

PNEUDRI MIDI PLUS DME 012 – DME080



USER GUIDE

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1. Safety Information

Important: Do not operate this equipment until the safety information and instructions in this user guide have been read and understood by all personnel concerned.

Only competent personnel trained, qualified, and approved by domnick hunter should perform commissioning, service and repair procedures.

Use of the equipment in a manner not specified within this user guide may impair safety and invalidate your warranty.

When handling, installing or operating this equipment, personnel must employ safe engineering practices and observe all related regulations, health & safety procedures, and legal requirements for safety.

Ensure that the equipment is depressurised and electrically isolated, prior to carrying out any of the scheduled maintenance instructions specified within this user guide.

Most accidents that occur during the operation and maintenance of machinery are the result of failure to observe basic safety rules and procedures. Accidents can be avoided by recognising that any machinery is potentially hazardous.

domnick hunter can not anticipate every possible circumstance which may represent a potential hazard. The warnings in this manual cover the most known potential hazards, but by definition can not be all-inclusive. If the user employs an operating procedure, item of equipment or a method of working which is not specifically recommended by **domnick hunter** the user must ensure that the equipment will not be damaged or become hazardous to persons or property.

Should you require an extended warranty, tailored service contracts or training on this equipment, or any other equipment within the domnick hunter range, please contact your local domnick hunter office.

Details of your nearest domnick hunter sales office can be found at: www.domnickhunter.com.

1.1 Markings and symbols

The following markings and international symbols are used on the equipment and within this user guide:



Caution, Read the User Guide.



May start automatically without warning



Risk of electric shock.



Wear ear protection.



Highlights actions or procedures which, if not performed correctly, may lead to personal injury or death.



Use lifting equipment



Highlights actions or procedures which, if not performed correctly, may lead to damage to this equipment.



Use a forklift truck



Highlights actions or procedures which, if not performed correctly, could lead to electric shock.



When disposing of old parts always follow local waste disposal regulations



Pressurised components on system



Conformité Européenne

1.2 Hazardous Substances

The chambers of the dryer are filled with DRYFIL desiccant material. This is a powerful desiccant and will dry out the atmosphere, eyes, nose, and mouth.

If the desiccant comes into contact with the eyes or skin, wash the affected area with copious amounts of water.

DRYFIL may contain some dust therefore an orinasal dust respirator should be worn when handling the equipment. Adequate ventilation should be provided when working with desiccant.

The desiccant is classified as non-hazardous for transportation.

DRYFIL will evolve heat on contact with moisture and may generate pressure in a confined space. DRYFIL should therefore be stored in a dry place in its original packaging.

DRYFIL is non-flammable. Any fire should be fought by means appropriate to the material causing the fire.

DRYFIL should be disposed of into a licensed land fill site.

2. Description

domnick hunter desiccant dryers are designed to remove moisture vapour from compressed air. Providing pressure dewpoints of -40°C (-40°F) or -70°C (-100°F) at specified conditions.

ISO 8573.1 Air Quality Class

```
-40°C (-40°F) PDP 1.2.1.*
-70°C (-100°F) PDP 1.1.1.* Optional
```

The dryer comprises of an inlet and outlet manifold joined together by an aluminium column. The column has two internal chambers filled with desiccant material. During operation one chamber is on-line (drying), whilst the opposite chamber is regenerating. This process is known as Pressure Swing Adsorption (PSA).

Pressure Swing Adsorption (PSA)

A small percentage of dried air is taken from the dryer output flow and is used to regnerate the saturated chamber by expanding the dried air from line pressure to atmospheric pressure. During this process, the moisture is physically removed from the regenerating chamber and vented to atmosphere through the exhaust silencers.

Dewpoint Dependent Switching (DDS) – optional

If DDS is fitted, this will adjust the dryer's cycle in line with the moisture loading placed upon it, by constantly monitoring the processed air moisture content. Also available as a retrofit to all DME dryer models.

^{*(}when fitted with suitable downstream filtration)

2.1 Technical Specification

This specification is valid when the equipment is located, installed, operated, and maintained as specified within this user guide.

