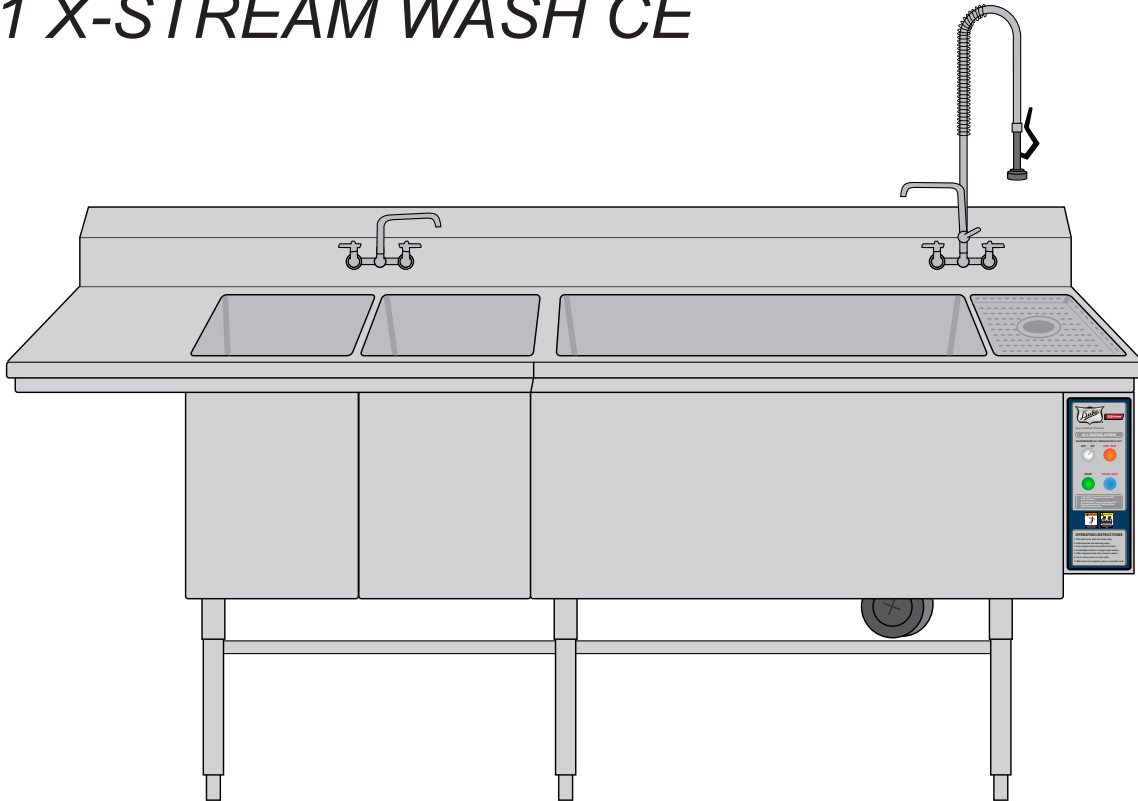




Your Solutions Partner

Installation and Operation Manual

IH-1 X-STREAM WASH CE



**Please read this manual completely before attempting
to install, operate or service this equipment**

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SAFETY AND ELECTRICAL WARNINGS

THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL QUALIFIED TO INSTALL ELECTRICAL EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD STARTUP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.

READ THIS MANUAL THOROUGHLY BEFORE OPERATING, INSTALLING OR PERFORMING MAINTENANCE ON THE EQUIPMENT.

⚠ WARNING: Failure to follow all the instructions in this manual can cause property damage, injury or death.

⚠ WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death.

⚠ WARNING: Electrical connections should be performed only by a certified professional.

⚠ WARNING: Electrical and grounding connections must comply with the applicable portions of the National Electrical Code and/or all local electric codes. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Plumbing connections must comply with applicable sanitary, safety and plumbing codes.

⚠ WARNING: Before connecting the unit to the electrical supply, verify that the electrical and grounding connections comply with the applicable portions of the National Electrical Code and/or other local electrical codes. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before connecting the unit to the electrical supply, verify that the electrical connection agrees with the specifications on the data plate. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: UL73 grounding instructions: This appliance must be connected to a grounded, metal, permanent wiring system or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before performing any service that involves electrical connection or disconnection and/or exposure to electrical components, always perform the Electrical LOCKOUT/TAGOUT Procedure. Disconnect all circuits. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Before removing any sheet metal panels or servicing this equipment, always perform the Electrical LOCKOUT/TAGOUT Procedure. Be sure all circuits are disconnected. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Do not operate this equipment without properly placing and securing all covers and access panels. Failure to comply with this procedure can cause property damage, injury or death.

⚠ WARNING: Do not use or store gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance. Failure to comply can cause property damage, injury or death.

⚠ WARNING: In the event of a power failure, do not attempt to operate this appliance. Failure to comply can cause property damage, injury or death.

⚠ WARNING: This unit shall not be cleaned with a water jet or similar equipment.

SPECIFICATIONS

A. X-STREAM WASH SPECIFICATION



The X-Stream Wash system is a modular designed unit. The X-Stream consists of a scrap/wash sink table and a rinse/sanitize sink table which while shipped assembled, can be disassembled and quickly and easily reassembled in the field using specially designed weld plates attached to the rear of each unit. The unit is controlled by the IH-1 Intelligent Heat Monitoring System which controls the two speed, 120 volt, 1-1/2 HP pump/motor.

