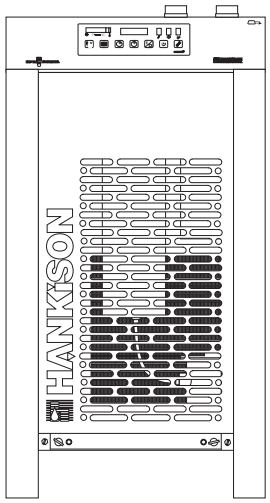
7610.483.8 4/99

Instruction Manual

Models: HPRP 200, 250, 300, 400, 500, 750

HANKISON

Contents



REFRIGERATED TYPE COMPRESSED AIR DRYERS

SERVICE DEPARTMENT: (724) 746-1100

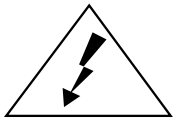
GENERAL SAFETY INFORMATION

1. PRESSURIZED DEVICES:

This equipment is a pressure containing device.

- Do not exceed maximum operating pressure as shown on equipment serial number tag.
- Make sure equipment is depressurized before working on or disassembling it for service.

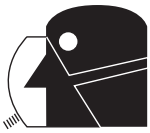
2. ELECTRICAL:



This equipment requires electricity to operate.

- Install equipment in compliance with all applicable electrical codes.
- Standard equipment is supplied with electrical enclosures not intended for installation in hazardous environments.
- Disconnect power supply to equipment when performing any electrical service work.

3. BREATHING AIR:



Air treated by this equipment may not be suitable for breathing without further purification.

- Refer to applicable standards and specifications for the requirements for breathing quality air.

RECEIVING, MOVING, AND UNPACKING

A. RECEIVING

This shipment has been thoroughly checked, packed and inspected before leaving our plant. It was received in good condition by the carrier and was so acknowledged.

Check for Visible Loss or Damage. If this shipment shows evidence of loss or damage at time of delivery to you, insist that a notation of this loss or damage be made on the delivery receipt by the carrier's agent.

B. UNPACKING

Check for Concealed Loss or Damage. When a shipment has been delivered to you in apparent good order, but concealed damage is found upon unpacking, notify the carrier immediately and insist on his agent inspecting the shipment. Concealed damage claims are not our responsibility as our terms are F.O.B. point of shipment.

C. MOVING

In moving or transporting dryer, do not tip dryer onto its side.

D. STORAGE

IMPORTANT: Do not store dryer in temperatures above 130°F, 54.4°C.

IMPORTANT: READ PRIOR TO STARTING THIS EQUIPMENT

1.0 Installation

1.1 Location

A. For typical placement in a compressed air system, see drawing.

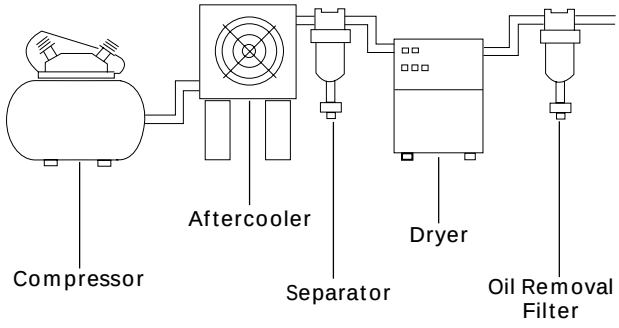
B. Air compressor intake–Locate air compressor so that contaminants potentially harmful to the dryer (e.g. ammonia) are not drawn into the air system.

