

Product Information Packet

Model LHP-1 200XEHC

NEMA-4 Liquid Cooled Solid State Air Conditioner

Heat/Cool For Remote Temperature Control

Part #2-3050-5-000

Thank you for your purchase. Information has been enclosed regarding the installation, specifications, and wiring of your solid-state assembly. Please read and follow all instructions carefully before installation. Only qualified technicians should install this equipment.

If you have any questions regarding your equipment, please do not hesitate to call us at 773-342-4900, and we will be happy to assist you. We are open from 8:00 am-4:30 pm Central Time.

Included in this packet you will find:

Installation Notes for Air Conditioners

Product Literature and Specifications

Assembly Drawing # SK060328

Wiring Drawing # SK090415

Installation Drawing # 1200-A-F57

Temperature Control Information

Warranty Information



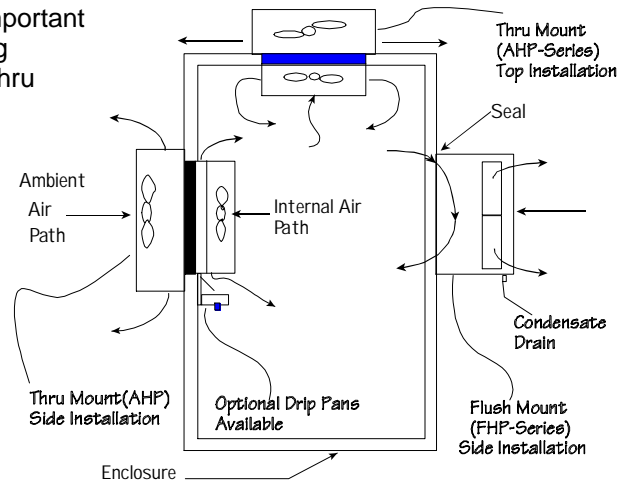
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Important Installation Notes for Air

Mounting Styles: Both 'thru mount' and 'flush mount' units can be positioned in any orientation and on any enclosure surface. It is important to consider interior air flow patterns when determining the mounting location. Also of importance is an unrestricted flow of ambient air thru the hot side heat exchanger. Ease of access and inspection must be considered for those applications in particularly severe environments which may require occasional maintenance.

Vertical (Side/Front/Back) Mounting:

Vertical mounting refers to the vertical direction of the cold side or interior fins and is recommended for applications with high humidity, poor and incomplete cabinet seals or any condition which may cause the cold side fins to be maintained at temperatures below the dew point for long periods of time allowing for the formation of condensation. The vertical fin direction provides a drip path whereupon condensation can be collected via a moisture removal system (standard on FHP-units) or a drip pan positioned below the cold side fins. Drip pans are optional for thru mount units.



Condensate Removal System:

All FHP-Series and AHP-1400 air conditioners contain a built-in condensate removal system. The condensate kit consists of a antifungal sponge with a condensate wick. PVC tubing is also provided for drainage. Drip pans are optional for thru mount units which must be evaluated on an individual basis. Equations defining a relationship between the cold side fin and enclosure temperatures are provided to assist in the evaluation.

Top Mounting:

Though often the easiest location to mount it is often the most difficult to protect from condensation in this orientation due to the fin orientation, gravity and any susceptible components below. If a drip pan is employed by the end user use caution to place the pan far enough away from the internal fan to minimize the restriction of air flow. The pan should cover the fin ends as well as the fan area. When there is a choice, the vertical orientation is preferred by most users.

Maintenance:

Since the technology is solid-state, there are no filters, compressors, or fluorocarbons to maintain. The only moving parts are the fans. It is recommended for harsh or dirty environments that the heat sinks be cleaned from time to time. This can be accomplished by directing compressed air over the external fins or on NEMA 4 versions by hosing the unit down. This will increase the overall life and performance of the system.

Cautions:

Take care when mounting not to damage the seal between the hot and cold side sinks. Do not attempt to mount a unit to a warped surface or try to make the units mounting surface conform to an unflat surface. Do not pinch or damage any leads when mounting. Do not over tighten any installation screw, use reasonable force. Always mount with any condensate drain down. Do not compress the cold side between the hot side and any other surface. Do not obstruct the airflow on either side. When mounting consider the natural air flows of the enclosure. Connect power only after the installation is complete.

