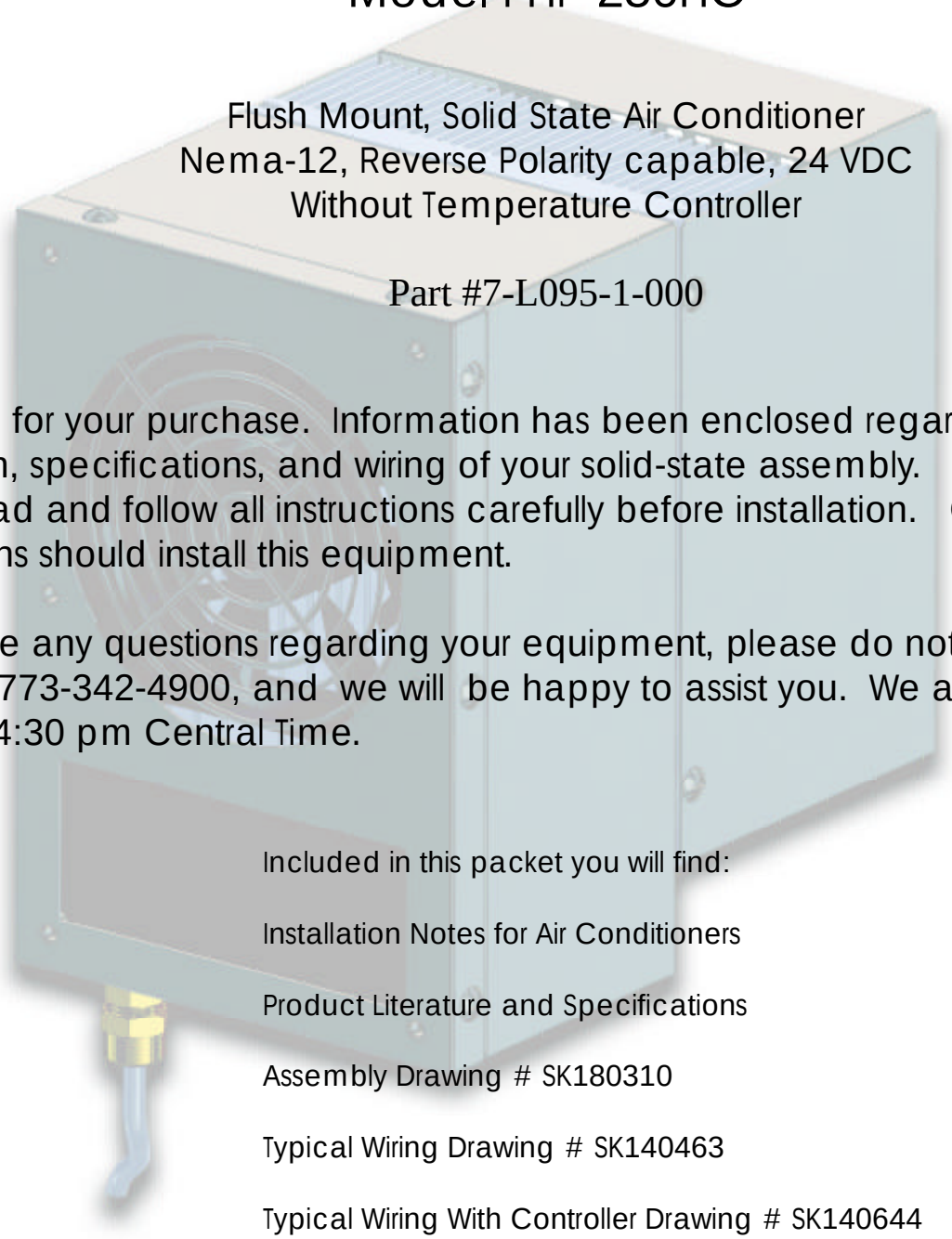
# Product Information Packet

## Model FHP-250HC

Flush Mount, Solid State Air Conditioner
Nema-12, Reverse Polarity capable, 24 VDC
Without Temperature Controller

