

Cold Shot Chillers®



**RUGGED
DEPENDABILITY**

2-Ton Air-Cooled Portable Single Stage Water Chillers



(2 Ton Unit Shown)

FEATURES

- Dependable Copeland Welded Hermetic Scroll Compressors
- Rugged Co-Axial Evaporators
- External Brass Service Valves
- Large Copper Condensing Coil with Aluminum Fins
- Powder Coated, Expanded Metal Protective Condenser Panels
- Strong Stainless Steel Centrifugal Pumps with Safety Fuses or Thermal Protection
- Oversized Magnetic Contactors
- Powder Coated Steel Frame

BENEFITS

- Long Life - Maintenance Free
- Compact Efficiency - Superior Freeze Protection
- Allows for Field Service Without Disassembly
- Easy Maintenance - Improved Efficiency
- Rugged Protection While Allowing for Easy Maintenance and Wash Down
- High Flow - Long Life - Dependable
- Rugged Dependability - Long Life
- Lifetime Warranty

Cold Shot Chillers

"ECONOMICALLY PRICED DEPENDABILITY"



TECHNICAL SPECIFICATION

Model: ACWC-24-Q-RF¹-LT²-₃-2⁴

Description:

Single stage air-cooled portable water chiller system. System will provide approximately 24,000 Btu/hr of cooling capacity with a leaving fluid temperature of 50°F and an ambient air temperature of 95°F.

CAPACITY ±5% AT 50° LCWT / 95°F AMBIENT		24,000 BTU /HR				
COMPRESSOR / REFRIGERANT		HERMETIC SCROLL / R-410A				
CONDENSER FANS / AIRFLOW		1 / 1920 CFM				
CONDENSER COILS TYPE		COPPER TUBE / ALUMINUM FIN				
EVAPORATOR TYPE		COPPER/NICKEL CO-AXIAL				
FLUID CONNECTIONS		1" FNPT (IN/OUT) – SCHEDULE 80 CPVC				
ELECTRICAL:	V - Ø - HZ	COMP RLA / LRA	FAN FLA	PUMP FLA	MCA	
- 2	230 - 1 - 60	11.2	60.8	0.7	6.4	21.1
PUMP HP / OUTPUT		1.0 HP / 30 GPM @ 30 PSI				
PUMP APPLICATION		"SALT WATER"				
DIMENSIONS		42" L x 32 ½" W x 51 ½" H				
WEIGHT (APPROX.)		350 LBS				

Note: All design and specifications subject to change without notice. MCA: Minimum circuit amps per UL 1995

STANDARD FEATURES:

- **Controls:** Electronic programmed temperature controller with constant (set point & process) temperature readout.
- **Refrigeration Components:** Efficient scroll compressors, sight glass/moisture indicators, balance port expansion valves, filter drier, service valves, fan cycling head pressure controls. Suction accumulator.
- **Process Fluid Components:** Poly "T" strainer with 20 mesh stainless steel screen, field installed. Pump is stainless steel centrifugal
- **Safety Controls:** High/low pressure refrigerant pressure, freeze, low water flow, overloads for compressor and fan motors, safety fuses or overloads for pump. Also includes green light for cooling circuit status condition.
- **Construction:** Welded steel powder coated frame and full metal cabinet, cpvc piping connections.
- **Warranty:** One year parts / five year compressor.

SUITABLE AMBIENT CONDITIONS/FEATURES:

- **IND:** Indoor use only. Casters, optional.
- **40:** Suitable for outdoor use with an ambient of 40°F ambient. Casters, optional.
- **0:** Suitable for outdoor use to 0°F ambient. Includes low ambient fan speed controls with (LT) models. Casters, optional.
- **M20:** Suitable for outdoor use to -20°F ambient. Includes with low ambient fan speed controls with hot gas bypass. Casters, optional.

