voltage	Part number	Pipe size (NPT) ‡	Recommended filtration		
				Bulk separator	Pre-filter (5µ particulate)*†	Post-filter (.01µ coalescing w DPI)
10 (17)	115V/1 ph / 60 Hz	**SPE010-A11516016TIU**	1/2"	**WSA-04-FM0**	**M18-04-BH00B ***	**M18-04-CH00B**
15 (26)	115V/1 ph / 60 Hz	**SPE015-A11516016TIU**	1/2"	**WSA-04-FM0**	**M18-04-BH00B ***	**M18-04-CH00B**
25 (43)	115V/1 ph / 60 Hz	**SPE025-A11516016TIU**	1/2"	**WSA-04-FM0**	**M18-04-BH00B ***	**M18-04-CH00B**
35 (60)	115V/1 ph / 60 Hz	**SPE035-A11516016TIU**	3/4"	**WSA-06-FM0**	**M28-06-BH00B ***	**M28-06-CH00B**
50 (85)	115V/1 ph / 60 Hz	**SPE050-A11516016TIU**	3/4"	**WSA-06-FM0**	**M28-06-BH00B ***	**M28-06-CH00B**
75 (127)	115V/1 ph / 60 Hz	**SPE075-A11516016TIU**	1"	**WSA-08-FM0**	**F90-08-SL00†**	**M90-08-CL00**
100 (170)	115V/1 ph / 60 Hz	**SPE0100-A11516016TIU**	1"	**WSA-08-FM0**	**F90-08-SL00†**	**M90-08-CL00**
125 (212)	115V/1 ph / 60 Hz	**SPE0125-A11516016TIU**	1"	**WS0-08-000B**	**F90-08-SL00†**	**M90-08-CL00**
150 (255)	115V/1 ph / 60 Hz	**SPE0150-A11516016TIU**	1-1/2"	**WS0-0B-000B**	**F35-0B-F00†**	**M35-0B-F00**
175 (297)	115V/1 ph / 60 Hz	**SPE0175-A11516016TIU**	1-1/2"	**WS0-0B-000B**	**F35-0B-F00†**	**M35-0B-F00**
175 (297)	230 V/1 ph / 60 Hz	**SPE0175-A23016016TIU**	1-1/2"	**WS0-0B-000B**	**F35-0B-F00†**	**M35-0B-F00**
200 (340)	230 V/1 ph / 60 Hz	**SPE0200-A23016014TIU**	1-1/2"	**WS0-0B-000B**	**F35-0B-F00†**	**M35-0B-F00**
250 (425)	230 V/1 ph / 60 Hz	**SPE0250-A23016014TIU**	1-1/2"	**WS0-0B-000B**	**F35-0B-F00†**	**M35-0B-F00**
325 (552)	230V/3ph/60Hz & 460V/3ph/60Hz	**DRD325-A23036014EI** DRD325-A46036014EI	2" NPT-F	**WS0-0C-000B**	**F35-0C-F00**	**M35-0C-F00**
400 (680)	230V/3ph/60Hz & 460V/3ph/60Hz	**DRD400-A23036014EI** DRD400-A46036014EI	2" NPT-F	**WS0-0C-000B**	**F35-0C-F00**	**M35-0C-F00**
500 (849)	230V/3ph/60Hz & 460V/3ph/60Hz	**DRD500-A23036014EI** DRD500-A46036014EI	2" NPT-F	**WS0-0C-000B**	**F35-0C-F00**	**M35-0C-F00**
700 (1189)	230V/3ph/60Hz & 460V/3ph/60Hz	**DRD700-A23036014EI** DRD700-A46036014EI	3" NPT-M	**WS0-0E-000B**	**F43-0E-F00**	**M43-0E-F00**
800 (1359)	230V/3ph/60Hz & 460V/3ph/60Hz	**DRD800-A23036014EI** DRD800-A46036014EI	3" NPT-M	**WS0-0E-000B**	**F43-0E-F00**	**M43-0E-F00**
1000 (1700)	460V/3ph/60Hz	**DRD1000-A46036014EI**	3" NPT-M	**WS0-0E-000B**	**F43-0E-F00**	**M43-0E-F00**
1200 (2039)	460V/3ph/60Hz	**DRD1200-A46036014EI**	3" NPT-M	**WS0-0E-000B**	**F43-0E-F00**	**M43-0E-F00**
1600 (2718)	460V/3ph/60Hz	**DRD1600-A46036014EI**	4" Flg.	**WWSA1000F**	**M55-0F-F00***	**M55-0F-FS0**
2000 (3400)	460V/3ph/60Hz	**DRD2000-A46036014EI**	6" Flg.	**WWSA1800F**	**M55-0H-F00***	**M55-0H-FS0**
2400 (4078)	460V/3ph/60Hz	**DRD2400-A46036014EI**	6" Flg.	**WWSA1800F**	**M55-0H-F00***	**M55-0H-FS0**

‡ SPE010-025 are 1/2" NPT compatible. SPE035-0250 are manufactured with BSPP-F ports, but come standard with BSP to NPT adapter.
* 0.5µ coalescing
† 5 micron

The importance of compressed air as a provider of energy for modern industrial processes is widely known. What is often overlooked however is the need to provide quality treatment for this air.

In fact, the air entering the system contains condensate which, when cooled, will turn into liquid water, causing extensive damage not only to the compressed air network, but also to the finished product.

DRD refrigeration dryers actively remove this condensate to achieve extremely dry compressed air.

Our SmartPack heat exchanger offers minimal pressure drops and class leading performance, and significantly increases the efficiency of the whole compressed air treatment process. The innovative SmartControl function automatically and continuously adjusts dryer operation to the effective working conditions, minimizing operating costs and maximizing performances.

Compressed air purification equipment must deliver uncompromising performance and reliability while providing the right balance of air quality with the lowest cost of operation. Many manufacturers offer products for the filtration and purification of contaminated compressed air, which are often selected only upon their initial purchase cost, with little or no regard for the air quality they provide, the cost of operation throughout their life or their environmental impact. When purchasing purification equipment, delivered air quality, the overall cost of ownership and the equipment's environmental impact must always be considered.

Smart Technology: The Benefits

SmartPack Heat Exchanger Provides Less Than 2 PSI Pressure Drop

The SmartPack (patent pending) heat exchanger features an extremely robust, all-in-one aluminum design, with no interconnecting tubing.

The geometry of the heat exchanger has been designed in order to optimize its performances. In particular, large volumes allow low air velocity through the heat exchanger section, resulting in high exchange efficiency and low pressure drops. Pressure drops are further improved thanks to the absence of interconnecting pipes through the different sections of the heat exchanger and to a straight forward path of the compressed air flow with smooth and minimum changes of flow directions.

Smart BMS Interface

Simple BMS interface includes:

- RS485 serial card provides direct communication to Modbus. Requires no gateway or A.N.I.
- Provides visualization of dewpoint, alarm conditions and service indication.
- Provides remote control of the dryer including on/off and alarm reset (depending on actual alarm)

SmartDrain - Dual Mode Zero Air Loss Drain

The drainage chamber is integrated into the heat exchanger while the valve mechanism is fitted in an easily accessible drain niche. The SmartDrain continuously adjusts itself to the actual working conditions, ensuring zero air loss and a notable reduction in system power consumption.

An innovative control system continuously monitors for fault situations. If a fault does occur, an alarm is signaled and the drain switches to conventional timed solenoid drain operation. The dual mode circuitry ensures maximum reliability.

Smart Control With SmartSave Cycling

The multifunction SmartControl provides a versatile platform for user interface and SmartSave Cycling (if enabled). The innovative SmartSave (patent pending).

Cycling Control continuously monitors the demand placed on the dryer. At conditions of low demand the refrigerant compressor is cycled off to save energy. A sophisticated algorithm continuously adapts the operation of the dryer for optimum energy efficiency while minimizing the dewpoint spikes common to traditional thermal mass dryers.