Notes on condensation:

Condensation occurs at the cold side fins when the surface temperature goes below the dew point. To reduce or remove condensate, consider the following:

- Regulate the Fin Temperature above the Dewpoint.
- Keep Enclosure Closed and Sealed from Outside Humidity.
- Use Desiccant (Moisture absorbing Granules.)
- Employ Condensate Removal System/Drip Pans.

If you have any questions regarding your installation, Please feel free to contact our technical department for assistance at 773-342-4900.

LHP-1200

Liquid Cooled Air Conditioner

Liquid Cooled
Thru Mount

120 VAC Input

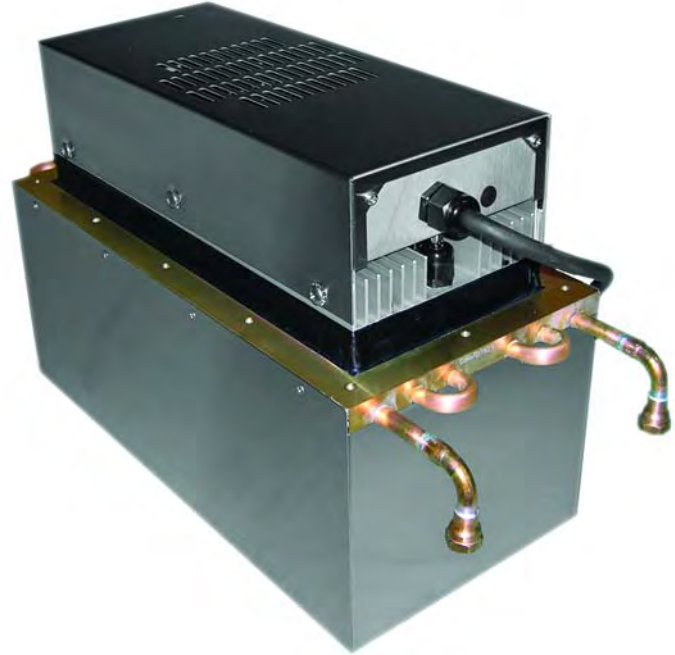
NEMA-4, 4X, C1 D2, C1 D1 & ATEX Zone 1

FEATURES

- Compact, (only 15" L X 8" W X 7.3" D)
- Weighs only 21 lbs. (9.5 kg)
- Ambient range 0°C to +70°C
- Can be mounted entirely inside purged enclosure or maintain purge when wall mounted
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Stainless steel exterior housing
- Mounts and operates in any orientation

INCLUDES

- Integral power supply
- In/Out 1/4-18 NPT connectors for coolant
- Power cord
- Gasket and mounting hardware
- Adjustable temperature control



