domnick hunter

PNEUDRI
Maxi/Maxiplus

The intelligent adsorption compressed air dryer

www.domnickhunter.com

Compressed Air contains water, oil and dirt

The Problem

Compressed air is an essential power source that is widely used throughout industry. This safe, powerful and reliable utility can be the most important part of your production process. However, compressed air contains water, dirt, wear particles, bacteria and even degraded lubricating oil which all mix together to form an unwanted abrasive sludge.

This sludge, often acidic, rapidly wears tools and pneumatic machinery, blocks valves and orifices causing high maintenance and costly air leaks. It also corrodes piping systems and can bring your production process to an extremely expensive standstill!

Only compressed air that is totally clean and dry will ensure maximum savings.

The Solution

All of these costly problems can be simply avoided by installing a domnick hunter PNEUDRI twin tower desiccant compressed air dryer package complete with OIL-Xplus filtration. The packages are suitable for use with any compressor, including oil-free types.

The PNEUDRI range of heatless and heat regenerative dryers has proven to be the cost effective solution for many thousands of compressed air users worldwide and in a wide variety of industries.

This multi-award winning design will totally clean and dry compressed air to ISO 8573.1 class 1.1.1.

Corrosion

Unwanted Abrasive Sludge

Damaged Tools

How PNEUDRI Works

With the proven benefit of advanced aluminium forming technology domnick hunter has developed a twin tower desiccant dryer that is typically 50% the size and weight of conventional designs.

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 either the Pressure Swing Adsorption (PSA) [Heatless] or Thermal Swing Adsorption (TSA) [Heat Regenerative] method of drying.

A small volume of the dried compressed air is used to regenerate the saturated desiccant bed by expanding air from line pressure to atmospheric pressure, removing the water adsorbed by the desiccant material, and therefore regenerating the dryer. Heat regenerative models have electric heaters built into the desiccant beds to further reduce purge air consumption and increase operating efficiency.

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

High tensile extruded aluminum column with twin chambers

The extruded aluminium columns are bolted together in such a way that if your compressed air capacity is increased then additional columns or an additional bank can be added with a minimum of disruption.

Multibanking of dryers enables individual banks to 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.

How PNEUDRI Works (continued)

Snow Storm Filling

Desiccant Life - Dryer Performance

The use of a domnick hunter "Snow Storm Filler" ensures the desiccant achieves a maximum packing density. This device means PNEUDRI with 30% less volume of desiccant installed, achieves comparable performance with that of conventional twin tower designs. As desiccant movement is therefore elminated during dryer cycling, longer desiccant life and a consistent dryer performance is achieved.

Ease of maintenance

PNEUDRI dryers could not be easier to maintain. Column changeover valves and purge air silencers are easily accessible and a desiccant exchange could not be simpler. Simply remove the top manifold and vacuum the desiccant from the chambers. Service kits are also available to ensure all parts required for an overhaul are supplied.

Benefits

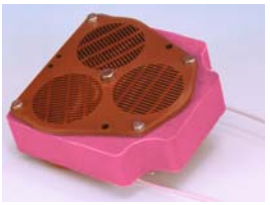
- **Highest Quality Air**
  Clean, oil-free and dry compressed air always. ISO 8573.1 Class 1.1.1 achievable.
- **Totally Stops Corrosion and Damage**
  Prolongs life of compressed air system and prevents product spoilage.
- **Compact and Lightweight**
  Modular construction means less than half the size of traditional dryers.
- **Easy and Flexible Installation**
  Minimal space required.
- **Low Installation Costs**
  Moves through a standard doorway. No need to hire a crane or alter your building structure.
- **Modular Design**
  Flexible design means that future system expansion is no problem. Reduced capital cost.
- **Low Noise**
  Reduced noise pollution gives super quiet operation.
- **Energy Efficiency**
  Gives maximum savings. Many examples in excess of 80% savings on running costs.
- **Simple Maintenance**
  Giving reduced downtime.