Compliant Scroll Compressors

These units feature Compliant Scroll compressors, offering energy savings of 20 -30% when compared with piston compressors. The ability to tolerate liquid returns coupled with 50% less moving parts render them nearly indestructible and highly reliable. Low vibration levels increase overall refrigeration circuit.

= **"Most Popular"**

Operating information

Dryer Models	Dewpoint	Operating pressure		Operating temperature		Ambient maximum	Electrical supply	Thread	Noise level bB(A)	Refrigerant type
		Min	Max	Min	Max					
SPE010 - SPE050	ISO 8573-1 Class 5	29 psig (2 bar)	232 psig (16 bar)	41°F (5°C)	149°F (65°C)	122°F (50°C)	115V 1ph 60 Hz	NPT	<75	R134a
SPE075 - SPE0175										
SPE0200 - SPE0250			203 psig (14 bar)				230 1ph 60 Hz			

Controller Functions

Dryer Models	Power on indication	Visual fault indication	Compressed air temperature	Dryer service indicator	Fault relay power loss
SPE010-0250	X	X	X	X	X

Quality Assurance / IP Rating / Pressure Vessel Approvals

Development/Manufacture ISO 9001 / ISO 14001
Ingress Protection Rating IP22 Indoor Use Only

Product Selection and Correction Factors

Capacities are based upon: Ambient temperature - 100°F (38°C); inlet temperature - 100°F (38°C); and working pressure - 100 psig (7 bar g)

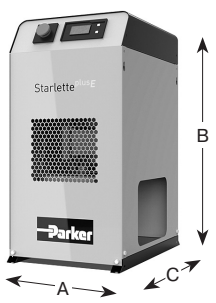
Minimum Drying Capacity = System flow x CFIT x CFATx CFMIP

NOTE: Flowrate, temperatures, and pressure MUST be provided by customer.

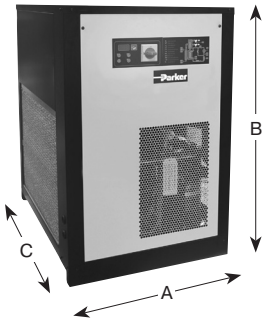
Example: 50 scfm flowrate Inlet temperature - 100°F (38°C) = 1.0
Max ambient temperature - 110°F (43°C) = 1.08
Min inlet pressure - 80°F (27°C) = 1.09

50 (1.0) + 1.08 + 1.09 = 59, therefore, a larger 75 scfm dryer is required

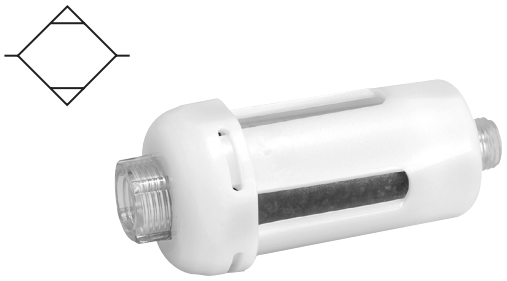
	SPE010 - SPE0250											DRD325 - DRD2400						
CFIT - Correction factor minimum inlet temperature																		
°F	90	95	100	110	120	130	140	149				90	100	110	120	130	140	
°C	32	35	38	43	49	54	60	65				32	38	43	49	54	60	
Factor	0.74	0.82	1.00	1.33	1.76	2.38	2.60	2.67				1.22	1.00	0.82	0.68	0.56	0.46	
CFAT - Correction factor maximum ambient temperature																		
°F	60	70	80	90	95	100	110	120	122			70	80	90	100	110	120	122
°C	16	21	27	32	35	38	43	49	50			21	27	32	38	43	49	50
Factor	0.93	0.93	0.93	0.93	0.96	1.00	1.08	1.16	1.18			1.22	1.15	1.05	1.00	0.94	0.79	0.71
CFMIP - Correction factor minimum inlet pressure																		
psig	45	60	80	100	125	145	150	160	175	200	232	60	80	100	125	150	174	203
bar	3	4	6	7	9	10	10	11	12	14	16	3	6	7	9	10	12	14
Factor	1.40	1.17	1.09	1.00	0.88	0.83	0.82	0.81	0.79	0.75	0.71	0.83	0.93	1.00	1.07	1.12	1.15	1.18

Dimensions	Part number	**A** width	**B** height	**C** depth	**Weight** (kg)
SPE010-SPE0250  Inches (mm)	**SPE010-A11516016TIU**	11.8 (300)	20.5 (520)	15.7 (400)	53 (24)
	SPE015-A11516016TIU	11.8 (300)	20.5 (520)	15.7 (400)	53 (24)
	SPE025-A11516016TIU	11.8 (300)	20.5 (520)	15.7 (400)	55 (25)
	SPE035-A11516016TIU	13.0 (330)	22.8 (580)	21.7 (550)	77 (35)
	SPE050-A11516016TIU	13.0 (330)	22.8 (580)	21.7 (550)	79 (36)
	SPE075-A11516016TIU	15.7 (400)	25.6 (650)	24.8 (630)	101 (46)
	SPE0100-A11516016TIU	15.7 (400)	25.6 (650)	24.8 (630)	101 (46)
	SPE0125-A11516016TIU	15.7 (400)	25.6 (650)	24.8 (630)	104 (47)
	SPE0150-A11516016TIU	15.7 (400)	25.6 (650)	24.8 (630)	117 (53)
	SPE0175-A11516016TIU	15.7 (400)	25.6 (650)	24.8 (630)	121 (55)
	SPE0175-A23016016TIU	15.7 (400)	25.6 (650)	24.8 (630)	121 (55)
	SPE0200-A23016014TIU	17.7 (450)	33.1 (840)	30.7 (780)	176 (80)
	SPE0250-A23016014TIU	17.7 (450)	33.1 (840)	30.7 (780)	176 (80)

= **"Most Popular"**

Dimensions	**Part number**	**A** width	**B** height	**C** depth	**Weight** (kg)
DRD325-DRD2400  Inches (mm)	**DRD325-A23036014EI**	28.0 (711)	42.0 (1067)	41.0 (1041)	320 (145)
	DRD400-A23036014EI	28.0 (711)	42.0 (1067)	41.0 (1041)	320 (145)
	DRD500-A23036014EI	28.0 (711)	42.0 (1067)	41.0 (1041)	342 (155)
	DRD700-A23036014EI	32.0 (813)	52.0 (1321)	46.0 (1168)	529 (240)
	DRD800-A23036014EI	32.0 (813)	52.0 (1321)	46.0 (1168)	529 (240)
	DRD1000-A46036014EI	32.0 (813)	52.0 (1321)	46.0 (1168)	551 (250)
	DRD1200-A46036014EI	40.0 (1016)	67.0 (1702)	43.0 (1092)	816 (370)
	DRD1600-4A6036014EI	40.0 (1016)	68.0 (1727)	71.0 (1803)	1279 (580)
	DRD2000-A46036014EI	40.0 (1016)	68.0 (1727)	71.0 (1803)	1477 (670)
	DRD2400-A46036014EI	40.0 (1016)	68.0 (1727)	71.0 (1803)	1521 (690)

Mini Disposable Inline Desiccant Dryer DD10



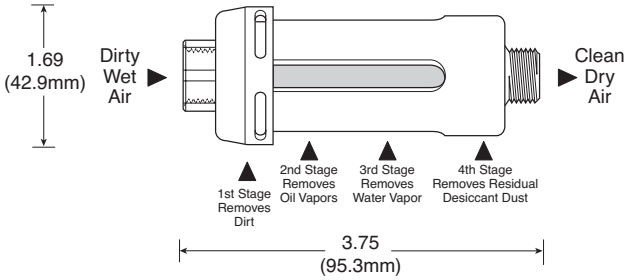
Used at the point-of-use, this disposable, mini inline desiccant dryer removes all traces of water vapor, oil vapor and dirt. It is often used directly upstream of blow guns or spray guns as final protection for critical parts blow off and paint spraying. Install in either direction; it functions in both directions.
A 40 micron, porous bronze element removes fine dirt particles, an oil removing media removes oil vapor, and desiccant beads adsorb water vapor. The see-through housing shows desiccant color change from the original orange to a green color in the desiccant beads, which indicates that the dryer needs to be replaced.