	Parameter	Units	DME012 – DME040	DME050 - DME080	
	Dewpoint:	-	-40°C (-40°F) -70°C (-100°F)		
ပ္	Air Quality :	ISO8573.1	Class 1.2.1 Class 1.1.1 (Optional)		
Specific	Minimum Inlet Pressure	bar g (psi g / MPa g)	4 (58 / 0.4)		
S	Maximum Inlet Pressure	bar g (psi g / MPa g)	16 (232 / 1.6)	13 (188 / 1.3)	
	Inlet Temperature	°C (°F)	_	- 50 - 122	
	Inlet Connection	Inches	1/2"	1"	
	Outlet Connection	inches	1/2"	1"	

35°C /	Model	cfm	m³ / min	m³ / hour
@ 6	DME012	24	0.68	40.8
Ра	DME015	32	0.91	54.6
= -	DME020	42	1.19	71.4
Flowra si g / 0.7 95°F)	DME025	53	1.5	90
Flo	DME030	65	1.84	110.4
	DME040	88	2.49	149.4
barg / 100	DME050	106	3	180
7 baı	DME060	130	3.68	220.8
(7	DME080	176	4.98	298.8

Note:

The flow is referenced to 20° C (68° F) and 1013mbar A (14.69 psi A / 0.1 MPa A).

	Parameter	Units	DME012 - DME040	DME050 - DME080		
ical	Supply Voltage	V ac	230V ac 50/60Hz ± 10% 110V ac 50/60Hz ± 10%			
Electrical	Power	W	52	30		
	Fuse	mA	1000 (11	0v Supply) 0v Supply) ime delay "T"		

	Parameter	Units	DME012 - DME080
	Temperature	°C (°F)	2 – 45 35 - 113
nmental	Humidity	-	50% @ 40°C (80% MAX ≤ 31°C)
l u	IP Rating	-	IP65 / >NEMA 13
Enviror	Pollution Degree	-	2
اج.	Installation Category	-	II
ш	Altitude	m	< 2000
	Ailitude	(ft)	(6562)
	Noise	dB(A)	<75dBA



Before continuing with the installation and commissioning of this equipment:

Ensure that it is correctly sized for the inlet pressure, taking into consideration the pressure drop caused by the valves, pipes and filters within the system. Allowance should be made for purge air loss. The dryer should be typically sized at 1 bar (14 psi) 0.1MPa below nominal compressor output pressure.

The purge air flow is factory set for 6 bar g (87 psi g) minimum system pressure. Should the minimum supply pressure be lower than this figure the purge air flow must be reset in order to maintain the specified dewpoint.

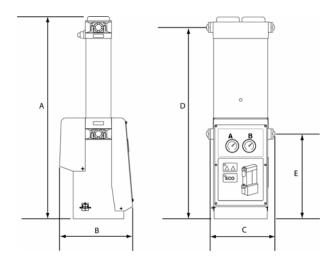
Ensure that it is correctly sized for inlet temperature to meet the dewpoint specified.

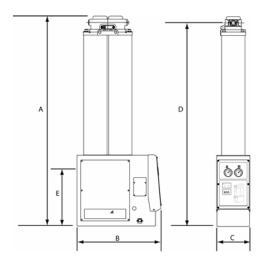
Ensure that the electrical supply voltage and frequency meet the requirements detailed within this specification and on the equipment rating plate.