PNEUDRI - A complete range of flexible solutions

the inside story

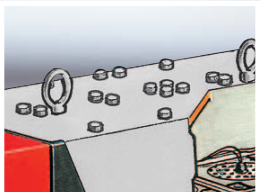
Pneudri Maxi
Heat regenerative model

Easy Maintenance
Hinged control enclosure

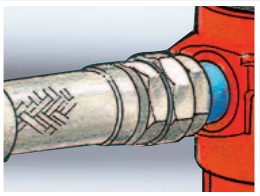


Simple Monitoring
Continuously monitoring inlet and column pressures

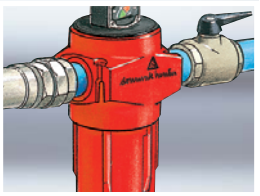
Simple Desiccant Change
Top manifold design



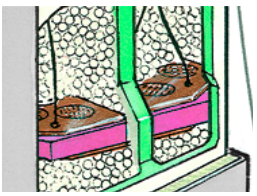
Ease of Installation
Supplied complete with outlet flexible connection. *(PNEUDRI Maxi only)*



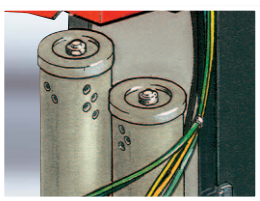
High Efficiency Dust Filter



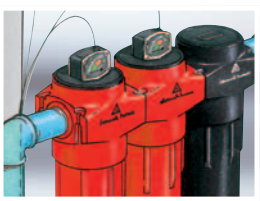
Heater assembly



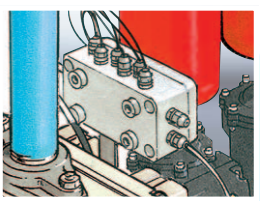
Extended Lifetime
Corrosion inhibited by alocroming and dry powder epoxy painting for maximum protection



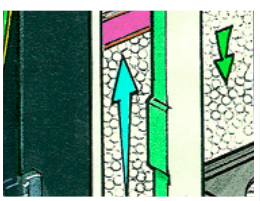
Purge air silencers



OIL-X plus high-efficiency inlet filtration



Changeover valves



Consistent Airflow & Long Desiccant Life
Snow storm filled to prevent fluidization, channelling and desiccant attrition

Electronic controllers

Featuring high performance electronic controls, the domnick hunter **PNEUDRI electronic - SMART** dryer and **PNEUDRI electronic - microprocessor** dryer ranges represent a modern concept in compressed air drying technology. The state of the art electronic controllers offer "at a glance" system status from the user friendly IP65/NEMA 4 rated control panels.

If energy savings are an issue, **PNEUDRI** can be supplied with the proven Dewpoint Dependent Switching (DDS) energy management system.

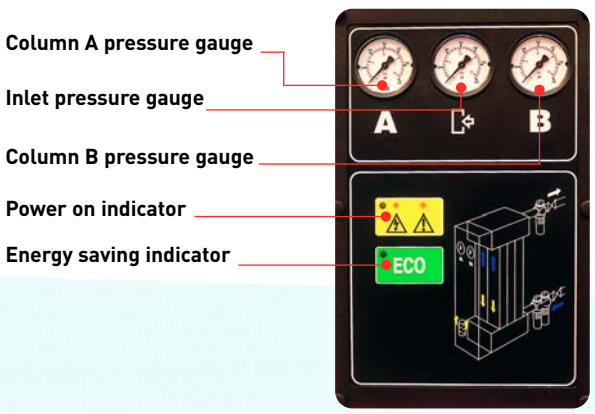
Dewpoint Dependent Switching (DDS) Energy Management System

UP to 80% of compressed air dryer energy can be saved by selecting the Dewpoint Dependent Switching option. By directly monitoring the outlet air quality (dewpoint) of the dryer, the system can automatically extend the 'drying period' beyond a normally fixed cycle time if the on-line drying chamber has adsorptive capacity remaining. As compressed air systems 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.