Features

- Polycarbonate Material Allows Clear Desiccant Visibility
- Disposable
- Used for Parts Blow Off
- Protection for Paint Guns Below the Filter / Dryer
- Non-toxic Desiccant Standard

Non-metalic material is highly resistant to chemicals.

See through housing shows color change when dryer needs replacement.



Specifications

Maximum Pressure Rating		125 PSIG (0 to 8.6 bar)
Maximum Temperature Rating		130˚F (54˚C)
Maximum Flow Capacity		15 SCFM
Port Size	NPT	1/4
Weight	lb. (g)	2.8 oz. (79.4)

Materials of Construction

Housing	Polycarbonate

Installation

The DD10 is equipped with a 1/4" NPT (F) and (M) ports and can be installed in either direction. When installing the filter / dryer hand tighten to a leak proof seal. Do not use any mechanical means to hold the filter / dryer and do not over torque the threads.

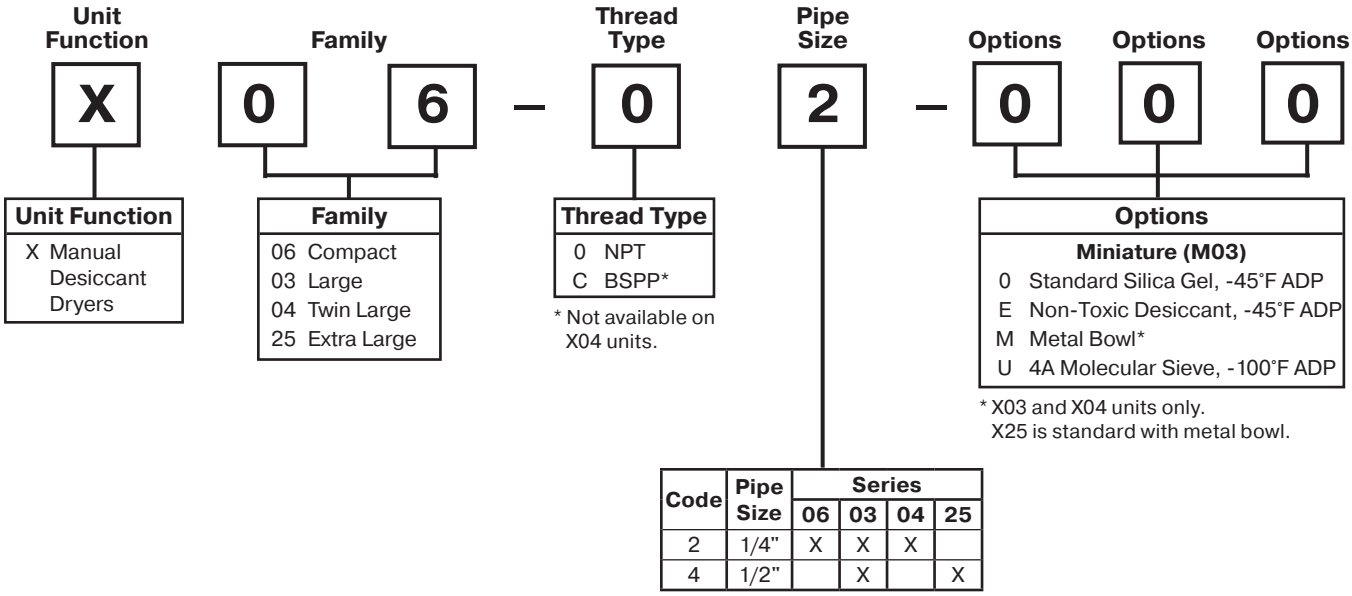
Operation

1. The unque feature of the filter / dryer design allows you to visually see when it is time to install a new DD10 by observing the color change from the original dark color to a complete light transparent color in the desiccant beads.
2. Do not attempt to clean the filter / dryer as the use of solvents, ketones, etc., will adversely affect the plastic housing.
3. Keep the hose free of snags. Extra tension on the filter / dryer assembly could break the unit at the connecting ports. To clear stuck hoses, grasp hose below the filter / dryer.

Ordering Information

Model Type	Port Size	Model Number
DD10	1/4	DD10-02

Manual Desiccant Dryer Numbering System



Code	Pipe Size	Series			
		06	03	04	25
2	1/4"	X	X	X	
4	1/2"		X		X

If more than one option is desired, arrange them in alphabetical order in positions 6, 7, and 8.

NOTE: 000 in position 6, 7, and 8 signifies standard product.

Desiccant Dryer X06

= **"Most Popular"**

X06-02-000

Features and Benefits

- Atmospheric Dew Points as Low as -100˚F
- No Electrical Connection Necessary
- Color change of the Desiccant Provides an Instant Status of the Compressed Air System

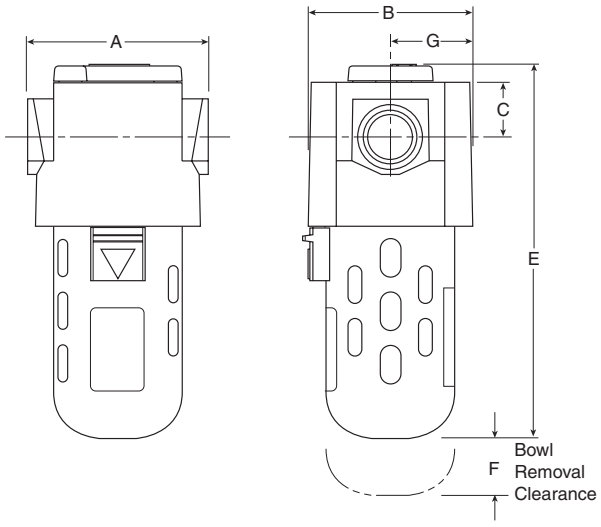
Specifications

Atmospheric Dew Point*–		
Model 000	Silica Gel	-45˚F (-43˚C)
Model E00	Silica Gel (Non-toxic)	-45˚F (-43˚C)
Model U00	4A Molecular Sieve	-100˚F (-52˚C)
Maximum Continuous Air Flow*		5 SCFM (2.3 dm^3/s)
Maximum Pressure		150 PSIG (10.3 bar)
Maximum Temperature		125˚F (52˚C)
Port Size	NPT / BSPP-G	1/4
Total Air Flow*	1/4	600 SCF (16.6 m^3)
Total Minutes of Operation @ Continuous Air Flow		120 Minutes
Weight (with Desiccant)	lb. (kg)	1.13 (0.51)
Weight Desiccant Alone	lb. (kg)	0.25 (0.11)

* With dry desiccant at 100 PSIG (7 bar) and 70˚F 21˚C), saturated inlet (100% RH).

