



Instruction and Maintenance **Manual**

Devair High Temperature Dryers

Model 'HTD' **18 - 26 - 37 - 52**

Introduction	Page 2
Symbols Used in This Manual	
General Information	Page 3
The Function of the Dryer	
The Safe Operation of the Dryer	
Installation of the Dryer Unit	
Unpacking and Inspection	
Installation Site	Page 4
Installation of the Dryer Unit	
Features of the Dryer Unit	Page 6
Control Panel	
Electronic Autodrain Programming	Page 7
Unit Start-up	
Unit Maintenance	Page 8
Electronic Autodrain Cleaning	
Trouble-Shooting	Page 9
Programming of Parameters	Page 10
Components	Page 11
Unit Specifications	Page 12
Unit Dimensions	Page 13
Refrigeration Circuits	Page 14
Electrical Diagrams	Page 16
Unit Warranty	Page 17

If you require assistance, contact your Devair Distributor or Authorized Service Centre.
If you wish to contact Devair directly or need to locate your closest Distributor, please
contact us as follows:

Introduction:

As the owner of a new Devair 'HTD' Dryer Unit, it is your responsibility to ensure that it is installed correctly, as well as maintained and serviced on a regular basis. Information has been included in this booklet to not only familiarize you with your Unit, but also to guide you in the installation, maintenance, and trouble-shooting of your Unit.

It is important that you read this information, and keep it handy for future reference.

If you have any issues with your Dryer Unit, please contact the Distributor from whom you purchased the Unit.

Symbols Used in this Manual and on the Dryer Unit:

	Read this manual before attempting to a) start the Unit and/or b) perform any service or maintenance work.
	Pay particular attention to items which are accompanied with this symbol.
	Installation, maintenance, and/or service operations accompanied with this symbol must only be carried out by qualified personnel.
	Components or systems may be under pressure.
	Surfaces may be hot.
	A risk of electric shock is present.
	Air inlet point to the Dryer.
	Air outlet point to the Dryer.
	Condensate drain port.
	Direction of rotation of the fan.
       	Attention: Before performing any service or maintenance to the Dryer Unit, ensure that: a) The Unit is disconnected from electrical power. b) Air pressure in the Unit is completely discharged. c) Refer to this manual for instructions.

General Information:

The Function of the Dryer:

Refrigerated Air Dryers are a cost effective means of eliminating moisture from compressed air by means of lowering the temperature of the air to approximately 3°C. As the compressed air temperature is lowered, the moisture contained in the air is separated by means of stainless steel baffles, and then further discharged by means of an electronic automatic drain. (The electronic drain is preset at the factory to drain for one second every minute. Changing these settings to suit your particular application will be dealt later.)

To limit the size of the Dryer Unit, an internal heat exchanger is used. The heat exchanger allows the cold air exiting the Unit to cool the warmer air entering the Dryer.

Once the air passes through the Dryer Unit, it is virtually humidity-free.

	The Dryer is equipped with all controls and safety devices; no additional devices are required.
	The Customer must provide suitable electrical protection for the Dryer, and ensure the Unit is grounded.

The Safe Operation of the Dryer:

The Refrigerated Air Dryers have been manufactured in compliance with the current European safety standards. As well, the Units have been Entela certified for use in North America. It is therefore imperative that the Unit be operated, maintained, and serviced according to instructions contained in this manual. Failure to follow these instructions may result in damage to the Unit and/or personal injury.

  	Any installation, use, maintenance, or service requiring access to the internal components of the Dryer Unit must be done by qualified personnel only.
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Installation of the Dryer Unit:

Unpacking and inspection:

Each Devair 'HTD' Refrigerated Air Dryer is carefully tested and inspected before shipment. Though every attempt is made to ensure the safe and complete shipment of our product, freight damage or misplacement of goods may occur.

Shipments of Devair products are the property of the Consignee when the products leave our facility. Devair Inc. is not responsible for any damages or shortages caused to the product after it has left our shipping dock.

It is the responsibility of the receiver of the goods, either the Distributor or Customer, to ensure that the product has been shipped in full, and has arrived in suitable condition. Damage to the product may not be visible at time of off-loading, but may only become apparent upon unpacking or start-up.

Some areas to initially check are as follows:

- a) Check for damage to the box and skid in/on which the Unit was transported.
- b) Take the box and packing material off of the Dryer, and ensure there is no damage to the Unit.

Should there be shortages in shipment or damage to the product:

- 1) Stop any further unpacking or operation of the product.
- 2) Make note of the problem on the Freight Bill, should it concern a shortage or visible damage to the product.

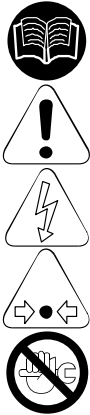
- 3) Should the damage be noticed only after the product has been received, contact the transport company immediately to file a claim. Depending on the problem, it may be wise to photograph the damage. Also, it may be wise to discuss with the carrier representative the time allotted to give notice of loss or damage to the product; there may be guidelines which limit time-frames of same.
- 4) Do not attempt further unpacking or operation of the product. Also, do not discard any packing material used.
- 5) A Loss or Damage Claim must be submitted to the carrier and supported by the following documents:
 - Copy of Freight Bill of Lading
 - Copy of the Invoice and Estimate to repair, in case of damage
 - Damage Report
 - Copy of photos, if applicable