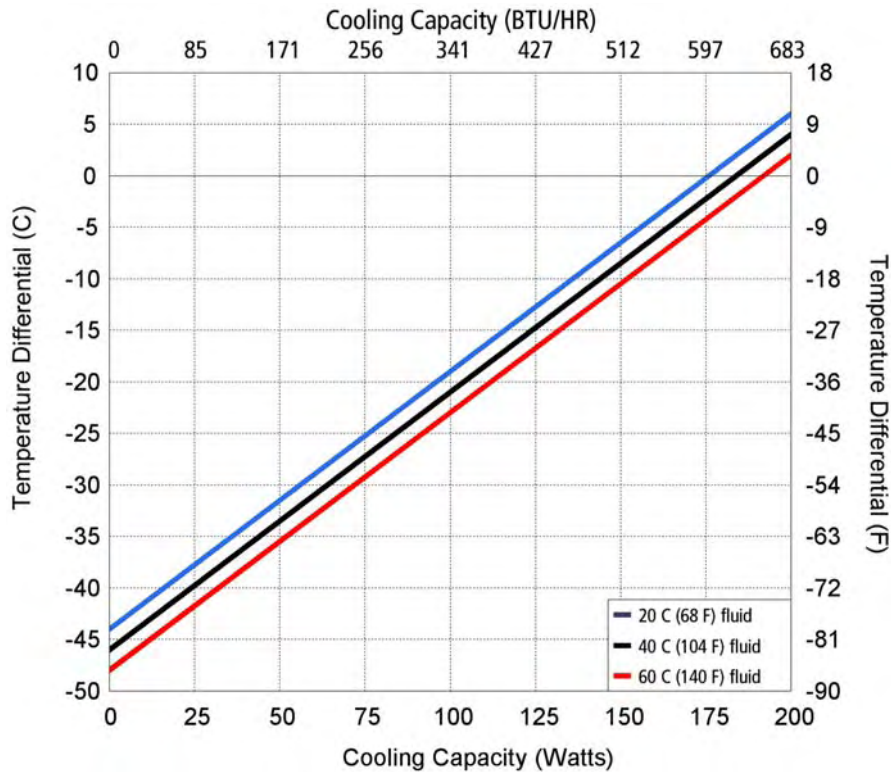
SPECIFICATIONS

	MODEL	PART NUMBER	NOTES	PERFORMANCE RATING BTU/HR	VOLTAGE VAC 50/60 HZ	CURRENT AMPS.	Min Flow GPM	WEIGHT LBS. (kg)	TEMP. CONTROL	OPERATING AMBIENT °C	AGENCY APPROVALS
NEMA 4X	LHP-1200XE	2-3090-4-000	Cool only	590-640	120	3.7	0.3	21(9.5)	none	0/+70	Pending
	LHP-1200XE	2-3080-4-000	Cool only	590-640	120	3.7	0.3	21(9.5)	TC-6F	0/+70	Pending
	LHP-1200XE	2-30F0-4-000	Cool only	590-640	120	3.7	0.3	21(9.5)	85°F (30°)	0/+70	Pending
	LHP-1200XE	2-3050-4-000	Cool only	590-640	120	3.7	0.3	21(9.5)	EXT*	0/+70	Pending
	LHP-1200XEHC	2-3030-5-000	Heat/Cool	590-640	120	3.7	0.3	21(9.5)	TC-3F	0/+70	Pending
	LHP-1200XEHC	2-3050-5-000	Heat/Cool	590-640	120	3.7	0.3	21(9.5)	EXT*	0/+70	Pending
C1 D2	LHP-1200XP **	2-3090-2-027	Cool only	590-640	120	3.7	0.3	21(9.5)	none	0/+50	Pending
	LHP-1200XP **	2-3080-2-028	Cool only	590-640	120	3.7	0.3	21(9.5)	TC-6F	0/+50	Pending
	LHP-1200XP **	2-30F0-2-029	Cool only	590-640	120	3.7	0.3	21(9.5)	85°F (30°)	0/+50	Pending
	LHP-1200XP **	2-3050-2-030	Cool only	590-640	120	3.7	0.3	21(9.5)	SSR drive	0/+50	Pending
	LHP-1200XPHC **	2-3030-3-031	Heat/Cool	590-640	120	3.7	0.3	21(9.5)	TC-3F	0/+50	Pending
	LHP-1200XPHC **	2-3050-3-032	Heat/Cool	590-640	120	3.7	0.3	21(9.5)	SSR drive	0/+50	Pending
C1 D1	LHP-1200XP **	2-3090-2-021	Cool only	590-640	120	3.7	0.3	30(13.6)	none	0/+50	Pending
	LHP-1200XP **	2-3080-2-022	Cool only	590-640	120	3.7	0.3	30(13.6)	TC-6F	0/+50	Pending
	LHP-1200XP **	2-30F0-2-023	Cool only	590-640	120	3.7	0.3	30(13.6)	85°F (30°)	0/+50	Pending
	LHP-1200XP **	2-3050-2-024	Cool only	590-640	120	3.7	0.3	30(13.6)	SSR drive	0/+50	Pending
	LHP-1200XPHC **	2-3030-3-025	Heat/Cool	590-640	120	3.7	0.3	30(13.6)	TC-3F	0/+50	Pending
	LHP-1200XPHC **	2-3050-3-026	Heat/Cool	590-640	120	3.7	0.3	30(13.6)	SSR drive	0/+50	Pending

* Unit is set for 5-32 VDC external signal, relay(s) included

** Agency approvals pending; ATEX certification will require full system approval; All specifications subject to change without notice

PERFORMANCE CURVE



Equation of line: $y = \Delta T(^{\circ}\text{C})$ $x = \text{Capacity (Watts)}$			
Fluid Temp	20°C	40°C	60°C
Enclosure Air	$y = .25x - 44.0$	$y = .25x - 46.0$	$y = .25x - 48.0$
Cold Sink	$y = .19x - 44.0$	$y = .19x - 46.0$	$y = .19x - 48.0$

