

Operators Manual

Direct Steam Mixer Kettles -
Installation & Operation

For units built after July 2010

(T) MKDL-40-T (-CC)
(T) MKDL-60-T (-CC)
(T) MKDL-80-T (-CC)
(T) MKDL-100-T (-CC)
(T) MKDL-125-T (-CC)
(T) MKDL-150-T (-CC)

For your future reference.

Model # _____

Serial # _____



← Model # &
Serial #.

 **Cleveland**

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Read the manual thoroughly.

***Improper installation, operation or
maintenance can cause property
damage, injury or death.***

TABLE OF CONTENTS

For your safety	1-2
Installation	3-6
Operating Instructions	7-9
Cleaning Instructions	10
Preventative Maintenance	11

 **Manitowoc**

FOR YOUR SAFETY / POUR VOTRE SÉCURITÉ / PARA SU SEGURIDAD

FOR YOUR SAFETY

Do not store or use gasoline or any other flammable liquids and vapours in the vicinity of this or any other appliance.

POUR VOTRE SÉCURITÉ

Ne pas entreposer ou utiliser d'essence ou d'autres liquides ou vapeurs inflammables à proximité de cet appareil ou de tout autre appareil.

PARA SU SEGURIDAD

No guarde ni use gasolina o cualesquiera otros líquidos o vapores inflamables en las cercanías de éste o cualquier otro aparato.

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

AVERTISSEMENT : Toute mauvaise pratique en matière d'installation, de fonctionnement, de réglage, de modification, d'entretien ou de maintenance peut causer des dommages matériels, des blessures ou la mort. Lisez la totalité des instructions d'installation et d'utilisation avant d'installer, d'utiliser ou d'entretenir cet équipement.

ADVERTENCIA: La indebida instalación, operación, ajuste, modificación, servicio o mantenimiento puede ocasionar daños a la propiedad, lesiones o muerte. Lea detenidamente las instrucciones de instalación y de operación antes de instalar, poner a funcionar o dar servicio a este equipo.

Do not spray aerosols in the vicinity of this appliance while it is in operation.

This appliance is not to be used by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

This appliance is not for use by children and they must be supervised not to play with it.

Retain this manual for your reference.

Ne pas pulvériser des aérosols dans le voisinage de cet appareil alors qu'il est en fonctionnement.

Cet appareil ne doit pas être utilisé par des personnes dont les capacités physiques, sensorielles ou mentales sont réduites, ou des personnes dénuées d'expérience ou de connaissance, sauf si elles ont pu bénéficier, par l'intermédiaire d'une personne responsable de leur sécurité, d'une surveillance ou d'instructions préalables concernant l'utilisation de l'appareil.

Conservez ce manuel pour votre référence.

No pulverice aerosoles en las proximidades de este aparato mientras está en funcionamiento.

Este aparato no debe ser utilizado por personas con capacidades físicas, sensoriales o mentales reducidas, o que no tengan la experiencia y los conocimientos adecuados, a menos que estas personas hayan recibido supervisión e instrucciones en cuanto al uso del aparato por la persona responsable de la seguridad de ellas.

Guarde este manual para su referencia.



WARNING / AVERTISSEMENT / ADVERTENCIA



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Do not lean on or place objects on lip. / Ne vous penchez pas sur ou ne placez pas des objets sur la lèvre. / No se apoye ni coloque objetos en el labio.



Hot product and surfaces. / Produit et surfaces chaudes. / Producto y superficies calientes.

Do not touch. / Ne pas toucher. / No la toque



Stand clear of product discharge path when discharging hot product. / Écartez-vous du chemin de décharge d'un produit chaud. / Permanezca alejado de la ruta de descarga del producto al vaciar producto caliente.



Keep hands away from moving parts and pinch points. / Gardez les mains loin des pièces mobiles et des points de pincement. / Mantenga las manos lejos de piezas móviles y puntos de presión muy localizada.



Do not fill kettle above recommended level marked on outside of kettle. / Ne remplissez pas la chaudière en excès du niveau recommandé marqué sur la chaudière. / No llene la marmita arriba del nivel recomendado marcado fuera de la marmita.



Unit must be anchored as per manual. / Unité doit être ancrée selon les directives du manuel. / Unidad debe estar fijado según el manual.



Keep appliance and area free and clear of combustibles. / Gardez l'appareil et son entourage libre de tous combustibles. / Mantenga el aparato y el área libres de combustibles.



Do not attempt to operate this appliance during a power failure. / N'essayez pas de faire fonctionner cet appareil lors d'une panne de courant. / No intente poner en marcha este aparato durante un fallo de suministro eléctrico.



Inspect unit daily for proper operation. / Inspectez l'unité tous les jours pour son bon fonctionnement. / Inspeccione diariamente el funcionamiento correcto de la unidad.



Heavy / Lourd / Pesado

Team or mechanical lift. / Équipe ou remontée mécanique. / Equipo o elevador mecánico.



Surfaces and product may be hot! Wear protective equipment. / Les surfaces et le produit peuvent être chauds! Portez un équipement de protection. / ¡Las superficies y el producto pueden estar calientes! Utilice equipo protector.



Floor may become slippery from product spillage. / Déversement de produit peut causer de plancher à être glissant. / Derrame de producto puede causar piso a ser resbaladizo.