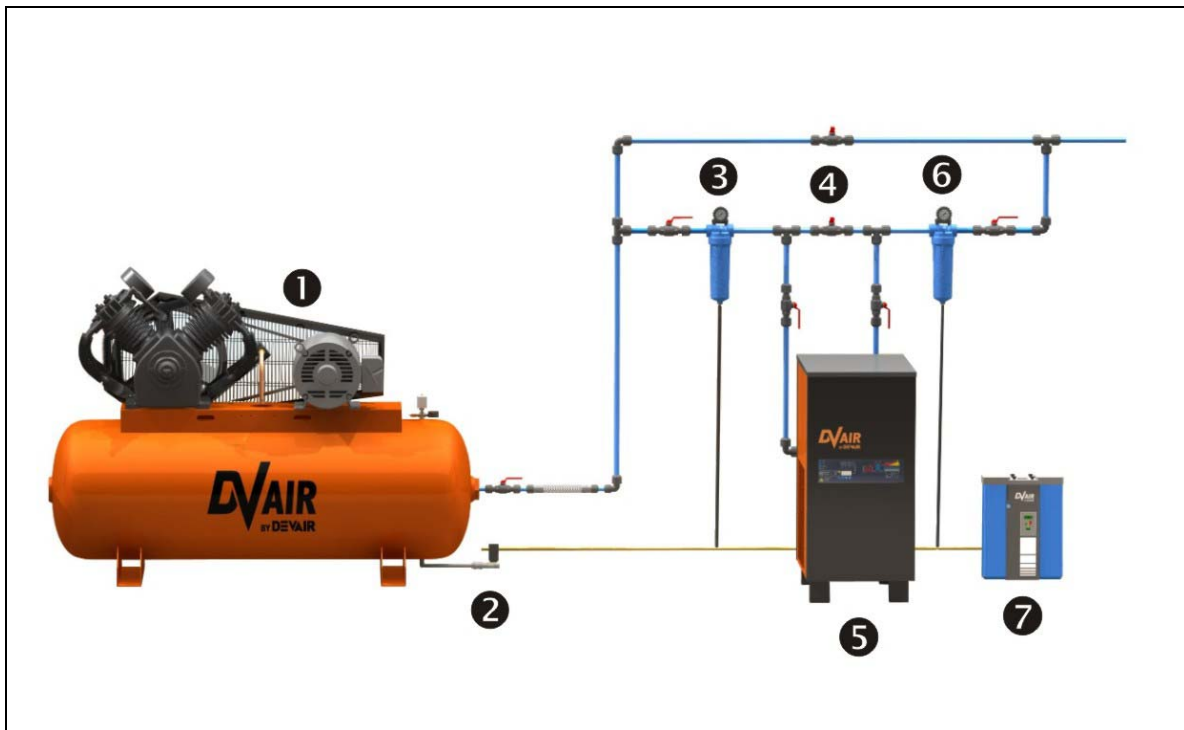
It is essential that the Unit always be kept in a vertical position, this indicated by the symbols on the box. If the Unit has been placed on its side, etc, place the Unit vertically and allow it to stand for a minimum of 24 hours before attempting to start.

Installation Site:

	When determining where to place the Dryer Unit, the following must be taken into account: • The Dryer must not be subjected to the elements (rain, snow, etc), nor can it be placed where exposed to direct sunlight. • The area on which the Dryer is mounted must be flat and level. • The ambient air temperature cannot be above 40°C (104°F), nor can it be below freezing. • Ensure there is sufficient space around the Unit to allow the Unit to be serviced. As well, leave a minimum of 18" on each side for good air flow through the Unit.
	The ambient air must be free from smoke or flammable vapours which could lead to an explosive or fire risk.

Installation of the Dryer Unit:

	Before attempting to install the Unit, ensure that: • No part of the system is under pressure. • No part of the system is electrically connected to power. • Piping to be connected to the Dryer Unit does not contain any impurities. After having ensured the preceding: a) Connect the Dryer Unit to the compressed air lines. Install a bypass, this to be used when maintaining and servicing the Dryer Unit. b) Connect a drain tube to the condensate drain line, and make arrangements to capture the moisture. As the moisture is a mixture of water and oil, it is advisable to use an oil-water separator before disposing of the moisture in the sewer. c) Turn the Dryer on, ensuring that there is suitable electrical protection for the Dryer, and the Unit is grounded.
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Number:	Component:	Description:
1.	Air Compressor Unit	Compresses ambient air at atmospheric pressure to a desired higher pressure.
2.	Automatic Tank Drain	Drains the compressors air receiver of moisture. Available in either electronic (electric) or pneumatic.
3.	Separator Filter	Acts as a pre-filter to the dryer unit. Takes out larger particles, etc.
4.	Air Bypass	Allows the dryer to be separated from the compressed air system, this for servicing and maintenance.
5.	Refrigerated Air Dryer	Removes the moisture from the compressed air by lowering its temperature.
6.	Coalescing Filter	Removes oil from the compressed air.
7.	Oil-Water Separator	Separates the oil from the moisture drained by the compressor, air filters, and dryer unit. The oil is trapped by internal filters, while the water is allowed to be dispensed to the building drain.

