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# Breathing Air Purifiers

Comply with OSHA Grade D, NFPA-99,  
 CSA Z180.1-00, European Pharmacopoeia and  
 other International Breathing Air Standards



ENGINEERING YOUR SUCCESS.

# Parker domnick hunter Breathing Air Purifiers provide air 1,000,000 times cleaner than the air we breathe

The use of compressed air as a source of breathable air is well accepted throughout industry, being readily available and relatively inexpensive to produce.

## Why purify compressed air?

In recent years, employers have become increasingly aware of their responsibility to comply with International Breathing Air Standards. The standards define the quality of breathing air that must be provided to operators working in contaminated environments.

Contaminants frequently present in compressed air that threaten the well being of breathing air users are:

- **Fumes**
- **Vapors**
- **Solid particles**
- **Oil**
- **Gases**
- **Micro-organisms**

For compressed air to be suitable for breathing air applications it must be properly purified to ensure that it meets the relevant Breathing Air Standard.

## What type of purifier should be used?

With a wide variety of purification products available, ranging from a simple respirator offering basic protection against low levels of dust particles to self contained breathing apparatus it is essential that the inhalation risks be fully assessed and a suitable purification product selected.

Parker domnick hunter breathing air purifiers are designed to offer the user protection against some or all of the contaminants that may be present in a compressed air fed breathing air system.

As the world leader in filtration and purification of compressed air, Parker domnick hunter offers unrivaled experience in the design and manufacture of air treatment equipment.

With Parker domnick hunter breathing air purifiers in constant use worldwide, protecting lives in virtually every type of industry and the commitment to continuous research and development, Parker domnick hunter provides a complete range of breathing air purifiers designed to match the specific needs inherent when breathing from a compressed air supply.

## How do you know the quality of breathing air required?

Whatever the application, the quality of the compressed air used for breathing air applications is detailed in International Breathing Air Standards.

The applicable standard for the country of use will not only detail the maximum allowable levels of contaminants but also give an indication of the selection criteria for protection devices.

If doubt exists about the potential of a possible contaminant then steps must be taken to either monitor the air quality or install a suitable purification device to ensure compliance with the standard.

## Where would you use a Parker domnick hunter breathing air purifier?

Many applications exist, ranging from the life threatening environments of fire fighting, hazardous shot blasting and paint spraying operations, to critical, medical and hospital air requirements.

### Typical Applications

- **Shotblasting**
- **Tank cleaning**
- **Tunneling**
- **Pharmaceutical manufacturing**
- **Spray painting**
- **Medical and hospital air**
- **Offshore / Marine**
- **Asbestos removal**
- **High pressure cylinder filling**

# Breathing Air Purifiers without CO or CO<sub>2</sub> reduction

<b>To treat the following contaminants</b>	<b>Solid Particles</b>	✓	<b>Water Mists</b>	✓
	<b>Oil Mists</b>	✓	<b>Water Vapor</b>	✗
	<b>Oil Vapor</b>	✓	<b>Carbon Monoxide</b>	✗
	<b>Odors &amp; Fumes</b>	✓	<b>Carbon Dioxide</b>	✗



## BA-1400

The Parker domnick hunter BA-1400 portable breathing air purifier provides high quality breathable air from a normal compressed air supply.

Combining high efficiency coalescing and activated carbon filtration stages, this unit is housed in a compact, weatherproof, impact resistant case which can supply air for up to four users.

The BA-1400 also includes a water separator for the removal of bulk liquids and a CO monitor as standard.



## BAFP-064B and BAFP-170B

For higher flow, stationary applications, Parker domnick hunter offers two breathing air filtration panels, BAFP-064B and BAFP-170B. These wall mounted panels use the same type of purification stages as the portable BA-1400 and are supplied with a CO monitor.

Features	BA-1400/B	BAFP
Purification Stages	3	3
Integral pressure regulator and gauge	✓	✓
Portable	✓	-
Wall Mounted	-	✓
Filter Change Indicator	✓	✓
Use with any compressed air supply	✓	✓
Integrated CO Monitor	✓	✓
Electrical supply required	✓	†

† if fitted with a CO monitor

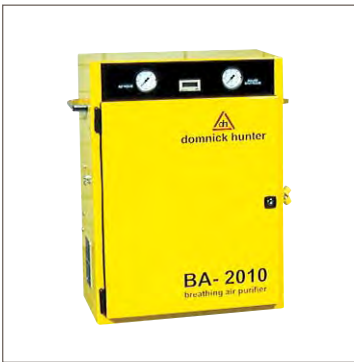
# Breathing Air Purifiers incorporating CO or CO<sub>2</sub> reduction

