

Compressed Air Dryers

CDAS / OFAS HL 050 - 085

User Guide

(EN) Original Language

(NL) (DE) (FR) (SV) (NO) (DA) (ES) (IT) (PL) (RU)

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



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1 Safety Information

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

USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorised distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyse all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalogue and in any other materials provided from Parker or its subsidiaries or authorised distributors.

To the extent that Parker or its subsidiaries or authorised distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Only competent personnel trained, qualified, and approved by Parker Hannifin should perform installation, commissioning, service and repair procedures.

Use of the equipment in a manner not specified within this user guide may result in an unplanned release of pressure, which may cause serious personal injury or damage.

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.

Parker Hannifin 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 Parker Hannifin the user must ensure that the equipment will not be damaged or become hazardous to persons or property.

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.

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

Details of your nearest Parker Hannifin sales office can be found at www.parker.com/gsf

Retain this user guide for future reference.

1.1 Markings and Symbols

The following markings and international symbols are used on the equipment or within this manual:

	Caution, Read the User Guide.		Wear ear protection
	Risk of electric shock.		Pressurised components on the system
 Warning	Highlights actions or procedures which, if not performed correctly, may lead to personal injury or death.		Remote control. The dryer may start automatically without warning.
 Caution	Highlights actions or procedures which, if not performed correctly, may lead to damage to this product.		Conformité Européenne
 Warning	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.
	Read the User Guide		Waste electrical and electronic equipment should not be disposed of with municipal waste.
	Use a fork lift truck to move the dryer.		Warning: More than one live circuit
	The dryer may start automatically without warning.		Energy Saving

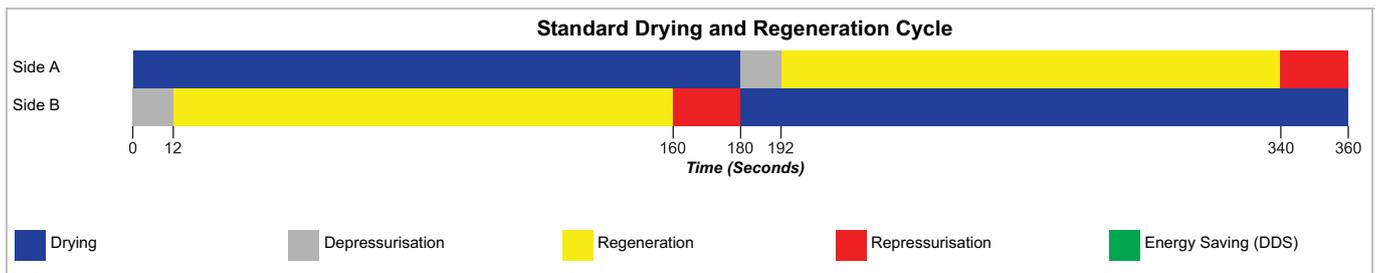
1.2 Dryer Model Number Identification

			050					
			055					
			060					
			065					
			070					
			075	-20				
	CDAS		080	-40	G (BSPP)		A (AC 85-265V 50/60Hz)	
	OFAS	HL (Heatless)	085	-70	N (NPT)	16	D (DC 24V)	E (EST)
	SERIES	REGEN TYPE	MODEL	DEWPOINT	CONNECTIONS	MAX PRESSURE	POWER SUPPLY	CONTROLLER
Example	CDAS	HL	50	-40	G	16	A	E

2 Description

2.1 Overview of Operation

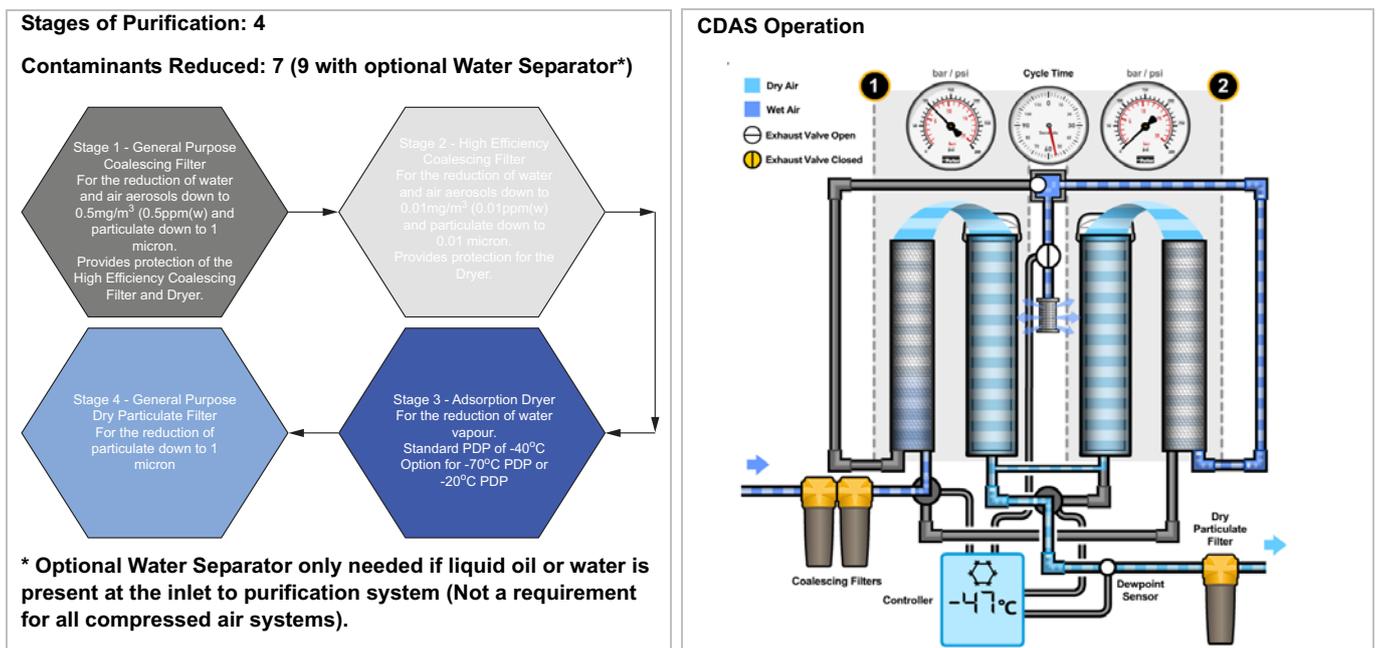
Adsorption dryers operate on the principle of two drying beds, one to dry the process air whilst the other is being regenerated and readied for use, swapping periodically. CDAS HL / OFAS HL dryers operate on the Pressure Swing Adsorption (PSA) principle which uses a proportion of the dry process air to regenerate the off-line bed. The diagram below illustrates the drying / regeneration cycle of a CDAS HL / OFAS HL operating at maximum (Full Flow / Minimum Inlet Pressure / Maximum Inlet Temperature)



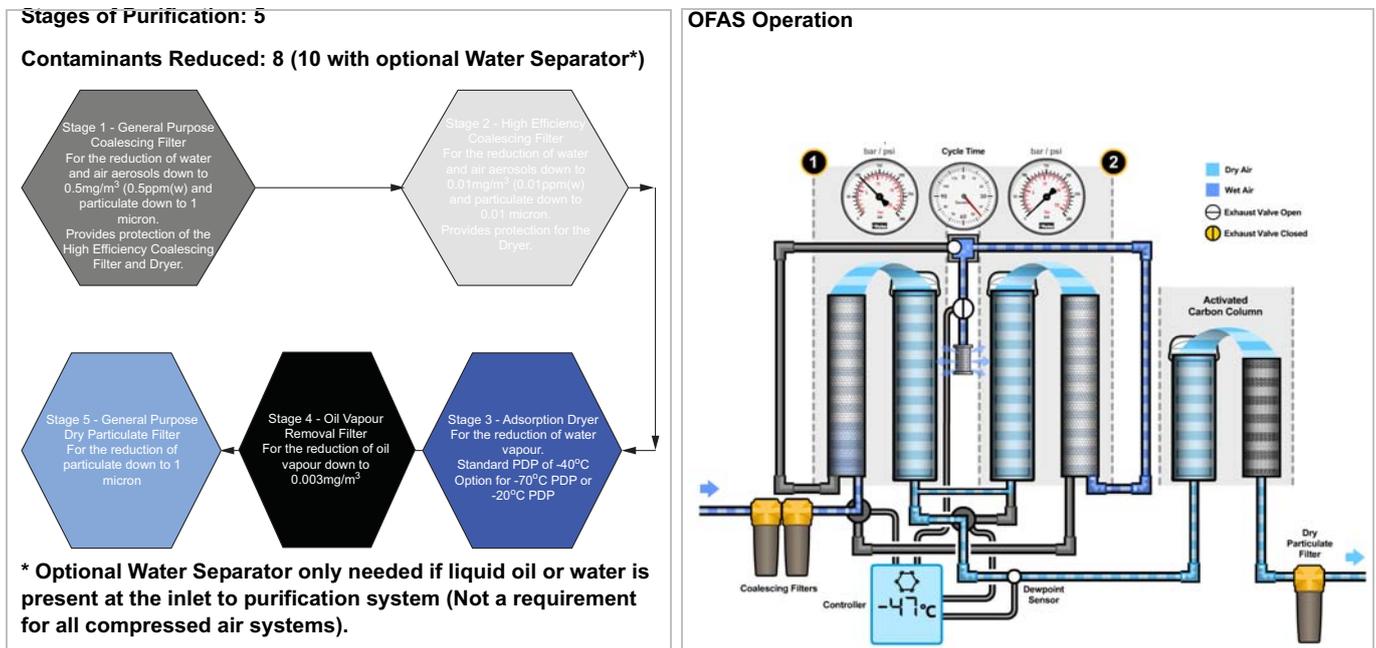
2.1.1 Operation

CDAS HL & OFAS HL are complete purification systems designed to reduce the major contaminants found in a compressed air system.

CDAS HL provides 4 stages of contamination reduction for 7 contaminants (if liquid water or oil is present, the CDAS HL must be protected by an optional OIL-X WS grade Water Separator).