¹ Flow Design (_=Portable, ST=Stationary, RF=Reverse Flow, EXCH=Extra Heat Exchanger, DP=Dual Pump, DR=Dual Return)

² Leaving Fluid Temperature (_=Standard, LT=Low Temperature-specify lowest temperature in °F)

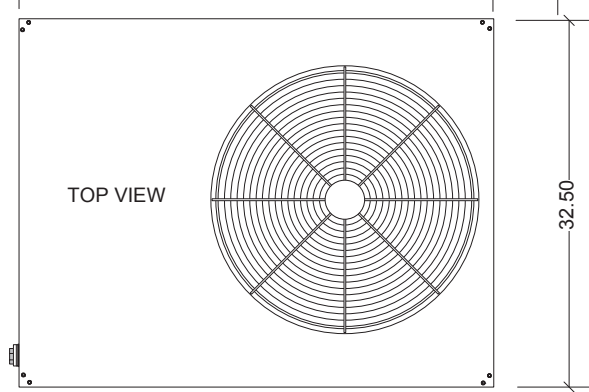
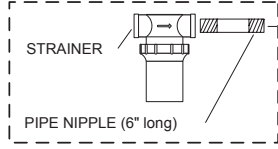
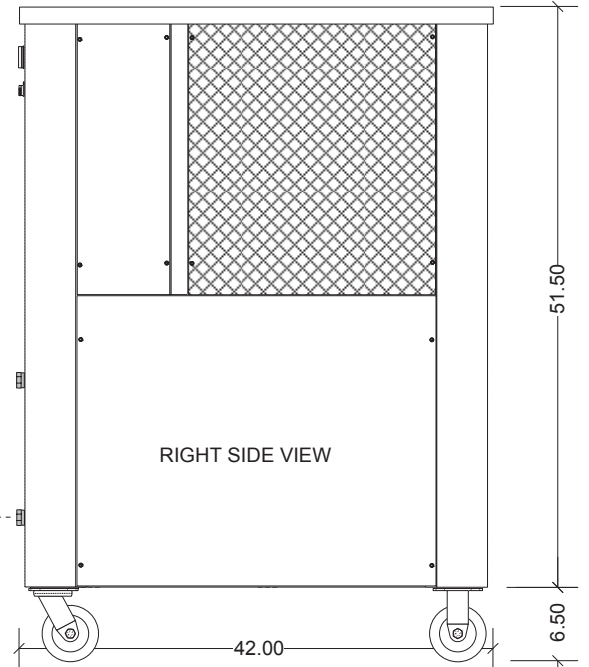
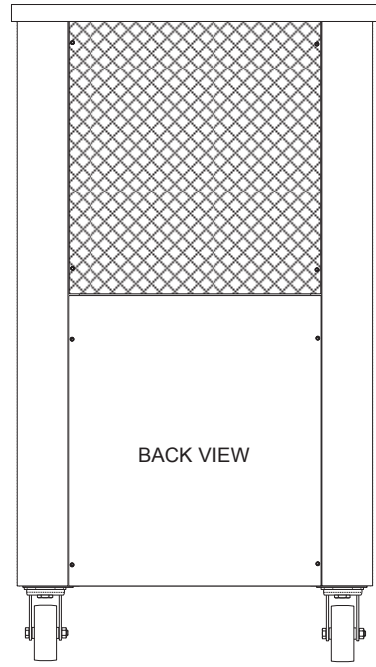
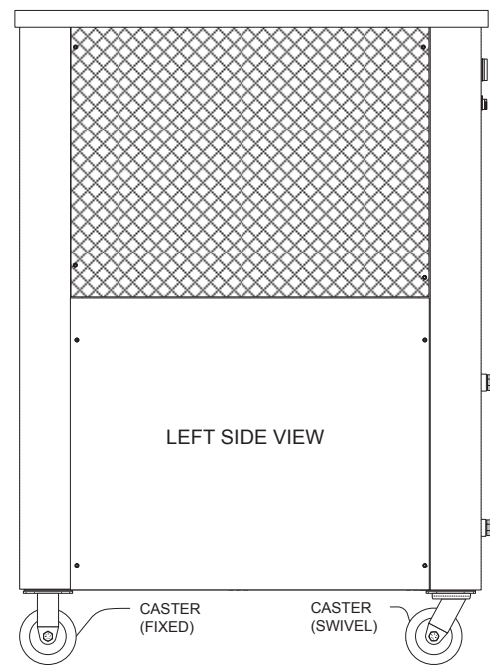
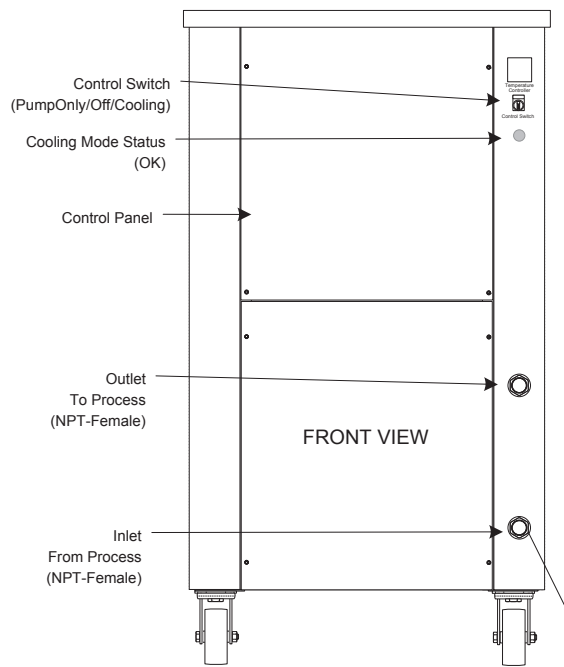
³ Ambient Temperature Conditions (see above)