Pressurized device. / Appareil sous pression. / Dispositivo de presión.

Keep clear of pressure relief discharge. / Restez à l'écart de la soupape de sûreté. / Permanezca alejado de la descarga de presión.



Do not climb, sit or stand on equipment. / Il ne faut pas monter, s'asseoir ni se tenir debout sur l'équipement. / No subirse, ni sentarse ni pararse sobre el equipo.



Do not remove guards or operate without them. / Ne pas supprimer les gardes ou fonctionner sans eux. / No retire los guardias ni funcionar sin ellos.

SERVICING / ENTRETIEN / SERVICIO



Shut steam supply off prior to servicing. / Fourniture de l'alimentation en vapeur au loin avant d'entretenir. / Cierra vapor fuera antes de darle servicio



Remove electrical power prior to servicing. / Coupez l'alimentation électrique avant l'entretien. / Desconnecte la energía eléctrica antes de darle servicio.

Risk of electric shock. / Risque de choc électrique. / Riesgo de choque eléctrico.



Ensure kettle is at room temperature and pressure gauge is showing zero or less prior to removing any fittings. / Assurez-vous que la chaudière est à température ambiante et que le manomètre est à zéro ou moins avant de retirer des accessoires. / Asegúrese de que la marmita esté a temperatura ambiente y el manómetro esté mostrando cero o menos antes de retirar cualquier accesorio.



Have a qualified service technician maintain your equipment. / Demandez à un technicien en entretien et en réparation qualifié d'effectuer l'entretien de votre équipement. / Haga que un técnico de servicio calificado mantenga su equipo

INSTALLATION

GENERAL

Environment:

Operating Criteria	Acceptable Range
Ambient Air Temperature	15-40 degrees Celsius
Relative Humidity	0-80%
Altitude	0-3000 meters
Voltage	208-480, 3ph
Location	Inside building, under ventilation hood

Insure gas and electrical supplies match rating plate.

Installation of the kettle must be accomplished by qualified installation personnel working to all applicable local and national codes.

This equipment is built to comply with applicable standards for manufacturers. Included among those approval agencies are: UL, NSF, ASME/N.Bd., CSA, ETL, and others. Many local codes exist, and it is the responsibility of the owner/installer to comply with these codes.

Observe all clearance requirements. Do not obstruct the flow of combustion and ventilation air.

RECEIVING INSPECTION

Before unpacking visually inspect the unit for evidence of damage during shipping.

If damage is noticed, do not unpack the unit, follow shipping damage instructions.

SHIPPING DAMAGE INSTRUCTIONS

If shipping damage to the unit is discovered or suspected, observe the following guidelines in preparing a shipping damage claim.

1. Write down a description of the damage or the reason for suspecting damage as soon as it is discovered. This will help in filling out the claim forms later.
2. As soon as damage is discovered or suspected, notify the carrier that delivered the shipment.
3. Arrange for the carrier's representative to examine the damage.
4. Fill out all carrier claims forms and have the examining carrier sign and date each form.

APPROXIMATE WEIGHTS

Model #	Unit	Unit with shipping box	Model #	Unit	Unit with shipping box
MKDL40T	700 lbs.	770 lbs.	TMKDL40T	1,360 lbs.	1,430 lbs.
MKDL60T	740 lbs.	810 lbs.	TMKDL60T	1,610 lbs.	1,680 lbs.
MKDL80T	830 lbs.	900 lbs.	TMKDL80T	1,700 lbs.	1,770 lbs.
MKDL100T	910 lbs.	980 lbs.	TMKDL100T	1,800 lbs.	1,870 lbs.
MKDL125T	1,000 lbs.	1,070 lbs.	TMKDL125T	1,890 lbs.	1,960 lbs.
MKDL150T	1,100 lbs.	1,170 lbs.	TMKDL150T	1,990 lbs.	2,060 lbs.

UNCRATING

Caution:

Straps under tension and will snap when cut.

Carton may contain staples and skid contains nails.

Use proper safety equipment and precautions.

Unit is heavy use adequate help or lifting equipment as needed.



1. Carefully cut any straps from container.
2. Lift off carton.
3. Inspect for hidden damage. If found refer to "SHIPPING DAMAGE INSTRUCTIONS".
4. Cut strap holding unit.
5. Remove lag bolts from feet.
6. Remove manual from kettle pot. Write down the model# and serial# of the unit onto the front of this manual.
7. Lift kettle off skid and move kettle to its installation location.
8. Discard packaging material according to local and or state requirements.



Model/
Serial#



VENTILATION

Operation of these units can produce significant levels of steam and condensate, it is recommended they be installed under a ventilation hood in a room which has provisions for adequate make up air. Further information can be obtained by referring to the U.S.A. National Fire Protection Associations NFPA96 regulations. These standards have also been adopted by the National Building Code in Canada.

COMPRESSED AIR CONNECTION

Mixer Kettles with an air activated discharge valve require a minimum of 90 PSI to operate correctly.

If the unit is also supplying air to a Metering Filling Station then a pressure of 100 PSI at a minimum volume of 25 CFM is required.

The air supplied to the mixer should be clean and dry. No oil should be added to the supply air. We recommend the compressed air system be equipped with a drier, filter, and automatic water dump on the air compressor receiver tank. If the distance between the tank and the unit is less than 100 feet then a minimum line size of 3/4" is required. A distance of 100 to 300 feet requires a minimum 1" line.

