



**Expect Service**

**Radiation Products Design Inc**

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## INSTRUCTIONS

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### RPD INFORMATION

**Address** 5218 Barthel Industrial Drive  
Albertville, MN 55301

**Website** [www.rpdinc.com](http://www.rpdinc.com)

**Email** [sales@rpddinc.com](mailto:sales@rpddinc.com)

**Phone** 763-497-2071 or 800-497-2071

**Fax** 763-497-2295

### RPD PRODUCT INFORMATION

Item Number	Digital Alloy Melting Dispensers
878-060	1.5 Gal. 158°/203°F 120 VAC, 665 Watts, 5.6 Amps Fuse: 8 Amp, 250 VAC Fast/Acting, 5 mm x 20 mm
878-065	1.5 Gal. 158°/203°F 208/240 VAC, 576/665 Watts, 3.2/2.8 Amps Fuse: 4 Amp, 250 VAC Fast/Acting 5 mm x 20 mm



## CERTIFICATION

Radiation Products Design Inc, as the manufacturer, certifies that all components used to manufacture the Alloy Melting Dispensers have UL listed approved parts. This includes the electronic control, heating element, faucet heater, switch, fuse, indicators and wiring. The units are grounded to the inside container and outside shell and then connected to a hospital grade three prong cord.

The units are tested as follows:

- The resistances of the heating element and faucet heater are verified and values are recorded.
- Total current draw is checked and recorded.
- Leakage current is taken to UL specification in four modes with all values being recorded. Radiation Products Design's maximum leakage current never exceeds 250 uAmp.

This product is not ISO certified or UL listed.

## INTRODUCTION

The Compact yet rugged design makes it universally ideal for clinical use. It features polished stainless steel corrosion-resistant interior and exterior housing, a stainless steel cover and a side mounted, easy to view temperature control. Power switch, fuses and cord receptacle are mounted on the back side.

The EZ-Zone® Digital Proportional-Integral-Derivative (PID) Temperature Controller has two digital readouts, temperature and set point. It can maintain alloy at controlled temperature sets at a maximum of 250°F (121°C). The heating element provides even temperatures throughout the entire unit.

Controlling the power to the heater is done with a heavy duty Triac with Zero Crossover Switching to prevent noise from being induced into other equipment thru the AC Line.

The units are constructed with a ball valve faucet with hose barb connector for easy alloy removal. An optional 3/8" ID x 18" long (0.96 x 45.88 cm) drain tube (Item 878-158) can be attached to the faucet hose barb fitting when the dispenser is set on a shelf over the alloy blocks.

A 6' (1.8 m) AC Cord with grounded hospital grade plug is standard.

All units are single phase.

## FEATURES

- Alloy Temperature Stability  $\pm 4^{\circ}$
- Microprocessor PID Temperature Control
- “J” Thermocouple
- Open Thermocouple Sensor Will Shut Unit Down
- Temperature is Displayed in Fahrenheit or Celsius
- Easy View Temperature Controls
- Set Point Reading Is Green and Alloy Temperature Is Red
- Insulated Container Preserves Power Consumption
- Exterior Stays Cool Even After Hours of Operation
- Easy to Clean Round Container
- Stainless Steel Corrosion-Resistant Interior and Exterior

## SAFETY INSTRUCTIONS

Read all safety and operating instructions before operating the alloy dispenser.

- Power Source. This unit should be operated only from the type of power source indicated on the identification label. If you are not sure of the type of power supplied to your building, consult your Engineering department or local power company.
- Plug the unit into a properly grounded outlet having a ground fault circuit interrupter either in the receptacle or in the immediate power line. In some cases a dedicated line may be preferred.
- Power Cord Protection: Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention so that the unit is placed within a convenient distance from electrical receptacles.
- Alloy Dispensers are very heavy. Be sure table will handle the weight.
- Unplug the electrical cord before cleaning or working on the Alloy Dispenser.
- Always wear safety glasses with side shields.
- Avoid breathing alloy dust. Use a dust mask.

- Vent area to the outside of a building for Styrofoam cutting.
- Wash hands before eating.
- Wear, leather apron, jeans, leather shoes (no vent holes on the top of the shoe) and gloves for protection against hot alloy.