Unit Weight:	600 lbs / 272 kg
Shipping Weight: Wooden Crate	740 lbs / 336 kg

Tank Capacity	66 Gallons / 250 Liters
Both right-to-left and left-to-right configurations available	

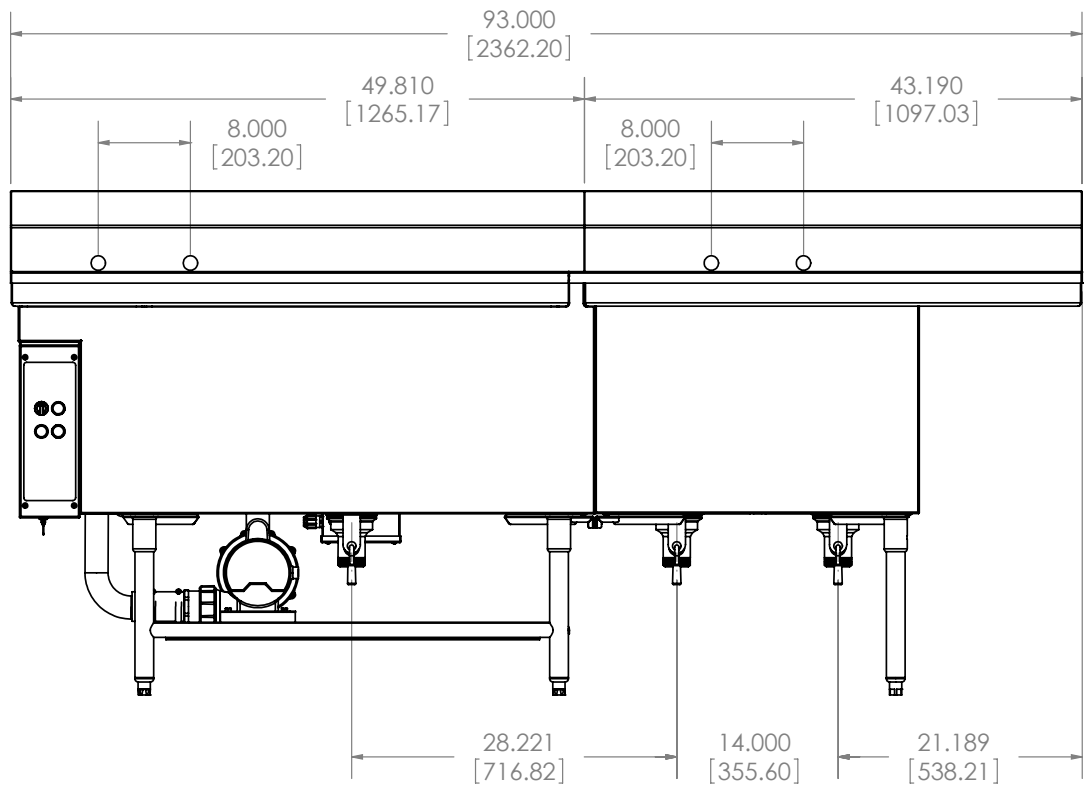
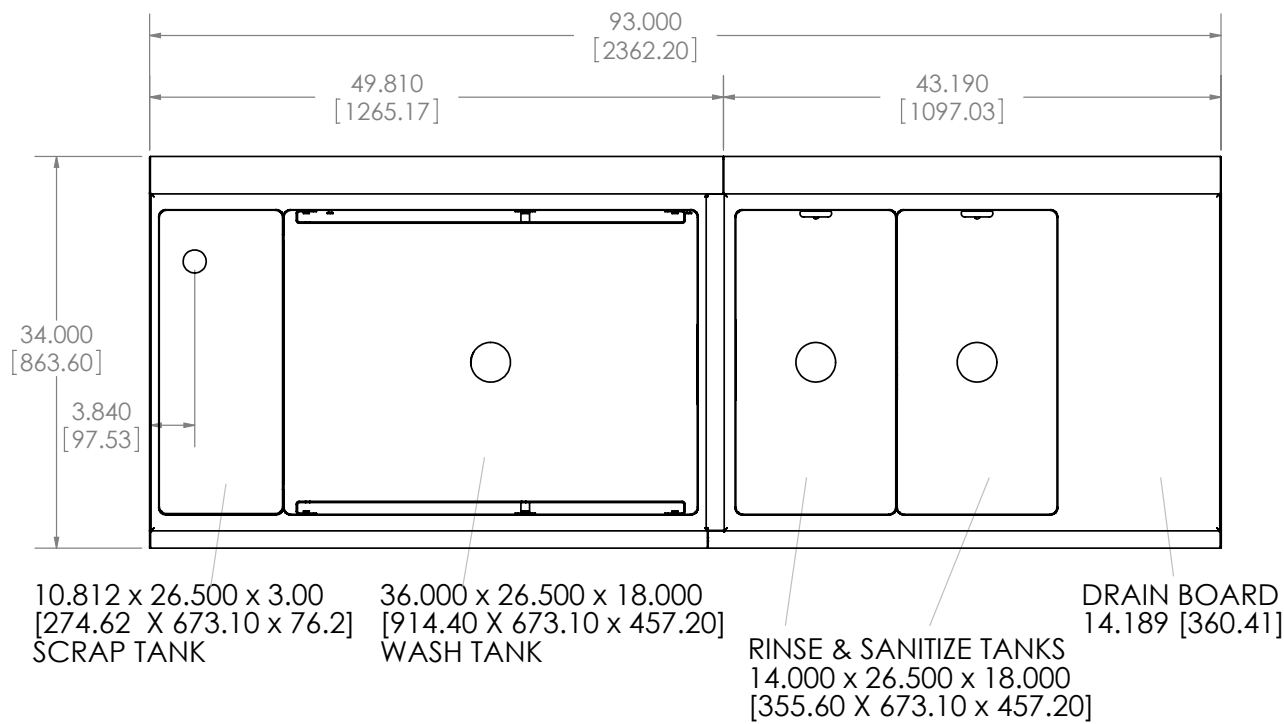
Model	Voltage	Rated Amps	Plug Configuration	Requirments
XSW-9003626CE	230V, 50 Hz, 1PH	8	Pin and Sleeve 16 Amp, 250V 2 Pole, 3 Wire IEC 60309	10 Amp minimum dedicated circuit

