Point-of-Use Air Dryer System

DEW POINT REDUCTION

Description

The "point-of-use" compressed air dryer removes liquid water using filters; and reduces the pressure dew point of the air through pressure reduction. The system consists of a prefilter and a coalescing filter, followed by a pressure regulator. Two gages and mounting hardware are included in the system. Maximum flow rates of 10, 20 and 40 scfm are available as standard.

While depression of dew point with the system is not as dramatic as in desiccant air dryers, it is an economical approach to solving local in-plant air line water problems.

How It Works!

Assume that the air entering the filters contains liquid water and water vapor at 100% relative humidity. The air exiting the filters is virtually free of liquid water, but is still at 100% relative humidity as it enters the pressure regulator.

Since pressure regulators reduce pressure, there is a corresponding decrease in the density of the air at the exit from the regulator. Not only is the density of the air reduced, but also that of the water vapor, resulting in a decrease of the relative humidity. Saturated water vapor entering the regulator is no longer saturated in the reduced pressure at the outlet.

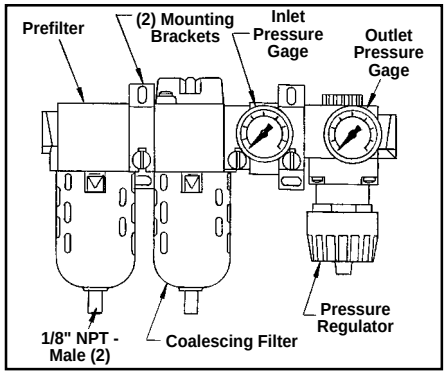
The dew point chart (at right) illustrates the reduction of dew point that can be achieved. The lower the outlet pressure of the regulator the lower is the relative humidity and associated dew point. The assumption for the chart data is that heat transfer maintains the temperature reasonably constant during flow passage through the pressure regulator.

Where To Use the Air Dryer!

Install this dryer close to the "point of use" to insure that there is no substantial temperature decrease between the regulator and downstream use point.

It is good practice to maintain the regulator output pressure a minimum of 20 psi below the regulator input pressure. The two gages provided are for this purpose.

Point-of-use air dryer contains two filters, two pressure gages and one regulator.

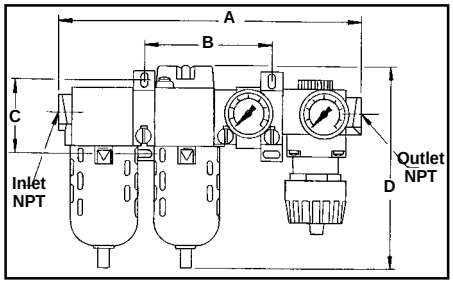


Filters remove condensate before air enters regulator. Regulator reduces outlet pressure and the dew point drops accordingly.

Ordering Information

Part Number	Maximum Flow – SCFM	Connections NPT
OKC-2039-1	10 scfm	1/4"
OKC-2039-2	20 scfm	3/8"
OKC-2039-3	40 scfm	1/2"

Dimensions



Specifications

Media – Compressed air
Connections –
Process – 1/4", 3/8" or 1/2" NPT
Drains – 1/8" NPT male
Inlet Pressure Range – 80-150 psig
Inlet Temperature Range – +40 to 125°F
Maximum Flow Rate – up to 40 scfm
Consult factory for larger flow rates.
Outlet Pressure Range – 1-150 psig
Filtration – .01 micron through dual filters.
Liquid Drains – Automatic float in each filter. 1/8" NPT connection.
Mounting – Integral brackets; See dimension drawing.
Dimensions – See drawing and chart.
Filter Elements – Replaceable
Materials of Construction –
Filter Bowl – Polycarbonate
Filter Body – Zinc
Regulator Body – Zinc
Bowl Guard – Aluminum

Dew Point Chart Point-of-Use Air Dryer

Regulator Inlet Air Conditions
- 100 psig, 70°F, 100% RH
- Contains no condensate
- Barometric pressure 14.7 psia

Output Pressure psig	Relative Humidity %	Pressure Dew Point °F
100	100	70.0
90	91.0	67.3
80	82.6	64.5
70	73.8	61.2
60	65.1	57.7
50	56.4	53.9
40	47.7	49.5
30	39.0	44.0
20	30.3	37.5
10	21.5	29.0
0	12.8	16.5

Type	A	B	C	D	NPT
OKC-2039-1	10-5/8"	4-5/8"	3"	7-1/2"	1/4"
OKC-2039-2	11-3/4"	4-15/16"	3"	8-1/4"	3/8"
OKC-2039-3	11-3/4"	4-15/16"	3"	8-1/4"	1/2"

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