## SAFETY SYMBOLS



## SPECIFICATIONS

Item	878-060	878-065
Gallons	1.5	1.5
120 VAC 50/60 Hz	X	
208/240 VAC 50/60 Hz		X
Watts	665	576/665
Amps	5.6	3.2/2.8
Alloy Capacity	120 lb (54 kg)	120 lb (54 kg)

**Alloy Temperature Range:** 0° to 250°F (-18° to 121°C)

**Temperature Accuracy:** ± 4°F

**Temperature Controller Type:** PID

**Thermocouple:** J

**Power Source:**

120 VAC at 6 Amps

208/240 VAC at 3.2/2.8 Amps

**Line Frequency:** 50-60 HZ

**Wattage:** 665 at 120 VAC and 576/665 at 208/240 VAC

**Electronic Switching:** Triac with Zero Crossover Switching

**On/Off Switch:** 10 Amp Rating

**Fused:** Two Line Fuses for AC Lines

**Power Cord:** 6' (1.8 m) 3 Wire, 10 Amp, 300 Volt, SJT, with Hospital Grade Plug

**Faucet:** Ball Valve with Hose Barb

**Optional Faucet Hose:** 3/8" ID x 1' (1 cm x 30 cm)

**Interior Dimension:** 7 1/8" Dia. x 8 5/8" Deep (18 x 21.9 cm)

**Interior Material:** Stainless Steel

**Exterior Dimensions:** 9 3/4" x 12" x 14 1/2" High (25 x 30.5 x 37cm)

**Exterior Material:** Stainless Steel

**Weight:** 17.5 lbs (8 kg )

**Environmental Conditions**

**Altitude Limits:** 2000 Meters

**Ambient Temperature Range:** 32° - 104°F (0° - 40°C)

**Relative Humidity Range:** 0 to 75%

**Pollution Degree:** 2

**FOR INDOOR USE ONLY**

## OPERATIONS INSTRUCTIONS

- Fill Alloy Dispenser with alloy and cover with lid.
- 158° alloy may be covered with water to 1" below top of dispenser to prevent oxidization.
- Always replace stainless steel cover to retain heat and water vapors.
- Place alloy blocks gently into melting dispenser to prevent splashing.
- Surface alloy may seem stiff, not at all flowing consistency. Temperature can be raised to melt alloy, then stir alloy to mix.
- Use a slotted spoon to remove masking tape, Styrofoam pieces and depleted alloy.

## FAHRENHEIT OR CELSIUS

On the EZ-Zone® Digital Temperature Controller press the GREEN button marked "C". On the screen will appear "H" or "C". Press the down arrow to change to "F" for Fahrenheit or "C" for Celsius. Keep pressing the down arrow until your selection appears on the screen. Press the button marked ∞ to set the temperature to "F" for Fahrenheit or "C" for Celsius.

## CLEANING ALLOY DISPENSER

- Remove alloy once a month and clean the inside of the dispenser with scotch-brite (Item 878-160).
- Keep alloy and dispenser clean at all times.
- **DO NOT** immerse dispenser in water.
- **DO NOT use bleach or iodine based products to clean the Alloy Dispenser as such products can quickly corrode the stainless steel resulting in pin holes.**

## TEMPERATURE ADJUSTMENT

Turn the Alloy Dispenser power switch on:

The EZ-Zone® Digital Temperature Controller can adjust the alloy temperature set point from 0 to 250°F (38°C to 88°C) by pressing the up arrow to increase temperature and pressing the down arrow to decrease temperature. On the screen the set point is displayed in GREEN and the current alloy temperature is displayed in RED.

Controlling the power to the heater is done with a solid state, heavy duty triac with Zero Crossover Switching to prevent noise from being induced into other equipment thru the AC Line

### NOTE

- For 158°F alloy set temperature between 168° and 180°F.
- For 203°F alloy set temperature between 213° and 225°F.
- Old alloy may take higher temperatures to melt.

## CHANGE THE FUSE

Remove the power cord (fuse drawer will not open with the power cord attached). Use a small flat blade, such as a screw driver, to pry the drawer open. Remove the old fuses and install new fuses. Shut the fuse drawer and attach the power cord.

