
Product Type : **BREATHABLE AIR DRYER**
Product Range : **BA S/BA HE purifier**

Standard scope of Supply :

High quality air is of vital importance to many industries, but nowhere as literally as in breathing air applications. The purity of the compressed air for breathing air is crucial to assure a safe working environment in a wide range of applications like asbestos removal, tank cleaning, sand blasting and others.

For this reason, Pneumatech has designed the BA HE breathable air system range. The BA HE takes air from any regular compressor and treats it to become ultra clean. It consists of a number of components, which together, after proper commissioning, produce air with a quality matching the Pharmacopoeia and will comply with the European Norm EN 12021 (Compressed air for breathing apparatus).

A BA offers following stages of cleaning:

- A water separator (SW) to eliminate free water from the compressed air, thus ensuring good operation of the desiccant dryer.
- Two coalescing filters (TF G filter and TF C filter) to remove contaminating particles and oil droplets.
- A desiccant dryer (PH dryer) to lower the pressure dew point (PDP) to -40°C (-40°F), eliminating the risk of condensation and strongly reducing water-related problems like bacteria growth.
- The VT filter reduces hydrocarbons like oil vapour and smells to harmless levels and converts excessive concentrations of CO into CO₂.
- A particle filter (TE MED filter) to eliminate particles that may have migrated out of the desiccant dryer.

Key qualities

- Compact system, offering reliable breathing air.
- Every BA breathable air system comes pre-assembled and tested to provide simple installation.
- Complying with the European Norm EN 12021 (Compressed air for breathing apparatus).
- Challenge test to ensure the BA meets international regulations

Water separator with drain (SW)

SW's are general purpose water separators for removal of free water from compressed air.

Centrifugal force created in the cyclone throws free water (droplets) to the wall, from where it flows down to the bottom of the bowl. The water is automatically discharged when a given level is reached. A drain valve is provided for manual draining of the bowl.

TF G filter

The TF G is a coalescing filter for general purpose filtering, removing oil aerosols to 0.1 mg/m^3 (0.1 ppm) and particles down to 1 micron. The filter is equipped with a drain. Typical pressure drop over filter is 0.05 bar (0.73 psi) when dry and 0.12 bar (1.74 psi) when saturated.

The air flow is from inside to outside the filter element.

TF C filter

The TF C is a high efficiency coalescing filter, removing oil aerosols to 0.01 mg/m^3 (0.01 ppm) and particles down to 0.01 micron. The filter is equipped with a drain. Typical pressure drop over filter is 0.08 bar (1.16 psi) when dry and 0.2 bar (2.9 psi) when saturated.

The air flow is from inside to outside the filter element.

TE MED filter

The TE MED is a high efficiency particle filter for dust protection, removing particles down to 0.01 micron. Pressure drop over filter is 0.08 bar (1.16 psi) when dry.

The air flow is from outside to inside the filter element.

PH dryer

The construction of the air dryer is simple, reliable and easy to service. A dryer basically consists of two vertical cylinders (towers), containing the adsorption material (desiccant). This desiccant is a very porous grain material, able to adsorb large amounts of water vapour.

The operation cycle of the dryer is repetitive and is controlled by a factory-set timer in the BA HE controller.

While the desiccant in one tower dries the compressed air, the desiccant in the second tower is being regenerated. Regeneration of the desiccant is achieved by means of dried air (purge air) from the drying tower.

The compressed air entering the dryer is led to one of the towers by means of the inlet selector valve. The position of the selector valve depends on the condition (activated or not) of the solenoid valves. While the air flows upwards through the tower, the desiccant adsorbs the water vapor and the compressed air is dried.

The dried air leaves the dryer via the outlet selector valve.

A small portion of the dried air passes a nozzle, expands to atmospheric pressure and flows downwards through the other tower, regenerating (drying) the desiccant.

When purchased as a stand-alone unit, a nozzle for operation of the dryer at 10 bar is installed as standard. Alternative nozzles for use at other operating pressures are available.

Purge control

The dryer is equipped with a dew point sensor, extending the drying time and saving compressed air. The regeneration time remains timer controlled. Fitted as standard on BA HE dryer.

Operation principle:

The sensor constantly measures the atmospheric dew point of the air leaving the drying tower. As long as the dew point is below the set point (-40°C), the drying tower will remain drying, until the dew point exceeds the set point. On that moment the regenerated tower will start drying the compressed air and the other tower will be regenerated.

As long as the dew point is below the set point, regeneration of the non-drying tower is stopped after a preset time interval has elapsed. As a result, reduction of purge air is achieved.