LHP-1200

MOUNTING STYLE

Thru Mount

ENVIRONMENTS

NEMA-4/4X IP 56

Class 1 Div 2 and NEMA-4X IP 56

Class 1 Div 1 and ATEX Zone 1

RATING (TRADITIONAL)

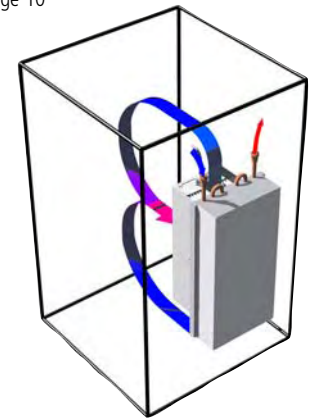
613 BTU/hr @ 0 °F ΔT 770 BTU/hr @ +20 °F ΔT *

RATING (DIN 3168)

180 Watts L35 L35

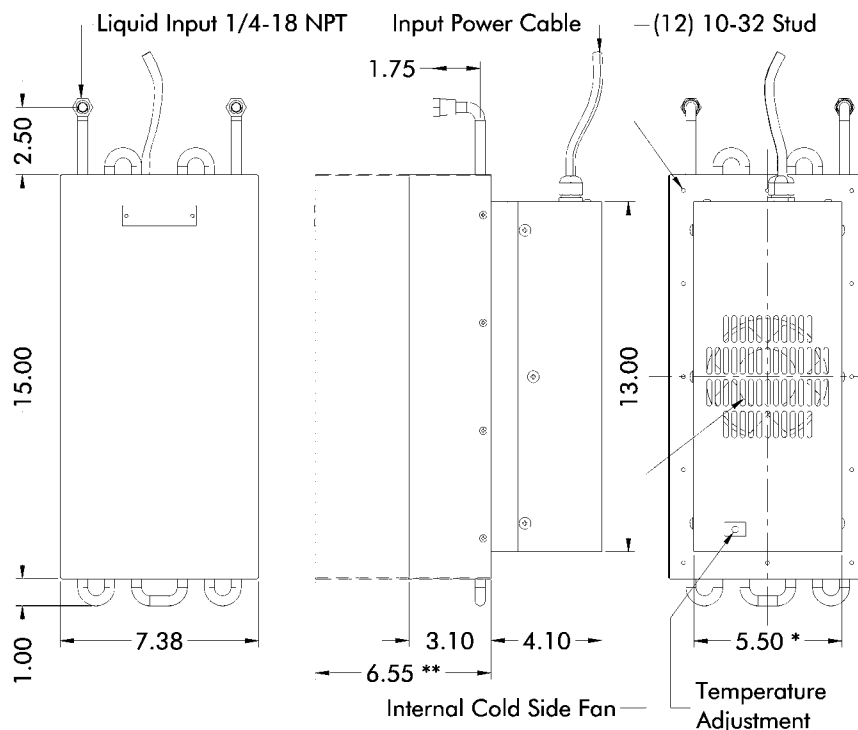
125 Watts L35 L50

* See page 10

