Instructions/Parts

SHARPE
A GRACO COMPANY

Dryaire Refrigerated Air Dryers

310884E
ENG

To remove humidity from compressed air supply.

Models 6880 and 6885

Important Safety Instructions
Read all warnings and instructions in this manual.
Save these instructions.

Contents

General Safety Information

CAUTION

Pressurized Devices
This equipment is a pressure containing device.

- Do not exceed maximum operating pressure as shown on equipment serial number tag.
- Make certain equipment is depressurized before servicing.

Electrical
This equipment requires electricity to operate.

- Install equipment in compliance with national and local electrical codes.
- Standard equipment is supplied with NEMA 1 electrical enclosures and is not intended for installation in hazardous environments.
- Disconnect power supply to equipment when performing any electrical service work.

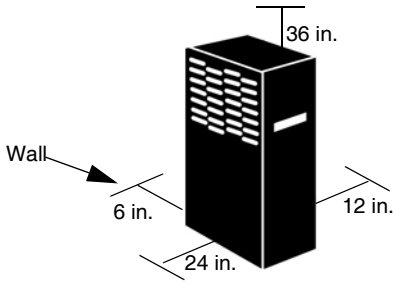
Breathing Air
- Air treated by this equipment may not be suitable for breathing without further purification. Refer to OSHA standard 1910.134 for the requirements for breathing quality air.

Installation

Location

Air Compressor Intake
Locate air compressor so that contaminants potentially harmful to the dryer are not drawn into the air system.

Free Air Flow
Do not block either side of the cabinet. Observe minimum installation clearances as shown below.



Mounting

Dryer is suitable for floor or shelf mounting.

Piping connections

Air Inlet

Connect compressed air line from air compressor to air inlet using strainer supplied.

Install strainer (included in shipping carton) prior to dryer inlet using pipe nipple supplied or other piping as required.

NOTE:

- Observe flow direction arrows on strainer.
- Install strainer where it is easily accessible for cleaning.
- Use vibration dampener if vibration exists in air line at inlet to dryer.

Do not exceed the unit's maximum working pressure -- 175 psig (12.3 kgf/cm^2).

For maximum capacity, install unit in air system at highest pressure possible (for example, before pressure reducing valves).

For maximum capacity, install unit at coolest compressed air temperature possible. Maximum inlet compressed air temperature is 180°F (82°C). If inlet air exceeds this temperature, precool the air by extending the piping between the compressor and the dryer.

Air Outlet
Connect air outlet to downstream air lines.

Bypass Piping
If servicing the unit without interrupting the air supply is desired, piping should include inlet and outlet isolation valves and an air bypass valve.

Condensate Drain
It is advisable to connect drain outlet to the condensate drainage system.

NOTE: Drain discharge is at system pressure. Drain line should be anchored to prevent whipping.

