

# Industrial Air™

MACHINE

DESIGNED TO PERFORM  
BUILT TO LAST



REFRIGERATED  
**AIR DRYERS**

## An Important Part of Your Air System

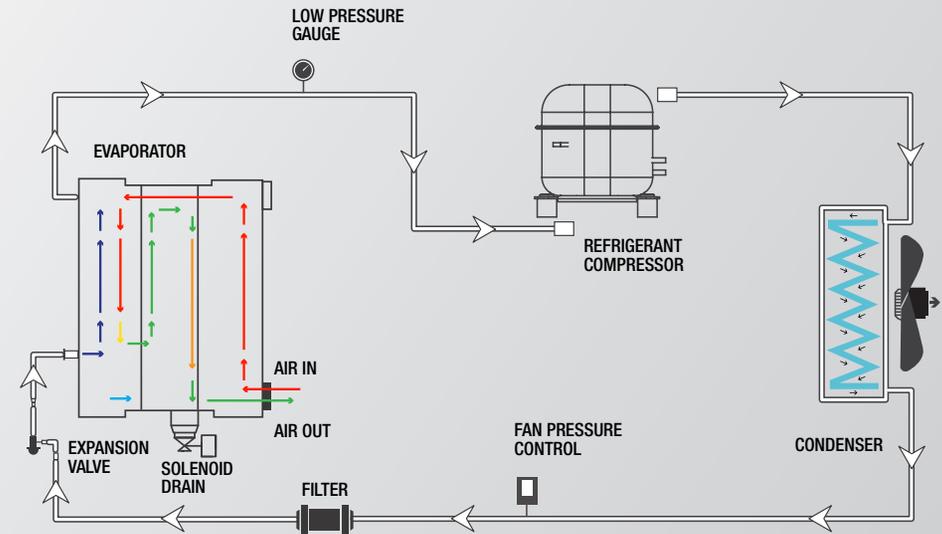
An air dryer is an important part of your total compressed air system. Properly cooled, dry air will improve the efficiency and life of your tools. A refrigerated air dryer removes unwanted moisture, and when installed with a filter, the filter removes additional contaminants and oil from the line. These Industrial Air refrigerated non-cycling air dryers and high efficiency filters allow spray guns to run free of moisture and extend the life of your air tools.

## A Must for Cool, Dry Air

- Protect your equipment and tools from harmful moisture in the line
- Necessary in auto body repair and paint shops
- Effectively remove large amounts of water from the air compressor system
- Eliminate troublesome water droplets and fish eyes when painting
- Reduce rusting of air tools and equipment

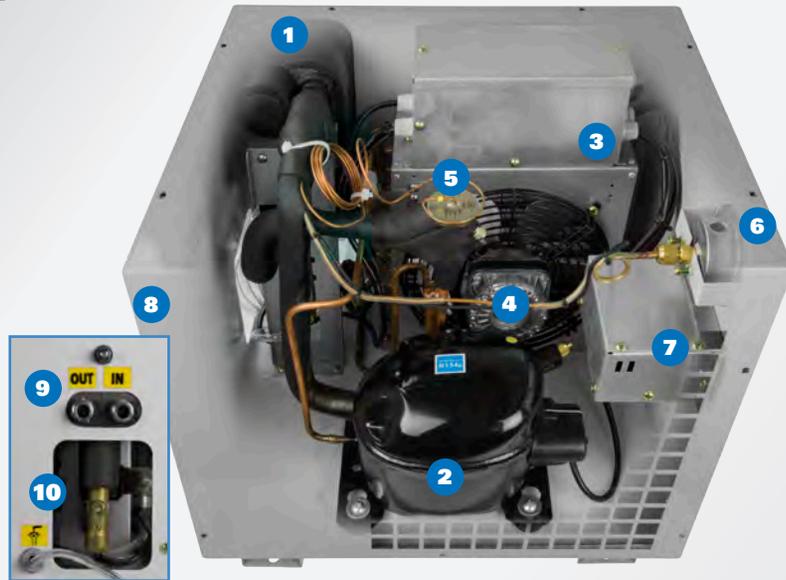


## Air Dryer Operation



1. The refrigerated air dryer cools the incoming warm moist compressed air in an air-to-air heat exchanger.
2. The incoming air enters an air-to-freon refrigerated exchanger/evaporator where the liquid refrigerant is released into the evaporator, and the air is cooled to 50°F by the liquid refrigerant (Freon).
3. Through this air to refrigerant process, the moisture is condensed into liquid water and drained away by the automatic drain.
4. All of the cooled air re-enters the air-to-air heat exchanger again and is warmed up by the incoming hot air as it exits the dryer. (The warmer air will keep the outside of the pipes in your shop from sweating). As the cooled air is leaving the dryer it also helps to pre-cool the hot incoming air.

