



*Turning the Ordinary into the Extraordinary*

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**PVC10-SBUX-CAFE-CMB1**

**Starbucks® Cart Series  
Combo Brew/Espresso Cart**  
*Version 3.0*

**Product Guide**

**May 1, 2020**



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## Cart Overview

The PVC10-SBUX-CAFE-CMB1 Cart manufactured by PIVOT measures approximately 34 inches wide by 108 inches in length (9 feet) by 96 inches in height (8 feet).

This Cart features a signature box canopy with a beautiful hardwood veneer.



This Cart is designed to be a rear-line unit and complimented with other Carts to form a Starbucks® Cart Café.

The Combo Brew/Espresso Cart is packed with features.

- Supports a brewer, server stand, shuttles, grinder and Mastrena
- Espresso Rinser
- Water Tower
- Hand Sink
- 90lb Ice Bin
- Dry Locking Storage cabinet with Shelves
- LED Ceiling Lights
- Furniture-Grade Walnut Veneer – Updatable
- Quartz Countertop
- Complete self-contained water/waste water system (optional configuration)
- Complete electrical system with Load Center
- Premium metal construction
- Turnkey plug and play solution



## Cart Construction

The PVC10-SBUX-CAFE-CMB1 Cart is manufactured with a base construction of Steel and Aluminum. This is in comparison to many other Carts that are constructed of wood, steel frame or plastic.

PIVOT's base construction provides an optimal platform for durability, functionality, portability and product life. These materials also provide this Cart with a CLASS A Flame Spread rating and is perfect for all environments.



Another huge advantage of the PIVOT Cart base construction is that **100%** of the **WASTE** when manufacturing this Cart is **100% RECYCLABLE**. After a long product life cycle, this Cart can also be refurbished and re-deployed to enjoy another complete life cycle, saving our natural resources and your hard-earned dollars. When it eventually comes time to retire, 100% of the structure of this Cart can be recycled to offer great sustainability of our natural resources.

All steel and aluminum components are powder coated satin black for beauty and ease of maintenance. This type of base construction provides the best platform for durability, long lasting functionality and cleanliness in the wet, harsh and high-volume environment of a Starbucks® store.

The strong base construction is softened by beautiful Furniture-Grade natural Walnut wood veneers to give this Cart the unmistakable premium Starbucks® look and feel. Daltile Quartz countertops provides lasting beauty and superior functionality.

All PIVOT Carts come with premium, non-marking, industrial wheels designed to easily support the weight of the Cart as well as provide many years of maintenance free service. These wheels are affixed onto PIVOT's base structure comprised of 11-gauge steel to provide uncompromising performance in high volume commercial environments.

These Carts come pre-installed with all Utilities and undercounter equipment from the factory for a turn-key store package.



## UL Certification

The PVC10-SBUX-CAFE-CMB1 Cart is UL Listed in both the United States and Canada.



You can find our listing on the UL Directory under our file number KNNS.E475132 for the United States and KNNS7.E475132 for Canada, or by following these links (or copy and paste them into your favorite internet browser).

### **UNITED STATES**

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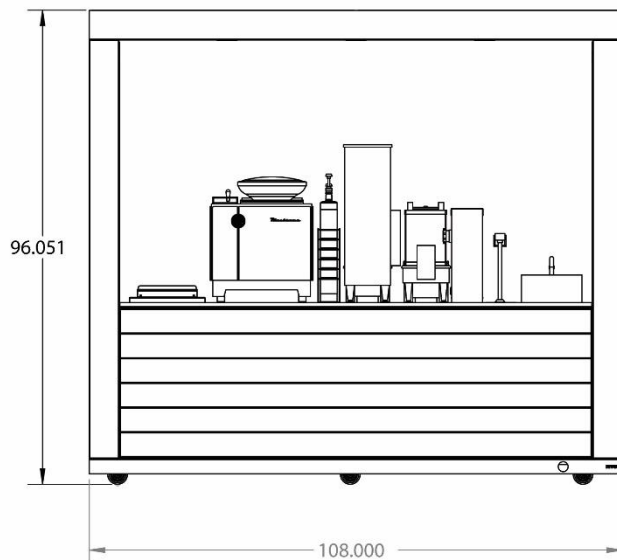
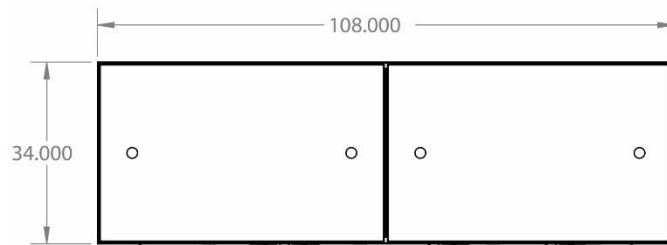
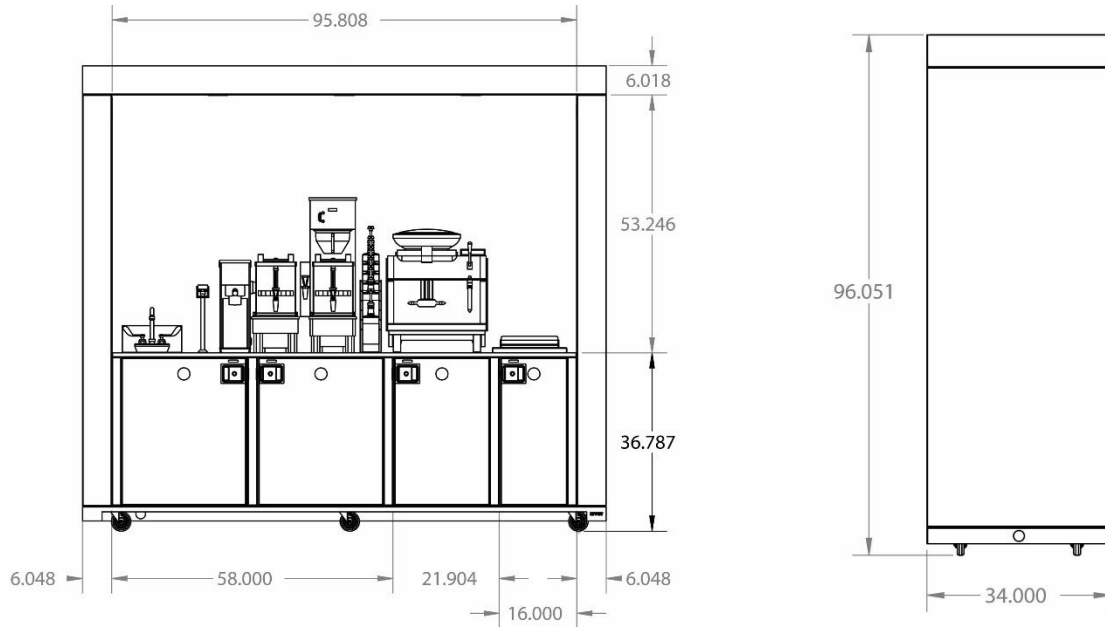
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## Specifications

The PVC10-SBUX-CAFE-CMB1 Cart measures approximately 34 inches wide by 108 inches in length (9 feet) by 96 inches in height (8 feet). Exact dimensions are shown below.



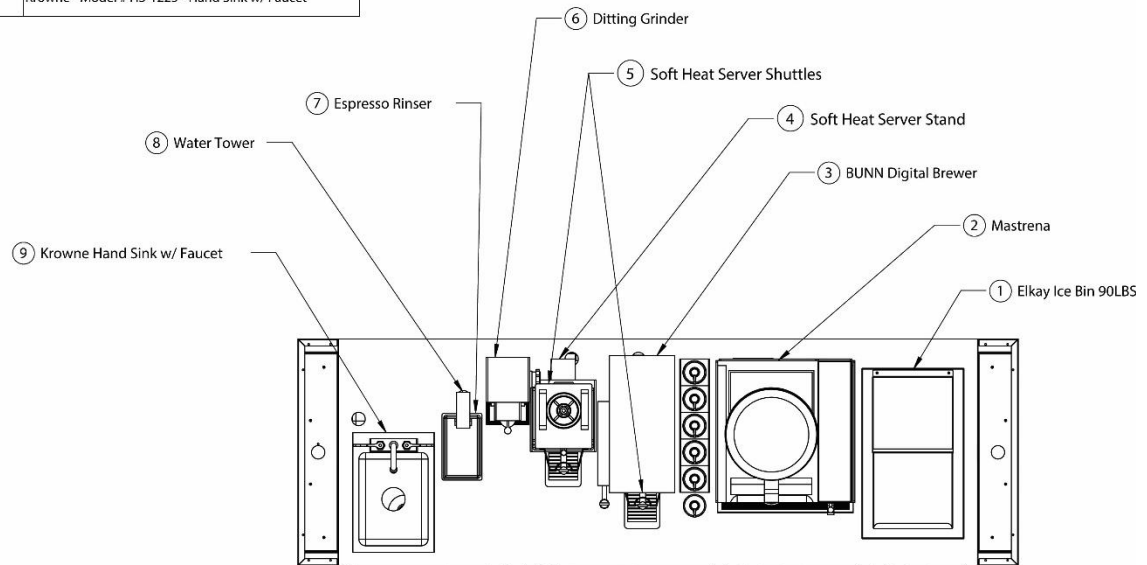


## Equipment Plan

The PVC10-SBUX-CAFE-CMB1 Cart is complimented with the best commercial equipment as required by Starbucks®. This equipment includes:

- Ice Bin (90lbs)
- Mastrena Espresso Machine
- BUNN Digital Brewer – Single
- BUNN Soft Heat Server (QTY 2)
- BUNN Soft Heat Server Stand - Single
- Ditting Grinder
- Espresso Parts Rinser
- Water Tower
- Hand Sink with Faucet

EQUIPMENT PLAN	
①	Elkay Ice Bin 90LBS - SBUX DID# 13044
②	Mastrena - SBUX DID# 12694
③	BUNN Digital Brewer - Model# 33600.0007
④	BUNN Soft Heat Server Stand - DID# 10312
⑤	BUNN Soft Heat Server Shuttles - DID# 10856
⑥	Ditting Grinder - Model# 804
⑦	Espresso Rinser - Model# EPPR6102
⑧	Water Tower - Model# B-1210-12
⑨	Krowne - Model # HS-1225 - Hand Sink w/ Faucet



Please note that all equipment cutsheets are located in Appendix A (Equipment Cutsheets).



## Summary Guide for Equipment

Outlined below is a Summary Guide for all equipment for the PVC10-SBUX-CAFE-CMB1 Cart.

Please note the following:

- Included in Cart – This equipment comes included and installed in the PIVOT Cart.
- Included in Equipment Package – This equipment is required by the Starbucks® Cart and can be purchased in the Equipment Package through PIVOT.
- Starbucks® – This equipment must be purchased separately and is not included in either the Cart or the Equipment Package Price. This must be purchases and provided directly by Starbucks®.

Equipment	Category	DID#	Included in Cart	Included in Equip. Pkg.	Starbucks®
Elkay Ice Bin (90lbs)	Ice Bin	PIVOT	✓		
Mastrena	Coffee	12694			⊕
BUNN Digital Brewer	Coffee	PIVOT		✓	
BUNN Soft Heat Server	Coffee	10312		✓	
BUNN Soft Heat Srv Stand	Coffee	10856		✓	
Ditting Grinder	Coffee	PIVOT		✓	
Espresso Rinser	Sink	PIVOT	✓		
Water Tower	Sink	PIVOT	✓		
Krowne Hand Sink	Sink	PIVOT	✓		

**Note:** ⊕ Customer must order this directly from Starbucks®. Please note that any equipment or option not explicitly listed above is not included with the Cart or Equipment Package.



## **Material Finishes**

The PVC10-SBUX-CAFE-CMB1 Cart incorporates the best material finishes in the industry to provide many years of beauty and performance. PIVOT Carts are well known for its low cost of maintenance and durability.

### **Powder Coat**

PIVOT powder coats all metal surfaces to ensure a lasting and quality finish. Power coat is extremely durable, as well as washable, making it the perfect finish for high volume concession environments.

This Cart is powder coated with a high quality “Series 38-Super Durable” exterior grade satin finish. This powder coat is manufactured by Tiger Drylac.

Please find detailed Product Specifications in Appendix E (Material Finishes Documentation) of this Product Guide.

### **Countertops**

This Cart comes standard with a Daltile Quartz countertop. This premium, solid surface countertop is beautiful and extremely durable.

The standard color for this Cart is Crystal Black (shown to the right).

Please find detailed Product Specifications in Appendix E (Material Finishes Documentation) of this Product Guide.



### **Veneers**

PIVOT Carts are designed with an innovative Veneer system that adds beauty and value to your Cart. Veneers are set in a .125 aluminum frame and affixed to the Cart with a proprietary hanging system. This hanging system utilizes a keyhole design to allow the Veneer frame to be easily removed and installed. An integrated locking system ensures the Veneer stays in place until you would like to remove it.

The Veneer that comes standard with this Cart is a beautiful Furniture-Grade natural Walnut hardwood and hand rubbed with a tongue oil finish to both protect and bring out the natural wood grains of the walnut.



## Cart Utilities

The PVC10-SBUX-CAFE-CMB1 Cart comes with utilities pre-installed at the factory. These utilities include: Electric, Water and Waste Water.

### Electrical

The Starbucks® Combo Brew/Esspresso Cart is outfitted with a SquareD load center Model # Q0324L125G (See attached cut sheet in Appendix B). This load center is rated for 120/208V 125AMP 3 PH.



SquareD Q0115, Q0120, Q0240 and Q0250 circuit breakers are used for all 120V 15AMP, 120V 20AMP, 208V 40AMP and 208V 50AMP circuits respectively (See attached cut sheets in Appendix B). Please note that these load center circuit breakers are not GFCI circuit breakers. GFCI receptacles are used in lieu of GFCI circuit breakers as a standard.

Electrical wiring for all circuits utilize appropriately sized MC Cable. All receptacle boxes are single or double gang metal boxes commonly referred to as J Boxes. Receptacles for non-GFCI applications utilize the Leviton CR20-W (see attached cut sheet in Appendix B) for all 120V 15AMP and 120V 20AMP circuits. PIVOT utilizes 20AMP receptacles and 12-gauge wiring (for 20 AMP) for our 15AMP receptacles so that any receptacle and circuit can be easily upgraded from 15AMP to 20AMP by simply upgrading the circuit breaker in the load center.



Levlok GFCI MGFN2-W (see attached cut sheet in Appendix B) receptacles are used for all 120V 15AMP and 120V 20AMP GFCI applications. As above, PIVOT utilizes 20AMP receptacles and 12-gauge wiring (for 20 AMP) for our 15AMP receptacles so that any receptacle and circuit can be easily upgraded from 15AMP to 20AMP by simply upgrading the circuit breaker in the load center.



A 4 Gauge/5 Wire SOOW power cord is used to supply power to the Cart's load center terminated by a Hubbell HBL560P9W 60AMP Male AC Connector. This connector is pre-installed on the Cart at PIVOT's factory. PIVOT provides approximately 10 feet of whip for this SOOW cord (from the outside of the Cart). If additional length is needed, alternative connector is required or a different electrical setup is needed, please communicate those changes during the ordering process. Please note that additional charges may apply. Once an order has been placed, PIVOT may or may not be able to accommodate those changes.



At the desired service location, the customer is responsible for providing and installing the appropriate receptacle for this Cart to plug into. The matching receptacle for the above male Hubbell connector is the Hubbell HBL560R9W 60AMP Female AC Receptacle shown to the right.



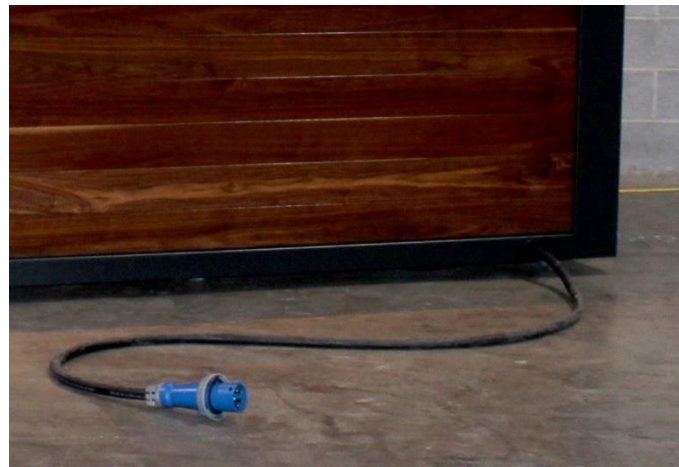
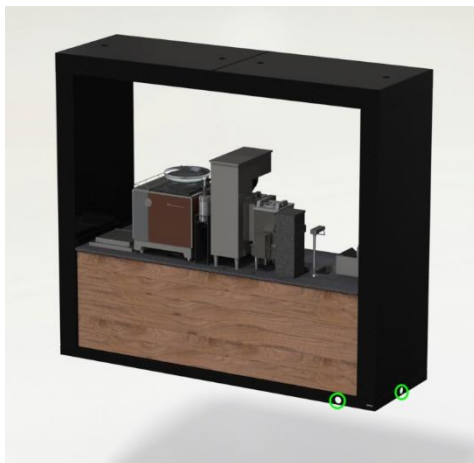
Alternatively, depending on the site and use needed, a SOOW cable can be used with the Hubbell HBL560C9W 60AMP Female AC Connector to connect the Cart.

Another option is using a Mechanical Interlock which offers the benefit of having a disconnect.



The fused version is HBL560MIF9W and the unfused version is HBL560MI9W from Hubbell.

It is the customer's responsibility to meet local jurisdictional codes and to have the proper receiving receptacle/connector installed by a licensed electrician prior to the installation of the Cart. Changes to this standard setup must be communicated and agreed prior to ordering the Cart from PIVOT. PIVOT takes no responsibility for meeting local jurisdictional code requirements.



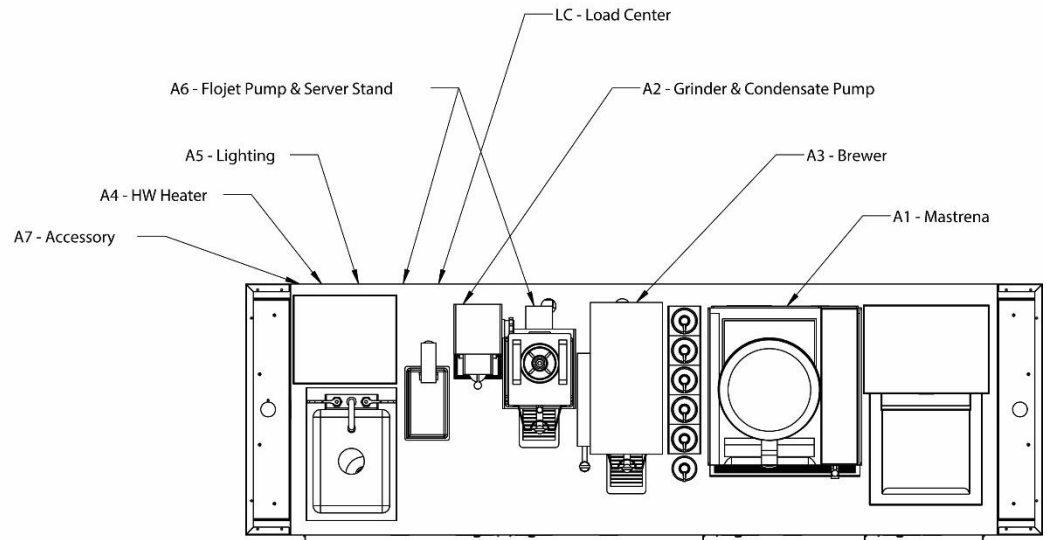
The SOOW cord exits the Cart from a 2 inch access hole in the Cart baseplate at the rear of the Cart as shown above. Alternatively, the SOOW Cord can be re-directed to an access hole on the left side of the Cart for a perpendicular installation. These elevated access holes prevent the cord from hitting the ground and dragging during transport.

Please note that load center can accommodate up to 125AMPS. The cord and connector are rated at 60AMPS.




# Electrical Plan

ELECTRICAL PLAN	
LC	Load Center - SquareD - Model # QO324L125G 125AMP 24SP - 120/208V 3PH 5WR 60AMP 4AWG SOOW
A1	Mastrena - SBUX DID#12694 - 40AMP - MC 8AWG 2G
A2	Ditting Grinder - Model# 804 & Condensate Pump - Model# LCU-15 - 15AMP - MC 12AWG 2G
A3	BUNN Digital Brewer - Model# 33600.0007 - 30AMP - MC 10AWG 3G
A4	Bosch ES2.5 Hot Water Heater - 15AMP - MC 12AWG 2G
A5	LED Lighting - 15AMP - MC 12AWG 2G
A6	Flojet Pump (Model# 4300-545A) & BUNN Soft Heat Server Stand (DID#10312) - 15AMP - MC 12AWG 2G
A7	Accessory Outlet - 15AMP - MC 12AWG 2G



## Load Schedule

The load schedule for the PVC10-SBUX-CAFÉ-CMB1 Cart is shown below.

Load Schedule										
			Project: PVC10-SBUX-CAFE-CMB1			Main Breaker AMPs: 60 AMP				
			Panel: Combo Cart			Line Voltage: 120/208V 3PH 5 WR SOOW				
Load Name	Load AMPs	Breaker AMPs	CHK #	A Phase WATTS	B Phase WATTS	C Phase WATTS	CHK #	Breaker AMPs	Load AMPs	Load Name
A1 Mastrena	28.8	40	1	3100				15	7	A2 Grinder&Cpump
				600			2			
			3		3100					
A4 HW Heater	11	15	5			1440		30	19.7	A3 Brewer
						2050	6			
A6 Pump & Server	2	15	7	150				15	5	A5 Lighting
				25			8			
			9							
							10			
A7 Accessory	10	15	11			1000				
							12			
			13							
							14			
			15							
							16			
			17							
							18			
			19							
							20			
			21							
							22			
			23							
							24			
<b>Total Watts Per Phase</b>				3875	5150	4490				
<b>Estimated Amperage</b>				37.54						

The peak load of the Cart is estimated at 37.54AMP at 3 Phase 120/208V. This Cart is rated at 50AMP but PIVOT recommends running a 60AMP circuit.





## Self-Contained Water Supply / Wastewater

The PVC10-SBUX-CAFE-CMB1 Cart contains an optional self-contained fresh water and waste water system. This system consists of the following:

Product Picture	Make/Model	Description
	5 GALLON Fresh Water Bottle  (NOT PROVIDED)	5 GALLON fresh water bottle provided by Customer
	Flojet Model# 04300545A	Fresh water on-demand self-priming pump
	Flojet Model# 305730004A	Accumulator Tank
	Flojet Wand	Used to connect the 5 Gallon Fresh Water Bottle to the Flojet Pump
	Bosch ES2.5	2.7 GAL Point of Use Hot Water Heater
	Reliance 7 Gallon	7 Gallon Waste Water Container







Liberty LCU-15

Condensate Pump

Please note that all plumbing equipment cutsheets are located in Appendix B – Utility Cutsheets.

### **Self-Contained Water Supply System**

The self-contained water supply system consists of a 5 Gallon fresh water bottle (not provided), Flojet Wand, Flojet fresh water demand pump and a Flojet accumulator tank (shown from left to right below). The Flojet Wand is inserted into the 5 Gallon fresh water bottle and connected to the Flojet fresh water demand pump. This pump is self-priming but may need to be cycled ON/OFF to appropriately prime (see below – Pump Cut-Off Switch). This Flojet fresh water demand pump is connected to the Flojet accumulator tank to provide constant water pressure. This Flojet accumulator tank is set to 20 PSI at PIVOT’s factory.