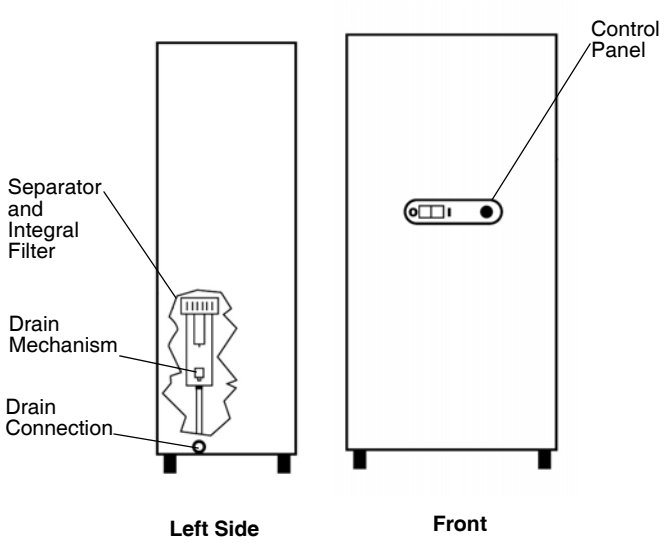
Electrical connections

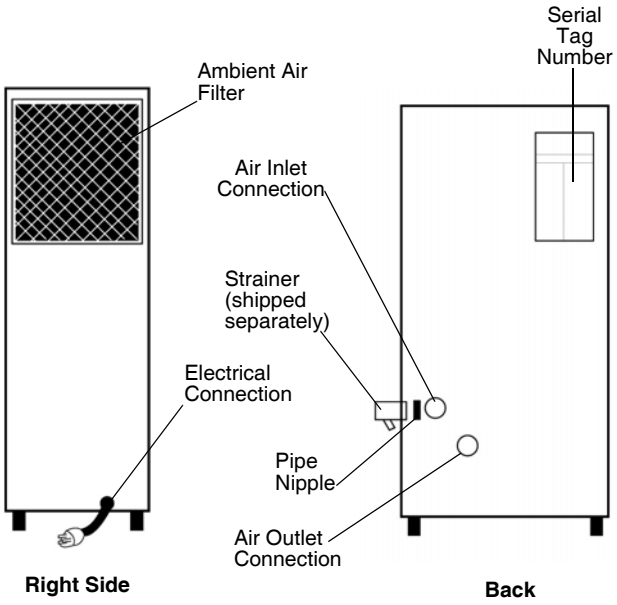
Dryer is designed to operate on power supply (voltage) listed on serial number tag located on the back of the dryer.

Dryer is supplied with an electrical cord. Install in receptacle of proper voltage.

Plug

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





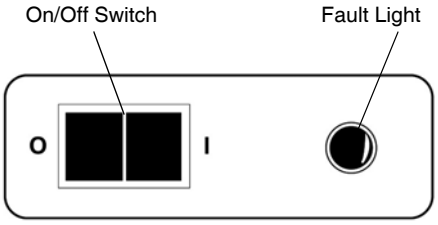
Operation

NOTE: Installations above 6000 ft (1825 m)
Unit is adjusted to operate in altitudes up to 6000 ft (1825 m). If unit is installed in an altitude above this, and has not been preset at the factory for this altitude, contact Manufacturer's Service Department.

Start-up

Start refrigeration system by pushing on/off switch to the ON position (depress rocker switch on side marked "I").

NOTE: The fault light may illuminate when unit is energized. Light should go out approximately 5 min. after start-up. If light remains lit after 30 min. or illuminates after going out, see Troubleshooting page 7.



Control Panel

Operating Checkpoints

Check the following on a periodic basis:

- Rocker switch is in the ON position.
- Amber fault light is out.
- Condensate is being regularly discharged.

Minimum/Maximum Operating Conditions

- Minimum/Maximum air pressure: 42/227 psig (3/16 kgf/cm^2)
- Maximum inlet air temperature: 180°F (82°C)
- Minimum/Maximum ambient temperature: 40/110°F (4/43°C)
- Maximum flow capacity:

For dryers without an aftercooler installed upstream
Flow capacity in scfm (m^3/min) @ 180°F (82°C) inlet temperature, 160°F (71°C) inlet pressure dew point, 95°F (35°C) ambient temperature, 50°F (10°C) outlet pressure dew point, and less than 5 psi (0.35 kgf/cm^2) pressure drop.

60 Hz

Inlet Pressure psig (kgf/cm^2)		175 (12.3)	150 (10.6)	125 (8.8)	100 (7.0)
Model	6880	29 (0.82)	27 (0.76)	25 (0.71)	23 (0.65)
	6885	41 (1.16)	38 (1.08)	35 (0.99)	32 (0.91)

50 Hz

Inlet Pressure psig (kgf/cm^2)		175 (12.3)	150 (10.6)	125 (8.8)	100 (7.0)
Model	6880	24 (0.68)	23 (0.65)	21 (0.59)	19 (0.54)
	6885	31 (0.88)	29 (0.82)	27 (0.76)	24 (0.68)

For dryers with an aftercooler installed upstream
Flow capacity in scfm (m^3/min) @ 100°F (38°C) inlet temperature, 100°F(38°C) inlet pressure dew point, 100°F (38°C) ambient temperature, 50°F (10°C) outlet pressure dew point, and less than 10 psi (0.7 kgf/cm^2) pressure drop.