2.1.1 Dimensions

DME012 - DME040

DME050 - DME080



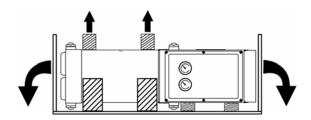


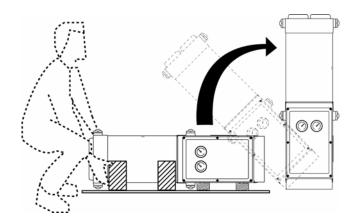
Model	A	B	C	D	E	Weight
	mm	mm	mm	mm	mm	Kg
	(inches)	(inches)	(inches)	(inches)	(inches)	(lbs)
DME012	837	302	284	794	352	32
	(32.9)	(11.9)	(11.2)	(31.26)	(13.86)	(70)
DME015	1003	302	284	960	352	37
	(39.5)	(11.9)	(11.2)	(37.8)	(13.86)	(81)
DME020	1168	302	284	1125	352	42
	(46.0)	(11.9)	(11.2)	(44.29)	(13.86)	(92)
DME025	1333	302	284	1290	352	47
	(52.5)	(11.9)	(11.2)	(50.79)	(13.86)	(103)
DME030	1499	302	284	1456	352	52
	(59.0)	(11.9)	(11.2)	(57.32)	(13.86)	(114)
DME040	1747	302	284	1704	352	60
	(68.8)	(11.9)	(11.2)	(67.09)	(13.86)	(132)
DME050	1433	566	220	1389	395	80
	(56.4)	(22.3)	(8.7)	(54.69)	(15.55)	(176)
DME060	1599	566	220	1555	395	90
	(62.9)	(22.3)	(8.7)	(61.22)	(15.55)	(198)
DME080	1847	566	220	1803	395	104
	(72.7)	(22.3)	(8.7)	(70.98)	(15.55)	(229)

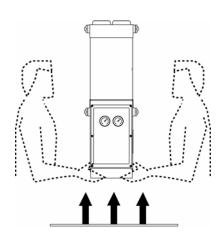
2.2 Unpacking the equipment

It is recommended that the equipment is moved into position using a forklift truck or pallet truck before removing the packaging.

Remove the equipment from its packaging using the following illustrations for guidance and check that it has not been damaged in transit.







The following items have been included with your equipment:

Description	Qty
DME Dryer	1
Rewireable IEC socket **	1
Dryer Test Certificate	1
Hygrometer Test Certificate*	1

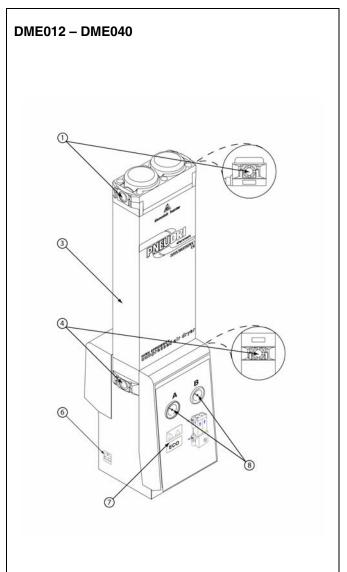
^{*}Only applies to DDS dryers.

If any damage is found or items are missing, please report this immediately to the carrier and the distributor involved (if applicable), or directly to **domnick hunter ltd.**



^{**} CSA Dryers come complete with a moulded cord set.

2.3 Overview of the equipment



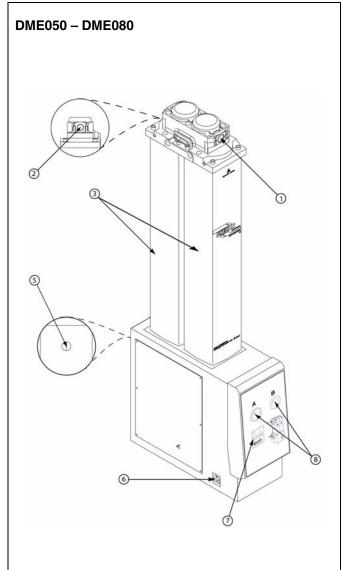


Figure 2.3

Ref	Identification		Identification		
1	Outlet port sight glass *	5	Inlet filter port		
2	Outlet filter port	6	Electrical power supply inlet		
3	Column		Indicators		
4	Inlet port sight glass **	8	Pressure Gauges		

 $^{^{\}star}$ Remove one sight glass for connection to the output filter (Dryers DME012 – DME040 only) ** Remove one sight glass for connection to the inlet filter (Dryers DME012 – DME040 only)

3. Installation & Commissioning



Only competent personnel trained, qualified, and approved by domnick hunter should perform installation, commissioning and service procedures.

3.1 Recommended system layout

The dryer should be installed with the correct pre-filtration and condensate management equipment to meet both the specification and local environmental requirements.