### **Pump Cut-Off Switch**

It may be necessary to shut the Flojet fresh water demand pump off. This Flojet pump is powered from a receptacle that is switched utilizing a Hubbell HBL 1221 ILR illuminated toggle switch. When the pump is switched OFF, the toggle illuminates RED. The switch is not illuminated when the switch is ON. If the pump fails to prime after the installation of a new water bottle, power the pump off using this switch and wait 10 seconds before powering the pump back on.



### **Hot Water Heater**

A Bosch 2.7-gallon hot water heater (Model# ES2.5) is installed in the Cart to provide hot water to the hand sink (shown to the right).



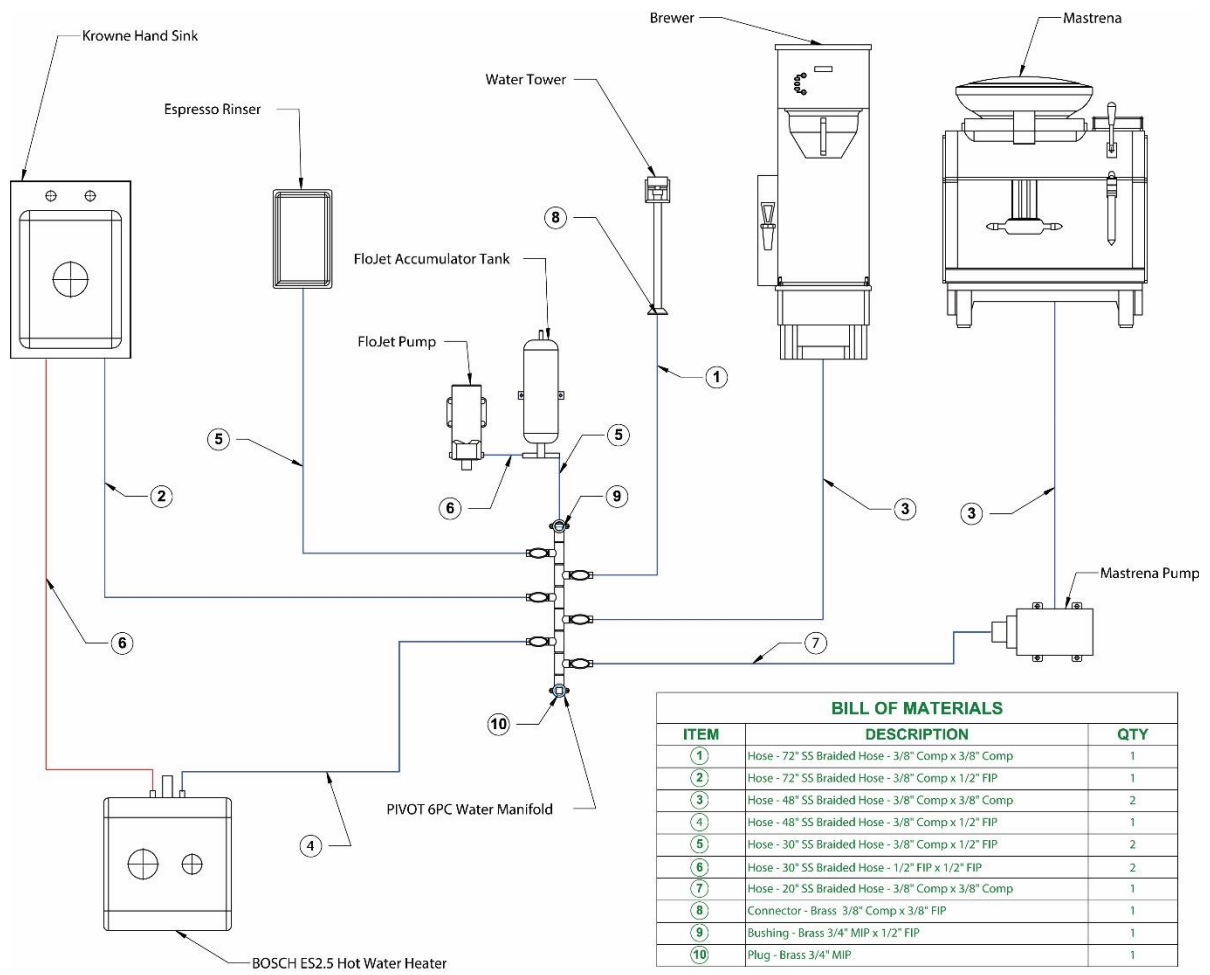
## PIVOT Water Manifold



This Cart comes with a PIVOT 6 Port Water Manifold (shown to the left) and stainless steel braided plumbing lines.

This Water Manifold is used to supply water to the equipment, hand sink and hot water heater. Each supply has a “Stop Valve” that can independently turn water ON/OFF to each device.

## Water Supply Diagram



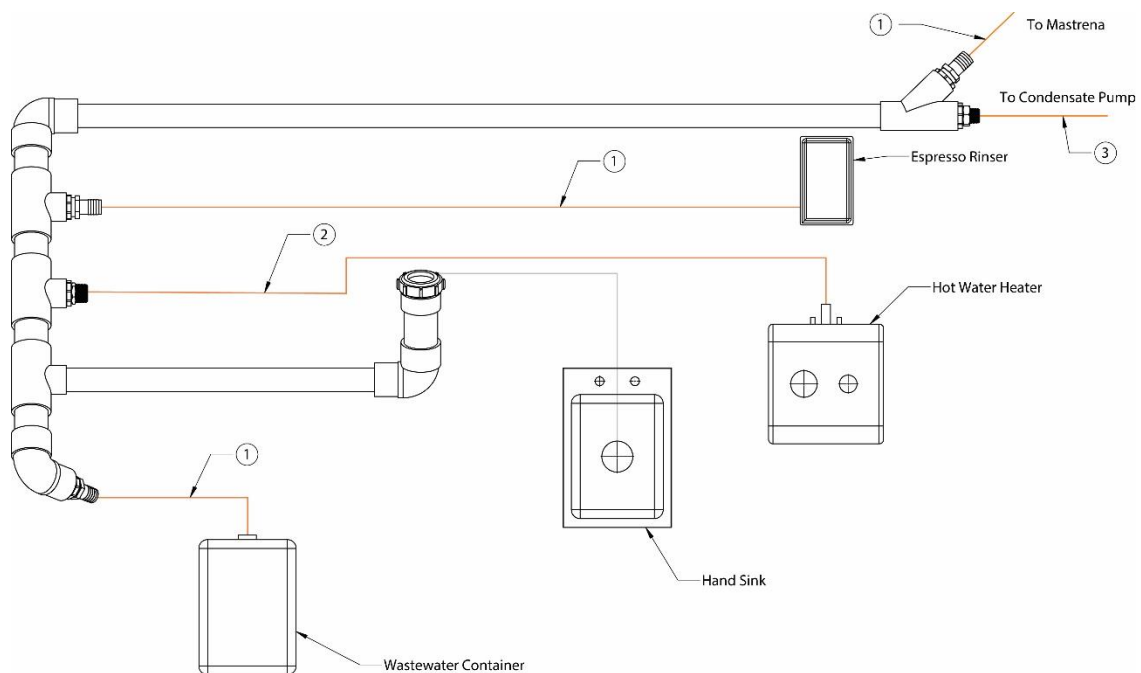
## Sanitary

The sanitary for this Cart consist of Schedule 40 PVC piping with the appropriate PVC and Brass connection fittings. This Cart is designed for self-contained wastewater utilizing a 7-Gallon Reliance container and a Condensate Pump.



The 7-Gallon Reliance water container is located in the main Utility compartment and is used to contain all of the gray water from the sanitary. The condensate pump is located under the ice bin and is used to move the leaching water from the ice bin to the Reliance container.

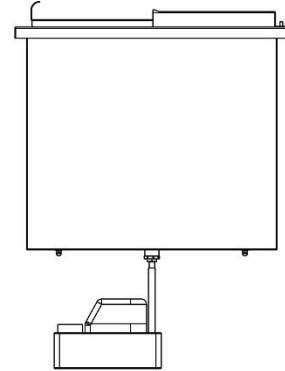
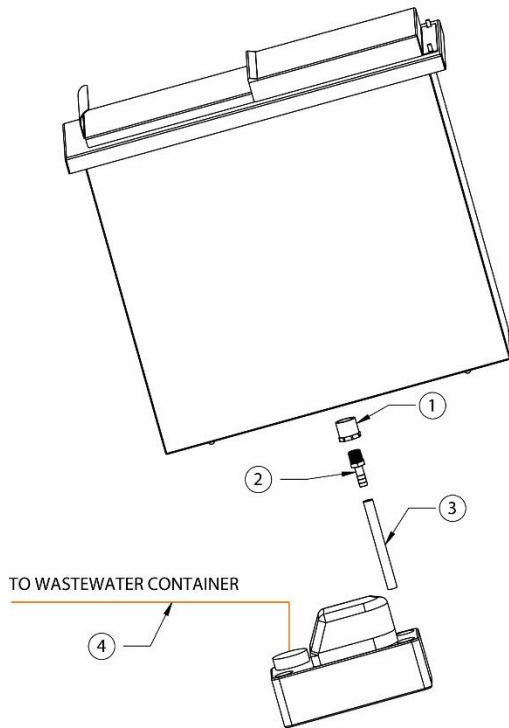
## Sanitary Diagram - Main Utility Compartment



BILL OF MATERIALS		
ITEM	DESCRIPTION	QTY
①	Hose - 5/8" ID High Pressure Braided Clear PVC	2
②	Hose - 3/4" Flexible SS Corrugated Water Heater -24"	1
③	Hose - 1/2" PEX with John Guest Fittings	1



## Sanitary Diagram – Ice Bin



BILL OF MATERIALS		
ITEM	DESCRIPTION	QTY
①	PVC Reducing Adapter BUSHING - 1" FIP x 1/2" FIP	1
②	Brass Barb - 1/2" MIP x 1/2" BARB	1
③	Vinyl Tubing - Clear - 1/2" ID	10in
④	PEX - 1/2" with John Guest Fittings	1

## Conversion to Supplied Water/Wastewater

This Cart can be easily converted to a supplied water line as well as into a supplied sanitary line. PIVOT sells a Kit to make this conversion even easier. This Kit contains fittings, hoses, pumps and instructions for both the Water Supply and Wastewater.

### Supplied Water

To tie into a supplied water supply line, simply close the valve on the top of the PIVOT Water Manifold (shown on the right). This is the stop valve with the water line to the Flojet on-demand fresh water pump. Connect a fresh water hose to the valve on the bottom of the PIVOT Water Manifold and open that valve (shown on the right with the red handle). This connection is a 3/4 inch hose connection similar to a garden hose bib. Please make sure that the water being supplied is Filtered Water and not hard water and the hose used is rated for potable (drinkable) water. If you need a water filtration system for this Cart, an optional water filtration system can be provided.

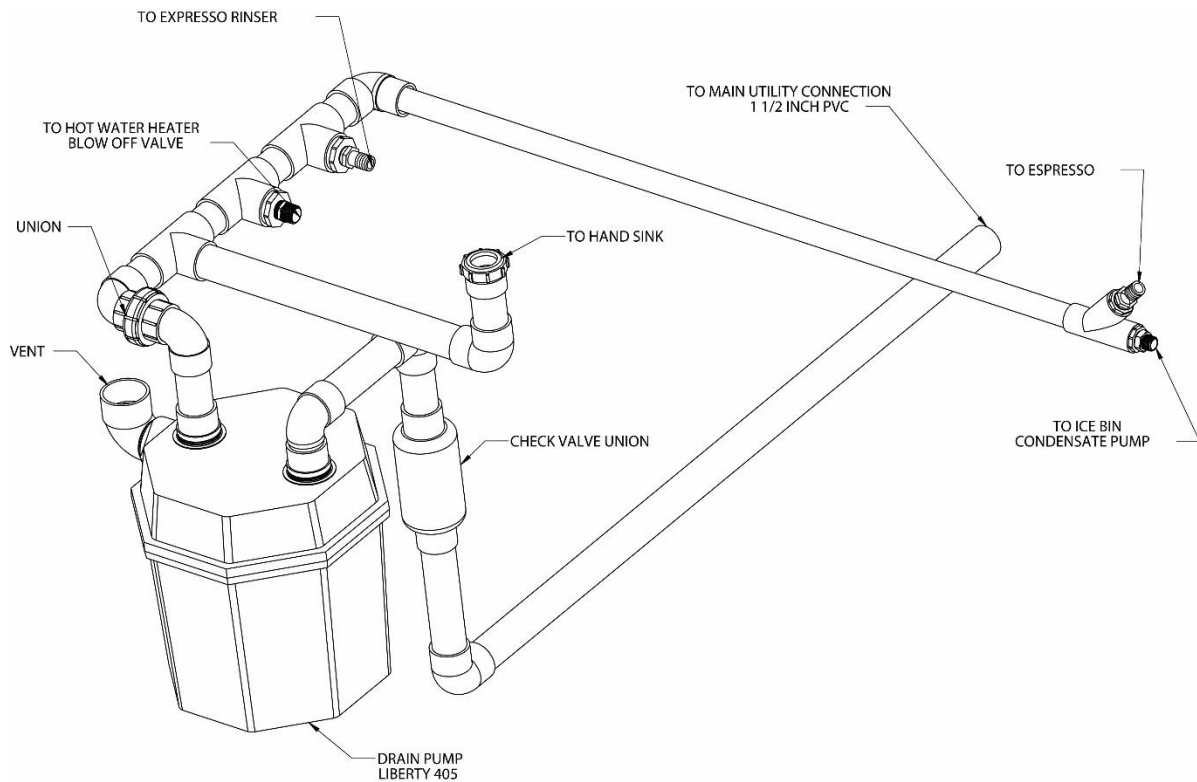


## **Supplied Sanitary**

To tie into a supplied sanitary line, simply unscrew the PVC Union above the 7-GAL graywater container. Your plumber can add the necessary piping to connect to the supplied sanitary line or to a floor sink that would be located under the Cart. Use the supplied holes in the baseplate to exit the Cart for this sanitary setup. PIVOT recommends utilizing a licensed plumber to meet all local jurisdictional codes for this sanitary line.

## **Optional Drain Pump System**

As an option, PIVOT can provide a Drain Pump System that is connected to a supplied sanitary line and pump out the sanitary. This is recommended in those installations that a floor drain can not be provided or is not economically desirable. For this Drain Pump System, PIVOT utilizes a Liberty 405 drain pump (shown to the right – cutsheet provided in Appendix B) connected to the existing plumbing in the Cart as shown below.



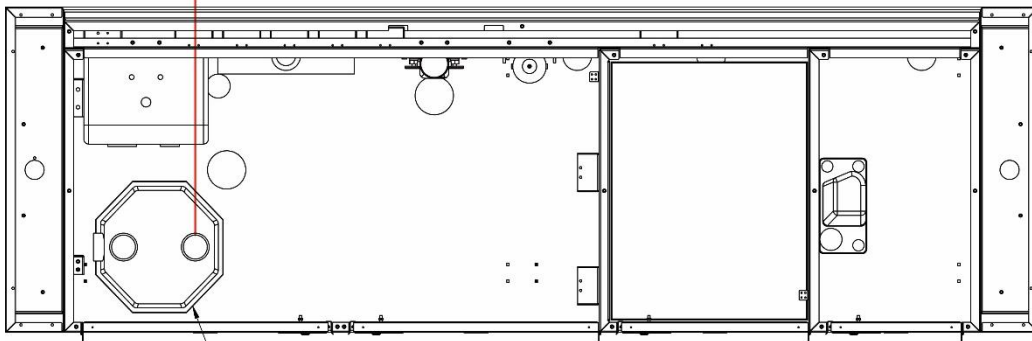
This Drain Pump System should be connected to a supplied sanitary line (we recommend a 1 ½ inch pipe connection).





1 1/2 INCH PVC  
ON-SITE SANITARY STUB OUT

1 1/2 INCH PVC  
LINE OUT OF CART



LIBERTY 405 DRAIN PUMP





Utility Compartment



## Interior Layout



Shown above is an interior view of the Cart (Cart with the doors suppressed).

The interior of the Cart is divided into 3 compartments. The compartment from left to right are as follows.

- Main Utility
- Locking Dry Storage with Shelves
- Ice Bin





## Lighting

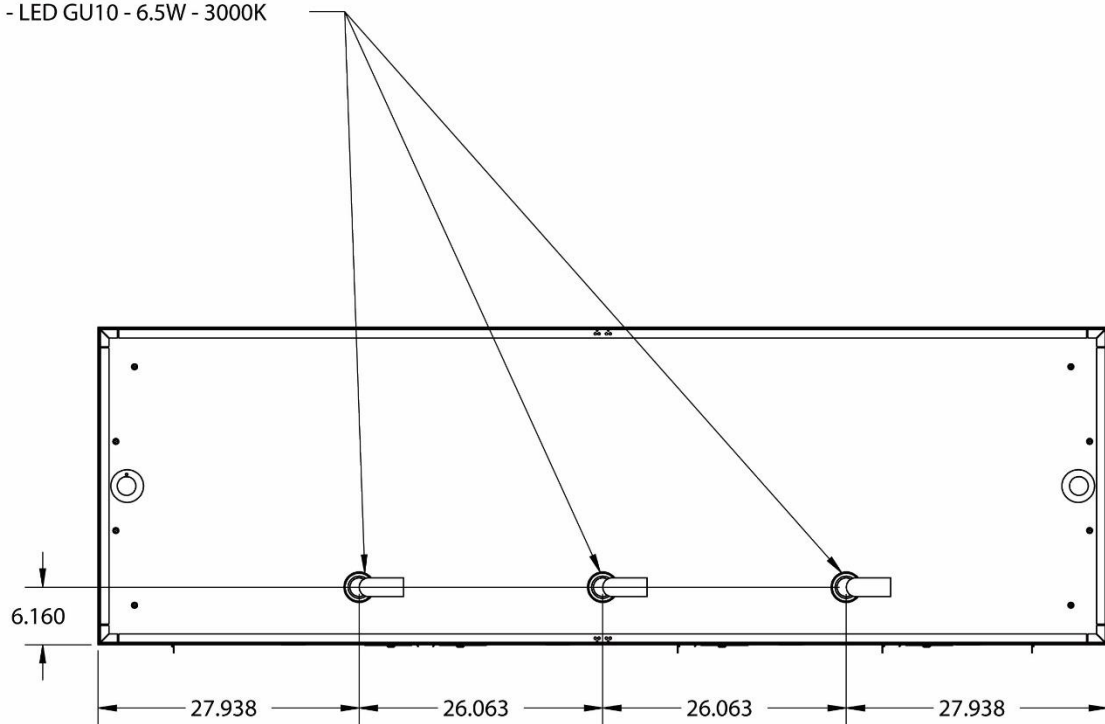
The PVC10-SBUX-CAFE-CMB1 Cart contains 3 recessed ceiling LED lights. These lights are 120V AC and accept GU10 bulbs. The bulbs supplied with this Cart are LED GU10 6.5W (60-Watt equivalent) 3000K.

The lighting in this Cart is extremely efficient with only a total of 19.5 Watts of energy consumption.

### Lighting Plan

RECESSED CEILING LIGHT FIXTURES  
BULBS - LED GU10 - 6.5W - 3000K

- 120V AC



## Maintenance Tool Box



The PVC10-SBUX-CAFE-CMB1 Cart comes with a Maintenance Tool Box that contains spare parts that can be used for future maintenance of the Cart Café.



## **Pre-Requisites & Site Preparation**

The only pre-requisite and site preparation for the PVC10-SBUX-CAFE-CMB1 Cart are as follows.

- Finished floor to pass health inspection
- Electrical drop or receptacle matching the specifications as outlined in the “Electrical” section of this Product Guide



## Shipping

PIVOT will provide shipping of the PVC10-SBUX-CAFE-CMB1 Cart to the store location.

There are two shipping options available:

- Common Freight/FTL - Dock to Dock
- Common Freight/FTL – Installer Offload

The “Common Freight/FTL - Dock to Dock” delivery option is the most economical and efficient shipping option. You must have a loading dock, a fork lift/pallet jacks and have the ability to receive a 48/53 Ft tractor trailer to be eligible for this shipping option. Shipping will be arranged with an 8-hour delivery window. The customer will be required to off-load the truck (the driver will not off load the trailer).

The second delivery option requires the installer to offload the truck. Please contact your PIVOT representative or Starbucks® for additional pricing.

Since both of these options utilize FTL truck delivery, the contents of the truck (Carts and Equipment) are loaded and inspected at PIVOT’s factory. The truck leaves PIVOT’s factory and goes directly to the destination site. The contents of the truck are not touched until the truck arrives at the destination site. This greatly reduces the risk of any damage to the store system. All items on the truck are crated, palletted and shrink wrapped to ensure a safe arrival.

It is the customer’s responsibility to inspect the crates carefully before offloading them from the truck. If any damage is found, the customer is to inform the driver immediately prior to removal from the truck. Pictures should be taken to ensure the proper processing of the claim. The load maybe rejected or offloaded at that time.

Failure to report any damage prior to offload will void any claim to shipping damage.



## Installation

The PVC10-SBUX-CAFE-CMB1 Cart comes in fully assembled components for an extremely easy installation. These components are listed below.

- Main Unit
- Left Support Wing
- Right Support Wing
- Canopy Top Crown

Installation time is less than 1 hour with 2 people.



## **LIMITED WARRANTY**

PIVOT LLC (“PIVOT”) warrants to the original purchaser (“Purchaser”) that it will repair or replace components of the Products (as defined in the Master Product Sales Agreement) manufactured by PIVOT (except for components not warranted under “Exclusions”) that are defective in material or workmanship under normal interior use and service (“Defects”). PIVOT’s obligation under this warranty is limited to the repair or replacement, at PIVOT’s option, of the applicable components. This limited warranty shall only apply to Defects that are reported to PIVOT within the applicable warranty period and which, upon examination by PIVOT, prove to be defective. This warranty extends only to the first purchaser of a product, and is not transferable or assignable.

### **APPLICABLE WARRANTY PERIOD**

The applicable warranty period, measured from the date of delivery to the original purchaser, shall be as follows:

- a) Two (2) years for all PIVOT Products and components (except for the products and components listed in (b), (c) and (d), and except for components not warranted under “Exclusions”), including baseplate structures, chassis structures, doors, locks, wheels and level glides.
- b) One (1) year for all LED components including LED Drivers, Strip Lights, Fixtures and Modules.
- c) One (1) year for all signage.
- d) One (1) year for all veneers.

In PIVOT’s reasonable discretion, PIVOT shall make the determination of how to correct any Defect covered by this Limited Warranty. If PIVOT opts to replace an item, replacement components will be substantially comparable to the items replaced, subject to availability (identical colors and other features may not be available.) If PIVOT elects to repair the defective item, PIVOT will correct the Defect in such a manner as to restore the item to substantially the same conditions, which would have existed had the Defect not been present. PIVOT shall have no liability for work performed by Purchaser or Purchaser’s agents or for the cost thereof. No action to correct any Defect shall extend the duration of this Limited Warranty.

### **TERMINATION OF WARRANTY**

The limited warranty shall immediately terminate if the Product is removed from the original installation site.