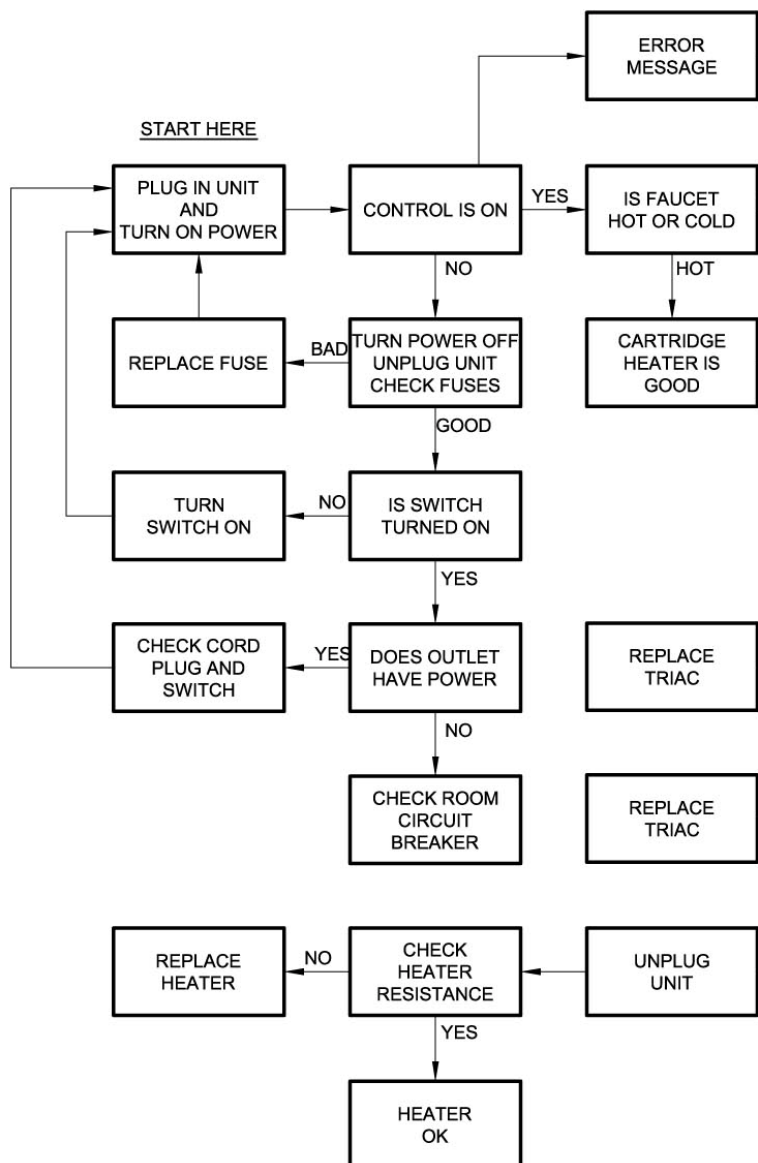
Item #	Description
878-060	120 VAC, Fuse 8 Amp, 250 VAC Fast/Acting 5mm x 20mm
878-065	208/240 VAC, Fuse 4 Amp, 250 VAC Fast/Acting 5mm x 20mm