Materials of Construction

Body		Zinc
Bowls	Plastic	Polycarbonate
Bowl Guard		Steel
Seals		Fluorocarbon



Dimensions

Models	Inches (mm)	A	B	C	E	F	G
Standard Unit X06-02-000		2.99 (75.9)	2.72 (69)	.90 (22.8)	6.41 (162.8)	1.50 (38)	1.36 (34.5)

= **"Most Popular"**

Replacement Parts

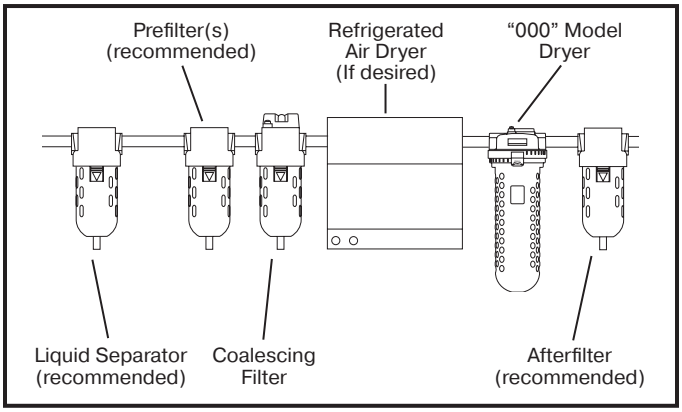
Bowl Guard GRP-95-013
Bowl O-ring..... GRP-95-259
Transparent Bowl..... DRP-96-459

Replacement Desiccant Kits

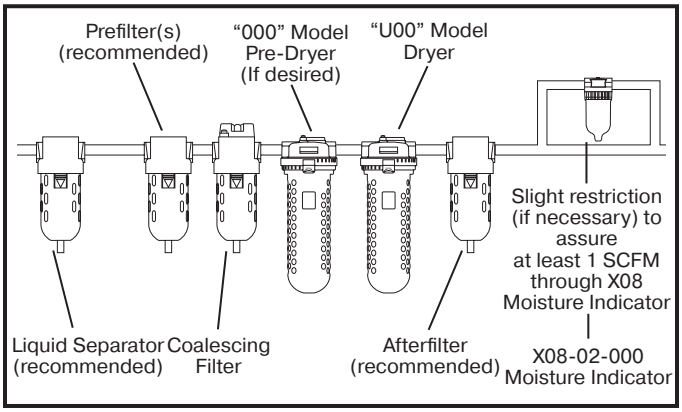
Silica Gel (000) -40˚F ADP		
Old Replacement Kit Number	New Replacement Kit Number	# of Replacement Charges for X06
DRP-95-303	DRP-04-10B/001	1
	DRP-04-10B/005	5
Non Toxic Desiccant (E00) -40˚F ADP		
Old Replacement Kit Number	New Replacement Kit Number	# of Replacement Charges For X06
	DRP-04-447/001	1
	DRP-04-447/005	5
4A Molecular Sieve (U00) -100˚F ADP		
Old Replacement Kit Number	New Replacement Kit Number	# of Replacement Charges For X06
DRP-95-304	DRP-04-514/001	1
	DRP-04-514/005	5

Typical Installation Arrangement

-45˚F ADP Models:



-100˚F ADP Models:



Ordering Information

Model Type	Port Size	Polycarbonate Bowl
X06	1/4	X06-02-000

Options - To order an option supplied with the unit model, add the appropriate coded suffix letter in the designated position of the model number.

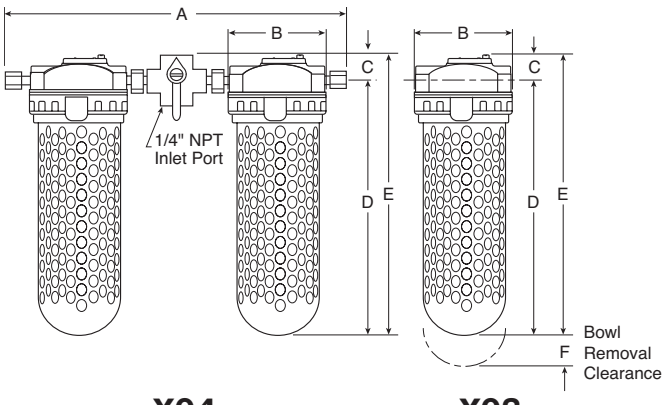
Desiccant Dryer X03 / X04

= **"Most Popular"**

X03-02-000

Features and Benefits

- Atmospheric Dew Points as Low as -100˚F
- No Electrical Connection Necessary
- Twin Units Available for Double Service Life
- Color change of the Desiccant Provides an Instant Status of the Compressed Air System



X04 **X03**

Specifications

Atmospheric Dew Point*–		
Model 000	Silica Gel	-45˚F (-43˚C)
Model E00	Silica Gel (Non-toxic)	-45˚F (-43˚C)
Model U00	4A Molecular Sieve	-100˚F (-52˚C)
Maximum Continuous Air Flow*		10 SCFM (4.7 dm^3/s)
Maximum Pressure		150 PSIG (10.3 bar)
Maximum Temperature –		
X03 Transparent Bowl		125˚F (52˚C)
X03 Metal Bowl		150˚F (66˚C)
X04 Transparent Bowl		125˚F (52˚C)
Port Size –		
X03	NPT / BSPP-G	1/4, 1/2
X04	NPT	1/4
Total Air Flow*	1/4	4,400 SCF (311 m^3)
Total Minutes of Operation @ Continuous Air Flow	X03	440 Minutes
	X04	880 Minutes
Weight (with Desiccant) lb. (kg) –		
X03 Transparent Bowl		7.4 (3.4)
X03 Metal Bowl		6.8 (3.1)
X04 Transparent Bowl		15.0 (6.8)
Weight Desiccant Alone lb. (kg) –		
X03 Transparent Bowl		1.8 (0.8)
X03 Metal Bowl		1.3 (0.6)
X04 Transparent Bowl		3.6 (1.6)

* With dry desiccant at 100 PSIG (7 bar) and 70˚F 21˚C), saturated inlet (100% RH).

Materials of Construction

Body		Zinc
Bowls	Plastic	Polycarbonate
	Metal Bowl	Aluminum
Bowl Guard		Steel
Seals		Fluorocarbon

Dimensions

Models (Inches (mm))	A	B	C	D	E	F
Standard Unit X03-02-000	—	4.79 (121.6)	1.23 (31)	12.60 (320)	13.83 (351)	2.00 (50.8)
Metal Bowl X03-02-M00	—	4.79 (121.6)	1.23 (31)	11.37 (320)	10.00 (351)	2.00 (50.8)
Standard Twin Unit X04-02-000	14.42 (366)	4.79 (121.6)	1.23 (31)	11.71 (297.4)	12.65 (322)	2.00 (50.8)

= **"Most Popular"**

Replacement Parts

Bowl Guard –
X03 / X04 Transparent Bowl GRP-95-810
Bowl O-ring GRP-95-256
Clamp Ring GRP-96-404
Moisture Indicator* –
X03 Metal Bowl DRP-95-623
Replacement Cap for Moisture Removal GRP-95-020
Screen Assembly DRP-96-434
Transparent Bowl –
X03 / X04 ..... GRP-95-089
Tube Assembly with Screen –
X03 / X04 Transparent Bowl DRP-96-435
X03 Metal Bowl DRP-96-451

* The Moisture Indicator contains a weep orifice to provide an air sample to the moisture indicating paper. Air bleed from this indicator is necessary and normal.