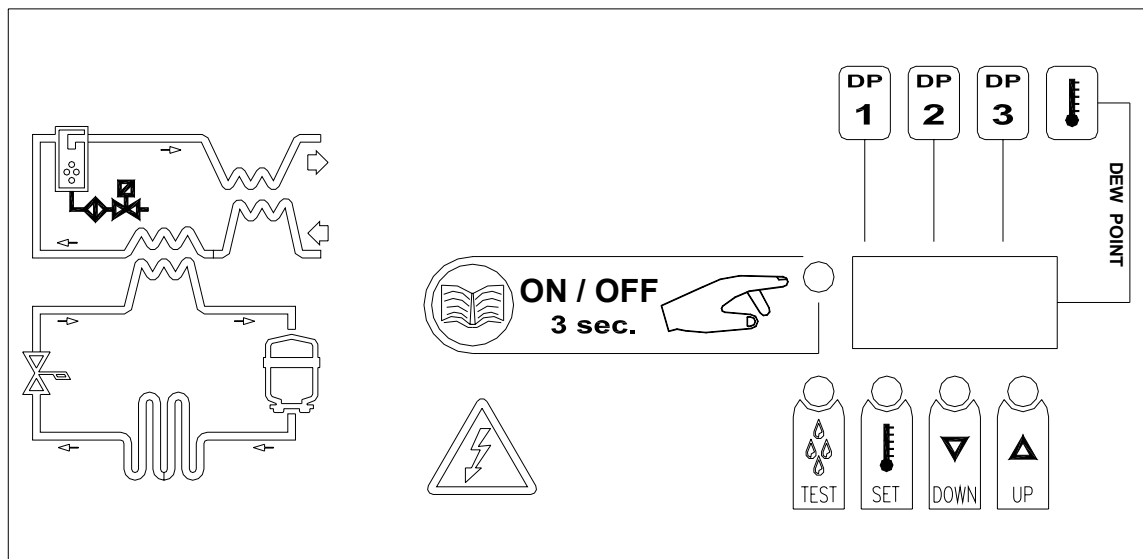
	Install the Dryer in such a manner that the controls are easily visible, and there is at least 18" on each side of the Unit, this for purposes of good air flow through the Unit.
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Features of the Dryer Unit:

Control Panel:

The 'HTD' Series of Dryers are equipped with an internal Control Board – Microprocessor which governs the operation of the Unit. The actual values which are factory pre-set into the Control Board, and which govern the Unit, are called 'parameters'.

Shown below is the Control Panel as equipped on the 'HTD' Dryer Units.



The left side of the Panel indicates both the compressed air and refrigeration systems of the Dryer. The push-buttons and LED's on the right indicate the following:

On/Off	Pressed for 3 seconds, will turn the Unit on and off.
DP1	When lit, indicates the Refrigerant Compressor is energized.
DP2	When lit, indicates the Electronic Drain is energized.
DP3	When lit, indicates the Fan is energized.
Test	When pressed for 3 seconds with the Unit on, it will energize the Electronic Drain.
Set	When pressed for 10 seconds, it allows access to the parameters.
Down	This is used strictly to adjust the parameters down.
Up	This is used strictly to adjust the parameters up.

The screen also has a three digit readout which, during normal operation, displays the Unit dew point. As well, if there exists a problem with the Unit, a code will be displayed outlining what is wrong. Please refer to the 'Trouble-Shooting' section for meaning, cause, and possible corrective actions to take to resolve the issue.

	Do not adjust the Unit parameters unless you are fully knowledgeable with the Unit, and have read or become aware of the appropriate information.
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Electronic Autodrain Programming:

As noted, the Unit is equipped with an Electronic Autodrain used to drain the moisture from the Unit. The following chart outlines the pre-set factory settings.

  	Parameter:	Description:	Range:	Factory Setting:
	C8	Amount of time between Drain discharges	1 to 999 minutes	1 minute
	C9	Amount of time Drain discharges	1 to 999 seconds	2 second
	Do not adjust the Unit parameters unless you are fully knowledgeable with the Unit, and have read or become aware of the appropriate information.			

Please refer to the 'Programming of Parameters' section for correct method of altering the factory settings.

Unit Start-up:

  	The following procedure must be performed when the Unit is first installed, but also if the Unit is left off for an extended period of time. 1. Ensure that you have read all of the instructions contained in this manual, and that you are aware of all safety issues which may arise. 2. Check to ensure that the Valves in the air bypass (as indicated in the 'Installation of the Dryer') are set in such a manner as to not allow air through the Dryer Unit. 3. Turn the power on to the Unit, this by pressing the 'On/Off' button for 3 seconds. The Control Panel should light up, and a value will be present on the digital readout. 4. Allow the Unit to operate for 10 minutes, at which point it will have reached its operating temperatures, etc. 5. Slowly open the outlet valve at the air bypass, then open the air inlet valve. 6. Close the bypass so the air is now fully flowing through the Dryer Unit. 7. Ensure the automatic drain is functioning properly. 8. Check for any air leaks at the Dryer or bypass piping.
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When shutting the Unit off, be sure to press the 'On/Off' button the Control Panel. Do not disconnect the Unit from power without first pressing the On/Off button.

Unit Maintenance:

	Before attempting any maintenance or service work, ensure that: • The Unit is no longer under air pressure. • The Unit is no longer connected to electrical power. <u>Weekly, or Every 40 Hours of Operation.</u> • Verify the dew point on the control panel display. • Check that the electronic autodrain is functioning properly. <u>Monthly, or Every 200 Hours of Operation.</u> • Clean the condenser grill with compressed air, taking care not to damage the grill. Depending on the environment in which the Unit is located, this may be required more often. <u>Yearly, or Every 2000 Hours of Operation.</u> • Check that the drain tube at the electronic drain is in good condition. Replace as necessary. • Check that there are no air leaks in the system.
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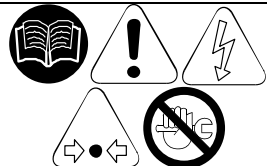
Electronic Autodrain Cleaning:

		Before attempting to clean the drain, ensure that: • No part of the system is under pressure. • No part of the system is electrically connected to power. The condensate drain should be cleaned on a regular basis to ensure that it does not stop the flow of moisture from the Unit.
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Trouble-Shooting:

The internal Control Board – Microprocessor is capable of regulating the various operating functions of the Unit, as well as recognizing a variety of Dryer Unit faults. These appear as a code on the digital readout as follows:

Code:	Cause:	Corrective Action:
HtA	High Temperature Alarm. The dew point is higher than that programmed into the Unit.	• Turn the Unit off and on by means of the 'On/Off' Switch. • Is there sufficient space on the sides of the Unit to allow proper cooling? • Is the condenser grill dirty? • Is the Fan and/or Compressor running?
Ht2	High Temperature Alarm. The dew point is much higher than that programmed into the Unit.	
LtA	Low temperature Alarm. The dew point is lower than that programmed into the Unit.	• Turn the Unit off and on by means of the 'On/Off' Switch. • Ensure that all parameters are correct. Refer to 'Programming of Parameters'.
PF1	The Temperature Probe is not functioning properly.	• The Probe may not be making good contact with the tubing. Check. • The probe may no longer be connected to the control board. Reconnect. • The probe may be defective. Replace.
ESA	The Units 'energy saving mode' is activated.	• No action is necessary, as the Fan, Compressor, etc will restart automatically.
ES2		

	Before attempting any maintenance or service work, ensure that: • The Unit is no longer under air pressure. • The Unit is no longer connected to electrical power. As well, any service work must be carried out by a qualified Technician.
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Problem:	Possible Corrective Actions:
Control Panel display is off.	• Check to ensure the Unit is connected to power. • Check that the control board is connected. • Control board may be defective. Replace.
The Refrigerant Compressor will not start.	• Check that the compressor is electrically connected. • The compressors internal thermal protection may have activated. Turn Unit off for one hour before trying to restart. Call Technician if problem persists.
The Fan doesn't start.	• Check fusing (if present). • Check that the Fan Motor is connected to power. • Check that the control board is working.
Electronic Drain doesn't work.	• Check that the Drain is connected to power. • The pre-filter at the Drain may be clogged. Clean. • The electric coil at the Drain may be defective. Replace. • The drain solenoid valve may be clogged or defective. Clean or replace. • If the drain is 'clicking', but no compressed air or water is escaping, the Unit may be 'freezing up'. Call a Technician. • If the drain is expelling compressed air but no moisture, the Unit may be installed incorrectly. Ensure it has ample air flow through it.
Air flows continuously through Electronic Drain.	• Drain solenoid valve may be jammed open. Clean or replace. • The condensate drain times 'C8' and 'C9' may be incorrect. Adjust.

Problem:	Possible Corrective Actions:
Water exists in the piping downstream of the Dryer.	• The Dryer has been turned off. Turn it on. • The bypass may be closed, separating the Dryer from the system. Open it. • The inlet and outlet connections may be backwards. Repair. • Check for an 'HtA' or 'Ht2' code, as the Unit may not be operating correctly. • The electronic drain may not be working properly. Check.
The temperature on the digital readout is higher than the desired value.	• The inlet and outlet connections may be backwards. Repair. • The refrigeration compressor may not be working • The fan may not be working. • The temperature of the air entering the dryer may be too high. • The ambient air temperature may be too high. • The condenser grill may be dirty. Clean. • The electronic drain may not be functioning properly. • The probe may not be functioning properly. • There may be a refrigerant leak in the Unit. • The operating parameters of the unit may be incorrect.
The Dryer does not let compressed air flow through.	• The inlet and outlet connections may be backwards. Repair. • If the electronic drain is 'clicking', but no compressed air or water is escaping, the Unit may be 'freezing up'. Call a Technician. • The probe may not be functioning properly. • Compressed air piping may be clogged. Clean or replace. • Check that the air bypass is installed and set correctly. • Check that the electronic control board is functioning properly.

Programming of Parameters:

	Do not adjust the Unit parameters unless you are fully knowledgeable with the Unit, and have read or become aware of the appropriate information.
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As noted earlier, the parameters govern the operation of the dryer unit, and are factory pre-set. Noted below is the correct means of accessing the unit parameters and adjusting them.

Under normal circumstances, the only parameters which can be adjusted are 'C8' (amount of time between drain discharges, in minutes) and 'C9' (amount of time drain discharges, in seconds). In adjusting the drain parameters, it must be understood that 'C8' and 'C9' must be set in such a fashion that all of the moisture is drained from the unit. If the amount of time between discharges (in minutes) is too great, or the discharge time (in seconds) is too small, moisture will build up in the unit, and eventually pass downstream.

To access the parameters:

1. Press and hold the 'Set' button for 10 seconds.
2. 'C8' will be visible, followed by a value (in minutes).
3. Pressing the 'Set' button a second time will bring 'C9', followed by a value (in seconds).

To adjust the parameters:

1. Press and hold the 'Set' button for 10 seconds, as noted above.
2. 'C8' will become visible, followed by a value (in minutes).
3. To adjust this value up, simply press the 'Up' key until the desired value is reached. The change must be made within 15 seconds.
4. Press the 'Set' button again for the value to be entered into the program.
5. Press the 'Set' button again and 'C9' will be visible, followed by its corresponding value.

Note: It is important that the parameters only be adjusted if expressly necessary. Adjusting the parameters could affect the performance of the unit, and may ultimately result in unit failure.

The manufacturer has 'locked' the parameters in order that someone does not inadvertently make a change that ultimately renders the unit inoperative. To access all of the unit parameters, simply press the 'Up' and 'Down' buttons for 10 seconds. At that point, press the 'Set' button for 10 seconds, and 'C1' will be visible.