During this extended period of energy free drying, no purge air energy is consumed for regeneration.

electronic SMART

'state of the art' electronic control technology

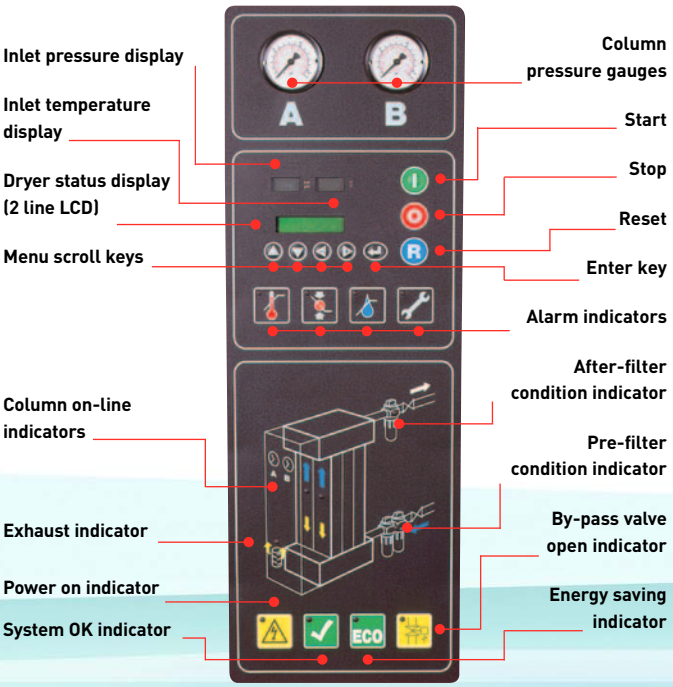


The controllers include -

- **Easy to read LED mimic display panel with integrated membrane keypad (Microprocessor)**
- **Fault indication with remote alarm facility**
- **NEMA4/IP65 Control panel**
- **Multi-language program facility (Microprocessor)**
- **Memory retention - dryer restarts from point of interruption**
- **Quantified energy savings**
- **Optional automatic shutdown**
- **Remote communications capability utilizing RS 485 interface (Microprocessor)**
- **Optional DDS energy management system**
- **Self diagnostic and memory log capability (Microprocessor)**

electronic Microprocessor

full montoring and control of compressed air purification system



Remote Communication Interface

The optional Remote Communications Interface package provides the facility for full user control and system interrogation.

- **Real-time update of dryer status and remote status of alarms.**
- **Can control and monitor dryers up to 1200 metres from control station via RS485 port. Active Network Interface will work between 85-265V.**
- **Up to 31 dryers linked into one system interface.**
- **System will interface with a number of industry standard packages via DDE (Dynamic Data Exchange) interface.**
- **Retrofittable to existing dryers.**
- **Can be interfaced with a wide range of industry standard protocols.**
- **Compatible with Windows 95 and Windows NT.**

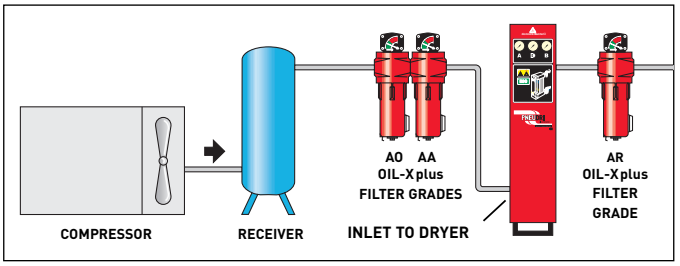
Product Options

Model	Maxi	Maxiplus
Type		
Heatless	DX	MPX
Heat Regenerative	DH	-
Operation		
Pneumatic Cam	DXP	-
Electric Cam	DX/DH	-
Electronic SMART	DXS/DHS	MPXS
Electronic Microprocessor	DXE/DHE	MPXE
Dewpoint Dependent Switching	✔	✔
Remote Communication Interface	✔	✔

IMPORTANT NOTE:

Size the dryer 1 bar g (14.5 psi g) below the system pressure of the compressor. eg. with a 7 bar g (102 psi g) compressor, size the dryer at 6 bar g (87 psi g.)