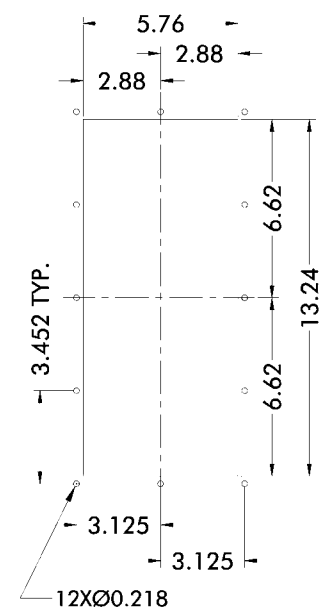


Air Flow Pattern

DIMENSIONS

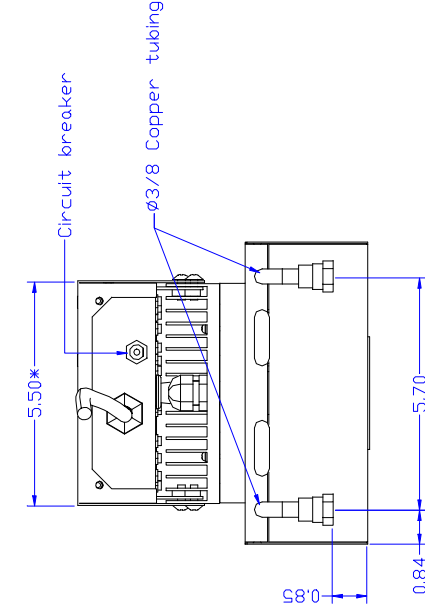
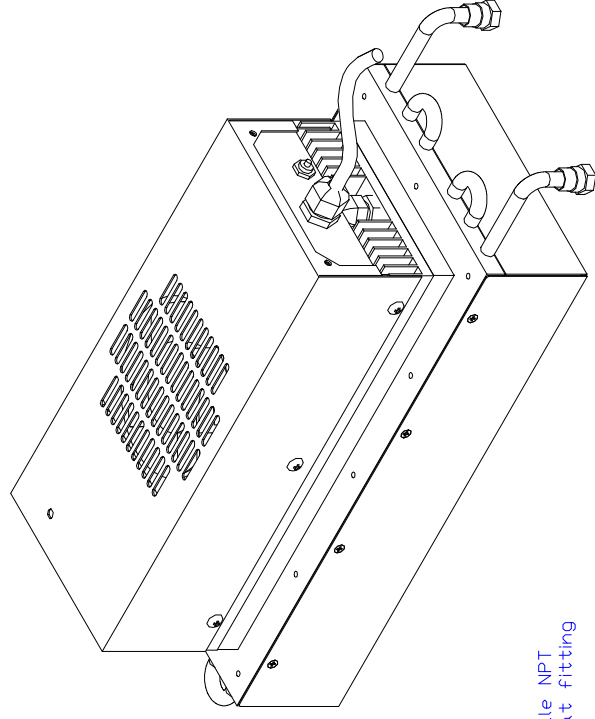
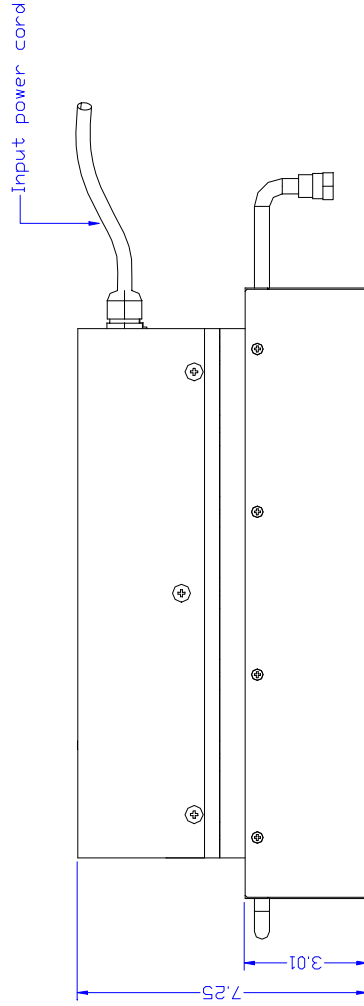
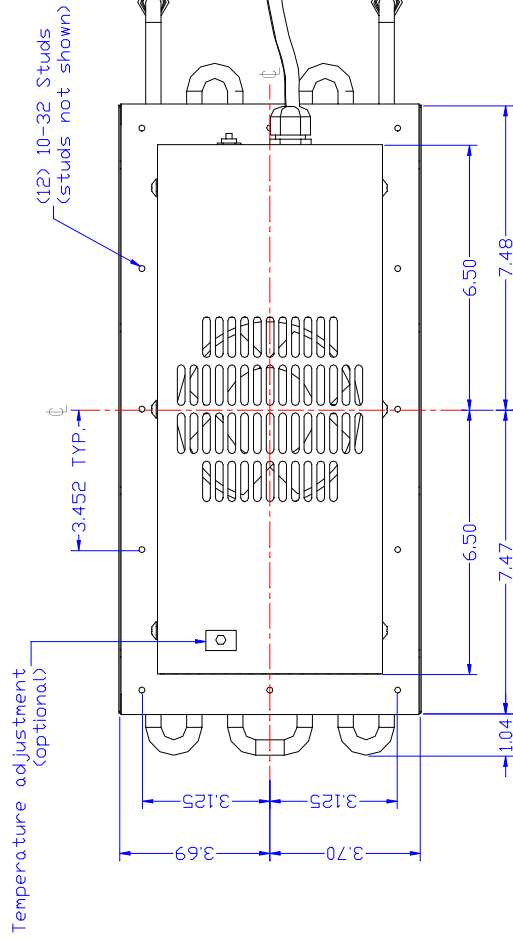


MOUNTING CUTOUT DIMENSIONS



* Dimension does not include hardware. Dimension: Inches; Mounting hardware and gasket included but not shown.