Replacement Desiccant Kits

Silica Gel (000) -40°F ADP

Old Replacement Kit Number	New Replacement Kit Number	# of Replacement Charges for X03
DRP-85-059	DRP-14-10B/002	1
	DRP-14-10B/008	4

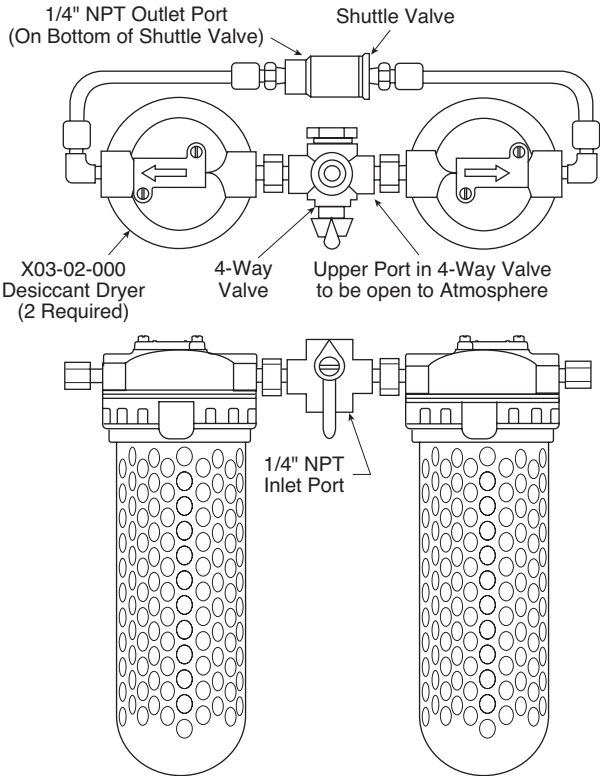
Non Toxic Desiccant (E00) -40°F ADP

Old Replacement Kit Number	New Replacement Kit Number	# of Replacement Charges For X03
	DRP-14-447/002	1
	DRP-14-447/008	4

4A Molecular Sieve (U00) -100°F ADP

Old Replacement Kit Number	New Replacement Kit Number	# of Replacement Charges For X03
DRP-85-060	DRP-14-514/002	1
	DRP-14-514/008	4

Note: Since X04 consists of two X03 dryers assembled together the amount of desiccant required for a total recharge is twice the amount listed above.



X04-02-000

Ordering Information

Model Type	Port Size	Polycarbonate Bowl	Metal Bowl
X03	1/4	X03-02-000	X03-02-M00
X04	1/4	X04-02-000	X04-02-M00

Options - To order an option supplied with the unit model, add the appropriate coded suffix letter in the designated position of the model number.

Desiccant Dryer X25

X25-04-000

= **"Most Popular"**

Specifications

Atmospheric Dew Point*–		
Model 000	Silica Gel	-45°F (-43°C)
Model E00	Silica Gel (Non-toxic)	-45°F (-43°C)
Model U00	4A Molecular Sieve	-100°F (-52°C)
Maximum Continuous Air Flow*		25 SCFM (11.8 dm^3/s)
Maximum Pressure		150 PSIG (10.3 bar)
Maximum Temperature		150°F (66°C)
Port Size	NPT / BSPP-G	1/2
Total Air Flow*		11,000 SCF (311 m^3)
Total Minutes of Operation @ Continuous Air Flow		440 min.
Weight (with Desiccant) lb. (kg)		11.23 (5.1)
Weight Desiccant Alone lb. (kg)		4.4 (2.0)

* With dry desiccant at 100 PSIG (7 bar) and 70°F 21°C), saturated inlet (100% RH).

Materials of Construction

Body		Zinc
Bowls	Metal Bowl	Aluminum
Bowl Guard		Aluminum
Seals		Fluorocarbon

Features and Benefits

- Atmospheric Dew Points as Low as -100°F
- No Electrical Connection Necessary
- Color change of the Desiccant Provides an Instant Status of the Compressed Air System

Replacement Parts

Bowl O-ring GRP-95-256

Clamp Ring ..... GRP-96-404Moisture Indicator* DRP-95-623

Replacement Cap for Moisture Removal GRP-95-020

Screen Assembly..... DRP-96-434

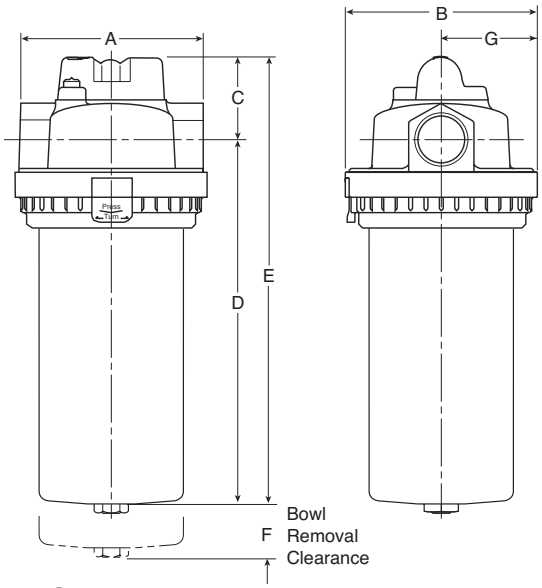
Tube Assembly with Screen..... DRP-95-622

* The Moisture Indicator contains a weep orifice to provide an air sample to the moisture indicating paper. Air bleed from this indicator is necessary and normal.

Ordering Information

Model Type	Port Size	Metal Bowl
X25	1/2	X25-04-000

Options - To order an option supplied with the unit model, add the appropriate coded suffix letter in the designated position of the model number.



Replacement Desiccant Kits

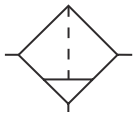
Old Replacement Kit Number	New Replacement Kit Number	# of Replacement Charges for X25
Silica Gel (000) -40°F ADP		
DRP-85-280	DRP-14-10B/005	1
	DRP-14-10B/015	3
Non Toxic Desiccant (E00) -40°F ADP		
Old Replacement Kit Number	New Replacement Kit Number	# of Replacement Charges For X25
	DRP-14-447/005	1
	DRP-14-447/015	3
4A Molecular Sieve (U00) -1000F ADP		
Old Replacement Kit Number	New Replacement Kit Number	# of Replacement Charges For X25
DRP-85-281	DRP-14-514/005	1
	DRP-14-514/015	3

Dimensions

Models	Inches (mm)	A	B	C	D	E	F	G
Standard Unit X25-04-000		4.61 (117)	4.79 (121.6)	1.70 (43)	19.58 (497)	21.28 (540.5)	2.00 (50.8)	2.39 (60.8)

Moisture Indicator X08

= **"Most Popular"**



Manual Drain

X08-02-000

Specifications

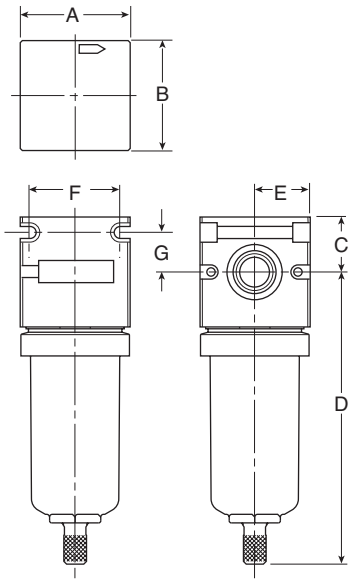
Maximum Supply Pressure		150 PSIG (10.3 bar)
Operating Temperature		32˚ to 120˚F (0˚ to 49˚C)
Port Size	NPT / BSPT-Rc	1/4
Weight	lb. (kg)	0.34 (0.15)

Materials of Construction

Body		Zinc
Bowls	Plastic Bowl	Polyurethane
Seals		Nitrile

Features

- Transparent Plastic Bowl Standard
- Silica Gel Changes Color For Moisture Indication



Dimensions

Models	Inches (mm)	A	B	C	D	E	F	G	H
Standard Unit X08-02-000		1.59 (40.5)	1.59 (40.5)	0.81 (20.6)	4.25 (107.9)	5.06 (128.5)	0.80 (20.2)	0.58 (14.7)	1.31 (33.3)

What is adsorption drying?

Drying compressed air through adsorption represents a purely physical process in which water vapor (adsorbate) is bound to the drying medium (adsorbent) through binding forces of molecular adhesion. Adsorbents are solids in spherical and granular form which are permeated by an array of pores. The water vapor is deposited onto the internal and external surface of the adsorption medium, without the formation of chemical compounds taking place, therefore the adsorption medium does not have to be replenished but only periodically regenerated.

