



**IMPORTANT FOR FUTURE REFERENCE**

Please complete this information and retain this manual for the life of the equipment:

Model #: \_\_\_\_\_

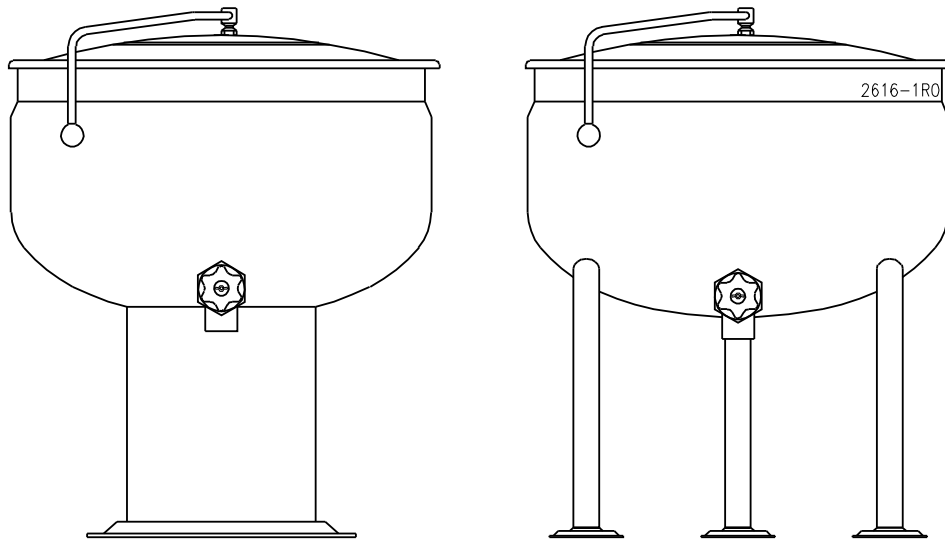
Serial #: \_\_\_\_\_

Date Purchased: \_\_\_\_\_

# INSTALLATION & OPERATION MANUAL

## Full Jacket Direct Steam Stationary Kettles


DL - 20F, 30F, 40F, 60F  
DP - 20F, 30F, 40F, 60F



 **WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

**CROWN FOOD SERVICE EQUIPMENT**

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Printed in Canada



INSTALLATION AND OPERATION MANUAL - FULL JACKET DIRECT STEAM STATIONARY  
KETTLES, MODELS DL-20F, 30F, 40F, 60F GALLON, DP-20F, 30F, 40F, 60F GALLON

**IMPORTANT NOTES FOR INSTALLATION AND OPERATION**

It is recommended that this manual be read thoroughly and that all instructions be followed carefully.



**This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.**



**WARNING: Improper installation, operation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing, operating or servicing this equipment.**

