



# BA SERIES

CONTINUOUS FLOW BREATHING  
AIR PURIFIERS





**SOME COMPANIES ARE FOUNDED ON HARD WORK.  
OTHERS ARE FOUNDED ON IDEALS.**

**FS-CURTIS WAS FOUNDED ON BOTH.**

More than 165 years ago, the FS-Curtis way of doing business was established through two key commitments: a dedication to building quality products and a dedication to responsive customer service.

Over the decades, the company and its products have evolved through innovation and new technologies. But those commitments to quality and service remain unchanged. Today, just as in 1854, FS-Curtis customers can depend on our products for reliable, long-term service. Equally as important, they can depend on getting the same from our people.

# A HISTORY OF EXCELLENCE

**1854      1857      1876      1897      1914      1940      1955      1976**

Curtis & Co. – Empire Saw founded in St. Louis, MO, USA

Earned Agricultural and Mechanical Fair award for excellence and quality

Named Curtis and Co. Manufacturing

Built first reciprocating air compressor that later evolved into the Master Line Series

Supported U.S. Government efforts by producing more than 2 million Howitzer shell forgings

Designed and developed mobile oxygen compressors to be used in Aerospace applications

Merged with U.S. Air Compressor Company, Central Petroleum Company, Lewis Machine Company

Merged with Toledo Tools as Curtis-Toledo Inc.

**1979      1995      2005      2006      2010      2015      2016      2017**

Introduction of Challenge Air Series reciprocating air compressors

Began manufacturing and assembling Rotary Screw Air compressors

Expanded global market reach by joining forces with Fusheng Industrial

U.S. Headquarters certified as ISO9001:2000 and ISO14001:2004

Introduced next generation GSV Variable Speed Rotary Screw compressors

Introduced Nx series Fixed and Variable Speed Rotary Screw compressors

Nx Series named Plant Engineering's 2015 Product of the Year - Gold Award for Compressed Air

Nx Series claims Plant Engineering's Product of the Year - Gold Award 2nd year in a row



# DEDICATED TO EXCELLENCE

## MAKING SAFETY PARAMOUNT IN THE WORK PLACE.

FS-Curtis maintains a long standing reputation for manufacturing products that deliver superior performance, time proven reliability and optimal energy savings. With the BA Series Breathing Air Purifiers, FS-Curtis continues its commitment to providing clean, dry compressed air for the most challenging industries. Environmental safety standards mandate the need for a suitable air supply to ensure worker safety, and the BA Series enable industries to meet those required standards.



# INDUSTRY APPLICATIONS



## SAFETY IN THE WORK PLACE

### Maintain Health and Safety Requirements

The BA Series delivers breathing air quality in accordance to international standards.

OSHA: CFR1910.134

(Occupational Safety & Health Association)

CSA: Z180.1-13

(Canadian Standards Association)

CGA: G-7

(Compressed Gas Association)

ANSI: Z88.2-1080

(American National Standards Institute)

Environmental safety standards mandate the need for a suitable air supply to ensure worker safety. BA Series Breathing Air Purifiers enable industries meet required standards.

## PETROCHEMICAL

The oil and gas industries select BA Series breathing air purifiers to protect workers from the inhalation of hazardous fumes, gases, and vapors inherent in the manufacturing process.

## ASBESTOS ABATEMENT

Asbestos was a commonly used insulation material for old dwellings. BA Series Breathing Air Purifiers provide suitable breathing air to workers in asbestos abatement applications.

## PAINT SPRAY

Automotive body shops utilize atomized paint to spray vehicles. Workers exposed to airborne paint emissions benefit from BA Series Breathing Air Purifiers.

## PROTECTIVE COATINGS

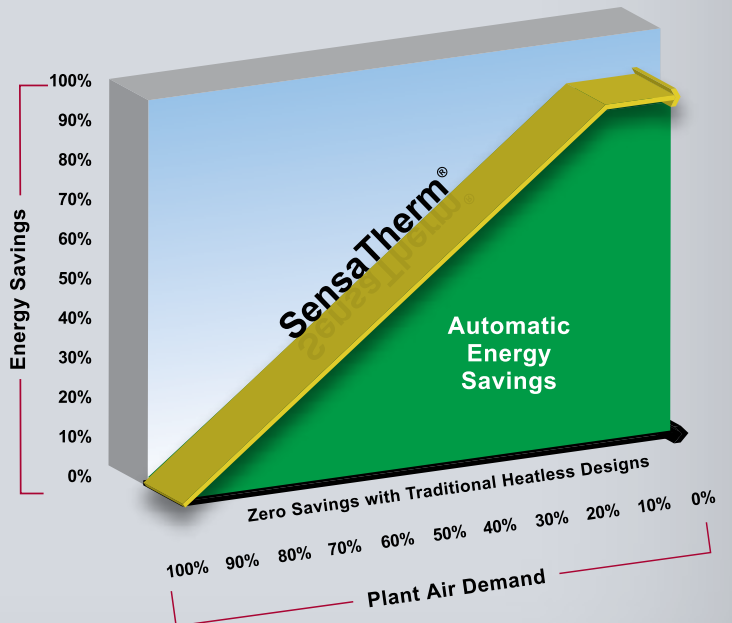
Manufacturers utilize compressed air to apply protective coatings. Airborne compounds will not adversely affect workers when respiratory air is supplied with BA Series Breathing Air Purifiers.