As the manufacturer may change the parameters, please contact Devair with the unit model and serial numbers in order that we can provide you with the correct parameters for your particular unit.

Components:

The 'HTD Dryer Units do not require a maintenance kit, though several of the components do require cleaning and perhaps replacement. Noted below are the components that are available.

	HTD18	HTD26	HTD37	HTD52
Fan Motor	ASD-9025	HTD-9401		
Fan Blade	HTD-9402	HTD-9403		
Fan Guard	HTD-9404	HTD-9405		
Drain Solenoid Valve Assy	HTD-9406			
Solenoid Valve Coil	HTD-9407			
Temperature Probe	HTD-9408			
Control Board	HTD-9409			

Unit Specifications:

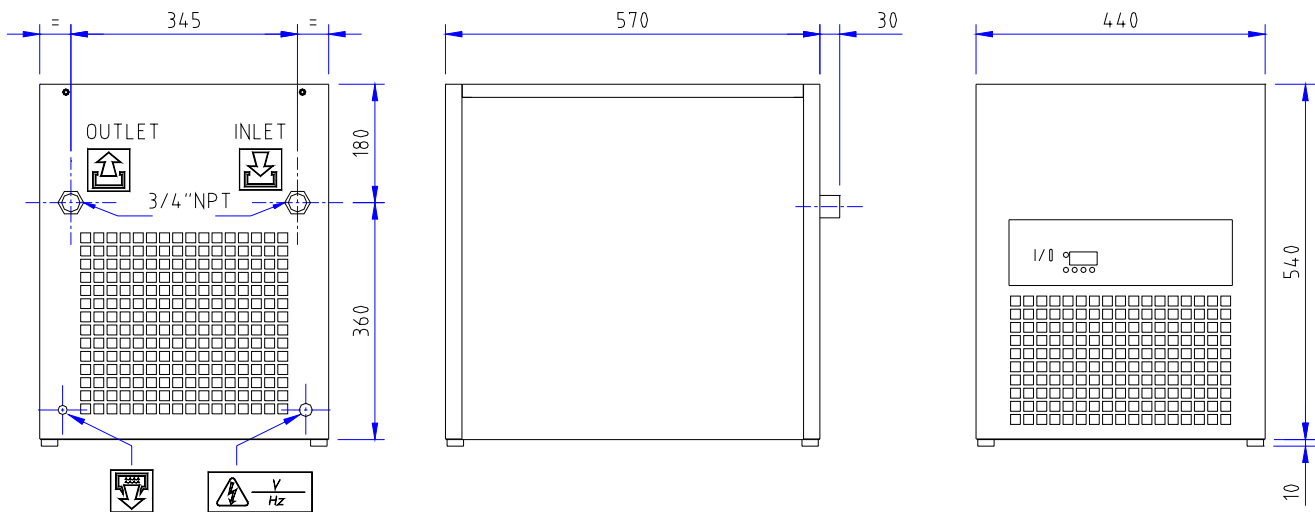
Model 'HTD18', 'HTD26', 'HTD37', 'HTD52'

Model:		HTD18	HTD26	HTD37	HTD52
Flow Rate:	SCFM Nm³/h	18 31	26 44	37 63	52 88
Inlet/Outlet	NPT	1/2"			
Refrigerant		R134a			
Weight	Kg lbs	37 17	34 15	36 17	39 18
Air Inlet Temp	°C °F	60° (Max 80°) 140° (Max 180°)			
Ambient Temp	°C °F	25° (Max 40°) 77° (Max 104°)			
Working Press.	Bar Psi	7 (Max 16) 100 (Max 232)			
Press. Dew Point	°C °F	3° (Max 10°) 37° (Max 50°)			

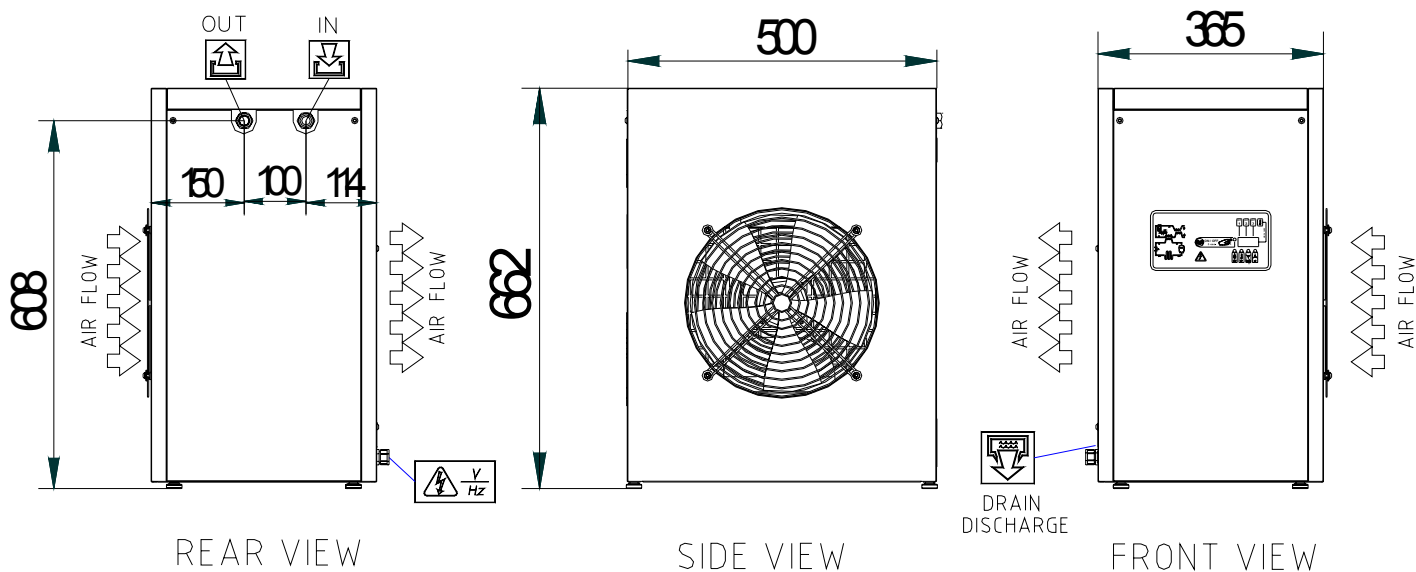
Model:		HTD18	HTD26	HTD37	HTD52
Electrics	v/ph/hz	115/1/60			
Nominal Consumption	KW	0.37	0.202	0.38	0.38
Full Load Consumption	KW	0.49	0.31	0.59	0.59
Nominal Current	Amps	4.23	2.60	4.58	4.58
Full Load Current	Amps	5.24	3.50	6.25	6.25
Locked Rotor Current	Amps	27	35	28	28
Fan Motor Current	Amps	1.35			