Heatless

The layout of adsorption dryers with heatless regeneration is clear and simple. Compared with other adsorption dryer systems, pressure dewpoints down to -100°F (-73°C) can be achieved without additional effort.

Use in the higher pressure ranges and at low inlet temperatures causes the quantity of air needed for desorption to be reduced to an economical value.

At low operating pressure the demand for already dried compressed air for purposes of regeneration is increased. This increase causes a large proportion of the prepared compressed air to be no longer available for productive purposes.

Depending on the cycle, the quantity of air enclosed in the adsorber expands upon release at regular intervals with an emission noise level of about 90-95dB(A). Given suitable noise attenuation measures, a reduction of the noise emission level to the region of 10-15 dB(A) can be accomplished.

The use of adsorption dryers with heatless regeneration is preferred in the following applications:

- Capacity Range of Up to 800 SCFM
- Higher Pressure Ranges
- High Inlet Temperatures
- Installation in Explosion Proof Areas
- Use Under Ground Portable Applications
- Hazardous Locations (Pneumatic Controls)

Heatless Desiccant Air Dryers TW Series

= **"Most Popular"**

The TW Series Heatless Desiccant Air Dryers remove water vapor from compressed air through a process known as pressure swing adsorption. Pressure dewpoints of -40°F (-40°C) standard are attained by directing the flow of saturated compressed air over a bed of desiccant.

Features

Allen-Bradley® PLC

- Two year dryer warranty (parts and labor)
- 4 line display
- NEMA 4X enclosure
- Selectable cycles

Switching Valves

- Five year switching valve warranty from manufacturer's defects (see warranty policy)

Factory Installed Filtration

- Single point connection for system integrity
- Differential pressure gauges for element condition
- Filter drains

Regulated Purge

- Factory set
- Optimum purge regardless of operating pressure
- Repressurization circuit

Specifications

Inlet or Ambient Air Temperature	120°F (49°C) maximum 50°F (10°C) minimum inlet
Operating Pressure	80 PSIG (5.5 bar) minimum
Working Pressure	150 PSIG (10.5 bar) maximum
Pressure Drop At Rated Flow	Less than 5 PSI (0.34 bar)
Primary Voltage	120V/1ph/60Hz

Heatless Desiccant Air Dryers, Filtration comes with Dryer unit as standard.

Part number	Capacity SCFM @ 100 psig	Approximate purge scfm	Dryer air port in/out (NPT)	Pre-filter	After-filter
TW41BN14NNN	40	6	1/2"	AAP015CFNI	AOP015CNFI
TW56BN14NNN	55	8	3/4"	AAP020DFNI	AOP020DNFI
TW76BN14NNN	75	11	3/4"	AAP025DNFI	AOP025DNMI
TW101BN14NNN	100	15	1"	AAP025ENFI	AOP025ENMI
TW131BN14NNN	130	20	1"	AAP025ENFI	AOP025ENMI
TW201BN14NNN	200	30	1-1/2"	AAP030GNFI	AOP030GNMI
TW251BN14NNN	250	38	1/1/2"	AAP035GNFI	AOP035GNMI
TW301BN14NNN	300	45	1-1/2"	AAP035GNFI	AOP035GNMI
TW401BN14NNN	400	60	2"	AAP040HNFI	AOP040HNMI
TW501BN14NNN	500	75	2"	AAP045INFI	AOP045INMI
TW601BN14NNN	600	90	2"	AAP045INFI	AOP045INMI
TW801BN14NNN	800	120	2"	AAP050INFI	AOP050INMI

LED Din Connectors

- Easy to maintain and service
- Valve(s) may be serviced without opening electrical enclosure
- No hard wiring required
- Visual indication of valve activation
- Valve labeling

Additional Features

- Separate tower pressure gauges
- OSHA approved mufflers with safety relief
- ASME/CRN vessels (TW101 and larger)
- Desiccant fill and drain ports
- Safety relief valves
- Stainless steel diffuser screens
- CycleLoc® demand control
- Control air line filter
- ETL listed (UL/CSA standards)
- LED din connector(s) all solenoid valves
- 120 VAC power (other options available - consult factory)
- Power cord with basic controller
- Power din connector with advanced controller
- Power On/Off switch with advanced controller
- Steel base TW1001 and larger

Options

- PowerLoc Energy Demand Control (TW41 - TW801) optional
- All NEMA classifications
- Control air tubing - stainless steel
- Low ambient package (-20°F to +40°F air temperature)
- Instrumentation
- Locally mounted pressure and temperature gauges at inlet and outlet
- Pneumatic controls
- ASME B31.3 piping
- Corrosion allowance
- High pressure applications: 200 psig design & 250 psig design adders are available

System Integrity

The TW Series Heatless Desiccant Air Dryers remove water vapor from compressed air through a process known as Pressure Swing Adsorption. Pressure dewpoints ranging from -40°F (-40°C) are attained by directing the flow of saturated compressed air over a bed of desiccant.

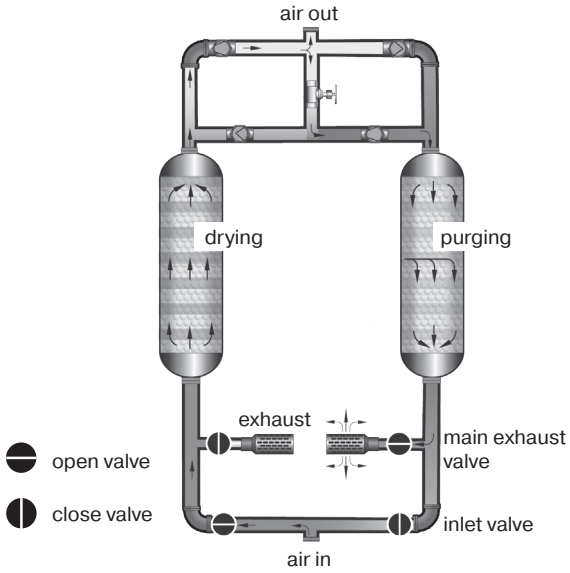
The most commonly used desiccant is activated alumina, a spherical shaped, hygroscopic material, selected for its consistent size, shape and extreme surface to mass ratio. This physically tough and chemically inert material is contained in two separate but identical pressure vessels commonly referred to as “dual” or “twin” towers.

As the saturated compressed air flows up through the “on-line” tower, its moisture content adheres to the surface of the desiccant. The dry compressed air is then discharged from the chamber into the distribution system.

An Allen-Bradley® PLC controller automatically cycles the flow of compressed air between the towers while the “on-line” tower is drying, the “off-line” tower is regenerating. Regeneration, sometimes referred to as purging, is the process by which moisture accumulated during the “on-line” cycle is stripped away during the “off-line” cycle. As dry low pressure purge air flows gently through the regenerating bed, it attracts the moisture that had accumulated on the surface of the desiccant during the drying cycle and exhausts it to the atmosphere.

To protect the desiccant bed from excess liquid, all TW Series Heatless Air Dryers are designed to work with the natural pull of gravity. By directing the saturated air into the bottom of the “on-line” tower and flowing up through the bed, liquid condensate caused by system upset, is kept away from the desiccant and remains at the bottom of the tower where it can be easily exhausted during the regeneration cycle. Counter flow purging ensures optimum performance by keeping the driest desiccant at the discharge end of the dryer.

Heatless dryers in general are the most reliable and least expensive of all desiccant type dryers. The Airtek TW Series Heatless Desiccant Air Dryers are more energy efficient than competitors thanks to standard features such as: variable cycle control, CycleLoc® and regulated purge flow.