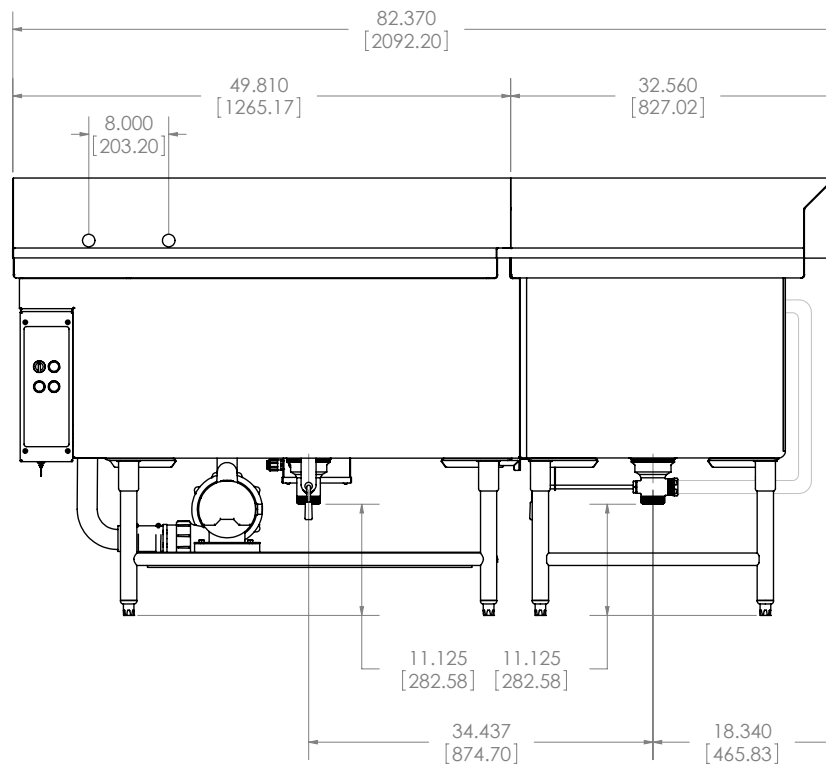
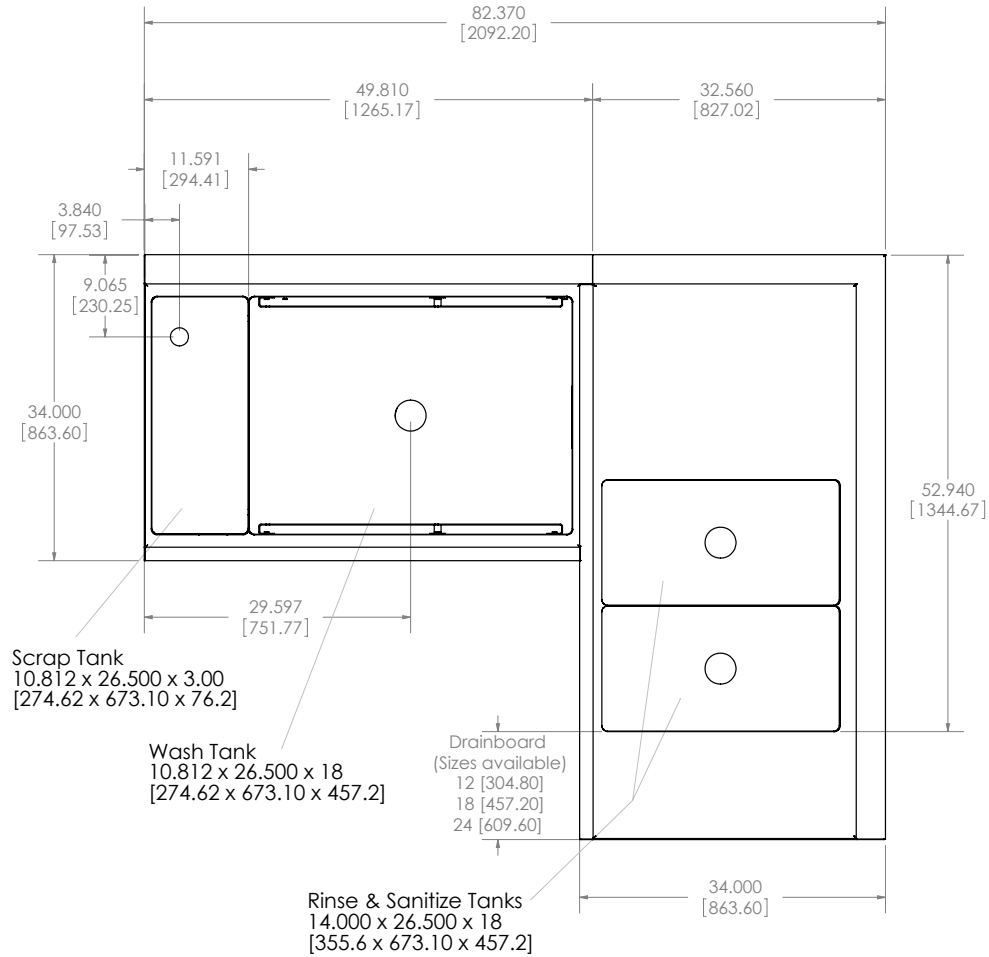
Recommendation: To be used with 80 Gallon / 300 liter water heater with a 3-way mixing valve. Consult factory with questions.