## QUALIFIED SERVICE PERSONNEL/BIOMEDICAL ENGINEER CAN REMOVE THE TEMPERATURE CONTROL PANEL OR BASE FOR SERVICE

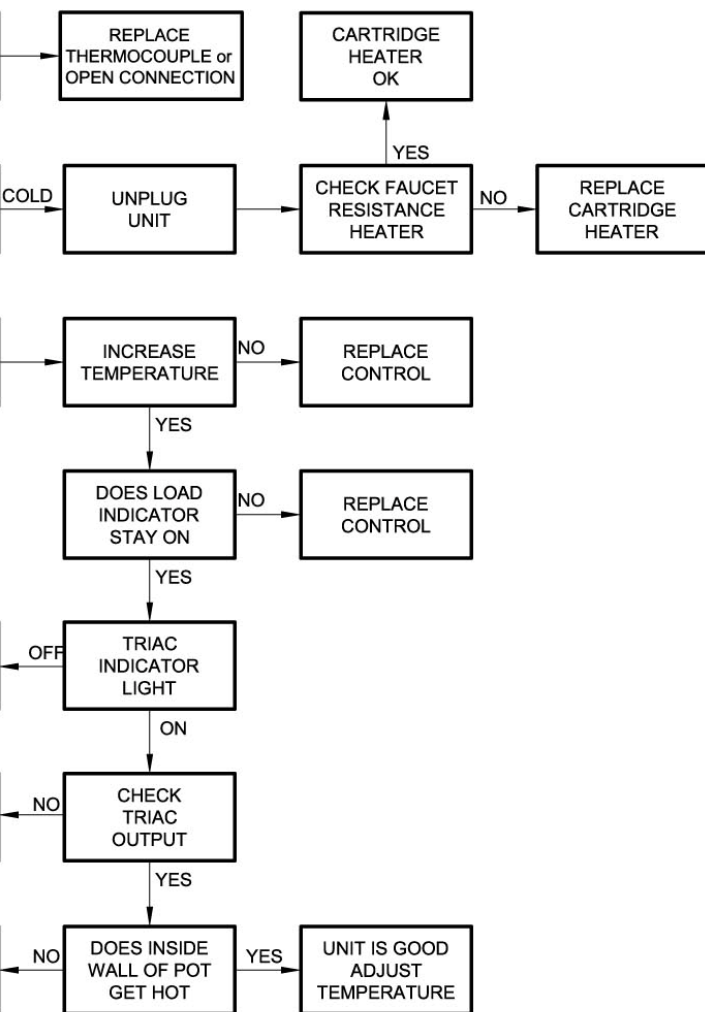
Empty the alloy dispenser. Turn the power switch off and unplug the dispenser.

The temperature control can be removed from the front by pressing the tabs outward on two sides releasing the control and allowing it to slide out. The temperature control has a small LED indicator light on the right side that flashes or is on steady when the unit is heating. This causes the Triac LED indicator light to be on at the same time and heater power is applied.

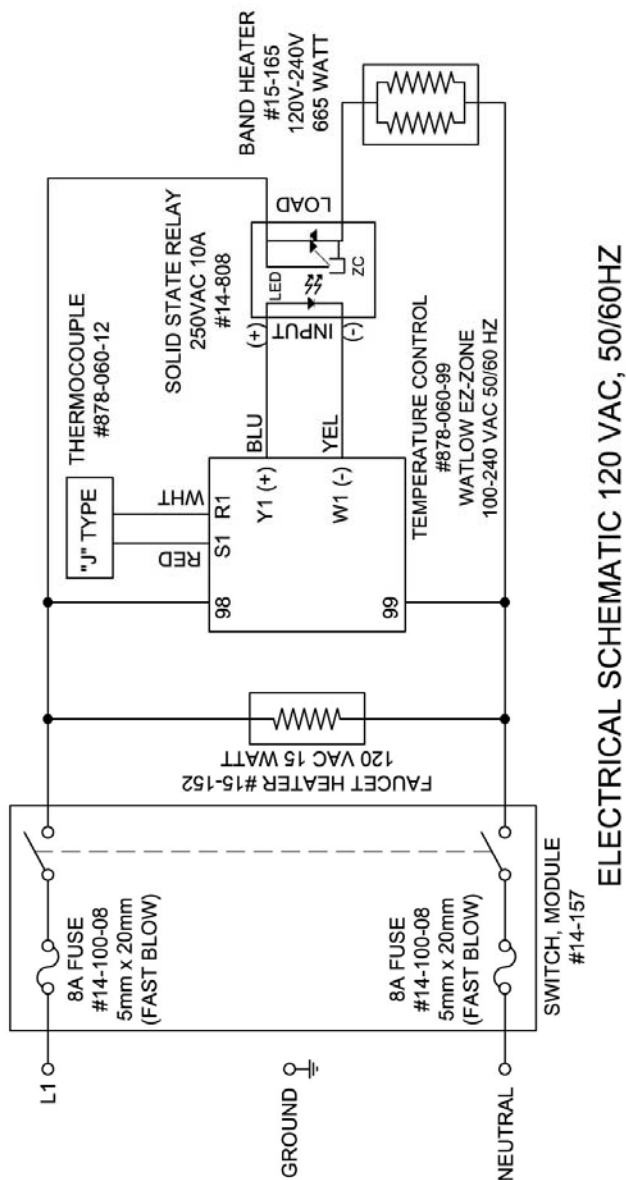
Turn the dispenser upside down. The base can be removed by removing the screws around the outside edge. The Triac is mounted to the base plate and has an input LED indicator light. When illuminated power is sent to the heater.

