

# Explosion Proof Instrument Air Dryers for Analyzer Buildings

## Market Application Publication



### Background:

Commonly found in the petrochemical industry, analyzer buildings are the control center of modern refineries and chemical plants. Process instruments utilize sensitive, air-operated stream control valves to take samples of process streams. The analyzers assure product quality by sending feedback to process control valves that fine tune process parameters.

Instrument grade air is needed for the control systems and must be of the highest quality to assure maximum uptime. Downtime of any instrumentation can cost thousands of dollars per hour.



### Contact Information:

Parker Hannifin Corporation  
Filtration and Separation Division  
242 Neck Road  
Haverhill, MA 01835

phone 800 343 4048 or 978 858 0505  
fax 978 556 7501

[www.parker.com/balston](http://www.parker.com/balston)

### Features and benefits:

- Assures Instrument Grade Air
- Unattended 24 hour operation
- Compact
- Dew points as low as -40°F (-40°C)
- Quiet Operation
- Explosion proof - All Class 1 environments
- No desiccant to change
- Easy to install and operate
- Requires no electricity
- Low operating costs

## Application:

Most analyzer buildings utilize plant instrument air. In many plants this air is of unreliable quality. Often, due to system upsets, the compressed air can become contaminated with oil and water. In addition, warm plant air entering the air conditioned building can cause condensation. This contamination can ruin the performance of sensitive process analyzers and control valves and cause production setbacks.



Hollow microfibers

To assure that the analyzer building has zero downtime, a final point-of-use air dryer is required. The air dryer acts as a final line of defense and assures no condensation in the air lines. Membrane air dryers are ideal for this application as they do not require electricity and therefore are safe to use in all Class 1 environments. The Balston 76 Series Air Dryer Assures a continuous supply of instrument grade air.



Coalescing

## Typical Installation:

Installation is straight forward and may be conducted in the field as a retrofit or at the analyzer building system integrator prior to delivery to the plant. The membranes are light weight and mount directly to the exterior or interior of the analyzer building. Compressed air of at least 60 psi is fed to the dryer and the outlet is connected to the building's air supply. A filtered bypass line is recommended. The coalescing prefilters should be replaced every six months; the membrane module has an indefinite life as long as the prefilters are well maintained.

## Specifications:

Model	76-01	76-02	76-10	76-20	76-40
Max. Flow Rate At -40°F (-40°C) Dewpoint	1 SCFM (1.7 Nm <sup>3</sup> /Hr)(1)	2 SCFM (3.4 Nm <sup>3</sup> /Hr)(1)	10 SCFM (1.7 Nm <sup>3</sup> /Hr)(1)	20 SCFM (3.4 Nm <sup>3</sup> /Hr)(1)	40 SCFM (6.8 Nm <sup>3</sup> /Hr)(1)
Min/Max Inlet Air Temp.	40°F/120°F (4°C/49°C) (2)	_____→			
Ambient Temp. Range	40°F - 120°F (4°C - 49°C)	_____→			
Min/Max Inlet Pressure	60 psig (4.1 BAR)/150 psig (10.3 BAR)	_____→			
Compressed Air Requirement	Total Air Consumption: Regeneration Flow + Outlet Flow Requirements (see tables in FNS Catalog)				
Max. Pressure Drop	5 psid (.34 barg) (3)	5 psid (.34 barg) (3)	5 psid (.34 barg) (3)	5 psid (.34 barg) (3)	5 psid (.34 barg) (3)
Wall Mountable	Yes	Yes	Yes	Yes	Yes
Prefilter (included) (5)	Yes (4)	Yes (4)	Yes (4)	Yes (4)	Yes (4)
Inlet/Outlet Port Size	1/4" NPT (female)	1/4" NPT (female)	1/2" NPT (female)	1" NPT (female)	1 1/2" NPT (female)/ 3/4" NPT (female)
Electrical Requirements	None	None	None	None	None
Dimensions	6"W x 22"H x 5"D (15cm x 58cm x 13cm)	6"W x 23"H x 5"D (15cm x 58cm x 13cm)	6"W x 37"H x 5"D (15cm x 94cm x 13cm)	12"W x 37"H x 7"D (30cm x 94cm x 18cm)	19"W x 39"H x 8"D (48cm x 99cm x 21cm)
Shipping Weight	9 lbs. (4 kg)	10 lbs. (5 kg)	18 lbs. (9 kg)	20 lbs. (9 kg)	35 lbs. (16 kg)

### Notes:

**1** Atmospheric dewpoint specified for saturated inlet air at 100°F (38°C) and 100 psig (6.9 barg). Outlet flows will vary slightly for other inlet conditions.

**2** Inlet compressed air dewpoint must not exceed the ambient air temperature.

**3** 5 psid (.34 barg) at -40°F (-40°C) dewpoint operating parameters.

**4** If compressed air is extremely contaminated, a Balston Grade DX prefilter should be installed directly upstream from the membrane dryer.

**5** Filtration efficiency: 99.99% at 0.01 micron.

Parker Hannifin Corporation  
 Filtration and Separation Division  
 242 Neck Road  
 Haverhill, MA 01835  
 phone 800 343 4048 or 978 478 2501  
 fax 978 556 7501  
[www.parker.com/balston](http://www.parker.com/balston)