Part #7-L095-1-000



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 # SK180310

Typical Wiring Drawing # SK140463

Typical Wiring With Controller Drawing # SK140644

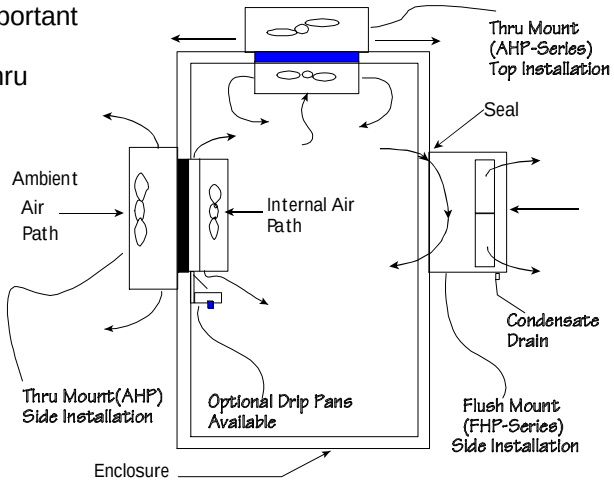
Installation Drawing # SK180615

Warranty Information

teca
ThermoElectric Cooling America Corporation
4048 W. Schubert Avenue • Chicago, IL (U.S.A.) 60639
Ph: 773/342-4900 Fx: 773/342-0191
sales@thermoelectric.com www.thermoelectric.com

# 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.

# FHP-250 | Air Conditioner

Air Cooled
Flush Mounted
Nema-12, 4, 4X

12 VDC, 24 VDC
109 BTU/HR



## FEATURES

- Compact (only 7" X 4.90" X 7.2")
- Lower vibration and noise
- No moving parts except fans
- Environmentally safe
- No compressor, fluorocarbons or filters
- Condensate control system
- Virtually maintenance-free operation
- Stainless steel exterior housing
- Efficient heat exchanger mode (ECO-Mode)
- Weight 7 LBS.

## POWER INPUTS

| | |
|---|---|
| Voltage | 12 VDC, 24 VDC |
| Current, Active | 6 AMPS, 3 AMPS |
| Current, ECO-Mode | 0.3 AMPS |

## PERFORMANCE RATINGS

| | |
|---|---|
| Cooling (Traditional) | 109 BTU/HR |
| Cooling (Din 3168) | 32 WATTS |
| Cooling COP (at L35 L35) | 0.44 |
| Heating (Traditional) | > 245 BTU/HR |
| Heating (Din 3168) | > 72 WATTS |
| Heating COP | > 1.0 |

## CONTROL TEMPERATURES

| | |
|---|---|
| Active Cooling | 35 °C |
| Heat Exchanger (ECO-Mode) | 25 °C |
| Active Heating | 10 °C |
| Typical Hysteresis | 5 °C |
| Operating Ambient | -40/+70 °C |
| Operating Enclosure | -10/+60 °C |