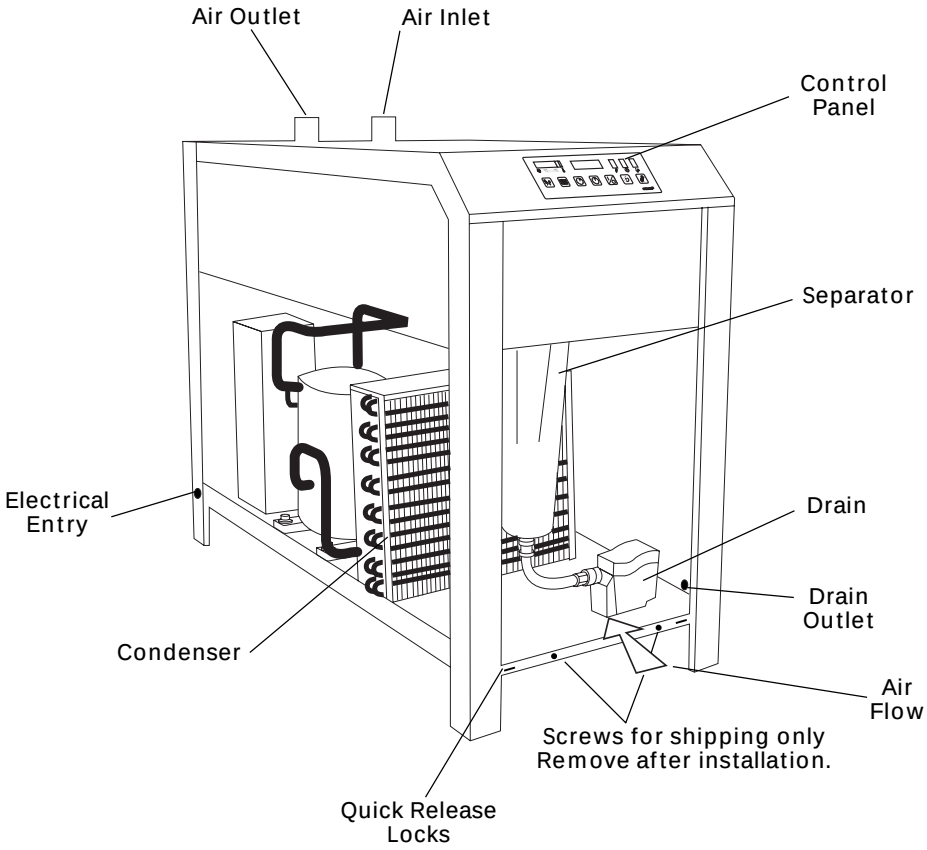
C. Clearances
Free air flow
Models 200, 300
Front 24 inches (610 mm)
Back 12 inches (305 mm)
Sides 24 inches (610 mm)
Models 400 to 750
Front 12 inches (305 mm)
Back 12 inches (305 mm)
Sides 36 inches (915 mm)
Service
To facilitate maintenance, allow 24 inches (610 mm) of clearance in front of dryer.

D. Standard units are designed to operate in ambients:
Air-cooled: 45 to 110°F (7 to 43°C).
Water-cooled: 45 to 130°F (7 to 54°C).

E. Installations in altitudes above 4500 feet (1370 meters) – Dryer is adjusted to operate in altitudes up to 4500 feet (1370 meters). If dryer is installed in an altitude above this, and has not been preset at the factory for this altitude, contact manufacturer's Service Department.

NOTE: Outdoor installation–Standard units are designed for indoor installation. Contact manufacturer if installing outdoors.



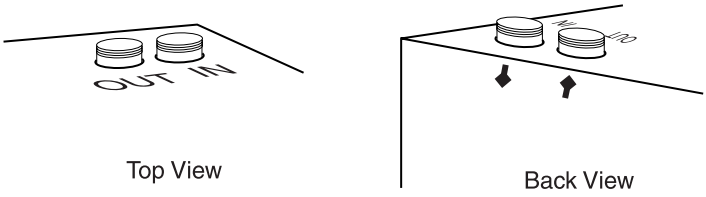


1.2 Mounting

Mount on floor or shelf free from vibration.

1.3 Piping connections

A. Air Inlet—Connect compressed air line from airs source to air inlet.



Top View

Back View

WARNING; Refer to Serial Number Tag for maximum working pressure. Do not exceed dryer's Maximum Working Pressure.

NOTE: Install dryer in air system at highest pressure possible (e.g. before pressure reducing valves).

NOTE: Install dryer at coolest compressed air temperature possible. Maximum inlet compressed air temperature: 120°F (49°C). If inlet air exceeds this temperature, precool the air with an aftercooler.

B. Air Outlet—Connect air outlet to downstream air lines.

C. By-pass piping—If servicing the dryer without nterrupting the air supply is desired, piping should include inlet and outlet valves and an air by-pass valve.

D. Water cooled models—cooling water inlet and outlet
   1. Connect cooling water supply to cooling water inlet.
   2. Connect cooling water return line to cooling water outlet connection.

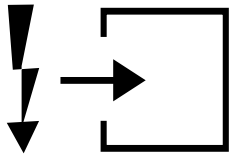
NOTE: Strainer and water regulating valve are supplied on water cooled models.

1.4 Electrical connections

IMPORTANT: Use copper supply wires only.

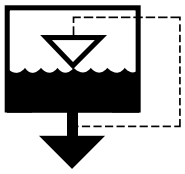
A. Dryer is designed to operate on the voltage, phase, and frequency listed on the serial number tag.
B. Connect power source to terminal strip in electrical enclosure.

NOTE: Refrigeration condensing unit is designed to run continuously and should NOT be wired to cycle on/off with the air compressor.



1.5 Moisture separator

A. Automatic drain discharges condensate removed by separator. It may be desirable to pipe the condensate from the Automatic Drain outlet to a suitable drain.



NOTE: Discharge is at system pressure. Drain line should be anchored.

NOTE: Condensate may contain oil. Comply with applicable laws concerning proper disposal.