<b>To treat the following contaminants</b>	<b>Solid Particles</b>	✓	<b>Water Mists</b>	✓
	<b>Oil Mists</b>	✓	<b>Water Vapor</b>	✓
	<b>Oil Vapor</b>	✓	<b>Carbon Monoxide</b>	✓
	<b>Odors &amp; Fumes</b>	✓	<b>Carbon Dioxide</b>	✓

These models are recommended for hazardous applications that require an uninterrupted breathing air supply where carbon monoxide may be present.

The catalyst is kept active by maintaining a low pressure dewpoint prior to the catalytic bed using an integral desiccant dryer unit.

By means of catalytic conversion, carbon monoxide (CO) is converted, by oxidization into breathable levels of carbon dioxide (CO<sub>2</sub>).



## BA-2010

This model is used when the possibility of higher levels of CO is present, for example when the user must enter a confined space. This portable unit is designed for field service, being completely pneumatic in operation and incorporating five purification stages.



## High Pressure Breathing Air Purifiers

The Parker domnick hunter range of high pressure breathing air purifiers can be used with most high pressure compressed air systems up to | 5075 psi g (350 bar g).

The HPBA units offer complete protection against carbon monoxide (CO) and carbon dioxide (CO<sub>2</sub>). All purifiers in the range are designed for easy installation, operation and maintenance with simple in-line connections. These purifiers utilize two main stages of air treatment each with specific functions: Stage 1 Grade AA - High efficiency coalescing filter; Stage 2 is a composite cartridge, which reduces water vapor, CO<sub>2</sub>, oil vapor and odors. In addition, a catalyst bed for the oxidation of carbon monoxide (CO) to carbon dioxide (CO<sub>2</sub>) by catalytic conversion completes the purification stages.

Features	BA-2010	HPBA	BA-DME	BAM
Purification Stages	5	6	6	6
Integral pressure regulator and gauge	✓	-	-	-
Portable	✓	-	-	-
Hours run meter	✓	-	-	-
Pneumatic Control	✓	N/A	-	-
Use with any compressed air supply	✓	✓	✓	✓
Integrated CO Monitor	-	-	✓	✓
Electrical supply required	-	-	✓	✓

# Breathing Air Purifiers incorporating CO or CO<sub>2</sub> reduction

## Hospital and Medical Air Quality

A medical air supply is regarded as a vital part of every hospital infrastructure and is one of the few medicines that is manufactured on-site. Compressed air can be used for a wide variety of applications such as anesthetics, lung ventilation, intensive therapy, pneumatic surgery tools, nebulizers and many more, where the quality of the air is vitally important.

Parker domnick hunter BA-DME and BAM breathing air purifiers provide integrated filtration and adsorption stages to deliver the air quality required for medical applications.

Parker domnick hunter purifiers have been independently tested to the European Pharmacopoeia Medical Air Standard, which is more stringent than OSHA Grade D standards.

## International Standards

Features	OSHA Grade D	CSA Z180.1	European Pharmacopoeia	Parker domnick hunter BA DM/BAM range*
Water		Pressure Dewpoint of 40°F (5°C) below lowest system temperature	67 ppm (= -49°F (-45° C) atmospheric dewpoint)	14 ppm (= -72°F (-58° C) atmospheric dewpoint)
Oil / Lubricant	5 mg/m <sup>3</sup>	<1mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	0.003 mg/m <sup>3</sup>
Carbon Dioxide (CO <sub>2</sub> ) *1	< 1000 ppm	<500ppm	< 500 ppm	< 500 ppm
Carbon Monoxide (CO) *2	< 10 ppm	<5ppm	< 5 ppm	< 5 ppm
Nitrogen Oxides (NO + NO <sub>2</sub> )			< 2 ppm	< 2 ppm
Sulphur Dioxide (SO <sub>2</sub> )			< 1 ppm	< 1 ppm

1. When challenged with 700 ppm at the inlet.
2. When challenged with 65 ppm at the inlet.

\* Independently tested for Parker domnick hunter by

**PATTINSON**  
SCIENTIFIC SERVICE

## The Parker domnick hunter BA-DME and BAM ranges comply with the International medical air and breathing air standard



### BA-DME / BAM

The BA-DME and BAM packages consist of several stages of contaminant removal. Inlet filtration combines to remove bulk water, particles and oil. The use of adsorption materials, namely activated desiccant and carbon, removes water vapor and oil vapor/odors respectively. The desiccant material is contained in a pressure swing adsorption dryer that delivers both a constant pressure dewpoint of -40°F (-40°C) and reduces the carbon dioxide levels.