## CONFIGURATIONS

| MODEL | PART NUMBER | NOTES | INTEGRAL TEMPERATURE CONTROL | VOLTAGE VDC | CURRENT AMPS | ENVIRONMENT |
|---|---|---|---|---|---|---|
| FHP-250FFHC | 7-L094-1-000* | Industrial fans | None | 12 | 6 | NEMA-12, IP 52 |
| FHP-250FFHC | 7-L095-1-000* | Industrial fans | None | 24 | 3 | NEMA-12, IP 52 |
| FHP-250FF | 7-L0J4-0-000 | Industrial fans | TC-4F | 12 | 6 | NEMA-12, IP 52 |
| FHP-250FF | 7-L0J5-0-000 | Industrial fans | TC-4F | 24 | 3 | NEMA-12, IP 52 |
| FHP-250FFHC | 7-L0I4-1-000 | Industrial fans | TC-7F | 12 | 6 | NEMA-12, IP 52 |
| FHP-250FFHC | 7-L0I5-1-000 | Industrial fans | TC-7F | 24 | 3 | NEMA-12, IP 52 |
| FHP-250XEHC | 7-L094-5-000* | Industrial sealed HS fan | None | 12 | 6 | NEMA-4, IP 56 |
| FHP-250XEHC | 7-L095-5-000* | Industrial sealed HS fan | None | 24 | 3 | NEMA-4, IP 56 |
| FHP-250XE | 7-L0J4-4-000 | Industrial sealed HS fan | TC-4F | 12 | 6 | NEMA-4, IP 56 |
| FHP-250XE | 7-L0J5-4-000 | Industrial sealed HS fan | TC-4F | 24 | 3 | NEMA-4, IP 56 |
| FHP-250XEHC | 7-L0I4-5-000 | Industrial sealed HS fan | TC-7F | 12 | 6 | NEMA-4, IP 56 |
| FHP-250XEHC | 7-L0I5-5-000 | Industrial sealed HS fan | TC-7F | 24 | 3 | NEMA-4, IP 56 |
| FHP-250XHC | 7-L094-3-000* | Military grade HS fan | None | 12 | 6 | NEMA-4X, IP 56 |
| FHP-250XHC | 7-L095-3-000* | Military grade HS fan | None | 24 | 3 | NEMA-4X, IP 56 |
| FHP-250X | 7-L0J4-2-000 | Military grade HS fan | TC-4F | 12 | 6 | NEMA-4X, IP 56 |
| FHP-250X | 7-L0J5-2-000 | Military grade HS fan | TC-4F | 24 | 3 | NEMA-4X, IP 56 |
| FHP-250XHC | 7-L0I4-3-000 | Military grade HS fan | TC-7F | 12 | 6 | NEMA-4X, IP 56 |
| FHP-250XHC | 7-L0I5-3-000 | Military grade HS fan | TC-7F | 24 | 3 | NEMA-4X, IP 56 |

