Owner's Manual
Refrigerated Compressed Air Dryers
Models 5028, 5029, 5030 and 5031

Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage. Retain instructions for future reference.

WARNING: Air treated by this equipment is not suitable for breathing without further purification. Refer to O.S.H.A. standards for the requirements for breathing quality air.

5030 & 5031

5028 & 5029

ARROW DRYERS 745 CLARK AVE. BRISTOL, CT 06010 TOLL FREE: (877) 640-8300

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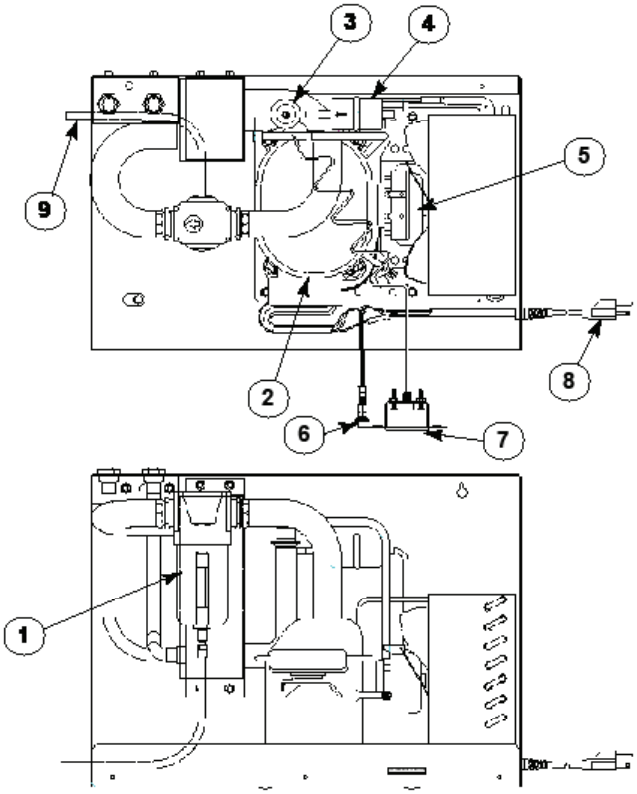
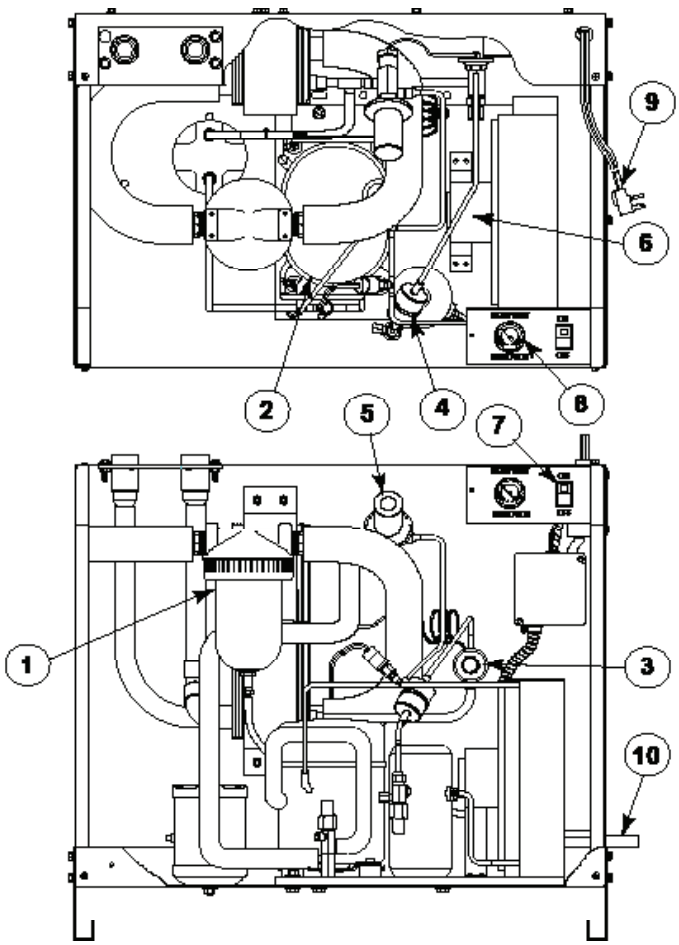