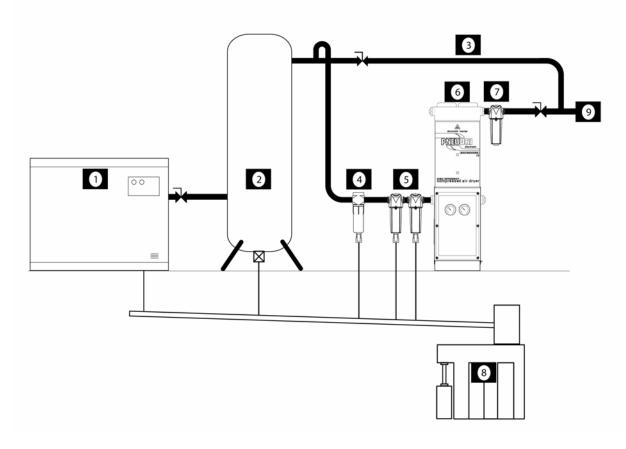


Figure 3.1

Ref	Description	Ref	Description
1	Compressor	5	Dryer pre-filtration
2	Wet air receiver	6	MX Dryer
3	Bypass line	7	Dust filter
4	Water separator	8	Oil / Water separator
	Isolation Valve	9	Outlet to application



The use of a bypass line will allow wet untreated air into the system. It should therefore only be used in extreme circumstances.

3.2 Locating the equipment

Identify a suitable location for the equipment taking into consideration the minimum space requirements for maintenance and lifting equipment as shown in Figure 3.2. When considering the final location of the equipment take into account the noise generated when in use.

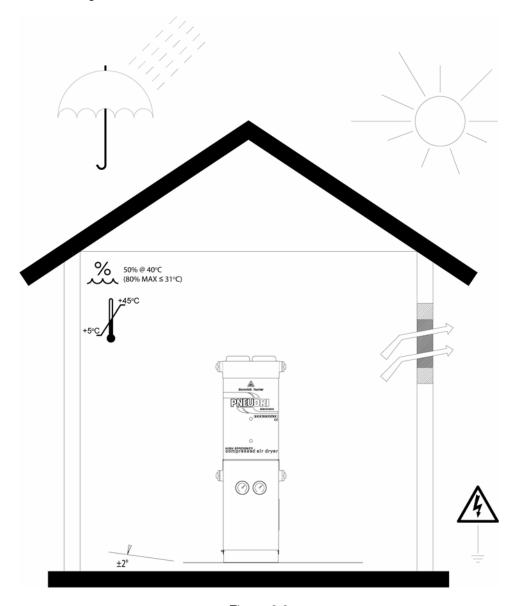


Figure 3.2

The dryer can be free standing or secured to the floor via the fastener points provided in the base.

3.3 Mechanical Installation

Once the dryer has been located into position install the piping and filtration for connection to the inlet and outlet manifold.

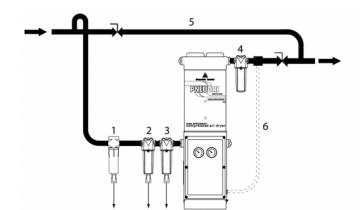
The dryers DME012 – DME040 have two inlet ports and two outlet ports available as shown in figure 2.3 of this user guide. Remove one sight glass from each port ready for connection to the filters.



Once the sight glass has been removed from the outlet port, the filter and piping must be installed immediately to prevent the remaining sight glass from adsorbing the mositure from the atmosphere.

It is essential that an AA grade pre-filter and an AR grade after filter are fitted to the dryer as shown in Figure 3.3. An additional AO grade filter is also recommended at the inlet. In extreme conditions a water separator (WS) may also be required.

Ensure that each filter condensate drain is suitably piped away and any effluent is disposed of in accordance with local regulations.



Ref	Description
1	Water Separator
2	AO grade filter
3	AA grade filter
4	AR grade filter
5	By- pass line
6	Feed line (Optional with Dewpoint Dependent Switching)
M	Isolation valves

Figure 3.3

The Dewpoint Dependent Switching (DDS) system requires a sampling point to be inserted into the piping between the AR grade outlet filter and the isolation valve as shown in figure 3.3. This sampling point should be linked to the 4mm push in connector of the DDS system using P.T.F.E tubing.