**This manual should be retained for future reference.**

**Intended for commercial use only. Not for household use.**

**NOTICE: Contact the factory, the factory representative or local service company to perform maintenance and repairs.**

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## 1.0 SERVICE CONNECTIONS

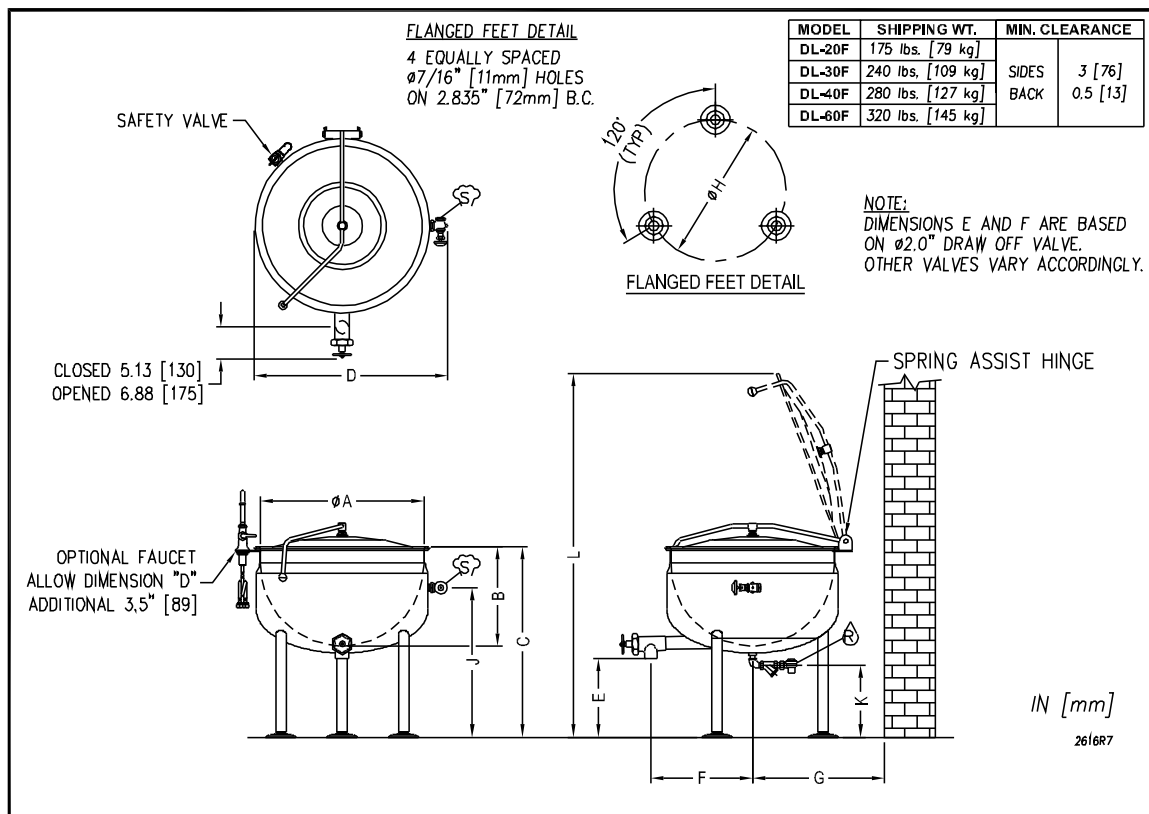
☞ - STEAM SUPPLY: 3/4" IPS 5-30 psi (34-205 kPa), Optional 5-45 psi (34-310 kPa).

Ⓢ - CONDENSATE RETURN: 1/2" IPS

### DIMENSIONS

MODEL	Capacity	Units	A	B	C	D	E	F	G	H	J	K	L
DL-20F	20 gallons	inches	26	15.75	30.25	30.75	12.5	16.13	21	22.5	23.75	11.5	58
	76 litres	mm	660	400	768	781	318	410	533	572	603	292	1473
DL-30F	30 gallons	Inches	29.5	17.5	32	34.13	12.38	17.63	18.13	25.75	24.63	11.5	62.88
	114 litres	mm	749	445	813	867	314	448	460	654	625	292	1597
DL-40F	40 gallons	Inches	33	19.25	33.75	37.63	12.38	19.38	19.88	29.25	25.75	11.5	67.88
	152 litres	mm	838	489	857	956	314	492	505	743	654	292	1724
DL-60F	60 gallons	Inches	35.5	20.5	35	40	12.38	20.13	21.13	31.75	26.5	11.5	71.63
	227 litres	mm	902	521	889	1016	314	511	537	806	673	292	1819



\* Pressure reducing valve is required if incoming pressure exceeds 50 PSI(345 kPa).



As continued product improvement is a policy of Crown, specifications are subject to change without notice.