Unit Dimensions:

Model 'HTD18'



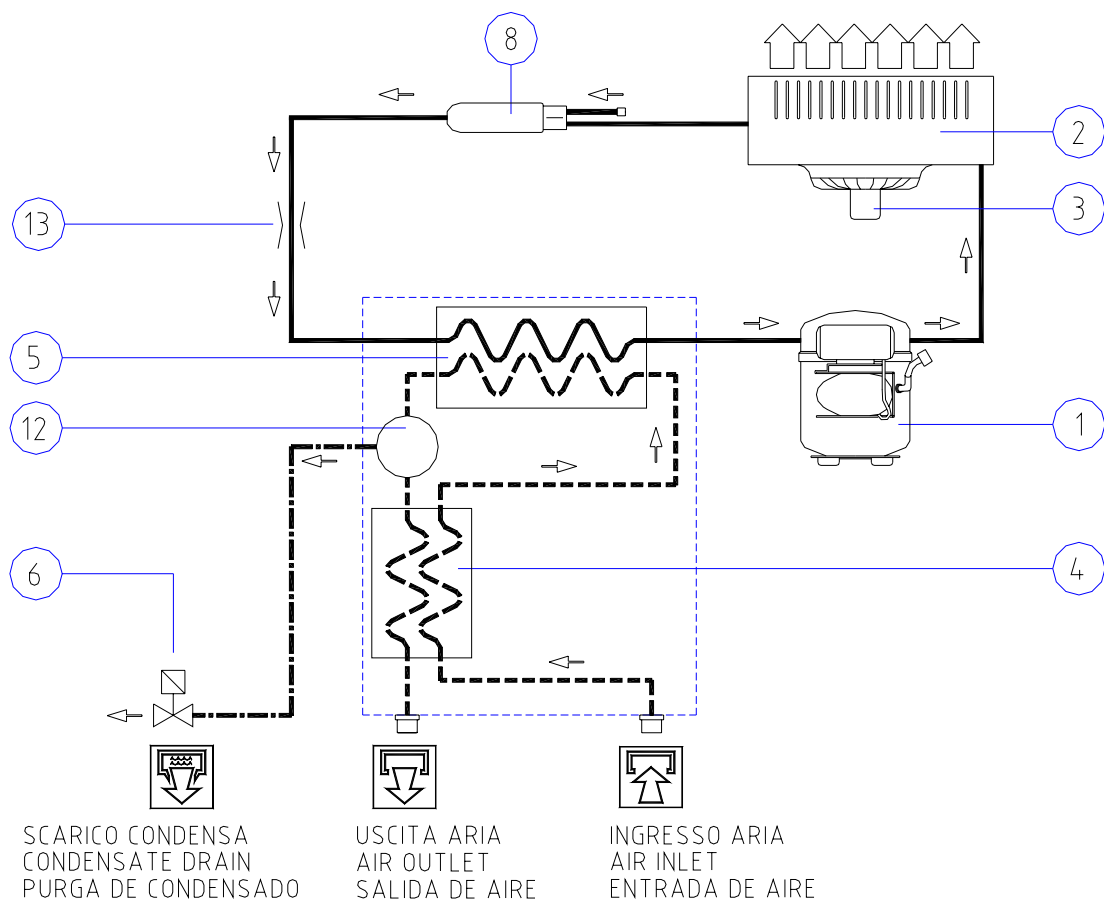
Model 'HTD26, 'HTD37, 'HTD52'



Refrigeration Circuits:

Model 'HTD18'

Pos.	Description:
1	Compressor
2	Condenser
3	Condenser Fan
4	Air-to-Air Heat Exchanger
5	Evaporator
6	Condensate Electronic Drain
8	Refrigerant Filter
12	Condensate Separator
13	Capillary Tube