60 Hz

Inlet Pressure psig (kgf/cm^2)		175 (12.3)	150 (10.6)	125 (8.8)	100 (7.0)
Model	6880	40 (1.13)	37 (1.05)	34 (0.96)	31 (0.88)
	6885	55 (1.56)	51 (1.44)	47 (1.33)	43 (1.22)

50 Hz

Inlet Pressure psig (kgf/cm^2)		175 (12.3)	150 (10.6)	125 (8.8)	100 (7.0)
Model	6880	33 (0.93)	31 (0.88)	29 (0.82)	26 (0.74)
	6885	43 (1.22)	40 (1.13)	37 (1.05)	33 (0.93)

Maintenance

CAUTION
Dryer is a pressure containing device. Depressurize before servicing.

Ambient Air Filter

Clean accumulated dust and dirt from ambient air filter monthly or more often if air flow across the condenser is impeded.

1. Remove top panel.
2. Remove ambient air filter by sliding upward.

3. Wash with soap and water and allow to dry before reinstalling.

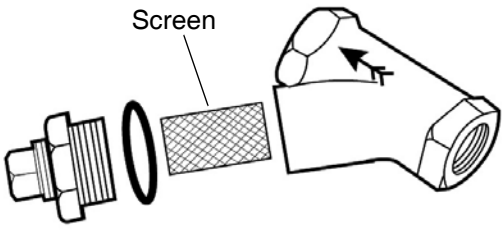
NOTE: Do not use solvents to clean ambient air filter.

4. Reinstall filter and top panel.

Inlet Strainer

Clean inlet strainer monthly or more often if rapid clogging occurs.

1. Shut-off compressed air supply to the strainer and depressurize.
2. Remove screen and clean or replace.
3. Reinstall.



Replacing separator/filter element

Replace yearly or more often if pressure drop across the dryer is excessive.

1. Shut-off compressed air supply to the dryer and depressurize.
2. Remove top panel.
3. Remove two screws holding side panel and remove side panel by sliding upward.
4. Disconnect drain tube from bulkhead fitting in cabinet base. To remove, press the plastic collar in, toward the fitting, while pulling the tube out of the fitting.
5. Remove bowl - push bowl up, turn bowl 1/8th turn to your left, and pull straight down.
6. Clean filter bowl.
7. Replace element.

Replacing Complete Element

1. Pull off old element and discard.
2. Make certain o-ring inside top of replacement element is in place and push element onto filter head.

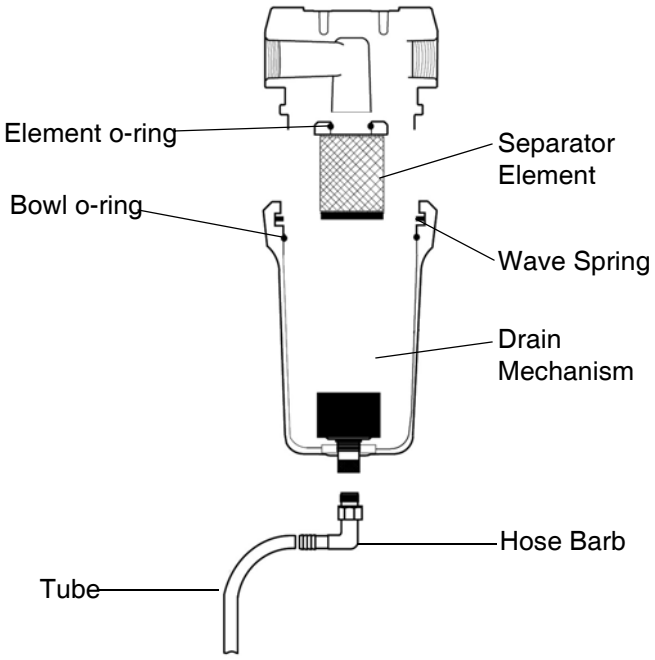
Replacing Sleeve Only

1. Pull element straight down to remove.
2. Remove bolt and bottom cap and remove disposable filter sleeve.
3. Clean separator core with soap and water in necessary.
4. Slide new filter sleeve over separator core and replace bottom cap and hand tighten bolt.
5. Make certain o-ring inside top of element is in place and push element onto filter head.
6. After making sure that o-ring and wave spring inside top of bowl are in place, reassemble bowl to head.