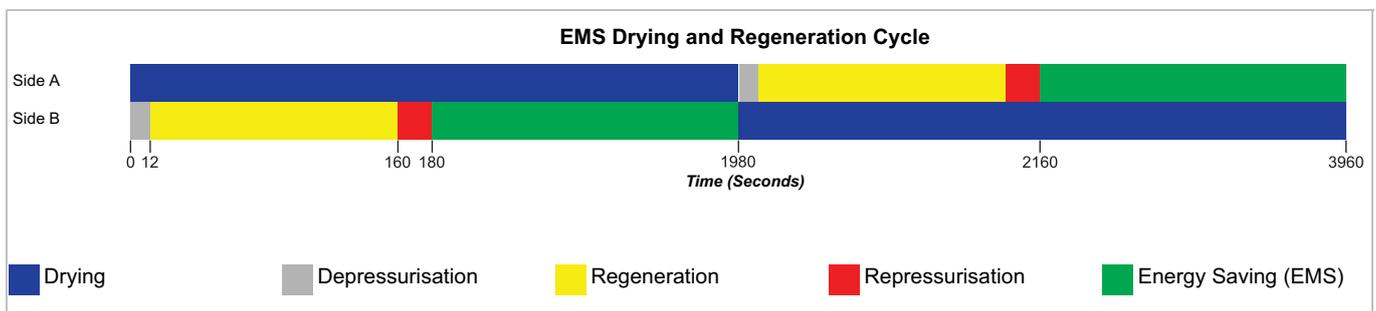
OFAS HL provides 5 stages of contamination reduction for 8 contaminants (if liquid water or oil is present, the CDAS HL must be protected by an optional OIL-X WS grade Water Separator)



2.2 EST - Energy Saving Technology

Heatless adsorption dryers consume energy through the use of process air called purge air which is used to regenerate the off-line desiccant bed. In order to provide a consistent outlet dewpoint, any compressed air dryer must be sized to reduce the highest amount of water vapour the dryer will see (full flow demand in summer conditions). Adsorption dryers typically operate on fixed timing cycles based upon these worst case conditions, however in periods of low demand and or in winter, when the moisture loading is reduced, the fixed cycle will consume more energy than is required. In order to significantly reduce this energy loss, each CDAS HL/ OFAS HL dryer is fitted with energy saving technologies as standard.

Each CDAS HL / OFAS HL includes an electronic control system with colour display, providing a visual indication of the unit's performance. Linked to this control system is the a dewpoint sensor which constantly monitors the outlet dewpoint and adjusts the regenerating cycle to exactly match the water vapour loading of the dryer. From the minute the system is operated, it is automatically adapting to ambient and duty conditions, saving air, energy and money.



2.3 Moisture Over-ride

In certain geographical locations, a dryer can be operated for extended periods with low amounts of water vapour in the inlet air (for example, some countries can have an ambient temperature up to +40 °C in summer and as low as -40 °C in winter). As the dryer must be sized for summer conditions, during winter, months, the EST - Energy Saving Technology will save the user air, energy & money.

However, due to the way a desiccant bed adsorbs water vapour, during winter months with low levels of water vapour in the incoming air, the saturation profile of the desiccant bed changes and a condition may occur where the bed becomes too saturated to be regenerated by the standard purge regeneration cycle.

Therefore, the CDAS / OFAS EST - Energy Saving Technology also incorporates a safety feature to protect the desiccant material. The safety feature, called Moisture Override activates after 30 minutes, interrupting the energy management function and changing the drying columns over. This allows a full 2 ½ minute regeneration cycle of the desiccant material to take place before going back into energy saving mode. This allows energy savings to be realised without causing damage to the desiccant bed.

CDAS / OFAS dryers are typically fitted with a dewpoint monitor as standard (not on pneumatic models). This can be in the form of a digital PDS (Parker Dewpoint Sensor) or analogue hygrometer (-70 °C PDP / -100°F PDP dryers). This moisture override functionality is only applicable if either are fitted. If neither is fitted, this feature has no effect upon the timing cycles.

2.4 Technical Specification

Dryer Performance

Dryer Model	Pressure Dewpoint (Standard)		ISO 8573-1:2010 Water Classification	Pressure Dewpoint (Optional)		ISO 8573-1:2010 Water Classification	Pressure Dewpoint (Optional)		ISO 8573-1:2010 Water Classification
	°C	°F	(Standard)	°C	°F	(Optional)	°C	°F	(Optional)
CDAS HL	-40	-40	Class 2.2.2	-70	-100	Class 2.1.2	-20	-4	Class 2.3.2
OFAS HL	-40	-40	Class 2.2.0	-70	-100	Class 2.1.0	-20	-4	Class 2.3.0

Important Note Regarding -70°C (-100°F) Dewpoint.

A compressed air dryer supplying a pressure dewpoint of -70°C (-100°F) requires a different desiccant fill to dryers supplying a standard -40°C / -20°C pressure dewpoint. During shipping, desiccant material adsorbs atmospheric moisture. Following installation, commissioning and initial operation, the dryer will start to "dry down" until it provides the desired -70°C (-100°F). Once achieved, the dryer will continue to supply air at the required dewpoint, however it is important to note that the dry down period may take several days / weeks to achieve the -70°C (-100°F) dewpoint.

Technical Data

Dryer Model	Min Operating Pressure		Max Operating Pressure		Min Operating Temperature		Max Operating Temperature		Max Ambient Temperature	
	bar g	psi g	bar g	psi g	°C	°F	°C	°F	°C	°F
CDAS/OFAS HL	4	58	16	232	5	41	50	122	55	131

Flow Rates

Dryer Model	Pipe Size BSPP or NPT	Inlet Flow Rates			
		L/s	m ³ /min	m ³ /hr	cfm
CDAS/OFAS HL 050	1/2"	15	0.92	55	32
CDAS/OFAS HL 055	1/2"	19	1.17	70	41
CDAS/OFAS HL 060	1/2"	25	1.50	90	53
CDAS/OFAS HL 065	1/2"	31	1.84	110	65
CDAS/OFAS HL 070	3/4"	42	2.51	150	88
CDAS/OFAS HL 075	1"	51	3.09	185	109
CDAS/OFAS HL 080	1"	61	3.67	220	129
CDAS/OFAS HL 085	1 1/2"	83	5.01	300	177

Stated flows are for operation at 7 bar g (100 psi g / 0.7 MPa g) with reference to 20°C, 1 bar a, 0% relative water vapour pressure.

Product Selection & Correction Factors

For correct operation, compressed air dryers must be sized using for the minimum pressure, maximum temperature and maximum flow rate of the installation. To select a dryer, first calculate the MDC (Minimum Drying Capacity) using the formula below then select a dryer from the flow rate table above with a flow rate equal to or above the MDC.

$$\text{Minimum Drying Capacity} = \text{System Flow} \times \text{CFIT} \times \text{CFAT} \times \text{CFP} \times \text{CFD}$$

CFIT - Correction Factor Maximum Inlet Temperature

Maximum Inlet Temperature	°C	25	30	35	40	45	50
	°F	77	86	95	104	113	122
Correction Factor		1.00	1.00	1.00	1.04	1.14	1.37

CFAT - Correction Factor Maximum Ambient Temperature

Maximum Ambient Temperature	°C	25	30	35	40	45	50
	°F	77	86	95	104	113	122
Correction Factor		1.00	1.00	1.00	1.00	1.00	1.00

CFP - Correction Factor Maximum Inlet Pressure

Maximum Inlet Pressure	°C	4	5	6	7	8	9	10	11	12	13	14	15	16
	°F	58	73	87	100	116	131	145	160	174	189	203	218	232
Correction Factor		1.60	1.33	1.14	1.00	0.89	0.80	0.73	0.67	0.62	0.57	0.53	0.50	0.47

CFD - Correction Factor Dewpoint

Maximum Inlet Pressure	°C	-20	-40	-70
	°F	-4	-40	-100
Correction Factor		0.91	1.00	2.00

Electrical Data

Dryer Model	CDAS HL 50	CDAS HL 55	CDAS HL 60	CDAS HL 65	CDAS HL 70	CDAS HL 75	CDAS HL 80	CDAS HL 85	CDAS HL 90
Supply Voltage (Standard)	85 - 265V 1PH 50/60Hz								
Supply Voltage (optional)	24V DC								
Dryer Model	OFAS HL 50	OFAS HL 55	OFAS HL 60	OFAS HL 65	OFAS HL 70	OFAS HL 75	OFAS HL 80	OFAS HL 85	OFAS HL 90
Supply Voltage (Standard)	85 - 265V 1PH 50/60Hz								
Supply Voltage (optional)	24V DC								

Environmental Data

Relative Humidity	55%
IP Rating	IP55, indoor use only
Pollution Degree ¹	2
Maximum Altitude	800 m (2625) (ft)
Noise	< 75 dB(A)

¹ Pollution Degree 2 indicates that in order for this equipment to operate safely, only non-conductive pollution (i.e. solids, liquids or ionised gases) or temporary condensation may be present within the environment.

2.5 Approvals Compliance and Exemptions

2.5.1 Approvals

Safety and Electromagnetic Compatibility

This equipment has been tested and complies with the following European Standards:
BS EN 60204-1:2006 (Including: Amendment1:2009) - Safety of machinery. Electrical equipment of machines. General requirements.

EN61326: 2006 - Electrical Equipment for Measurement, Control, and Laboratory use, EMC Requirements.

EN 55011:2009 (Including: Amendment1:2010) - Industrial, scientific and medical equipment. Radio-frequency disturbance characteristics. Limits and methods of measurement.

Generally in accordance with ASMEVIII Div 1 : 2010 + 2011a Addenda.

2.5.2 3rd Party Performance Verification

OIL-X Coalescing Filters tested in accordance with ISO12500-1 & ISO8573-4

OIL-X Dry Particulate Filters tested in accordance with ISO8573-4

CDAS / OFAS HL Dryers tested in accordance with ISO7183 to meet the requirements of 8573-1 7.2 class 1, 2 and 3.