VT

A VT filter contains active carbon, reducing volatile organic compounds (VOC) and hydrocarbons (odours, oil vapours) to harmless levels.

A VT filter contains active carbon and catalyst material, converting excessive concentrations of CO into CO₂.

Depending on the size of the unit, the VT filter consists of one, two or three cylinders.

Available options

BA S		BA HE	
	EWD 15-105 230V	EWD 15-105	Optimized purge nozzle 7 bar BA 15 HE
	EWD 150-310 230V	EWD 150-310	Optimized purge nozzle 7 bar BA 30 HE
	EWD 15-105 115V	CO Sensor All	Optimized purge nozzle 7 bar BA 55 HE
	EWD 150-310 115V	CO2 Sensor All	Optimized purge nozzle 7 bar BA 75 HE
	Purge Control	CO-CO2 Sensor All	Optimized purge nozzle 7 bar BA 105 HE
	VT oil indicator	O2 Sensor All	Optimized purge nozzle 7 bar BA 150 HE
¹	BA S CO2 sensor - 15-55	VT oil indicator	Optimized purge nozzle 7 bar BA 170 HE
¹	BA S CO2 sensor - 75-105	NPT Connection 15-55	Optimized purge nozzle 7 bar BA 210 HE
¹	BA S CO2 sensor - 150-310	NPT Connection 75-170	Optimized purge nozzle 7 bar BA 310 HE
¹	BA S CO sensor - 15-55	NPT Connection 210-310	Optimized purge nozzle 10 bar BA 15 HE
¹	BA S CO sensor - 75-105		Optimized purge nozzle 10 bar BA 30 HE
¹	BA S CO sensor - 150-310		Optimized purge nozzle 10 bar BA 55 HE
	NPT Connection 15-55		Optimized purge nozzle 10 bar BA 75 HE
	NPT Connection 75-170		Optimized purge nozzle 10 bar BA 105 HE
	NPT Connection 210-310		Optimized purge nozzle 10 bar BA 150 HE
			Optimized purge nozzle 10 bar BA 170 HE
			Optimized purge nozzle 10 bar BA 210 HE
			Optimized purge nozzle 10 bar BA 310 HE
			Optimized purge nozzle 13 bar BA 15 HE
			Optimized purge nozzle 13 bar BA 30 HE
			Optimized purge nozzle 13 bar BA 55 HE
			Optimized purge nozzle 13 bar BA 75 HE
			Optimized purge nozzle 13 bar BA 105 HE
			Optimized purge nozzle 13 bar BA 150 HE
			Optimized purge nozzle 13 bar BA 170 HE
			Optimized purge nozzle 13 bar BA 210 HE
			Optimized purge nozzle 13 bar BA 310 HE

¹ Sales option only for BA S dryers

Electronic drain (EWD)

The electronic drain is optional on the SW, the TF G filter and the TF C filter.

The electronic drain is a zero-loss, electronically operated drain valve, specially designed to drain oil and water. A sensor detects the liquid level. If the level exceeds a preset value during a fixed programmed time, a solenoid valve is activated and the condensate is discharged via drain outlet.

Next, the solenoid valve closes and condensate is collected again. This way, the loss of air is reduced to a minimum.

If the micro-controller of the EWD registers a malfunction, the automatic drain valve will automatically change to alarm mode, visible on the display. This alarm signal can be relayed via a potential-free contact.

CO sensor

The CO sensor is connected to the BA HE controller and will trigger an alarm when the CO level exceeds 5 ppm.

CO2 sensor

The CO2 sensor is connected to the BA HE controller and will trigger an alarm when the CO2 level exceeds 500 ppm.

VT oil indicator

An oil indicator is available as an option to control the purity of the air. The oil indicator is a calibrated measuring instrument, used to detect aerosol-mist levels of oil entrainment that may be present in compressed air systems. Sensitivity of the indicator is limited only by the total number of hours it is allowed to remain on the air supply system. The indicator is sensitive enough to measure a concentration of oil entrainment as low as 0.01 ppm. This sensor will indicate when the activated carbon is saturated and needs to be replaced. The oil indicator has a maximum pressure of 8.75 bar (127 psi).

Optimised purge nozzle

On the BA S dryer, a nozzle kit is supplied in order to operate the dryer at different pressures than 10 bar. On BA HE, an optimised purge nozzle has to be ordered together with the machine. Based on this, the dryer will have software downloaded for 7, 10 or 13 bar operation.

NPT Connection

For American type connections.

Purge control

Purge control increases efficiency with dewpoint sensing switching of the dessicant dryer.