Compliance Declaration - X-STREAM WASH	
	Directive 2006/95/EC: EN60335 -1:2010 EN 60335-2-58:2008
	WEEE Directive 2002/96/EC RoHS 2011/65/EC

B. DIMENSIONS

Measurements in inches [millimeters]





INSTALLATION INSTRUCTIONS

A. QUALIFIED PERSONNEL

These installation instructions are for the use of **qualified installation and service personnel only**. Installation or service by other than qualified personnel may result in damage to the unit and/or injury to the operator.

Qualified installation personnel are those individuals, firms, companies or corporations which either in person or through an agent is engaged in and responsible for:

- The installation of electrical wiring from the electric meter, main control box or service outlet to the electrical appliance. Qualified installation personnel must be familiar with all precautions required and have complied with all requirements of local authorities having jurisdiction.
- This appliance is not intended for use by persons (including children) 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.

B. DELIVERY AND INSPECTION

Duke Manufacturing Co. does everything within its power to ensure you received your unit in good condition. It is crated on heavy wooden skids and packed to prevent shipping damage. It has all been carefully inspected before it was packaged and consigned to the carrier.

Upon delivery of your Duke unit:

- Look over the shipping container, carefully noting any exterior damage on the delivery receipt, which must also be signed by the driver/ delivery person.
- Unpack and check for any damage, which was not evident on the outside of the shipping container.
- Check for concealed damage. The carrier must be notified within fifteen (15) days of the delivery of the unit and the crate and all packaging materials must be retained for inspection.

Duke Manufacturing Co. cannot assume liability for loss or damage suffered in transit. The carrier assumes full responsibility for delivery in good order when the shipment was accepted. However, we are prepared to assist you in filing your claim.

C. PLACEMENT

- **HANDLING** – The units are very heavy and may require the use of moving equipment. Consult with your local restaurant equipment supplier.
- **INSPECTION** – Inspect the area where the unit is being installed. Check for proper clearance with shut off valves and drain line hook ups.
- **LEVELING (IF APPLICABLE)** – The unit is a modular design equipped with bolted field joints. Align the two tables and, if necessary, use a wrench to adjust the bullet feet up or down to ensure a tight fit. Bolt the pieces together at the welded attachment plates provided on the rear of each piece. **NOTE:** leg placement cannot sit on any existing grease extractors or grease traps.
- **SEALING** – Seal the top of the backsplash to the wall using an NSF approved silicone sealant.

⚠ WARNING: Equipment is heavy. Heavy lifting may result in bodily injury. Do not lift or move without adequate help.

D. PLUMBING REQUIREMENTS

- **WATER SUPPLY** – Hot and cold water should be supplied by a 1/2" (12.7mm) water line.
- **DRAINS** – A 1-1/2" (38.1mm) minimum waste connection is required. If equipped, the scrapping sink should have a 1-1/2" (38.1mm) NPS connection, while the wash, rinse, and sanitize sinks typically have a 2" (50.8mm) NPS connection.

E. ELECTRICAL CONNECTIONS

⚠ WARNING: Electrical Hazard – May result in electrical shock, burns, or death.

Your unit is supplied for connection to a dedicated grounded circuit. The electric motors, indicator lights and control circuits are connected through a ten-foot electric supply cord found at the rear of the unit.

Before making any connections to these units, check the rating plate to assure that the voltage and phase of the unit is compatible with the electrical supply. When installing, all units must be electrically grounded in accordance with local codes. Wiring diagrams are located in the control compartment area of the unit. Standard wiring schematics are also provided with this manual.

The Mains Supply safety / earth ground wire must be longer than mains conductors at the unit's interconnections to prevent stress under pull.

European Union (CE) installations must use HO7RN-F, 3X1 2,5mm flexible cordage.

If the supply cord is damaged, it must be replaced by the manufacture, it's service agent or similarly qualified persons in order to avoid a hazard.

EXTERNAL EQUIPOTENTIAL

Terminal provides a connection for bonding to equipment enclosure.

F. ACCESSORIES

ITEM	PART NAME
1	12" (304.8mm) Faucet for Pre Rinse Add-A-Faucet
2	12" (304.8mm) Faucet
3	14" (355.6mm) Faucet
4	Lever Waste Drains
5	Splash Mount Overhead Spray
6	Splash Mount Overhead Spray and 12" (304.8mm) Faucet

G. HOT WATER REQUIREMENTS

We recommend an 80 gallon (300 Liter) electric water heater with mixing valve. The heater tank should be

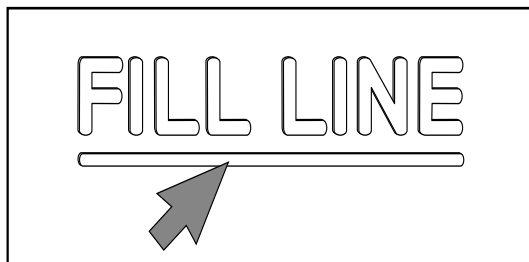
set at 150°F (65.5°C) and the mixing valve to 120°F (48.8°C). If no mixing valve is present set the water heater tank to 120°F (48.8°C).