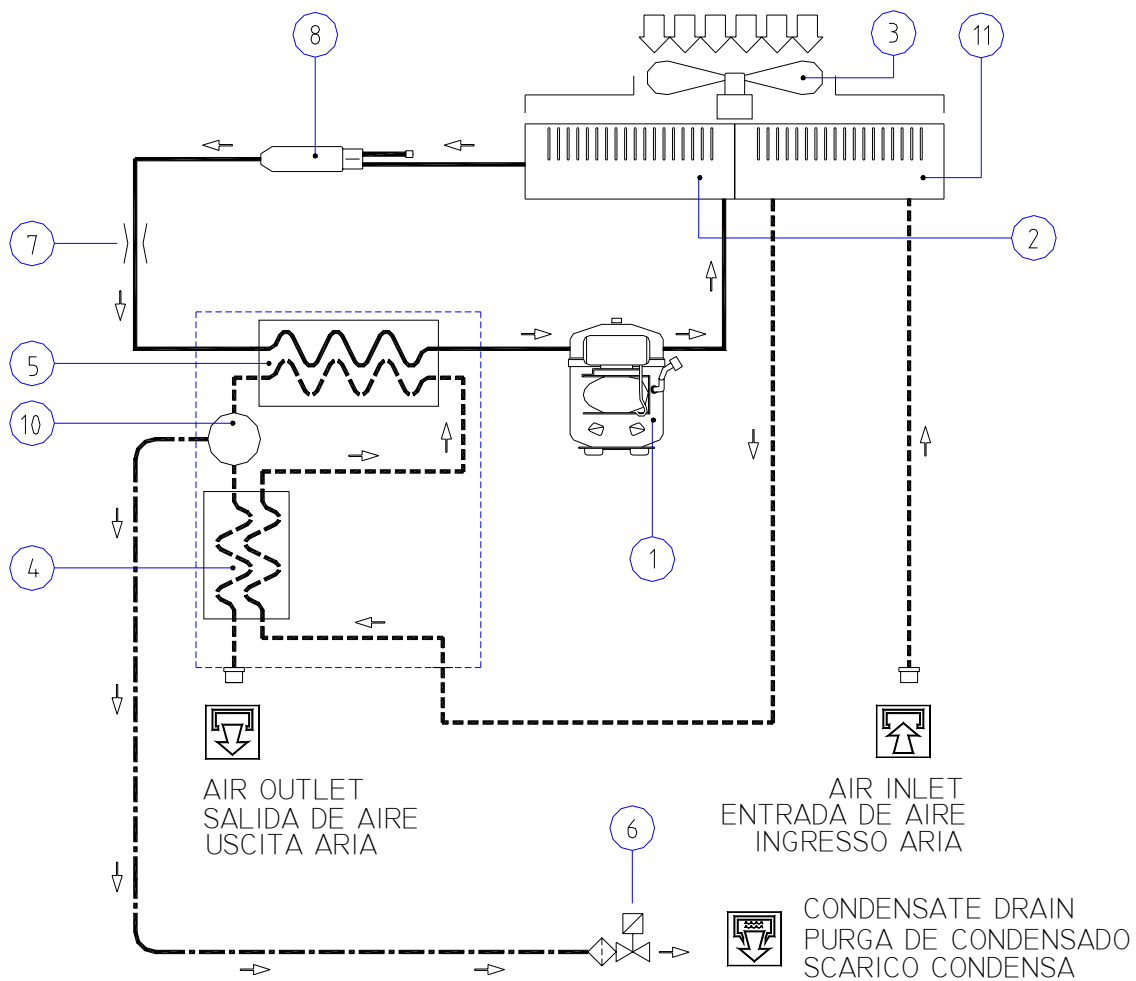


—	= LINEA FREON - REFRIGERANT LINE
- - -	= LINEA ARIA - COMPRESSED AIR LINE
- . -	= LINEA DRENAGGIO - CONDENSATE DRAIN LINE

Refrigeration Circuits:

Model 'HTD26', 'HTD37', 'HTD52'

Pos.	Description:
1	Compressor
2	Condenser
3	Condenser Fan
4	Air-to-Air Heat Exchanger
5	Evaporator
6	Condensate Electronic Drain
7	Capillary Tube
8	Refrigerant Filter
10	Condensate Separator
11	Air-to-Air Heat Exchanger