2.0 Operation

2.1 Minimum/Maximum operating conditions

A. Maximum inlet air pressure: refer to dryer serial number tag

B. Minimum inlet air pressure: 30 psig (2.1 kgf/cm^2)

C. Maximum inlet air temperature: 120°F (49°C)

D. Maximum ambient temperature:
   Air-cooled models: 110°F (43°C)
   Water-cooled models: 130°F (54°C)

E. Minimum ambient temperature: 45°F (7°C)

2.2 Start-up

A. Energize dryer. Green power on light will illuminate.

> IMPORTANT: Dryer must be energized 24 hours before refrigeration compressor is started.

B. Program monitor.

1. Language selection:
   A choice of 5 languages (English, Spanish, French, Italian, and German) is available for the Interface panel. Select language desired by:
   1) Push Day of Week and Hour buttons simultaneously until menu appears
   2) Use Day of week button to scroll through choices
   3) Push Set/Run button to accept selection
2. Setting clock functions:

a. Select Set Mode by pushingSet/Run button and holding for 3 seconds

b. SET TIME - set current time using: Day of Week button - Hour button (24 hour clock; 10:00 PM is 22:00 hours) - and Minute button

c. SET SCHEDULE - Push Set/Run button again to SET SCHEDULE - The monitor can turn the refrigeration compressor on and off once per day. To utilize this feature:

1) Select day of week using Day of Week button
2) Set time refrigeration compressor is to turn on using Hour and Minute buttons

NOTE: It is recommended that dryer be started 15 minutes before compressed air flow begins.

NOTE: Toggle between on and off using On/Off button

3) Toggle to off setting and set time refrigeration compressor is to turn Off

NOTE: If you wish to have the dryer remain Off or On for the day selected, choose the IGNORE ON or IGNORE OFF command that appears after 24:00 hours.

4) Repeat Steps 2) and 3) for the remaining days of the week

d. SET SERVICE - Push Set/Run button again to SET SERVICE - Enter the number of operating hours (service interval) before service reminder is initiated. Use Hour button to advance in hundred hour intervals and Minute button to advance in ten minute intervals. Maximum setting is 4090 hours. (Only hours that refrigeration compressor is operating are counted)

NOTE: On dryers with air-cooled condensers, regular condenser cleaning is recommended. Dirtiness of ambient air at installation site will determine frequency of service. Typically once a month is recommended.

Dryers contain an integral 3 micron filter. As the filter element accumulates solid contaminants, differential pressure increases. Solid particulate load in the compressed air supply will determine frequency of service. Typically element changeout is recommended at least annually.

e. Push Set/Run button again to exit Set Mode.

NOTE: If dryer is left in the Set Mode for longer than 30 seconds, Alarm light will illuminate and TIME OUT will appear on the Interface panel. Dryer will resume previous operating mode.

C. Starting dryer

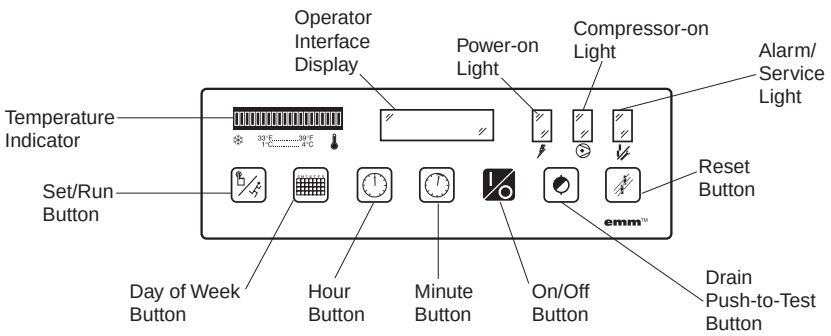
IMPORTANT: Dryer must be energized 24 hours before starting refrigeration compressor.

NOTE: If dryer is scheduled to turn on within ten minutes of exiting the program mode, program will ignore on command.

1. On water-cooled models: after 24 hours, begin cooling water flow.
2. Dryer may be operated in Manual or Scheduled modes
   Manual mode - push On/OFF button - refrigeration compressor will start and run, green Compressor-on light will illuminate. In this mode compressor will run continuously and will not be turned on and off by the monitor. MANUAL OVERRIDE will appear on interface panel.
   Schedule mode - push Set/Run button. SCHEDULE RUNNING will appear on the interface panel. The refrigeration compressor will continue to be on or off (as selected in the Manual Override Mode) until the next scheduled event. The compressor will then turn on or off as programmed.

NOTE: Schedule may be returned to the manual mode at any time using the On/Off button. MANUAL OVERRIDE will appear on interface panel. To re-institute Schedule, push the Set/Run button again.

NOTE: Restart after power interruption.
Unit will be in MANUAL OVERRRIDE mode, refrigeration compressor, off when power is restored after power interruption.
To re-institute SCHEDULE RUNNING:
If compressor is scheduled to be off - push Set/Run button to restart schedule.
If compressor is scheduled to be on - push On/Off button to manually start compressor, then push the Set/Run button to restart schedule.