OPERATION INSTRUCTIONS

A. INITIAL STARTUP

A-10 Fill Tanks with Water

- Fill wash tank with 120°F (48.9°C) hot water to the marked "FILL LINE". Once the tank is filled, turn the red on/off switch to the "ON" position to place the unit in idle mode.



Fill Line

- RINSE TANK – Fill the rinse tank with tap temperature water to the marked "FILL LINE".
- SANITIZE TANK – Fill the sanitize tank to the marked "Fill Line" using the dispenser valve above the tank, if available. Otherwise, fill with tap temperature water.

⚠ WARNING: Do not connect to a hot water supply exceeding a temperature of 120° (48.9°C).

A-20 Add Soap / Chemicals

- WASH TANK – Dispense approved low foaming soap through approved dispensing system or by approved correct amount of manual dosing.

- **SANITIZE TANK** – Chemicals will be added through dispenser valve above unit, if available. If valve is not installed above unit, manually hand feed the chemicals per the chemical supplier's instructions and the local health code requirements. Water will need to be monitored to retain the proper pH balance per local codes.

A-30 Approved Chemicals

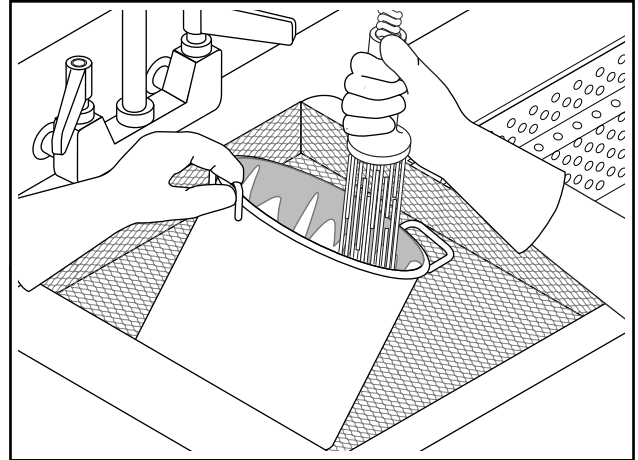
- Chemicals which are low to non-foaming, metal safe, and non-caustic must be used in the wash and sanitize tanks. It is recommended that approved low foaming soaps be used. Caustic chemicals are capable of burning, corroding, or destroying living tissue and should not be used.

⚠ WARNING: Chemicals used in the wash tank that do not have de-foaming capabilities will not run properly and could damage the machine. Consult your chemical supplier before use.

⚠ WARNING: Chemical Hazard - could result in serious injury or death. Always consult with your chemical supplier and read all warning labels before handling new chemicals.

B. PRE-SCRAPPING

- All wares must be rinsed, not scrubbed, prior to loading into the wash tank to remove heavy soils and debris. This will improve wash results, reduce chemical costs and reduce the number of water changes needed during a typical day.

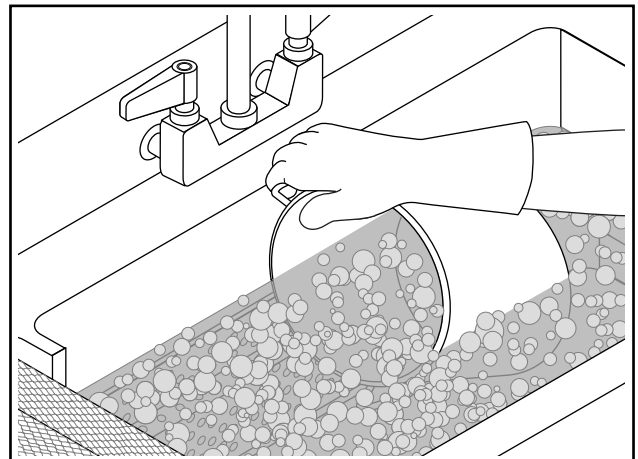


Pre-Scrapping

NOTE: If your store uses tape to label the cambro pans, be sure to remove the tape before placing into the system. This will ensure better flow dynamics and will increase your wash performance. The use of dissolvable cambro labels or erasable markers is highly encouraged instead of tape.

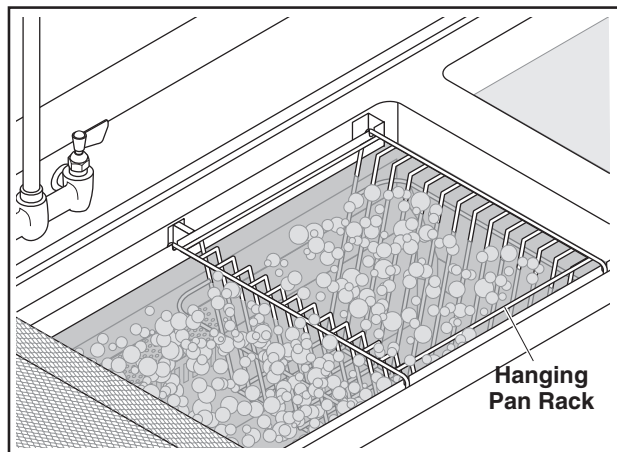
C. LOADING WASH TANK

- Load wares into wash tank, utensils & silverware into utensil basket or sheet pans into pan rack. When washing plastic pans or bread forms, simply place them into the wash tank to be washed “free flow” style. It is recommended that no more than 12 plastic pans or 35 bread forms be washed at one time. If washing sheet pans, insert the pan rack and fill with no more than 12 sheet pans. The rack will drop in position with the slots on the tank guide rails.