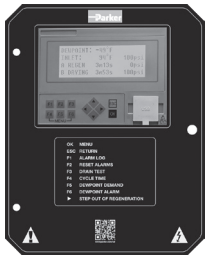


Basic Controller

(Standard on Models TW41 - TW801)

- Allen-Bradley® PLC
- Nema 4X enclosure
- LCD user interface
- Four line digital display features:
  - Tower drying indication
  - Tower regenerating indication
  - Run status
  - Time remaining in cycle
- Selectable cycle settings
- Programmable drain timer (drain on, time and test)
- Compressor demand via external dry contact (CycleLoc®)
- Power ON/OFF switch
- Step-through regeneration for maintenance
- Cycle counter
- Hours of operation

Advanced Controller



(Optional on Models TW41-801)

- Allen-Bradley® PLC
- Powerloc® Energy Demand System
  - Energy savings percentage
  - Hours in power save
- Nema 4X enclosure
- 3.5" LCD user interface
- Dew point sensor input (-148˚F to 68˚F)
- Optional 4-20 mA output for remotely monitoring dew point
- Tower pressure sensors
- Inlet pressure and temperature sensors
- Compressor demand via external dry contact (CycleLoc®)
- Modbus/TCP communications via standard ethernet port
- Modbus RTU communications via optional RS232/485 port (Using external gateway device)
- SD card slot for accessing historical data and alarm information
- Selectable cycle settings
- Programmable drain timer (drain on, time and test)
- User selectable alarms with common alarm relay
  - High inlet temperature
  - Low inlet pressure
  - Tower failed to blow down (switch failure)
  - Tower failed to pressurize
  - High dew point
  - Sensor failure for all sensors
  - Switch failure
  - Inlet filter pressure
- Filter maintenance timer & alarm
- Clogged muffler maintenance and alarm
- Power ON/OFF switch
- Alarm log stores most recent alarms
- Flashes green when in energy savings mode
- Flashes red when an alarm is present
- Dry contact for common alarm

PowerLoc® Energy Management System

(Optional on Models TW41-801)**

Energy savings of up to 80% can be achieved with the proven PowerLoc® energy management system.

Regeneration requirements are dependent on flow, pressure and temperature. The PowerLoc® system allows the cost of drying compressed air to be matched exactly to your plant conditions.

PowerLoc® controls the drying cycle by continuously reacting to the loading under which the dryer is operating and minimizes the energy input required.

As dryers rarely operate at full rated capacity all of the time (eg. during shift work and periods of low demand), this energy management system can provide considerable savings.

The Advanced Controller is designed to accomodate Parker Airtek's PowerLoc Energy Management System. Flashes green when in energy saving mode.

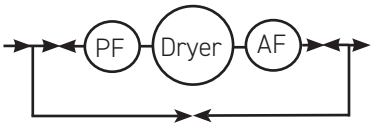
High Performance Components

Poppet Valve

TW41 - TW801

- Stainless steel body
- Stainless steel internals
- PTFE seal
- Air activated, spring return
- Visual position indicator on exhaust valves
- ANSI Class VI shutoff
- Long service life
- Repair kits available
- 5 year valve warranty

Filter Package Schematic



Package "B"

(Standard TW41 - TW801)

Includes dryer with factory installed pre-filter and after-filter with system bypass

Flow correction factors

= **"Most Popular"**

Capacities are based upon:

- Maximum inlet air or ambient air temperature 120˚F (49˚C)
- Maximum working pressure: 150 psig (10.5 bar g) standard units for high maximum working pressure are available
- Minimum operating pressure: 80 psig (5.5 bar g)

Correction Factors

To obtain drying capacity at new conditions: (nominal capacity) x C1 x C2

Temperature Correction Factor

Maximum inlet temperature (C1)	˚F	90	95	100	105	110	115	120
	˚C	32	35	38	41	43	46	49
	CF	1.17	1.15	1.00	0.87	0.76	0.66	0.58

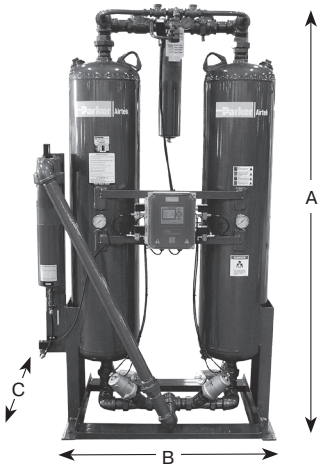
Pressure Correction Factor

Minimum inlet pressure (C2)	psi g	80	90	100	110	120	130
	bar g	5.5	6.2	6.9	7.6	8.3	9.0
	CF	0.83	0.91	1.00	1.09	1.17	1.26

Flows are at 100 psig inlet pressure, 100˚F inlet temperature, and 100˚F ambient temperature.
Weight includes desiccant dryer with basic controller FLA 2 amps, advanced controller FLA 3 amps.

Heatless Desiccant Air Dryers

TW Series



Inch (mm)

Part number	A (length)	B (width)	C (depth)	Weight lbs. (kg)
TW41BN14NNN	49 (1245)	21 (533)	25 (635)	190 (86)
TW56BN14NNN	65 (1651)	22 (559)	31 (787)	230 (104)
TW76BN14NNN	80 (2032)	34 (864)	29 (737)	384 (174)
TW101BN14NNN	79 (2007)	36 (914)	30 (762)	468 (212)
TW131BN14NNN	79 (2007)	36 (914)	30 (762)	496 (225)
TW201BN14NNN	81 (2057)	42 (1067)	34 (864)	692 (314)
TW251BN14NNN	81 (2057)	45 (1143)	36 (914)	776 (352)
TW301BN14NNN	81 (2057)	45 (1143)	36 (914)	796 (361)
TW401BN14NNN	83 (2108)	48 (1219)	41 (1041)	1626 (738)
TW501BN14NNN	83 (2108)	51 (1295)	43 (1092)	1735 (787)
TW601BN14NNN	84 (2134)	50 (1270)	44 (1118)	1740 (789)
TW801BN14NNN	88 (2235)	56 (1422)	45 (1143)	2120 (962)

Repair and Service Kits

Dryer model	Pre-filter	Pre-filter element	After-filter	After-filter element
TW41	**AAP015CFNI**	**P015AA**	**AOP015CNFI**	**P015AO**
TW56	**AAP020DFNI**	**P020AA**	**AOP020DNFI**	**P020AO**
TW76	**AAP025DNFI**	**P025AA**	**AOP025DNMI**	**P025AO**
TW101	**AAP025ENFI**	**P025AA**	**AOP025ENMI**	**P025AO**
TW131	**AAP025ENFI**	**P025AA**	**AOP025ENMI**	**P025AO**
TW201	**AAP030GNFI**	**P030AA**	**AOP030GNMI**	**P030AO**
TW251	**AAP035GNFI**	**P035AA**	**AOP035GNMI**	**P035AO**
TW301	**AAP035GNFI**	**P035AA**	**AOP035GNMI**	**P035AO**
TW401	**AAP040HNFI**	**P040AA**	**AOP040HNMI**	**P040AO**
TW501	**AAP045INFI**	**P045AA**	**AOP045INMI**	**P045AO**
TW601	**AAP045INFI**	**P045AA**	**AOP045INMI**	**P045AO**
TW801	**AAP050INFI**	**P050AA**	**AOP050INMI**	**P050AO**

Automatic Electrical Drain Valve WDV3

The WDV3 Electrical Drain is designed to remove condensate from compressors, compressed air dryers and receivers up to any size, type or manufacturer.

The WDV3 offers true installation simplicity and it is recognized as the most reliable and best performing condensate drain worldwide. The large orifice in the direct acting valve, combined with its sophisticated timer module ensure many years of trouble-free draining of condensate.