D. Operating check points

1. Check that green Power-on light is illuminated
2. Check that green Compressor-on light is illuminated if dryer is on in the manual mode or it is a scheduled on time
   IMPORTANT: Refrigeration compressor must be restarted after power interruption. If in Schedule mode restart using on/off button and then press schedule button.
3. Check interface panel

NOTE
Interface panel will switch between 1. Current Time/Operating Status 2. Hours to Service and 3. Total Operating Hours screens. TOTAL is cumulative hours of refrigeration compressor operation.

a. Verify that current time is correct
b. Check HRS TO SVC: this indicates time remaining until service is required; allow time for required maintenance items to be ordered
c. Check operating status:
   MANUAL OVERRIDE - Dryer is either running continuously (not being controlled by the scheduled on/off times) or the refrigeration compressor has been shut off using the On/Off button.
   SCHEDULE RUNNING - Refrigeration compressor is being turned on and off by the monitor per programmed schedule (see B.2. to set schedule)
d. Check Temperature indicator - indicator should read in the green area
e. Check Alarm/Service light - If illuminated, check Interface panel.

1) If SERVICE DRYER appears, scheduled maintenance time has elapsed (HRS TO SRV is 0). Perform needed service and reset service interval (see B.2.).
2). If ALARM appears, a dryer fault is indicated; see Troubleshooting Guide for possible remedies. After fault correction push Reset button to turn Fault alarm off.
   FAULTS
   LOW PRESSURE - the refrigeration compressor control circuit has opened because of low suction pressure. Compressor will restart automatically when fault is corrected.
   HIGH PRESSURE - the refrigeration compressor control circuit has opened because of high head pressure. The high pressure switch must be reset manually once the fault is corrected. Red reset button is located on pressure switch inside unit.
   LOW TEMPERATURE - compressed air temperature is below the set point
   HIGH TEMPERATURE - compressed air temperature is above the set point.

NOTE: If temperature probe is open, one light on lefthand side of Temperature indicator will be illuminated. If temperature probe is shorted, Temperature indicator will be completely illuminated.

DRAIN - electric drain contains a high water level alarm that activates if drain fails to discharge.

f. Check drain operation - push Drain (push-to-test) button to energize electric drain. A flow of condensate and/or air should be present at the drain outlet.

E. Using the RS-232 port

NOTE: PC software is available.

The RS-232 port is used to monitor dryer operation from a host computer. A (1 to 1) DB-9 cable is required to connect dryer and computer. For PC connections, data is transmitted on pin 2, received on pin 3; ground is pin 5; pins 7 and 8 are jumpered at dryer.

Operation is at fixed baud rate of 2,400; asynchronous format is 8 bit, no parity, 1 stop bit ("8,N,1"). No checksum or error correction values are provided. If required, request status string two (or more) times and compare for agreement.

Request data by sending ASCII ? character (3FH). Response may take up to two seconds as certain processing functions may require completion before serial port is acknowledged.

Dryer responds with line feed (0AH), carriage return (0DH), and character string:
(1) (2) (3) (4) (5) (6) (7)
XXX, X, XXX, X, XXXX, XXXX, X

(1) Number of Temperature Indicator LEDs illuminated (1-20)
(2) Compressor state, C=X (1or 031H = ON, 0 or 030H=OFF)
(3) Sum of alarm weights, A=XXX (0 - 255; e.g. high pressure and service alarms = 132 [4 + 128])
   D.Operating check points

Bit	Weight	Alarm
2	4	High press. alarm (1 = alarm)
3	8	Low press. alarm (1 = alarm)
5	32	Drain alarm (1 = alarm)
7	128	Service (service required) alarm (1 = alarm)

   For low and high temperature alarm, assign alarm to number of Temperature Indicator LEDs illuminated: 3 = low, 20 = high
(4) Day of week (1 = Sunday, 7 = Saturday)
(5) Time (24 hour format, hour, minutes)
(6) Hours to service (0-9999)
(7) Operating mode, M=X (S = schedule running, M = manual override)

3.0 Maintenance

3.1 Condenser coil—Clean off accumulated dust and dirt monthly.

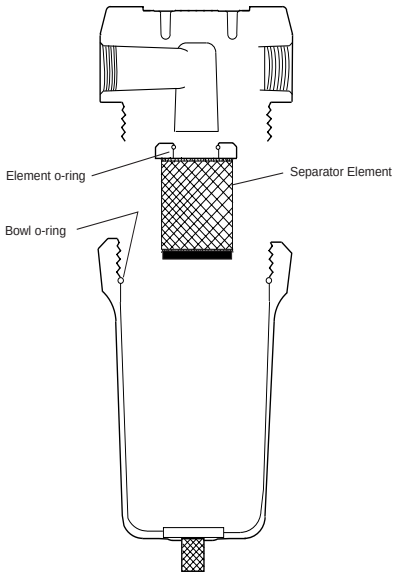
3.2 Moisture separator—Replace filter element when pressure drop across dryer is excessive or annually.