Loading Wash Tank

NOTE: All wares must be washed with identical items, do not combine pans and bread forms. Do not wash pans or bread forms while either the utensil basket or sheet pan system is in place.



Utensil Basket Placement

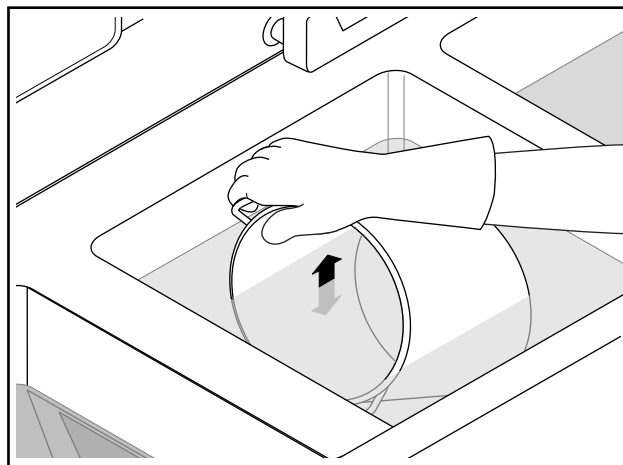
⚠ WARNING: To prevent bodily injury, never load knives or other sharp objects directly into the wash tank, the utensil basket must be used.

D. WASH CYCLE

After the wash tank is loaded, push the green “START” button. This will take the unit out of idle mode and will start the pre-set wash cycle. When this cycle is complete, the unit will automatically return to idle mode so that the wash tank can be unloaded. The slower water movement in the idle mode will keep proteins and soiled sediments from falling back onto the cleaned items. Remove the items and visually inspect each piece while post rinsing any loose particles into the wash tank. If not satisfied, repeat the wash cycle process. If satisfied, proceed with rinse and sanitize steps.

E. RINSE

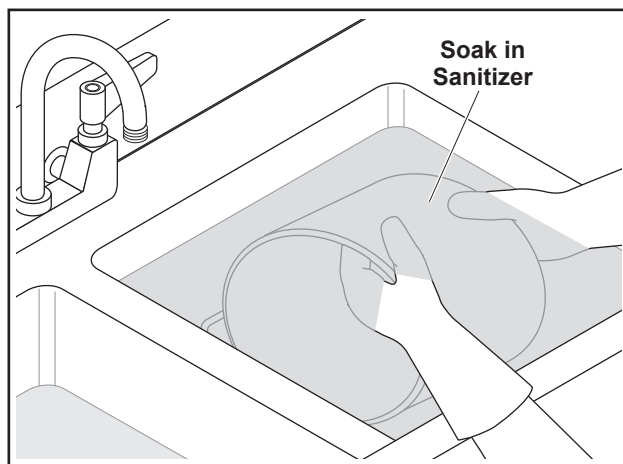
Remove the clean wares from the wash tank and dip items into the rinse tank to remove any soap or soil residue.



Place items into Rinse Tank

F. SANITIZE

Place items into the sanitize tank and soak according to the chemical supplier's instructions and in accordance with the local health code. When sanitization is complete, items can be removed and allowed to air dry.



Place items into Sanitize Tank

G. CONTROL PANELS

Intelligent Heat Monitoring System

The X-Stream is equipped with the IH-1 control panel.



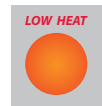
Controls



On/Off Knob Toggles unit on/off and places unit in idle mode.



Green Start Button Pressing once starts wash cycle. After wash cycle is complete, the unit will automatically return to idle mode.



Amber Alarm Light When lit, indicates that the water temperature has fallen to 95°F (35°C). Tank must be drained down to the **“Refill Line”** and refilled with 120°F (48.9°C) water to **“Fill Line”**. One additional soap packet must be added at this time.



Blue Alarm Light When lit, indicates that the water temperature has fallen to 85°F (29.4°C). Unit will shut down and all operations will stop. Unit must now be completely drained and refilled to **“Fill Line”**. Two soap packets must be added at this time.

SERVICE AND REPAIR

Periodic service and maintenance of the unit is not required beyond the user's regular cleaning schedule. Qualified service personnel must perform service or repair should the unit develop a fault other than cleaning maintenance.

Qualified service personnel are individuals, firms, companies or corporations who are knowledgeable in and responsible for compliance with jurisdiction authorities concerning service of commercial food

preparation equipment. Contact the Duke Manufacturing Company Service Department at the USA worldwide headquarters (telephone: 011-800-735-3853) for assistance with selecting qualified service personnel.

WARNING to qualified service personnel:

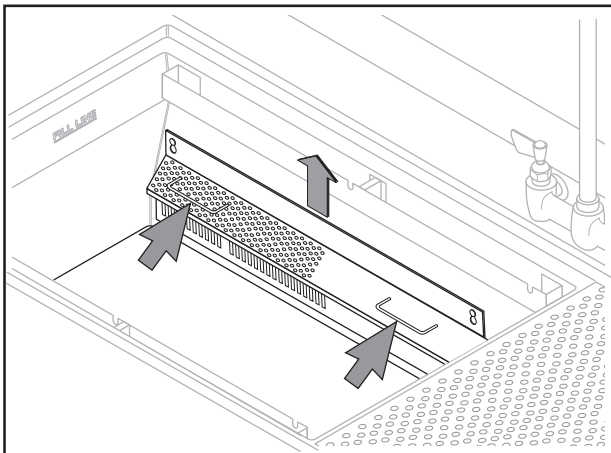
⚠ WARNING: Disconnect the power supply to the appliance before servicing.