5028-5029

1) Separator
2) Compressor
3) Expansion/Control Valve
4) Refrigerant Filter
5) Fan Motor
6) Power On Light/Switch
7) Dew Point Indicator
8) Power Cord
9) Drain Line

5030-5031

1) Separator
2) Compressor
3) Expansion/Control Valve
4) Refrigerant Filter
5) Hot Gas Valve
6) Fan Motor
7) Power On Light/Switch
8) Dew Point Indicator
9) Power Cord
10) Drain Line



Receiving and inspection

Arrow Pneumatics' air dryers are carefully prepared for shipment at the factory to protect them from damage in transit. Dryers are shipped F.O.B. factory. Immediately upon arrival, check the dryer for possible damage. **If damage is found, report it to the carrier and file a damage claim.**

Check the dew point indicator gauge. If the dew point indicator gauge reads zero, it indicates a possible refrigerant leak. Notify your dealer immediately.

Be sure you have the right dryer. Check the nameplate for voltage and amperage

How the Air Dryer Works

Compressed air enters the inlet and passes through the air-to-air heat exchanger where the air is partially cooled by the exiting cold air. Next, the air passes through a refrigerant-to-air heat exchanger where it is cooled to near the freezing point of water. As the air is cooled, it loses the capacity to hold water vapor. The water vapor condenses into water droplets and drains to the separator. Passing through the separator, air flow slows down and causes more water to condense and collect in the bottom of the separator bowl. The water is exhausted by the float drain (see figure 5).

The compressed air, now at a pressure dew point of 35ºF, leaves the dryer through the air-to-air heat exchanger where it is heated by the incoming air.

Location and Installation

Locate the dryer indoors in a protected area where ambient temperature will range between 45ºF and 100ºF. Dryers are usually located near the compressor. Do not cycle the dryer with the compressor. If an aftercooler is used after the compressor, install the dryer downstream of the aftercooler and receiver (see figure 2). Install the dryer so that there is sufficient room around it to permit circulation of air through the refrigeration condensing unit. Allow for easy access into the dryer through the cover panel.

Check the nameplate for voltage and amperage. The dryer is furnished with a 6 foot electrical cord for connection to a grounded outlet.

Be sure that the compressor air passes through the dryer in the proper direction. Connect the compressed air lines to the inlet and outlet connection as marked on the cabinet. Connect the air lines with standard pipe fittings.

The mechanical separator has an automatic float drain with a ⅜" plastic drain line connection that exits through the dryer cabinet.

It is recommended that a bypass line is piped around the dryer. Shutoff valves should be installed at both inlet and outlet, with another valve in the bypass line. This complies with O.S.H.A. lockout regulations and permits the dryer to be removed from the system or serviced without turning off the air supply.