STEAM

All steam plumbing to and from the kettle and steam boiler should be thoroughly cleaned and inspected for dirt and debris before final connection to the kettle are made.

Check the rating plate for the maximum steam pressure that your kettle is rated for. If the steam supply pressure exceeds the rated pressure, a pressure reducing valve is required. The steam inlet is at the right side of the kettle, as seen from the front.

CONDENSATE

A steam condensate trap must be plumbed to a drain, using minimum 1/2" NPT plumbing. The condensate line is limited to a maximum rise of 10 feet in order for the steam pressure to adequately force the condensate through the plumbing. Any higher rise requires a pump.

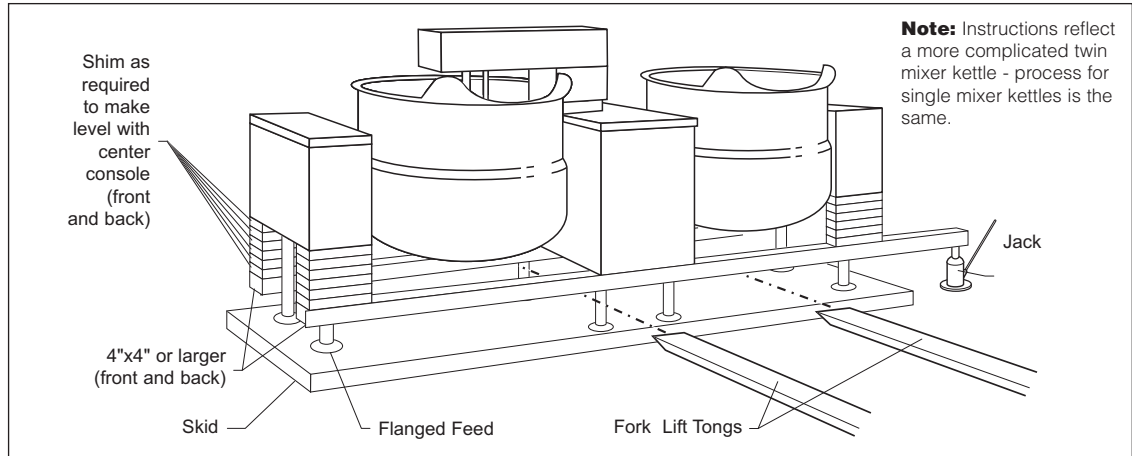
If the steam boiler to which this kettle is installed has a condensate return (closed loop system), a 1/2" steam strainer, a 1/2" steam trap, and a 1/2" check valve must be installed on the output (condensate) side of the kettle

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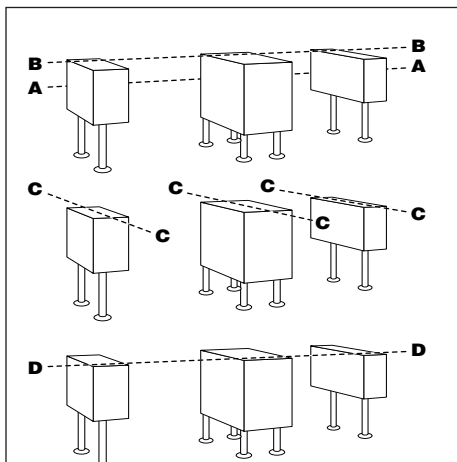
Positioning



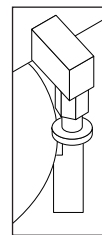
MOVING UNIT

1. While still on skid, move unit as close to final installation position as possible.
2. Prepare unit for lifting as shown in diagram.
3. Lift gently with a forklift or jacks and remove skid.
4. Lower gently to ground and remove forklift and blocking.
5. If unit has to be re-positioned, slide gently. Do not twist or push one side of unit excessively and cause binding on trunnions.

LEVELING



1. With straight-edge, line the backs of the consoles up with each other (dotted line **A**).
2. Level and straight-edge backs of consoles (dotted line **B**). Adjustments are made by turning flanges on back feet only.
3. Level consoles individually from front to back (dotted lines **C**). Adjustments are made by turning flanges on front feet only.
4. Re-check that the back is level (dotted line **B**) and then the front (dotted line **D**). Adjust if necessary.