Correct Dryer Selection



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.

Maximum Temperature to	°C	25	35	40	45	50
Inlet of Dryer	°F	77	95	104	113	122
Heatless Dryers	(CFT)	1.0	1.0	0.97	0.88	0.73
Heat Regenerative Dryers	(CFT)	1.1	1.0	0.76	0.58	0.45

3. Calculate dryer capacity required following the example below.

$$\frac{\text{Inlet flow requirement}}{\text{CFP x CFT}} = \text{Minimum Dryer capacity requirements}$$

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

Minimum Pressure to	bar g	4	5	6	7	8	9	10	11	12	13
Inlet of Dryer (CFP)	psi g	58	73	87	102	116	131	145	160	174	189
Correction Factor		0.63	0.75	0.88	1.0	1.13	1.25	1.38	1.5	1.63	1.75

Technical Specifications

Minimum operating pressure	4 bar g (58 psi g)
Maximum inlet temperature	50°C (122°F)
Minimum inlet temperature	5°C (41°F)
Noise levels (Average)	Maxi 75dB (A) Maxiplus 85 dB (A)
Pressure dewpoint	-40°C dp (-40°F dp)

(for lower dewpoints contact **domnick hunter**)

Electrical Specifications

Please consider voltage drop when sizing electrical supply cables.
Voltage at the dryer must be between +5% to -10%.

Heatless 230V / 1ph / 50-60 Hz 110V / 1ph / 50-60 Hz
Heat Regenerative 415V / 3ph + neutral / 50-60 Hz

Model	Full Load Amps	Power Consumption kW H Average
DH102	7.2	1.1
DH104	14.4	2.2
DH106	21.6	3.3
DH108	28.8	4.4
DH110	36.0	5.5

Maxi Heatless

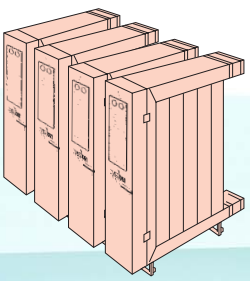
Model	* Flow Rate @ 7 bar g (102 psi g)		Maximum Pressure		Dimensions in mm (inches)				Pipe Conn.††	Weight Kg (lbs)	Recommended Filters	
	cfm	m³/hr	bar g	psi g	A	B	C	D			Inlet	Outlet
DX102	160	272	10.5	152	699 (27.6)	239 (9.5)	232 (9.1)	1578 (62.1)	2"	135 (298)	AO-0220G AA-0220G	AR-0220G
DX103	240	408	10.5	152	805 (31.7)	345 (13.6)	232 (9.1)	1578 (62.1)	2"	180 (397)	AO-0220G AA-0220G	AR-0220G
DX104	320	544	10.5	152	912 (35.9)	451 (17.8)	232 (9.1)	1578 (62.1)	2"	220 (485)	AO-0220G AA-0220G	AR-0220G
DX105	400	680	10.5	152	1018 (40)	558 (22)	232 (9.1)	1578 (62.1)	2"	250 (551)	AO-0220G AA-0220G	AR-0220G
DX106	480	816	10.5	152	1125 (44.3)	665 (26.2)	232 (9.1)	1578 (62.1)	2½"	295 (650)	AO-0405G AA-0405G	AR-0405G
DX107	560	951	10.5	152	1231 (48.5)	771 (30.3)	232 (9.1)	1578 (62.1)	2½"	345 (761)	AO-0405G AA-0405G	AR-0405G
DX108	640	1087	10.5	152	1338 (52.7)	878) (34.6)	232 (9.1)	1578 (62.1)	2½"	400 (882)	AO-0405G AA-0405G	AR-0405G
DX110	800	1359	10.5	152	1551 (61.1)	1091 (43)	232 (9.1)	1578 (62.1)	2½"	520 (1146)	AO-0405G AA-0405G	AR-0405G