## Components



- 1** Heat Exchanger / Moisture Separator  
*Air enters and exits the dryer here*
- 2** Refrigeration Compressor  
*Cools the air*
- 3** Condenser  
*Removes moisture from the air*
- 4** Fan Motor  
*Provides additional cooling for the condenser*
- 5** Hot Gas Bypass Valve  
*The automatic expansion valve is set and designed to maintain proper pressure on the evaporator. The expansion valve acts as a preset refrigerant regulator.*
- 6** Refrigerant Pressure Gauge  
*Indicates the suction pressure of the coolant within the system*
- 7** Controller  
*Quick access on / off, LED dewpoint reading*
- 8** Steel Cabinet Panels  
*Durable powder coat paint*
- 9** Air Inlet / Outlet Ports  
*1/2" NPT*
- 10** Automatic Moisture Drain  
*Includes clean out valve and drain tube*

## Additional Features

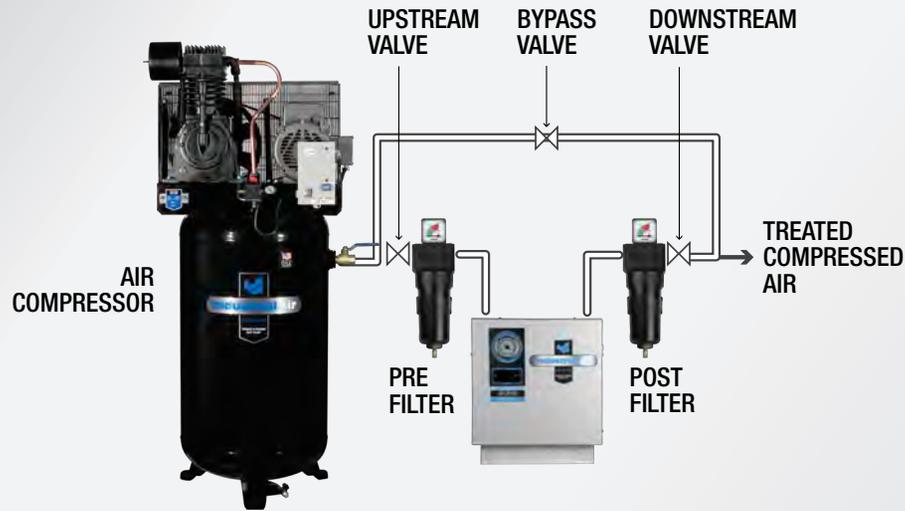
- Non-cycling type dryer provides for minimal dewpoint swings and the refrigerant compressor operates continuously unless in freeze mode protection
- Corrosion resistant heat exchanger
- Low 2.9 PSI pressure drop has minimal effect on system operation
- Electronic automatic drain valve is easily accessible and includes drain tube
- ISO Class 6 Dryer (50°F Dewpoint)
- Uses R134A refrigerant
- 6' power cord
- Durable powder coat painted enclosure panels
- Easy to install
- Leaves a small footprint, needing only 115 volts of power
- ETL-UL/CSA Certified
- 1-Year Limited Warranty



- Large refrigerant pressure gauge
- Carel controller - large LED dewpoint reading, quick access on / off



## Typical Installation



## Air Dryer Specifications

Model Number	CFM Capacity	Maximum PSI	Max Inlet Temperature	Comparable Compressor HP	Weight (lbs)
IAD15	13	232	158°F	5 RHP	60
IAD20	19	232	158°F	5 RHP	61
IAD30	27	232	158°F	7.5 RHP	63
IAD45	43	232	158°F	10 RHP	65

\*Capacity based on CAGI Standard ADF100. Inlet Temp 100°F, Inlet Pressure 100°F, Ambient Temp 100°F.

All air dryer models listed in the chart above also have the following specifications:

- Unit dimensions of 15.1" x 17.7" x 17.0"
- 1/2" NPT inlet/outlet connection size
- 115 Voltage / 1 Phase / 60 Hertz

## Correction Factors

If your dryer application needs to be sized for conditions other than the standard 100/100/100 conditions\*, you must apply Correction Factors to properly size your dryer, using the formula of Air Compressor SCFM x Inlet Pressure x Inlet Temperature x Ambient Temperature x Dew Point = the Required Dryer SCFM

Pressure (PSI)												
58	72	87	100	115	130	145	160	175	190	204	218	232
0.72	0.82	0.92	1.0	1.06	1.09	1.11	1.15	1.18	1.19	1.21	1.23	1.26

Ambient (°F)					
70	80	90	100	105	110
1.18	1.16	1.06	1.0	0.96	0.9

Inlet (°F)														
85	90	95	100	105	110	115	120	125	130	135	140	145	150	155
1.27	1.19	1.09	1.0	0.91	0.78	0.71	0.63	0.54	0.52	0.48	0.44	0.4	0.36	0.33

Dew Point (°F)										
			37.4	39.2	41	42.8	44.6	46.4	48.2	50
			1.0	1.04	1.11	1.14	1.17	1.19	1.21	1.23