NOTE: Make certain o-ring is generously lubricated.

NOTE: Wave spring ends should be pointed down to prevent it from interfering with reassembly.

7. Reconnect drain tube to bulkhead fitting by pushing tube into fitting until it locks in position.
8. Reinstall side and top panels.
9. Repressurize dryer and resume operation.



Automatic Condensate Drain

Check daily to make sure automatic drain is discharging.

Replace drain mechanism yearly.

1. Shut off compressed air supply to the dryer and depressurize.
2. Remove top panel.
3. Remove two screws holding side panel then remove side panel by sliding upward.
4. Disconnect drain tube from bulkhead fitting in cabinet base. To remove, press the plastic collar in, toward the fitting, while pulling the tube out of the fitting.
5. Remove bowl - push bowl up, turn 1/8th turn to your left, and pull bowl straight down.
6. Remove drain tube fitting from bottom of bowl.
7. Remove old drain mechanism by turning knurled fitting to the right (clockwise) and remove.
8. Install new drain mechanism. If necessary, use a wire or pencil to guide the new mechanism into place.
9. Reassemble drain tube fitting to bowl.
10. After making sure that large o-ring in filter head is in place, reassemble bowl to head.
11. Reconnect drain tube to bulkhead fitting by pushing tube into fitting until it locks in position.
12. Reinstall top and side panels.
13. Repressurize dryer and resume operation.

Troubleshooting

Problem	Cause	Solution
Water downstream of dryer.	Residual free moisture remaining in downstream pipelines.	Blow out system with dry air.
	Air bypass system is open.	Check valve positions.
	Inlet and outlet connections are reversed.	Check for correct connection.
	Temperatures surrounding air lines downstream of dryer have dropped below dryers dew point rating.	Insulate or heat trace air lines exposed to low ambients or dry air to lower dew point.
	Excessive free moisture (bulk liquid) at dryer inlet.	Install separator ahead of dryer.
	Condensate not being automatically drained. Drain mechanism is clogged or inoperative or drain line is restricted or frozen.	Replace drain mechanism if inoperative, or open drain line.
	Dryer overloaded resulting in elevated dew point.	Check inlet air temperature and pressure, flow rate (compressor capacity) and ambient air temperature.
	Refrigeration system not functioning properly resulting in elevated dew point.	See “Refrigeration system not functioning properly,” page 8.
High pressure drop across dryer	Inlet air strainer clogged.	Clean inlet air strainer.
	Excessive air flow.	Check flow rate.
	Separator filter clogged.	Replace filter sleeve.
	Freezing of moisture in evaporator because of refrigeration system improperly functioning.	See “Refrigeration system not functioning properly,” page 8.
Fault Alarm	Dryer overloaded resulting in high air outlet temperature.	Check inlet air temperature and pressure, flow rate (compressor capacity) and ambient air temperature.
	Refrigeration system not functioning properly resulting in high air outlet temperature.	See “Refrigeration system not functioning properly,” page 8.
	Unit functioning normally but thermostatic switch is malfunctioning or not securely mounted.	Contact qualified refrigeration repairman or manufacturer’s service department.

Problem	Cause	Solution
Refrigeration system not functioning properly		
1. When dryer on/off in on or "I" position	Power failure.	Check power to unit.
	Line disconnect switch open.	Close disconnect switch.
	Blown fuses, open breaker.	Check for continuity.
	Faulty wiring, loose terminals.	Have electrician check electrical connections.
2. Refrigerant compressor cycles on and off	High or low ambient conditions.	Check minimum/maximum temperature ranges.
	Ambient air filter clogged.	Clean ambient air filter.
	Condenser fins clogged.	Clean condenser.
	Fan motor or fan control switch malfunction.	Replace fan motor or fan control switch.
	Refrigerant leak.	Contact qualified refrigeration repairman or manufacturer's service department.
	Low voltage.	Check wiring.