* Heat/Cool function via reverse polarity capable external controller

# FHP-250

**MOUNTING STYLE**

Flush Mounted

**ENVIRONMENTS SERVED**

NEMA-12 IP 52

NEMA-4,4X IP 56

**RATING (TRADITIONAL)**

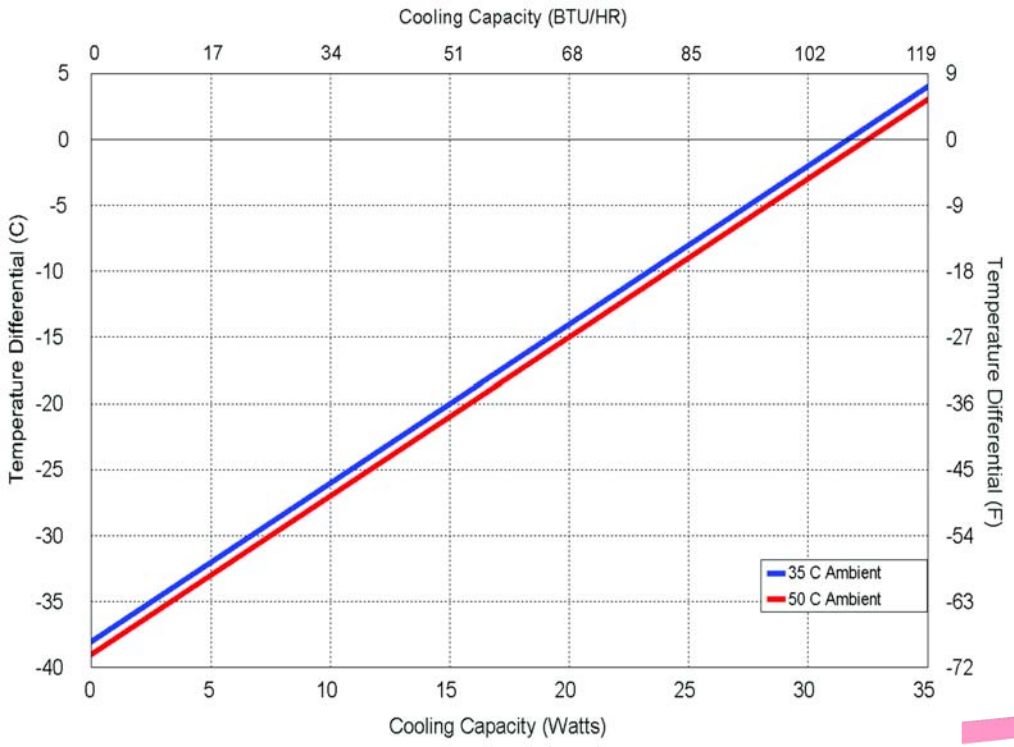
109 BTU/hr @ 0 °F ΔT

**RATING (DIN 3168)**

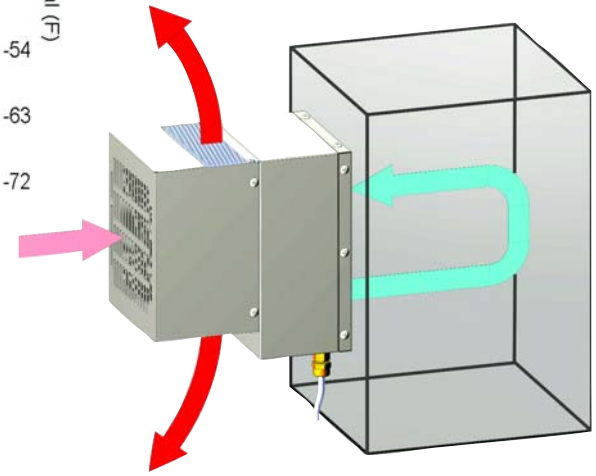