It is important to ensure that all piping materials are suitable for the application, clean and debris free. The diameter of the pipes must be sufficient to allow unrestricted inlet air supply to the equipment and outlet gas / air supply to the application.

When routing the pipes ensure that they are adequately supported to prevent damage and leaks in the system.

All components used within the system must be rated to at least the maximum operating pressure of the equipment. It is recommended that the system be protected with suitably rated pressure relief valves.

A by-pass line may be installed into the system to provide a constant air supply during maintenance.



The by-pass line will allow untreated air to pass to the application and should only be used when the dryer has been shut down.

3.4 Electrical Installation

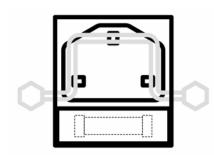


A fully qualified electrical engineer must undertake all electrical work in accordance with local regulations.

Attach the cordset provided to the fused electrical power supply inlet on the equipment and connect to the electrical supply.

If a cordset, other than the one provided with the equipment, is used to connect the equipment to the electrical supply ensure that it is suitably rated for the application and in accordance with local and national code regulations.

Refer to the technical specification for replacement fuse requirements.





The equipment must be bonded to earth through the cordset.

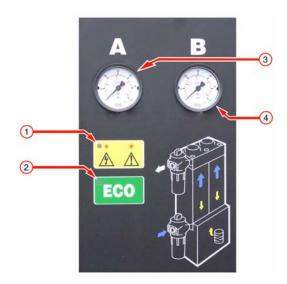
4. Operating the equipment

4.1 Overview of Controls

The Midi plus dryer is fully automatic and requires no user intervention until shut-down.

The facia of the dryer has consists only of indicators as follows:

- 1 Power "ON" Indicator
- 2 ECO (DDS) Indiciator
- 3 Column A pressure Gauge
- 4 Column B pressure Gauge



4.2 Starting the equipment



Start-up should be undertaken by a domnick hunter trained, qualified and approved service engineer.

- 1. Ensure that the isolation valves on the inlet and the outlet of the dryer are closed.
- 2. Connect the electrical supply to the dryer and verify that the Power On indicator is illuminated.
- 3. If a by-pass line is fitted ensure that the by-pass valve is fully open.
- 4. Slowly open the isolation valve on the inlet of the dryer. Verify that there are no leaks.
- 5. Check that the system pressure relief valve is closed.
- 6. Test the condensate drains of the filters and verify that they are discharging correctly into a suitable collection vessel.
- 7. When the dryer is pressurised to full system pressure, slowly open the outlet isolation valve.
 - If a bypass line has been fitted, close the bypass valve.
- 8. Verify that the column pressure gauges are cycling between zero and full system pressure every three minutes.

No further intervention is required for normal operation.

Dewpoint Dependent Switching (DDS) - optional

If the dryer is producing air at a better dewpoint than specified the DDS system will hold the dryer at a point just before the changeover occurs. The green "ECO" LED will illuminate and both pressure gauges will read full system pressure.

The dryer will resume normal operation the instant the DDS system monitors a fall in dewpoint to the specified level. The crystals in the outlet sight glass moisture indicator should be orange for correct operation, however, if these change colour to clear the dryer is producing a wetter dewpoint than required, and the cause of this must be investigated (refer to fault diagnosis table).

4.3 Stopping the equipment

- 1. Close the isolation valve on the outlet of the dryer and, If a bypass line has been fitted, simultaneously open the bypass valve.
- 2. Close the isolation valve on the inlet to the dryer.



3. De-pressurise the dryer by venting through the drain ball valve on the outlet dust filter.

Note: The drain valve should be opened gradually.

4. Disconnect the electrical supply to the dryer.

5. Servicing

The recommended Service procedures identified in table 5.2 and all other repair and calibration work should be undertaken by a domnick hunter trained, qualified and approved engineer.

5.1 Cleaning

Clean the equipment with a damp cloth only and avoid excessive moisture around any electrical sockets. If required you may use a mild detergent, however do not use abrasives or solvents as they may damage the warning labels on the equipment.