Performance validation independently verified by Lloyds Register

APPROVALS, ACCREDITATIONS AND ASSOCIATIONS



ISO9001:2000 ISO14001



INTERNATIONAL APPROVALS



2.6 Weights and Dimensions



Dryer Model	Dryer Dimensions														Weight	
	H		W		D		(a)		(b)		(c)		(d)			
	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	Kg	lbs
CDAS HL 050	1133	44.6	559	22.0	490	19.3	416	16.4	371	14.6	410	16.1	76	3.0	76	168
CDAS HL 055	1313	51.7	559	22.0	490	19.3	416	16.4	371	14.6	410	16.1	56	2.2	84	185
CDAS HL 060	1510	59.4	559	22.0	490	19.3	416	16.4	371	14.6	410	16.1	53	2.1	93	205
CDAS HL 065	1660	65.4	559	22.0	490	19.3	416	16.4	371	14.6	410	16.1	103	4.1	100	220
CDAS HL 070	2020	79.5	559	22.0	490	19.3	416	16.4	371	14.6	410	16.1	263	10.4	120	265
CDAS HL 075	1595	62.8	559	22.0	682	26.9	416	16.4	371	14.6	410	16.1	53	2.1	165	364
CDAS HL 080	1745	68.7	559	22.0	682	26.9	416	16.4	371	14.6	410	16.1	103	4.1	180	397
CDAS HL 085	2105	82.9	559	22.0	682	26.9	416	16.4	371	14.6	410	16.1	263	10.4	210	463



Dryer Model	Dryer Dimensions														Weight	
	H		W		D		(a)		(b)		(c)		(d)			
	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	Kg	lbs
OFAS HL 050	1133	44.6	559	22.0	512	20.2	416	16.4	371	14.6	410	16.1	76	3.0	90	198
OFAS HL 055	1313	51.7	559	22.0	512	20.2	416	16.4	371	14.6	410	16.1	56	2.2	97	214
OFAS HL 060	1510	59.4	559	22.0	496	19.5	416	16.4	371	14.6	410	16.1	53	2.1	106	234
OFAS HL 065	1660	65.4	559	22.0	496	19.5	416	16.4	371	14.6	410	16.1	103	4.1	112	247
OFAS HL 070	2020	79.5	559	22.0	496	19.5	416	16.4	371	14.6	410	16.1	263	10.4	132	291
OFAS HL 075	1595	62.8	559	22.0	682	27	416	16.4	371	14.6	410	16.1	53	2.1	184	406
OFAS HL 080	1745	68.7	559	22.0	682	27	416	16.4	371	14.6	410	16.1	103	4.1	196	432
OFAS HL 085	2105	82.9	559	22.0	682	27	416	16.4	371	14.6	410	16.1	263	10.4	232	511

2.7 Receiving and Inspecting the Equipment

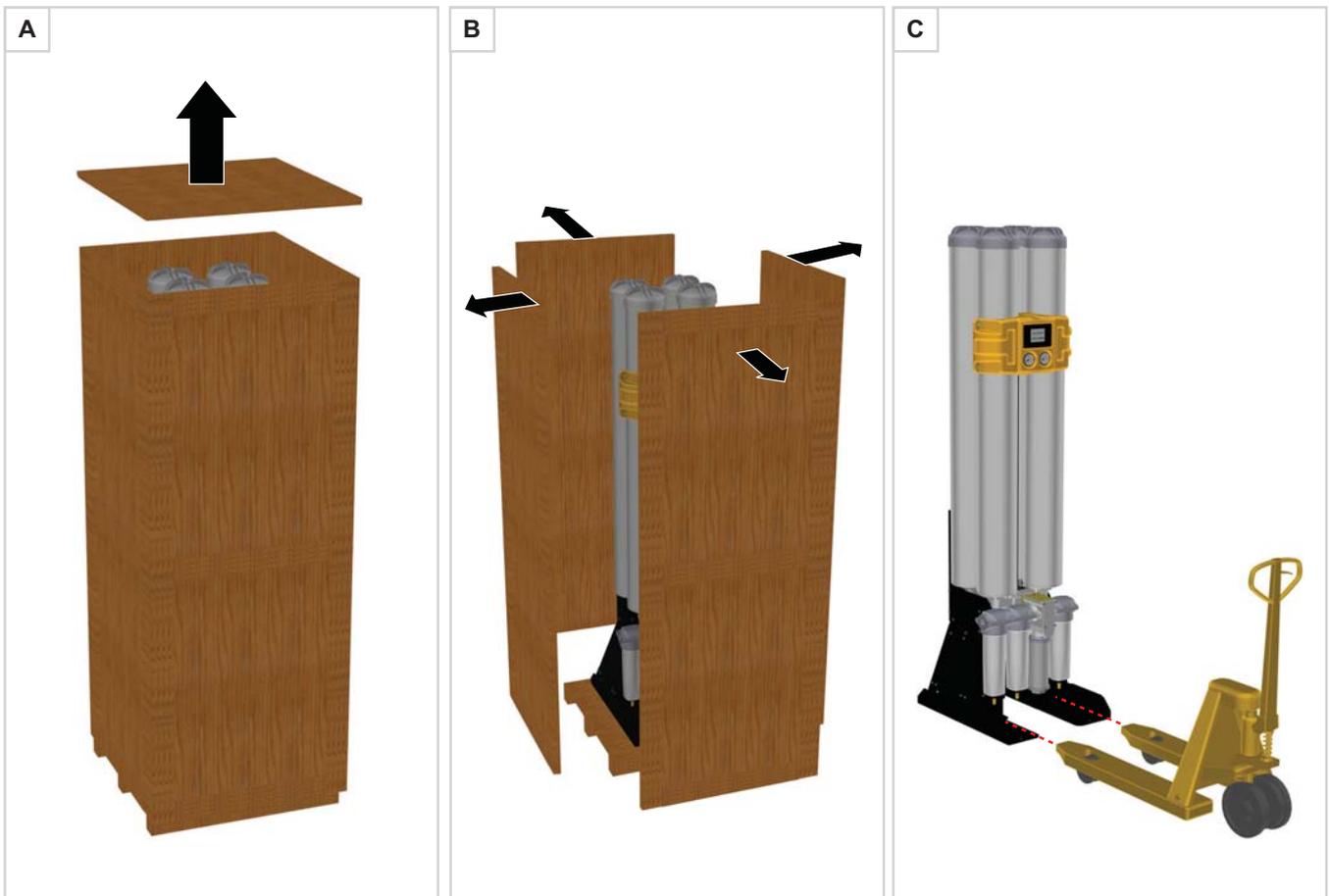
The dryer is supplied in a sturdy wooden crate designed to be moved using a forklift truck or pallet truck. Refer to the technical specification for packed weights and dimensions. On delivery of the equipment check the crate and its contents for damage. If there are any signs of damage to the crate, or there are any parts missing please inform the delivery company immediately and contact your local Parker domnick hunter office.

2.7.1 Storage

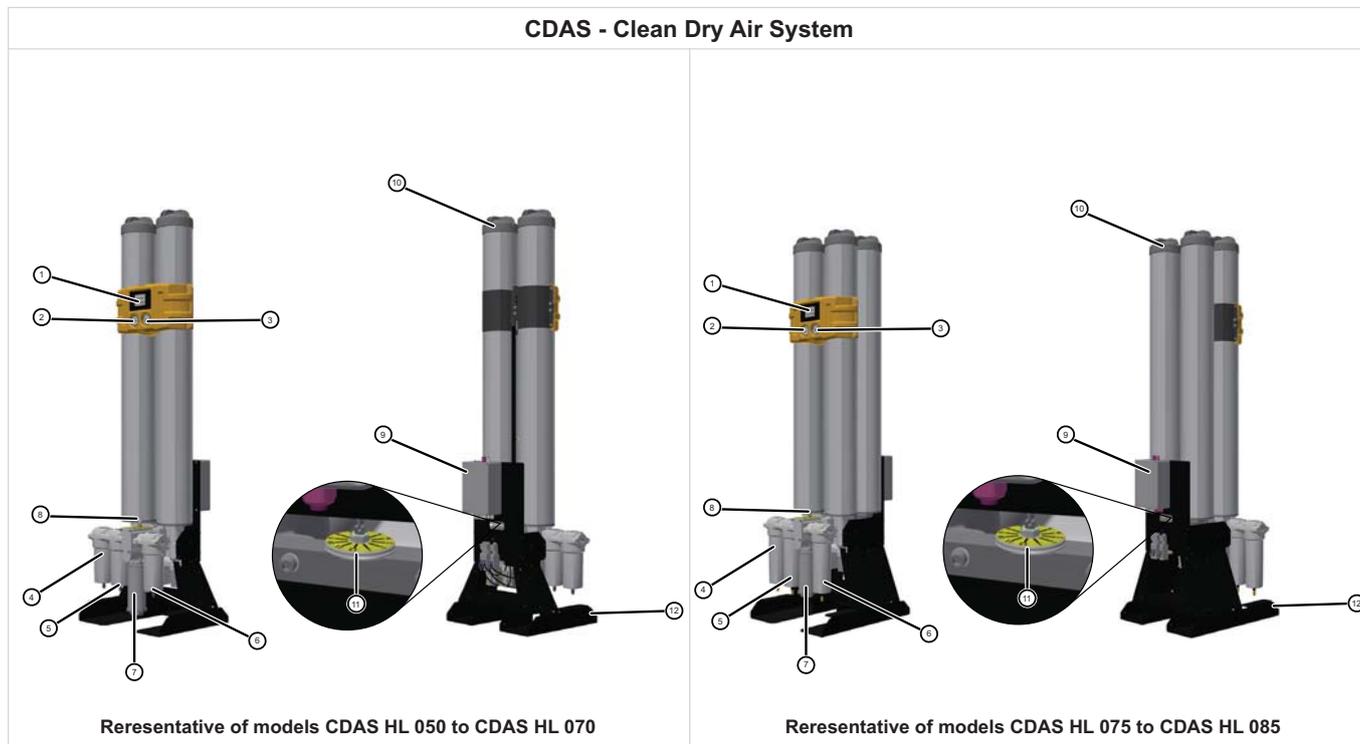
The equipment should be stored, within the packing crate, in a clean dry environment. If the crate is stored in an area where the environmental conditions fall outside of those specified in the technical specification, it should be moved to its final location (installation site) and left to stabilise prior to unpacking. Failure to do this could cause condensing humidity and potential failure of the equipment.

2.7.2 Unpacking

Remove the lid (A) and then all four sides of the packing crate (B). Carefully move the dryer to its final location, using a forklift truck or pallet truck (C).



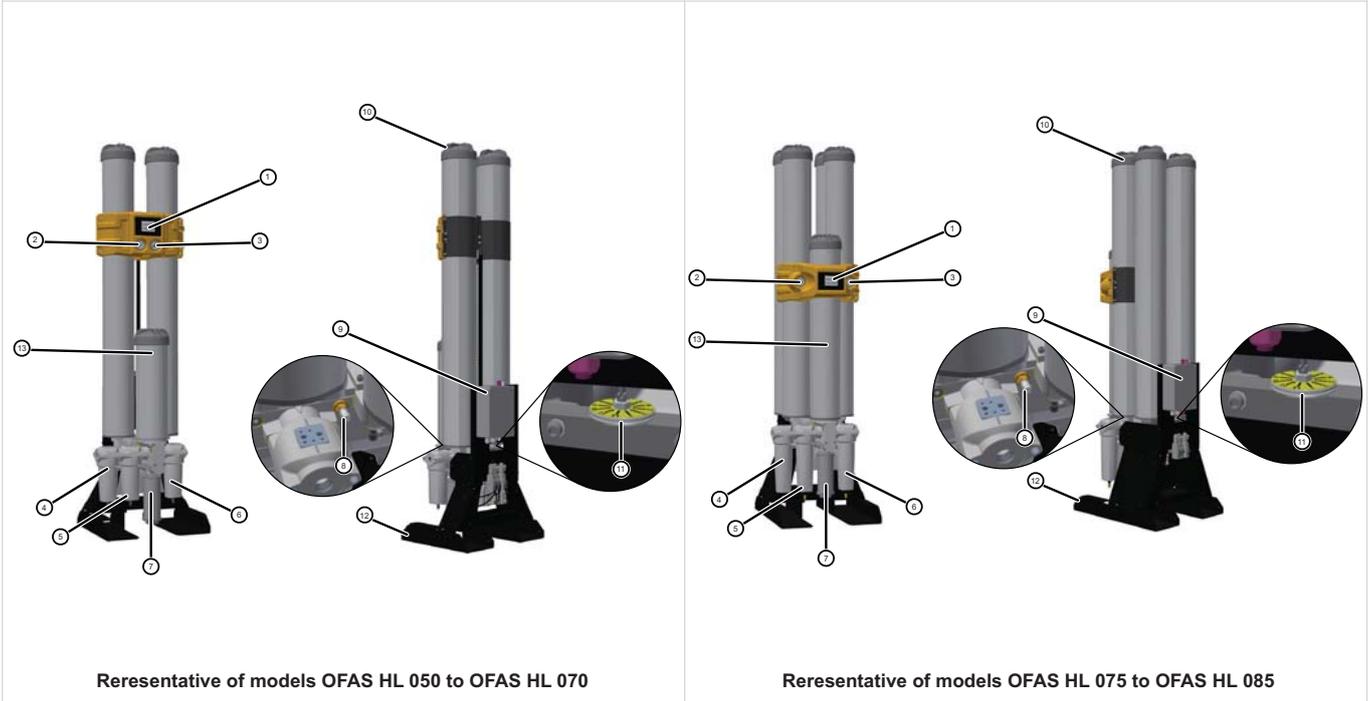
2.8 Overview of the equipment



Key:

Ref	Description	Ref	Description
1	Display	7	Exhaust Silencer
2	Column A pressure gauge	8	Dewpoint Sensor
3	Column B pressure gauge	9	Control Box
4	General Purpose Coalescing Filter (Grade AO)	10	Column Caps
5	High Efficiency Coalescing Filter (Grade AA)	11	Adjustable Purge Disc
6	General Purpose Dry Particulate Filter (Grade AO)	12	Pallet Truck lifting points

OFAS - Oil Free Air System



Key:

Ref	Description	Ref	Description
1	Display	8	Dewpoint sensor
2	Column A pressure gauge	9	Control box
3	Column B pressure gauge	10	Column caps
4	General Purpose Coalescing Filter (Grade AO)	11	Adjustable purge disc
5	High Efficiency Coalescing Filter (Grade AA)	12	Pallet truck lifting points
6	General Purpose Dry Particulate Filter (Grade AO)	13	Oil vapour removal stage
7	Exhaust silencer		

3 Installation and Commissioning



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

3.1 Commissioning Check List

Task	Page	Section	Tick when OK
Positioning			
Ensure adequate space for installation / maintenance	15	3.3.2 Space Requirements	
Piping Installation	15	3.4.1 General Requirements	
Electrical Installation			
Power connections	17	3.5.1 Dryer Supply	
Ancillary connections	17	3.5.2 Dryer Auxiliary Connections	
Remote alarm connection	18	3.5.3 Remote Alarm Connection	
Remote Stop / Start	18	3.5.4 Remote Start / Stop	
Purge economy	19	3.5.5 Purge Economy	
Check / Setup control box			
ECO Set point	19	3.5.8 ECO Digital Input	
Temperature units °C or °F	17	3.5.2 Dryer Auxiliary Connections	
Check / change inlet valve configuration			
Normally Closed (standard)	17	3.5.2 Dryer Auxiliary Connections	
Normally Open (option)	17	3.5.2 Dryer Auxiliary Connections	
Dipswitch change when changing inlet valve configuration from N/C to N/O <i>please note setting up dryer for N/O configuration may affect warranty</i>	17	3.5.2 Dryer Auxiliary Connections	
Pressurisation / Leak check			
Purge setting	16	3.4.4 Purge Settings	
Set purge for minimum inlet pressure	16	3.4.4 Purge Settings	
Operation			
Dryer start-up procedure	20	3.6 First Time Start-Up	
Monitor operation / performance	21/22/23	4 Operating the Dryer	
Troubleshooting (if required)	28	6 Troubleshooting	
Installation and Commissioning Complete			

3.2 Recommended System Layout

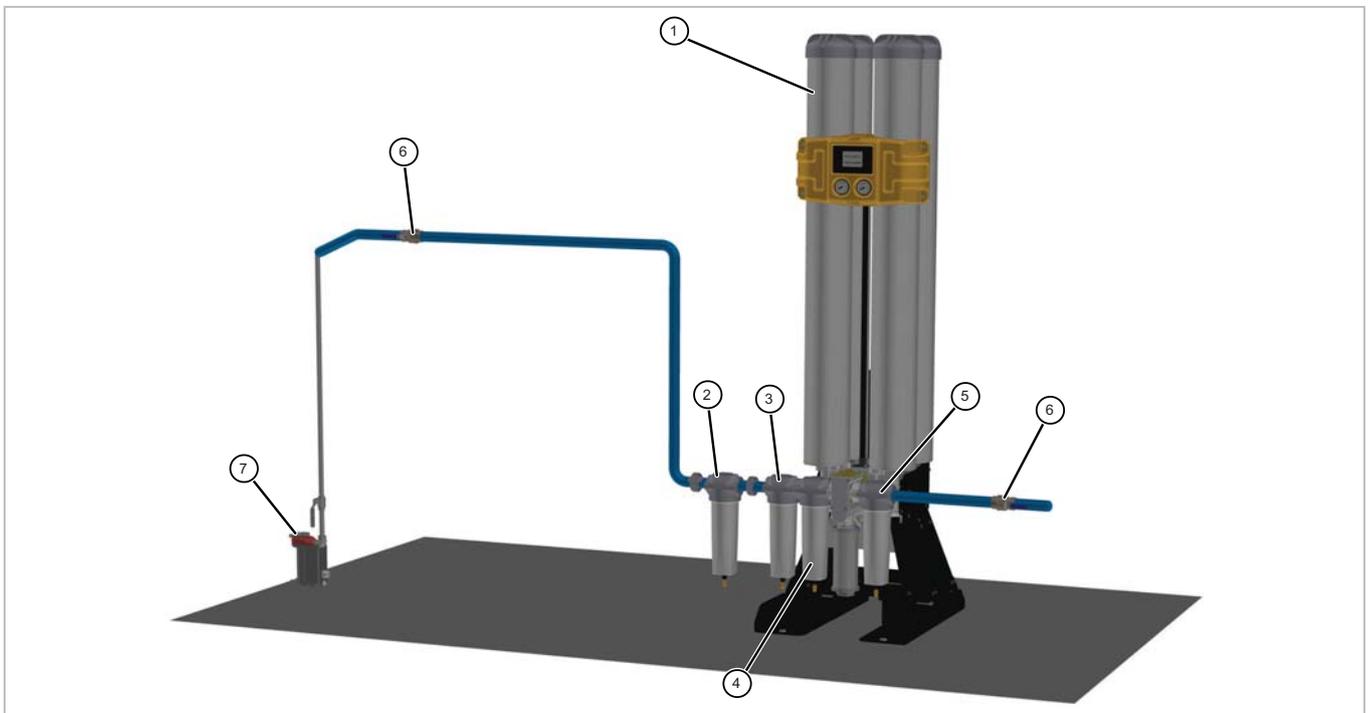
The dryer should ideally be installed, downstream of a 'wet' air receiver, with the pre-filtration supplied and optional condensate management equipment to meet both the specification and local environmental requirements. This includes the following components:

Water separators (Optional) - Water separators are used to protect coalescing filters attached to the CDAS HL / OFAS HL against liquid contamination, where excessive cooling takes place in air receivers and distribution piping. If liquid water or oil is present, Parker domnick hunter Grade WS water separators must be installed or dewpoint performance may not be achieved and any remaining warranty will be invalidated.

General purpose and high efficiency coalescing filters (included) - Coalescing filters are probably the single most important items of purification equipment in a compressed air system. They are designed to not only reduce aerosols (droplets) of oil and water using mechanical filtration techniques, but also to reduce solid particulate to very low levels (as small as 0.01micron in size). Installed in pairs, the first filter is a 'general purpose filter' which protects the second 'high efficiency filter' from bulk contamination. The dual filter installation from Parker domnick hunter ensures a continuous supply of high quality compressed air with the additional benefits of low operational costs and minimal maintenance.

Dry particulate filters (included) - Dust removal filters are used for the removal of dry particulates. They provide identical particulate removal performance to the equivalent coalescing filter and use the same mechanical filtration techniques to provide particle reduction.

Note. Failure to install and maintain the pre and after filtration, supplied with the dryer and configured as illustrated below, will invalidate the dryers warranty.



Ref	Description	Ref	Description
1	Adsorption Dryer	5	General Purpose Dry Particulate Filter
2	Water Separator (Optional)	6	Isolation Valve (Not Included)
3	General Purpose Coalescing Filter	7	Electronic Condensate Drain (Optional)
4	High Efficiency Coalescing Filter		

3.3 Locating the Equipment

3.3.1 Environment

The equipment should be located indoors in an environment that protects it from direct sunlight, moisture, and dust. Changes in temperature, humidity, and airborne pollution will affect the environment in which the equipment is operating and may impair the safety and operation. It is the customers' responsibility to ensure that the environmental conditions specified for the equipment are maintained.

3.3.2 Space Requirements

The equipment should be mounted on a flat surface capable of supporting its own weight plus the weight of all ancillary parts. There must be adequate space around the equipment to allow airflow and access for maintenance purposes and lifting equipment. A minimum spacing of approximately 500mm (20 ins) is recommended around all sides of the dryer and 750mm (29.5 ins) above it for the removal of the desiccant cartridges.

Do Not position the equipment so that it is difficult to operate or disconnect from the electrical supply.

3.4 Mechanical Installation

3.4.1 General Requirements

Ensure that each condensate drain is suitably piped away and any effluent is disposed of in a legal and responsible manner and in accordance with local environmental regulations. Condensate drain lines should never be connected together - connect to a common, vented condensate manifold. Condensate drain lines should be of large internal diameter and short length to prevent back pressure which would prevent drainage of condensate. Condensate discharged from water separator and filter float drains will lose pressure once it enters the piping. Installing drain lines at height will result in a failure to remove condensate and loss of dryer dewpoint. Important Note: Dryer performance and warranty will be invalid if above requirements are not followed.

It is important to ensure that all inlet and outlet 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 air supply to the application. When routing, the pipes ensure that they are adequately supported to prevent damage and leaks in the system.



The system must be protected with a suitably rated thermal pressure relief valve.

3.4.2 Securing the Dryer

Mounting holes are provided in the feet of the dryer. Once the dryer has been positioned in its final location ensure that it is securely fixed in place using M15 fixing bolts.