A. PREVENTATIVE MAINTENANCE

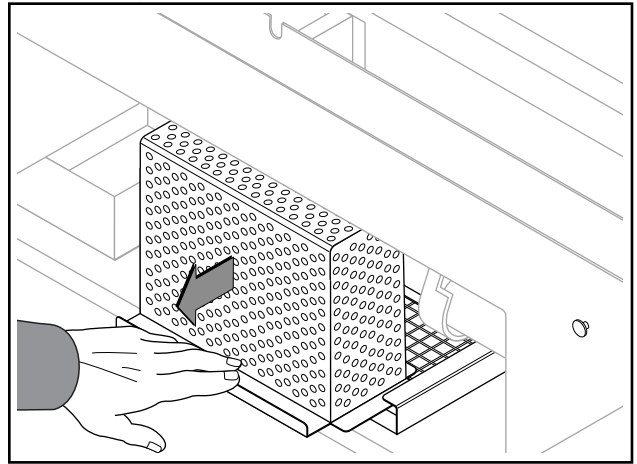
PUMP INTAKE SYSTEM

The X-Stream Wash system has two (2) intake screens that require maintenance on a daily basis. They are the primary intake grate and the secondary pump protector. The purpose of the primary intake grate is to prevent wash items from being drawn into the pump return cavity. The second benefit of the primary intake screen also directs flow and creates the “whirlpool cycle” that you notice during a typical wash cycle and must be in place at all times for proper operation.

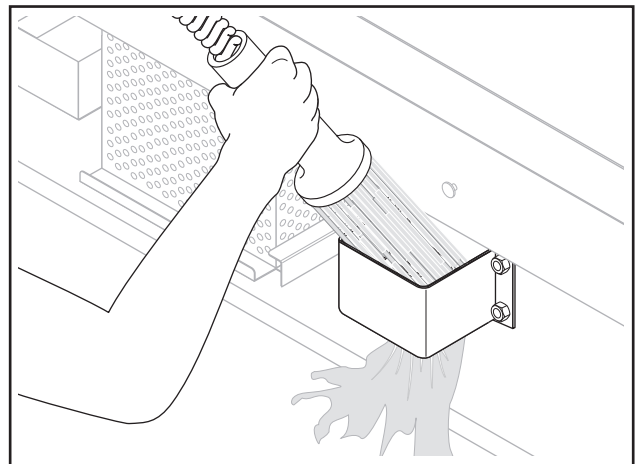
Remove primary intake grate: simply lift from the pull handles of the extended “V” rib and pull upward. The primary intake grate will move upward on the “key-hole” pins and be able to be pulled off and removed. Remove any visible debris from the panel.



Secondary pump protector: this system protects the pump from unintended debris such as paper, tape, plastic, knives, straws etc. Normal food particles will be liquefied and will be removed with the normal wash water drain out process. Simply slide out the box towards the front of the unit. Remove any visible debris and slide back in place.



Be sure to also spray the float switch housing area to the side of the secondary pump protector. Spray debris out to allow the float switch to move freely up and down.



Place primary intake grate back on pins and push down until latched at the bottom. You are now ready to begin normal operation.