⁴ Electrical Power Code (see above)

Marrone & Co., Inc.

2730 Maximilian Drive, Houston, Texas 77032 • Phone (800) 473-9178, (281) 227-8400

Fax (800) 473-9175, (281) 227-8404 • www.waterchillers.com



** POLY "Y"
STRAINER TO BE
INSTALLED IN
SYSTEM BEFORE
THE WATER "IN"

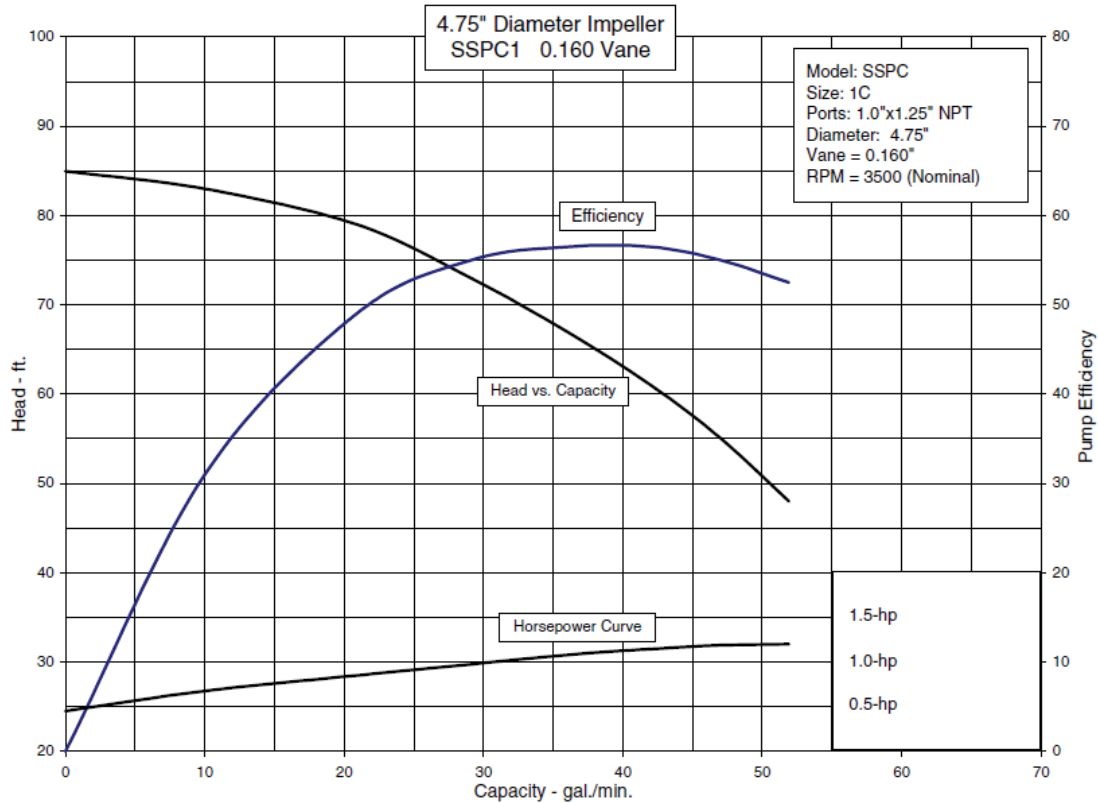
- GENERAL NOTES**
- Optional Flow Switch (Included with Low Ambient Kit Options).
 - Casters are included with indoor units upon request. Optional on outdoor units.
 - Specifications subject to change without notice.
 - Split units not shipped with refrigerant. Charged with 15# Nitrogen charge. Nitrogen must be evacuated and system properly charged with refrigerant while following instructions in manual.