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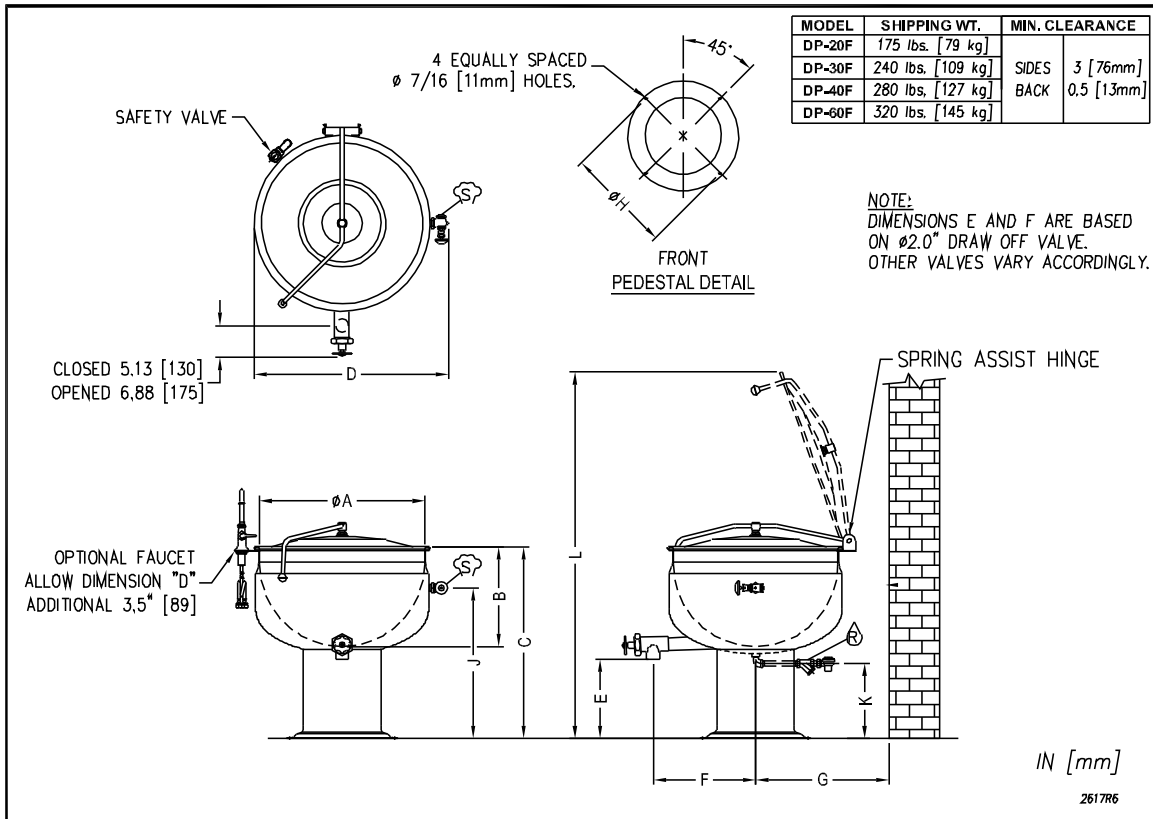
## 1.0 SERVICE CONNECTIONS (Continued)

 - STEAM SUPPLY; 3/4" IPS 5-30 psi (34-205 kPa), Optional 5-45 psi (34-310 kPa).  
 - CONDENSATE RETURN: 1/2" IPS

### DIMENSIONS

MODEL	Capacity	Units	A	B	C	D	E	F	G	H	J	K	L
DP-20F	20 gallons	inches	26	15.75	30.25	30.75	12.5	16.13	21	16.63	23.75	11.88	58
	76 litres	mm	660	400	768	781	318	410	533		603	302	1473
DP-30F	30 gallons	inches	29.5	17.5	32	34.13	12.38	17.63	18.13	422	24.63	11.88	62.88
	114 litres	mm	749	445	813	867	314	448	460		625	302	1597
DP-40F	40 gallons	inches	33	19.25	33.75	37.63	12.38	19.38	19.88	19.63	25.75	11.88	67.88
	152 litres	mm	838	489	857	956	314	492	505		654	302	1724
DP-60F	60 gallons	inches	35.5	20.5	35	40	12.38	20.13	21.13	499	26.5	11.88	71.63
	227 litres	mm	902	521	889	1016	314	511	537		673	302	1819

