

BEVERAGE
 BIOTECHNOLOGY
 BREWING
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 ELECTRICITY
 ELECTRONICS
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 PHARMACEUTICALS

FILTRATION - PURIFICATION - SEPARATION

FILTRATION > The process of separating a solid from a liquid or gas obtained after filtration.
 verb (filtrate) or (filtrate) to filter, filtration noun.
 ETYMOLOGY: 17c: from French rare to filter.

PURIFICATION > 1. to make or become pure. 2. to cleanse something of contaminating or harmful substances. 3. to rid something of intrusive elements.
 ETYMOLOGY: 14c: from Latin purificare, from purus pure.

SEPARATION > 1. the act of separating. 2. the state or process of being separated. 3. a place or line where there is a division or interval that separates.
 ETYMOLOGY: 15c.

PNEUDRI High Efficiency Compressed Air Dryers



domnick hunter

www.domnickhunter.com

Compressed air plays an important role in modern industry.

The decisions you make regarding your compressed air system, not only impact on your company's productivity but ultimately its profitability.

All compressed air systems use atmospheric air, which is highly contaminated with dirt, water vapour, unburned hydrocarbons and bacteria. Additionally, the compressor can add wear particles and oil from its lubricating system. This can even apply to some types of oil free compressors. This oil is degraded, acidic and without lubricating properties. The compressed air distribution system can also add pipscale and rust.

This combination of dirt, oil and water contamination mixes to become an abrasive sludge which rapidly wears pneumatic machinery, blocks valves and corrodes piping systems leading to:

- **Costly air leaks**
- **Breakdown of tools and machinery**
- **Production downtime**
- **Increased maintenance costs**
- **Product spoilage**
- **Compromised health and safety**
- **Unpleasant working environments**

The Right Partnership

Selection of compressed air purification equipment should be based upon; air quality, cost of ownership and aftercare support, all of which will provide you with peace of mind.

domnick hunter is the perfect partner to assist you in making the right choices. The comprehensive range of products and aftercare packages from domnick hunter will ensure that cost effective solutions and continuous support are provided.

Modern production systems and processes demand increasingly higher levels of air quality that require the elimination of moisture from the compressed air system to guarantee reliability of production processes and quality of finished products.

Only desiccant dryers can provide totally dry and clean compressed air.





PNEUDRI heatless dryers can provide the simple and cost effective solution for the provision of clean dry compressed air.

Using patented domnick hunter technology, PNEUDRI heatless dryers provide the ultimate in performance, security and reliability.



■ Protects your compressed air system

A moisture free system will increase the reliability of production processes, giving better quality finished products and preventing damage to the compressed air system.

■ High quality, clean dry compressed air

Used in conjunction with domnick hunter OIL-X filters, PNEUDRI will deliver air at -40°C (-40°F) pressure dewpoint as standard, in accordance with ISO 8573.1 :2001 class 3.2.1.

■ Reliable Performance

Long-life pneumatic cylinder valves provide reliable switching, and high quality desiccant ensures stable dewpoint performance.

■ Energy efficient

With low differential pressure and a reliable energy management system cost effective operation is assured.

■ Space saving

Advanced aluminium forming technology makes PNEUDRI typically half the size and weight of traditional twin tower dryers, taking up less floor space and making installation easy.

■ Modular Design

domnick hunter's unique modular construction means that extra banks can easily be added if air demand increases.



**PNEUDRI
Multibanks**

Dryer Operation

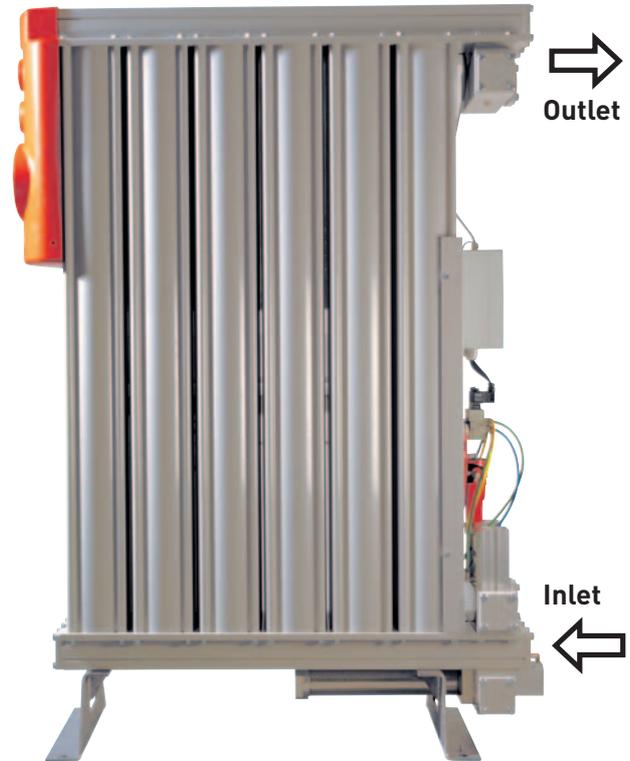
PNEUDRI comprises of high tensile extruded aluminium columns containing twin chambers each filled with desiccant material which dries the compressed air as it passes through. One chamber is operational (drying), while the opposite chamber is regenerating using the Pressure Swing Adsorption (PSA) [Heatless] method of drying.