Typical Compressed Air Systems

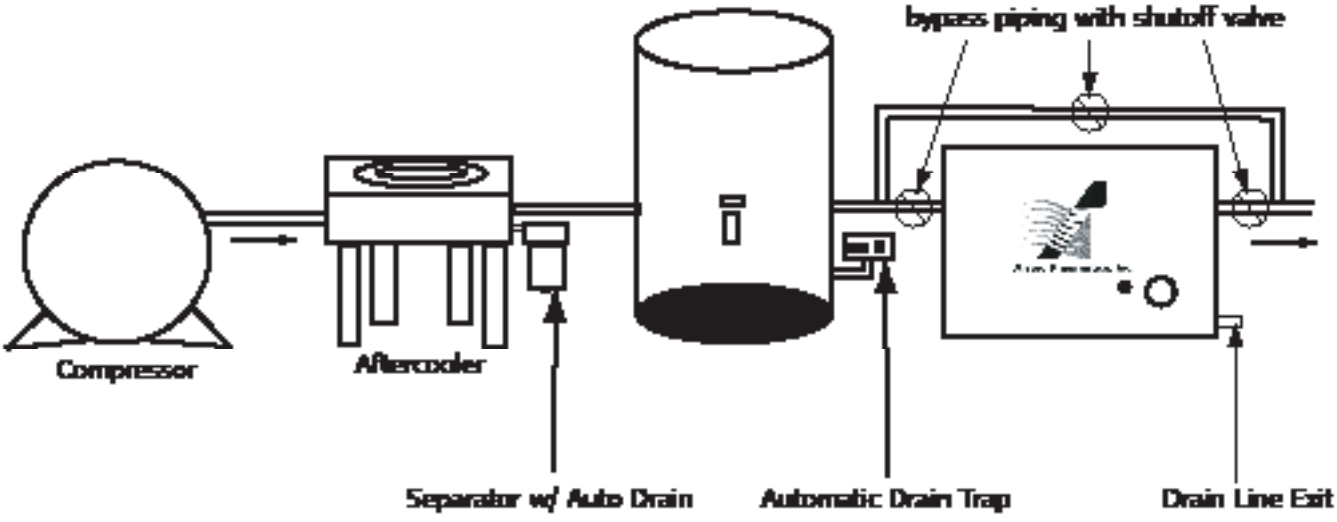
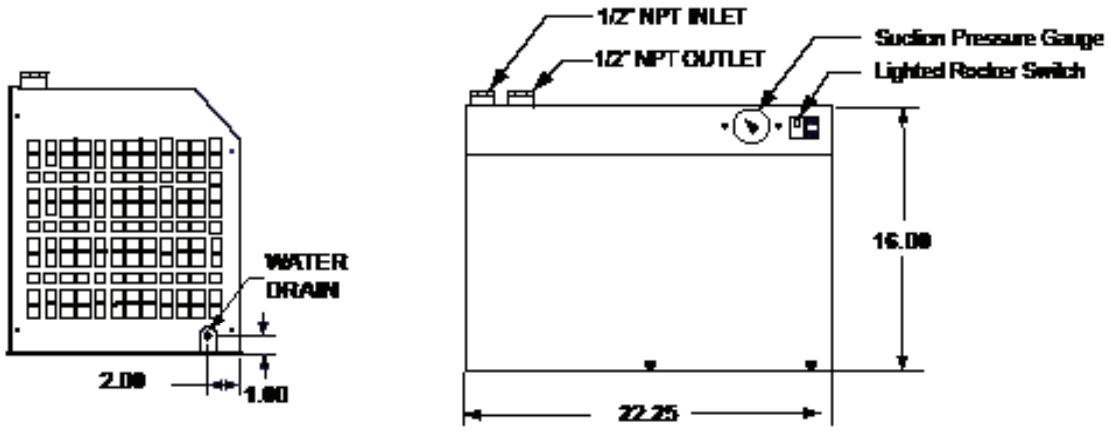


