

## Del-Monox<sup>®</sup> Breathing Air Purifiers

DM SERIES



# Del-Monox® Breathing Air Purifiers...

Since 1961, Deltech has delivered products engineered to efficiently remove contaminants from compressed air systems across multiple applications. Moving forward our designs have advanced, employing the latest in filtration and dehydration technology. Today, Deltech prides itself on being a leader in the compressed air industry known for scope of product offering and superior performance capabilities.

Based in Charlotte, North Carolina, SPX FLOW is a leading global supplier of highly engineered flow components, process equipment and turn-key systems, along with the related aftermarket parts and services, into the food and beverage, power and energy and industrial end markets. SPX FLOW has more than \$2 billion in annual revenues and approximately 8,000 employees with operations in over 35 countries and sales in over 150 countries around the world. To learn more about SPX FLOW, please visit our website at [www.spxflow.com](http://www.spxflow.com)

## TIME-PROVEN RELIABILITY

In 1966, Deltech introduced the industry's first engineered, contaminant removing system to convert compressed air to safe breathing air. Over time, the designs have advanced employing the latest in filtration and dehydration technology. Today, Deltech is the most respected brand name in breathing air purification around the world.

## SAFETY IN THE WORK PLACE

### Maintain Health and Safety Requirements

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

**OSHA:** CFR1910.134 (Occupational Safety & Health Association)

**CSA:** Z180.1-13 (Canadian Standards Association)

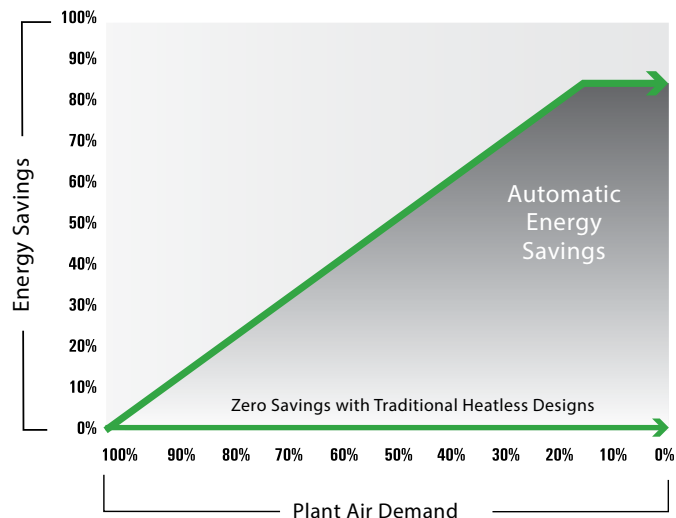
**CGA:** G-7 (Compressed Gas Association)

**ANSI:** Z88.2-1080 (American National Standards Institute)

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

## OPTIONAL ENERGY MANAGEMENT SYSTEM

The optional 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.



# Applications

## PETROCHEMICAL

The oil and gas industries select DM 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. DM 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 DM 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 DM Series Breathing Air Purifiers.

## CONFINED SPACES

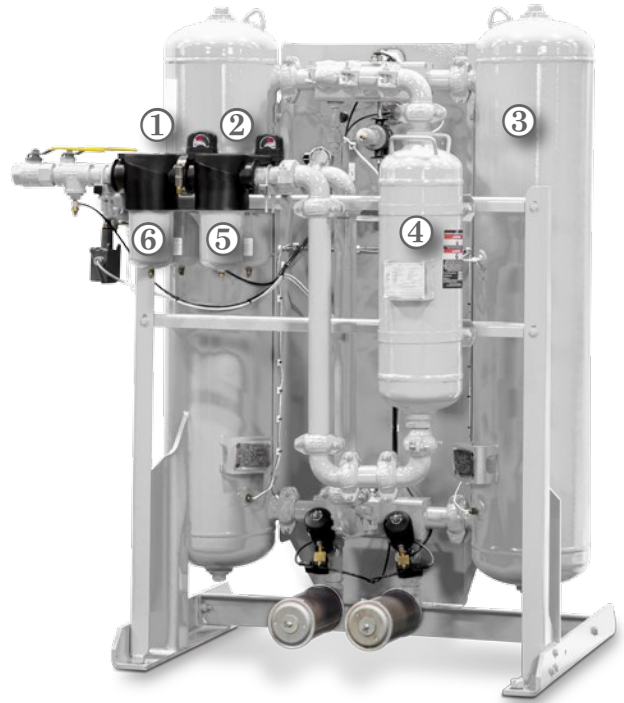
The quality of breathing is critical in confined space industries. Mining, vats, tanks, boilers, ships' hulls, and grain storage facilities are environments with stale, contaminated air that is unsuitable for breathing.