A small volume of the dried compressed air is used to regenerate the desiccant bed by expanding air from line pressure to atmospheric pressure, removing the water adsorbed by the desiccant material, and therefore regenerating the dryer. Using domnick hunter OIL-X pre- and after filters will further increase the reliability and performance of the dryer.

Modular design eliminates the need for complex valves and interconnecting piping which are used in conventional twin tower designs.

domnick hunter's unique modular construction means that extra banks can easily be added if air demand increases.

Multibanking of dryers enables individual banks to be easily isolated for routine maintenance work, or even a decrease in air capacity requirements (eg. night shift). This means no interruption to your clean, dry air supply.



Energy Savings

Energy savings of up to 80% can be achieved with the proven Dewpoint Dependent Switching (DDS) energy management system.

Regeneration requirements are dependent on flow, pressure and temperature. The DDS system allows the cost of drying compressed air to be matched exactly to your plant conditions.

DDS controls the drying cycle by continuously reacting to the loading under which the dryer is operating and minimises the energy input required.

As dryers rarely operate at full rated capacity all of the time (eg during shiftwork and periods of low demand), this energy management system can provide considerable savings.

COMPRESSED AIR QUALITY TO ISO 8573.1

The ISO 8573.1 international standard for compressed air quality provides a simple system of classification for the three main contaminants present in any compressed air system - DIRT, WATER and OIL. To specify the quality class required for a particular application, simply list the class for each contaminant in turn.

Class	Dirt			Water	Oil
	Maximum number of particles per m ³			Pressure Dewpoint °C	(incl. vapour) mg/m ³
	0.1-0.5 micron	0.5-1 micron	1-5 microns		
1	100	1	0	-70	0.01
2	100,000	1,000	10	-40	0.1
3	-	10,000	500	-20	1
4	-	-	1,000	3	5
5	-	-	20,000	7	-
6	-	-	-	10	-

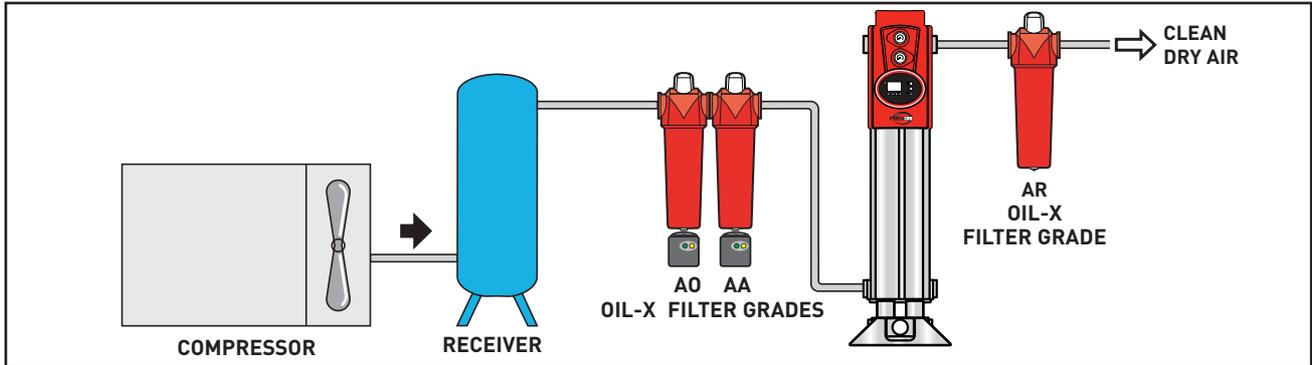
PNEUDRI - Designed for drying performance



- **Patented modular design**
Potential for future plant expansion or 100% standby capability at a fraction of the cost.
- **Compact, lightweight construction**
Space saving design is easy to install.
- **'Snowstorm' desiccant filling**
Consistent airflow and long desiccant life.
- **Corrosion protected**
Corrosion inhibited by alocroming and dry powder epoxy painting for extended lifetime.
- **Efficient regeneration**
High quality desiccant with minimum purge requirements.
- **DDS energy management system**
Controls dryer cycle times to match plant requirements.
- **User friendly control and monitoring**
A range of easy to read and operate control panels to suit your requirements.
- **Quiet operation**
Reduced blow down noise.
- **Options**
A wide range of options are available including remote fault indication, re-transmission of dewpoint display and the ability to interface with building management systems via remote communications. domnick hunter can specify a system to match your exact requirements.

-20°C and -70 °C pressure dewpoint options are also available for general purpose and critical applications.