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**2.0 INSTALLATION INSTRUCTIONS**

1. Select a location to provide drainage directly below the tangent Draw-off Valve.
2. Mark hole locations through flanged adjustable feet on DL-F models and through pedestal base on DP-F models. Remove kettle.
3. On hole locations marked, drill holes and insert expansion shields to accommodate 5/16" size lag bolts.
4. Reposition kettle. On DL-F models level kettle by making necessary adjustment on flanged foot.
5. Bolt down kettle and seal with Silastic or other equivalent sealing compound. Sealant must be applied not only to bolt heads but also around flanges or pedestal base making contact with floor surface to fulfill NSF requirements.
6. Install a steam control valve at a convenient location near kettle on the incoming steam line (3/4" size pipe).
7. Connect steam line to the kettle, making sure there is a steam control valve strainer fairly convenient to the kettle.
8. Connect kettle condensate return line to a drain or to a boiler return line. Each kettle return line must have a suitable steam trap. Boiler return lines must have a check valve.
9. Safety relief valve on kettle must not be plugged as it is set to relieve excess pressure in the kettle.
10. If incoming steam pressure is greater than kettle maximum operating pressure then a pressure reducing valve must be installed in the line.
11. If large amounts of water accumulate in the steam line it will be necessary to install one or more ball float traps in the line to eliminate the water.
12. A steam line pressure gauge is also recommended to determine the actual amount of steam coming to the kettle.
13. Check for proper operation.

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## **3.0 INTRODUCTION**

### **DESCRIPTION**

All Crown direct connected steam jacketed kettles pertaining to this manual are direct steam operated pressure vessels of a double-wall stainless steel construction forming a steam chamber (jacket) enveloping the lower two thirds of the kettle bowl surface. All kettles are stationary, floor mounted in fixed positions either on legs with adjustable flanged feet (DL models) or pedestal (DP models).

### **CAPACITIES**

All models are suffixed with either - 20F, - 30F, - 40F, - 60F to indicate the capacity of that kettle in US gallons. Thus a DL - 40F is a full jacketed direct steam kettle mounted on legs with a capacity of 40 gallons (US).

### **FUNCTIONING MODE**

Crown direct connected steam jacketed kettles consist of a stainless steel bowl and a stainless steel jacket which envelopes the surface of the bowl, thus forming a sealed pressure vessel (chamber) into which steam is introduced by means of a manual control valve.

The kettle bowl is the container for the food product which ideally should be of a liquid or semi-liquid consistency to achieve complete contact with the bowl surface and thus fully absorb the heat transmitted through that surface.

The temperatures required for the cooking process to function adequately must be greater than the boiling point of the liquid food product. Further, the greater the steam pressure used, the higher the temperature and consequently the quicker the cooking process. For example, steam pressurized at 30 p.s.i. attains a temperature of 274 degrees Fahrenheit (135 degrees Celsius).

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**4.0 OPERATING INSTRUCTIONS**



**CAUTION: The appliance and its parts are hot. Use care when operating, cleaning and servicing the appliance.**

**OPERATING PROCEDURE**

1. Ensure that draw-off valve is closed.
2. Fill kettle with product to desired level.
3. Slowly turn the steam control valve ON to full open position (counter clockwise).
4. The water or food should boil 2 - 3 gallons per minute. If it does not then incoming pressure and piping should be checked to determine that it is adequate to operate the kettle efficiently.
5. Regulate steam control valve depending on type of food being prepared.
6. When food is cooked, turn off steam, remove food and clean kettle immediately to prevent residue from drying on kettle bowl surface.



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## 5.0 CLEANING PROCEDURES

Your kettle should be cleaned immediately after each use.