5.2 Service Intervals

Description of Service Requirement		Typical Recommended Service Interval						erval
Component	Operation	Daily	Weekly	3 Months	6 Months	12 Months	24 Months	30 Months
Dryer	Check POWER ON indicator is illuminated.	4	-	-	-	-	-	-
Dryer	Check STATUS / FAULT indicators located on the control panel.		-	-	-	-	-	-
Dryer	Check for air leaks.		\triangleleft	-	-	-	-	-
Dryer	Check the pressure gauges during purging for excessive back pressure.	-	-		-	-	-	-
Dryer	Check the condition of electrical supply cables and conduits.	-	-		-	-	-	-
Dryer	Check for cyclic operation.	-	-	-	\triangleleft	-	-	-
Dryer	Replace the active exhaust silencers Recommended Service A	-	-	-		1	-	-
Filtration	Replace the inlet, outlet and control air filters, and service drains. Recommended Service B	-	-	-	-	1	-	-
Dryer	Replace / Calibrate dewpoint transmitter (DDS Units only). Recommended Service C	-	-	-	-	1	-	-
Dryer	Replace the valve seats and seals. Recommended Service D	-	-	-	-	-	1	-
Dryer	Replace the Desiccant. Recommended Service E	-	-	-	-	-	-	1

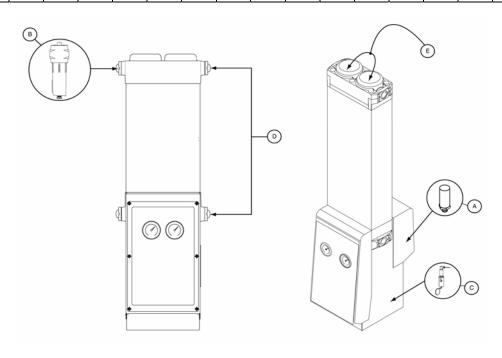


Table 5.2

5.3 Service Kits

Service Kit	Description	Kit No	Quantity	
A – Silencer Service	Kit: Exhaust Silencer MIDI	608330001	1	
B – Filter Service	Refer to Filter user guide.			
C – Hygrometer Service	Kit: Hygrometer Service (Serial No: 509966 onwards)	608203580	1	
(DDS Units only)	Kit: Hygrometer Service (Serial No: Up to 509965)	608203581	1	
D. Value Coming	Kit: Valve Overhaul DME012 - DME040	608330006	1	
D – Valve Service	Kit: Valve Overhaul DME050 - DME080	608330007	1	
	AA 11.2 Litre Bag	608203661	See table below	
	MS 13X 11.2 Litre Bag	608203662	See table below	
E – Desiccant Service	Kit: Column Seals DME012 – DME040	608203733	1	
E - Desiccant Service	Kit: Column Seals DME050 – DME080	608330010	1	
	Snow storm filler DME012 – DME040	608200622	1	
	Snow storm filler DME050 – DME080	608201051	1	

	DME	E012	DME	E015	DME	E020	DME	E025	DME	E030	DME	E040	DME	E050	DME	E060	DME	E080
	-40	-70	-40	-70	-40	-70	-40	-70	-40	-70	-40	-70	-40	-70	-40	-70	-70	-70
Dryfil AA	1		1		2		2		2		2		3		4		5	
Dryfil MS 13X		1		1		2		2		2		2		3		4		5
Seals	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1



5.4 Service Record

|--|--|

Service	rvice Hours Deta		Servi	ced By	Comments / Observations
(Hours)	Shown	Date	Print	Initials	Comments / Observations
4,000					
8,000					
16,000					
20,000					
24,000					
28,000					
32,000					
36,000					
40,000					

6. Troubleshooting guide

In the unlikely event that a problem occurs on the equipment, this troubleshooting guide can be used to identify the probable cause and remedy.



Troubleshooting should only be attempted by competent personnel. All major repair, and calibration work should be undertaken by a domnick hunter trained, qualified and approved engineer.