### **OBTAINING WARRANTY SERVICE**

Warranty service must be obtained through either PIVOT or an authorized dealer in the PIVOT product line for which warranty service is requested. PIVOT may be



contacted for warranty service inquiries or issues via email at [warranty@pivotcorp.com](mailto:warranty@pivotcorp.com), through the PIVOT website at [www.pivotcorp.com](http://www.pivotcorp.com), by phone at (404) 671-9326, by facsimile at (404) 671-9325, or by mail to PIVOT, ATT: WARRANTY DEPT, 851 Hickory Flat Hwy, Canton, Georgia 30115.

It is the purchaser's obligation to arrange for delivery of a Product to PIVOT or one of its authorized dealers for warranty service, which delivery shall be at purchaser's expense. It is also the purchaser's obligation to comply with the warranty service instructions provided either by PIVOT or its authorized dealer. If the Product was purchased from an authorized dealer and not directly from PIVOT, the purchaser must provide PIVOT with completed warranty registration information within thirty (30) days after purchase in order to obtain the benefits of this warranty.

### EXCLUSIONS

This Limited Warranty does not cover third party equipment, sinks, faucets, and plumbing accessories. Any warranties on these items are extended directly by the manufacturer of these items to the original purchaser. Information on these manufacturers' warranties will be enclosed with the applicable products. Also, PIVOT will furnish copies of any of the warranties extended by any such manufacturers upon request.

This Limited Warranty does not cover and PIVOT shall not be liable for:

- 1) defects, damage, or other conditions caused, in whole or in part, by misuse, abuse, negligence, alteration, accident, freight damage, tampering, or failure to seek and obtain repair or replacement in a timely manner;
- 2) matching of color, grain, or texture except to commercially acceptable standards;
- 3) changes in color caused by natural or artificial light;
- 4) products which are not installed, used, and properly cleaned and maintained as required in the PIVOT "Installation" and/or "Installation/Operation" Manual for the applicable product;
- 5) products considered to be of a consumable nature, such as light bulbs and surge suppression products;
- 6) accessories or parts not manufactured by PIVOT;
- 7) charges by anyone (including PIVOT's authorized dealers) for adjustments, repairs, replacement parts, installation, or other work performed upon or in connection with such products which are not expressly authorized in writing in advance by PIVOT; and
- 8) costs and expenses of routine maintenance and cleaning; and
- 9) representations and warranties made by any person or entity other than PIVOT.
- 10) This Limited Warranty does not cover consumer products for the purpose of the Magnuson-Moss Warranty Act. 15 U.S.C. Sec. 2301 et seq. including without limitation, any refrigerator, freezer, range, oven, dishwasher, garbage disposal, exhaust fan, thermostat, equipment, doors, sinks, water heater, or



any of the appliances, equipment, fixtures, finishes, or similar items, except as may be required by any statutory warranty. All such items covered by a manufacturer's and supplier's warranties covering such consumer products are assigned to the Purchaser. PIVOT is not in any way, responsible or liable for the performance under any manufacturer's or supplier's warranties.

- 11) This Limited Warranty does not cover routine maintenance, normal wear and tear, or conditions resulting from unreasonable use, misuse, negligence, and/or failure to provide reasonable and necessary maintenance in a timely manner.
- 12) This Limited Warranty does not cover maintenance items, defects resulting from improper maintenance, failure to maintain, misuse, abuse or failure of PIVOT to follow operating or care instructions.
- 13) This Limited Warranty does not cover defects in workmanship or materials supplied during the construction phase by anyone other than the PIVOT, its agents, employees and subcontractors acting on behalf of PIVOT.
- 14) This Limited Warranty does not cover defects or damage resulting from fires, floods, storms, the elements, electrical malfunctions, power outages, accidents or acts of God.
- 15) Any damage as a result of shipping, loading, unloading, moving or installation.

#### **EXCLUSIVE REMEDY; CONSEQUENTIAL DAMAGES DISCLAIMER**

PIVOT'S ONLY OBLIGATION UNDER THIS LIMITED WARRANTY IS THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS. PIVOT SHALL NOT BE LIABLE FOR AND HEREBY DISCLAIMS ANY DIRECT, SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OR DELAYS, INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR INCOME, LOSS OF USE, DOWNTIME, COVER, AND EMPLOYEE OR INDEPENDENT PIVOT WAGES, PAYMENTS, AND BENEFITS.

#### **NO AUTHORIZATION**

No person or firm is authorized to create or approve for PIVOT any other obligation or liability in connection with the products.

#### **WARRANTY DISCLAIMER**

THIS LIMITED WARRANTY IS PIVOT'S ONLY WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. PIVOT MAKES NO IMPLIED WARRANTIES OF ANY KIND INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS. ALL IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE PERIOD OF THIS LIMITED WARRANTY





## STATUTE OF LIMITATIONS

No Claim (defined below) may be brought against PIVOT for breach of this limited warranty, an implied warranty, if any, or for any other claim arising out of or relating to the products, more than ninety (90) following expiration of the limited warranty period. In the event multiple warranty periods exist with respect to a product, the ninety (90) day period provided for herein shall begin to run from expiration of the warranty period for the component to which the claim relates.

## DISPUTE RESOLUTION AND LIMITATION OF LITIGATION

a. Agreement to Avoid Litigation. PIVOT and Purchaser agree to encourage the amicable resolution of disputes involving PIVOT's performance under this Limited Warranty, without the emotional and financial costs of litigation. Accordingly, each party hereto agrees that their claims, grievances or disputes (hereinafter referred to as "Claims" or "Claim") shall be resolved using the procedures set forth below. Any party having a Claim ("Claimant") against the other party ("Respondent") (collectively, the "Parties") shall notify the Respondent in writing (the "Notice") stating plainly and concisely; (1) the nature of the Claim, including the Persons involved and Respondents role in the Claim; (2) the legal basis of the Claim (i.e., the specific authority out of which the Claim arises); (3) the Claimant's proposed remedy; and that the Claimant will meet with the Respondent to discuss in good faith ways to resolve the Claim.

b. Negotiations and Mediations. The Parties shall make every reasonable effort to meet in person and confer for the purpose of resolving the Claim by good faith negotiation. If the Parties do not resolve the Claim within 60 days of the date of the Notice (or within such other period as may be agreed upon by the Parties)(the "Termination of Negotiations"), Claimant shall have 30 additional days to submit the Claim to mediation to JAMS ([www.jamsadr.com](http://www.jamsadr.com)), who is an independent agency performing dispute resolution services in the metropolitan Atlanta area. The Parties shall divide the cost of the mediation, with each party paying half of the costs. If Claimant does not submit the Claim to mediation within 30 days after Termination of Negotiations, or does not appear for mediation, Claimant shall be deemed to have waived the Claim, and Respondent shall be released and discharged from any and all liability to Claimant on account of such Claim. Any settlement of the Claim through mediation shall be documented in writing by the mediator. If the Parties do not settle the Claim within 30 days after submission of the matter to the mediation process, or within such time as determined by the mediator, the mediator shall issue a notice of termination of the mediation proceedings (the "Termination of Mediation"). The Termination of Mediation notice shall set forth that the Parties are at an impasse and the date that the mediation was terminated.

c. Final and Binding Arbitration. Claimant shall have 15 days after the Termination of Mediation to submit the Claim to arbitration in accordance with O.C.G.A. §9-9-1. et. Seq., and the arbitration shall take place in metropolitan Atlanta, Georgia. Claimant will pay the cost of any filing fees for the arbitration. The arbitration shall be conducted by and in accordance with the rules and procedures promulgated by the Construction Arbitration Associates, Ltd. ("CAA"). In the event the CAA is unavailable



of unable to arbitrate the Claim, the Parties may agree to another professional arbitrator appointed in accordance with O.C.G.A. § 9-9-1 et. seq. If the Claim is not timely submitted to arbitration or if the Claimant fails to appear for the arbitration proceeding, the Claim will be deemed abandoned, and Respondent shall be released and discharged from any and all liability to Claimant arising out of such Claim. This subsection (c) is an agreement to arbitrate and is specifically enforceable under the applicable arbitration laws of the State of Georgia. The arbitration award (the "Award") shall be final and binding, and judgment may be entered upon it in any court of competent jurisdiction to the fullest extent permitted under the laws of the State of Georgia.

d. Cost. The Claimant shall pay any filing fees for the arbitration. Each party shall pay the fees and expense of its own counsel.

### MISCELLANEOUS

a. This Limited Warranty is not renewable. Purchaser's rights and obligations under the Limited Warranty are personal and not transferable. This Limited Warranty may not be assigned or transferred upon resale or lease of the Property.

b. Purchaser's sole remedy under this Limited Warranty is the repair or replacement of any Defect. In no event, shall PIVOT's total liability hereunder exceed the purchase price of the PIVOT deliverables. The liability of Purchaser hereunder is expressly limited to the repair and replacement of the Defects. No responsibility is assumed for any secondary or consequential damage resulting from or arising out of any defect and nothing in this warranty shall render the Purchaser liable in any respect for any injury or damage to any persons or property by reason of any defects to the PIVOT's Property.

c. This Limited Warranty constitutes the entire agreement between Purchaser and PIVOT with respect to the subject matter hereof, and no representations, inducements, promises or agreements, oral or otherwise, not expressly set forth herein shall be of any force of effect. This Limited Warranty shall be governed by the laws of the State of Georgia.



# APPENDIX A

## Equipment Cutsheets





SKU	TAC
DESCRIPTION	
MANUFACTURER	MODEL

# BUNN®

## Starbucks® Single Soft Heat® DBC Brewer

### Features

#### Starbucks® Digital Brewing System

- Three batch size capability.
- Stores individual coffee and flavor profiles using adjustable water volume, bypass percentage, Pulse-Brew™, and pre-infusion timing.
- Operate any combination of equipment error-free with wireless brewer-grinder interface via Smart Funnel®.
- Reduce accidents with safety features that decrease hot splashes from funnel eliminate brewing when funnel or server is not present.
- Consistently brew perfect coffee using Digital Brewer Control with BUNN patented Pulse-Brew™.
- Patented server heat control automatically shuts off once target temperature reached.
- Universal side-mounted hot water dispenser for optional attachment to either side of brewer.
- Large capacity tank drain.
- Includes drip tray as shown.



*Model Single SH DBC with 1.5 gallon SH-S Server (server sold separately)*



### Models

*Single SH DBC*

### General Installation Guidelines - Electrical Hook-Up

**CAUTION** - Improper electrical installation will damage electronic components.

1. An electrician must provide electrical service as specified.
2. Using a voltmeter, check the voltage and color coding of each conductor at the electrical source.
3. Remove the front panel beneath the sprayheads.
4. Feed the cord through the strain relief and connect it to the terminal block.
5. Connect the brewer to the power source and verify the voltage at the terminal block before proceeding. Replace the front panel.
6. If plumbing is to be hooked up later be sure the brewer is disconnected from the power source. If plumbing has been hooked up, the brewer is ready for initial set-up.

**PLUMBING REQUIREMENTS** - This brewer must be connected to a cold water system with operating pressure between 20 and 90 psi (138 and 620 kPa) from a 1/2" or larger supply line. A shut-off valve should be installed in the line before the brewer. Install a regulator in the line when pressure is greater than 90 psi (620 kPa) to reduce it to 50 psi (345 kPa). The water inlet fitting is 1/4" flare or female quick connect.

**NOTE** - Bunn-O-Matic recommends 1/4" copper tubing for installations of less than 25 feet and 3/8" for more than 25 feet from the 1/2" water supply line. A tight coil of

copper tubing in the water line will facilitate moving the brewer to clean the counter top. Bunn-O-Matic does not recommend the use of a saddle valve to install the brewer. The size and shape of the hole made in the supply line by this type of device may restrict water flow. This equipment must be installed to comply with the Basic Plumbing Code of the Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration (FDA).

#### PLUMBING HOOK-UP

1. Flush the water line and securely attach it to the flare fitting located on bottom of brewer.
2. Turn on the water supply.

### General Operating Tips

1. Confirm server is clean and empty
2. Funnel should contain filter and proper coffee amount
3. Press "On/Off" switch
4. Select desired batch size
5. Press "Brew"

*Brewer will not brew unless funnel and server are in place.*

**Coffee Brewers/Portable (Satellite)/BrewWISE® Single Soft Heat® DBC Brewer 10/03**

### BUNN®

**Corporate Offices**  
1400 Stevenson Drive  
Springfield, Illinois 62703  
**Phone**  
800-637-8606  
217-529-6601  
**Fax**  
217-529-6644  
**Technical Services**  
800-286-6070  
**Internet**  
<http://www.bunnomatic.com>

**Western Regional Office**  
16431 Camerita Road,  
Cerritos, California 90701  
**Phone**  
562-926-0764  
**Fax**  
562-926-0858

**Canadian Office**  
280 Industrial Parkway South  
Aurora, Ontario, L4G 3T9  
**Phone**  
905-941-2886  
**Fax**  
905-941-2775

**Patents**  
Apply



# BUNN® *The Mark of Quality in Beverage Equipment Worldwide*

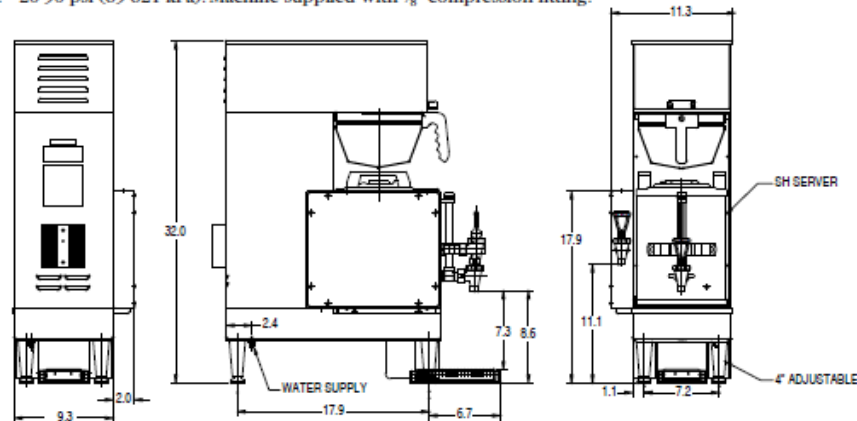
## Dimensions & Specifications

Model	Product #	Volts	Amps	Tank Heater Watts	Total Watts	Brewing Capacity	Cu. Ft.	Shipping Weight	Net Weight	Ready-To-Use Weight	Cord Attached
Single SH DBC	33600.0007	120/208	19.7	4000	4100	11.4 gal/hr	7.9	69 lbs.	65 lbs.	117 lbs.	No
Single SH DBC	33600.0008	120/240	17.1	4000	4100	11.4 gal/hr	7.9	69 lbs.	65 lbs.	117 lbs.	No

Note: Soft Heat® Brewers and Servers are boxed and shipped separately.

Electrical: Brewer is 3-wires plus ground service rated 120/208V or 120/240V, single phase, 60Hz.

Plumbing: 20-90 psi (69-621 kPa). Machine supplied with  $\frac{3}{8}$ " compression fitting.



All dimensions shown in inches.

### BUNN-O-MATIC COMMERCIAL PRODUCT WARRANTY for Starbucks

Bunn-O-Matic Corp. ("BUNN") warrants equipment manufactured by it as follows:

- 1) All equipment other than as specified below: 3 years parts and 1 year labor.
- 2) Electronic circuit and/or control boards: parts and labor for 3 years.

These warranty periods run from the date of installation BUNN warrants that the equipment manufactured by it will be commercially free of defects in material and workmanship existing at the time of manufacture and appearing within the applicable warranty period. This warranty does not apply to any equipment, component or part that has not had the required preventative maintenance, or that was not manufactured by BUNN or that, in BUNN's judgment, has been affected by misuse, neglect, alteration, improper installation or operation, improper maintenance or repair, damage or casualty. This warranty is conditioned on the buyer 1) giving BUNN prompt notice of any claim to be made under this warranty by telephone at (217) 529-6601 or by writing to Post Office Box 3227, Springfield, Illinois 62708-3227; 2) if requested by BUNN, shipping the defective equipment prepaid to an authorized BUNN service location; and 3) receiving prior authorization from BUNN that the defective equipment is under warranty.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The agents, dealers or employees of BUNN are not authorized to make modifications to this warranty or to make additional warranties that are binding on BUNN. Accordingly, statements by such individuals, whether oral or written, do not constitute warranties and should not be relied upon.

If BUNN determines in its sole discretion that the equipment does not conform to the warranty, BUNN, at its exclusive option while the equipment is under warranty, shall either 1) provide at no charge replacement parts and/or labor (during the applicable parts and labor warranty periods specified above) to repair the defective components, provided that this repair is done by a BUNN Authorized Service Representative; or 2) shall replace the equipment or refund the purchase price for the equipment.

THE BUYER'S REMEDY AGAINST BUNN FOR THE BREACH OF ANY OBLIGATION ARISING OUT OF THE SALE OF THIS EQUIPMENT, WHETHER DERIVED FROM WARRANTY OR OTHERWISE, SHALL BE LIMITED, AT BUNN'S SOLE OPTION AS SPECIFIED HEREIN, TO REPAIR, REPLACEMENT OR REFUND.

In no event shall BUNN be liable for any other damage or loss, including, but not limited to, lost profits, lost sales, loss of use of equipment, claims of Buyer's customers, cost of capital, cost of down time, cost of substitute equipment, facilities or services, or any other special, incidental or consequential damages.

10/03 © 2003 Bunn-O-Matic Corp.





**BUNN**<sup>®</sup>



**Starbucks<sup>®</sup> 1.5 Gallon  
Soft Heat<sup>®</sup> Server**

ITEM# \_\_\_\_\_

PROJECT \_\_\_\_\_

DATE \_\_\_\_\_



**1.5 gallon SH-S Server**

### **Features**

#### **Soft Heat<sup>®</sup> Server**

- LED power indicator shows server is operational.
- Docking stations have instant power contact with servers.
- Safety-Fresh<sup>®</sup> brew-through lid with vapor seal and spill prevention.
- SH servers to be used with Single and Dual SH brewers or for remote serving, SH servers can be placed on 1SH or 2SH stands to obtain proper faucet to counter clearance.

For current specification sheets and other information, go to [www.bunn.com](http://www.bunn.com).

### **General Operating Tips**

- Confirm server is clean and empty.
- Place server on brewer or stand.
- Red LED indicator light should illuminate, indicates it is heating.
- Ready to brew.
- After one hour, if red LED indicator light is blinking, power to server has been shut off.
- This indicator light is re-set when a new batch is brewed or when the server contacts make contact with electric power.
- DO NOT IMMERSE THIS SERVER IN WATER, IT HAS INTERNAL ELECTRONIC COMPONENTS.

**07/12**

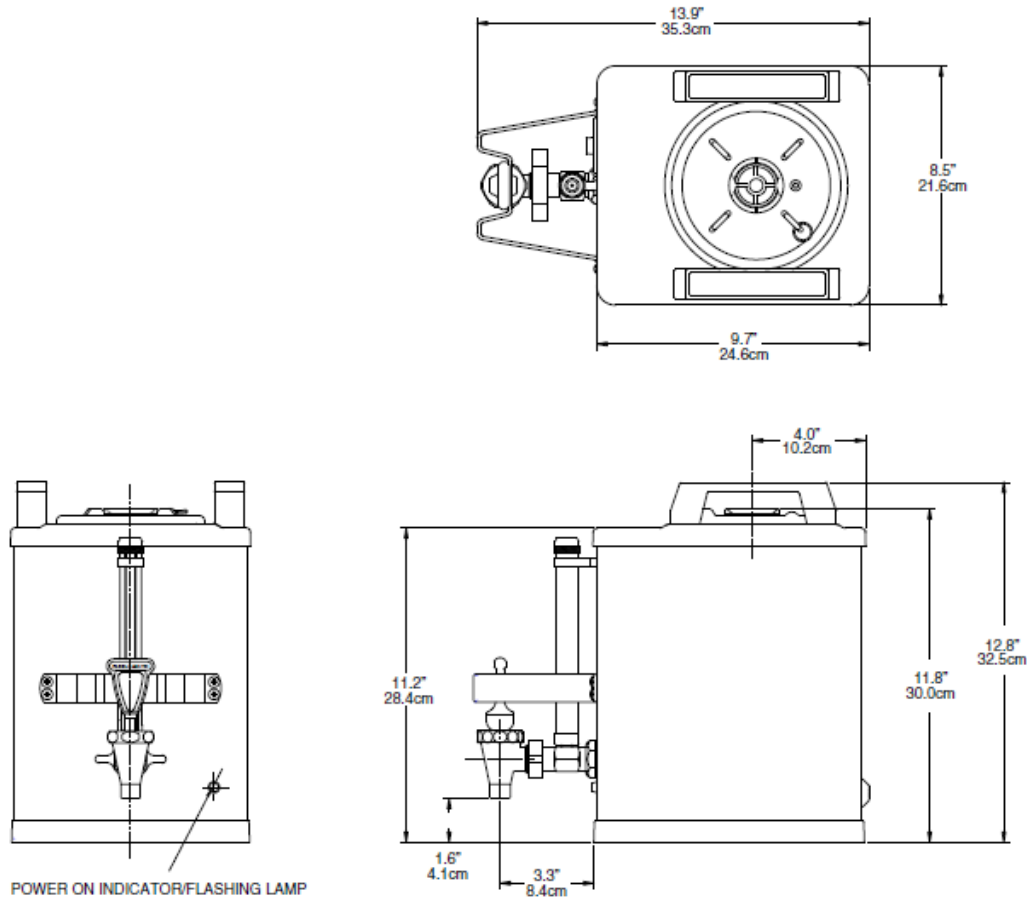


## Dimensions & Specifications

Model	Product #	Capacity	Cubic Size	Shipping Weight	Net Weight	Ready* Weight	Cord Attached	Agency
SH-S Server	27850.0021	1.5 Gal	2.2ft <sup>3</sup>	13.7 lbs	11 lbs	22 lbs	N/A	UL, NSF
		5.7 L	.06m <sup>3</sup>	6.2 kg	5.0 kg	9.9 kg		

\*filled with 1.3 gallons (4.9 L) of coffee

Electrical: Fully insulated with a 72 watt @ 24 VDC low voltage heater to keep coffee warm.



BUNN-O-Matic® Corporation - 1400 Stevenson Drive Springfield, Illinois 62703 • 800-637-9606 • 217-529-6601 • Fax 217-529-6644 • www.bunn.com

BUNN® practices continuous product research and improvement. We reserve the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment. All dimensions shown in inches and centimeters.





**BUNN**



**Starbucks® 1 Position  
Soft Heat® Server Stand**

ITEM# \_\_\_\_\_

PROJECT \_\_\_\_\_

DATE \_\_\_\_\_

**Features**

**1 Position Soft Heat Server Stand**

- Remote server docking station for additional satellite coffee service.
- Server stand to be used with SH servers for remote serving and to obtain proper faucet to counter clearance.
- LED power indicator shows server is operational.
- Docking stations have instant power contact with servers.
- Includes drip tray as shown.



**1SH Server Stand**

For current specification sheets and other information, go to [www.bunn.com](http://www.bunn.com).

**General Operating Tips**

CAUTION - Improper electrical installation will damage electronic components.

- Attach legs provided.
- Plug unit into correct electrical.
- To assure power is on, place server on unit, Red LED indicator on server should illuminate.
- Provides power to internal heater for the Soft Heat server.