### EXAMPLE:

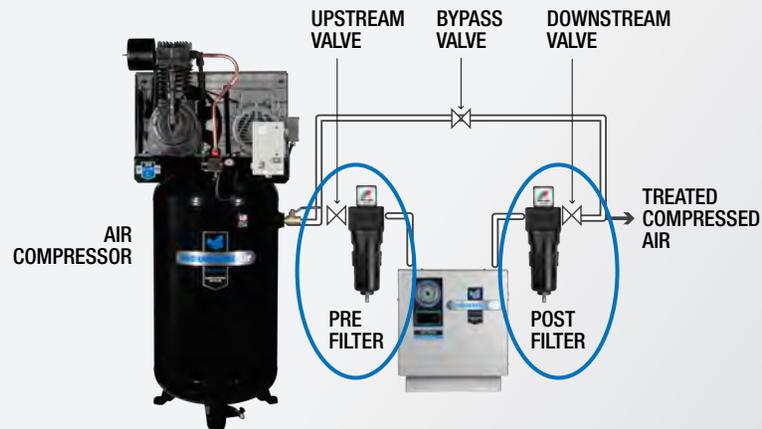
Air Compressor SCFM of 17.0 x Inlet Pressure of 175 PSI x Inlet Temperature of 138°F x Ambient Air Temp of 80°F x Dew Point of 50 = Required Dryer SCFM

Thus: 17.0 x 1.18 x 0.44 x 1.16 x 1.23 = 12.59 SCFM

In this case select the IAD15 Dryer.

## Tips for Selecting the Right Air Dryer

- The maximum pressure of the dryer must be the same or higher than that of your compressor.
- The maximum air flow that can flow through your dryer (SCFM) must be higher than tool needs.
- If you choose a too small dryer, it will result in a large pressure drop because the air does not easily pass through the dryer. And your dryer may not be able to reach the desired dew point.
- Confirm the exhaust temperature of the compressor air does not exceed the inlet temperature rating of the dryer.
- Be conscious of the ambient temperature (room temperature) of where the dryer will be installed to be sure the dryer can operate in that environment.



## High Efficiency Filters

Protect your air dryer with a high efficiency filter. A compressed air filter must be installed between the compressor and the dryer to remove oil and other contaminants that may damage the air dryer heat exchanger. These high efficiency filters provide for a lower pressure drop when compared to comparable competitive filters, allowing your air system to run as efficiently as possible.

## What is Inside this Filter Element?



- 1 Unique Push-Fit, Double O-Ring Seal**  
*filter-to-head chamfered connection for ease of installation and removal.*
- 2 Stainless Steel Support**  
*prevents corrosion.*
- 3 Fiberglass Support**  
*provides prefiltration, reduces pressure drop and extends service life.*
- 4 Deep Bed Multi-Wrap Borosilicate Glass Microfiber**  
*prevents high pressure drop and allows for a high dirt holding capacity. Wrap tension prevents channeled air flow.*
- 5 Fiberglass Support**  
*provides additional strength to the deep bed.*
- 6 Polyester Needle Felt Sleeve**  
*unique coalescing action to quickly drain oil. Will not crush like competitive foam socks. Ultrasonically welded down length. Will not decay with age. Competitive foam socks are subject to attack by synthetic lubricants, corrosives, and heat and are prone to decay.*
- 7 End Cap**  
*is a durable and non-corrosive glass filled nylon which is attached to the element with a multipart urethane resin. The element is held in place by internal ribs within the filter housing.*

## Additional Features

- Differential Pressure Gauge - When the needle indication is above 6 PSI and in the red, this indicates too much pressure drop is occurring due to the element being fully saturated. Time to replace the element!
- Double o-ring seal between the head and filter element prevents leaking
- O-ring sealed threaded bowl for ease of removal
- High quality aluminum constructed body
- Automatic internal float drain
- Pressure drop - clean and dry 1.0 PSI
- Pressure drop - saturated 2.0 PSI
- Only a 4-7" clearance is required for element removal
- Open / close drain valve with threaded connection for drain tube



*When the needle is in the red, it's time to replace the element.*



*Double o-ring seal*



*Filter element*



*Bowl Drain*



## Filter Specifications

Model Number	SCFM Flow	Maximum Inlet Pressure	Maximum* Inlet Temperature °F	Maximum PSI	Micron Rating	Max Carryover at 68°F	Inlet / Outlet Connection Size	Unit Dimensions L x D x H (in)	Unit Weight (lbs)
019-0331X	65	232 PSI	248°F	232	1.0	0.1 ppm	1/2" NPT	4.375 x 4.125 x 14.5	5.5
019-0354	Filter Element of Borosilicate Glass Microfiber for use with 019-0331X							2.625 x 2.625 x 5.5	0.5
019-0330X	75	232 PSI	248°F	232	1.0	0.1 ppm	3/4" NPT	4.375 x 4.125 x 14.5	5.25
019-0353	Filter Element of Borosilicate Glass Microfiber for use with 019-0330X							2.625 x 2.625 x 5.5	0.4

\*Maximum recommended working temp = 100°F

**NOTE:** For optimum performance and filtration, install a second high efficiency filter after the dryer



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