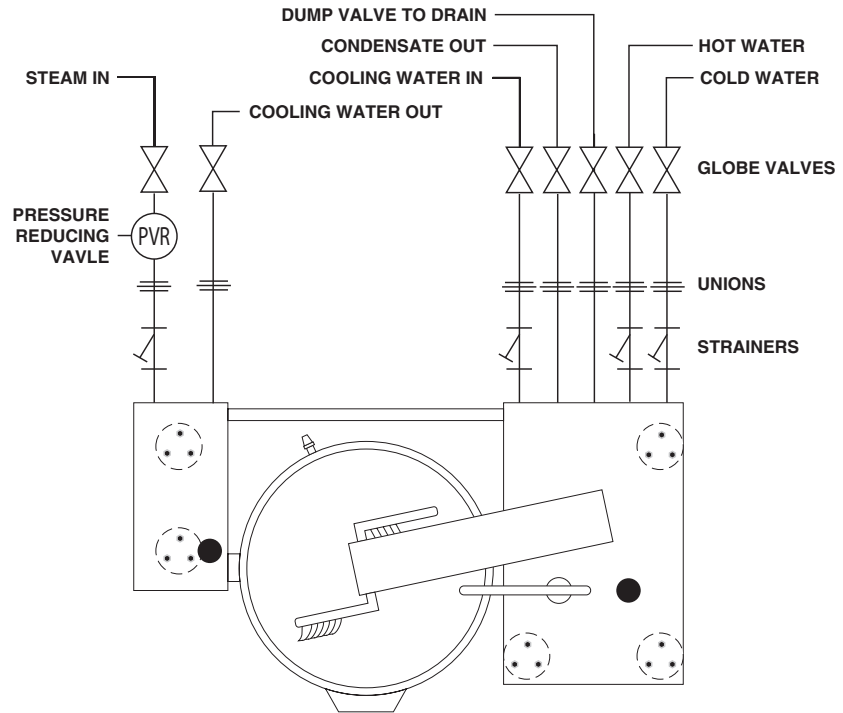


5. Check that mixer bridge is level and guide pins (see illustration) lock smoothly without binding. If not repeat steps **1** through **4**.

NOTE: See Operating Instructions before operating unit.

6. Make electrical connections (see electrical service connections) and test mixer bridge as follows:
 - ⇒ **A/** Raise mixer bridge.
 - ⇒ **B/** Swing bridge out over centre console.
 - ⇒ **C/** Swing bridge to the left as far as possible.
 - ⇒ **D/** Lower bridge.
 - ⇒ **E/** Bridge pins should enter pin hole on kettle perfectly, If not return to step 1 and repeat leveling steps.
 - ⇒ **F/** Raise bridge and swing to far right (for twin mixers only).
 - ⇒ **G/** Repeat steps **D** and **E** (for twin mixers only).
7. Once positioned and leveled, permanently secure the kettle's flanged feet to the floor using 5/16 inch stainless steel lag bolts and floor anchors (supplied by the installer). Secure each of the flanged feet with one bolt in each hole. Seal joints of flanged feet with a silicone sealant.

PIPING SCHEMATIC



STEAM REQUIREMENTS FOR KETTLES

Kettle Cap. U.S. Gal.	Kettle Dia.	25 psi Steam 265°F		40 psi Steam 287°F		80 psi Steam 302°F	
		Lbs./Hr.	Hp./Hr.	Lbs./Hr.	Hp./Hr.	Lbs./Hr.	Hp./Hr.
40	26"	100	3	120	4	150	4.5
60	29.5"	150	4.5	190	5.5	230	7.0
80	33"	210	6.0	260	7.5	300	9.0
100	36"	260	7.5	320	9.5	390	11.0
125	40"	320	9.5	400	11.5	470	14.0
150	40"	390	11.0	480	14.0	570	17.0

- ❑ Steam requirements are maximum per hour.
- ❑ If more than one unit is on the same line then add the steam usage for each one to reach a total.

STEAM PIPE SIZING

Steam Required Lbs./Kg. per hour	Required pipe length in feet/meters		
	200 Ft. 60 Meters	400 Ft. 125 Meters	600 Ft. 185 Meters
100/45 Kg.	3/4"	1"	1 1/4"
200/91 Kg.	1"	1 1/4"	1 1/2"
300/136 Kg.	1"	1 1/4"	1 1/2"
400/182 Kg.	1"	1 1/2"	1 3/4"
500/227 Kg.	1 1/4"	1 1/2"	1 3/4"
700/318 Kg.	1 1/2"	1 3/4"	2"
900/409 Kg.	1 1/2"	1 3/4"	2"

NOTES:

- ❑ Pipe size in inches.
- ❑ Less than 50 PSI (3.4 BAR) pressure, increase pipe size by 1/4".
- ❑ 80 to 100 PSI (5.5 to 6.8 BAR), Decrease pipe size by 1/4".

ELECTRICAL

ENSURE THE ELECTRICAL SUPPLY MATCHES THE KETTLE'S REQUIREMENTS AS STATED ON THE RATING LABEL.

Install in accordance with local codes and/or the National Electric Code ANSI/NFPA No 70-1981 (USA) or the Canadian Electric Code CSA Standard C22.1 (Canada). A separate fused disconnect switch must be supplied and installed. The kettle must be electrically grounded by the installer.

The electric supply must match the power requirements specified on the kettle's rating plate. The copper wiring must be adequate to carry the required current at the rated voltage. Refer to the specification sheet for electrical specifications.

1. Ensure main power is turned off before connecting wires.
2. Remove the screws at the rear of the center console cover, and remove the cover. A wiring diagram is affixed to the underside of the console cover.
3. Feed permanent copper wiring 18" through the cut-out in the bottom of the console. Connect wiring in junction box in the bottom of the console.
4. Turn main power back on.
5. Check for correct rotation of electric motor (access by removing top front cover on center console). If rotation is incorrect, disconnect main power and reverse any two of the three live lines.
6. Replace the console cover and secure it with screws.

FOR POWER TILT UNITS ONLY

NOTE: Ensure the electrical supply matches the kettle's requirements as stated on the rating label.

This kettle is built to comply with CE standards. Many local codes exist, and it is the responsibility of the owner and installer to comply with these codes.