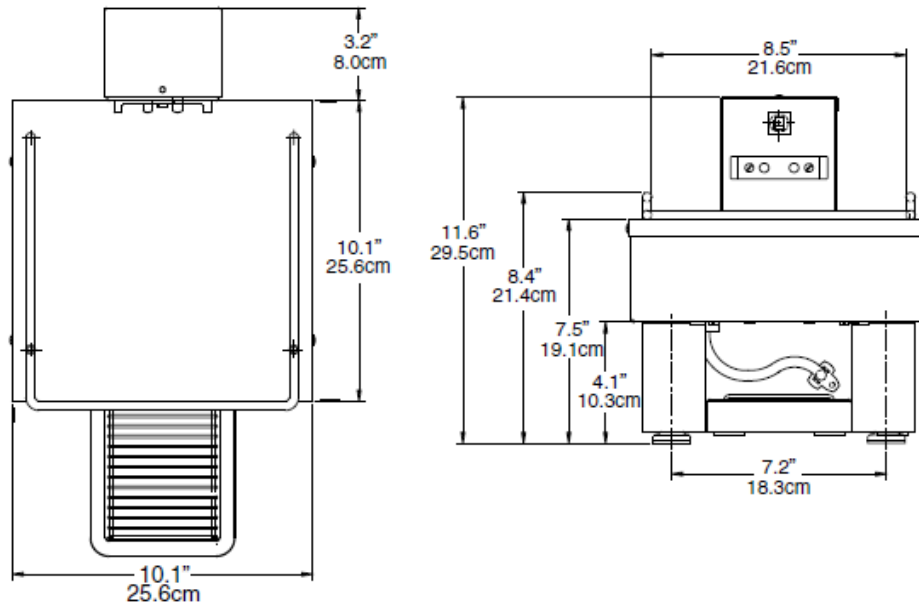
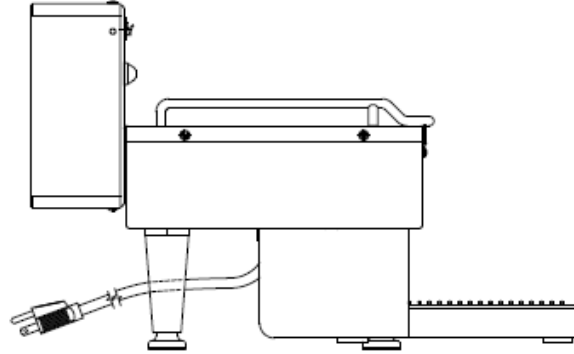
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## Dimensions & Specifications

Model	Product #	Volts	Amps	Total Watts	Capacity	Cubic Size	Shipping Weight	Cord Attached	Agency
1SH Stand	27825.0011	120	.75	90	1 SH Server	1.7ft <sup>3</sup>	13 lbs	No	UL (E) (R)
1SH Stand	27825.0012	220-230	.35	75	1 SH Server	.03m <sup>3</sup>	5.9 kg	No	CE
1SH Stand	27825.0014	100	.63	75	1 SH Server	.03m <sup>3</sup>	5.9 kg	No	

Electrical: 120V model is 2-wires plus ground service rated at 120V, single phase 60 Hz.  
 220-230V model is 2-wires plus ground service rated at 220-230V, single phase 50/60 Hz.  
 100V model is 2-wires plus ground service rated at 100V, single phase 50/60 Hz.



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All dimensions shown in inches and centimeters.

©2011 Bunn-O-Matic Corporation



Ditting Grinder

RETAIL GRINDER



804

Small, sturdy and versatile



grinding with passion

**ditting**<sup>®</sup>  
— SWISS —



# 804

## RETAIL GRINDER



Whether they are in service in small coffee stores or in a large laboratory for cupping, the series 804 models are valued for their impressive functionality and reliability. Since these machines are extremely easy to clean, they are increasingly used where coffee beans of different flavours have to be ground as this requires more frequent and thorough cleaning.

- Specially developed motors allowing large grinding capacity at all degrees of fineness.
- Preservation of coffee's unique aromatic oils thanks to uniform, gentle and cool grinding made possible by specially sharpened discs developed by Ditting.

- Continuously variable adjustment of grinding fineness.
- Minimal coffee particles left in discharge tube thanks to manual tapper.
- Efficient bag shaking device (KR model) distributes grounds evenly into bag and ensures all particles are dispensed.
- Precision grinding discs made of high-quality material that is extremely wear-resistant.
- Easy to maintain and clean.

### TECHNICAL DATA

	804
Voltage/frequency/phase	110-120 V / 60 Hz / 1
Motor power	0.5 kW / 0.68 hp
Rotor current drain	6 amps
Average grinding capacity	500 g/min / 1.1 lbs/min
Hopper capacity	500 g / 1.1 lbs
Grinding disc diameter Ø	80 mm
Net weight	22.5 kg / 55 lbs
Dimensions (w x d x h)	200 x 260 x 480 mm / 9.5" x 11" x 24.5"
Standard colour	black
Certifications	UL, cUL, ETL (NSF-8)

### EQUIPMENT

	KF, KR
Available versions	•
Hopper magnet	•
Manual bag holding device	only KR
Bag shaker	

### SPECIAL EQUIPMENT

Other electric specifications available on request

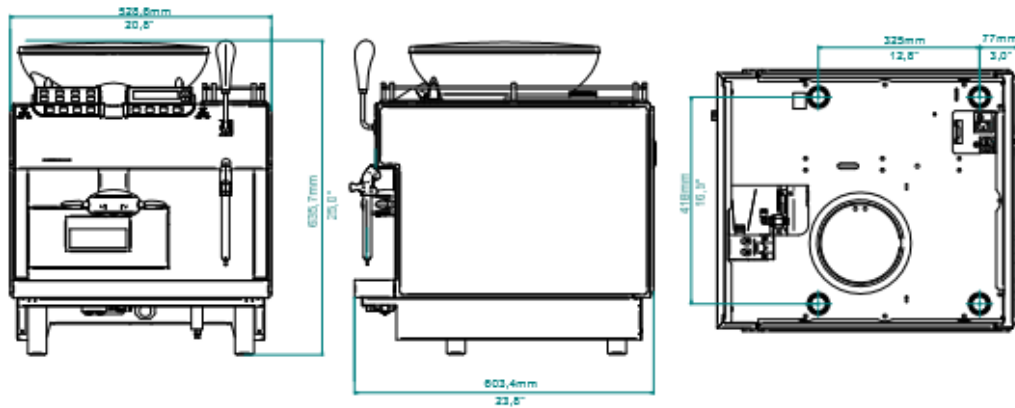
Ditting Maschinen AG  
Bramenstrasse 11 | CH-8184 Bachenbülach | Switzerland  
Phone +41 44 864 18 00 | Fax +41 44 864 18 01  
info@dittingswiss.ch | www.dittingswiss.ch

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Phone +1 810 367 7125 | Fax +1 810 367 7130  
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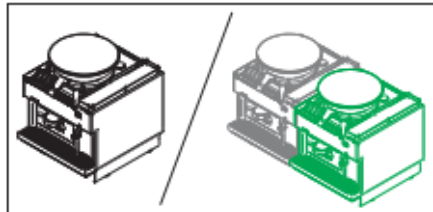
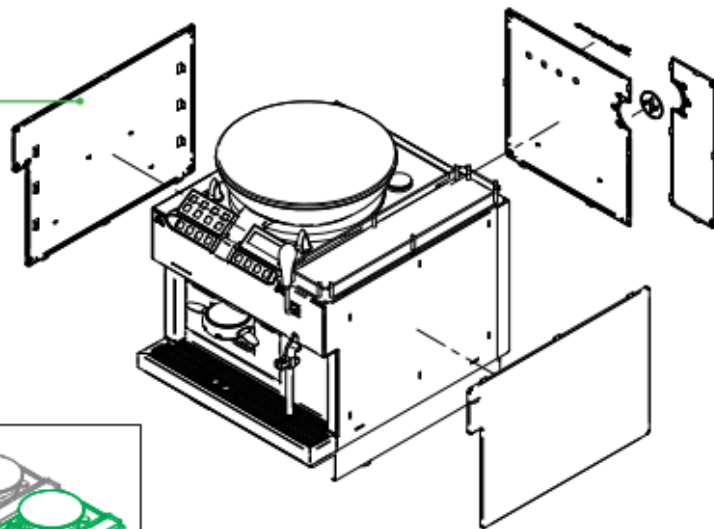


# CUT SHEETS





(Remove for double machine)



Dimensions: 528.6 x 603.4 x 635.7mm (WxDxH)  
20.8" x 23.8" x 25"  
Weight net: approx. 171 lbs. / 78 kg (empty)

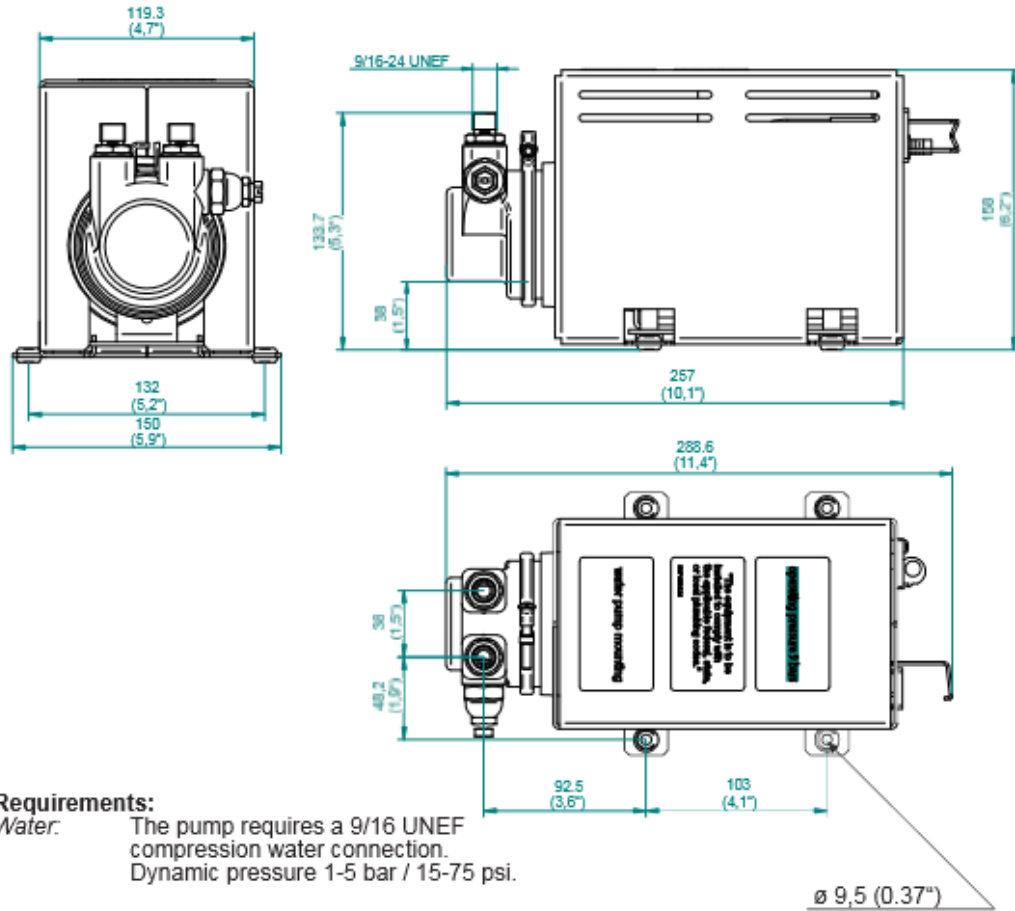
**Requirements:**

**Water:** The unit requires a 9/16 UNEF compression water connection. Dynamic pressure 1-5 bar / 15-75 psi.

**El. equipment:** 208V / 50/60Hz / 2PE  
**Power:** 6200 W  
**Current:** 30.0 A  
**Power cord:** US 3 x AWG 8

Chlorine	Less than 0.5ppm
Langelier Saturation Index	-1.5 to 1.0
TDS	50 to 500
Hardness	90-140ppm
pH	6.5 to 8.5
Alkalinity	20 to 140ppm
Iron	Less than 0.3ppm





**Requirements:**

**Water:** The pump requires a 9/16 UNEF compression water connection.  
Dynamic pressure 1-5 bar / 15-75 psi.

**El. equipment:** 230V / 50/60Hz / PNE  
**Power:** 90 W  
**Current:** 0.9 A, 5mF, 450VL CL B

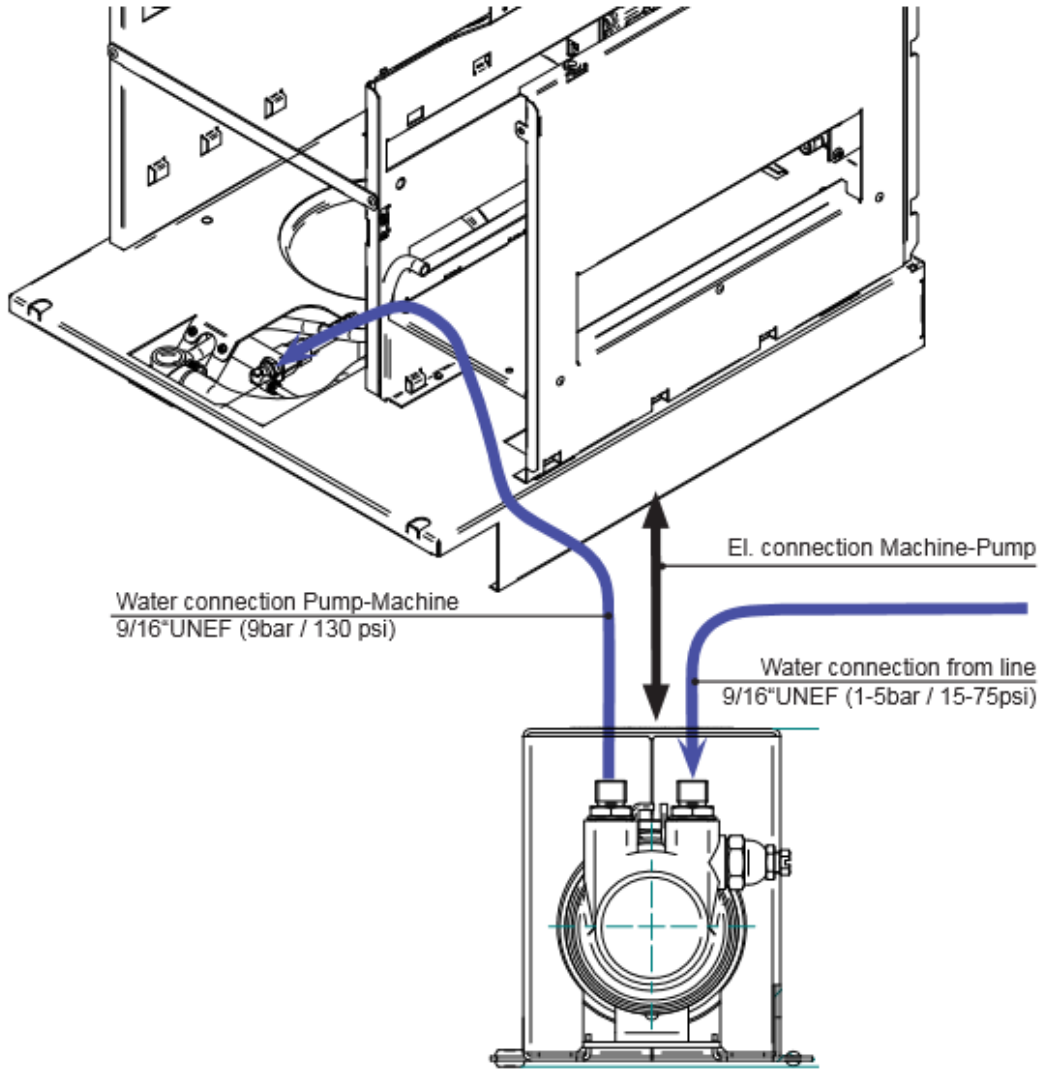
Chlorine	Less than 0.5ppm
Langelier Saturation Index	-1.5 to 1.0
TDS	50 to 500
Hardness	90-140ppm
pH	6.5 to 8.5
Alkalinity	20 to 140ppm
Iron	Less than 0.3ppm

Water hardness conversion chart

	1	2	3	4	5
100ppm	1	2	3	4	5
200ppm	2	4	6	8	10
300ppm	3	6	9	12	15
400ppm	4	8	12	16	20
500ppm	5	10	15	20	25







Dimensions: 213 x 289 x 166.5mm (WxDxH)  
8.39" x 11.38" x 6.56"

Weight net: approx. 15.4 lbs. / 7 kg (empty)





<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General	Several - refer to Mastrena manual section 11, page 6/7		
Room	standard enclosure design - fusion Logo&Badge		

Change to unique enclosure design. Back panel carries the Starbucks badge and the Mastrena Logo. Left side panel has brushed chrome look (refer to SBM-225) and right panel remains on copper look (view from back). For installation will be two of these standard units used instead of a Badge and Logo configuration.



<input type="checkbox"/>	UL40-049512 (2010-10-19)
<input type="checkbox"/>	New articles are shown in Mastrena manual section 11, page 6&7
<input type="checkbox"/>	<a href="#">www.thermoplan.com</a>

<input type="checkbox"/>	no specific action by the service organization required
--------------------------	---

Approved for:	<input type="checkbox"/>	<input type="checkbox"/>		
Approved by:		date:	10/10/2010	name: SCARLETT
Approved by:		date:	10/10/2010	name: SCARLETT

Change Management (Initial)	Version: SB-V-00X-I	Mastrena: SB-M-00X-I	General: SB-G-00X-I
Change Management (Final)	Version: SB-V-00X-F	Mastrena: SB-M-00X-F	General: SB-G-00X-F





# APPENDIX B

## Utility Cutsheets





# SquareD Load Center QO324L125G

## Product data sheet Characteristics

## QO324L125G LOAD Center QO MLO 240V 125A 3PH 24SP

Product availability : Stock - Normally stocked in distribution facility



Price\* : 540.00 USD



### Main

Product	Load Center
Marketing Trade Name	QO
Load center type	Main lugs
Line Rated Current	125 A
Number of spaces	24
Short Circuit Current Rating	65 kA
Maximum Number of Single Pole Circuits	24
Maximum Number of Tandem Breakers	0
Phase	3 phases
System Voltage	208Y/120 V AC 240/120 V delta AC 240 V delta AC

### Complementary

Wire Size	AWG 6...AWG 2/0 (aluminium/copper)
Enclosure Rating	NEMA 1 indoor
Cover type	Order separately
Electrical Connection	Lugs
Grounding Bar	Grounding bar included (not installed)
Electrical connection	Lugs
Wiring configuration	3-wire 4-wire
Busbar Material	Tin plated copper busbar
Enclosure Material	Welded sheet steel
Cover Finish	Baked enamel grey
Box number	7

Jun 25, 2019

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Electric

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Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.



Product certifications	UL listed
Height	531 mm
Width	14.25 in (362 mm)

#### Ordering and shipping details

Category	00011 - QO 3PH LOAD CENTER,INDOOR
Discount Schedule	DE3
GTIN	00785901295433
Nbr. of units in pkg.	1
Package weight(Lbs)	13.290000000000001
Returnability	Y
Country of origin	US

#### Offer Sustainability

RoHS (date code: YYWW)	Compliant - since 1248 - Schneider Electric declaration of conformity <a href="#">Schneider Electric declaration of conformity</a>
REACH	Reference not containing SVHC above the threshold <a href="#">Reference not containing SVHC above the threshold</a>
Product end of life instructions	Need no specific recycling operations
California proposition 65	WARNING: This product can expose you to chemicals including:
----- Substance 1	Lead and lead compounds which is known to the State of California to cause cancer and birth defects or other reproductive harm.
----- More information	For more information go to <a href="http://www.p65warnings.ca.gov">www.p65warnings.ca.gov</a>

#### Contractual warranty

Warranty period	18 months
-----------------	-----------



Product data sheet  
Characteristics

QO115

QO mini breaker, 15 A, 1 pole, 120/240 V, 10 kA, plug in

Product availability : Stock - Normally stocked in distribution facility



Price\* : 29.10 USD



Main

Product	Miniature circuit-breaker
Range	QO
Line Rated Current	15 A
System Voltage	120 V AC 120/240 V AC 48 V DC
Mounting Type	Plug-in
Number of Poles	1P
Circuit Breaker Type	Standard
Ratings	HACR and Switching Duty rated
Electrical Connection	Pressure plate

Complementary

Interrupt Rating	5 kA at: 48 V DC 10 kA at: 120/240 V AC 50/60 Hz 10 kA at: 120 V AC 50/60 Hz
Number of Panel Spaces	1
Wire Size	AWG 14...AWG 8 (copper or aluminium)
Height	3 in
Depth	2.91 in
Width	0.75 in

Environment

Certifications	CSA UL listed
Ambient Rating	104 °F (40 °C)

Jun 25, 2015

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### Ordering and shipping details

Category	00004 - QO,QOT 10-30A 1P;10-60A 2P
Discount Schedule	DE2A
GTIN	00785901400066
Nbr. of units in pkg.	10
Package weight(Lbs)	0.29999999999999999
Returnability	Y
Country of origin	US

### Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1323 - Schneider Electric declaration of conformity <a href="#">Schneider Electric declaration of conformity</a>
REACH	Reference contains SVHC above the threshold - Go to CaP for more details <a href="#">Go to CaP for more details</a>
Product environmental profile	Available
Product end of life instructions	Need no specific recycling operations

### Contractual warranty

Warranty period	18 months
-----------------	-----------





## SquareD Circuit Breaker QO120

### Product data sheet Characteristics

### QO120

QO mini breaker, 20 A, 1 pole, 120/240 V, 10 kA, plug in

Product availability : Stock - Normally stocked in distribution facility



Price\* : 29.10 USD



#### Main

Product	Miniature circuit-breaker
Range	QO
Line Rated Current	20 A
System Voltage	120 V AC 120/240 V AC 48 V DC
Mounting Type	Plug-in
Number of Poles	1P
Circuit Breaker Type	Standard
Ratings	HACR and Switching Duty rated
Electrical Connection	Pressure plate

#### Complementary

Interrupt Rating	5 kA at: 48 V DC 10 kA at: 120/240 V AC 50/60 Hz 10 kA at: 120 V AC 50/60 Hz
Number of Panel Spaces	1
Wire Size	AWG 14...AWG 8 (copper or aluminium)
Height	3 in
Depth	2.91 in
Width	0.75 in

#### Environment

Certifications	CSA UL listed
Ambient Rating	104 °F (40 °C)

Jun 25, 2019

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Electric

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Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.