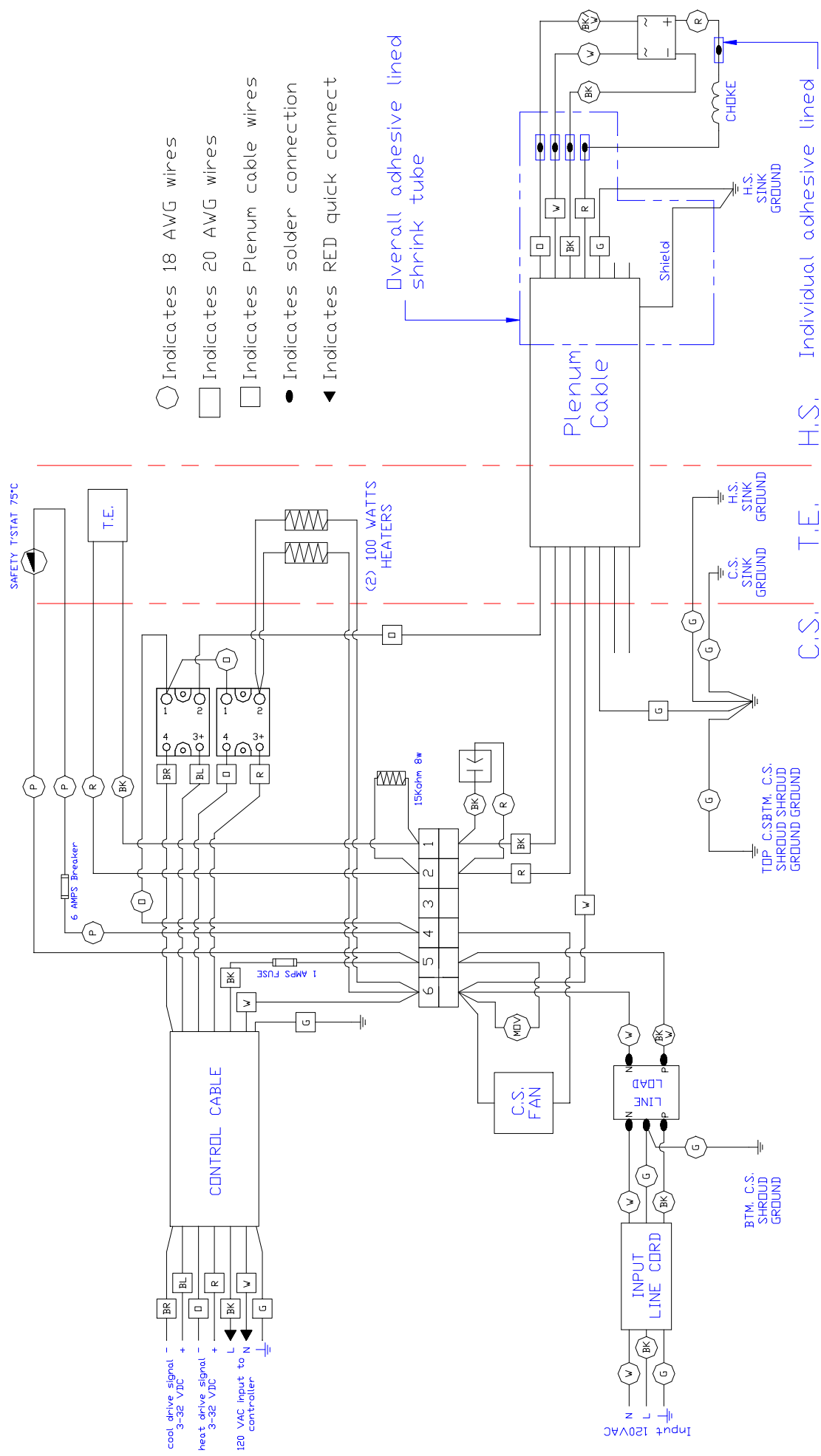
** Dimension applies to XP versions.