Downstream of the desiccant dryer, a catalyst converts carbon monoxide to carbon dioxide by catalytic conversion.

A final dust filter captures any particulates carried over from the adsorption materials.

# Selecting the Correct Purifier

Parker domnick hunter breathing air purifiers are designed to reduce the concentration of potential contaminants, identified as hazardous to the human respiratory system to acceptable levels detailed in published International Breathing Air Standards.

Where a potential inhalation hazard exists it is essential that a full assessment be made of the potential risk to the user. The assessment should not only identify the potential risk of contamination to the breathing air supply, but also the level of potential contamination. In the event of being unable to either remove the contamination risk or to control

the risk, it is the employer's responsibility to introduce measures to ensure that the breathing air supply complies with the required air quality standard. The air quality used in a breathing air system must be controlled under all operating conditions, including the possibility of a plant or process failure.

In addition to conforming with the required compressed air quality it must also be ensured that the delivered air flow rate is at least sufficient to meet the foreseeable needs of the total number of users at their maximum work rate consumption.

## Breathing Air Standards

Breathing air standards are published by a number of regional approval bodies. The Parker domnick hunter breathing air purifiers are designed to comply with the following international standards:

- **USA** CGA G7.1-1997  
OSHA-Grade D
- **Europe** EN12021
- **UK** BS4275 : 1997
- **Canada** Z180.1-00
- **Australia** AS/NZS 1715 : 1994
- **New Zealand** AS/NZS 1715 : 1994

Typical peak inhalation rates for fit young persons for various work rates are shown below. Higher inhalation rates may be generated by less fit or heavier users or for wearers of heavy personal protective equipment.

Work Rate	Peak Inhalation Rate	
	cfm	l/min
Low	3.6	100
Medium	5.3	150
High	7.1	200
Very High	8.9	250

Source BS4275 : 1997.

All peak inhalation rates are given as a guide only. The actual breathing air requirement should be calculated where possible from the total requirement of the personal protection equipment, i.e. mask/hood/suit.

In order to ensure that a suitably selected breathing air purifier is reliably operated and maintained it is essential that correct training and supervision be given to the user.

## Parker domnick hunter breathing air purifiers offer the following levels of protection when using a general compressed air line supply:

	Solid Particles	Oil Mist	Odors Oil	Pressure Dew-Point	CO	CO <sub>2</sub>	NO+NO <sub>2</sub>	SO <sub>2</sub>
Purifiers without CO & CO <sub>2</sub> reduction	0.01mg/m <sup>3</sup>	0.003mg/m <sup>3</sup>	None	N/A	N/A	N/A	N/A	N/A
Purifiers with CO & CO <sub>2</sub> reduction	0.01mg/m <sup>3</sup>	0.003mg/m <sup>3</sup>	None	-40°F (-40° C)	<5ppm	<500ppm	N/A	N/A

### NOTE:

Parker domnick hunter CO & CO<sub>2</sub> reduction purifiers offer breathable air that meets all International Breathing Air Standards. Purifiers without CO & CO<sub>2</sub> reduction stages should not be used in an environment where CO or CO<sub>2</sub> have been identified as a potential inhalation risk.

# Technical Specifications

		BA-2010, BA-1400, BAFP-064/170	BA-DME012 - 40	BA-DME050 - 080	BAM102 - 110
Operation Pressure	Maximum	145 psi g (10 bar g)	232 psi g (16 bar g)	189 psi g (13 bar g)	152 psi g (10.5 bar g)
	Minimum	58 psi g (4 bar g)	58 psi g (4 bar g)	58 psi g (4 bar g)	58 psi g (4 bar g)
Recommended Operating Temperature	Maximum	86°F (30°C)			
	Minimum	35°F (1.5°C)			

For flow rates at other pressures, apply the factor shown

Line Pressure	psi g	58	73	87	100	116	131	145	160	174	189	203	218	232
	bar g	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction Factor		0.76	0.85	0.93	1	1.07	1.13	1.19	1.25	1.31	1.36	1.41	1.46	1.51