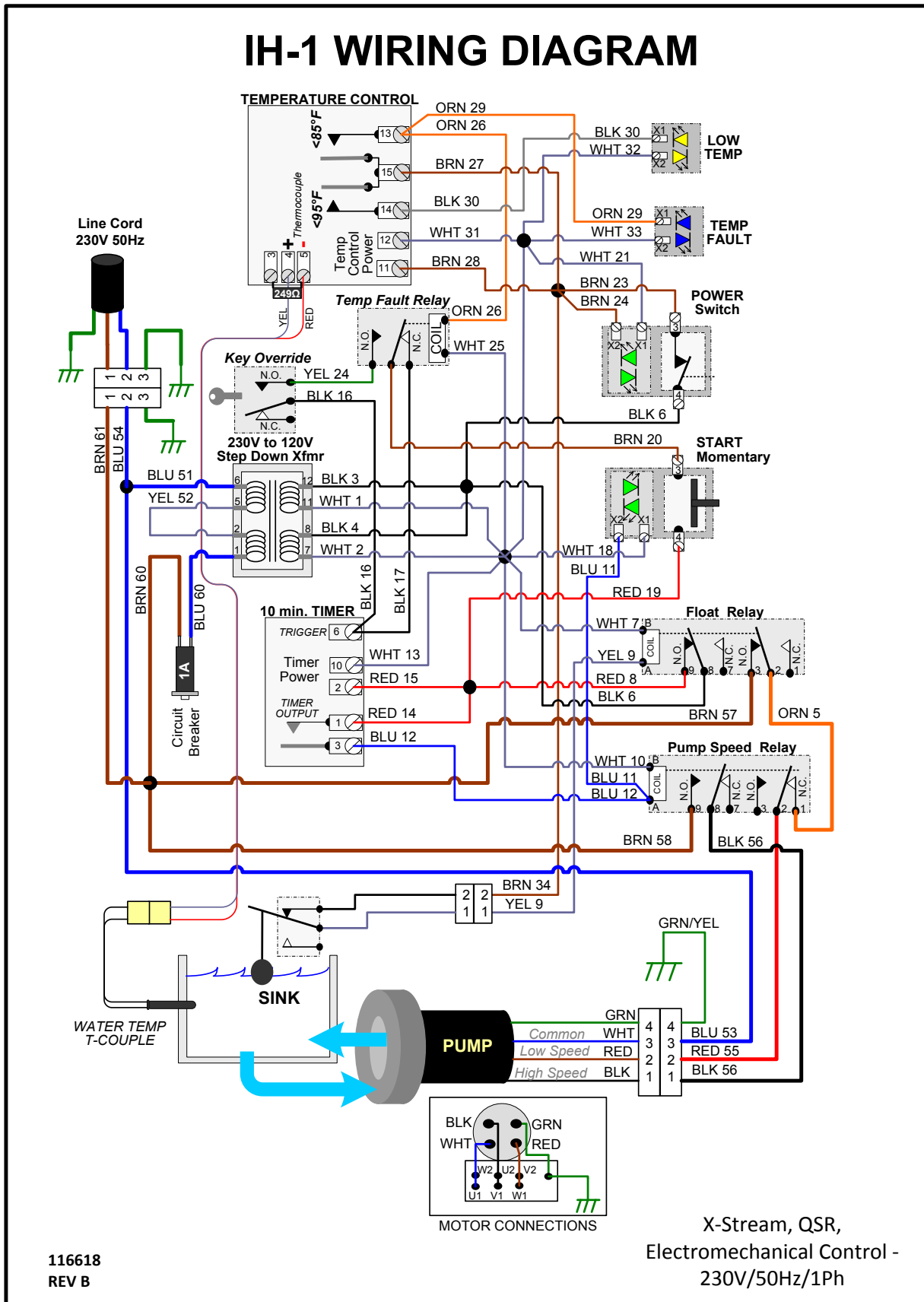
B. TROUBLESHOOTING

PROBLEM	YES	No
1. Turn selector switch on and no lights come on a. Is power cord plugged in? b. Is system filled with hot water only? c. Did lights come on?	Go to "b". Call Duke service Troubleshooting complete	Plug power cord in. Drain system and fill with hot water Call Duke service
2. Turn selector switch to on (switch lights) but no idle (slow) speed mode.		Defective: power selector switch - float relay - call duke service
3. Turn selector switch on and pushed green button and nothing happens a. Is system filled with hot water only? b. Are heat warning lights on? c. Did lights come on?	Go to "b". See failed heat section Troubleshooting complete	Drain system and fill with hot water Call Duke service Call Duke service
4. Selector switch is on and when the green button is pushed it only stays in low speed.		Defective: momentary green switch - wash cycle timer - defective motor speed relay - defective high speed on motor - call Duke service
5. Selector switch light is out, green selector light is out, and one or both of the heat lights are on.		Your are in heat monitoring mode: if the amber light is the only light on, drain water down to refill line and refill with hot water and add 1-pack of soap and resume operations as normal. If the blue & amber lights are on you must completely drain the wash engine and refill with hot water only and add 2 packs of soap once filled and resume normal operation.
6. You fill wash tank with hot water and the amber light comes on right away or very soon after initial fill.		Please check water heater operation. Make sure you filled with hot water only! Check water heater gallon capacity. Adjust water heaters thermostat for hotter setting (please or have "mixing valve" installed as per specifications - caution - please maintain anti-scalding precautions on temperature settings per local codes)

C. PARTS LIST

ITEM	PART NAME	PART NO.
1	Switch, Selector (LED)	115308
2	Switch, Momentary (LED)	115307
3	Indicating Light -Blue (LED)	115313
4	Indicating Light-Amber (LED)	115312
5	Timer, Multi Mode 2PDT	115304
6	Din Socket	115305
7	Controller, Temperature	116426
8	Relay, DPDT, 40 Amp, 120 VAC Coil	115330
9	Relay, SPDT, 30 Amp, 120 VAC Coil	115323
10	Float Switch "Low water" check	116444
11	Switch, Tubular Lock & Key	115335
12	Label, Control	115317
13	Terminal Block, Ground	115078
14	Terminal Block, Main	115082
15	Cord Set Assy, IH-1 CE	115389
16	Pump, 2 speed 230 volts, 50Hz Right Discharge	116616
17	Pump, 2 speed 230 volts, 50Hz Left Discharge	116615
18	Pad, Pump	116423
19	Fitting, 2" (50.8mm) Spigot x 2" (50.8mm) Barb, PVC	115336
20	Hose	116425
21	Clamp, Hose 2" (50.8mm)- 3" (76.2mm)	115140
22	Cable, Pump	116443
23	Cord, Control Box to Float Switch	116442
24	Connector, Receptacle, Pump	115344
25	Conduit, Seal Tight, 1/2" (12.7mm)	0078350
26	Connector, 1/2" (12.7mm) Seal Tight Straight	0080650
27	Connector, 1/2" (12.7mm) Seal Tight 90 Deg	0080750
28	Connector, 1/2" (12.7mm), Liquidtight 0.310-0.560" (7.9mm-14.2mm)	115096
29	Connector, 1/2" (12.7mm), Liquidtight 0.500-0.750" (12.7mm-19.1mm)	115357
30	Lever Drain 2" (50.8mm) W/Restrictor main Wash Tank	115243
31	Head, Overflow	115156
32	Elbow, Overflow	115129
33	Drain, Scrap Sink	115244
34	Strap, 1" (25.4mm) Pipe	0058736
35	Socket, Leg	0308150
36	Bullet Feet, Standard	0128700
37	Bullet Feet, 3" (76.2mm) Extension	115328
38	Wire Sheetpan Rack	115292
39	Gasket, Control Panel	115322
40	Lanyard, 8" (203.2mm)	115350
41	Harness, Jumper, Thermocouple	116377
42	Transformer 115/230 VAC	115379
43	Circuit Breaker, 1 Amp	115377
44	Thermocouple, Water Temperature	115088

D. WIRE SCHEMATIC





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