CLEANING

After installation the kettle must be thoroughly cleaned and sanitized prior to cooking.

INSTALLATION CHECKS

Although the kettle has been thoroughly tested before leaving the factory, the installer is responsible for ensuring the proper operation of kettle once installed.

1. Before turning the kettle on, read the vacuum/pressure gauge. The gauge's needle should be in the green zone. If the needle is in the "VENT AIR" zone, follow air venting procedure.
2. Unit has been thoroughly checked for gas leaks at the factory however the installer should check all connections for any leaks which may have resulted from shipping or installation.
3. Supply power to the kettle by placing the fused disconnect switch to the "ON" position.
4. Open gas shut-off valve to turn on main gas supply.
5. Turn the temperature control knob to "1" (Min.). The green LED light should remain lit, indicating the burner is lit, until the set temperature is reached. Then the green light will cycle on and off, indicating the burner is cycling on and off to maintain temperature.
6. Tilt the kettle forward. After a few seconds the red "LOW WATER" light should be lit when the kettle is in a tilted position. This light indicates that the burner has automatically been shut off by the kettle's safety circuit. This is a normal condition when the kettle is in a tilted position.
7. Raise the kettle to the upright position. The red "LOW WATER" light should go out when the kettle is upright.
8. Turn the temperature control knob to "10" (Max.) and allow the kettle to preheat. The green light should remain on until the set temperature is reached. Then the green light will cycle ON and OFF, indicating the burner is cycling ON and OFF to maintain temperature.
9. Check carbon monoxide is less than 0.08 percent in an air-free sample of the flue gases. See FREE AIR CALCULATION procedure in "Maintenance Procedures & Parts Lists" manual.

MIXER

1. Raise Bridge - If bridge does not raise then check motor rotation. Bridge should not raise until speed control is turned to minimum and then adjusted back up.
2. Swing Bridge - Bridge when fully raised should swing without hitting any object, i.e. control housing, kettle lip. Check that hydraulic hoses are not being pinched by stops on swivel assembly.
3. Tilt Kettle - Kettle tilts smoothly both down and back up. If power tilt, check that micro switches are adjusted properly (kettle is level in upright position and drains fully when tilted) and are not being crushed by gear.
4. Lower Bridge - Raise bridge. Switch to mix. Turn speed control to zero to reset micro switch then set speed control to number four. Check that unit does not begin to mix until bridge has lowered part way into the kettle. Check that mixer bridge pin lowers into pin hole correctly
5. Speed Control - Main - Main agitator arm not rotating when set at "0" but will start to move slowly on "1". Speed control makes positive contact with micro switch.
6. Speed Control - Secondary - Set main speed control to five. Adjust secondary control from minimum to maximum. Look for considerable speed variance.
7. Water Faucets - Turn on hot water faucet. Turn off and check for leaks in piping and drips from faucet spout. Repeat above with cold water faucet.
8. Product Discharge - Add water to kettle. Check for leaks from valve. Open and close valve a few times Valve and check for leaks again.