**TROUBLESHOOTING FLOWCHART**

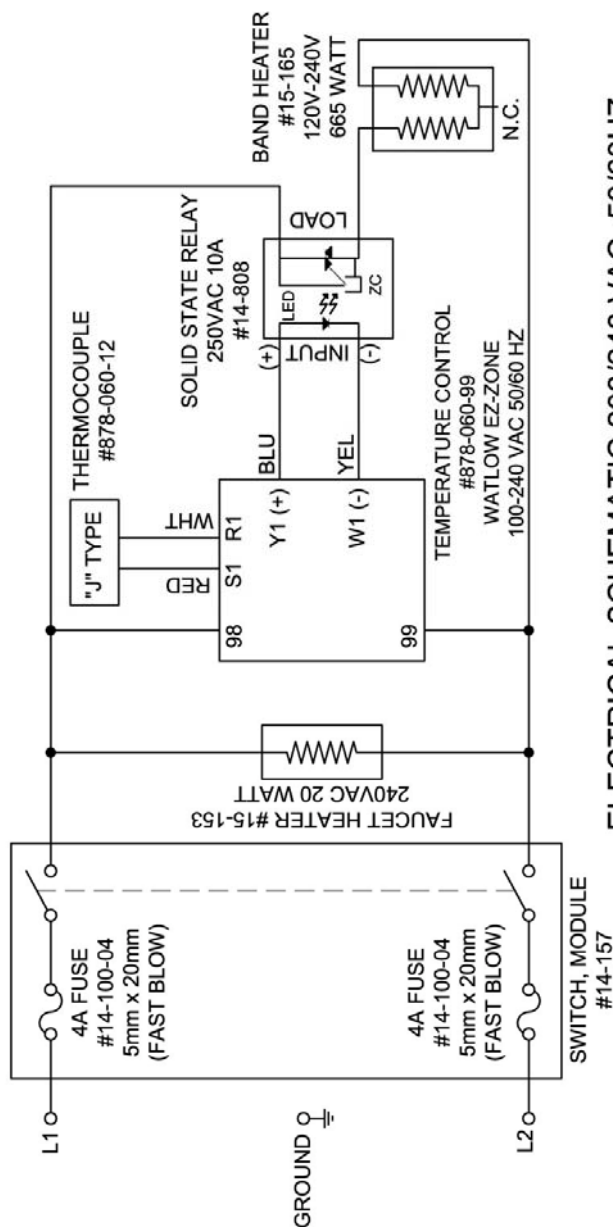


**TROUBLESHOOTING FLOWCHART**

## ELECTRICAL SCHEMATIC



## ELECTRICAL SCHEMATIC



ELECTRICAL SCHEMATIC 208/240 VAC, 50/60HZ

## REPAIRS

Call RPDinc if any problem occurs. All repairs must be arranged in advance by contacting RPDinc directly for a return merchandise authorization number (RMA).

If the unit needs to be returned contact RPDinc directly, and we will make arrangements and send you a carton for returning the unit to our factory. When the unit is received by RPDinc, if warranty doesn't apply, an estimate of repairs will be made and you will be contacted.

## REPLACEMENT PARTS

Item #	Description
878-015-52	Cover for 1.5 Gallon Dispenser
14-399	Cord, 9 ft. (3 m) 10 Amp Hospital Grade North Am. Set w/C13
14-157	Switch Toggle, Two Fuse, 10 A Rating
14-100-04	Fuse, 4 Amp Fast Acting 250 VAC, 5 x 20 mm (240 VAC Unit)
14-100-08	Fuse, 8 Amp Fast Acting 250 VAC, 5 x 20 mm (120 VAC Unit)
14-808	Relay, Triac, 250 VAC, 10 Amps
15-152	15 Watt, 120 VAC Cartridge Heater 1/4" D x 1" w/ 12" Leads
15-156	20 Watt, 240 VAC Cartridge Heater, 3/8" D x 1.5" w/ 12" Leads.
15-165	Mica Band Heater 17" x 4" x 7" Dia. 665 W, 120/240 VAC
878-060-99	Temperature Control - Watlow EZ-ZONE
878-060-12	Thermocouple Type"J" Patch Assembly
878-109-111	Valve, Steel, with Pipe Thread for 120 VAC and 158°/203°F Alloy, 1/4" Dia. with 15 Watt Heater and Set Screw
878-109-114	Valve, Steel with Pipe Thread, for 240 VAC and 158°/203°F Alloy, with 20 Watt Heater and Set Screw