## CONFINED SPACES

The quality of breathing is critical in confined space industries. Mining, vats, tanks, boilers, ships' hulls, and grain storage facilities are environments with stale, contaminated air that is unsuitable for breathing.

## OPTIONAL SENSATHERM® ENERGY SAVINGS

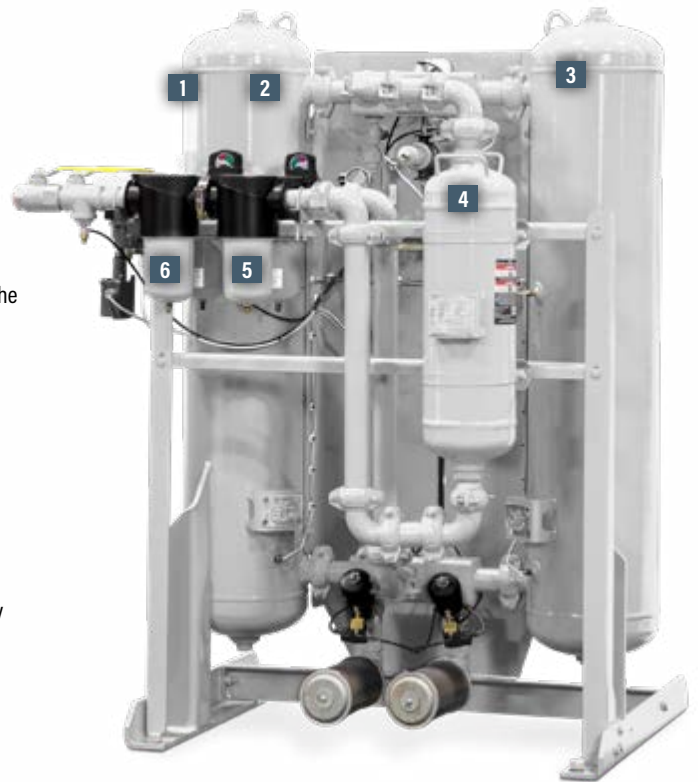
The optional SensaTherm energy management system automatically matches purge air requirements to real time load on the dryer. When operating at reduced capacity, the on-line drying tower remains active until the full drying capacity of the desiccant material is utilized. Each tower is precisely controlled to manage drying times to reduce purge air consumption.



# OPTIMAL PERFORMANCE AND OPERATION

## SIX STAGE FILTRATION

- Stage 1** General purpose filter removes solid and liquid contaminants down to 1.0 micron
- Stage 2** High efficiency oil removal filter captures liquid aerosols and sub-micronic particles down 0.01 micron
- Stage 3** Pressure-swing regenerative desiccant dryer removes water vapor to ensure the effectiveness of the catalyst bed
- Stage 4** Dried air travels through a catalytic converter reducing CO concentrations by converting CO to CO<sub>2</sub>
- Stage 5** Particulate removal filter collects contaminants 1.0 micron and larger from the purified air stream
- Stage 6** Activated carbon filter removes oil vapor, trace odors and other gases normally absorbable by activated carbon



## PURIFICATION CAPABILITIES

Excessive contamination of intake air to the compressor will adversely affect performance of the purifier.

BA Series Breathing Air Purifiers remove moisture, solid particles, oil aerosols and mists, carbon monoxide, and hydrocarbon vapors commonly present in compressed air resulting in air which can be safely used by supplied-air breathing devices such as masks, hoods and helmets.

CONTAMINANTS	MAXIMUM ALLOWABLE CONCENTRATION <sup>1</sup>		PURIFIER OUTLET RATED CONDITIONS
	OSHA <sup>1</sup>	CSA	
Carbon Monoxide (CO)	10	5	95% Conversion <sup>5</sup>
Carbon Dioxide (CO <sub>2</sub> )	1000	600	<sup>2</sup>
Oil (Condensed Hydrocarbons)	5	1	0
Oil Vapor (Gaseous Hydrocarbons)	—	—	<.02 <sup>3</sup>
Odor	Lack of noticeable odor		— <sup>4</sup>

<sup>1</sup> OSHA Standard references CGA (Compressed Gas Association) pamphlet G-71, Grade D and is generally consistent with those published by ANSI