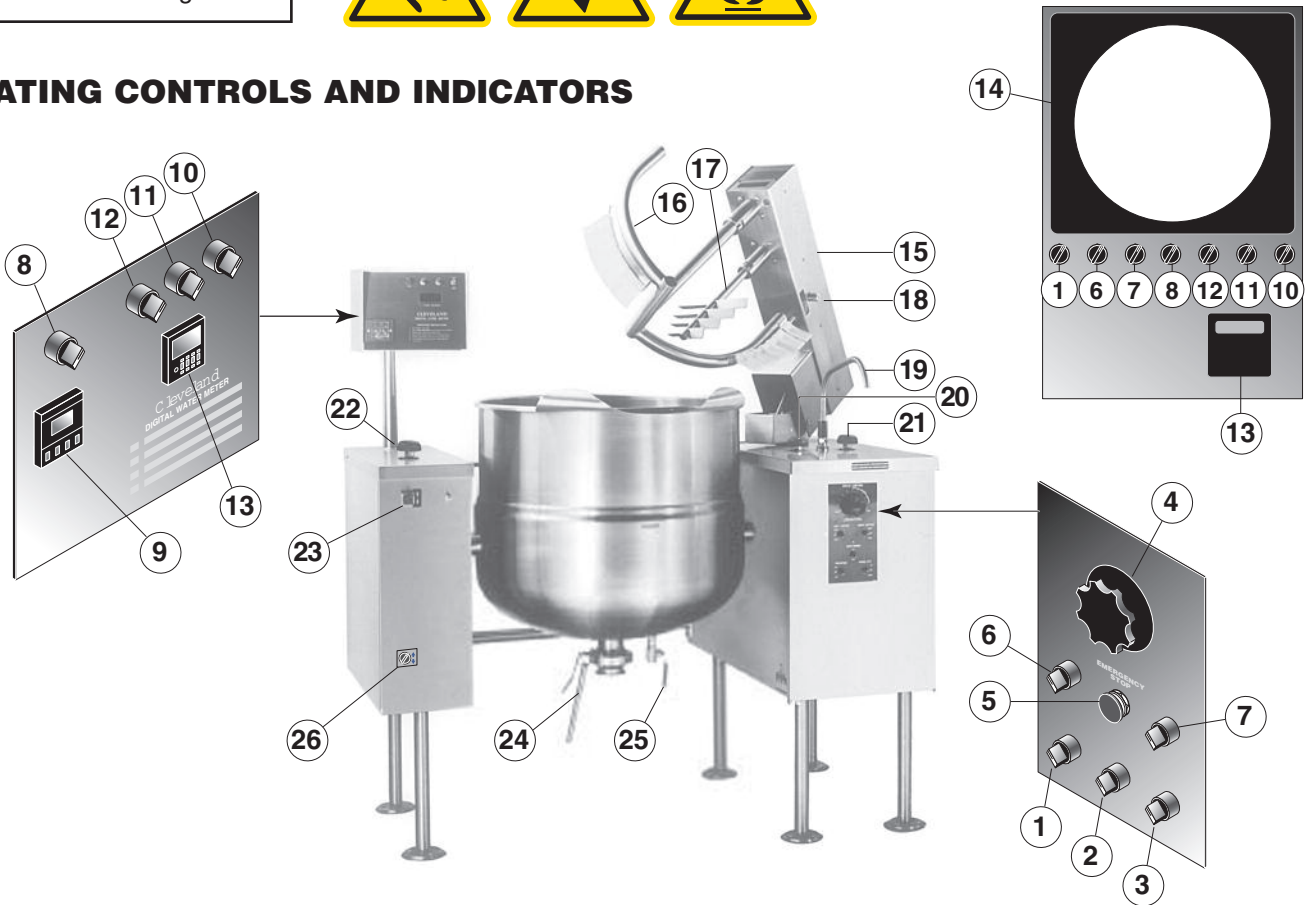
! WARNING

If for any reason this unit is not functioning correctly DO NOT OPERATE. Contact your authorized service agent.

OPERATING INSTRUCTIONS



OPERATING CONTROLS AND INDICATORS



ITEM #	DESCRIPTION	FUNCTION
1	MAIN POWER SWITCH	Power switch for unit.
2	MIX/LIFT SWITCH	Sets hydraulics to mix or lift mode.
3	UP/DOWN SWITCH	When unit is in lift mode, mixer bridge can be raised or lowered with this switch.
4	MIXER SPEED CONTROL	Controls speed of agitators and mixer bridge lift.
5	EMERGENCY STOP BUTTON	Stops hydraulic system (agitators and mixer bridge lift).
6	HEAT/COOL SWITCH	Switches left hand kettle from heating to cooling.
7	HEAT/COOL SWITCH	Switches right hand kettle from heating to cooling.
8	ACTIVE/BYPASS SWITCH	Switch to activate or bypass (manual operation) the controller.
9	TEMPERATURE CONTROLLER	Digital temperature control and indicator.
10	WATER METER POWER SWITCH	Power switch for water meter.
11	WATER METER START SWITCH	Starts water flow to kettle.
12	WATER METER INTERRUPT SWITCH	Interrupts flow without resetting water meter.
13	WATER METER CONTROL	Display and settings for water meter.
14	TIME/TEMPERATURE CHART RECORDER	Documents cooking information.
15	MIXER BRIDGE	Encloses agitator motors.
16	MAIN AGITATOR ARM	Provides most of the product movement.
17	SECONDARY AGITATOR ARM	Provides reverse agitation and product lift in kettle.
18	SECONDARY SPEED CONTROL KNOB	Controls speed of secondary agitator arm.
19	FAUCET SPOUT	Delivers water to the kettle.
20	HOT WATER VALVE	Turns on hot water.
21	COLD WATER VALVE	Turns on cold water.
22	STEAM CONTROL VALVE	Manually controls the amount of steam entering the kettle.
23	POWER TILT CONTROL SWITCH	Used for tilting the kettle up or down. Replaced by hand tilt wheel on manual tilt units.
24	BUTTERFLY VALVE	Discharge valve for product in the kettle.
25	DRAIN COCK	Used to manually drain condensate from kettle.
26	AIR REGULATOR SWITCH	Used to open and close the air valve (optional/not shown).

OPERATING THE KETTLE



Intended Use:

Processing of food and pharmaceuticals in non-residential locations. Not for the making of dough or other heavy dough like products.

Intended Users:

- Supervised and trained staff during production periods.
- Trained maintenance and service personnel.

Removable component weights

Lbs (kg)	40 gal	60 gal	80 gal	100 gal	125 gal	150 gal
Main arm with blades	21 (9.5)	23 (10.4)	25 (11.3)	28 (12.7)	32 (14.5)	32 (14.5)
Baffle arm	7 (3.2)	7 (3.2)	8 (3.6)	10 (4.5)	12 (5.4)	12 (5.4)
Secondary arm	8 (3.6)	8 (3.6)	10 (4.5)	12 (5.4)	13 (5.9)	13 (5.9)
Screen	7 (3.2)	8 (3.6)	9 (4.1)	10 (4.5)	14 (6.4)	14 (6.4)
Air valve complete			12 (5.4)			
Air cylinder only			8 (3.6)			
Air valve body only			4 (1.8)			

Noise level

Noise level maximum 80 Decibels.

Mixing Arm Rotation speeds

Arm	Speed (RPM)
Primary	0-40
Secondary	0-210

Rim (loading) heights

Rim heights are given below. It is up to owners of the equipment to ensure the operators are performing the loading in a safe and acceptable manner.