### Ordering and shipping details

Category	00004 - QO,QOT 10-30A 1P;10-60A 2P
Discount Schedule	DE2A
GTIN	00785901400103
Nbr. of units in pkg.	10
Package weight(Lbs)	0.25
Returnability	Y
Country of origin	US

### Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 0701 - Schneider Electric declaration of conformity <a href="#">Schneider Electric declaration of conformity</a>
REACH	Reference contains SVHC above the threshold - Go to CaP for more details <a href="#">Go to CaP for more details</a>
Product environmental profile	Available
Product end of life instructions	Need no specific recycling operations

### Contractual warranty

Warranty period	18 months
-----------------	-----------



# SquareD Circuit Breaker QO240

## Product data sheet Characteristics

## QO240

Mini CB, QO, 40 A, 2P, 120/240 V, 10 kA, Plug in

Product availability : Stock - Normally stocked in distribution facility



Price\* : 67.00 USD



### Main

Product	Miniature circuit-breaker
Range	QO
Line Rated Current	40 A
System Voltage	120 V AC 120/240 V AC 48 V DC
Mounting Type	Plug-in
Number of Poles	2P
Circuit Breaker Type	Standard
Ratings	HACR rated
Electrical Connection	Box lugs

### Complementary

Interrupt Rating	5 kA at: 48 V DC 10 kA at: 120/240 V AC 50/60 Hz 10 kA at: 120 V AC 50/60 Hz
Number of Panel Spaces	2
Wire Size	AWG 8...AWG 2 (copper or aluminium)
Height	3.12 in
Depth	2.91 in
Width	1.5 in

### Environment

Certifications	CSA UL listed
Ambient Rating	104 °F (40 °C)

Jun 25, 2019

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### Ordering and shipping details

Category	00004 - QO,QOT 10-30A 1P;10-60A 2P
Discount Schedule	DE2A
GTIN	00785901400486
Nbr. of units in pkg.	5
Package weight(Lbs)	0.5
Returnability	Y
Country of origin	MX

### Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1323 - Schneider Electric declaration of conformity <a href="#">Schneider Electric declaration of conformity</a>
REACH	Reference contains SVHC above the threshold - Go to CaP for more details <a href="#">Go to CaP for more details</a>
Product environmental profile	Available
Product end of life instructions	Need no specific recycling operations

### Contractual warranty

Warranty period	18 months
-----------------	-----------



# SquareD Circuit Breaker QO250

## Product data sheet Characteristics

## QO250

QO mini breaker, 50 A, 2 pole, 120/240 V, 10 kA, plug in

Product availability : Stock - Normally stocked in distribution facility



Price\* : 67.00 USD



### Main

Product	Miniature circuit-breaker
Range	QO
Line Rated Current	50 A
System Voltage	120 V AC 120/240 V AC 48 V DC
Mounting Type	Plug-in
Number of Poles	2P
Circuit Breaker Type	Standard
Ratings	HACR rated
Electrical Connection	Box lugs

### Complementary

Interrupt Rating	5 kA at: 48 V DC 10 kA at: 120/240 V AC 50/60 Hz 10 kA at: 120 V AC 50/60 Hz
Number of Panel Spaces	2
Wire Size	AWG 8...AWG 2 (copper or aluminium)
Height	3.12 in
Depth	2.91 in
Width	1.5 in

### Environment

Certifications	CSA UL listed
Ambient Rating	104 °F (40 °C)

Jun 25, 2019

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Electric

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Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.



### Ordering and shipping details

Category	00004 - QO,QOT 10-30A 1P;10-60A 2P
Discount Schedule	DE2A
GTIN	00785901400523
Nbr. of units in pkg.	5
Package weight(Lbs)	0.650000000000000002
Returnability	Y
Country of origin	MX

### Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1323 - Schneider Electric declaration of conformity <a href="#">Schneider Electric declaration of conformity</a>
REACH	Reference contains SVHC above the threshold - Go to CaP for more details <a href="#">Go to CaP for more details</a>
Product environmental profile	Available
Product end of life instructions	Need no specific recycling operations

### Contractual warranty

Warranty period	18 months
-----------------	-----------



## Leviton CR20-W Receptacle

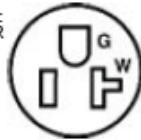


Color: White

UPC Code: 07847781545

Country Of Origin: United States

NEMA:  
5-20R



### CR20-W

#### Brand Features

Leviton's line of Heavy-Duty Specification Grade receptacles are designed and manufactured to withstand the most demanding environments. Available in a wide variety of configurations, including isolated ground, tamper-resistant, etc., these Commercial Grade devices are the electrical contractor's choice for use in hotels, schools, hospitals and commercial office buildings.

#### Item Description

20 Amp, 125 Volt, NEMA 5-20R, 2P, 3W, Narrow Body Duplex Receptacle, Straight Blade, Commercial Grade, Self Grounding, . . Side Wired, Steel Strap, - White

#### Technical Information

##### AC Horsepower Ratings

At Rated Voltage: 1 HP

##### Electrical Specifications

Grounding: Self-Grounding

Amperage: 20 Amp

Voltage: 125 Volt

Pole: 2-Pole

Wire: 3-Wire

Dielectric Voltage: Withstands 2000V per UL498

Current Limiting: Full Rated Current

Temperature Rise: Max 30C after 100 cycles OL at 150 percent rated current

##### Environmental Specifications

Flammability: Rated V-2 per UL94

Operating Temperature: -40C to 80C

##### Material Specifications

Face Material: Thermoplastic

Body Material: Thermoplastic

Line Contacts: Brass .031 Thick

Terminal Screws: Steel 8-32

Grounding Screw: Steel 8-32

Strap Material: Zinc-Plated Steel

Ground Clips: Brass

##### Mechanical Specifications

Terminal ID: Brass-Hot, Green-Ground, Silver-Neutral

Terminal Accom.: 14-10 AWG

Product ID: Ratings are permanently marked on device

Termination: Side Wire

##### Product Features

Color: White

NEMA: 5-20R

Device Type: Duplex Receptacle Outlet

Feature 4: Indented Face

Grade: Commercial Specification Grade

##### Standards and Certifications

NEMA: WD-1 & WD-6

ANSI: C-73

UL498: File E13399

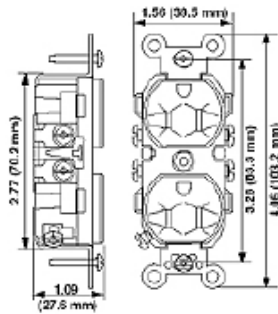
CSA C22.2 No. 42: File 152105

NOM: 057

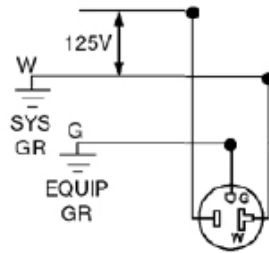
Warranty: 10 Year Limited



### Dimensional Diagram



### Wiring Diagram



5-20R

### SPECIFICATION SUBMITTAL

JOB NAME: <input type="text"/>	CATALOG NUMBERS: <input type="text"/>
JOB NUMBER: <input type="text"/>	<input type="text"/>

#### Leviton Manufacturing Co., Inc.

201 North Service Road, Melville, NY 11747

Teléfono: +1-800-323-8920 · FAX: +1-800-832-9538 · Tech Line (8:30AM-7:30PM E.S.T. Monday-Friday): +1-800-824-3005

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#### Leviton S. de R.L. de C.V.

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Visit our Website at: [www.leviton.com](http://www.leviton.com)

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[www.leviton.com/international/contacts/](http://www.leviton.com/international/contacts/)





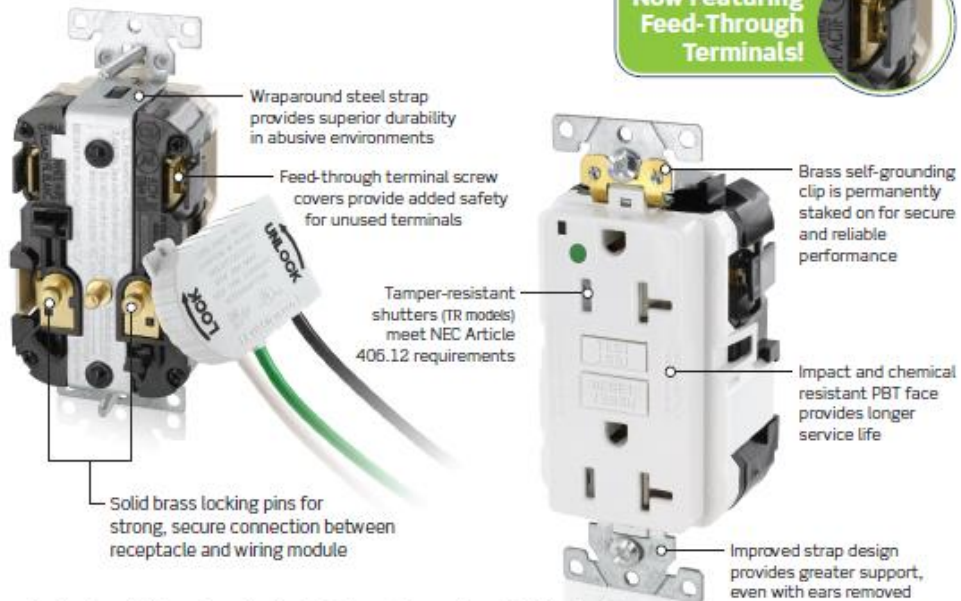
# Levlok GFCI MGFN2-W Receptacle

Product Bulletin



## lev-lok® GFCI Duplex Receptacles Industrial & Hospital Grade

Now Featuring  
Feed-Through  
Terminals!



Patented SmartlockPro® protection detects and prevents against line-load reversal miswiring, and prevents resetting when ground fault protection has been lost

### Ordering Information

Lev-Lok Hospital Grade GFCI Receptacles		Standard		Tamper-Resistant	
		15A	20A	15A	20A
COLOR	Brown	MN759-HG	MN789-HG	MX759-HG	MX789-HG
	Ivory	MN759-HGI	MN789-HGI	MX759-HGI	MX789-HGI
	White	MN759-HGW	MN789-HGW	MX759-HGW	MX789-HGW
	Black	MN759-HGE	MN789-HGE	MX759-HGE	MX789-HGE
	Gray	MN759-HGG	MN789-HGG	MX759-HGG	MX789-HGG
	Lt. Almond	MN759-HGT	MN789-HGT	MX759-HGT	MX789-HGT
	Red	MN759-HGR	MN789-HGR	MX759-HGR	MX789-HGR
	Lev-Lok Industrial Grade GFCI Receptacles		Standard		Tamper-Resistant
15A			20A	15A	20A
COLOR	Brown	MN759	MN789	MX759	MX789
	Ivory	MN759-I	MN789-I	MX759-I	MX789-I
	White	MN759-W	MN789-W	MX759-W	MX789-W
	Black	MN759-E	MN789-E	MX759-E	MX789-E
	Gray	MN759-GY	MN789-GY	MX759-GY	MX789-GY
	Lt. Almond	MN759-T	MN789-T	MX759-T	MX789-T
	Red	MN759-R	MN789-R	MX759-R	MX789-R

### Common Applications

- Educational Facilities
- Office Environments
- Commercial/Retail Facilities
- Hospitals
- Day Care Centers
- MDUs
- Hospitality Facilities



### Ordering Information (Continued)

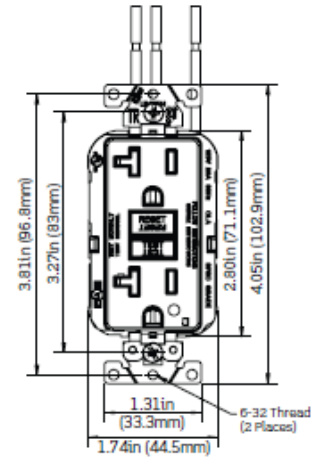
Lev-Lok Receptacle Modules, 20A, 125V	Module Color	Wire Type	Wire Colors	Catalog Numbers
Stranded Wire Leads	White	TI-HN	Black, White, Green	MSTWL-A
Stranded Wire Leads for Emergency Circuits	Red	TI-HN	Black, White, Green	MSTWL-R

Note: Solid Wire and Push Wire Connector Versions Available

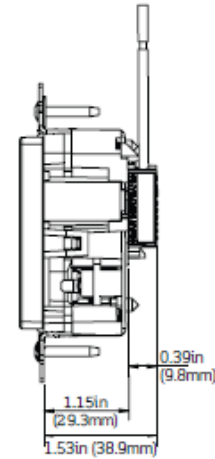
### Specifications

Description	Lev-Lok GFCI Duplex Receptacles Hospital & Industrial Grade
<b>Horsepower Rating</b>	
At Rated Voltage	1 HP
<b>Electrical Specifications</b>	
Amperage	15A or 20A
Voltage	125VAC
NEMA	5-15R or 5-20R
Grounding	Self Grounding
Pole	2
Wire	3
Dielectric Voltage	Withstands 1250VAC per UL 943 and CSA-C22.2 No. 144.1-06
Short Circuit Current Rating	2kA
Trip Level	Class A, 5mA plus or minus 1mA
Temperature Rise	Max 30 °C after 250 cycles OL at 200 percent rated current
<b>Environmental Specifications</b>	
Flammability	Rated V-0 per UL94
Relative Humidity	20% to 90% non-condensing
Operating Temperature	-35 °C to 66 °C
<b>Material Specifications</b>	
Face Material	PBT
Body Material	Polycarbonate
Line Contacts	Brass
Mounting Screws	Plated Steel
Grounding Screw	Plated Steel
Strap Material	Galvanized Steel
Ground Clip	Brass
Locking Pin	Brass
<b>Mechanical Specifications</b>	
Product ID	Ratings permanently marked on device
Line Side Termination	Wiring Module
Load Side Termination	14-10AWG Solid or Stranded
<b>Standards &amp; Certifications</b>	
NEMA	WD-1 & WD-6
Certification/Listing	UL, NOM-ANCE
Applicable Standards	UL 498 and 943, CSA C22.2 Nos. 42 and 144, FedSpec W-C-596
<b>Guarantees</b>	
Product Warranty	2 Year Limited

### Dimensions



Front View



Side View

Visit our Website at:  
[www.leviton.com/industrial](http://www.leviton.com/industrial)  
 email: [industrial@leviton.com](mailto:industrial@leviton.com)  
 Q-901

**Leviton Manufacturing Co., Inc.**  
 201 N Service Rd, Melville, NY 11747  
 Telephone: 1-800-323-8920 • FAX: 1-800-832-9538  
 Tech Line (8:30AM-7:30PM E.S.T. Monday-Friday): 1-800-824-3005  
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## Hubbell HBL 1221 ILR Illuminated Switch

Switches, Single Pole  
20A, 120-277V AC  
HBL® Extra Heavy Duty Industrial Switch

# HUBBELL

### Features

- Large brass binding head screws with deep slots
- Abuse resistant nylon toggle
- Strip gauge for accurate wiring

### Ordering Information

Description	Toggle Color	UPC	Catalog Number
Nylon toggle, back and side wired, illuminated Toggle	Red	783585434537	HBL1221ILR

### Listings

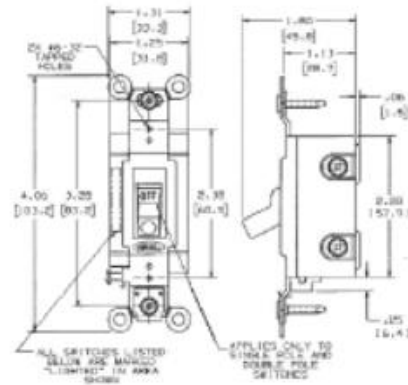
UL Listed  
CSA Certified  
Fed. Spec. W-S-896

### Specifications

Top Material	Thermoset
Base Material	Thermoset, Red
Toggle Material	Nylon
Contacts	Silver Alloy
Terminal Screws	Brass
Ground Screw	Brass (Green)

### Performance

<b>Electrical</b>	
Dielectric Voltage	Withstands 1500V AC minimum for 1 minute
Max. Continuous Current	20A
Max. Working Voltage	277V AC
Overload	Minimum 4.8 times rated current for 100 cycles
Temperature Rise	30°C maximum at rated current
<b>Mechanical</b>	
Terminal Accommodations	#14 AWG min. - #10 AWG max. Solid and stranded copper wire only
<b>Environmental</b>	
Flammability	UL 94V-2
Operating Temperature	Max. continuous: 75°C; Min. continuous: -40°C without impact



### Complementary Products

Nylon Switch Plate NP1R

### Online Resources

eCatalog

Dimensions in inches (mm)

Hubbell Wiring Device-Kellems • Hubbell Incorporated (Delaware) • 40 Waterline Drive • Shelton, CT 06484

Phone (800) 288-8000 • Fax (800) 255-1031 • Specifications subject to change without notice



Pin and Sleeve  
**Watertight Devices Ordering Information**  
 60 and 100 Ampere – North American Ratings  
 63 and 125 Ampere – International Ratings

UL	SFA	IP67 Suitability	Watertight Devices				Back Boxes		Replacement Interior Kits												
			Receptacle	Plug	Connector	Inlet	Non-Metallic	Metallic	Conn. Recep.	Plugs Inlets											
60	2P 3W										Voltage	HBL360R4W	HBL360P4W	HBL360C4W	HBL360B4W	BB60N	BB601W BB602W	IN360AF	IN360AM		
												HBL360R6W	HBL360P6W	HBL360C6W	HBL360B6W	BB60N	BB601W BB602W	IN360BF	IN360BM		
	2P 3W										Voltage	480	HBL360R7W	HBL360P7W	HBL360C7W	HBL360B7W	BB60N	BB601W BB602W	IN360BF	IN360BM	
												125/250	HBL460R12W	HBL460P12W	HBL460C12W	HBL460B12W	BB60N	BB601W BB602W	IN460CF	IN460CM	
	3P 4W										Voltage	30/250	HBL460R9W	HBL460P9W	HBL460C9W	HBL460B9W	BB60N	BB601W BB602W	IN460DF	IN460DM	
												30480	HBL460R7W	HBL460P7W	HBL460C7W	HBL460B7W	BB60N	BB601W BB602W	IN460DF	IN460DM	
	3P 4W										Voltage	30600	HBL460R5W	HBL460P5W	HBL460C5W	HBL460B5W	BB60N	BB601W BB602W	IN460DF	IN460DM	
												30Y120/208	HBL560R9W	HBL560P9W	HBL560C9W	HBL560B9W	BB60N	BB601W BB602W	IN560EF	IN560EM	
	4P 5W										Voltage	30Y277/480	HBL560R7W	HBL560P7W	HBL560C7W	HBL560B7W	BB60N	BB601W BB602W	IN560EF	IN560EM	
												30Y347/600	HBL560R5W	HBL560P5W	HBL560C5W	HBL560B5W	BB60N	BB601W BB602W	IN560EF	IN560EM	
	63	2P 3W										Voltage	220-240	HBL363R6W	HBL363P6W	HBL363C6W	HBL363B6W	BB60N	BB601W BB602W	IN360BFS	IN360BMS
													380-415	HBL463R6W	HBL463P6W	HBL463C6W	HBL463B6W	BB60N	BB601W BB602W	IN460DFS	IN460DMS
4P 5W											220/380 240/415	HBL563R6W	HBL563P6W	HBL563C6W	HBL563B6W	BB60N	BB601W BB602W	IN560EFS	IN560EMS		
100	2P 3W										Voltage	125	HBL3100R4W	HBL3100P4W	HBL3100C4W	HBL3100B4W	BB100N	BB1001W BB1002W	IN3100AF	IN3100AM	
												250	HBL3100R6W	HBL3100P6W	HBL3100C6W	HBL3100B6W	BB100N	BB1001W BB1002W	IN3100BF	IN3100BM	
	2P 3W										Voltage	480	HBL3100R7W	HBL3100P7W	HBL3100C7W	HBL3100B7W	BB100N	BB1001W BB1002W	IN3100BF	IN3100BM	
												125/250	HBL4100R12W	HBL4100P12W	HBL4100C12W	HBL4100B12W	BB100N	BB1001W BB1002W	IN4100CF	IN4100CM	
	3P 4W										Voltage	30/250	HBL4100R9W	HBL4100P9W	HBL4100C9W	HBL4100B9W	BB100N	BB1001W BB1002W	IN4100DF	IN4100DM	
												30480	HBL4100R7W	HBL4100P7W	HBL4100C7W	HBL4100B7W	BB100N	BB1001W BB1002W	IN4100DF	IN4100DM	
	3P 4W										Voltage	30600	HBL4100R5W	HBL4100P5W	HBL4100C5W	HBL4100B5W	BB100N	BB1001W BB1002W	IN4100DF	IN4100DM	
												30Y120/208	HBL5100R9W	HBL5100P9W	HBL5100C9W	HBL5100B9W	BB100N	BB1001W BB1002W	IN5100EF	IN5100EM	
	4P 5W										Voltage	30Y277/480	HBL5100R7W	HBL5100P7W	HBL5100C7W	HBL5100B7W	BB100N	BB1001W BB1002W	IN5100EF	IN5100EM	
												30Y347/600	HBL5100R5W	HBL5100P5W	HBL5100C5W	HBL5100B5W	BB100N	BB1001W BB1002W	IN5100EF	IN5100EM	
	125	2P 3W										Voltage	220-240	HBL3125R6W	HBL3125P6W	HBL3125C6W	HBL3125B6W	BB100N	BB1001W BB1002W	IN3100BFS	IN3100BMS
													380-415	HBL4125R6W	HBL4125P6W	HBL4125C6W	HBL4125B6W	BB100N	BB1001W BB1002W	IN4100DFS	IN4100DMS
4P 5W											220/380 240/415	HBL5125R6W	HBL5125P6W	HBL5125C6W	HBL5125B6W	BB100N	BB1001W BB1002W	IN5100EFS	IN5100EMS		

Notes: All 63A and all 125A devices have pilot pins or contacts.  
 See page E-6, E-7 for accessories. See page E-8, E-9 for product dimensions. See page E-10, E-11 for product specifications.  
 Closure caps purchased separately, see page E-7.  
 † Consult factory.

Dimensions in inches (mm)

www.hubbell-wiring.com



E-5

Pin and Sleeve

Watertight Pin and Sleeve



## Pin and Sleeve Watertight Device Dimensions

### Plug Dimensions

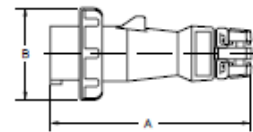
Type	A	B	Cord Grip Range
HBL320P	6.61" (167.8)	2.87" (73.0)	.330"-.830" (8.4-21.1)
HBL420P	7.00" (177.8)	3.19" (81.0)	.375"-1.250" (9.5-31.8)
HBL520P	7.65" (194.3)	3.50" (89.0)	.375"-1.250" (9.5-31.8)
HBL330P	8.05" (204.5)	3.74" (95.0)	.375"-1.250" (9.5-31.8)
HBL430P	8.05" (204.5)	3.74" (95.0)	.375"-1.250" (9.5-31.8)
HBL530P	8.54" (216.9)	4.02" (102.0)	.500"-1.450" (12.7-36.8)
HBL360P	10.15" (257.8)	4.49" (114.0)	.500"-1.450" (12.7-36.8)
HBL460P			
HBL560P			
HBL3100P	12.63" (320.8)	4.92" (125.0)	1.065"-1.940" (27.1-49.3)
HBL4100P			
HBL5100P			

### Receptacle Dimensions

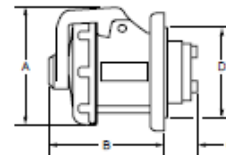
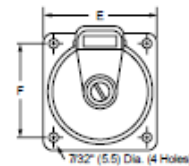
Type	A	B	C	D	E	F
HBL320R	3.33" (84.5)	2.78" (70.6)	1.02" (26.0)	2.72" (69.0)	3.75" (95.3)	3.13" (79.5)
HBL420R	3.66" (93.0)	2.78" (70.6)	1.02" (26.0)	2.72" (69.0)	3.75" (95.3)	3.13" (79.5)
HBL520R	3.94" (100.0)	2.78" (70.6)	1.02" (26.0)	2.72" (69.0)	3.75" (95.3)	3.13" (79.5)
HBL330R	4.27" (108.5)	3.09" (78.5)	1.16" (29.5)	2.72" (69.0)	3.75" (95.3)	3.13" (79.5)
HBL430R	4.27" (108.5)	3.09" (78.5)	1.16" (29.5)	2.72" (69.0)	3.75" (95.3)	3.13" (79.5)
HBL530R	4.70" (119.4)	3.09" (78.5)	1.16" (29.5)	2.83" (71.9)	3.75" (95.3)	3.13" (79.5)
HBL360R	5.71" (145)	4.23" (107.4)	1.69" (43.0)	3.46" (88.0)	4.50" (114.3)	3.88" (98.6)
HBL460R						
HBL560R						
HBL3100R	5.71" (145)	4.23" (107.4)	2.46" (62.5)	3.94" (100.0)	5.50" (139.7)	4.88" (123.9)
HBL4100R						
HBL5100R						

Note: 20, 30, 60 and 100A devices are dimensionally equivalent to 16, 32, 63 and 125A devices, respectively.