# 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



## For Quality Breathing Air...

### PURIFICATION CAPABILITIES

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

Del-Monox® Breathing Air Purifiers remove moisture, solid particles, oil aerosols and mists, carbon monoxide, and hydrocarbon vapors commonly present in compressed air. The resulting air 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	
<b>Carbon Monoxide (CO)</b>	10	5	95% Conversion <sup>5</sup>
<b>Carbon Dioxide (CO<sub>2</sub>)</b>	1000	600	<sup>2</sup>
<b>Oil (Condensed Hydrocarbons)</b>	5	1	0
<b>Oil Vapor (Gaseous Hydrocarbons)</b>	—	—	<.02 <sup>3</sup>
<b>Odor</b>	Lack of noticeable odor		— <sup>4</sup>

<sup>1</sup> OSHA Standard references CGA (Compressed Gas Association) pamphlet G-7.1, 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)

# Features and Options

## 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
- Breathing air analyzers
- Advanced Level -2 Controls:
  - Vacuum fluorescent text display
  - Automatic energy savings
  - Calibration-free temperature sensors
  - High inlet temperature & low inlet pressure alarms

# 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 DM Series Breathing Air Purifier can be monitored using several air analyzing options.

## Carbon Monoxide (CO) Monitor

*Recommended*

- 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



## Analyzer Choices:

*Additional Options*

- Multiple alarm capabilities
  - » CO & oxygen
  - » CO & dew point
  - » CO, oxygen & dew point



# DM Series Specifications...

## OPTIMIZING CAPACITY

Breathing air produced by a Breathing Air Purifier system can supply various levels of use. To select a DM Series purifier, first determine the air pressure at the purifier inlet and the maximum breathing air flow required at a given time. The chart below illustrates an example of DM Series estimated capacities based on 6-15 scfm (10-25 m<sup>3</sup>/h) per hood, helmet or suits as calculated in the sizing table.

MODELS	DM 15	DM 25	DM 35	DM 50	DM 75	DM 95	DM 135	DM 205	DM 305	DM 375	DM 625	DM 775	DM 940
Minimum Capacity	1	2	2	3	5	6	9	14	20	25	42	52	63
Maximum Capacity	2	4	6	8	13	16	23	34	51	63	104	129	157

\* Contact hood manufacturer for actual capacity before sizing purifier.

## MODEL SPECIFICATIONS

MODEL	INLET FLOW <sup>1</sup>		OUTLET FLOW <sup>1</sup>		VOLTAGES V/PH/HZ	IN/OUT CONNECTIONS	DIMENSIONS						WEIGHT	
	SCFM	NM <sup>3</sup> /H	SCFM	NM <sup>3</sup> /H			H		W		D		LBS	KG
DM 15	18	31	15	26	85-264/1/ 47-63 AC  11.5-28 V DC	1 NPT	49	1244	42	1067	35	889	440	200
DM 25	30	51	25	42		1 NPT	49	1244	42	1067	35	889	450	204
DM 35	42	71	35	59		1 NPT	49	1244	42	1067	35	889	455	206
DM 50	60	102	50	85		1 NPT	64	1615	43	1097	38	962	560	254
DM 75	90	153	75	127		1 NPT	79	2006	43	1097	35	889	700	318
DM 95	114	194	95	161		1 NPT	56	1443	50	1270	45	1137	820	372
DM 135	162	275	135	229		1 NPT	56	1443	53	1356	43	1092	820	372
DM 205	246	418	205	348		1.5 NPT	75	1905	62	1575	45	1143	1190	540
DM 305	366	622	305	518		2 NPT	65	1651	66	1674	52	1327	1405	637
DM 375	450	765	375	637		2 NPT	74	1871	67	1702	52	1330	1560	708
DM 490	590	1002	490	833		2 NPT	103	2616	55	1397	69	1753	1650	748
DM 625	750	1274	625	1062		2 NPT	107	2718	62	1575	75	1905	2800	1270
DM 775	930	1580	775	1317		3 FLG	112	2845	62	1575	83	2108	3275	1486
DM 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	
	P3	U3	CARTRIDGE	P3	C3
DM 15	302-P3-DG1	302-U3-DG1	CC0	302-P3-TG1	302-C3-T
DM 25	303-P3-DG1	303-U3-DG1	CC0	303-P3-TG1	303-C3-T
DM 35	304-P3-DG1	304-U3-DG1	CC0	304-P3-TG1	304-C3-T
DM 50	306-P3-DG1	306-U3-DG1	CC1	306-P3-TG1	306-C3-T
DM 75	307-P3-DG1	307-U3-DG1	CC1	307-P3-TG1	307-C3-T
DM 95	308-P3-DG1	308-U3-DG1	CC2	308-P3-TG1	308-C3-T
DM 135	310-P3-DG1	310-U3-DG1	CC2	310-P3-TG1	310-C3-T
DM 205	310-P3-DG1	310-U3-DG1	CC3	310-P3-TG1	310-C3-T
DM 305	312-P3-DG1	312-U3-DG1	CC4	312-P3-TG1	312-C3-T
DM 375	313-P3-DG1	313-U3-DG1	CC5	313-P3-TG1	313-C3-T
DM 490	314-P3-Z2G1	314-U3-Z2G1	CC6	314-P3-G1	314-C3
DM 625	314-P3-Z2G1	314-U3-Z2G1	CC7	314-P3-G1	314-C3
DM 775	315-P3-Z2G1	315-U3-Z2G1	CC8	315-P3-G1	315-C3
DM 940	316-P3-Z2G1	316-U3-Z2G1	CC9	316-P3-G1	316-C3

## 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

## CAPACITY CORRECTION FACTORS

To adjust 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)





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