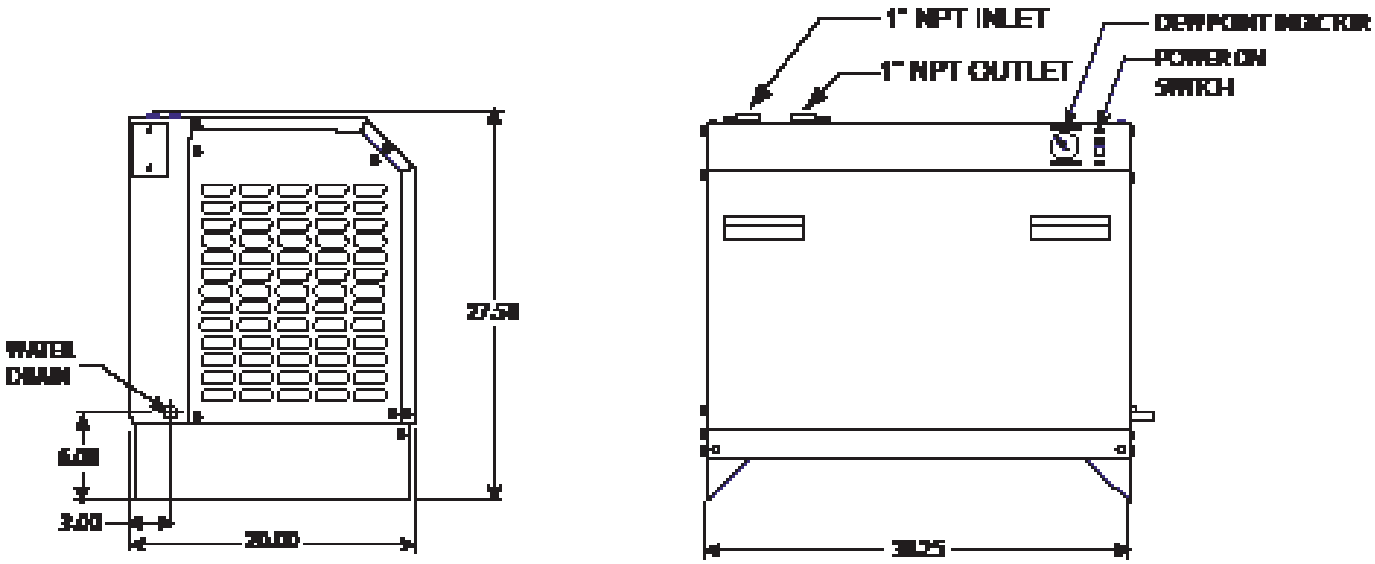
Figure 2

Dimensions

5028 & 5029 Air Dryer



5030 & 5031 Air Dryer



Specifications

Model No.	Power Supply	Capacity SCFM @ 100 PSIG	Dimensions (Inches)			Air Line Conn. FPT	Drain Line Conn. O.D.	H.P.	Refrig Charge*	Net Wt. Lbs.	Max. Press. PSI	Full Load AMP	L.R. AMP
			Length	Height	Width								
5028	115/1/60	21	22	16.0	14	1/2”	3/8”	1/4	12 oz.	78	250	5.9	29
5029	115/1/60	30	22	16.0	14	1/2”	3/8”	1/4	12 oz.	78	250	5.9	29
5030	115/1/60	50	30	27.5	20	1”	3/8”	3/4	2.8 Lbs.	163	250	11	51.0
5031	115/1/60	70	30	27.5	20	1”	3/8”	1	2.8 Lbs.	278	250	16.9	78.0

CFC-Free R-134A

NOTE: The air leaving the dryer is reheated to 25°F below the inlet air temperature
* CAPACITY CFM BASED ON 160°F INLET, 100 PSIG & 100°F AMBIENT

Design Conditions

The Dryer must not be cycled with the air compressor. The dryer is non-cycle and is designed to run continuously (even under light loads). If the compressed air system remains pressurized and the air compressor cycles off and on to maintain line pressure, the dryer should remain in operation to keep the air lines dry.

Air Flow SCFM: The rated air flow (SCFM) of the dryer is designed for 100 PSIG. Above the rated air flow, the dew point will rise and moist air may reappear downstream. The dryer may cycle off and on under excessive load and cause compressor damage.

Specifications: All specifications are based on an inlet air temperature of 180°F, an ambient temperature of 100°F, and an air pressure of 100 PSIG. The max allowable line pressure of each unit is 250 PSIG. The operating data under the design conditions is as follows on page 4. (Specifications)

Ambient Air Temperature: Locate the dryer indoors in a protected area where the ambient temperature will range between 45ºF and 100ºF. Note: Above an ambient temperature of 100ºF the refrigerant will rise until the dryer shuts down. Several off and on cycles under these conditions will damage the compressor.

Start UP

1) On initial start-up of system check electrical connections to the dryer, as well as the air piping, so inlet and outlet piping are connected to correct ports.
2) Check panel mounted dew point indicator gauge. The indicator must read above the green area and into high red section.
3) When ready to operate the compressed air system, the dryer should be started before air compressor is started.
4) When closing the start switch the indicator light on the front panel of dryer will show there is power to the refrigeration compressor. The dew point indicator will slowly drop and hold within green area of the gauge.
5) When pressure has dropped to this level the air compressor can be started and air flow can begin.
NOTE: All dryer models are designed to operate without compressed air load in order to pre-cool the heat exchanger surface.

NOTE: Operation of dryer is automatic and continuous. Refrigerant compressor does not cycle off and on. Discharge of condensate through drain is automatic.

To Stop

To stop the unit turn start-stop switch to off position.
IMPORTANT: IF IT IS NECESSARY TO PROTECT THE AIR SYSTEM DURING NORMAL SHUT-DOWN THE INLET Shut-OFF VALVE TO THE DRYER SHOULD BE CLOSED TO PREVENT WET AIR FROM ENTERING AIR SYSTEM.