Specifications

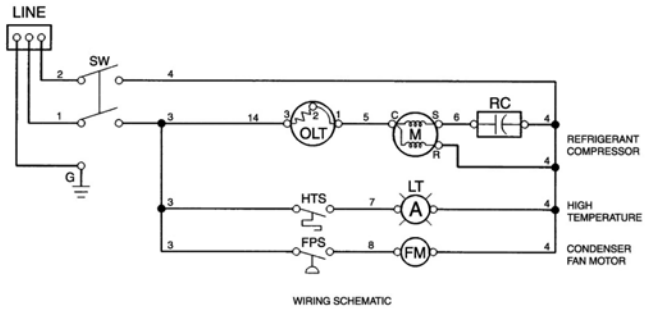
Models 6880 and 6885

Description			Model	
			6880	6885
Operating Conditions				
Rated Capacity	scfm	60/50 hz	25/21	35/27
@ 125 psig (8.8 kgf/cm^2*)	m^3/min.	60/50 hz	0.71/0.59	0.99/0.76
Maximum Working Pressure			227 psig (16 kgf/cm^2)	
Maximum Inlet Temperature			180°F (82°C)	
Minimum/Maximum Ambient Temp.			40-110°F (4-43°C)	
Pressure Drop @	psi	60/50 hz	3.3/2.4	4.7/2.9
rated capacity	kgf/cm^2	60/50 hz	0.23/0.17	0.33/0.20
Refrigeration System Data				
Compressor Type			Hermetic, Rotary, Permanent Split Capacitor	
BTU/HR - Refrigeration Only @ARSE-T Conditions		60/50 hz	6800/5500	6800/5500
Outlet Air Temperature (nominal @ rated conditions)			155°F (68°C)	
Refrigerant Type			R-134A	R407C
Refrigerant Charge	oz (grams)	60/50 hz	12.0 (340)	12.0 (340)
Suction Pressure Setting			67 psig (4.7 kgf/cm^2)	
Factory Test (design) Pressure high side/low side			330/178 psig (23.2/12.5 kgf/cm^2)	
Condenser Fan Switch Setting (in-out)			240-280 psig (16.9-12.7 kgf/cm^2)	
Air Flow Across Condenser	cfm	60/50 hz	280/235	280/235
	m^3/min	60/50 hz	7.9/6.7	7.9/6.7
Electrical Data				
Unit VAC/phase/hz	**115/1/60**		115/1/60	
Minimum/Maximum Volts			98-127	
Full Load Amps (FLA)			7.9	7.9
Branch Circuit Fuze Size (amps)			15	15
Compressor Volts/phase/hz			115/1/60	
Rated Load Amps (RLA)			6.7	6.7
Locked Rotor Amps (LRA)			37.0	37.0
Watts (input)			645	645
Overload			Thermal and Current (Auto Reset)	
Condenser Fan Motor Volts/phase/Watts (output)			115/1/25	115/1/25
Full Load Amps (FLA)			1.2	1.2
Other Loads Volts/amps/Watts			115/0.002/0.2	115/0.002/0.2
Unit VAC/phase/hz	**220-240/1/50**		220-240/1/50	
Minimum/Maximum Volts			198-264	
Full Load Amps (FLA)			3.5	3.5
Branch Circuit Fuse Size (amps)			15	15
Compressor Volts/phase/hz			220-240/1/50	
Rated Load Amps (RLA)			2.9	2.9
Locked Rotor Amps (LRA)			14.0	14.0
Watts (input)			540	540
Overload			Thermal and Current (Auto Reset)	
Condenser Fan Motor Volts/phase/Watts (output)			220-240/1/18.3	220-240/1/18.3
Full Load Amps (FLA)			0.6	0.6
Other Loads Volts/amps/Watts			220-240/0.002/0.4	220-240/0.002/0.4

* Capacity @ 180°F (82°C) inlet temperature, 160°F (71°C) inlet pressure dew point, 95°F (35°C) ambient temperature, 50°F (10°C) outlet pressure dew point, and less than 5 psi (0.35 kgf/cm^2) pressure drop.