32 Watts L35 L35

20 Watts L35 L50

## PERFORMANCE CURVE

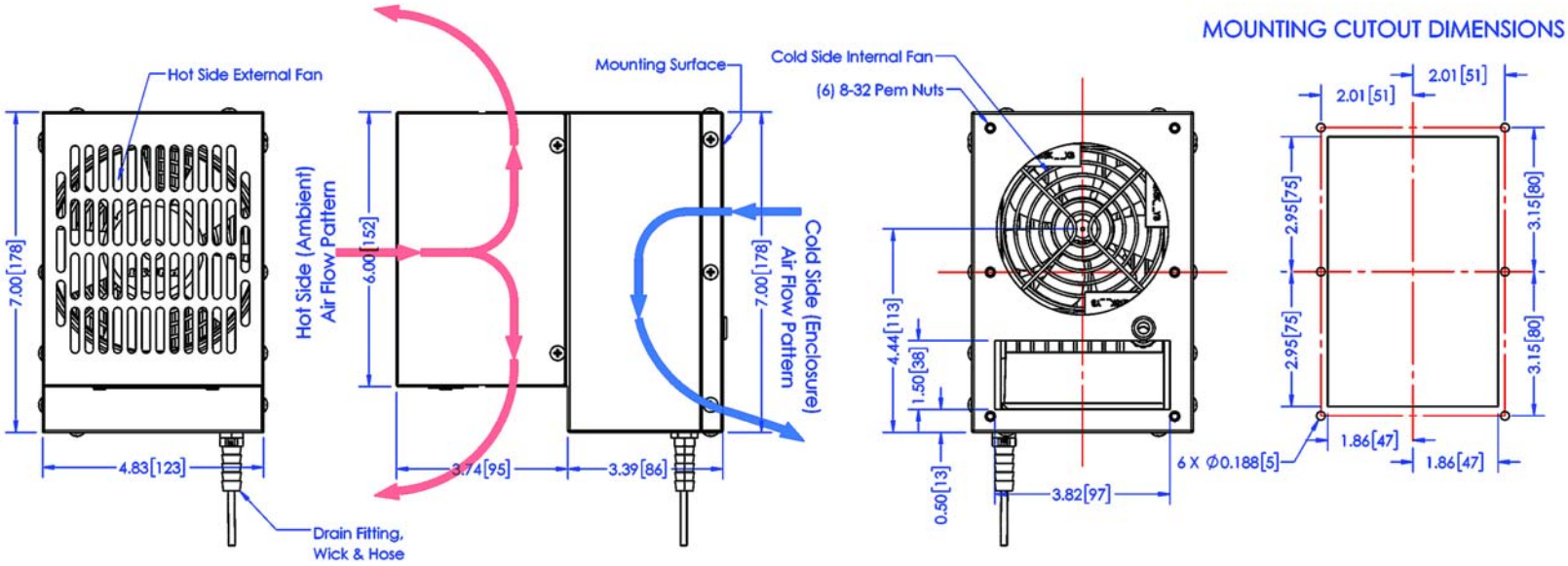



| Equation of Line: | y=ΔT(°C) | x=Capacity (Watts) |
|---|---|---|
| **Ambient Temp** | **35°C** | **50°C** |
| Enclosure Air | y=1.2x-38 | y=1.2x-39 |
| Cold Sink | y=1.02x-38 | y=1.02x-39 |