<sup>2</sup> CO is converted to CO<sub>2</sub> by the purifier and added to the concentration of CO<sub>2</sub> already present (normal atmospheric air contains 314 PPM of CO<sub>2</sub>) Although some CO<sub>2</sub> is absorbed in the desiccant beds, high concentrations of CO in the system and/or high concentrations of CO<sub>2</sub> at the compressor intake could result in exceeding allowable CO<sub>2</sub> limits

<sup>3</sup> Will remove only those gaseous hydrocarbons normally adsorbed by activated carbon. Outlet concentration is expressed as methane equivalent, Activated carbon will not remove methane

<sup>4</sup> Will remove only those odors normally adsorbed by activated carbon

<sup>5</sup> 95% Conversion example (200 PPM @ inlet = 10 PPM @ outlet)



# TECHNICAL DATA

MODEL	INLET FLOW <sup>1</sup>		OUTLET FLOW <sup>1</sup>		VOLTAGES	IN/OUT CONNECTIONS	DIMENSIONS						WEIGHT	
	SCFM	NM <sup>3</sup> /H	SCFM	NM <sup>3</sup> /H			V/PH/Hz	H		W		D		LBS
BA 15	18	31	15	26	1/60/120V (optional 1/60/230V upon request)	1 NPT	IN	MM	IN	MM	IN	MM	440	200
BA 25	30	51	25	42		1 NPT	49	1244	42	1067	35	889	450	204
BA 35	42	71	35	59		1 NPT	49	1244	42	1067	35	889	455	206
BA 50	60	102	50	85		1 NPT	64	1615	43	1097	38	962	560	254
BA 75	90	153	75	127		1 NPT	79	2006	43	1097	35	889	700	318
BA 95	114	194	95	161		1 NPT	56	1443	50	1270	45	1137	820	372
BA 135	162	275	135	229		1 NPT	56	1443	53	1356	43	1092	820	372
BA 205	246	418	205	348		1.5 NPT	75	1905	62	1575	45	1143	1190	540
BA 305	366	622	305	518		2 NPT	65	1651	66	1674	52	1327	1405	637
BA 375	450	765	375	637		2 NPT	74	1871	67	1702	52	1330	1560	708
BA 490	590	1002	490	833		2 NPT	103	2616	55	1397	69	1753	1650	748
BA 625	750	1274	625	1062		2 NPT	107	2718	62	1575	75	1905	2800	1270
BA 775	930	1580	775	1317		3 FLG	112	2845	62	1575	83	2108	3275	1486
BA 940	1130	1920	940	1597		3 FLG	115	2921	66	1676	82	2083	3750	1701

<sup>1</sup>Flow capacity rated at CAGI conditions: 100 psig (7.0 bar) and 100°F (38°C) saturated inlet

## REPLACEMENT FILTER ELEMENTS

MODEL	PREFILTERS		CATALYST	AFTERFILTERS	
	PF	UF		CARTRIDGE	PF
BA 15	FF02-PF-DG1	FF02-UF-DG1	FCC0	FF02-PF-TG1	FF02-CF-T
BA 25	FF03-PF-DG1	FF03-UF-DG1	FCC0	FF03-PF-TG1	FF03-CF-T
BA 35	FF04-PF-DG1	FF04-UF-DG1	FCC0	FF04-PF-TG1	FF04-CF-T
BA 50	FF06-PF-DG1	FF06-UF-DG1	FCC1	FF06-PF-TG1	FF06-CF-T
BA 75	FF07-PF-DG1	FF07-UF-DG1	FCC1	FF07-PF-TG1	FF07-CF-T
BA 95	FF08-PF-DG1	FF08-UF-DG1	FCC2	FF08-PF-TG1	FF08-CF-T
BA 135	FF10-PF-DG1	FF10-UF-DG1	FCC2	FF10-PF-TG1	FF10-CF-T
BA 205	FF10-PF-DG1	FF10-UF-DG1	FCC3	FF10-PF-TG1	FF10-CF-T
BA 305	FF12-PF-DG1	FF12-UF-DG1	FCC4	FF12-PF-TG1	FF12-CF-T
BA 375	FF13-PF-DG1	FF13-UF-DG1	FCC5	FF13-PF-TG1	FF13-CF-T
BA 490	FF14-PF-Z2G1	FF14-UF-Z2G1	FCC6	FF14-PF-G1	FF14-CF
BA 625	FF14-PF-Z2G1	FF14-UF-Z2G1	FCC7	FF14-PF-G1	FF14-CF
BA 775	FF15-PF-Z2G1	FF15-UF-Z2G1	FCC8	FF15-PF-G1	FF15-CF
BA 940	FF16-PF-Z2G1	FF16-UF-Z2G1	FCC9	FF16-PF-G1	FF16-CF