Caution: Do not operate this air conditioner without running coolant fluid.

Note:
* Dimension does not include hardware.

THERMOELECTRIC COOLING AMERICA CORP.		LHP-1200XE LIQUID COOLED AIR CONDITIONER ASSEMBLY		REV LEVEL C	SHEET
INFORMATION DISCLOSED HEREIN IS THE CONFIDENTIAL PROPERTY OF TECA CORP. RECIPIENT SHALL NOT USE THE INFORMATION IN ANY UNAUTHORIZED MANNER.		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMALS ANGLE XX +/- FRACTION +/- XXX +/-		DRAWN BY: AA DATE: 03/23/06 D6593 SCALE MASTER	
FINISH:		MATERIAL:		DRAWING # SK060328	
DESCRIPTION		Date		APPROVED	
A Chg'd tube extension from 6" to 2", Added 1/4 NPT female hex fitting.		05/09/06		AA	
B Revised drawing title.		08/27/07		AA	
C Revised views to reflect change L.J.		09/17/08		AA	

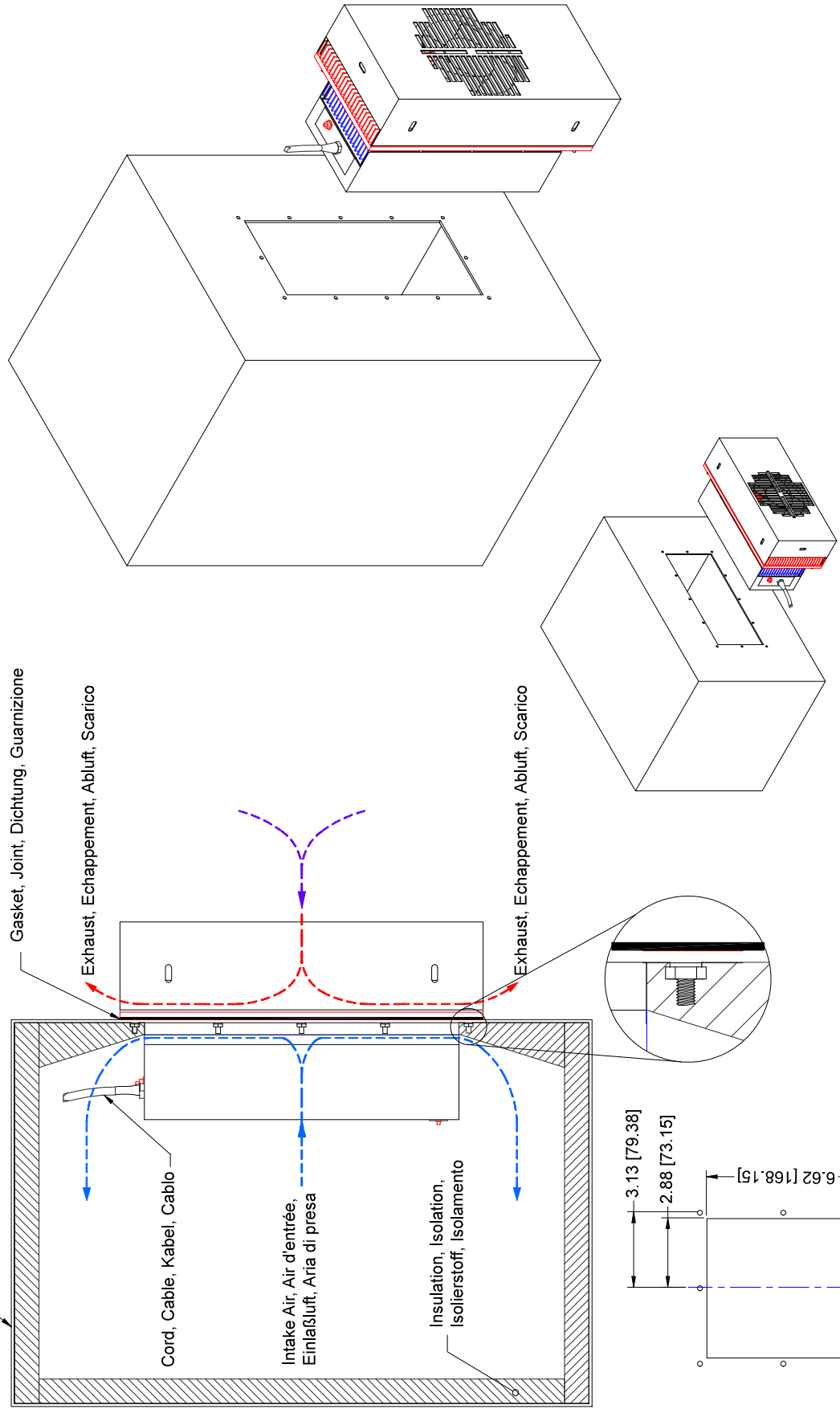


Note: Do not operate this unit without coolant, failure to do so will result in irreversible damage to the thermoelectric modules.

THERMOELECTRIC COOLING AMERICA CORP.		LHP-1200XEHC SET UP FOR REMOTE TC	
WIRING DIAGRAM		DRAWING # SK090415	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DRAWN BY: AA	
TOLERANCES ARE:		DATE: 04/27/09	
INFORMATION DISCLOSED HEREIN IS THE CONFIDENTIAL PROPERTY OF TECA CORP. RECIPIENT SHALL NOT USE THE INFORMATION IN ANY UNAUTHORIZED MANNER.		SCALE: D7540	
FINISH:		MASTER: SK070832	
REVISIONS		REV LEVEL	
DESCRIPTION		SHEET	
Date		APPROVED	


Mounting, Monture, Montage, Montaggio

Enclosure, Armoire, Gehäuse, Armadi



Alternate, Alternative, Alternativa

English, Français, Deutsch, Italiano
Dimensions: Inches [Millimeters]

	REV	DESCRIPTION	Date	APPROVED	INFORMATION DISCLOSED HEREIN IS THE CONFIDENTIAL PROPERTY OF TECA CORP. RECIPIENT SHALL NOT USE THE INFORMATION IN ANY UNAUTHORIZED MANNER.	FINISH:	MATERIAL:	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: <table><tr><td>DECIMALS</td><td>ANGLE</td></tr><tr><td>.XX +/-</td><td>+/-</td></tr><tr><td>.XXX +/-</td><td>FRACTION +/-</td></tr></table>	DECIMALS	ANGLE	.XX +/-	+/-	.XXX +/-	FRACTION +/-	THERMOELECTRIC COOLING AMERICA CORP.			