COLD SHOT CHILLERS		SIZE	DIMENSION NOTES	DWG NO	REV
DRAWN	ENGINEERING	A	Units are in inches. +/- 1/4"	INSTALLATION DRAWING ACWC-024-Q-RF (Typical)	1
ISSUED	11/5/2015	SCALE	N.T.S.	DWG-INST_ACWC-024,036-Q-RF_(1115) .vsd	SHEET 1 / ACWC-024-Q-RF_(EntireFullPanel)(All)

PUTE-000-001-2-1

Performance Curve and Data Sheet

1-Hp (single phase) Motor TEFC / Pump with 4.75" Impeller/0.160 Vane (30gpm@30psi), with SiC/SiC/Buna Mechanical Seal



Clean water based performance at 60 deg. F.

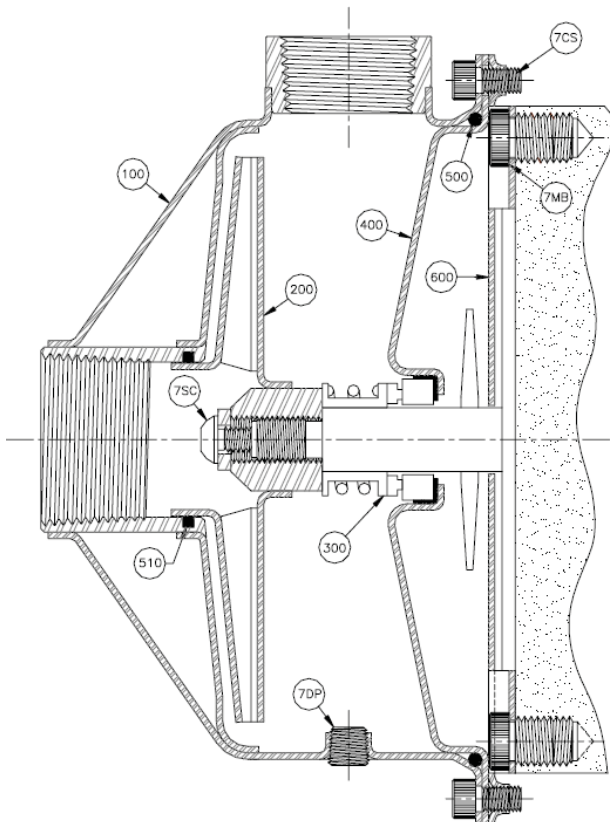
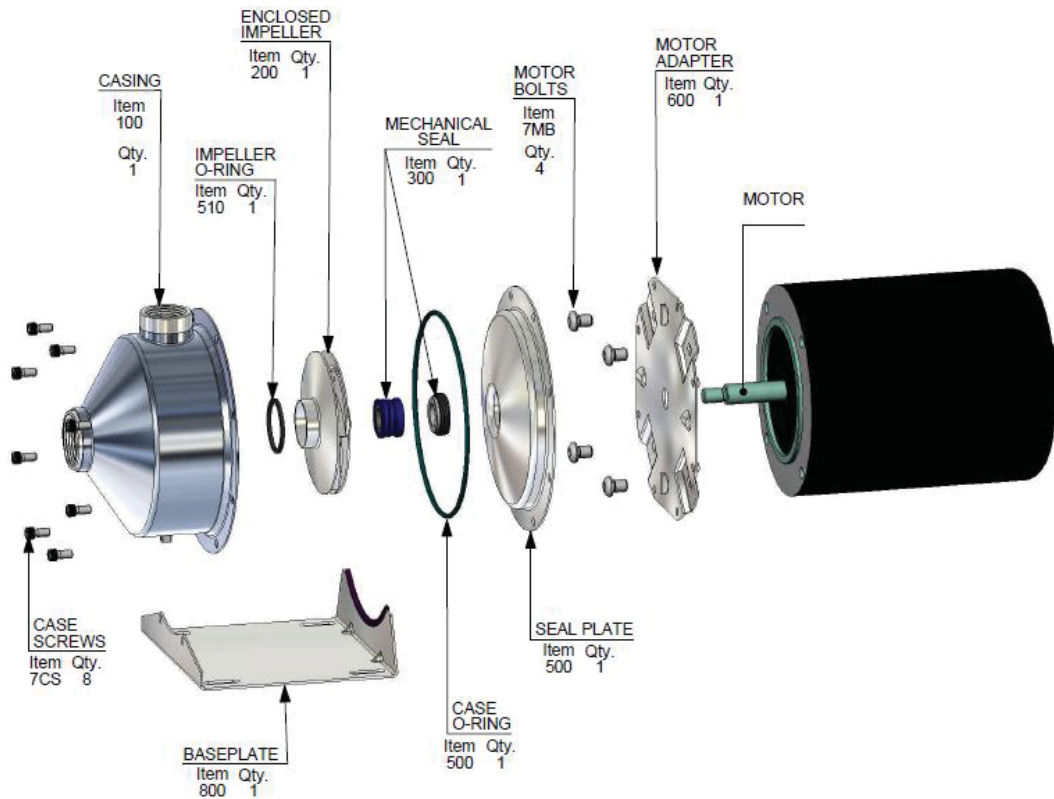
3/01/01