Product code	Connections		Flow Rate @ 100 psi g (7 bar g)				Dimensions						Weight (approx.)	
	Inlet (NPT)	Outlet (NPT)	Inlet		Outlet		Height		Width		Depth		lbs	kg
			cfm	l/s	cfm	l/s	ins	mm	ins	mm	ins	mm		
BA-1400B	3/8	4x 1/4	49	23	49	23	18.5	470	23.6	600	11.8	300	22	10
BAFP-064B	1/2	4x 3/8	64	30	64	30	25.6	650	21.1	535	6.7	170	46	21
BAFP-170B	1/2	8x 3/8	170	80	170	80	33.5	850	23.8	605	7.9	200	65	30

Product code	Connections		Flow Rate @ 7 bar g (100 psi g)				Dimensions						Weight (approx.)	
	Inlet (NPT)	Outlet (NPT)	Inlet		Outlet		Height		Width		Depth		lbs	kg
			cfm	l/s	cfm	l/s	ins	mm	ins	mm	ins	mm		
BA-2010	1/2	3x 1/4	24	11	19	9	24.0	610	17.7	450	10.6	270	82	37
BA-DME012	1/2	3/8	24	11	19	9	37.5	952	18.7	476	11.9	302	84	38
BA-DME015	1/2	3/4	32	15	25	12	47.7	1211	19.3	490	11.9	302	95	43
BA-DME020	1/2	3/4	42	19	33	15	54.2	1376	19.3	490	11.9	302	106	48
BA-DME025	1/2	3/4	53	25	42	20	60.7	1541	19.3	490	11.9	302	117	53
BA-DME030	1/2	3/4	65	31	52	24	67.2	1707	20.5	521	11.9	302	128	58
BA-DME040	3/4	3/4	88	40	70	33	77.2	1960	28.8	732	17.6	447	164	74
BA-DME050	1	1	106	50	84	40	68.9	1750	15.8	400	47.2	1200	466	211
BA-DME060	1	1	130	61	104	49	75.4	1916	15.8	400	47.2	1200	494	224
BA-DME080	1	1	176	80	140	66	81.7	2076	29.3	745	47.2	1200	615	279
BAM102	1 1/2	2	160	76	134	63	70.1	1780	35.9	912	53.2	1352	979	444
BAM103	1 1/2	2	240	113	202	95	70.1	1780	35.9	912	53.2	1352	1078	489
BAM104	2	2	320	151	269	127	70.1	1780	35.9	912	57.6	1462	1237	561
BAM105	2	2	400	189	337	159	70.1	1780	35.9	912	61.5	1562	1319	598
BAM106	2	2 1/2	480	227	404	190	70.1	1780	35.9	912	70.9	1800	1519	689
BAM107	2	2 1/2	560	264	471	222	70.1	1780	35.9	912	74.8	1900	1645	746
BAM108	2	2 1/2	640	302	539	254	70.1	1780	35.9	912	78.7	2000	1828	829
BAM110	2 1/2	2 1/2	800	378	674	318	70.1	1780	35.9	912	86.6	2200	2225	1009

## High Pressure Breathing Air Purifiers incorporating CO and CO<sub>2</sub> reduction

Maximum Operating Pressure	5075 psi g	(350 bar g)	Maximum Recommended Operating Temperature	86°F	(30°C)
Minimum Operating Pressure	1450 psi g	(100 bar g)	Minimum Recommended Operating Temperature	40°F	(5°C)

Product code	Connections		Flow Rate @ 7 bar g (100 psi g)						Dimensions						Weight (approx.)	
	Inlet (NPT)	Outlet (NPT)	Inlet			Outlet			Height		Width		Depth		kg	lbs
			cfm	NI/s	Nm <sup>3</sup> /hr	cfm	NI/s	Nm <sup>3</sup> /hr	ins	mm	ins	mm	ins	mm		
HPBA-05	3/8	3/8	10	5	18	10	5	18	25.6	651	9.1	232	4.3	110	11	25
HPBA-10	3/8	3/8	20	10	36	20	10	36	34.8	883	9.1	232	4.3	110	13	29
HPBA-20	3/8	3/8	40	19	68	40	19	68	54.2	1377	9.1	232	4.3	110	16	36
HPBA-40	3/8	3/8	80	38	136	80	38	136	54.2	1377	14.3	363	4.3	110	28	62

For flow rates at other pressures, apply the factor shown

Line Pressure	psi g	1450	2175	2900	3625	4350	5075
	bar g	100	150	200	250	300	350
Correction Factor		0.29	0.43	0.57	0.71	0.86	1