Electrical Schematics

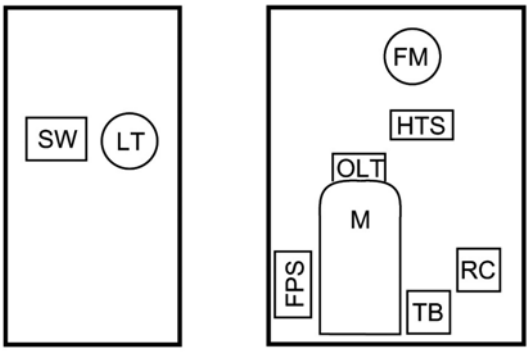
All Models - All Voltages



LEGEND

SW	On/Off Switch
OLT	Thermal Overload
M	Compressor Motor
RC	Run Capacitor
HTS	High Temperature Switch
LT	Fault Light
FPS	Fan Pressure Switch
FM	Fan Motor
TB	Terminal Block
CT	Contactor with 115V Coil

All Models - All Voltages



Front of Dryer (Outside)

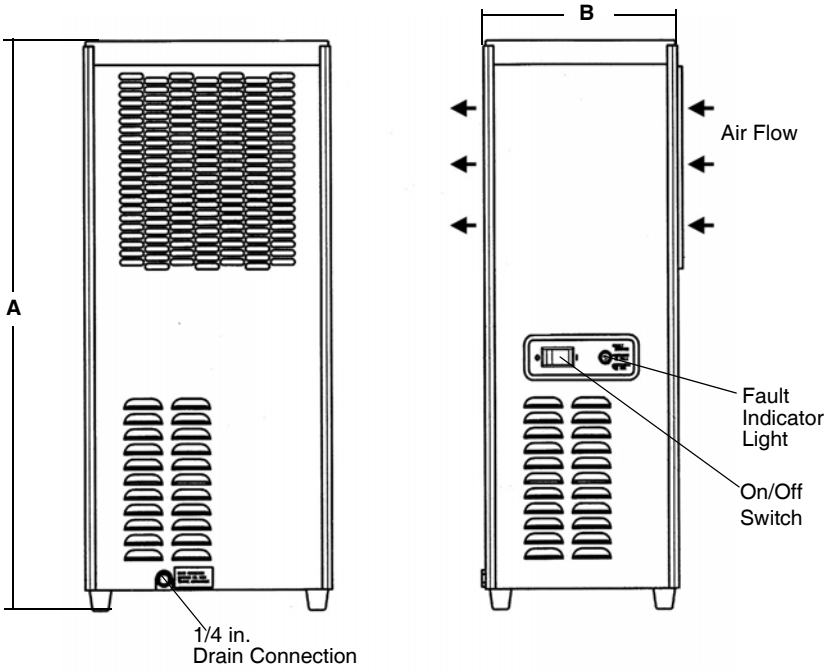
Right Side of Dryer (Inside)

COMPONENT LOCATIONS

Dimensions and Weights

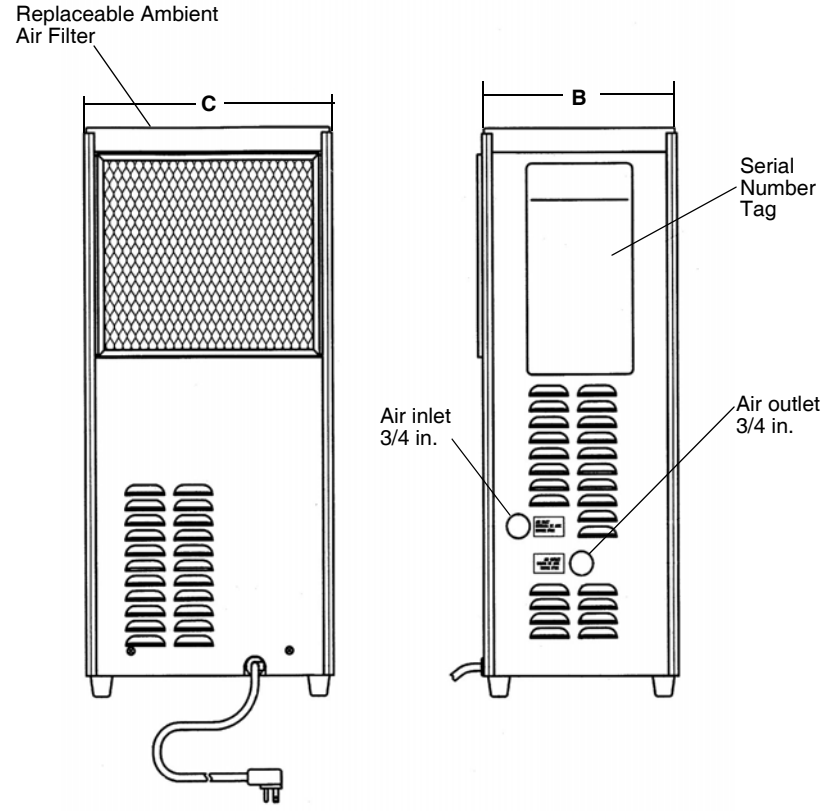
Model	A	B	C	Weight
6880	29 in. (744 mm)	14 in. (366 mm)	17 in. (430 mm)	100 lbs (45 kg)
6885				106 lbs (48 kg)