Size	Height - BV3 valve	Height - PVA3 valve
40	40.5	40.75
60	43.75	44.25
80	44.75	46.26
100	44.5	48.75
125	44.5	48.75
150	48.5	53.5

Emergency

In the event of a fire or other emergency.



Turn off unit

Shut off power supplies including Electrical, Gas or Steam as applicable. (If safe to do so.)

Using fire extinguishers is only recommended if you are trained and feel safe to do so. Use only Fire extinguishers rated ABC.

This is a pressure vessel and with a properly operating safety valve will not exceed rated pressures. Jacket contains water and trace amounts of rust inhibitor and/or antifreeze.

WARNING:



This unit has been fitted with a warning buzzer for bridge movement and a cover and screen to prevent contact with moving mixer arms. Do not remove or bypass these safeties.

1. Perform daily startup inspection.
2. Preheat the kettle by turning the ON/OFF Temperature Control to the desired temperature setting. The Heat Indicator Light (Green) will remain lit, indicating the burner is on, until the temperature setting is reached. When the green light goes off, the burners are off, and preheating is complete.

NOTE: When cooking egg and milk products, the kettle should not be preheated, as products of this nature adhere to hot cooking surfaces.

3. Place food product into the kettle. The green Heat Indicator Light will cycle on and off indicating the burners are cycling on and off to maintain the set temperature.



4. When cooking is completed turn Temperature Control to the "OFF" position.
5. Pour the contents of the kettle into an appropriate container by tilting the kettle forward or using discharge valve.

NOTE: Cleaning should be completed immediately after cooked foods are removed.

NOTE: A five minute complete shut-of period is required before relighting.

Operating Suggestions

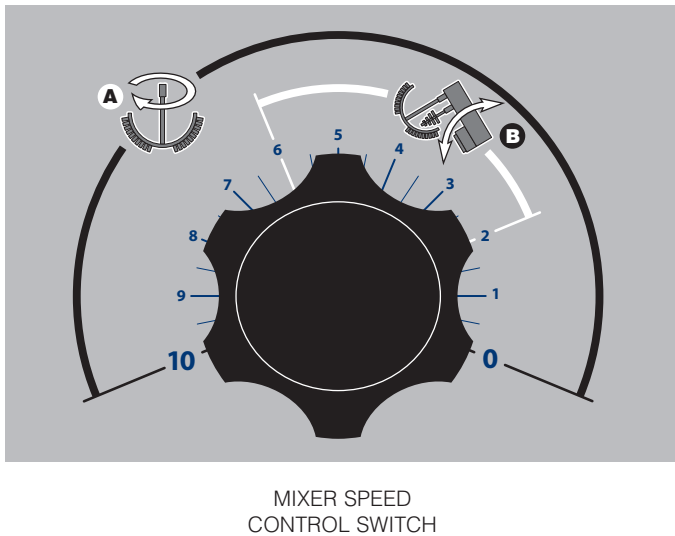
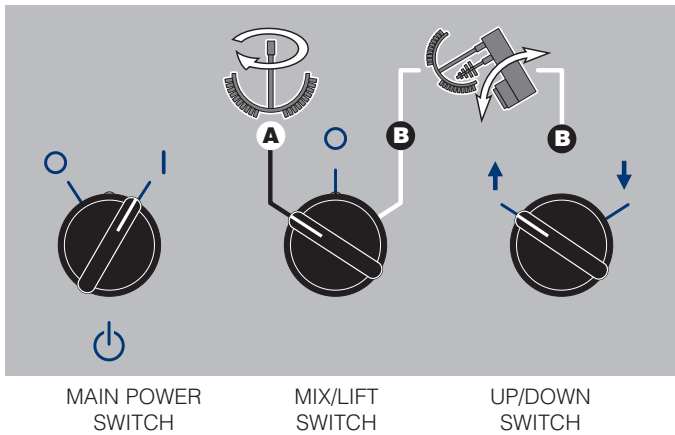
Cleveland Range Mixer Kettles are simple and safe to operate. The following tips will allow you to maximize the use of your new mixer.

If a mixer bridge is equipped with a temperature probe for a controller or thermometer, the probe must be submerged a minimum of three inches in the product for accurate readings.

Safety

As a safety precaution the MIXER SPEED CONTROL must first be turned to zero before unit will start to mix.

Always remember, like a cooking pot the kettles become very hot when cooking. Avoid contact with bare skin.



General Operation

1. Turn MAIN POWER SWITCH on.
2. Turn Steam Control Valve to control heat kettle.

Lifting & Lowering Bridge

WARNING: Insure FAUCET SPOUT is out of way before raising or lowering bridge.

1. Turn MIX/LIFT SWITCH to lift icon "A".
2. Turn MIXER SPEED CONTROL to "0" and back up to "5".
3. Turn and hold UP/DOWN SWITCH to up arrow to raise or down arrow to lower.

Mixing

1. Turn MIX/LIFT SWITCH to mix icon "B".
2. Turn MIXER SPEED CONTROL SWITCH to "0" and slowly adjust to desired speed.
3. Adjust SECONDARY SPEED CONTROL KNOB to desired speed.

Tilting Kettle

1. Raise MIXER BRIDGE and swing to side.
2. For manual tilt: Turn HANDWHEEL.
3. For power tilt: Turn POWER TILT CONTROL SWITCH.