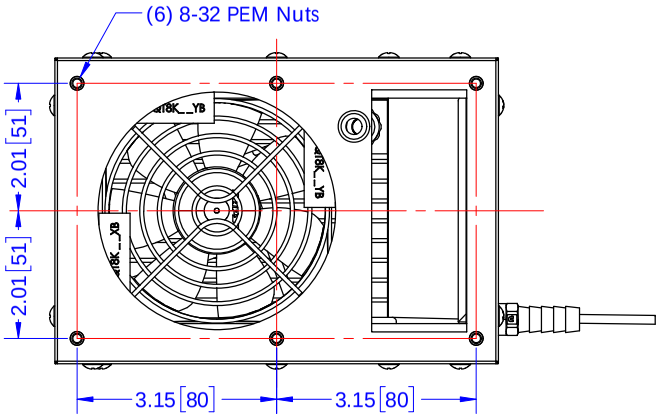
Air Flow Pattern

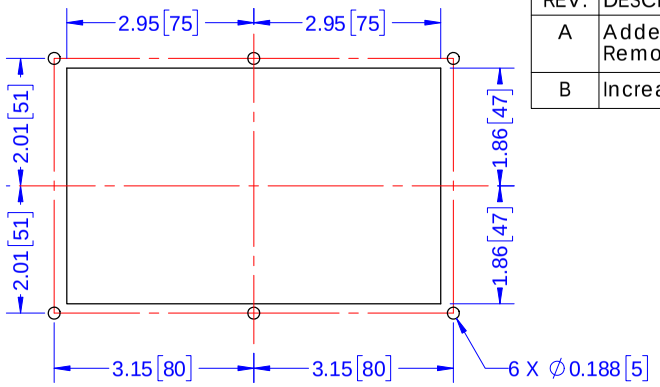
## DIMENSIONS



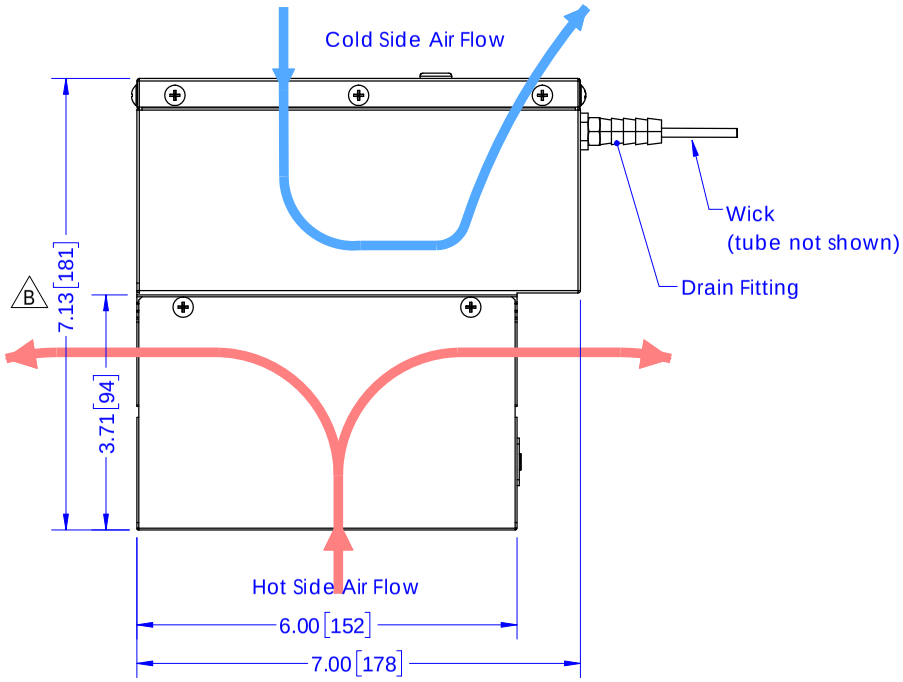

Dimensions: Inches [Millimeters]
Dimensions do not include hardware

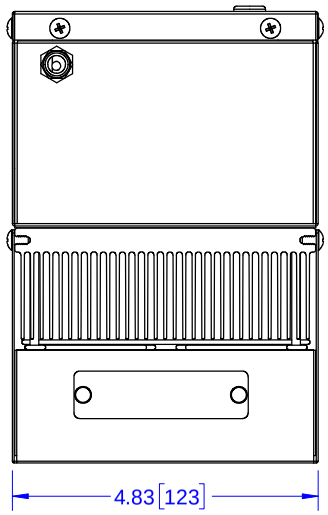
| REVISIONS | | | |
|---|---|---|---|
| REV. | DESCRIPTION | DATE | APPROVED |
| A | Added drain fitting & wick; Removed weep holes. | 3/16/18 | AA |
| B | Increased height (6.97 to 7.12) | 4/10/2018 | AA |