	DECIMALS	ANGLE																
.XX +/-	+/-																	
.XXX +/-	FRACTION +/-																	
AHP-1200 SERIES TYPICAL FIELD MOUNTING																		
DRAWN BY: AA		DRAWING #		REV LEVEL	1200-A-F57													
DATE: 05/21/03																		
D6033		SCALE		MASTER: MASTER		SHEET												

LIMITED WARRANTY

In the event a defect in material or workmanship is discovered in any of TECA's products within one year after the date they are delivered to Buyer, and if: (a) TECA is notified of the defect in writing by certified mail within 14 days of the date of discovery; (b) TECA may then either, at its sole discretion, inspect the product at Buyer's location, or require that the product be made available at Buyer's expense at TECA's premises for TECA's inspection within 14 days of the date of notification; and (c) the products are defective and the defects result from faulty materials and/or workmanship and not in any way from accident, misuse, misapplication, mishandling, modification, or alteration by the Buyer or the shipper, then TECA shall, at its sole option, repair or exchange defective products free of charge to Buyer, or credit to buyer the price of the defective products. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARE EXCLUDED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL TECA BE LIABLE FOR ANY CLAIM BASED UPON BREACH OF EXPRESS OR IMPLIED WARRANTY OR ANY OTHER DAMAGES WHETHER SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, LOST PROFITS, BUSINESS INTERRUPTION, OR LOSS OF BUSINESS OR CUSTOMER RELATIONSHIPS.

RETURNED GOODS, RESTOCKING CHARGES

In order to return merchandise for any reason (repair, replacement, or credit) a return authorization number must be issued by TECA. New merchandise may not be returned for credit beyond 60 days from shipment. Charges for incidental or other damages may also be made. All returned goods must be sent freight prepaid. A restocking charge of 15% will apply. On special equipment and custom modified equipment orders, additional incremental cancellation charges may be made.