Problem	Indication	Probable Cause	Remedy
Poor dewpoint	Crystals go clear in outlet moisture indicator	Entrained Water	Check pre-filtration drains.
	moisture indicator	Excessive air flow demand	Check actual flow against rated flow of dryer Check for recent additions to air system
		Inlet pressure too low	Check against technical specification
		Excessive inlet air temperature	Check against technical specification
		Insufficient purge air flow	Factory set for 6 bar g (87 psig) system pressure.
			domnick hunter trained personnel to adjust
		Exhaust silencers blocked	Change by domnick hunter trained personnel
		Contaminated desiccant	Eliminate source of contamination. Desiccant change by domnick hunter trained personnel
Electrical fault	Flashing Yellow LED	Hardware fault	Contact domnick hunter customer services
High differential pressure	Pressure gauges	Excessive outlet flow	Check and regulate air demand
Failure to purge	No depressurisation and poor dewpoint	Purge valve blocked or shut. Exhaust silencers blocked.	Domnick hunter trained personnel to adjust . Change by domnick hunter trained personnel
Outlet air flow stops	Downstream pressure drops. Yellow LED "OFF"	Electrical fault. Blown fuse in plug.	Domnick hunter trained personnel to adjust . Change by domnick hunter trained personnel
Constant depressurisation		Damaged valve.	Change by domnick hunter trained personnel

7. Warranty

This warranty applies to dryers and associated pre-filters (the Equipment) manufactured and supplied by domnick hunter.

Use of the dryer without the recommended genuine domnick hunter manufactured filtration or genuine parts, will expressly invalidate the warranty.

Should the Equipment by defective as to materials or workmanship, **domnick hunter** warrants that it will remedy such defect for a period of 12 months from the date of despatch. Where the Equipment is a desiccant dryer, the warranty period will be 12 months from the date of commissioning or 18 months from date of despatch, whichever is the earlier, provided such commissioning is carried out by **domnick hunter** or it's authorised agent. In the case of Equipment other than a desiccant dryer, the warranty period shall commence from the date of despatch. Should any defect occur during the warranty period and be notified in writing to **domnick hunter** or it's authorised agent within the said period, **domnick hunter** will, at it's sole option, remedy such defects by repair or by provision of a replacement part, provided that the Equipment has been used strictly in accordance with the instructions provided with each item of the Equipment and has been stored, installed, commissioned, operated and maintained in accordance with such instruction and good practice. **domnick hunter** shall not be under any liability whatsoever under the warranty if, before giving notification in writing to **domnick hunter** as aforesaid, the Customer or any third party meddles, interferes, tampers with or carries out any work whatsoever (apart from normal maintenance as specified in the said instructions) in relation to the Equipment or any part thereof.

Any accessories, parts and equipment supplied by **domnick hunter** but not manufactured by **domnick hunter**, shall carry whatever warranty the manufacturer has given **domnick hunter** provided it is possible for **domnick hunter** to pass on such warranty to the Customer.

To claim under the warranty, the goods must have been installed and continuously maintained in the manner specified in the User Guide. Our Product Support Engineers are qualified and equipped to assist you in this respect. They are also available to make repairs that may become necessary in which event they will require an official order before carrying out the work. If such work is to be the subject of warranty claim, the order should be endorsed 'for consideration under warranty'.

Any substitution of parts not manufactured or approved by domnick hunter will expressly invalidate the warranty.

domnick hunter Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Desiccant Air Dryer DME12, DME15, DME20, DME25, DME30, DME40, DME50, DME60, DME80

Directives Standards used	97/23/EC, 98/37/EC, 73/23/EEC, 89/336/EEC 93/68/EEC, 92/31/EEC EN ISO 12100-1 : 2003,EN ISO 12100-2 : 2003, EN 61000-6-1 : 2001,EN 61000-6-2 : 2001, EN 61000-6-3 : 2001,EN 61000-6-4 : 2001, EN 61010-1 : 2003 Generally in accordance with ASMEVIII Div 1 : 2004.
PED Assesment Route :	B & D
Notified body for PED:	Lloyds Register of Shipping 71 Fenchurch St. London EC3M 4BS
EC Certificate of Conformity:	LDS 9900792/5
Authorised Representative	Barry Wade Business Systems Improvement Manager domnick hunter Itd
	Declaration
	tive, the above information in relation to the supply / ty with the standards and other related documents following
Signature:	Date:

Declaration Number: /



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