Maxi Heat Regenerative

DH102	140	238	10.5	152	717 (28.2)	264 (10.4)	321 (12.6)	1578 (62.1)	2"	150 (331)	AO-0220G AA-0220G	AR-0220GX-TS
DH104	280	476	10.5	152	947 (37.3)	494 (19.4)	321 (12.6)	1578 (62.1)	2"	245 (540)	AO-0220G AA-0220G	AR-0220GX-TS
DH106	420	714	10.5	152	1177 (46.3)	724 (28.5)	321 (12.6)	1578 (62.1)	2½"	325 (717)	AO-0405G AA-0405G	AR-0405GX-TS
DH108	560	951	10.5	152	1407 (55.4)	954 (37.6)	321 (12.6)	1578 (62.1)	2½"	440 (970)	AO-0405G AA-0405G	AR-0405GX-TS
DH110	700	1189	10.5	152	1637 (64.5)	1184 (46.6)	321 (12.6)	1578 (62.1)	2½"	565 (1246)	AO-0405G AA-0405G	AR-0405GX-TS

Maxi plus Heatless

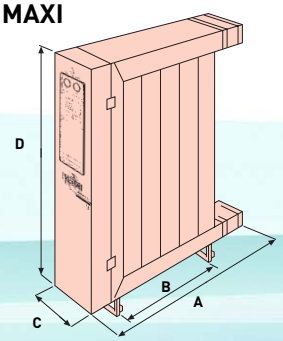
MPX(†)106	828	1407	13	189	1567 (61.5)	815 (32.1)	550 (21.7)	1788 (70.4)	3"	632 (1397)	AO-0430G AA-0430G	AR-0430G
MPX(†)108	1104	1876	13	189	1895 (74.6)	1142 (45)	550 (21.7)	1788 (70.4)	3"	765 (1683)	AO-0620G AA-0620G	AR-0620G
MPX(†)110	1380	2345	13	189	2223) (87.5)	1470 (57.9)	550 (21.7)	1788 (70.4)	4"	895 (1969)	AO-1000G AA-1000G	AR-1000G
MPX(†)112	1656	2814	13	189	2551 (100.4)	1798 (70.8)	550 (21.7)	1788 (70.4)	4"	1025 (2255)	AO-1000G AA-1000G	AR-1000G



Multibanking

PNEUDRI's unique modular construction allows for higher flow rates to be catered for simply by connecting additional dryer banks.

MAXI



NOTES

* Referenced to 20°C (68°F) and 1 bar a (14.5 psi a)

† State model required, MPXE or MPXS

†† Pipe connections: BSP/NPT all models, weld fitting option on 3" and 4" models only.

Service Agreements

Service agreements are available from a range of options, which include tailoring to satisfy your exact requirements. This means scheduled maintenance interventions at a time convenient for you.

Benefits

- **Priority response to any service call**
- **Planned maintenance**
- **Trained specialists**
- **Unrivalled commitment**

Service Kits

The unique PNEUDRI modular construction allows commonality of service parts across the complete range. With one comprehensive service kit for PNEUDRI Maxi, and one for Maxiplus a minimum spares stocking can be achieved.

Approvals

Other compressed air treatment products from domnick hunter

domnick hunter Industrial Operations also manufactures a complete range of compressed air filters and alternative elements, refrigeration and traditional twin tower compressed air dryers, oil/water separators, condensate drains and breathing air equipment.

domnick hunter Process Operations manufactures a complete range of gas generators and process gas and liquid filtration products.

For further information about our Compressed Air Purification Systems, please contact domnick hunter and request our free brochure, publication reference 00.

OR visit our website : www.domnickhunter.com

ISO 9001:2000
Q 05240

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