Plug



Receptacle



Dimensions in Inches (mm)

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Wiring Device-Kellems

E-9





## Pin and Sleeve Watertight Listings

IEC Pin and Sleeve Inlet, Connector Body, Plug and Receptacle

Listed to standard UL1682/CSA C22.2 No. 182.1, Plugs, Receptacles and cable connectors of the Pin and Sleeve Type.

UL Classified to IEC Standards 60309-1 and 60309-2 (Plugs, Socket Outlets, and Couplers for Industrial Purposes) for both Series I (European) and Series II (North American) rated voltages and services.

When used with cord, these devices require no further investigation by UL for equipment Classification to IEC 435 or IEC 380.

### Watertight Materials

Part	Material
<b>Inlet</b>	
Housing	Zytel® 101 Nylon
Locking Ring	Rynite® SST35
Mounting Flange	Zytel 101 Nylon
Mounting Screws	Stainless Steel (300 Series)
Contact Carrier	High-Impact Thermoset
Retainer	High-Impact Thermoset
Ground, Phase Pins	Brass
Terminal Screws	Stainless Steel (300 Series)
Assembly Screws (2)	Stainless Steel (300 Series)
Gaskets	Solid Neoprene
<b>Connector Body</b>	
Housings	Zytel ST801 Nylon
Cord Clamps	Rynite SST35
Glands	Solid Neoprene
Cover Arms	Rynite SST35
Arm Springs	Stainless Steel (17-7 type)
Covers	Rynite SST35
Cover Screw	Nickel-plated brass
Rotating Sealing Disc	Polycarbonate
Gaskets	Solid Neoprene
Contact Carrier	High-Impact Thermoset
Retainer	High-Impact Thermoset
Phase, Ground Sleeves	Brass
Sleeve Spring	20A and 30A Stainless Steel (300 Series); others are Beryllium Copper multi-contact inserts w/silver plating
Terminal Screws	Stainless Steel (300 Series)
Assembly Screws	Stainless Steel (300 Series)
<b>Plug</b>	
Housing	Zytel ST801 Nylon
Locking Ring	Rynite SST35
Sealing Gasket	Solid Neoprene
Cord Clamp	Rynite SST35
Gland Cap	Rynite SST35
Gland	Solid Neoprene
Cord Clamp Screws	Stainless Steel (300 Series)
Clamp Nut	Nickel-plated Brass
Gland Clamp Screws	Stainless Steel (300 Series)
Contact Carrier	High-Impact Thermoset
Retainer	High-Impact Thermoset
Ground, Phase Pins	Brass
Terminal Screws	Stainless Steel (300 Series)
Assembly Screws	Stainless Steel (300 Series)
<b>Receptacle</b>	
Housings	Zytel 101 Nylon
Mounting Flange	Zytel 101 Nylon
Arm Spring	Stainless Steel (17-7 type)
Cover Arm	Rynite SST35
Cover	Rynite SST35
Cover Screw	Nickel-plated brass
Rotating Sealing Disc	Polycarbonate
Gaskets	Solid Neoprene
Mounting Screws	Stainless Steel (300 Series)
Terminal Screws	Stainless Steel (300 Series)
Phase, Ground Sleeves	Brass
Sleeve Spring	20A and 30A Stainless Steel (300 Series); others are Beryllium Copper multi-contact inserts w/silver plating

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E-10



Wiring Device-Kellems

www.hubbell-wiring.com

Dimensions in Inches (mm)



## Pin and Sleeve Watertight Specification

### Specifications

#### Typical Specification

Manufacturer's Identification	Hubbell HBL520P9W.
Description	Plug, Power Supply.
Type	3 Pole + Neutral + Earth.
Rating	20A, 120/208V AC, 3 Phase WYE.
Configuration	UL 1888 C2, IEC 60309-2, Clock Position 9, Watertight.
Certification	UL Listed, File E146032 Receptacles & Inlets, E146033 Plugs & Connectors, UL Standard UL1682 & UL 1686C2, CSA Certified File LR280C for Plugs, Connectors Inlets and LR285C for Receptacle CSA Standard C22.2 No. 182.1, UL Classified to IEC 60309-1 IEC 60309-2.

### Performance

#### Electrical

Dielectric Withstand Voltage	3000V AC.
Max. Working Voltage	600V RMS (i.e., minimum creepage distance 10 millimeters, minimum clearance 8 millimeters, per IEC 60309-1 for devices rated over 500V).
Current Interrupting	Certified for current interrupting at full rated current.
Temperature Rise	Max. 30°C temperature rise at full rated current after 50 cycles of overload at 150% of rated current at a power factor of 75%.
Endurance	5,000 connect and disconnect cycles with load for 16A and 20A, 1,000 cycles with load and 1,000 cycles w/o load for 30A, 32A, 60A and 63A, and 250 cycles with load and 250 cycles w/o load for 100A and 125A.

#### Mechanical

Impact Resistance	Per CSA C22.2 No. 182.1 / UL1682.
Cord Grip Cable Retention	Per CSA C22.2 No. 182.1 / UL1682.
Cord Accommodation	Round portable service cords of diameters commensurate with the device rating as defined in UL Standard 62, CSA C22.2 No. 49 and the harmonized <HAR> European Standards.
Terminal Identification	Terminals identified in accordance with North American and IEC conventions.
Product Identification	Identification and ratings are a permanent part of the device housing.

#### Environmental

Moisture Resistance	Watertight per IEC 60309-1.
Ingress Protection	IP67 Suitability
Flammability	HB or better per UL 94 or CSA C22.2 No. 0.17.
Operating Temperatures	Maximum Continuous 75° C; Minimum - 40°C w/o impact.

#### Materials

Housings	Nylon.
All other materials	Resistant to corrosion and chemical attack (per tabulation on this page).

Note: Specification sheets for all other Pin and Sleeve catalog numbers are available upon request.

### Watertight Application Guide

Industry	Watertight
Agriculture	Outdoor for fans, heaters, pumps, etc.
Chemical Processing	Where subject to water, corrosion and rough use.
Construction	Outdoors subject to severe weather conditions.
Entertainment	Outdoors subject to severe weather.
Food Processing	Where subject to water, corrosion and rough use.
Food Service	Areas subject to wash downs & heavy cleaning.
Light Manufacturing	Subjected to cleaning, solvents & chemicals.
Manufacturing	Where subject to water, corrosion and rough use (i.e., mills).
Military	Outdoor construction or maintenance subject to severe weather.

Dimensions in Inches (mm)

[www.hubbell-wiring.com](http://www.hubbell-wiring.com)



Wiring Device-Kellems

E-11



## QUAD PUMP



- 
- Flojet 4000 Delivers Flows up to 5.0 GPM (19.0 *l/min.*)
  - Built-in Pressure Switch Automatically Starts and Stops Pump Instantaneously
  - Can Run Dry Without Damage
  - Excellent Self-priming Capability
  - Powerful Magnet Motor with Low Current Draw
  - Plug-in Ports for Easy Installation
- 

**FLOJET**





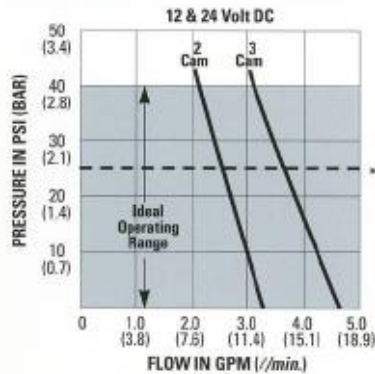
# FLOJET 4000 SERIES

# QUAD PUMP

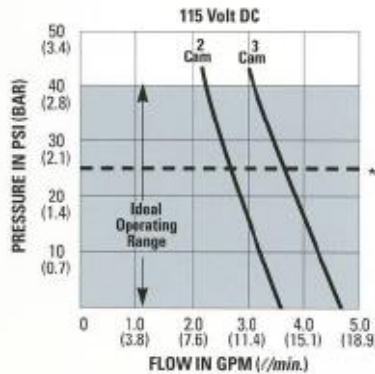
### SPECIAL FEATURES

FLOJET 4000 delivers up to 40 PSI (2.8 bar) working pressure. Built-in pressure switch automatically starts and stops pump instantaneously when discharge valve is opened and closed. Compact design and plug-in port fittings make installation easy. Can run dry without damage and handle liquids up to 130°F (54°C). Quad Diaphragm Design eliminates troublesome shaft seal. No metal contact with liquid being pumped. Ball bearing drive throughout pump and motor assures longer pump life. Excellent self-priming capability. Pump may be located above the liquid level. Powerful, permanent magnet motor with low current draw and long life brushes.

### PUMP PERFORMANCE



\* Continuous Duty Max Pressure For No Switch 3 Cam Models.



\* Continuous Duty Max Pressure For No Switch 3 Cam Models.

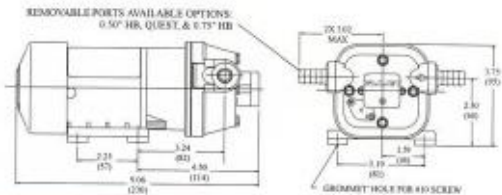
### SPECIFICATIONS

Flow Rate	3.5 to 5.0 GPM (13.2 and 18.9 <i>l/min.</i> ) Nominal
Pump Design	Diaphragm
Shaft Seal	None
Motor	Permanent Magnet Motor
Standard	TEFC (fan-cooled)
Voltage	12 & 24 Volt DC, 115 & 230 Volt AC
Cycle	50/60 hertz for AC Models
Current	
12 Volt	14.0 amp max.
24 Volt	0.7 amp max.
115 Volt	1.5 amp max.
230 Volt	0.75 amp max.
Pressure Switch Setting	45 PSI (3.2 bar) cut out 30 PSI (2.1 bar) cut in
Maximum Operating Pressure	40 PSI (2.8 bar) (Demand Pumps only)
Maximum Fluid Temperature	130°F (54°C)
Self-Priming	Up to 8 ft. (2.4 m) Vertical Height
Ports	Plug-In Ports 1/2" or 3/4" Hose Barb Standard (Consult Factory for other type of Port Fittings)
Wetted Parts	
Housing	Modified Polypropylene - Standard
Elastomers	Santoprene® and Buna - Standard
Net Weight	4 lbs. (2 kg)

® A Registered trademark of E.I. duPont de Nemours & Co. Inc.

STANDARD MODELS		CAM NO.
<b>115 VOLT 3.5 GPM 1/2" HOSE BARB</b>		
4300-042	Santa/EPDM, Switch at 45 PSI	2
4100-500	Santa/EPDM, No Pressure Switch	2
<b>115 VOLT 5.0 GPM 3/4" HOSE BARB</b>		
4300-043	Santa/EPDM, Switch at 45 PSI	3
4100-512	Santa/Viton, No Pressure Switch	3
<b>12 VOLT 3.5 GPM 1/2" HOSE BARB</b>		
4300-142	Santa/EPDM, Switch at 45 PSI	2
4100-505	Santa/EPDM, No Pressure Switch	2
<b>12 VOLT 5.0 GPM 3/4" HOSE BARB</b>		
4300-143	Santa/EPDM, Switch at 45 PSI	3
4100-143	Santa/EPDM, No Pressure Switch	3

Note: All Motors Are Fan Cooled With A Thermal Switch Used On All Non-Pressure Switch Models.



Flojet



www.flojet.com e-mail: sales@flojet.com

For further information, contact your FLOJET representative, or write to:

**FLOJET**  
20 Icon • Foothill Ranch, CA 92610  
Tel: 949-859-4945  
1-800-2 FLOJET  
Fax: 1-949-859-1153

**FLOJET (EUROPE) LTD.**  
Unit 1, Avant Business Centre  
Denbigh West Industrial Estate  
Milton Keynes, Bucks, England MK1 1DL  
Tel: 44-1908-370068 • Fax: 44-1908-373731

ISO 9001 Certified

P/N100-080 Rev. 12/99-5,000



## INSTALLATION & OPERATION FOR MODEL 305730004A MINI-ACCUMULATOR TANK

### ACCUMULATOR TANK

#### FEATURES

- Internal Bladder
- Smoother and More Even Flow
- Quieter Water System
- Better Temperature Control
- Longer Pump Life
- Lower Battery Drain
- Simply Fitted to New or Existing Systems
- Compact Size
- Snap-in Port Fittings include both 2½" Barbed Hose Fittings and 2½"-14 Threaded Hose Fittings

#### SPECIFICATIONS

Tank:	Hygienic, Light, Compact, Impact and Pressure Resistant Plastic Construction
Capacity:	1 liter (33 fl oz)
Max. Operating Pressure:	Up to 125 psi (8.6 bar)
Pre-Charge Pressure:	10 psi (0.7 bar)
Air Valve:	Standard Tire Valve
Weight:	1.6 lb (0.7 kg)
Dimensions:	13¼" (337 mm) x 4¾" (119 mm)

#### IMPROVES MOST AUTOMATIC WATER PRESSURE SYSTEMS

This Accumulator Tank is intended for installation in any pumped water system controlled by a pressure switch. For example, most pressure pumps as found in boats, RV's, motor caravans, coaches and similar applications.

The Accumulator Tank smooths water flow and reduces on/off cycling of the pump by lessening the variation in pressure and flow between the pump and the outlets in the system.

The even flow of water gives better control of hot water temperature especially noticeable with instantaneous gas water heaters and with showers.

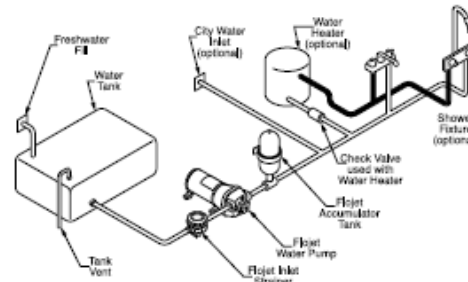
Reduces on/off cycling, reduces noise from the pump motor, and from shock pressures (water hammer). It also reduces battery drain from current spikes.

#### PRECHARGE PRESSURE ADJUSTMENT

The 30573-0001A tank is precharged at 10 psi (0.7 bar). If your pump cut-in pressure is significantly different,



#### TYPICAL RV INSTALLATION

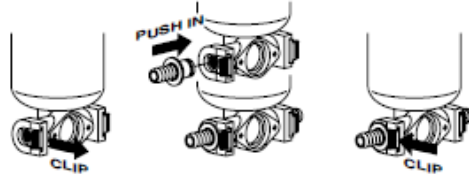


you may custom tune the tank to best fit your particular installation. To increase air pressure in tank, shut pump off, open a faucet to relieve system pressure and adjust precharge pressure using ordinary tire gauge and tire pump at valve in end of tank. Pressure should be checked from time to time. To check tank pressure: turn off power to water pump, open a faucet to relieve pressure. Check tank pressure, adjust if necessary. Close faucet and turn on power to pump. For best results, do not pressurize tank above 20 psi (1.4 bar).



### SAFETY RELIEF VALVE RECOMMENDED

It is recommended that a relief valve with a setting of no more than 125 psi be installed. Often a relief valve is already installed at the water heater. Check its setting. This will protect the system in case the pressure switch fails.



#### REPLACEMENT PARTS

20381-000 1/2"-14 threads

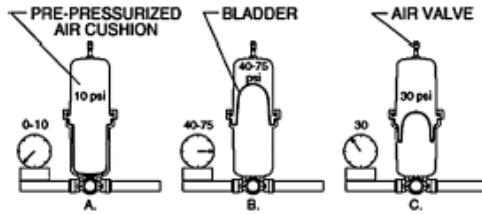
20381-002 1/2" hose barb

20408-000 slide clips

all parts 2 per bag



### HOW THE PRESSURE ACCUMULATOR

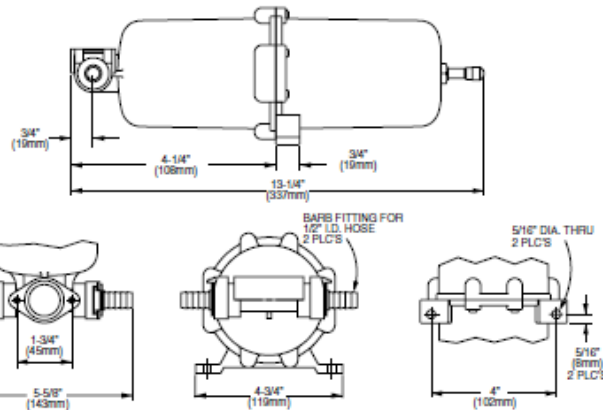


#### WORKS

- Factory installed precharged air cushion.
- When pump starts, water enters the reservoir. At maximum pressure, system is filled. Pump shuts off.
- When water is demanded, pressure in the air chamber forces water into the system. Pump stays off until minimum pressure is reached. Then pump starts and runs up to cut-out pressure.

**CAUTION** Do not overpressure tank. Pressures over 125 psi (8.6 bar) may rupture tank and cause personal injury.

### DIMENSIONAL DRAWING



### WARRANTY

FLOJET warrants this product to be free of defects in material and/or workmanship for a period of one year after purchase by the customer from FLOJET. During this one year warranty period, FLOJET will at its option, at no charge to the customer, repair or replace this product if found defective, with a new or reconditioned product, but not to include costs of removal or installation. No product will be accepted for return without a return material authorization number. All return goods must be shipped with transportation charges prepaid. This is only a summary of our Limited Warranty. For a copy of our complete warranty, please request Form No. 100-101.

### RETURN PROCEDURE

Prior to returning any product to FLOJET, call customer service for an authorization number. This number must be written on the outside of the shipping package. Place a note inside the package with an explanation regarding the reason for return as well as the authorization number. Include your name, address and phone number.

[www.xylemflowcontrol.com](http://www.xylemflowcontrol.com)

U.S.A.  
Flojet  
686 E Dyer Rd.  
Santa Ana, CA 92705  
Tel: 949.608.3900  
Fax: 949.608.3887

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a xylem brand

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# Bosch Tronic 3000 T | ES8, ES4, ES2.5 Point-of-Use Electric Mini-Tank Water Heaters

## Hot Water Where You Need It

The Bosch Tronic 3000 T point-of-use electric mini-tanks are available in three sizes which can be wall-hung (bracket included) or floor-mounted.

**Easy installation.** Simply tap into the cold water line, provide electrical connection and install the water heater directly at the sink. Can be used alone to provide a small volume of water or installed in-line with a central water heater near the point-of-use to eliminate the wait for hot water.

Technical Specifications	ES8	ES4	ES2.5
Part Number	7738004998	7738004997	7738004996
Thermal Efficiency	99%	99%	98%
Tank Volume (gal)	7	4	2.7
Heating Capacity, Watts	1440	1440	1440
Recovery Rate @ 90°F Rise, GPH	6.8	6.8	6.8
Temperature Range (°F)	65 - 145	65 - 145	65 - 145
Max Operating Pressure (psi)	150	150	150
Weight (lbs)	29.5	17.3	15.5
Dimensions (in)	17½ x 17¼ x 14¼	13¾ x 13¾ x 13¾	13¾ x 13¾ x 10¾
Water Fittings	½" Male NPT	½" Male NPT	½" Male NPT
Relief Valve	Included	Installed	Installed
Electrical Requirements			
Volts (VAC)	120	120	120
Amps	12	12	12
Connection Type	Hard Wired	Plug-In	Plug-In



Note: Sold in U.S. Only



## Features

- ▶ Supplies up to 2 sinks at a time (ES8 model)
- ▶ Provides hot water quickly at point-of-use
- ▶ Compact, lightweight, space saving
- ▶ Thick CFC-free foam insulation maximizes energy efficiency
- ▶ Units can be wall / floor mounted (bracket included) with multi-directional mounting available (ES8 model only)
- ▶ Temperature / pressure relief valve included
- ▶ Glass-lined tank for long service life
- ▶ Models ES2.5 and ES4 have a simple 120 VAC plug-in connection
- ▶ 6 year limited warranty<sup>1</sup>

<sup>1</sup> Copies of original warranties in their entirety are available at [www.boschheatingandcooling.com](http://www.boschheatingandcooling.com)

No more waiting for hot water. Ideal for stand-alone use or recirculation systems.



Relief valve is required; however it is not shown in above photo for clarity.

**Bosch Thermotechnology Corp.**  
Londonderry, NH • Ft. Lauderdale, FL  
General Inquiries: 1-866-642-3198  
[www.boschheatingandcooling.com](http://www.boschheatingandcooling.com)

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# Liberty Pumps®

## LCU-Series



**Model**  
Shallow Pan LCU-SP20S,  
LCU-SP220S with Safety  
Switch Feature 20' head,  
115V or 230V



**Model**  
LCU-20S, LCU220S  
with Safety Switch Feature  
20' head, 115V or 230V



**Model**  
LCU-15,  
LCU-15S  
includes Safety Switch,  
15' head, 115V

### Condensate Pumps

For removal  
of condensate  
from high  
efficiency furnaces,  
A/C equipment,  
ice machines,  
drinking fountains,  
beverage machines,  
dehumidifiers and other  
applications requiring  
condensate removal.



innovate. evolve.



# LCU-Series Condensate Pumps Specifications

Model	Volt	hp.	Amps	H <sub>z</sub>	H	L	W	Wgt.	Capacity	Max hd	Safety Switch	20' Tubing
LCU-15	115	1/50	1.0	60	6.5"	11-1/8"	5"	4.5 lbs	2 US Qt.	15'	No	No
LCU-15S	115	1/50	1.0	60	6.5"	11-1/8"	5"	4.5 lbs	2 US Qt.	15'	Yes	No
LCU-15T	115	1/50	1.0	60	6.5"	11-1/8"	5"	5.5 lbs	2 US Qt.	15'	No	Yes
LCU-15ST	115	1/50	1.0	60	6.5"	11-1/8"	5"	5.5 lbs	2 US Qt.	15'	Yes	Yes
LCU-20S	115	1/30	1.5	60	6.5"	11-1/8"	5"	5.0 lbs	2 US Qt.	20'	Yes	No
LCU-20ST	115	1/30	1.5	60	6.5"	11-1/8"	5"	6.0 lbs	2 US Qt.	20'	Yes	Yes
LCU220S	230	1/30	0.7	60	6.5"	11-1/8"	5"	5.0 lbs	2 US Qt.	20'	Yes	No
LCU-SP20S	115	1/30	1.5	60	5"	11-1/8"	5"	4.5 lbs	1 US Qt.	20'	Yes	No
LCU-SP220S	230	1/30	.7	60	5"	11-1/8"	5"	4.5 lbs	1 US Qt.	20'	Yes	No

## FEATURES:

- High impact ABS tank
- Wall mounts
- Three intake holes
- 3/8" O.D. outlet
- Barbed and threaded discharge connection
- Removable check valve
- Stainless steel shaft
- 6' power cord with ground
- Thermally protected
- Fully automatic
- Quiet operation
- Models with an "S" include built-in safety switch
- Isolation pads pre-installed on tank

## Applications Include:

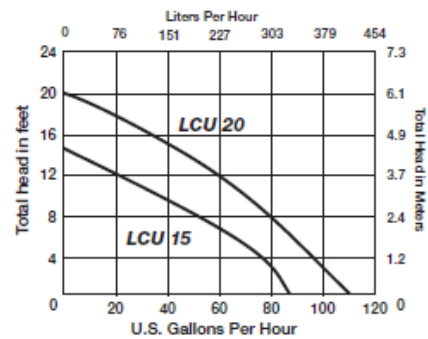
- High efficiency furnaces
- AC equipment, ice machine
- Drinking fountains
- Dehumidifiers
- And other applications requiring condensate removal

Maximum fluid temperature for LCU models: 150° F

Models with a "T" include 20' of tubing



## Performance Curve:



**Model LCU-15**  
**Model LCU-15S**



**Model LCU-20S (115V)**  
**Model LCU220S (230V)**



**Shallow Pan Models:**  
**LCU-SP20S (115V)**  
**LCU-SP220S (230V)**



UL Classified

Specifications are subject to change without notice.