3.4.3 Attach the Exhaust Silencer

The dryer is supplied with an exhaust silencer. If the dryer is to be located in a noise sensitive area, exhaust air can also be remotely piped away. If the exhaust is to be piped away then a minimum pipe size of 50mm (2 ins) should be used initially, expanding to larger diameter the longer the piping run becomes. As a rule of thumb a minimum bend radius of four times the radius of the pipe should be employed. Failure to pipe away correctly results in back pressure (indicated by a minimal pressure on the off-line pressure gauge) which prevents full regeneration of the off-line bed and results in loss of dewpoint.

3.4.4 Purge Settings

The nominal flow rates for CDAS HL / OFAS HL dryers are based upon an operating pressure of 7 bar g (102 psi g). If the minimum operating pressure of the site is higher or lower than the nominal pressure, the purge setting must be reset for the minimum pressure into the dryer. Failure to correctly set purge during commissioning will seriously affect dryer performance, operational costs and will invalidate warranty

Before setting the purge, fully close the valve and ensure that the screwdriver slot is aligned with the number 12 on the purge dial.

Purge settings comprise of a number of full turns of the adjusting screw plus a partial turn to the numbered position on the dial. See the table below for the correct settings.

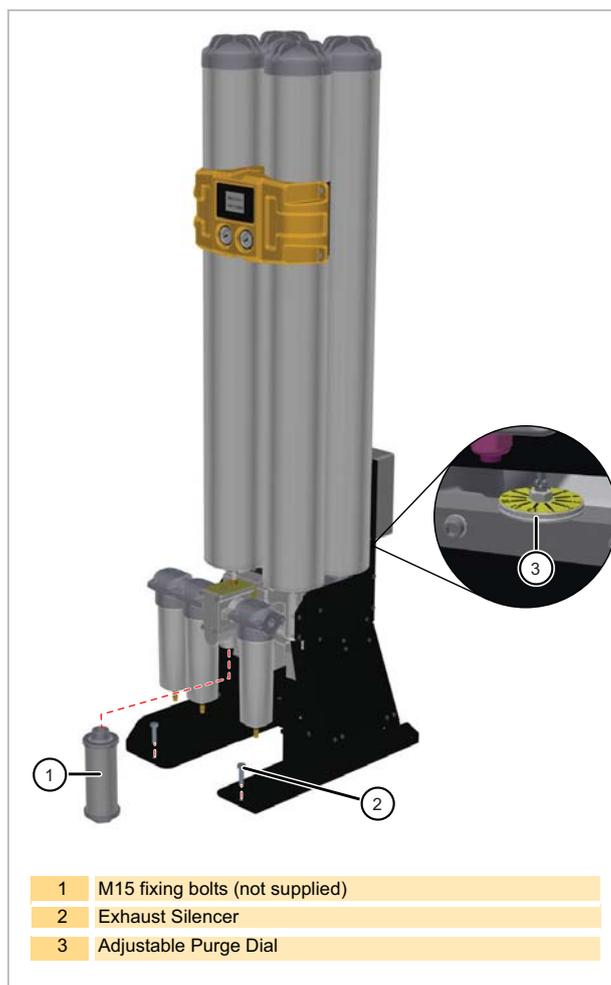
Example: To set the purge for a CDAS HL 050 operating at 6 Bar g.

Fully close the valve

Turn the screw anti-clockwise 5 full turns

Turn the screw a further partial turn until the screwdriver slot is half way between No. 1 and No. 2.

Unless otherwise specified, all dryers are factory set at 6 Bar g.



CDAS / OFAS	Purge Flow		Dial Setting	Pressure (Bar g)												
	(m3/hr)	(L/m)		4	5	6	7	8	9	10	11	12	13	14	15	16
HL 050	11	183	Full Turns	6	5	5	4	4	4	3	3	3	3	3	3	3
			+ dial No.	6	10	1.5	8.5	4.5	1.5	11.5	9.5	7.5	5.5	4.5	3.5	2.5
HL 055	14	233	Full Turns	6	6	6	5	5	4	4	4	3	3	3	3	
			+ dial No.	11	7.5	1.5	7	2	10	6.5	4	1	11	9.5	8	7
HL 060	18	300	Full Turns	7	7	6	6	6	5	5	4	4	4	4	4	
			+ dial No.	4.5	0	9	6	2	8.5	4.5	0.5	9	6.5	4.5	2.5	1.5
HL 065	22	367	Full Turns	7	7	7	6	6	6	5	5	5	4	4	4	
			+ dial No.	8.5	4.5	1.5	10.5	8	5.5	2	9.5	5	2	11	8.5	7
HL 070	30	500	Full Turns	8	7	7	7	7	7	6	6	6	6	6	5	5
			+ dial No.	4	11.5	8	5	2	0	10	8.5	7	5	1.5	10	8
HL 075	37	617	Full Turns	8	8	8	7	7	7	7	6	6	6	6	6	6
			+ dial No.	9.5	4	0.5	9.5	7	4.5	3	1	11	9.5	8	7	5
HL 080	44	733	Full Turns	9	8	8	8	7	7	7	7	7	7	7	6	6
			+ dial No.	3	9	4.5	1.5	10.5	8	6	4.5	3	1.5	0	10.5	9
HL 085	60	1000	Full Turns	10	9	9	8	8	8	8	7	7	7	7	7	7
			+ dial No.	3	7	2	9	6	3	1	11	9	7.5	6.5	5	3.5

3.5 Electrical Installation

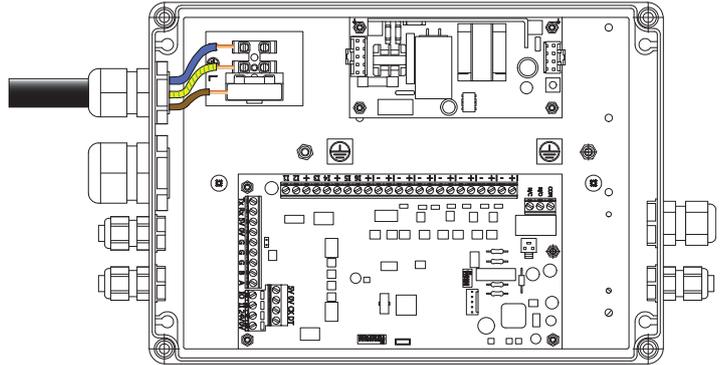


Warning

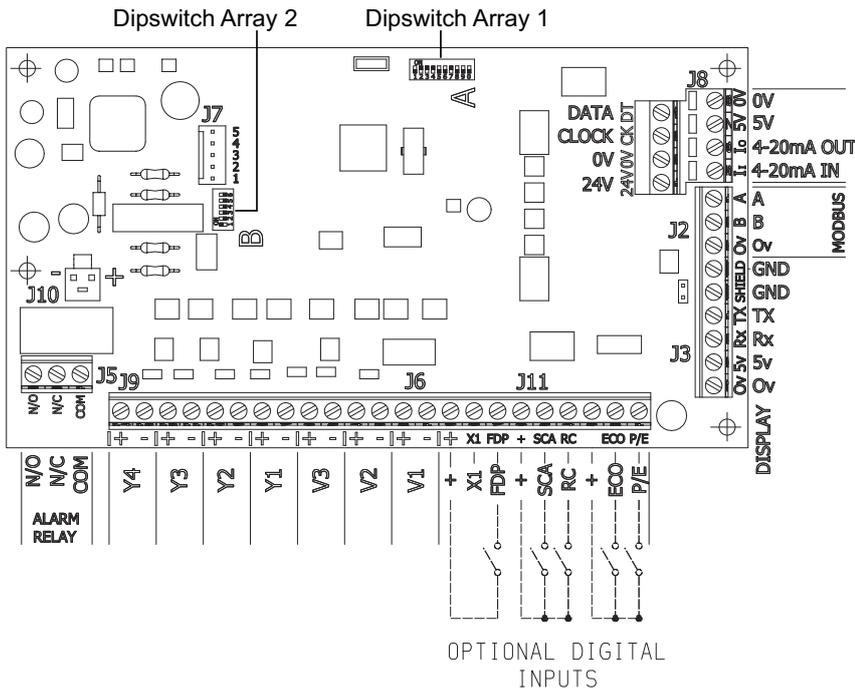
A fully qualified electrical engineer must undertake all field wiring and electrical work in accordance with local regulations.

3.5.1 Dryer Supply

The dryer is capable of accepting an electrical supply in the range or 85V-265V /1ph/ 50 or 60Hz and should be connected in accordance with local wiring regulations. Refer to the technical specification for voltage and frequency tolerances.



3.5.2 Dryer Auxilliary Connections



Dipswitch Array (1)			
DIL Switch	Function	OFF	ON
Switch 7	Inlets N/O or N/C	N/O	N/C
Switch 8	Remote Stop	Remote Stop Inhibited	Remote Stop Enabled
Switch 9	Purge Setting Mode	Disabled	Enabled

Dipswitch Array (2)			
DIL Switch	Function	OFF	ON
Switch 3	Temperature unit selection	°C	°F
Switch 4	Moisture over-ride	Off	On
Switch 5	Dewpoint Setpoint 1		
Switch 6	Dewpoint Setpoint 3		

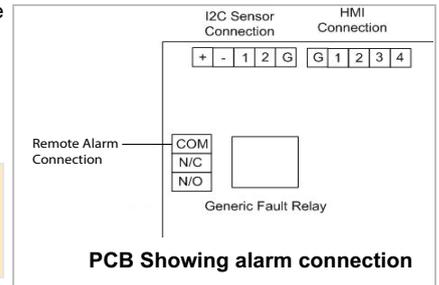
The dryer can be connected to external control and alarm circuits using the dedicated terminals on the lower terminal block inside of the control panel.

When making these connections it is recommended that:

- 1 Cable lengths do not exceed 30m in length.
- 2 Twisted screened cables are used for the remote stop / start and retransmission connections.
- 3 Low voltage cables are routed away from high voltage supply cables
- 4 0.75mm² cables should be used for remote start / stop and mains fault circuits

3.5.3 Remote Alarm Connection

Each dryer is fitted with a set of volt free relay contacts designed for remote alarm indication. These are normally open contacts and are rated 1A max @ 250Vac (1A @ 30Vdc). Under normal operation the relay will be energised and the alarm circuit will be closed. When a fault occurs, e.g. power failure, the relay will de-energise causing the alarm circuit to be open



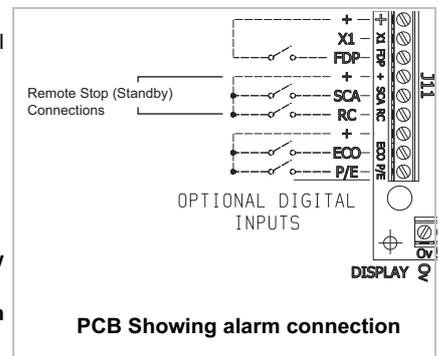
If the remote alarm indication relay is used, the electrical enclosure will contain more than one live circuit. The relay connections will remain live when the mains supply is disconnected.