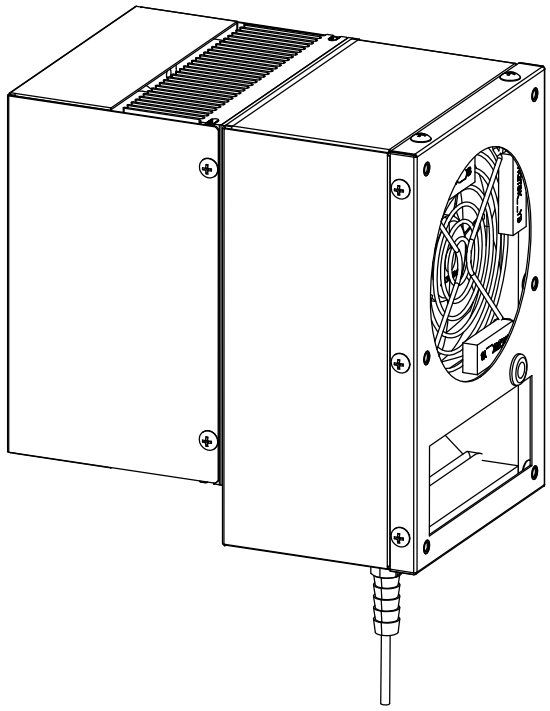


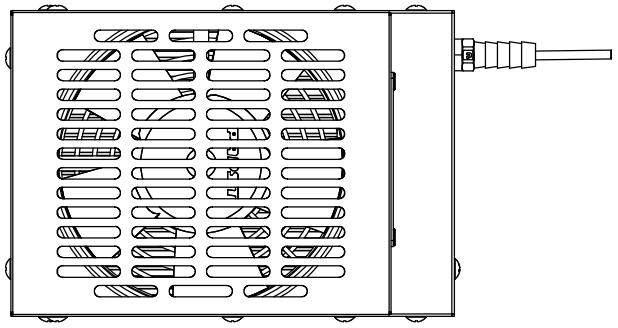




Recommended Cutout



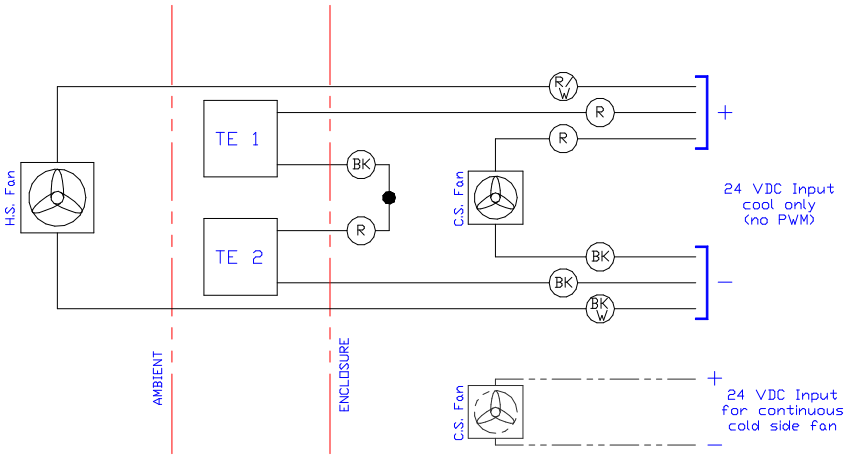


| | | | |
|---|---|---|---|
| UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| DIMENSIONS ARE IN INCHES<br>TOLERANCES:<br>FRACTIONAL ±<br>ANGULAR: MACH ± BEND ±<br>TWO PLACE DECIMAL ±<br>THREE PLACE DECIMAL ± | DRAWN | AA | 03/13/18 |
| | CHECKED | | |
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| FINISH | | | |
| DO NOT SCALE DRAWING | | | |

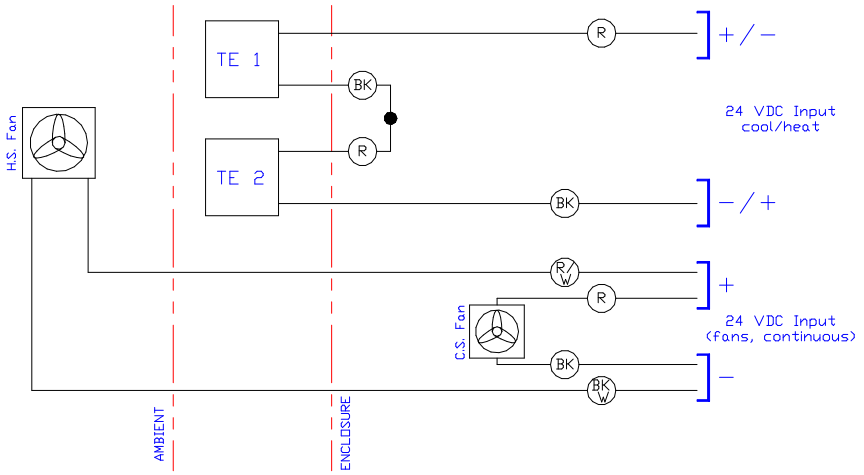
teca®
ThermoElectric Cooling America Corporation
Chicago, Illinois U.S.A.

# FHP-250/FHP-270 SERIES ASSEMBLY

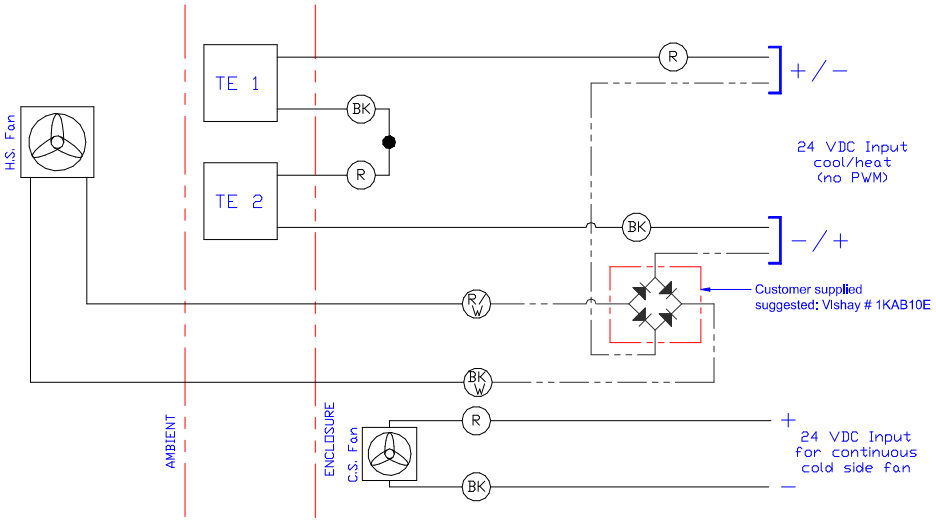
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|---|---|---|
| A | SK180310 | B |
| | S1377 | SHEET 1 OF 1 |