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www.libertypumps.com

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# Liberty Pumps®

## Model 405



**Energy Saving! Model**  
Efficient motor design  
reduces electrical usage  
by up to 40%

**3**  
Year Warranty

**Commercial  
Drain Pump  
High-Head  
High Temperature  
1/2 hp  
3/8" solids-handling**  
**Featuring QuickTree®  
technology for easy  
switch access!**

**Features:**

- Factory pre-assembled, ready to install
- Fully automatic operation
- Handles fluid temperatures to 180 degrees F. (not designed for use with chemicals.)
- Separate access cover for easy switch inspection
  - 2" inlet and 2" vent
  - 2" discharge
- Integrally molded rubber gasket for a superior gas-tight seal
- Standard alarm and Wi-Fi alarmed models available

**Applications Include:**

Bar sinks, laundry trays, multi-compartment utility sinks, dehumidifiers, dishwashers and gray wastewater drainage below gravity lines

**NEW!**

**NightEye**  
Wireless Enabled  
Models Available



innovate. evolve.





# MODEL 405 & 405HV COMMERCIAL DRAIN PUMP

## FEATURES:

- Factory pre-assembled.
- Fully automatic operation.
- QuickTree® technology allows quick inspection and removal of float switch without disconnecting the plumbing.
- Oil-filled motor with thermal-overload protection.
- Corrosion-resistant polyolefin basin with integrally molded rubber gasket for a superior gas-tight seal.
- Maintenance-free, permanently lubricated sealed bearings.
- 10' power cord with ground plug
- 3/8" Solids-Handling
- 1/2 hp

Maximum fluid temperature 180 degrees F.  
Not intended for use with chemicals.

## APPLICATIONS:

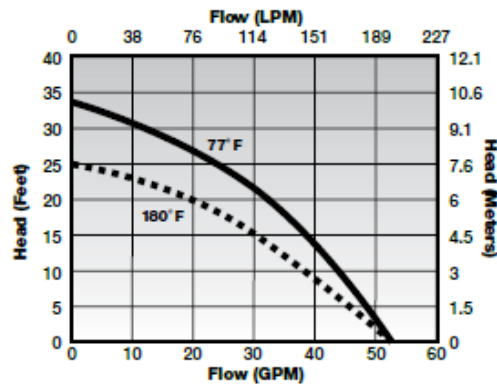
- Laundry Trays
- Commercial Sinks
- Bar Sinks
- Dishwashers
- Dehumidifiers
- Wherever gray wastewater drainage is needed below gravity lines.

Specifically designed for higher head applications such as commercial and industrial buildings.

## DIMENSIONAL DATA:

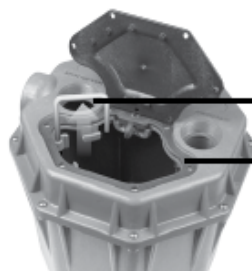
Weight: 16 LBS.  
Major Height: 14-1/8"  
Major Width: 13-3/4"  
Inlet Height (from bottom of basin): 12-5/8"  
Total Capacity: 5.5 Gallons  
Inlet Size: 2"  
Discharge Size: 2"  
Vent Size: 2"

## PERFORMANCE CURVE 60 hz



MODEL	HP	Volts	Amps	Discharge, Inlet & Vent	Alarm
405	1/2	115	7.3	2"	No
405/A	1/2	115	7.3	2"	Standard Alarm
405/A-EYE	1/2	115	7.3	2"	NightEye® Wireless
405HV	1/2	230	3.5	2"	No

Alarmed models come with factory mounted alarm float in system. No assembly required.  
See Alarm literature for ALM-2 standard alarm or NightEye® Wi-Fi alarm for complete alarm specifications.



QuickTree® technology allows easy removal of float without disconnecting plumbing or pulling the pump

Heavy-Duty integrally molded rubber gasket provides a superior seal. Meets 10' stack test requirements.



Specifications are subject to change without notice.

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# APPENDIX C

## Plumbing Fixtures Cutsheets





**Krowne Hand Sink (Model# HS-1225)**



Model: \_\_\_\_\_ Item #: \_\_\_\_\_ Date: \_\_\_\_\_  
 Project: \_\_\_\_\_ Qty: \_\_\_\_\_ Approved By: \_\_\_\_\_

**Drop-In Sinks with 3-1/2" Drains**

**DROP-IN SINKS**

**Standard Features (applies to all models)**

- Fabrication: 20 gauge stainless steel. All seams tig welded and polished.
- Bowl: High quality deep drawn
- Faucet & drain included
- Drain: Stainless steel 3-1/2" drain
- NSF approved



**Optional Accesories**

Model	Description
H-100	Chrome plated 1-1/2" IPS P-Trap
H-103	Wrist Handle Kit
H-109	Upgrade: Royal Series Faucet
H-200	Upgrade: Silver Series Faucet

**HS-1419**  
12" Drop-In Sink

<b>Overall Size</b>	12"W x 18"L
<b>Bowl Size</b>	10"W x 14"L x 10"D
<b>Cutout</b> (1-1/4" Radius)	11-1/4"W x 17-1/4"L
<b>Weight</b>	16 lbs.



**HS-1425**  
12" Drop-In Sink w/ 5" Deep Bowl

<b>Overall Size</b>	12"W x 18"L
<b>Bowl Size</b>	10"W x 14"L x 5"D
<b>Cutout</b> (1-1/4" Radius)	11-1/4"W x 17-1/4"L
<b>Weight</b>	12 lbs.



**HS-1220**  
12" Drop-In Sink w/ Side Splashes

<b>Overall Size</b>	12"W x 18"L x 15-1/2"D
<b>Bowl Size</b>	10"W x 14"L x 10"D
<b>Cutout</b> (1-1/4" Radius)	11-1/4"W x 17-1/4"L
<b>Backsplash</b>	5-1/2" high
<b>Weight</b>	20 lbs.



**HS-1225**  
12" Drop-In Sink w/ Side Splashes  
5" Deep Bowl

<b>Overall Size</b>	12"W x 18"L x 15-1/2"D
<b>Bowl Size</b>	10"W x 14"L x 5"D
<b>Cutout</b> (1-1/4" Radius)	11-1/4"W x 17-1/4"L
<b>Backsplash</b>	5-1/2" high
<b>Weight</b>	16 lbs.



**HS-2619**      26" x 18" Double Bowl Drop-In  
Two Compartment Sink



<b>Overall Size</b>	26"W x 18"L x 10"D
<b>Bowl Size</b>	Two 10"W x 14"L x 10"D bowls
<b>Cutout</b> (1-1/4" Radius)	22-1/4"W x 16-3/4"L
<b>Weight</b>	30 lbs.

**HS-3819**      36" x 18" Triple Bowl Drop-In  
Three Compartment Sink



<b>Overall Size</b>	36"W x 18"L x 10"D
<b>Bowl Size</b>	Three 10"W x 14"L x 10"D bowls
<b>Cutout</b> (1-1/4" Radius)	35-1/4"W x 17-1/4"L
<b>Weight</b>	40 lbs.

Krowne Metal Corporation • 100 Haul Rd. Wayne, NJ 07470 • Toll Free: (800) 631-0442 • Fax: (973) 872-1129 • sales@krowne.com • krowne.com  
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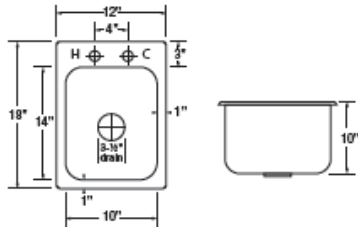
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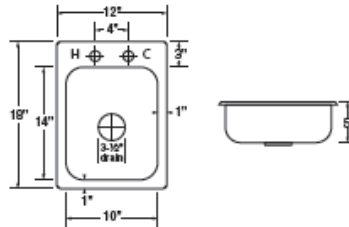
### Drop-In Sinks with 3-1/2" Drains

### DROP-IN SINKS

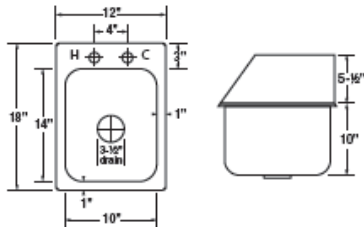
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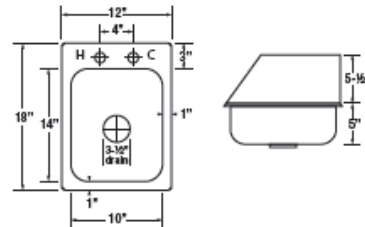
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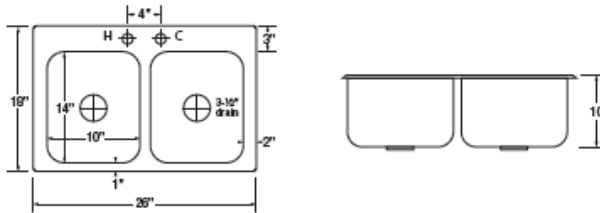
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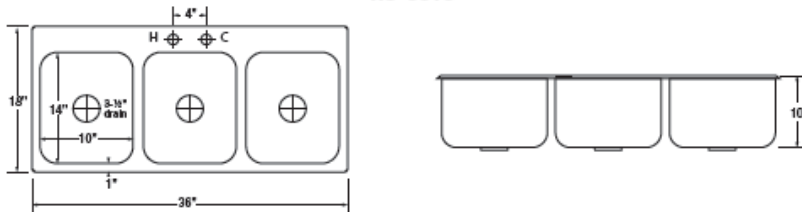
**HS-1225**



**HS-2619**



**HS-3819**



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# The Rinser



## Saving time and resources is easy.

Made with Stainless Steel and built to last! With our rinser, any vessel with a diameter from 1 to 4 1/4 inches can now be rinsed in seconds. In most restaurants, coffee shops and cafes, the rinsing of glasses, shot glasses, pitchers and cups is a task that is repeated many times a day. We have developed the rinser to save you time and money, making the rinse process an effortless task.

Now Certified by NSF International, all rinser units conform to the requirements of NSF/ANSI 169 – Special Purpose Food Equipment and Devices.

Backed by the Espresso Parts guarantee and 365 day return policy, our rinsers will last in the rough and tumble environment found in the food industry.



### 6" x 6" x 2" Rinser

EPPR662  
EPPRCT662 (counter top)

Available with or without counter top surround.

- » **Outside dimensions (of the pan):**  
6-1/8" x 5-5/8" x 2-1/2" (160 x 142 x 62mm)
- » **Outside dimensions (of the counter flange):**  
7" x 6-1/2" (178 x 165mm)
- » **Cold water connector:**  
3/8" John Guest type press fitting
- » **Drain connector:**  
1/2" barb fitting



### 6" x 10" x 2" Rinser

EPPR6102  
EPPRCT6102 (counter top)

Available with or without counter top surround.

- » **Outside dimensions (of the pan):**  
10-1/4" x 6-3/8" x 2-1/2" (260 x 162 x 62mm)
- » **Outside dimensions (of the counter flange):**  
10-3/4" x 6-3/4" (273 x 171mm)
- » **Cold water connector:**  
3/8" John Guest type press fitting
- » **Drain connector:**  
1/2" barb fitting



### 6" x 7" x 7/8" Rinser 7" x 15" x 7/8" Rinser

EPPR724  
EPPR715 (smaller)

Extra slim design. Only 7/8 inch tall (22 mm).  
Plenty of space to drain and dry.

- » **Outside dimensions:**  
7" x 24" x 7/8" (178 x 610 x 22 mm)  
7" x 15" x 7/8" (178 x 381 x 22 mm)
- » **Cold water connector:**  
3/8" John Guest type press fitting
- » **Drain connector:**  
1/2" barb fitting

*A leader in specialty coffee equipment,  
parts, and supply since 1993*




*Contact with us today!*


EspressoParts.com  
info@espressoparts.com or (800) 459-5594

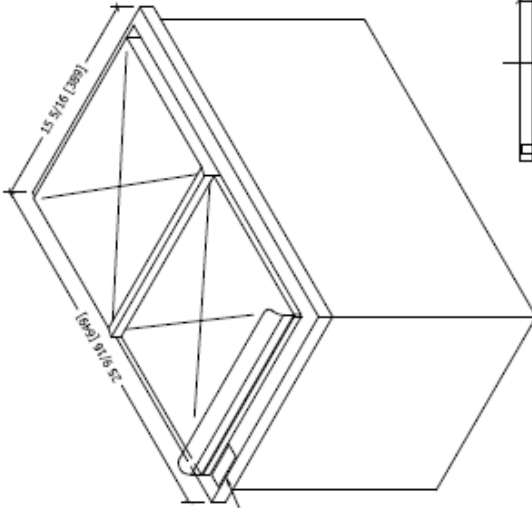


Phone: (800) 726-0553  
Fax: (509) 535-1493

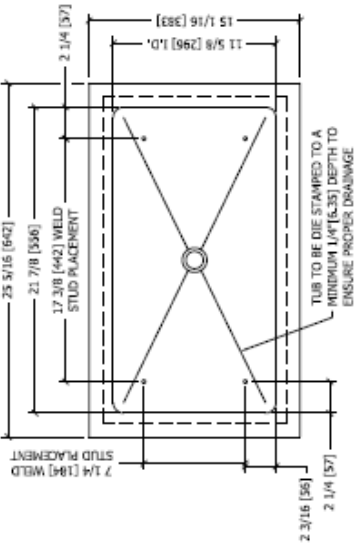


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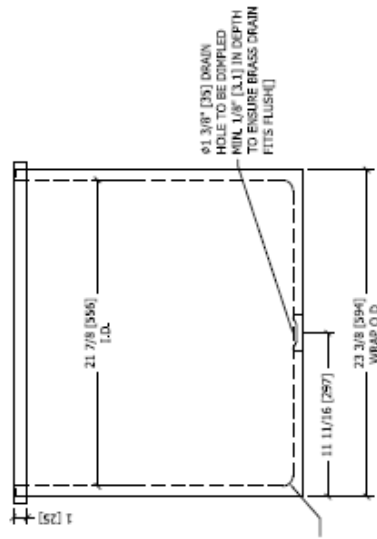




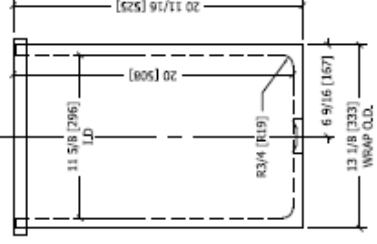
NSF STICKER (COMPONENT)



TUB TO BE DIE STAMPED TO A MINIMUM 1/4" DEPTH TO ENSURE PROPER DRAINAGE



61 3/8" [5] DRAIN HOLE TO BE DRILLED HOLE TO BE DRILLED MIN. 1/8" [3.1] IN DEPTH TO ENSURE BRASS GRAIN FITS FLUSH



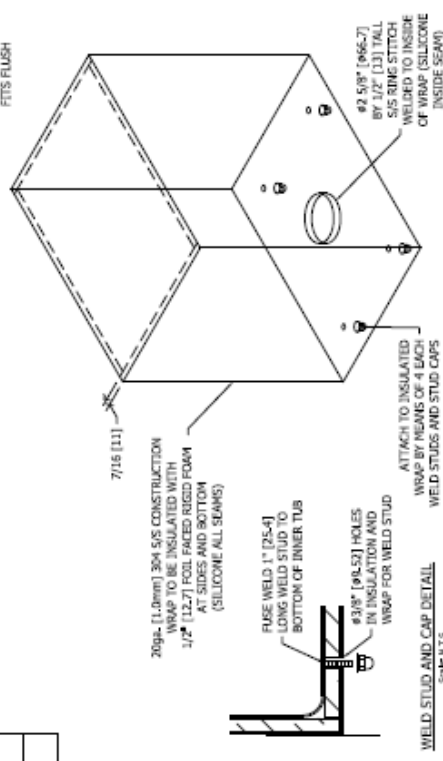
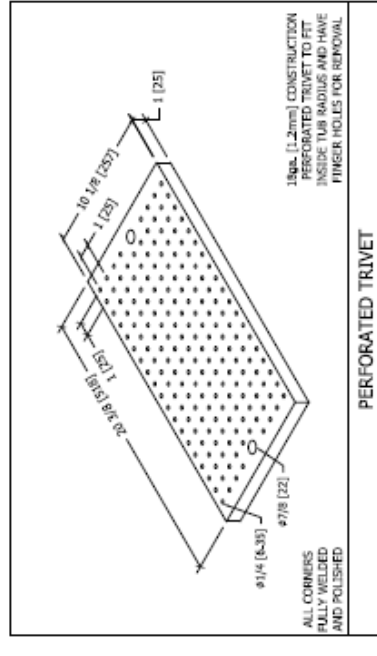
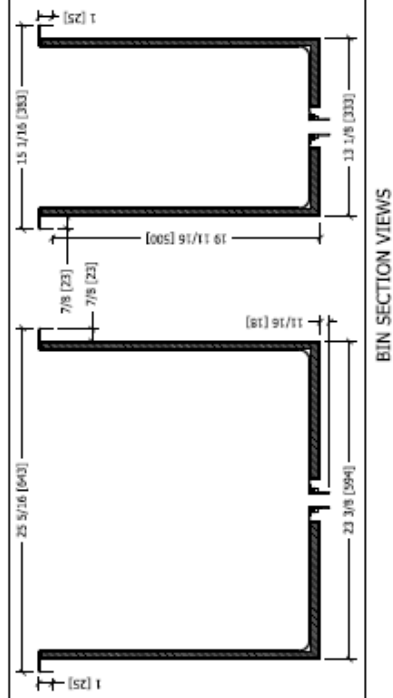
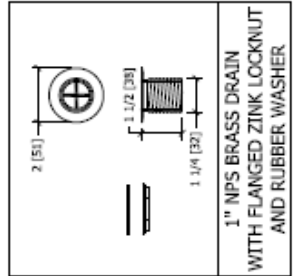
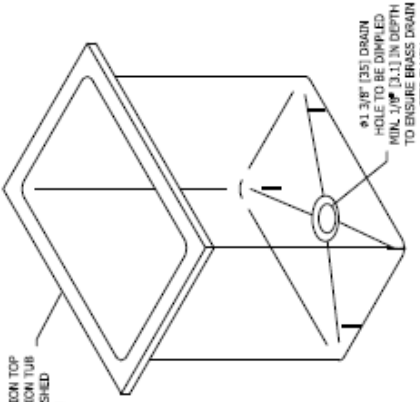
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Customer	STARBUCKS	Date	02/02/2012
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		Scale	N.T.S.
		Page Number	1 OF 4
		Approved By	0581004X
		Material #	CUSTOM ICE BIN
		Item #	10344/P012
		P:\STARBUCKS\MTS\10344 - 90LBS\9024 - P012 - 866-01 - ICE BIN 90LB.DWG	



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 Fax: (509) 535-1493

**ELKAY SSP**

FABRICATION TO MEET OR EXCEED NSF STANDARDS



Project	ICE BIN 90LB	Drawn by	MW
Customer	STARBUCKS	Date	02/03/2012
		Revised	R1 - 02-03-12 - TCF
		Scale	N.T.S.
		Page Number	2 OF 4
		Approved by	008110004X
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		Material #	CUSTOM ICE BIN

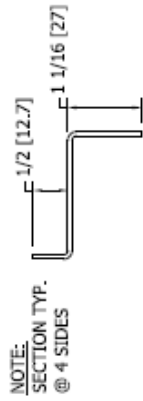
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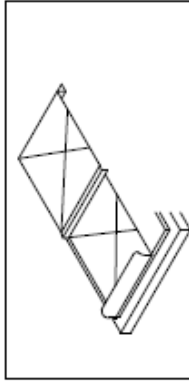
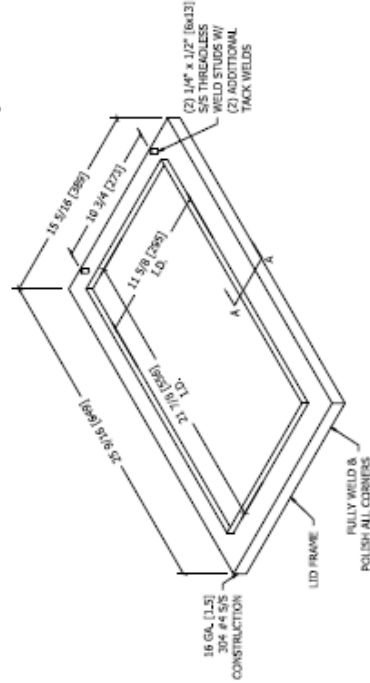
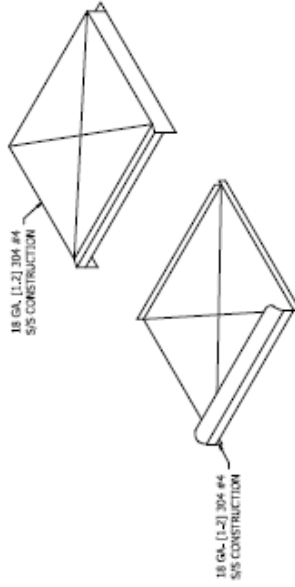
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**ELKAY SSP**

FABRICATION TO MEET OR EXCEED NSF STANDARDS



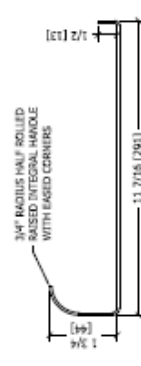
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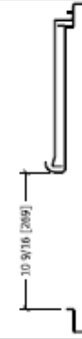
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LID CLOSED



FRONT LID SECTION



LID OPEN

Project: **ICE BIN 90LB**  
 Customer: **STARBUCKS**

Model #: **CUSTOM ICE BIN**  
 Item #: **10344/P012/194924**

Drawn by: **HW**  
 Date: **02/03/2012**  
 Revised: **RL - 04-20-12 - T12**  
 Scale: **N.T.S.**  
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Approved By:

0081004X



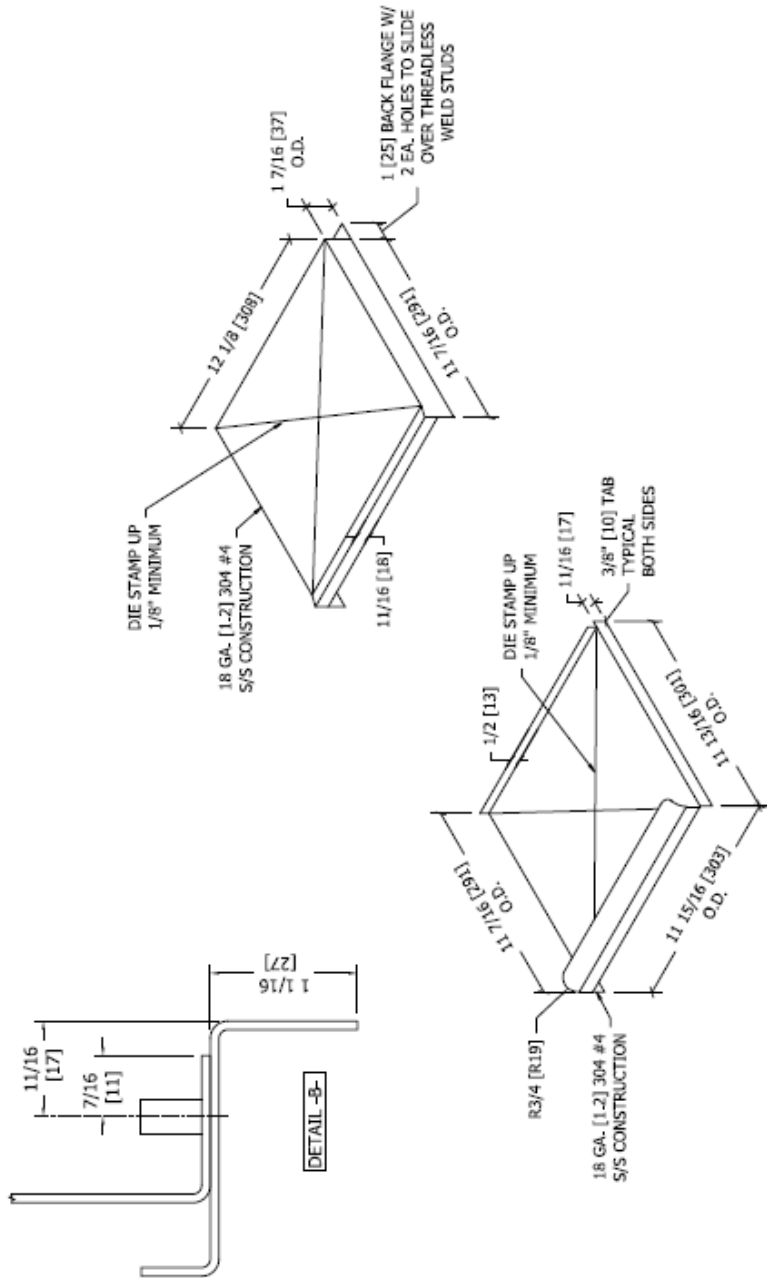


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**ELKAY SSS**

FABRICATION TO MEET OR  
 EXCEED NSF STANDARDS

185



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Customer	STARBUCKS	Item #	10344/P012/194924	Date	02/02/2012
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		Page Number	4 OF 4	Scale	N.T.S.