How to Make Minor Refrigerant Suction Pressure Adjustments

Factory settings 30 to 34 psi under no load may change during shipment or occasionally during normal operation conditions. To adjust the suction pressure, proceed as followed:

How to Make Minor Refrigerant Suction Pressure Adjustments (Con't)

1) Turn off or bypass the compressed air.
2) Remove the dryer cover and locate the control valve (See Figure 3 for 5028-5029) (See Figure 4 for 5030-5031).
3) Turn 1/2 turn at a time and wait 3-4 minutes for suction pressure to settle.
   a. Turn clockwise to increase pressure (temperature)
   b. Turn counter-clockwise to decrease pressure (tem -perature)

Figure 3

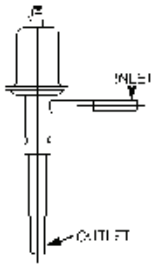
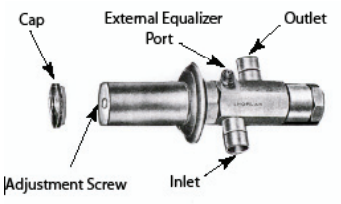


Figure 4



Maintenance and Care

NOTE: Refrigerant air dryers require relatively little maintenance if they are used accordance with the installation and operating instructions.

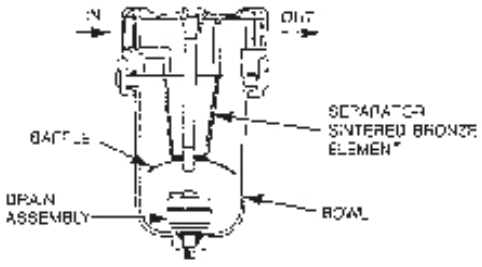
Cleaning Fin Surface

NOTE: These are air cooled refrigeration systems and depend upon cooling air drawn from the area around the dryer for efficient operation.
1. Inspect the fin surface of the condenser regularly and keep it free of dust, lint or paper.
NOTE: A vacuum cleaner or low pressure air hose can be used for regular and normal maintenance of the fin surface.
2. Machine shop applications with oil vapor in the room air may require cleaning with fin surface cleaners available from refrigerant supply houses.

Cleaning Automatic Drain and Filter Element

All models (see Figure 5) have a float operated drain attached to the bottom of separator bowl.
1. Accumulation of compressor oil in the bowl of the separator as well as the sintered bronze element is possible. Both should be cleaned periodically.
2. Remove foam insulator from separator head.
3. Use a strap or chain wrench to remove the water separator bowl.
4. Drop bowl and remove completely.
5. The float drain can be removed and bowl can be cleaned with detergent and water.
6. Clean sintered bronze element with kerosene.
7. Reassemble in reverse order.
IMPORTANT: DO NOT CLEAN FLOAT WITH ANY KIND OF SOLVENT EVEN IF IT IS COATED WITH OIL. USE DETERGENT OR HOUSEHOLD CLEANERS ONLY.

Figure 5



Symptom	TROUBLESHOOTING CHART Possible Causes(s)	Corrective Action
Unit will not run.	1. No Power.	1. Check power supply, fuses, circuit breaker.
	2. Internal compressor overload.	2. Feel the temperature of the compressor and allow to cool off if hot. Observe the fan motor. Have the motor checked if it does not run. Clean the condenser.
Dew Point Indicator Red Area High	1. Internal compressor overload.	1. Check for air overload. Check inlet air temperature. Check operation of fan motor.
	2. High ambient temperature.	2. Check room temperature and hold between 45°F and 100°F.
Indicator Light Off	No power to the dryer	Check power supply, fuses, circuit breaker.
Dew Point Indicator Red Area Low	1. Low refrigerant charge.	1. Have qualified refrigeration service technician check out dryer or call factory.
	2. Low ambient temperature.	2. Relocate dryer ti heated area between 45°F and 100°F
	3. Low hot gas valve setting.	3. Re-adjust hot gas valve to 30-34 PSI suction pressure (See minor pressure adjustments)
High pressure drop	1. High air flow.	1. Air flow above rated flow of dryer.
	2. Drain valve not discharging.	2. Manually blow down drain until water flow stops. Clean drain.
	3. Freezing moisture in evaporator.	3. Re-adjust hot gas valve to 30-34 PSI suction pressure (See minor pressure adjustments)
	4. Plugged separator element or drain.	4. Clean or replace.
Water downstream of dryer	1. Compressed air is flowing through dryer before it is turned on.	1. Dryer must be operating 5-10 minutes before compressed air load.
	2. Dirty drain trap.	2. Disassemble and clean at regular intervals.
	3. Overload dryer above air flow capacity.	*3. Reduce air load to dryer specifications.
	4. High suction pressure.	4. Inlet air temperature too hot.
	5. Low outlet air pressure.	*5. Freezing of water, adjust suction pressure. (See minor pressure adjustments)
	6. Low refrigerant charge.	6. Contact service technician to leak check.