3.5.4 Remote Start / Stop (Standby)

The dryer can be configured for remote stop / start function. This requires a 24VDC signal to be supplied to the remote stop digital input and setting of Dipswitch 8 to enable. When a 24V DC signal is applied to the digital input, the dryer will continue to cycle until the end of the current half cycle then stop.

Important Note: Depending upon how the inlet valve configuration was set during commissioning, the inlet valves will either let compressed air flow (Normally Open configuration) or no air to flow (Normally Closed configuration). Default configuration is Normally Closed to protect the dryer.

If the dryer is configured for Normally Open operation, this will allow compressed air to flow through the dryer whilst the controller is off. Flowing compressed air without power to the dryer will damage to the desiccant bed and invalidate warranty. Normally Open configuration is to be used at the users risk.



When the dryer has been remotely "Stopped"

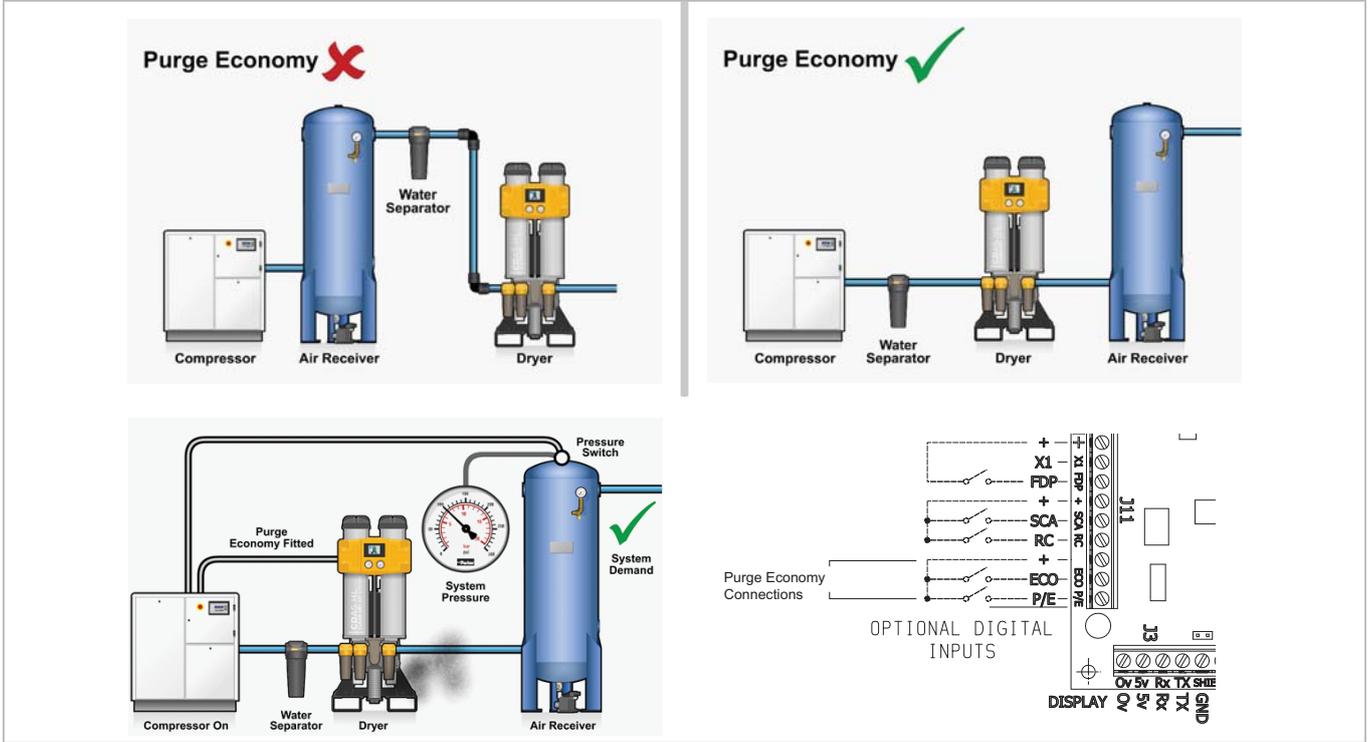
- The fault relay(s) and spare outputs will remain energised
- The display will indicate the dryer has been stopped remotely on the display
- Energy Saving modes "ECO" & "Purge Economy" are overridden

Remote "Start" (removal of the STOP input) will restart the controller. When the remote "Stop" signal is removed (i.e. 0V DC on the signal input), the controller will re-start the cycle on a regenerated desiccant bed.

3.5.5 Purge Economy

Purge economy is designed to stop the dryer regeneration cycle when the compressor goes off load, saving energy.

Purge economy can only operate if the dryer is installed directly after the compressor AND before an air receiver. Under no circumstances should purge economy be connected if there is an upstream, wet air receiver as this will saturate the desiccant bed, lose dewpoint and invalidate the dryer warranty.



It uses a 24V DC signal from the compressor to stop the dryer regeneration cycle and close the exhaust valve. This prevents unnecessary use of purge air, saving energy & money. Once the system pressure drops due to actual air demand, the compressor re-starts and the normal drying cycle will be resumed.

When a 24VDC signal is present at the purge economy digital input, the dryer will continue running to the end of its half cycle and then freeze the dryer cycle at that point. The active inlet valve will remain energised. The fault relay(s) and spare output(s) will remain energised and the purge economy visual element displayed.

When the 24VDC signal is removed, the dryer will continue cycling.

3.5.6 Dewpoint Selection / Alarm Values

Dewpoint Selection

During set-up, the control board dipswitches must be set to the dewpoint for which the dryer was sized. This will also configure the ECO Set Point and Dewpoint Alarm Set Point.

Dewpoint	ECO Set Point	Dewpoint Alarm Set Point
-20°C (-4°F)	-20°C (-4°F)	-5°C (-23°F)
-40°C (-40°F)	-40°C (-40°F)	-20°C (-4°F)
-70°C (-100°F)	-70°C (-100°F)	-56°C (-68°F)

Dewpoint Switch Configurations

Dipswitch Array (2)			
DIL Switch	Function	OFF	ON
Switch 5	Dewpoint Setpoint 1		
Switch 6	Dewpoint Setpoint 3		
		-20°C	-40°C
			-70°C

ECO Set Point

At the end of each 2 ½ minute regeneration cycle, the exhaust valve will close and the purge air will repressurise the off-line column, ready for use. At this point, the dryer controller will check the dewpoint sensor. If the compressed air is drier than the dewpoint for which the dryer was selected (the ECO Set Point), this indicates that there is drying capacity remaining in the on-line desiccant bed. The EST- Energy Saving Technology will then override the fixed cycle, extending the drying time for the on-line column, saving purge air (energy).

Once the dewpoint of the air leaving the dryer is equal to the ECO set point or the moisture override period has been reached (default 30 minutes), the dryer will change over and the fully saturated bed will be regenerated.

A dewpoint value higher (wetter) than the dewpoint alarm set point will place the dryer into dewpoint alarm mode."

Dewpoint Alarm

Should the outlet dewpoint drop below the Dewpoint Alarm Set Point, the dewpoint displayed will flash and the fault alarm symbol will be displayed. The generic fault relay will also change state.

The dryer will continue to cycle normally during dewpoint alarm. Once the dewpoint is higher than the alarm set point, the dryer display and fault relay will return to normal.

3.5.7 Temperature Units

The dryer display can be configured to show outlet dewpoint in °C or °F and can be set using the dipswitch configuration below.

Dipswitch Array (2)			
DIL Switch	Function	OFF	ON
Switch 3	Temperature unit selection	°C	°F

3.5.8 Configuring Inlet Valves

The default inlet valve configuration for CDAS / OFAS is Normally Closed (N/C). Upon power loss, the inlet valves will close and compressed air will not flow through the dryer. This is to protect the dryer bed from over saturation in the event of a power loss.

In certain applications, there may be a requirement for wet compressed in the event of a dryer failure and CDAS / OFAS can be configured for Normally Open (N/O) operation.

For Normally Open operation, the pneumatic piping on the inlet valves must be swapped over and dipswitch 7 on the control board set for N/O.

Dipswitch Array (1)			
DIL Switch	Function	OFF	ON
Switch 7	Inlets N/O or N/C	N/O	N/C

Refer to the pneumatic schematic - 008730000 within Section 8 of this user guide for how to reconfigure for Normally Open operation.

If the dryer is configured for Normally Open operation, this will allow compressed air to flow through the dryer whilst the controller is off. Flowing compressed air without power to the dryer will damage to the desiccant bed and invalidate warranty. Normally Open configuration is to be used at the users risk.

3.6 First Time Start Up

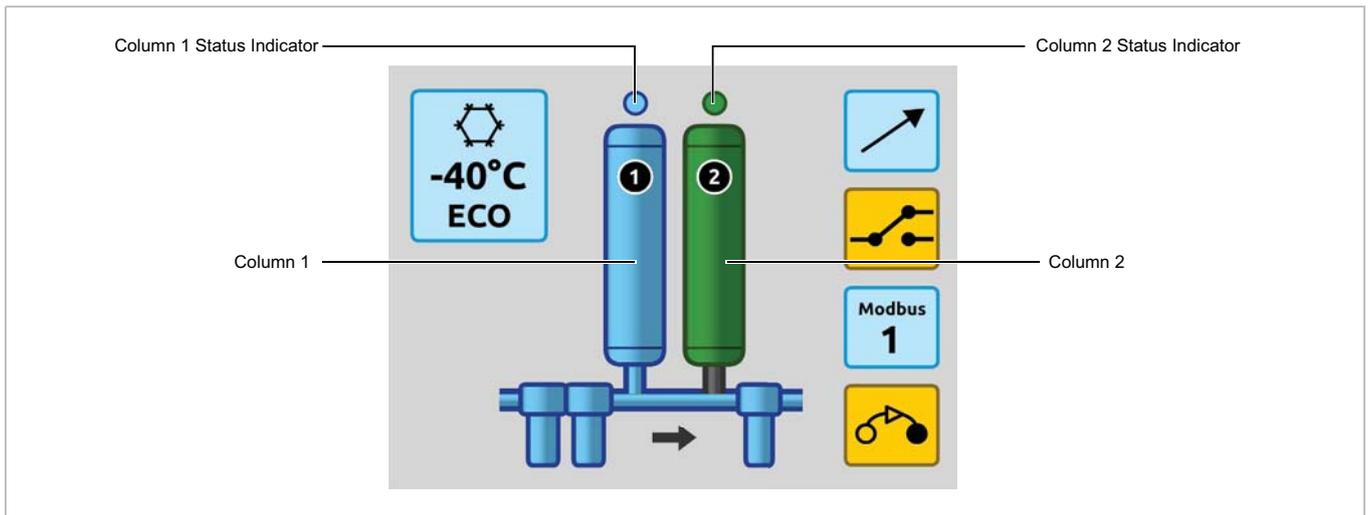
- 1 Ensure that the isolation valves on the inlet and the outlet of the dryer are closed.
- 2 Turn the dryer ON at the isolator and verify that the display illuminates.
- 3 Slowly open the isolation valve on the inlet of the dryer and verify that there are no leaks.
- 4 Test the condensate drains of the filters and ensure they are discharging correctly into a suitable collection vessel.