WARNING: Do not tilt kettle when mixer agitators are in kettle bowl.

Product Discharge Valve

1. For butterfly valve: Push handle in and pull upwards to open.
2. For air valve: Turn Air Regulator Switch to open or close.

CLEANING INSTRUCTIONS



CARE AND CLEANING

Cooking equipment must be cleaned regularly to maintain its fast, efficient cooking performance and to ensure its continued safe, reliable operation. The best time to clean is shortly after each use (allow unit to cool to a safe temperature).

WARNINGS



Chloride Cleaners

Do not use detergents or cleansers that are chloride based or contain quaternary salt.



Wire Brush & Scrapers

Do not use a metal bristle brush or scraper.



Steel Pads

Steel wool should never be used for cleaning the stainless steel.



High Pressure Spray Hose

Unit should never be cleaned with a high pressure spray hose.



Stagnant Water

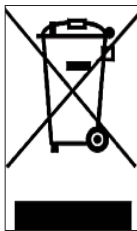
Do not leave water sitting in unit when not in use.

CLEANING INSTRUCTIONS

1. Turn unit off.
2. Remove drain screen (if applicable). Thoroughly wash and rinse the screen either in a sink or a dishwasher.
3. Prepare a warm water and mild detergent solution in the unit.
4. Remove food soil using a nylon brush.
5. Loosen food which is stuck by allowing it to soak at a low temperature setting.
6. Drain unit.
7. Rinse interior thoroughly.
8. If the unit is equipped with a **Tangent Draw-Off Valve**, clean as follows:
 - a) Disassemble the draw-off valve first by turning the valve knob counter-clockwise, then turning the large hex nut counter-clockwise until the valve stem is free of the valve body.
 - b) In a sink, wash and rinse the inside of the valve body using a nylon brush.
 - c) Use a nylon brush to clean tangent draw-off tube.
 - d) Rinse with fresh water.
 - e) Reassemble the draw-off valve by reversing the procedure for disassembly. The valve's hex nut should be hand tight only.
9. If the unit is equipped with a **Butterfly Valve**, clean as follows:
 - a) Place valve in open position.
 - b) Wash using a warm water and mild detergent solution.
 - c) Remove food deposits using a nylon brush.
 - d) Rinse with fresh water.
 - e) Leave valve open when unit is not in use.
10. If the unit is equipped with an **Air Valve**, clean as follows:
 - a) Open product valve.
 - b) Disconnect air hoses.
 - c) Remove air cylinder.
 - d) Remove valve tee.
 - e) Remove all O-rings.
 - f) Clean air cylinder, do not submerge in water. Wipe clean and sanitize.
 - g) Clean and sanitize tee and O-rings.
 - h) Grease and reinstall O-rings.
 - i) Reinstall valve tee to kettle outlet.
 - j) Reinstall air cylinder to bottom of tee.
 - k) Reconnect air hoses.
 - l) Close valve and check for alignment.
11. Clean the scraper blades as follows:
 - a) Remove retaining ring and slide scraper blades off agitator arm.
 - b) Place parts in a pan of warm water to soak.
 - c) Clean in a sink, using a warm water and mild detergent solution.
 - d) Rinse with fresh water.
 - e) Allow to dry thoroughly on a flat, clean surface.
12. Using mild soapy water and a damp sponge, wash the exterior, rinse, and dry.

NOTES

- ⇒ For more difficult cleaning applications one of the following can be used: alcohol, baking soda, vinegar, or a solution of ammonia in water.
- ⇒ Leave the cover off when the kettle is not in use.
- ⇒ For more detailed instructions refer to Stainless Steel Equipment Care and Cleaning (www.nafem.org/resources/stainlesssteelfinal.doc) on Nafem's website (www.nafem.org).



DISPOSAL INSTRUCTIONS

This unit is recyclable. Do not dispose in landfill.

The unit may contain rust inhibitor and or antifreeze within the jacket. Drain unit and dispose following Federal, State and local regulations.

The majority of the unit is composed of stainless steel. Other alloys and electrical components make up a small percentage of the total.

Follow Federal, state and local regulations for disposal.



PREVENTATIVE MAINTENANCE

FOR MAINTENANCE AND REPAIRS CONTACT YOUR AUTHORIZED MANITOWOC SERVICE AGENCY AND HAVE A QUALIFIED SERVICE TECHNICIAN MAINTAIN YOUR EQUIPMENT.



WARNING:



If for any reason this unit is not functioning correctly **DO NOT OPERATE**. Contact your authorized service agent.



DAILY PRE-STARTUP INSPECTION

1. Product Discharge Valve opens and closes.
2. Mixer Bridge lifts up and screen is in place.
3. All switches are functioning correctly.

SIX MONTH SERVICE INSPECTION

1. Perform daily startup inspection.
2. Gasket (G) around top cover is in good condition.
3. Tilt hand (H) wheel is tight.
4. Grease bearings on both trunnions.
5. Check for play in gears (adjust if required).
6. Fasteners securing panels are in place and tight.
7. Perform pressure relief valve periodic test (see Pressure Relief Valve Testing).
8. Adequate exhaust and makeup air is supplied to working area.
9. Check for hydraulic leaks.
10. Check safety systems have not been bypassed.

YEARLY SERVICE INSPECTION

1. Perform six month service inspection.
2. Replace hydraulic oil and filter.