See pump drawing for Item No. explanation.

Item No.	Cold Shot Chillers Part#	Part Description	Standard Materials
100	PSKA-010-000-0-2	Casing	304 SS
200		Impeller (Enclosed)	304 SS
300		Mechanical Seal - Type 6	SiC/SiC/Buna
400		Seal Plate	304 SS
500		Casing O-Ring	Buna N
510		Impeller O-Ring	Buna N
600		Motor Adapter Plate	304 SS
7CS		Casing Screw - 1/4-20 (3/16 Allen)	Nickel Plated Steel
7DP		Drain Plug - 1/8" NPT	304 SS
7MB		Motor Bolt - 3/8-16 (7/32 Allen)	304 SS
7SC		Impeller Screw - 10-32LH (1/8 Allen) (Standard on 3-Ph motors 1-hp or larger)	304 SS
800		Pump Base (not supplied with footed motors)	304 SS

Pump/Motor Assembly ASP-SSPC

Exploded View and Cross Section of Pump and Motor Assembly



CSC_ASP-TechnicalInfo_0511.doc

Marrone & Co., Inc.

2730 Maximilian Drive, Houston, Texas 77032 • Phone (800) 473-9178, (281) 227-8400

Fax (800) 473- 9175, (281) 227-8404 • www.waterchillers.com



CUSTOMER TANK

FIELD SUPPLIED/
INSTALLED

1" PVC FLOW SWITCH

1" CPVC
SCH80 FNPT

CHILLER
OUT

Bronze Water Manifold
3/4" x 1" FNPT

TYPE J-THERMOCOUPLE

1" CPVC SCH80

UNION

1" CPVC
SCH80 FNPT

CHILLER
IN

CENTRIFUGAL PUMP
FOR SALT WATER
APPLICATION

1" X 6" CPVC NIPPLE
1" POLY "Y" STRAINER
WITH 20 MESH STAINLESS
STEEL SCREEN
FACTORY SUPPLIED
FIELD INSTALLED

WATER OUTLET

WATER INLET

PAGE NOTES

FACTORY SUPPLIED/
INSTALLED

FIELD SUPPLIED/
INSTALLED

NOTES

- Specifications and design subject to change without notice.
- All piping to be insulated.
- Contact Cold Shot Chillers for details.
- Dimensions are approximate. Typically, +/- 1/4"

COLD SHOT CHILLERS

ENGINEERING

1/15/2016

ISSUED

INSTALLATION DRAWING
ACWC-36-Q-RF (Typical)

DWG NO

REV

1

SHEET

3

DWG-INST_ACW-36-Q-RF_(Typical)_(0315).vsd

SCALE

1 : 16

VIEW

Fluid Circuit

A

SIZE



ICM491

Single Phase Line Monitor

Reliable line voltage protection for single phase systems



DESCRIPTION

The ICM491 was specifically designed to guard equipment against damage caused by under/over voltage conditions and/or rapid system recycling.