4 Operating the Dryer

4.1 Displays and Indicators

Standard CDAS / OFAS dryers are fitted with a 3.45" colour TFT display.

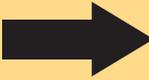
Below is an example of the basic display format but does not show all of the possibilities. Please refer to the individual screen elements which are defined within section 4.1.1 Indicator Key



4.1.1 Column Status Indicators

	Dark blue ring with light blue fill (Light Blue Column) indicates that the column is online.		Dark grey ring with a dark grey fill (Dark Green Column) indicates that the column is in Economy mode.
	Dark blue ring with no fill (Dark Blue Column) indicates that the column is regenerating.		Dark grey ring with a light grey fill (Light Grey Column) indicates that the column is in Standby.
	Dark grey ring with a gradient fill (Dark Grey Column) indicates that the column is re-pressurising.		Dark grey ring with a dark grey fill (Dark Grey Column) Indicates that the column is fully pressurised during Purge Economy Mode

4.1.2 Status and Warning Indicators

	Black spanner on a yellow column indicates that a desiccant service is required.		Fault relay active
	Grey filter indicates that the filter is in Standby.		Yellow filter with exclamation and spanner indicates high differential pressure and the service timer has exceeded.
	Yellow filter with exclamation and spanner indicates high differential pressure.		Blue filter indicates that the filters are operating normally.
	Yellow filter with a black spanner indicates that the filter service warning has exceeded. The spanner will flash if the service alarm timer has been exceeded.		Flow direction and Flow active
	Light blue box with a snowflake and dewpoint value indicates that a hygrometer is fitted		Yellow box with a snowflake, exclamation mark and dewpoint value indicates that the hygrometer dewpoint alarm is active. Note: The dewpoint value flashes during dewpoint alarm.
	Yellow box with a snowflake, exclamation mark and dewpoint value indicates that the hygrometer dewpoint alarm is selected and active. Note: The dewpoint value flashes during dewpoint alarm.		Light blue box with a snowflake and dewpoint value indicates that the dryer is in economy mode.
	Light blue box with a snowflake and an energy savings value given as a percentage.		Yellow box with a snowflake, and ERR indicates a sensor failure.
	Light blue box with a snowflake and diagonal arrow indicates ECO digital input is active and the controller is in ECO. The associated bed should be green as per normal ECO.		Indicates that MODBUS communication is enabled. Also showing the node number.
	ECO in a green box indicates that purge economy is active.		

			<p>Light blue box with a diagonal arrow indicates that the remote STOP command is present either via digital input or MODBUS.</p>
	<p>Switch Control Alarm input is active.</p>		

4.2 Starting the equipment

- 1 Ensure that the isolation valves on the inlet and the outlet of the dryer are closed.
- 2 Turn the dryer ON and verify that the display illuminates.
- 3 Slowly open the isolation valve on the inlet of the dryer and verify that there are no leaks.
- 4 Test the condensate drains of the filters by pushing up on the connected piping (warning - pressurised air or condensate will be present) and ensure they are discharging correctly into a suitable collection vessel.

Note. The pressure gauges on the dryer will not indicate pressure until the dryer begins to cycle.

- 5 Slowly open the outlet isolation valve to allow the system to pressurise. **Do not** open the valve fully until the down stream system has reached the correct operating pressure.

The dryer is designed for continuous use and, once running, requires no further operator intervention.



Note. If the electrical supply is disconnected during operation, the dryer will start automatically when re-energised.

4.3 Dryer Shutdown

To depressurise the dryer

- 1 Turn the dryer OFF at the isolator.
- 2 Close the isolation valve on the outlet followed by the isolation valve on the inlet.
- 3 Slowly open the drain ball valve on the outlet filter to depressurise the dryer.

Note: A small amount of air may be trapped between the inlet isolation valve and the dryer inlet. This can be removed by pushing up on the inlet filter float drain connections / piping

5 Servicing

5.1 Service intervals

Description of Service Required		Service recommended every:					
Component	Operation	Day	Week	3 month	6month	12 month	60 month
Dryer	Check POWER ON and STATUS / FAULT indicators.						
Dryer	Check for air leaks.						
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.						
Dryer	Replace the exhaust silencers.						
Filtration	Replace the inlet and outlet filters, and service drains.						
Dryer	Replace / Calibrate dewpoint transmitter						
Dryer	Replace the outlet check valves						
Dryer	Replace the inlet, outlet and control valves						
Dryer	Replace the Desiccant Cartridges.						
Dryer	Replace the Carbon Cartridges (OFAS Range only).						

Key:

	Check		Recommended Service
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Preventative Maintenance Kits - CDAS

Catalogue Number	Description	12	24	36	48	60	Order Qty
M12.FSK.0002	12 Month Filter Service Kit (-20 and -40 dryers)	✓	✓	✓	✓	✓	CDAS HL 050 - CDAS HL 055 (x1)
M12.FSK.1002	12 Month Filter Service Kit (-70 dryer)	✓	✓	✓	✓	✓	CDAS HL 050 - CDAS HL 055 (x1)
M12.FSK.0003	12 Month Filter Service Kit (-20 and -40 dryers)	✓	✓	✓	✓	✓	CDAS HL 060 - CDAS HL 065 (x1)
M12.FSK.1003	12 Month Filter Service Kit (-70 dryer)	✓	✓	✓	✓	✓	CDAS HL 060 - CDAS HL 065 (x1)
M12.FSK.0004	12 Month Filter Service Kit (-20 and -40 dryers)	✓	✓	✓	✓	✓	CDAS HL 070 - CDAS HL 080 (x1)
M12.FSK.1004	12 Month Filter Service Kit (-70 dryer)	✓	✓	✓	✓	✓	CDAS HL 070 - CDAS HL 080 (x1)
M12.FSK.0005	12 Month Filter Service Kit (-20 and -40 dryers)	✓	✓	✓	✓	✓	CDAS HL 085 (x1)
M12.FSK.1005	12 Month Filter Service Kit (-70 dryer)	✓	✓	✓	✓	✓	CDAS HL 085 (x1)
M60.DSK.0009	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	CDAS HL 050 (x1)
M60.DSK.1009	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	CDAS HL 050 (x1)
M60.DSK.0010	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	CDAS HL 055 (x1)
M60.DSK.1010	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	CDAS HL 055 (x1)
M60.DSK.0011	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	CDAS HL 060 (x1)
M60.DSK.1011	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	CDAS HL 060 (x1)
M60.DSK.0012	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	CDAS HL 065 (x1)
M60.DSK.1012	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	CDAS HL 065 (x1)
M60.DSK.0013	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	CDAS HL 070 (x1)
M60.DSK.1013	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	CDAS HL 070 (x1)
M60.DSK.0014	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	CDAS HL 075 (x1)
M60.DSK.1014	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	CDAS HL 075 (x1)
M60.DSK.0015	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	CDAS HL 080 (x1)
M60.DSK.1015	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	CDAS HL 080 (x1)
M60.DSK.0016	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	CDAS HL 085 (x1)
M60.DSK.1016	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	CDAS HL 085 (x1)

Preventative Maintenance Kits - OFAS

Catalogue Number	Description	12	24	36	48	60	Order Qty
M12.FSK.0011	12 Month Filter Service Kit (-20 and -40 dryers)	✓	✓	✓	✓	✓	OFAS HL 050 - OFAS HL 055 (x1)
M12.FSK.1011	12 Month Filter Service Kit (-70 dryer)	✓	✓	✓	✓	✓	OFAS HL 050 - OFAS HL 055 (x1)
M12.FSK.0012	12 Month Filter Service Kit (-20 and -40 dryers)	✓	✓	✓	✓	✓	OFAS HL 060 - OFAS HL 065 (x1)
M12.FSK.1012	12 Month Filter Service Kit (-70 dryer)	✓	✓	✓	✓	✓	OFAS HL 060 - OFAS HL 065 (x1)
M12.FSK.0013	12 Month Filter Service Kit (-20 and -40 dryers)	✓	✓	✓	✓	✓	OFAS HL 070 (x1)
M12.FSK.1013	12 Month Filter Service Kit (-70 dryer)	✓	✓	✓	✓	✓	OFAS HL 070 (x1)
M12.FSK.0014	12 Month Filter Service Kit (-20 and -40 dryers)	✓	✓	✓	✓	✓	OFAS HL 075 - OFAS HL 080 (x1)
M12.FSK.1014	12 Month Filter Service Kit (-70 dryer)	✓	✓	✓	✓	✓	OFAS HL 075 - OFAS HL 080 (x1)
M12.FSK.0015	12 Month Filter Service Kit (-20 and -40 dryers)	✓	✓	✓	✓	✓	OFAS HL 085 (x1)
M12.FSK.1015	12 Month Filter Service Kit (-70 dryer)	✓	✓	✓	✓	✓	OFAS HL 085 (x1)
M60.DSK.0009	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	OFAS HL 050 (x1)
M60.DSK.1009	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✗	OFAS HL 050 (x1)
M60.DSK.0010	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	OFAS HL 055 (x1)
M60.DSK.1010	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✗	OFAS HL 055 (x1)
M60.DSK.0011	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	OFAS HL 060 (x1)
M60.DSK.1011	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	OFAS HL 060 (x1)
M60.DSK.0012	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	OFAS HL 065 (x1)
M60.DSK.1012	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	OFAS HL 065 (x1)
M60.DSK.0013	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	OFAS HL 070 (x1)
M60.DSK.1013	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	OFAS HL 070 (x1)
M60.DSK.0014	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	OFAS HL 075 (x1)
M60.DSK.1014	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	OFAS HL 075 (x1)
M60.DSK.0015	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	OFAS HL 080 (x1)
M60.DSK.1015	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	OFAS HL 080 (x1)
M60.DSK.0016	60 Month Service Kit (-20 and -40 dryers)	✗	✗	✗	✗	✓	OFAS HL 085 (x1)
M60.DSK.1016	60 Month Service Kit (-70 dryer)	✗	✗	✗	✗	✓	OFAS HL 085 (x1)

Kit Contents - CDAS



-20 and -40 dryers

Catalogue No's.	Description	Contents
M12.FSK.0002 M12.FSK.0003 M12.FSK.0004 M12.FSK.0005	Kit: 12 month service	Filter elements (x3) Filter Drains (x2) Silencer element (x1) Dewpoint sensor (x1)