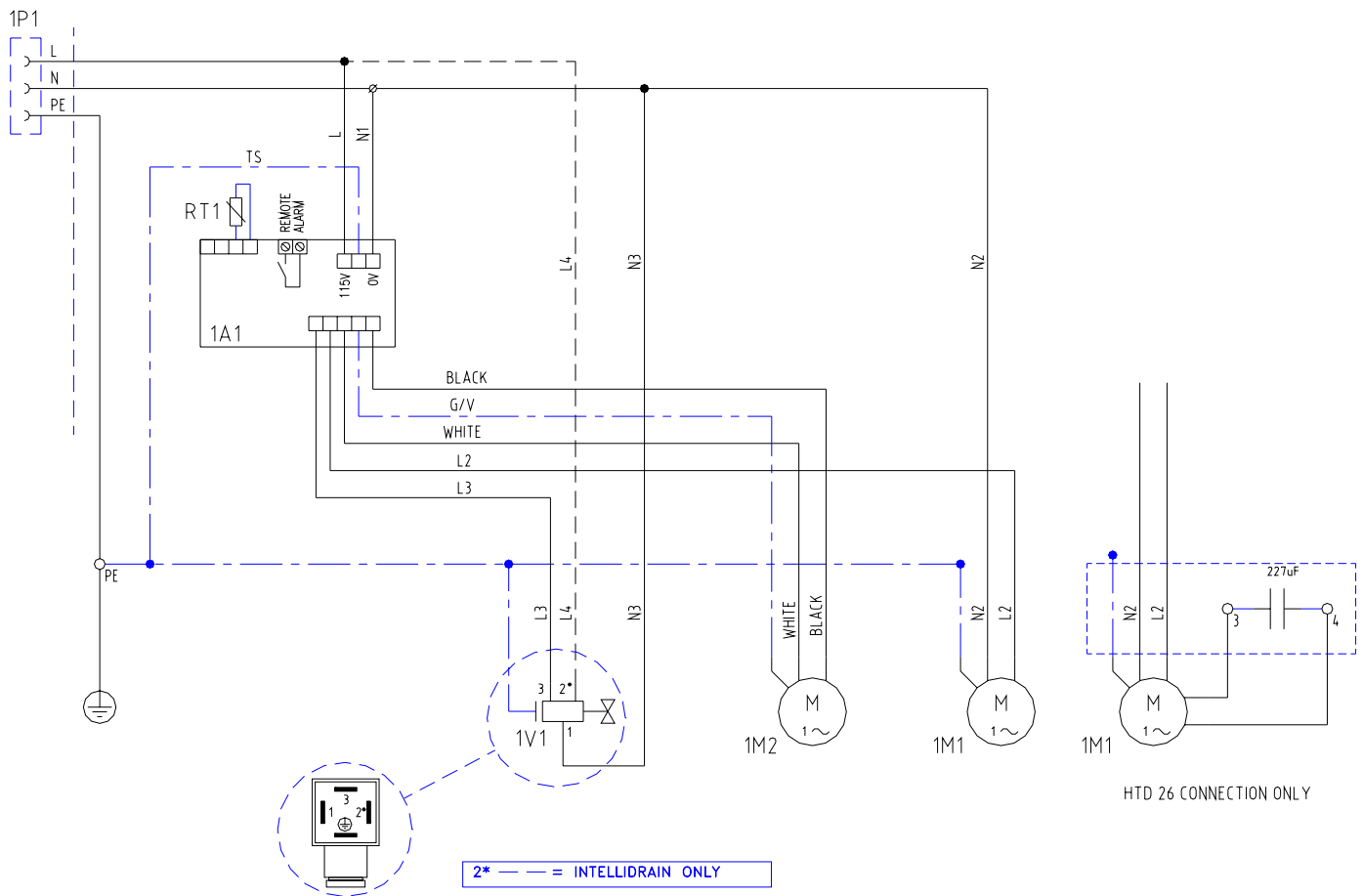


—	= LINEA FREON - REFRIGERANT LINE
- - -	= LINEA ARIA - COMPRESSED AIR LINE
- . -	= LINEA DRENAGGIO - CONDENSATE DRAIN LINE

Electrical Diagrams:

Model 'HTD18', 'HTD26', 'HTD37', 'HTD52'

Pos.	Description:
1M1	Compressor
1M2	Condenser Fan Motor
1V1	Condensate Electronic Drain
1A1	Electronic Controller
RT1	Dew Point Probe
1P1	Electric Power Plug



- Devair One Year Limited Refrigerated Air Dryer Warranty -

The manufacturer warrants the product manufactured by it and sold to the original purchaser, when properly installed, operated, applied and maintained in accordance with procedures and recommendations outlined in the manufacturer's instruction manuals, to be free of defects in material and workmanship for a period of one (1) year from date of purchase at the retail level by the end user, not to exceed eighteen (18) months from the date of manufacture, provided such defect is discovered and brought to the manufacturers attention within the aforesaid warranty period.

The manufacturer will repair or replace any product or part determined to be defective by the manufacturer within the warranty period, provided such defect occurred in normal service and not as the result of misapplication, misuse, abuse, neglect, incorrect maintenance, accident, or normal wear. Normal maintenance items requiring routine replacement are not warranted.

The warranty covers parts and labour for the warranty period. Repair or replacement shall be made at the sole option of the manufacturer. Any service performed on the product by anyone other than the manufacturer must first be authorized by the manufacturer. Unauthorized service voids the warranty and any resulting charge or subsequent claim will not be paid.

Products repaired or replaced under warranty shall be warranted for the unexpired portion of the warranty applying to the original product, based on the original date of purchase and/or date of manufacture, as outlined above.

Exported items (those shipped beyond the continental Canada/US) deemed defective and to be returned to Devair for Warranty consideration are to be forwarded at the Customers expense to a Devair designated location on the continental Canada/US (excluding Alaska, Hawaii, and Puerto Rico).

There is no other expressed warranty. Implied warranties including those of merchantability and fitness for a particular purpose are limited to one (1) year from date of purchase to the extent permitted by law and any and all implied warranties are excluded. This is the exclusive remedy. Liability for consequential damages under any and all warranties are excluded to the extent exclusion is permitted by law.

This warranty gives you specific legal rights, and you may also have other rights within your jurisdiction.

This warranty does not cover:

1. Merchandise that has become inoperative because of ordinary wear, misuse, negligence, accident, or improper and unauthorized repair or alteration.
2. Costs occasioned by the removal, replacement, or repair of merchandise (other than by Devair) without previous authorization from Devair.
3. Expenses incurred in travel or lodging beyond a 100 kilometer (60 mile) distance from the nearest Devair Authorized Service Centre.
4. Expenses incurred in the return of equipment for inspection purposes to the manufacturers facility. All returns must be pre-authorized, returned 'Freight Prepaid', and accompanied by a 'Return Authorization (RA) Number'.
5. Products, parts, materials, components, or accessories manufactured by others or supplied in connection with the sale of the manufacturers products.
6. Repair and transportation costs of merchandise determined not to be defective under the terms and conditions of this warranty.
7. The cost of rental or loaner equipment while the customers original equipment is being assessed, repaired, or replaced.
8. Consequential damages in the event of product failure.

All decisions by Devair Inc. with regard to this policy shall be final. Devair will not be responsible for any claimed defective materials returned other than in accordance with this statement of policy or without our prior authorization.



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