Models 6880 and 6885



LEFT SIDE VIEW

FRONT VIEW



RIGHT SIDE VIEW

BACK VIEW

Notes

Parts List

Parts Description		6880	6885
Separator			
*Separator/Filter Cartridge		E9-16	E9-16
Filter Sleeve		S9-16	S9-16
*Drain Mechanism		05.4170-08	05.4170-08
Bowl		03.0810-04	03.0810-04
*O-ring Bowl		9320.552.14	9320.552.14
Inlet (Compressed Air) Strainer			
Strainer, inlet		4731.735.1	4731.735.1
*Screen, strainer		4731.735.5	4731.735.5
Electrical			
Switch on/off		6110.706.7	6110.706.7
Light, Fault (amber)	**115/1/60**	6350.451.10	6350.451.10
Light, Fault (amber)	**220-240/1/50**	6350.451.11	6350.451.11
Cord Set	**115/1/60**	03.7133-10	03.7133-10
Cord Set	**230/2/60**	03.7133-24	03.7133-24
Cord Set	**220-240/1/50**	03.7133-12	03.7133-12
Capacitor, run	**115/1/60**	5910.103.17	5910.103.17
Capacitor, run	**220-240/1/50**	5910.103.18	5910.103.18
Capacitor, run	**208-230/1/60**	5910.103.18	5910.103.18
Overload, Compressor	**115/1/60**	5925.571.12	5925.571.12
Overload, Compressor	**208-230/1/60**	5925.571.13	5925.571.13
Overload, Compressor	**220-240/1/50**	5925.571.14	5925.571.14
Switch, fault light with conn.		03.7419-02	03.7419-02
Condenser Fan			
Fan Motor	**115/1/60**	6105.226.2	6105.226.2
Fan Motor	**220-240/1/50**	6105.226.4	6105.226.4
Fan Motor	**208-230/1/60**	6105.226.4	6105.226.4
Fan Blade	**115/1/60**	6105.378.2	6105.378.2
Fan Blade	**208-240-1-50/60**	---	---
Refrigeration System			
Compressor	**115/1/60**	4130.106.67	4130.106.67
Compressor	**208-230/1/60**	4130.106.68	4130.106.68
Compressor	**220-240/1/50**	4130.106.69	4130.106.69
Condenser		4130.112.13	4130.112.13
Hot gas by-pass valve		4130.690.21	4130.690.21
Filter/Dryer		4130.165.12	4130.165.12
Fan Pressure Switch		4130.139.21	4130.139.21
Cabinet			
*Filter, Ambient Air		4460.233.3	4460.233.3
Grommet (light and switch, front panel)		9320.302.11	9320.302.11
Foot, mounting		9330.230.2	9330.230.2

* Maintenance kits for the above models are available.

Maintenance Kits

For Dryer Models	Kit Number
6880, 6885	39995

California Proposition 65

CALIFORNIA RESIDENTS

⚠ **WARNING:** Cancer and reproductive harm – www.P65warnings.ca.gov.

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 change 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 SATUTORY, 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 THE 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 INCIDENTL 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) 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 the manufacturer.

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

Product Registration

Thank you for the purchase of your Sharpe® product. We greatly appreciate your business.

Important reasons to register your product:

- Registration enables Sharpe to notify you if there is a problem with your product.
- Improved Product Development - Your input helps us continue to design products that meet your needs.

For the most up-to-date information and to register your product, please go to www.sharpe1.com and click on "Register Product."

All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.

Original instructions. This manual contains English. MM 310884

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