-70 dryers

Catalogue No's.	Description	Contents
M12.FSK.1002 M12.FSK.1003 M12.FSK.1004 M12.FSK.1005	Kit: 12 month service	Filter elements (x3) Filter Drains (x2) Silencer element (x1) Dewpoint sensor (x1)

Kit Contents - OFAS



-20 and -40 dryers

Catalogue No's.	Description	Contents
M12.FSK.0011 M12.FSK.0012 M12.FSK.0013 M12.FSK.0014 M12.FSK.0015	Kit: 12 month service	Filter elements (x3) Filter Drains (x2) Silencer element (x1) Dewpoint sensor (x1) Carbon Cartridge (x1)

-70 dryers

Catalogue No's.	Description	Contents
M12.FSK.1011 M12.FSK.1012 M12.FSK.1013 M12.FSK.1014 M12.FSK.1015	Kit: 12 month service	Filter elements (x3) Filter Drains (x2) Silencer element (x1) Dewpoint sensor (x1) Carbon Cartridge (x1)

Recommended every 60 months

Kit Contents - CDAS / OFAS



-20 and -40 dryers

Catalogue No's.	Description	Contents
M60.DSK.0009 M60.DSK.0010 M60.DSK.0011 M60.DSK.0012 M60.DSK.0013 M60.DSK.0014 M60.DSK.0015 M60.DSK.0016	Kit: 60 month service	Desiccant cartridges Inlet and exhaust valves Control valves Outlet check valve

-70 dryers

Catalogue No's.	Description	Contents
M60.DSK.1009 M60.DSK.1010 M60.DSK.1011 M60.DSK.1012 M60.DSK.1013 M60.DSK.1014 M60.DSK.1015 M60.DSK.1016	Kit: 60 month service	Desiccant cartridges Inlet and exhaust valves Control valves Outlet check valve

6 Troubleshooting

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 Parker trained, qualified and approved engineer.

6.1 Dewpoint Failure

A dewpoint failure will result in there being water in the downstream piping and equipment.

Possible Cause	Action Required
The inlet parameters have changed.	If the inlet flow-rate or the inlet temperature have increased ensure that the filters and dryer are re-sized accordingly. If the inlet pressure has changed ensure that the filters and dryer are re-sized accordingly.
The condensate is not being drained.	Verify that all condensate drains are functioning correctly. Check that the drain hoses are free from kinks and obstructions. Ensure that the isolation valves on the drains are fully open.
The compressor is not functioning correctly.	Check the documentation supplied by the compressor manufacturer for troubleshooting guidance.
The compressor capacity has changed.	Ensure that the filters and dryer are sized accordingly.
The after cooler is not functioning correctly.	Test that condensate drain is operating correctly. Check that the cooling water system is functioning correctly and that the water temperature is within specification (water cooled systems only). Ensure that the after cooler and dust filter (if fitted) are clean (air cooled systems only). Ensure that the fan is functioning correctly (air cooled systems only).
There is no wet air receiver fitted within the system.	Install a wet air receiver and drain within the system (if possible). Ensure there is adequate drainage on the piping prior to the dryer pre-filtration. A water separator should also be installed before the dryer pre-filtration to ensure removal of bulk liquid.
Filtration has not been correctly maintained.	If the element and float drain have been installed longer than 12 months ensure that they are both changed. Verify that the float drain is operating correctly.
The dryer has been by-passed.	If a bypass line has been installed on the system ensure that it is closed. Use bypass filtration.
The regeneration column pressure within the dryer is greater than 350mbar.	Contact a Parker approved service agent.
There is a fault with the dryer timer.	Contact a Parker approved service agent.
There is a fault with the dryer valves.	Contact a Parker approved service agent.
The desiccant is approaching the end of its useful life.	Contact a Parker approved service agent.

6.2 High Pressure drop

A high pressure drop will result in low pressure gauge readings or intermittent operation of the downstream equipment.

Possible Cause	Action Required
Filtration has not been correctly maintained.	If the element and float drain have been installed longer than 12 months ensure that they are both changed. Verify that the float drain is operating correctly.
The inlet parameters have changed.	If the inlet flow-rate has increased ensure that the filters and dryer are re-sized accordingly. If the inlet temperature has increased verify that the filters are within specification. Ensure that the oil vapour removal filters and the dryer are re-sized accordingly. If the inlet pressure has changed ensure that the filters and dryer are re-sized accordingly. Contact Parker for details on particle counting and air quality air measurement.
The compressor is not functioning correctly.	Check the documentation supplied by the compressor manufacturer for troubleshooting guidance.
There is a pressure loss from the system.	Check for leaks in the piping and at connection points. Ensure that all drain cocks and pressure relief valves are closed. Check to see if the downstream flow-rate demand has increased.
The dryer is not powered up.	Verify that the dryers power indicator is illuminated. If the dryer is not powered check the isolator and circuit breaker.
An isolation valve is closed or partially closed.	Check the position of all isolation valves.

6.3 Downstream air supply interrupted

An interruption of the air supply downstream will result in a rapid loss of system pressure and failure of the downstream equipment.

Possible Cause	Action Required
The compressor is not functioning correctly.	Check the documentation supplied by the compressor manufacturer for troubleshooting guidance.
There is a pressure loss from the system.	Check for leaks in the piping and at connection points.
The dryer is not powered up.	Verify that the dryers power indicator is illuminated. If the dryer is not powered check the isolator and circuit breaker. Check the dryer fault indicators.

7 Declaration of Conformity

Declaration of Conformity

EN

We, Parker Hannifin Manufacturing Limited, Gas Separation and Filtration Division EMEA
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Hereby declare that the following equipment:

Clean Dry Air System (CDAS)
Oil Free Air System (OFAS)

Complies with the following Directives:

Directives

2014/68/EU (CAT II/III)
2004/30/EU
2011/65/EU
2014/35/EU

Standards Referenced

EN60204-1: 2006 + A1:2009
EN61326-1 : 2013
EN61000-3-2:2014
EN61000-3-3:2013
Generally in accordance with ASMEVIII Div 1 : 2015 and AS1210

PED Assessment Route :

B & D

EC Type-examination Certificate:

TBC

Notified body for PED:

Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

Authorised Technical File Representative

Damian Cook

Divisional Engineering Manager
Parker Hannifin Manufacturing Limited, GSFE

Signed on behalf of Parker Hannifin:

Name:

Damian Cook

Position:

Divisional Engineering Manager

Place:

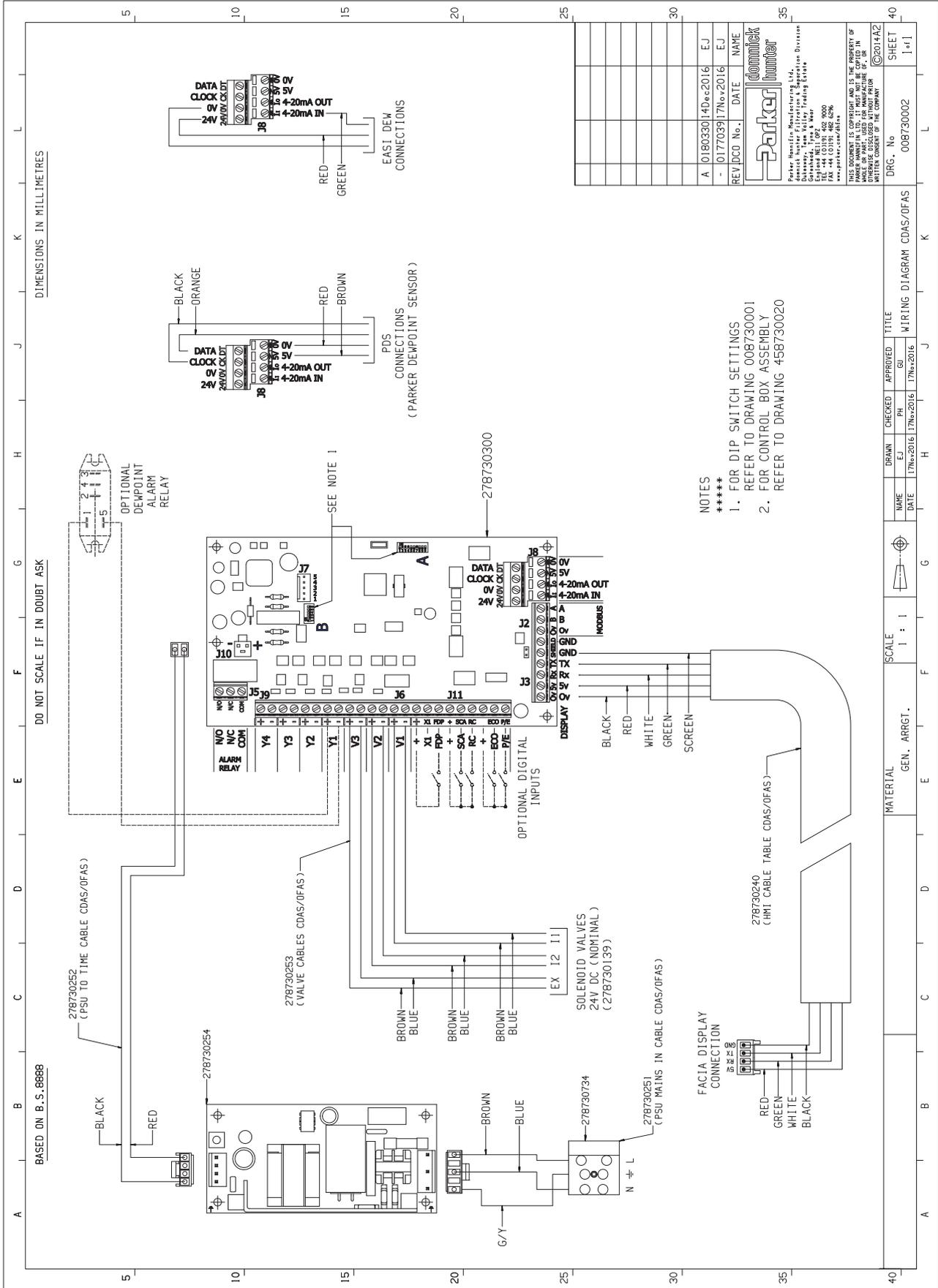
Parker Hannifin Manufacturing Limited, GSFE

Signature:

Date: 16/11/2016

Declaration Number: TBC

Wiring Diagram - 008730002



- NOTES

 1. FOR DIP SWITCH SETTINGS REFER TO DRAWING 008730001
 2. FOR CONTROL BOX ASSEMBLY REFER TO DRAWING 458730020

REV	DCO No.	DATE	NAME
A	0180330	14Dec2016	EJ
-	0177039	17Nov2016	EJ

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MATERIAL	GEN. ARRGT.	SCALE	1 : 1	DATE	17Nov2016	PH	GU	APPROVED	TITLE	WIRING DIAGRAM CDAS/OFAS	DRG. No	008730002	SHEET	1 of 1
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