3.3 Check separator daily to be sure automatic drain is discharging.

3.4 Blow down separator weekly by pushing test button on control panel.

3.4 Rebuild drain mechanism annually.

To facilitate service, maintenance kits are available.



SIZING

Determining dryer capacity at actual operating conditions

To determine the maximum inlet flow capacity of a dryer at various operating conditions, multiply the rated capacity from Table 1 by the multipliers shown in Table 2.

Example: How many scfm can an air-cooled model 400 handle when compressed air to be dried is at 200 psig and 100°F; ambient air temperature is 80°F; and a 40°F dew point temperature is desired?
Answer: 400 x 1.22 x 1.12 x 1.1 = 601 scfm.

TABLE 1
Rated capacity (scfm) and pressure drop @ 100 psig inlet pressure, 100°F inlet temperature, and 100°F ambient temperature

MODEL		200	250	300	400	500	750
Rated capacity of	60Hz	200	250	300	400	500	750
air-cooled models (scfm)	50Hz	170	210	250	340	420	630

TABLE 2
Air capacity correction factors (Multipliers)

INLET COMPRESSED AIR CONDITIONS						
INLET PRESSURES		INLET TEMPERATURES				
		80°F	90°F	100°F	110°F	120°F
psig	kgf/cm^2	27°C	32°C	38°C	43°C	49°C
50	3.5	1.35	1.05	0.84	0.69	0.56
80	5.6	1.50	1.17	0.95	0.79	0.66
100	7.0	1.55	1.23	1.00	0.82	0.70
125	8.8	1.63	1.31	1.07	0.91	0.74
150	10.5	1.70	1.37	1.13	0.95	0.80
175	12.3	1.75	1.42	1.18	0.99	0.84
200	14.0	1.80	1.47	1.22	1.03	0.89