NOTE: Check or repairs of the refrigeration system must be done by a qualified refrigeration service technician with the required gauges and other equipment.

*All adjustments must be made under no compressed air load.

If Trouble Starts

If the dryer cycles off and on for any reason TURN OFF THE DRYER. Call the factory for instructions, **Check or repairs of the refrigeration systems must be made by a qualified refrigeration service technician.** Before calling the factory for instructions, have the following data to report.

Model No._____
Serial No. _____
Refrigeration Suction Pressure. _____

REPLACEMENT PARTS

Model	**5028**	**5029**	**5030**	**5031**
Voltage	115/1/60	115/1/60	115/1/60	115/1/60
Compressor Make	Tecumseh R-134A	Tecumseh R-134A	Copeland R-134A	Copeland R-134A
Separator/ Drain Assembly	**PART NUMBER**	**PART NUMBER**	**PART NUMBER**	**PART NUMBER**
Separator	FK329-S1	FK329-S1	FK329-S1	FK329-S1
Separator Bowl	3110-S1-8	3110-S1-8	3110-S1-8	3110-S1-8
Repair Kit	RFK329	RFK329	RFK329	RFK329
Element Kit	EKF329	EKF329	EKF329	EKF329
Float Drain	FD06B	FD06B	FD06B	FD06B
Refrigeration System				
*Condensing Unit	94820	94820	14613	14589
*Compressor	94917	94917	14771	14777
*Expansion Valve	14370	14370	14571	14546
*Hot Gas Bypass Valve	91221	91221	91233	91233
*Refrigerant Filter	91235	91235	14576	14570
Electrical				
Fan Motor	94930	94930	95933	95934
Fan Blade	97943	97943	95941	98941
Fan Switch	---------	---------	---------	91639
Power On Light/Switch	97846	87846	97846	97846
Power Cord	90390	90390	91698	91698
Gauges				
*Dew Point Indicator	14765	14765	14765	14765
Cabinet Panels				
Base Panel	14656	14656	14640	14640
Cover Panel	14654	14654	14642	14642
Back Panel	---------	---------	14641	14641
End Panel Right Side Vented	14655	14655	14649	14649
End Panel Left Side Vented	14680	14680	14643	14643

***Replacement part for refrigeration service only**

ORDER REPLACEMENT PARTS
BY CALLING
(877) 640-8300

Please provide following information:
- Model Number
- Serial Number (if any)
- Part Description and Number

Address parts correspondence to:
ARROW DRYERS
745 Clark Ave.
Bristol, CT 06010

WARRANTY POLICY

When used under the conditions recommended by the manufacturer, Arrow Dryers, this model is warranted to be free from defects in material and workmanship for a period of twenty-four (24) months from date of receipt, not to exceed thirty (30) months from the factory ship date, provided Arrow is furnished the customer's name, address, and date of shipment information

These units will utilize either a braze plate or modular type heat exchanger which will be warranted for five (5) years. This warranty is limited to the replacement of the heat exchangers, F.O.B. Factory, and subject to the same restrictions as outlined below concerning misuse, abuse or accident. The automatic drain carries a 90-day warranty.

This warranty will apply to equipment installed, operated and maintained in accordance with the procedures and recommendations as outlined in the owner's manual published by Arrow Dryers.

During the life of this warranty, Arrow Dryers will repair or replace (at Arrow Dryers' option) any defective part or assembly, free of charge, F.O.B. its plant if such defect occurred in normal service and was not due to apparent misuse, abuse or accident.

Any warranty service performed in the field must be authorized by Arrow Dryers, Unauthorized service voids the warranty and any resulting charge will not be paid by Arrow Dryers.

Arrow Dryers makes no other warranties or guarantees, expressed or implied. The merchantability of the components is expressly excluded. The manufacturer assumes no liability for indirect or consequential damages.