Water Tower



**T&S BRASS AND BRONZE WORKS, INC.**  
 2 Saddleback Cove / P.O. Box 1088  
 Travelers Rest, SC 29690

Model No.  
**B-1210-12**

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com



**ADA Compliant**

This Space for Architect/Engineer Approval

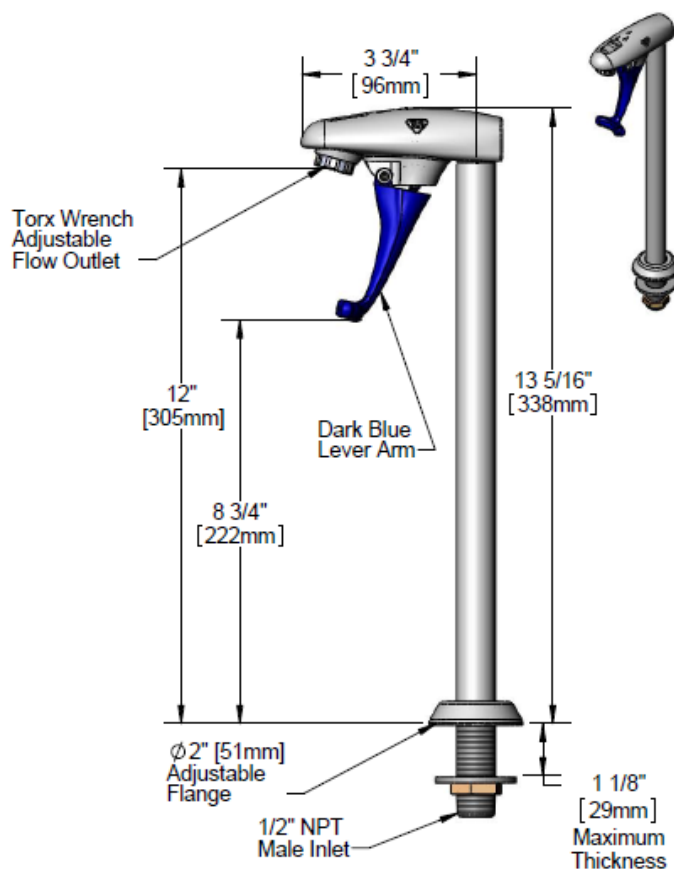
Job Name \_\_\_\_\_ Date \_\_\_\_\_

Model Specified \_\_\_\_\_ Quantity \_\_\_\_\_

Customer/Wholesaler \_\_\_\_\_

Contractor \_\_\_\_\_

Architect/Engineer \_\_\_\_\_



Rough-in Requirement:  
 $\phi$  1" [25mm] Mounting Hole

Product Specifications:  
 12" Pedestal Type Glass Filler, Push Back Design, 1/2" NPT Male Shank,  
 Adjustable Flange, Dark Blue Self-Closing Arm

Drawn	Checked	Approved
JRM	DMH	JHB
Scale:		Date:
1:3		01/24/13

Sheet 1 of 2





**T&S BRASS AND BRONZE WORKS, INC.**

2 Saddleback Cove / P.O. Box 1088  
Travelers Rest, SC 29690

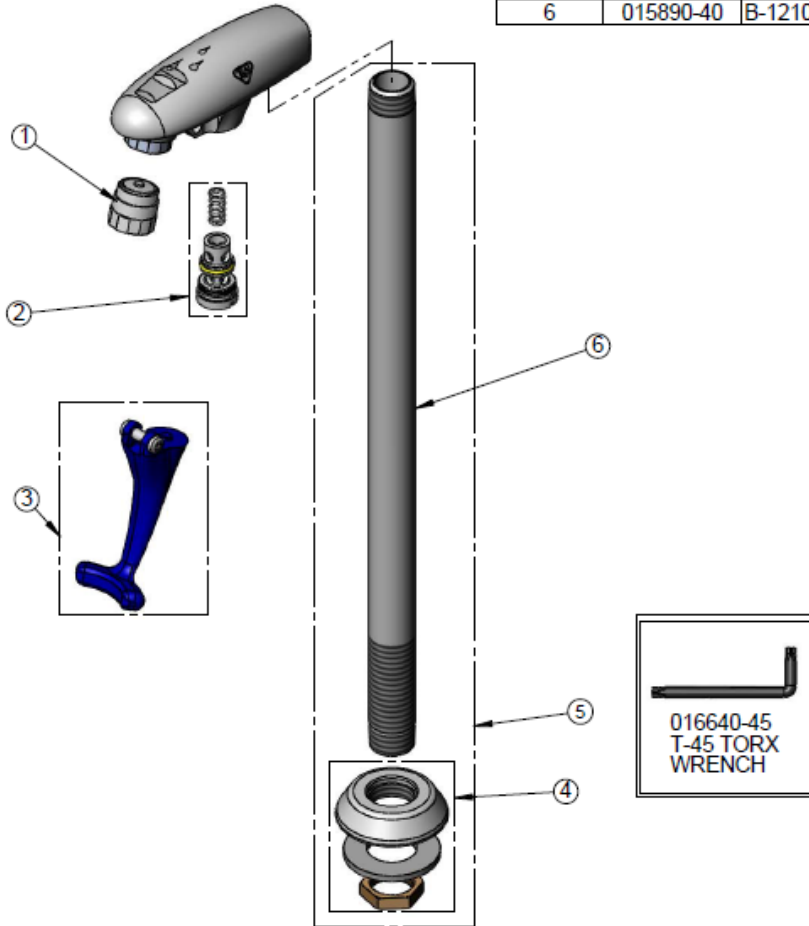
Model No.

**B-1210-12**

Item No.

Travelers Rest, SC: 800-476-4103 • Simi Valley, CA: 800-423-0150 • Fax: 864-834-3518 • www.tsbrass.com

ITEM NO.	SALES NO.	DESCRIPTION
1	015588-40	Adjustable Outlet w/ Torx Wrench
2	015589-40	Valve Assembly
3	015550-45	Lever Arm Repair Kit
4	016783-40	Adjustable Deck Flange Repair Kit
5	015891-40	Pedestal Assembly
6	015890-40	B-1210-12 Pedestal



Product Specifications:  
12" Pedestal Type Glass Filler, Push Back Design, 1/2" NPT Male Shank,  
Adjustable Flange, Dark Blue Self-Closing Arm

Drawn	Checked	Approved
JRM	DMH	JHB
Scale:		Date:
NTS		01/24/13

Sheet: 2 of 2





# APPENDIX D

## Other Equipment Cutsheets





# **APPENDIX E**

## **Material Finishes Documentation**







# Product Data Sheet



TIGER Drylac U.S.A., Inc. | 3855 Swenson Avenue | St Charles, IL | T 800 243 8148 | F 877 926 8148 | office.us@tiger-coatings.us | www.tiger-coatings.us

## SERIES 38 – SUPER DURABLE

Polyester TGIC super durable powder coating compliant to AAMA 2604 with excellent weather resistance properties for high performance architectural exterior applications.

### Typical Applications

- Metal façades.
- Steel constructions.
- Stadium seating and railings.
- Residential windows and doors.
- Patio furniture and garden equipment.
- Railings.
- Playground equipment.
- Agriculture equipment.
- External ship components, communication towers, doors and railings.
- Military camouflage.

**Standard Packaging** 44 lb (20 kg) box.  
5 lb (2.5 kg) minipack.

**Specific Gravity (ASTM D792)** approximately 1.2-1.8 g/cm<sup>3</sup>  
depending on pigmentation.

**Theoretical Coverage** at 1.5 specific gravity and  
2.5 mils (60 µm) film thickness:  
**30.2 ft<sup>2</sup>/lb (9.8 m<sup>2</sup>/kg).**

Refer also to the latest edition  
of "Theoretic Powder Coating  
Coverage Chart".  
Version 00-1001 (imperial).  
Version 00-1000 (metric).

**Storage Stability** 6 months at no more than  
77 °F (25 °C).

### Features

- Excellent weather resistance.
- Excellent UV-light resistance.
- AAMA 2604\* compliant.
- 5 years South Florida exposure.
- Very smooth flow.
- Good storage stability.
- Good yellowing stability.

\* AAMA 2604-10 compliance dependent upon the color and/or effect.

### Finish and Color

- Smooth flow glossy, approximately 80-95\*.
- Smooth flow semi gloss, approximately 60±5\*.
- Smooth flow matte, approximately 20±5\*.

\* Gloss level according to ASTM 523 at 60° angle.

Available as stock product in smooth glossy, semi gloss and matte in 70 colors. It can be custom matched in limited colors (minimum order quantity and color limitation applies).



# Series 38 - Super Durable



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## Pretreatment (alternatives)

The following table reflects the common methods of pretreatment with regards to various substrates and applications. In selecting the proper type of pretreatment the suitability of the type of powder coating for a desired application according to the guidelines on page one of this Product Data Sheet should be observed.

	Aluminum	Galvanized Steel	Steel
Degreasing	○	○	○
<sup>1)</sup> Chromating	○	○	○
<sup>2)</sup> Anodizing	○	○	○
<sup>2)</sup> Chrome free	○	○	○
Iron Phosphating			○
Zinc Phosphating		○	○
Blasting		○	○
<sup>4)</sup> Sweeping		○	○
	I E A	I E A S	I E S <sup>4)</sup>

- Interior.
- Exterior.
- Architectural.
- Steel construction.

- 1) According to ASTM B 449.
- 2) According to GSB quality and test regulations.
- 3) Only for zinc coated parts >1.8 mils (>45 µm).
- 4) For a two-coat process/TIGER Shield®.

## Processing

Corona

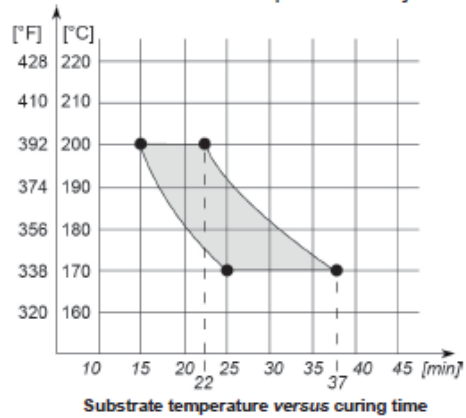
Tribo\*

\* For Tribo/Airstatic powder coatings please confirm before ordering. Suitability of metallic effects for Tribo processing must be verified prior to application. Please refer to the latest edition of the relevant Information Sheets.

Since not all powder coatings are suitable for recycling/reclaim, please verify before ordering.

## Cure Parameters (substrate temperature)

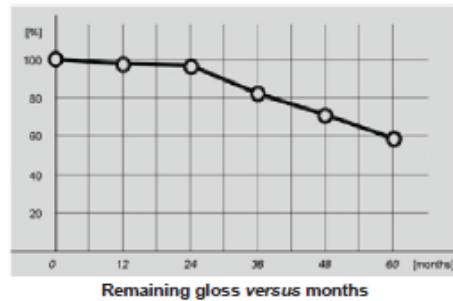
TIGER Drylac® Series 38  
Cure Parameters | Smooth Glossy



To achieve a full cure and the desired mechanical properties and weatherability the time/temperature combination must fall within the cure window.

## Weather Resistance

Florida exposure at 45° angle  
Facing South - RAL 8014



The remaining gloss values that can be expected may vary depending on the original gloss level and color. A reasonable degree of gloss loss and color variation owing to long term UV exposure should be expected.



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## Please Note

Top coating with a clear exterior grade powder coating over an interior grade powder coating does not result into a weather resistant coating system.

Post-bending properties of any part must be verified prior to application. Minor cracks in the coated surface may lead to corrosion.

Joint sealants and any other auxiliary products, such as glazing aids, gliding waxes, drilling and cutting lubricants, which come in contact with the coated surface must be pH-neutral and free of substances that may damage the finish. Therefore, a suitability test at the applicator's end, prior to coating, is highly recommended.

In general, colors in the red, orange and yellow range may require an increased film thickness to achieve full hiding.

Any post-mechanical processing of already coated parts, such as sawing, drilling, milling, cutting and bending will result in damage of the coated surface and will subsequently weaken the corrosion protection.

Please read and understand the Material Safety Data Sheet (MSDS) before use.

## Test Results

Results are checked on 1/64 inch (0.7 mm) thick yellow chromated aluminum test panel. Cure conditions are according to the cure curves. When used as a two-coat system, the increase in film thickness will result in a decrease of mechanical properties.

Test results	Test method	Series 38 Smooth Glossy
Film thickness	ISO 2360	2.5-3.5 mils (60-80 µm)
Gloss - 60°	ASTM D523	80-95+
Cross hatch adhesion test	ASTM D3359 Method B	5B
Mandrel bending test	ASTM D522	1/8 inches (3 mm).
Impact test	ASTM D2794	Up to 80 in/lb. Cracking at the perimeter of the concave area but no cracking pick off.
Pencil hardness	ASTM D3363	2H minimum.
Weathering	EN 20105 - A02	≥4
Light fastness	EC ISO 105 - B02	≥Grade7
Humidity resistance 3,000 hours	ASTM D2247	Maximum undercutting 1/32 inches (1 mm).
Acid salt spray resistance 2,000 hours	ASTM G85 Annex A5	Maximum undercutting 1/32 inches (1 mm).
5 years Florida exposure		
Color change	ASTM D2244	≤Δε 5.0 (Hunter).
Gloss retention	ASTM D523	>80%

Cleaning recommendations: Refer to the latest edition of TIGER "Cleaning Recommendations" information sheet, Version 00-1005.



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## Special Applications

Objects directly exposed to salt/fog conditions in a marine environment or need heavy corrosion protection must be coated with TIGER Shield® system. Refer to the latest editions of TIGER Drylac® Product Data Sheets.

## Chemical Resistance

The required chemical resistance of a powder coating depends, among other things, on its formulation. Chemical resistance requirements must be considered according to processing conditions and final use of the finished product. This is best established during the product specification process. Agreement between all parties involved must be reached about the requirements for such chemical resistance as well as the test method, which may be performed in accordance with PCI test method #8 "Solvent Cure Test". Furthermore, the test duration and concentration of the test media need to be agreed upon.

As part of TIGER Drylac® product information program, Product Data Sheets are updated periodically. It is recommended to always check for the latest editions on TIGER's website. TIGER's verbal and written recommendations for the use of its products are based upon experience and in accordance with current technological standards. These are given in order to support the buyer or user. They are non-committal and do not create any additional commitments to the purchase agreement. They do not release the buyer from verifying the suitability of TIGER products for the intended application. This Product Data Sheet supersedes all previous Product Data Sheet versions and notes published in relation to this product.

Certified according to  
ISO 9001 | 14001

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ONE QUARTZ  
SURFACES®

GEO FLECKS SERIES | MICRO FLECKS SERIES | NATURE SERIES | WEST VILLAGE SERIES

FLOOR | WALL | COUNTERTOPS







Cover photo features ONE Quartz Surfaces® West Village Series Avenue White on the counter. Floor features Articulo® Headline Grey 12 x 24. Above photo features ONE Quartz Surfaces® West Village Series Broadway Black on the counter.

**BEAUTIFUL NATURE-INSPIRED LOOKS THAT ARE LOW IN MAINTENANCE AND HIGH IN DURABILITY.**

**With the ONE Quartz Surfaces® assortment,** we've brought together the beauty of quartz and modern technology to create new and exciting possibilities. Available in both slab and tile\*, ONE Quartz Surfaces® gives you more design choices for your next project. The low maintenance and durability of ONE Quartz Surfaces® countertops make it perfect for any application, commercial or residential. Functional yet chic, that's what ONE Quartz Surfaces® is all about.

**AVAILABLE IN:**  
Within these unique series, you'll have more selection than ever before.

- Geo Flecks Series
- Micro Flecks Series
- Nature Series
- West Village Series
- ONE Quartz Basics

	PRICE	STYLE	RESISTANCE				SEALING REQUIRED	MAINTENANCE	PROS	CONS
			CHIPS	HEAT	STAIN	SCRATCHES				
ONE QUARTZ SURFACES®	\$\$\$	***	***	***	***	***	NO	NO	Highly stain resistant Excellent for undermount sinks Engineered, so has consistent look Tons of colors to choose from	Not as heat-resistant as natural stone Can be discolored by direct sunlight

\*\*\* EXCELLENT  
\*\* GOOD  
\* FAIR

\* Available via special order in limited colors only.





## MICRO FLECKS SERIES

**MICRO DETAIL. MEGA IMPACT.** Marvel in the Micro Flecks Series with stunning visuals in a spectrum of colors suitable for any design or décor. From the purest white to the blackest black; bold patterns to clean and contemporary, the opportunities are endless. Let your imagination run wild.



Photo features ONE Quartz Surfaces® Micro Flecks Series Simply White on the counter.



**MICRO FLECKS SERIES**



MORNING FROST NQ30



\* WHITE ICE NQ90



WOVEN WOOL NQ09



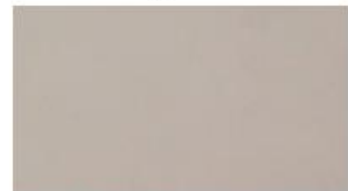
\* SIMPLY WHITE NQ76



FRESH LINENS NQ66



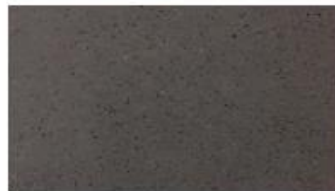
EVENING GREY NQ43



\* MESA DUNE NQ89



\* NEWPORT SAND NQ88



CONCRETE GREY NQ87



BRUSHED FLANNEL NQ60



METEOR SHOWER NQ25



STAR GAZER NQ10

\* ONE Quartz Basics





**PRODUCT INFORMATION**

Finishes	Thickness
Polished (Stocked) Semi-polished (Special Order) Honed (Special Order) Leather (Special Order)	1-1/4" (3 cm) & 3/4" (2 cm)

Custom slab finishes in semi-polished, honed and leather are available by special order. Not all colors available in alternative finishes. Please contact your local slab center for availability. Thinner slabs available upon request. Please contact your local slab center to confirm sizes and availability. Standard tile sizes available by special order only where applicable.

**INSTALLATION**

Grout Joint Recommendation	Shade Variation
Tile: 1/16"	 Low (VI)

**NOTES**

ONE Quartz Surfaces products are nonporous, reducing the potential for bacteria growth, resist common food stains and are stronger than natural granite. ONE Quartz Surfaces products are virtually maintenance free. ONE Quartz Surfaces products contain natural quartz stone providing consistent color and visual movement. A wide range of color options allow for more design freedom. ONE Quartz Surfaces products have a durable, scratch-resistant surface. ONE Quartz Surfaces products are heat and scorch-resistant under normal cooking conditions (use of a trivet is recommended for longer or extreme heat exposure). Visit [daltile.com/ONEQuartz](http://daltile.com/ONEQuartz) for additional polished, semi-polished, honed and leather finish details. Fifteen-year limited warranty. Visit [daltile.com/ONEQuartz](http://daltile.com/ONEQuartz) for details. White thin-set or mortar is recommended for the lighter colors of ONE Quartz Surfaces tiles. For information refer to "Factors to Consider" at [daltile.com/Factors](http://daltile.com/Factors).

FLOOR INVENTORY NOT STOCKED,  
 AVAILABLE ON CUSTOM ORDER BASIS ONLY.



Fifteen Year Limited Warranty, visit [daltile.com](http://daltile.com) for complete warranty details.

**USAGE**

Floors	Walls	Countertops
F	W	C

**APPLICATIONS**

	Target DCOF wet	Suitable
Dry & Level – Interior Floor	N/A	✓
Wet & Level – Interior Floor	≥ 0.42	
Shower Floors (Residential or Light Commercial)	≥ 0.42	
Exterior Floor Applications (including pool decking & other wet areas with minimal footwear)	≥ 0.60	
Ramps & Inclines	≥ 0.65	
Walls/Backsplashes	N/A	✓
Countertops	N/A	✓
Pool Linings	N/A	

ONE Quartz Surfaces do not meet minimum coefficient of friction thresholds recommended by safety standard-setting organizations. Water, oil, grease, etc., create slippery conditions. Floor applications with exposure to these conditions require extra caution in product selection.

**APPLICATION NOTES:**

Micro Flecks Series not suitable for exterior applications due to small resin content. The sun will etch the material. \* NQ09, NQ30, NQ66, NQ76 and NQ90 are not recommended for flooring use.

**SLAB PERFORMANCE CHARACTERISTICS**

	ASTM#	Result
Breaking Strength	C648	1,207 lbs
Compressive Strength (min)	C170	22,082 psi
Abrasion Resistance	C241	60+
Abrasion Wear Index	C501	120
Thermal Expansion	C531	1.2 x 10 <sup>-5</sup>
Water Absorption	C97	.03-0.1%
Flexural Strength	C880	4,744 psi
Ultraviolet Light Resistance	G23	Passes
Stain & Chemical Resistance (24-hour immersion)		No effect

**TILE PERFORMANCE CHARACTERISTICS**

	ASTM#	Result
Water Absorption	C97	.03 - 0.1%
Compressive Strength (min)	C170	22,082 psi
Flexural Strength	22,082 psi	4,744 psi
Chemical Resistance	C650	Resistant
Abrasion Resistance	C1027	3