COOLING MEDIUM*		
AMBIENT TEMPERATURE		MULTIPLIER
°F	°C	
80	27	1.12
90	32	1.06
100	38	1.00
110	43	0.94

OUTLET DEWPOINT		
DEWPOINT TEMPERATURE		MULTIPLIER
°F	°C	
38	3	1.0
40	4	1.1
45	7	1.2
50	10	1.3

**Air-cooled models; water-cooled models use 1.15 multiplier if cooling water is below 35°C, 95°F.*

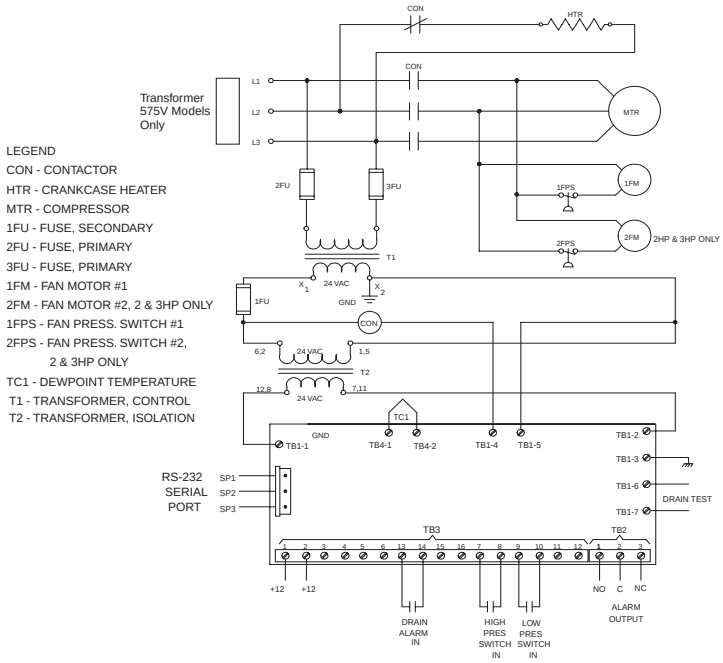
ENGINEERING DATA

MODELS		200	250 & 300	400 & 500	750
MINIMUM - MAXIMUM OPERATING CONDITIONS					
Min.-Max. Inlet Air Pressure (compressed air at inlet to dryer)		30-200 psig (2.1-14 kgf/cm²)			
Max. Inlet Air Temperature (compressed air at inlet to dryer)		120°F (49°C)			
Min.-Max. Ambient Temperature					
Air-cooled		45°F (7°C) - 110°F (43°C)			
Water-cooled		45°F (7°C) - 130°F (54°C)			
REFRIGERATION SYSTEM DATA					
Compressor Type		Hermetic - Non-Cycling			
Refrigeration Compressor Horsepower		1	1-1/2	2	3
BTU/HR - Refrigeration Only @ 35°F Evaporator & 100°F Ambient 60 / 50 Hz		9202 / 7668	14750 / 12292	20322 / 16935	28592/23827
Outlet Air Temperature (nominal at rated conditions)		85°F (29°C)			
Refrigerant Type		R-134a			
Refrigerant Charge		See dryer serial number tag			
Suction Pressure Setting (controlled by hot gas by-pass valve)		31.5	31.5	31.5	31.5
Compressor Control Ranges (psig) (out-in)	High	281-190	281-190	281-190	281-190
	Low	24-34	24-34	24-34	24-34
Condenser Fan Switch Setting (in-out)(psig)	Fan 1	113-78	113-78	113-78	113-78
(air-cooled models)	Fan 2	-	-	183-124	183-124
Air Flow Across Condenser (cfm) (air-cooled models)	60 / 50 Hz	672 / 560	1093 / 911	2650 / 2208	2650 / 2208
Condenser Cooling Water Requirements (water-cooled models)					
Recommended Water Pressure (psig)		40 Min. - 120 Max*.			
Gallons Per Minute Of Flow Required With 85°F Cooling Water 60 / 50 Hz		2.9 / 2.4	4.8 / 4.0	5.8 / 4.8	8.2/6.8
ELECTRICAL					
Nominal Voltage		208-230/3/60	208-230/3/60	208-230/3/60	208-230/3/60
Max.- Min. voltage		253-187	253-187	253-187	253-187
Rated Load Amps**		8.4	11.5	13.6	20.7
Locked Rotor Amps**		51	65.5	75	90
Minimum Circuit Ampacity		10.5	16.9	17.1	31.7
Branch Circuit Fuse Size (amps)		15	20	25	45
Watts @ 35°F Evaporator & 100°F Ambient		1335	1940	2620	3600
Resistance (Ohms)	Three phase (Total)	1.77	1.256	1.058	0.853
Nominal Voltage		460/3/60	460/3/60	460/3/60	460/3/60
Max. - Min. Voltage		506-414	506-414	506-414	506-414
Rated Load Amps**		4.0	4.9	6.2	9.9
Locked Rotor Amps**		25	33	40	45
Minimum Circuit Ampacity		5.2	9.2	9.6	15.6
Branch Circuit Fuse Size (amps)		15	15	15	20
Watts @ 35°F Evaporator & 100°F Ambient		1335	1940	2620	3600
Resistance (ohms)	Three phase (total)	7.44	4.95	4.11	0.853
Nominal Voltage		380-420/3/50	380-420/3/50	380-420/3/50	380-420/3/50
Max. - Min. Voltage		462-342	462-342	462-342	462-342
Rated Load Amps**		4.0	4.9	5.7	9.9
Locked Rotor Amps**		25	33	40	45
Minimum Circuit Ampacity		5.2	9.2	9.6	15.6
Branch Circuit Fuse Size (amps)		15	15	15	20
Watts @ 35°F Evaporator & 100°F Ambient		1068	1552	2096	3030
Resistance (ohms)	Three phase (total)	7.44	4.95	4.11	0.853
Nominal Voltage		575/3/60	575/3/60	575/3/60	575/3/60
Max. - Min. Voltage		632-518	632-518	632-518	632-518
Rated Load Amps**		3.2	3.9	4.6	7.9
Locked Rotor Amps**		25	33	40	45
Minimum Circuit Ampacity		4.2	7.4	7.7	12.8
Branch Circuit Fuse Size (amps)		15	15	15	15
Watts @ 35°F Evaporator & 100°F Ambient		1335	1940	2620	3600
Resistance (ohms)	Three phase (total)	7.44	4.95	4.11	0.853

** Allows continued operation with some restriction in the water strainer*

*** Air-cooled models only*

ELECTRICAL SCHEMATIC



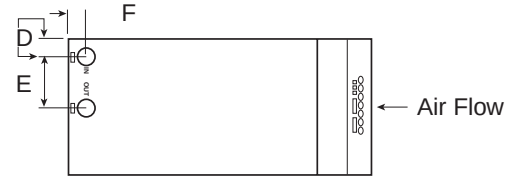
DIMENSIONS / WEIGHTS

Dimensions inches

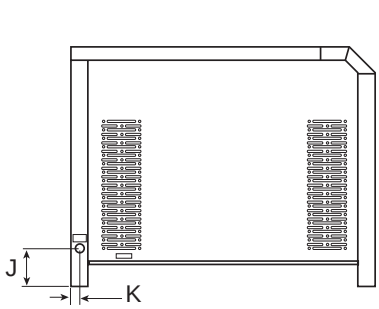
Model	200-300	400-500	750
A	40-1/8	52-1/8	57-7/16
B	48	51	65
C	21-3/4	27-1/2	27-1/2
D	2-3/4	5	5
E	8	9	9
F	2-13/16	3-1/4	3-1/4
G	4-1/8	4-1/8	4-1/8
H	6-5/8	8	19-3/8
I	3-1/2	3-1/2	3-1/2
J	6-1/4	6-1/4	6-1/4
K	1-1/4	1-1/4	1-1/4
L	1-1/8	2-1/4	2-1/4
Inlet/Outlet Connections	2”	3”	3”

Weight (lb)