Benefits

- Does Not Air-Lock During Operation
- Compressed Air Systems up to Any Size
- The Direct Acting Valve is Serviceable
- Suitable for All Types of Compressors
- TEST (Micro-Switch) Feature
- High Time Cycle Accuracy
- Large (4.5mm) Valve Orifice

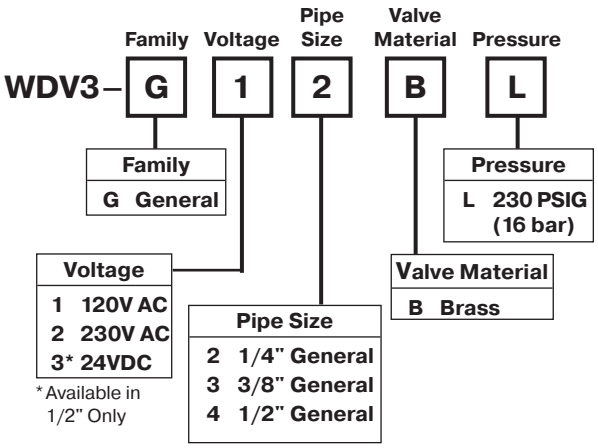
Specifications

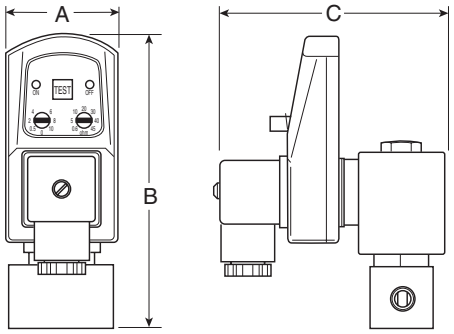
Operating Pressure		230 PSIG (15,9 bar)
Ambient Operating Range Temperature:		34˚ to 130˚F (1.1˚ to 54˚C)
Coil Insulation	Class H	340˚F (171.1˚C)
Voltages	AC	115, 230/50-60
Timer:	Open Time	.5 to 10 sec., Adjustable
	Cycle Time	.5 sec. to 45 min., Adjustable
Maximum Current Rating		4mA Max.
Port Size		1/4, 3/8, 1/2 NPT
Weight		1.8 lb. (0.8 kg)

Materials of Construction

Valve Body	Brass / Stainless Steel
Enclosure (NEMA 4)	ABS Plastic
Internal Parts	Brass / Stainless Steel
Sealing Material	FPM (Fluorocarbon)

Ordering Information





Model Selection and Dimensions

Model Number	A	B	C
WDV3-G**BL	1.73 (44)	4.53 (115)	3.46 (88)

Zero Air Loss Condensate Drain ED

Zero air loss condensate drains are designed for economical removal of unwanted water, oil emulsions, and other liquids. These drains will only open when liquid is present and will not allow any compressed air to escape from the system.

Specifications

Operating Pressure	232 PSIG (16 bar)
Ambient Operating Range Temperature:	35˚ to 140˚F (1.6˚ to 60˚C)
Voltages	
NPT	115/50-60Hz Standard
BSPP	230/50-60Hz & 24VDC Optional

Zero Air Loss Condensate Drains

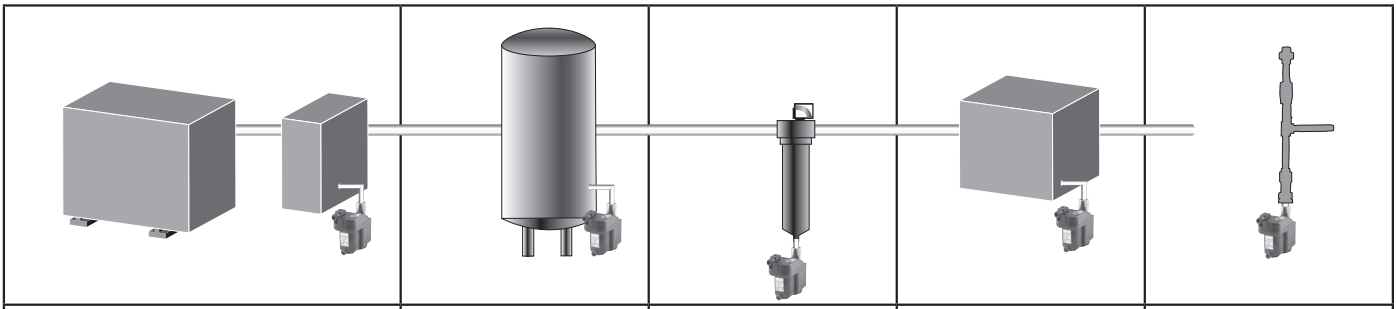
Port size (NPT)	Compressor Aftercooler (SCFM)*	Capacity Refrigeration Dryer (SCFM)**	Filter (SCFM)	Drain Capacity per Day (gal/liter)	Model Number	Service Kit
1 @ 3/8 (in), 1 @ 3/8 (out)	—	—	424	6 (22.7)	**ED3002N115-K**	**SKED3000N115**
1 @ 1/2 (in), 1 @ 3/8 (out)	141	282	1,413	13 (49.2)	**ED3004N115-K**	**SKED3000N115**
2 @ 1/2 (in), 1 @ 3/8 (out)	247	494	2,472	23 (87.1)	**ED3007N115-K**	**SKED3000N115**
2 @ 1/2 (in), 1 @ 3/8 (out)	1,059	2,119	10,594	100 (378.5)	**ED3030N115-K**	**SKED3000N115**
2 @ 1/2 (in), 1 @ 3/8 (out)	3,532	7,063	35,315	330 (1,249.2)	**ED3100N115-K**	**SKED3000N115**

* Based on 100 PSI working pressure, air compressor inlet at 77˚F (25˚C) at 60% RH, air discharge temperature od 95˚F (35˚C) following the aftercooler, pressure dewpoint of 37˚F (2.8˚C) after the refrigerated dryer.

** Condensate from aftercooler or refrigerated dryer to be drained upstream – only for residual oil content or small quantities of condensate.

Note: A 6 ft. line cord will be included with each drain.

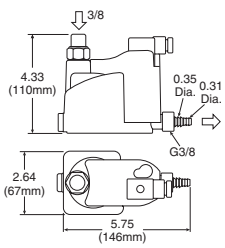
Where are Condensate Drains Used?



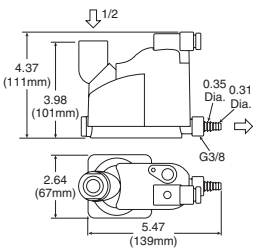
Compressor with Aftercooler	Receiver Tank	Filter	Air Dryer	Drip Leg
Removes the condensate that is collected after the air cools in the aftercooler	Removes the condensate that is collected when the air cools inside of the receiver tank	Removes the condensate that is collected in the filter bowl	Removes the condensate that is collected in the air dryer	Point-of-use applications: removes the condensate from compressed air pipes in a plant

Dimensions

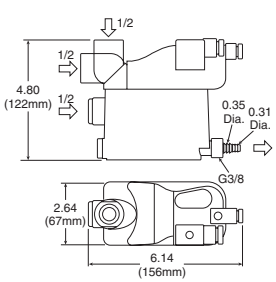
ED3002N115-K



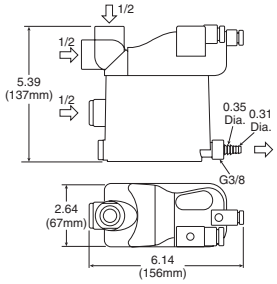
ED3004N115-K



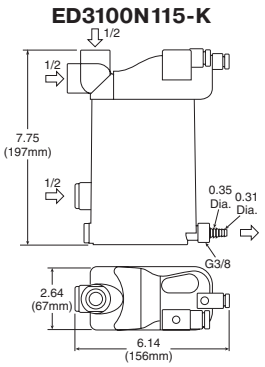
ED3007N115-K



ED3030N115-K



ED3100N115-K



Notes