1. Ensure that steam supply is OFF.
2. Pre-rinse inside of kettle thoroughly and drain to remove any food particles.
3. Using a nylon brush, clean kettle with a mild detergent and warm water rinse. Never use steel wool or scouring powder as it will scratch stainless steel.
4. Open the tangent draw-off valve to allow soap and water solution to drain. Rinse with clean water.



**WARNING: If you are cleaning a valve that is assembled to a kettle be sure the kettle is completely empty of any product.**

5. By hand, turn the large hex nut counterclockwise on draw off valve until it is completely disengaged from thread. Grasp knob to valve and slowly pull out valve stem and disc. Do not allow disc to come in contact with hard surfaces since damage to disc may occur and result in valve leakage. Wash the valve stem, disc and handle. Insert nylon brush with detergent into interior of valve body and tangent draw-off tube and brush vigorously.
6. Replace valve stem assembly and engage hex nut fully by hand. Flush kettle with clean warm water.
7. Leave valve open when kettle is not in use.



**CAUTION: Do not use cleaning agents that are corrosive.**

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**5.0 CLEANING PROCEDURES** (Continued)

Use of cleaning agents that contain chloride, acids or salts are corrosive and may cause pitting and corrosion when used over a period of time; this will reduce the life of the appliance.

Pitting or corrosion are not covered by warranty.




Follow the recommended cleaning instructions. Use a mild detergent, warm water and rinse thoroughly.

## 6.0 MAINTENANCE

### VENTING

It is recommended that the “optional” steam trap assembly be installed. This should be plumbed to the exit end of the kettle. The thermostatic trap is a mechanical device that closes on high temperature and opens when the temperature drops, allowing the water which formed from condensate to exhaust but retain the steam under pressure.

### SAFETY VALVE MAINTENANCE AND TESTING

	<p><b>CAUTION!</b> Under normal operating conditions a “try lever test” should be performed every two months. Under severe service conditions, or if corrosion and/or deposits are noticed within the valve body, testing must be performed more often. A “try lever test” should also be performed at the end of any non-service period.</p>
	<p><b>CAUTION!</b> Hot, high pressure fluid may be discharged from body drain and vent during “try lever” test. Care must be taken to avoid any bodily contact.</p>
	<p><b>CAUTION!</b> High sound levels may be experienced during “try lever” test. Wear proper safety equipment and exercise extreme care! Test at, or near, half of the operating pressure by holding the test lever fully open for at least two seconds to flush the valve seat free of sediment and debris. Then release lever and permit the valve to snap shut.</p> <p>If lift lever does not activate, or there is no evidence of discharge, turn off equipment immediately and contact a licensed contractor or qualified service personnel.</p>

## **7.0 TROUBLESHOOTING**

### **DRAW-OFF VALVE LEAKS**

If a leak occurs through the valve stem, replace the "O" ring.

If the leak can be attributed to faulty sealing occurring between the stem disc and valve seat, then this problem may be corrected by cleaning off the dried-on food residue with extremely fine emery cloth. If the vulcanized rubber stem piece has been damaged, it must be replaced.

**NOTICE: Draw-off valve has a vulcanized rubber coated stem for better sealing. Do not over tighten. This may cause the rubber to pull away from stem and permanently damage it. This is not covered under warranty.**

### **EXTREMELY SLOW COOKING TIME**

If the cooking time is abnormally slow, it may be due to insufficient steam pressure and/or volume. First determine that pressure on incoming steam line at kettle is within 5 p.s.i. of rated kettle pressure. Note that pressures approaching the rated kettle pressure are liable to set off the safety relief valve. If required pressure is available to kettle, then possibly volume of steam is not sufficient. Minimum 3/4" pipe size is required to the kettle but if the steam generating source is at a great distance from the kettle, larger supply pipe will be required. Finally, the core of the steam supply pipe may have debris or scalants that impede steam flow and will require disassembly and inspection.