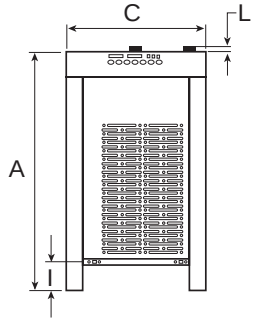
Model	200	250	300	400	500	750
	405	415	416	457	498	625



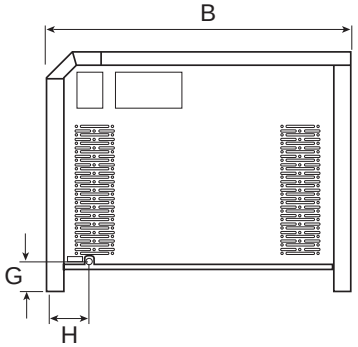
Top View



Left Side View



Front View



Right Side View

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
A) Water downstream of dryer	1. Residual free moisture remaining in downstream pipelines	Blow out system with dry air
	2. Air by-pass system is open	Check valve positions
	3. Inlet and Outlet connections are reversed	Check for correct connection
	4. Air lines downstream of dryer are exposed to temperatures below the dew point.	Insulate or heat trace air lines exposed to low ambients or dry air to lower dew point
	5. Excessive free moisture (bulk liquid) at dryer inlet	Install separator ahead of dryer
	6. Condensate not being drained	See C below
	7. Dryer overloaded resulting in elevated dew point.	See C below
	8. Refrigeration system not functioning	See C below
B) High pressure drop across dryer	1. Excessive air flow	Check flow rate
	2. Freezing of moisture in evaporator because of refrigeration system fault	See C below
	3. Filter loaded with solid particulates	Replace filter element
C) Checkpoint faults		
1. Power on/off light	a. Power failure; open circuit	Check for power to dryer
2. Compressor on light off	a. Compressor commanded off by manual switch or programmed schedule	Check current command status
	b. Open circuit	Check power ro compressor
	c. Control circuit open on high or low pressure cutout	Check display for fault
3. Alarm/Service alert light on - check Display for active conditions		
SERVICE DRYER	Service interval specified has elapsed	Perform scheduled service
LOW PRESSURE	a. Hot gas by-pass valve requires adjustment	Contact qualified technician or manufacturer's service department
	b. Low on refrigerant	
HIGH PRESSURE NOTE: If high refrigerant pressure occurs, switch must be manually	a. Lack of condenser cooling Air-cooled - Ambient temperature too high, clogged condenser fins, obstructed flow across condenser, faulty fan motor or fan control switch. Water-cooled - Cooling temperature too high, flow too low, clogged strainer, faulty water regulating valve	Check air temperature 6" in front of condenser Clean condenser and check for free air flow Check fan and switch operation Check cooling medium temperature and flow, clean strainer, check valve operation
LOW TEMPERATURE (also observed as low reading on temperature indicator)	a. Hot gas by-pass valve requires adjustment	Contact qualified technician or manufacturer's service department
HIGH TEMPERATURE (also observed as high reading on temperature indicator)	a. Dryer overloaded	Check compressed air flow, temperature, and pressure
	b. Refrigeration system off or not cooling sufficiently	Check power to unit, power to compressor, Low or High pressure faults Have qualified technician evaluate system
DRAIN	a. Drain line restricted or frozen	Open drain line
	b. Drain mechanism faulty	Rebuild drain mechanism
TIME OUT	Dryer left in the Set Mode for longer than 30 seconds	Finish programing and press Set/Run button