**ACCESSORIES**

<b>Item #</b>	<b>Description</b>
123-010	Masking Tape - 3M 1" x 60 yards
869-100	Huestis Styro-Former®
869-180	Alignment System For Huestis Styro-Former®
869-900	Electron Block Foam Cutter, 110 VAC
869-902	Electron Block Foam Cutter, 220/240 VAC
870-708 to 874-811	Styrofoam Blocks
875-026	Nic-Chrome Cutting Wire (26 Ga) for Styro-Foamer®
875-100	Solder Gun (220/260 Watts) used to fill voids in alloy blocks
875-200	Soldering Iron with Chisel Tip (175 Watts)
875-240	Stand for Soldering Iron
875-250	Emergency Alloy Melter
876-125	Silicone Spray, Stoner Brand, 12 oz
876-400	D-Lead Hand Soap w/ Hand Pump, 8 oz
876-402	D-Lead Hand Soap Refill, 32 oz
876-405	D-Lead® All Purpose Cleaner Concentrate, 32 oz Bottle
877-115	Lead Vacuum-U.L.P.A. Filtered, 115 VAC, 60
877-900	Sticky Mats - 40/pkg
877-901	Sticky Mat Frame
878-153	PTFE-Coated Safety Thermometer -Spirit Filled
878-155	Thermometer, T-Handle, Waterproof, Drop- Proof
878-156	Faucet Cleaning Brush, 1/4" to 3/8" Dia.
878-158	Optional Drain Tube, 18" Long (45.88 cm)
878-160	Scotch Brite Cleaning Pads, 3" x 4 1/2", used to clean inside of dispenser
878-163	Wire Strainer for Alloy, 5" diameter
878-164	Skimming Spoon, used to remove sludge from

	top of alloy dispenser
878-165	Rasp, 10", used to file edges of alloy blocks
878-166	Block Grip Tool, used to lower alloy blocks into alloy dispenser
878-167	Rubber Mallet for removing Styrofoam from alloy
878-168	Utility Knife with Retractable Blade
878-169	14 oz. Stainless Steel Alloy Pourer
878-170	16oz Plastic Alloy Pourer
878-174	32oz Stainless Steel Alloy Pourer
878-178	Plastic Funnel
878-182	Aluminum Tray, used under alloy dispenser
878-186	Heat Gun 120VAC, 1440 Watts (300 - 500 °F)
878-186-2	Heat Gun 120VAC (500 – 750°F)
878-220	Cordless Driver Drill w/Torque Control
878-230	3/8" Electric Drill
878-240	5/16" Hex Head Driver Socket
878-256	S.S. Screw-Hex/Washer Head - #12 x 1" - 100/pkg
878-2565	S.S. Screw-Hex/Washer Head - #12 x 1 1/2" - 100/pkg
878-264	Nylon Washer for 1/4" dia. holes - 100/pkg
878-266	Nylon Washer for 3/8" dia. holes - 100/pkg
878-270	Aluminum Cooling Plate 1" x 12" x 24"
878-271	Water Cooled Aluminum Plate 1"x12"x24"
878-273	Styrofoam Block Compressor for Maximum 12 3/4" Square Styrofoam Blocks
878-274	Styrofoam Lead Weight w/Handle, 16 lbs.
878-287	Leather Glove, Unlined - Large
878-288	Leather Glove, Unlined - X-Large
878-290	Leather Apron
878-292	Leather Gloves- Lined, heavy duty
878-294	Safety Goggles
878-296	3M Dust/Mist Respirator Mask
878-335	Head Gear with Face Shield

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878-336	Head Gear
878-337	Face Shield
878-665	T-Handle Nut Driver 5/16"
878-730	Needle Nose Pliers - 4 1/2" with Cutter
878-745	62 Piece Tool Set with Tool Box
878-757	Hex Key Set, Long Arm - 13 pc, Standard (Inch)
878-758	Hex Key Set, Long Arm - 9 pc, Metric
878-930	Nut Driver, 5/16", Cushion Grip
879-158	Low Melting Alloy, 158°F
879-159	Refurbished Low Melting Alloy, 158°F
879-202	High Melting Alloy, 203°F
880-340 to 880-975	Block Storage Cabinets
880-989 to 880-9897	Block Transport Carts

**End of Document**