## CAPACITY CORRECTION FACTORS

### Inlet Pressure

PSIG	BAR	100°F/38°C	105°F/40°C	110°F/43°C	115°F/46°C	120°F/49°C
60	4.2	0.65	0.64	0.62	0.6	0.58
70	4.9	0.74	0.73	0.71	0.69	0.66
80	5.6	0.83	0.81	0.8	0.77	0.74
90	6.3	0.91	0.89	0.87	0.85	0.81
100	7	1	0.98	0.96	0.93	0.89
110	7.7	1.04	1.02	1	0.97	0.93
120	8.4	1.08	1.06	1.04	1	0.96
130	9.1	1.12	1.1	1.08	1.04	1
140	9.8	1.16	1.14	1.11	1.08	1.03
150	10.5	1.2	1.18	1.15	1.12	1.07

To adjust BA Series capacity for conditions other than rated, use the correction factors (multipliers) for inlet air temperature and pressure shown below.

Example: What is the capacity of a 205 scfm (348 nm<sup>3</sup>/h) model when the compressed air at the inlet is 130 psig (9 bar) and 110°F (43°C)?

Answer: 205 scfm (348 nm<sup>3</sup>/h) (rated flow from Product Specifications Table) x 1.08 (correction factor for inlet air temperature and pressure) = 221 scfm (375 nm<sup>3</sup>/h)



# FEATURES AND BENEFITS

## FILTRATION & MONITORING

- Pre-filtration removes solids and oils
- After-filters collect remaining particles and adsorb vapor
- CO catalyst converter
- Air sample ports for optional analyzer installation

## MOISTURE INDICATOR

- Visual color change

## PRESSURE GAUGES

- Left / right tower
- Inlet / outlet purifier
- Purge pressure

## STANDARD CONTROLLER

- NEMA 4/4X with critical LED indicators
- Soft on / off switch with two power recovery modes

- Switching failure alarms
- Adjustable service indications
- Tower / valve status LEDs
- Voltage free common alarm contacts
- RS-232 communications port

## OPTIONS

- Nema 7 electrical rating
- Copper, brass or stainless steel instrument tubing and fittings
- SSPC-SP10 sandblast & epoxy paint
- Breathing air analyzers

## Advanced Controls Featuring:

- Vacuum fluorescent text display
- Automatic SensaTherm™ energy savings
- Calibration-free temperature sensors
- High inlet temperature & low inlet pressure alarm



## BREATHING AIR ANALYZERS

### OSHA maximum concentrations for breathing air:

- 10 PPM of Carbon Monoxide (CO)
- 1,000 PPM of Carbon Dioxide (CO<sub>2</sub>)
- 5 mg/m<sup>3</sup> Oil (Condensed Hydrocarbons)

Breathing air system performance is subject to excessive intake of air contaminants. It is important that breathing air systems are routinely monitored for proper operation.

The BA Series Breathing Air Purifier can be monitored using several air analyzing options.

### Carbon Monoxide (CO) Monitor

- Digital readout of CO concentration
- Visual and audible alarm
- Contacts for remote alarm
- Push-to-test button
- Alarm silence switch
- Simple calibration
- Adjustable high & low alarms with indication

### Options:

- Nema 7 electrical rating
- Copper lines and brass fittings or stainless steel lines and fittings
- SSPC-SP10 sandblast & epoxy paint
- Breathing air analyzers with multiple alarm capabilities
  - » CO & oxygen
  - » CO & dew point
  - » CO, oxygen & dew point



## CONTINUED COMMITMENT

A company history that dates back more than 165 years is a company history that, to us, is just the beginning. FS-Curtis is committed to offering a world-class portfolio of products. Through the dependability of our people and our quality-focused manufacturing, FS-Curtis will continue to be the most trusted and dependable name in compressed air serving even more markets through our ever-growing global presence.

You can count on **FS-Curtis** to approach the next 165 years by staying true to the values and strengths that are appreciated by our customers today.

## A WORLD OF DIFFERENCE

The FS-Curtis headquarters in St. Louis, Missouri, U.S.A. is the anchor of a larger global network. FS-Curtis builds quality products — and a quality reputation — at locations around the world.

In addition to our manufacturing and packaging locations, a large global network of sales agents and distributors ensures that sales and service support is available around the world, day in and day out.

### ST. LOUIS, MO USA (HEADQUARTERS)

PUNE, INDIA | JUNDIAI, BRAZIL | OBERHAUSEN, GERMANY | SHANGHAI, CHINA | TAIPEI, TAIWAN | PITTSBURGH, PA USA (FS-ELLIOTT)  
ZHONGSAN, CHINA | BEIJING, CHINA (FUSHENG) | ZHONGSAN, CHINA (FUSHENG) | HO CHI MINH CITY, VIETNAM (FUSHENG)



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Improvements and research are continuous at FS-Curtis. Specifications may change without notice.

ISO 9001

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