NOTE: After fault correction, press reset button to clear display

	208-230/3/60				380-420/3/50, 460/3/60, and 575/3/60			
PARTS DESCRIPTION	**200**	**250,300**	**400,500**	**750**	**200**	**250,300**	**400,500**	**750**
Condensing Unit (air-cooled)	4130.127.16	4130.127.19	4130.125.14	4130.129.1	4130.127.17	4130.127.20	4130.125.15	4130.129.2
Compressor	4130.108.53	4130.108.55	4130.108.57	4130.108.64	4130.108.54	4130.108.56	4130.108.58	4130.108.65
Fan motor	6105.238.37	6105.238.39	6105.238.39	6105.238.39	6105.238.38	6105.238.40	6105.238.40	6105.238.40
Fan blade	4140.227.22	4140.227.23	4140.227.24	4140.227.24	4140.227.22	4140.227.23	4140.227.24	4140.227.24
Crankcase heater	5920.327.12	5920.327.12	5920.327.12	5920.327.12	5920.327.13	5920.327.13	5920.327.13	5920.327.13
Condenser (air-cooled)	4130.111.23	4130.111.24	4130.111.25	4130.111.28	4130.111.23	4130.111.25	4130.111.25	4130.111.28
Low refrigerant pressure switch	4130.138.22	4130.138.22	4130.138.22	4130.138.22	4130.138.22	4130.138.22	4130.138.22	4130.138.22
High refrigerant pressure switch	4130.138.25	4130.138.25	4130.138.25	4130.138.25	4130.138.25	4130.138.25	4130.138.25	4130.138.25
Fan pressure switch 1	4130.138.23	4130.138.23	4130.138.23	4130.138.23	4130.138.23	4130.138.23	4130.138.23	4130.138.23
Fan pressure switch 2	---	---	4130.138.24	4130.138.24	---	---	4130.138.24	4130.138.24
Hot gas by-pass valve	4130.690.5	4130.690.5	4130.690.5	4130.690.14	4130.690.5	4130.690.5	4130.690.5	4130.690.14
By-pass valve strainer	4130.701.5	4130.701.5	4130.701.5	4130.690.7	4130.701.5	4130.701.5	4130.701.5	4130.701.7
Thermo Explansion Valve (TXV)	---	---	---	4130.829.14	---	---	---	4130.829.14
Filter Dryer	4130.166.2	4130.166.2	4130.166.2	4130.166.2	4130.166.2	4130.166.2	4130.166.2	4130.166.2
Accumulator	4130.006.16	4130.006.16	4130.006.16	4130.006.16	4130.006.16	4130.006.16	4130.006.16	4130.006.16
Contactor	5910.135.9	5910.135.9	5910.135.9	5910.135.18	5910.135.9	5910.135.9	5910.135.9	5910.135.9
Auxillary Contactor	6110.101.21	6110.101.21	6110.101.21	6110.101.21	6110.101.21	6110.101.21	6110.101.21	6110.101.21
Control Transformer	6120.092.14	6120.092.14	6120.092.14	6120.092.14	6120.092.14	6120.092.14	6120.092.14	6120.092.14
Isolation Transformer (24v)	6120.092.16	6120.092.16	6120.092.16	6120.092.16	6120.092.16	6120.092.16	6120.092.16	6120.092.16
Fuse Primary	5920.274.28	5920.274.28	5920.274.28	5920.274.28	5920.274.27	5920.274.27	5920.274.27	5920.274.27
Fuse -Secondary	5920.274.26	5920.274.26	5920.274.26	5920.274.26	5920.274.26	5920.274.26	5920.274.26	5920.274.26
Electric Drain	05.7880-65	05.7880-65	05.7880-65	05.7880-65	05.7880-65	05.7880-65	05.7880-65	05.7880-65
Maintenance Kits	HPRMK6	HPRMK7	HPRMK8	HPRMK9	HPRMK6	HPRMK7	HPRMK8	HPRMK9

WARRANTY

The manufacturer warrants the product manufactured by it, when properly installed, operated, applied, and maintained in accordance with procedures and recommendations outlined in manufacturer's instruction manuals, to be free from defects in material or workmanship for a period as specified below, provided such defect is discovered and brought to the manufacturer's 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 a result of misuse, abuse, neglect or accident. Normal maintenance items requiring routine replacement are not warranted. The warranty covers parts and labor for the warranty period unless otherwise specified. Repair or replacement shall be made at the factory or the installation site, 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.

The foregoing is the exclusive remedy of any buyer of the manufacturer's product. The maximum damages liability of the manufacturer is the original purchase price of the product or part.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, OR STATUTORY, AND IS EXPRESSLY IN LIEU OF THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. THE MANUFACTURER SHALL NOT BE LIABLE FOR LOSS OR DAMAGE BY REASON OF STRICT LIABILITY IN TORT OR ITS NEGLIGENCE IN WHATEVER MANNER INCLUDING DESIGN, MANUFACTURE OR INSPECTION OF THE EQUIPMENT OR ITS FAILURE TO DISCOVER, REPORT, REPAIR, OR MODIFY LATENT DEFECTS INHERENT THEREIN.

THE MANUFACTURER, HIS REPRESENTATIVE OR DISTRIBUTOR SHALL NOT BE LIABLE FOR LOSS OF USE OF THE PRODUCT OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES, OR DAMAGES INCURRED BY THE BUYER, WHETHER ARISING FROM BREACH OF WARRANTY , NEGLIGENCE OR STRICT LIABILITY IN TORT.

The manufacturer does not warrant any product, part, material, component, or accessory manufactured by others and sold or supplied in connection with the sale of manufacturer's products.

Warranty Period

Parts and labor for two (2) years from the date of shipment from the factory; heat exchangers are covered (parts only) for an additional three (3) years (total of five [5]). On units that manufacturer requests be returned to the factory, a one time removal/reinstallation labor allowance as noted in the Service Warranty Policies and Procedures Handbook will apply. Freight to the factory from the installation site and to the installation site from the factory will be paid by the manufacturer; means of transportation to be specified by manufacturer.

AUTHORIZATION FROM THE SERVICE DEPARTMENT IS NECESSARY BEFORE MATERIAL IS RETURNED TO THE FACTORY OR IN-WARRANTY REPAIRS ARE MADE.

SERVICE DEPARTMENT: (724) 746-1100

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