MODE OF OPERATION

Upon application of power to the monitor, and provided all voltages and line conditions are acceptable, the green load energized LED indicator will glow. This is an indication that the output contacts have successfully transferred.

Should a High/Low voltage condition exist for longer than the 5 second interrogation delay or a loss of power for more than 50 mS, the relay and green LED shall be de-energized. The red status LED will rapidly flash. Re-energization is automatic upon correction of the fault condition, after the anti-short cycle time delay is complete. Should a fault condition exist upon application of power, the relay will not energize and the red status LED will flash rapidly, indicating power is outside specifications. A blinking LED indicates power is good, but unit is still in ASC lockout.

Adjustment: Select the desired operating voltage. If status LED blinks once per second, voltage is within specification and unit is awaiting the end of the ASC delay. If the red status LED rapidly flashes red, adjusting input voltage knob higher or lower should cause a slow blink to result, but ensure input voltage is not beyond motor operating specification. Once input voltage is properly set, adjust "ASC Time Delay" knob to desired ASC delay.

1. Apply power. Observe "Load Energized" and "Status" LEDs. If incoming power is within specification, unit will energize load in 6 seconds. The following is a table showing what LED indicators correspond to:

LED	STATE	INDICATION
Load Energized	Off	Internal relay is de-energized
Load Energized	On	Internal relay is energized
Status	Off	Voltage is within range
Status	Blink	Voltage is good, unit is in ASC
Status	Rapid Flash	Voltage is out of range

Note: Both LEDs off indicates no power to unit.

2. Set the "ASC Time Delay" to the desired anti-short cycle lockout time.

Features

- **Protects Against:**
 - Over/under voltage
 - Rapid short-cycling
 - Power interruptions
- **Heavy Duty SPDT Relay Output:**
 - 5 amp relay output to operate control circuitry or contactor
- **5-Second Fault Interrogation Period:**
 - Unit trips if power is abnormal for 66% of interrogation time
- **Anti-Short Cycle (ASC) Time Delay:**
 - Delay on Break (.1 to 10 minutes)
- **LED Indicators:**
 - Green LED On: Power is valid, relay energized
 - Red LED Rapid Flash: Unit currently detects high/low voltage situation
 - Red LED Blinking: Power is currently valid; unit is waiting for end of ASC delay
- **Low Cost, Single Phase Equipment Protection**
- **Ordering Information:**
 - ICM Part Number: ICM491

Marrone & Co., Inc.

2730 Maximilian Drive, Houston, Texas 77032 Phone (800) 473-9178, (281) 227-8400
Fax (800) 473-9175, (281) 227-8404 www.waterchillers.com

SPECIFICATIONS

Input

- **Line Voltage:** 95-135 VAC or 190-270 VAC (selectable)
- **Maximum Operating Input:** 142-275 VAC
- **Line Frequency:** 50-60 Hz

Output

- **Type:** Relay, energized upon acceptable conditions
- **Form:** SPDT, Single Pole, Double Throw
- **Ratings:** 6A @ 120 VAC resistive
5A @ 240 VAC resistive

Response Times

- **Line Dropout:** .05 seconds (typical)
- **Line Voltage Sag:** 5 seconds (typical)
- **Turn On (sec):** Based on minimum time selected

Lockout Delay Timer

- **Dry Relay Contacts**
- **Time Delay:** Adjusts from 6-600 seconds (+/- 10%)

Under Voltage Protection

- **Voltage Dropout:** Setpoint is -12%
- **Voltage Pickup:** Setpoint is -8%

Over Voltage Protection

- **Voltage Dropout:** Setpoint +12%
- **Voltage Pickup:** Setpoint +8%

Environmental

- **Operating Temperature:** -40°F to +167°F
(-40°C to +75°C)
- **Transient Protection:** Meets IEEE 587 Standards for Categories A&B without false output or degradation
 - (6Kv 0.5 μ s x 100 KHz Ring Wave)
 - (6Kv 1.2 x 50 μ s Impulse Wave)

Mechanical

- **Mounting:** Surface mount using (2) #8 screws
- **Terminations:** .25" male quick-connect terminals

WIRING DIAGRAM

Typical Wiring Diagram for 240 VAC system