Product selection and technical data



Temperature Correction Factor CFT

Maximum Inlet Temperature	°C	25	30	35	40	45	50
	°F	77	86	95	104	113	122
	CFT	1	1	1	0.97	0.88	0.73

Pressure Correction Factor CFP

Minimum Inlet Pressure	bar g	4	5	6	7	8	9	10	11	12	13
	psi g	58	73	87	102	116	131	145	160	174	189
	CFP	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.50	1.63	1.75

Dewpoint Correction Factor CFD

Required Dew point °C (°F)	PDP	-20 (-4)	-40 (-40)	-70 (-100)
	CFD	1.1	1	0.7

1. Select correction factor for minimum pressure (CFP) to inlet of dryer (Allow for system pressure losses when determining minimum operating pressure). - see diagram above.
2. Select correction factor for maximum temperature (CFT) to inlet of dryer.
3. Select dewpoint correction factor (CFD) for required dewpoint.
4. Calculate drying capacity required following the example below.

$$\frac{\text{Inlet flow requirement}}{\text{CFT} \times \text{CFP} \times \text{CFD}} = \text{Minimum drying capacity requirements}$$

Using drying capacity requirement, select dryer model from table, ensuring the dryer model selected is equal to or greater than your drying capacity requirement.

Electronic controllers

A number of electronic control options are available to suit every application. SMART controllers provide system status display, service indication and are now available with DDS incorporating a dewpoint display.

The **ADVANCED** monitoring and control system from domnick hunter provides a full system status display for your compressed air network including dewpoint, temperature and pressure. A reliable energy management system ensures cost effective operation and optimum system performance.

This unique, microprocessor controlled system, can be custom configured to monitor individual plant requirements. System warnings and fault alarms can be configured to react in the way that best suits your application.

Not only can alarms be indicated remotely, the system can be configured to by-pass or even shut down your air supply in the event that air quality falls outside of the required specification.

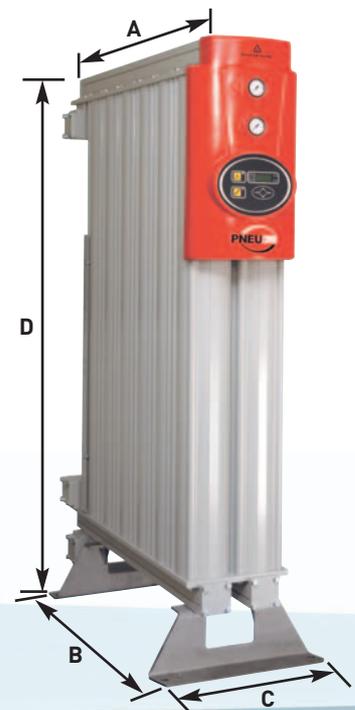
The user interface is simple to use and incorporates a 10cm LCD display with easy to understand symbols, five status LEDs and an integrated keypad.



Product selection and technical data

Dryer Model	Flowrate @ 7 barg (102 psig)		Dimensions mm (ins)				Pipe Size	Weight kg (lb)
	cfm	m ³ /h	A	B	C	D		
MX102c	240	408	696 (27.4)	326 (12.8)	550 (21.65)	1647 (64.8)	2"	235 (518)
MX103c	360	612	865 (34.1)	495 (19.5)	550 (21.65)	1647 (64.8)	2"	316 (696)
MX103	450	765	865 (34.1)	495 (19.5)	550 (21.65)	1892 (74.5)	2"	355 (782)
MX104	600	1020	1034 (40.7)	664 (26.1)	550 (21.65)	1892 (74.5)	2"	450 (992)
MX105	750	1275	1203 (47.4)	833 (32.8)	550 (21.65)	1892 (74.5)	2 1/2"	543 (1197)
MX106	900	1530	1372 (54.0)	1002 (39.45)	550 (21.65)	1892 (74.5)	2 1/2"	637 (1404)
MX107	1050	1785	1541 (60.7)	1171 (46.1)	550 (21.65)	1892 (74.5)	2 1/2"	731 (1611)
MX108	1200	2040	1710 (67.3)	1340 (52.8)	550 (21.65)	1892 (74.5)	2 1/2"	825 (1818)
MPX110	1380	2346	2223 (87.5)	1470 (57.9)	550 (21.7)	1788 (70.4)	4"	895 (1969)
MPX112	1656	2815	2551 (100.4)	1798 (70.8)	550 (21.7)	1788 (70.4)	4"	1025 (2255)

Maximum operating pressure	13 barg (190 psi g)
Minimum operating pressure	4 barg (58 psi g)
Maximum inlet temperature	50°C (122°F)
Minimum inlet temperature	2°C (35°F)
Noise level	<75 dB(A)
MX (voltage)	85 - 265V ac 50/60Hz
MPX (voltage)	230V ac 50/60Hz 110V ac 50/60Hz



A wide range of domnick hunter preventative maintenance programs are available.

Comprehensive worldwide service packages that can be tailored to match your exact requirements.



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FILTRATION - PURIFICATION - SEPARATION

SEPARATION > 1. the act of separating or disjoining. 2. the state or process of being separated. 3. a place or line where there is a division. 4. a gap or interval that separates.
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