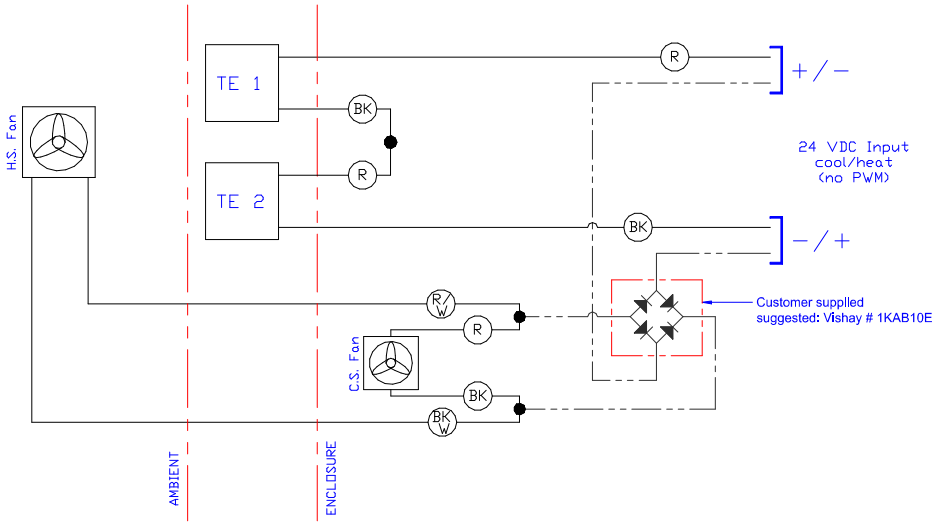

24 VDC, Cool only (no PWM)
fans cycle with TE




24 VDC, Heat/Cool via polarity reversal
all fans on continuous




24 VDC, Heat/Cool via polarity reversal (no PWM)
hot side fan reverse polarity protected
hot side fan cycles with TE
cold side fan continuous




24 VDC, Heat/Cool via polarity reversal (no PWM)
fans reverse polarity protected
all fans cycle with TE

| REV | DESCRIPTION | Date | APPROVED |
|---|---|---|---|
| | | | |

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TOLERANCES ARE:

| DECIMALS | ANGLE |
|---|---|
| .XX +/– | +/– |
| .XXX+/– | FRACTION +/– |

FINISH:

MATERIAL:

THERMOELECTRIC COOLING AMERICA CORP.

AHP-250/270 SERIES 24 VDC
TYPICAL WIRING

DRAWN BY: AA

DATE: 06/24/2014

D9258

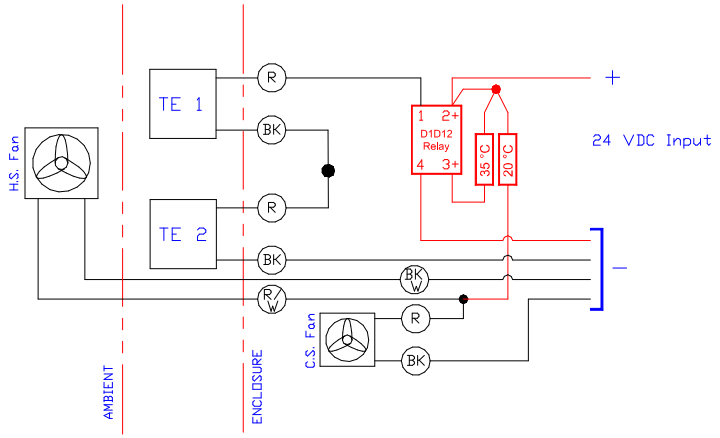
DRAWING # SK140643

REV LEVEL

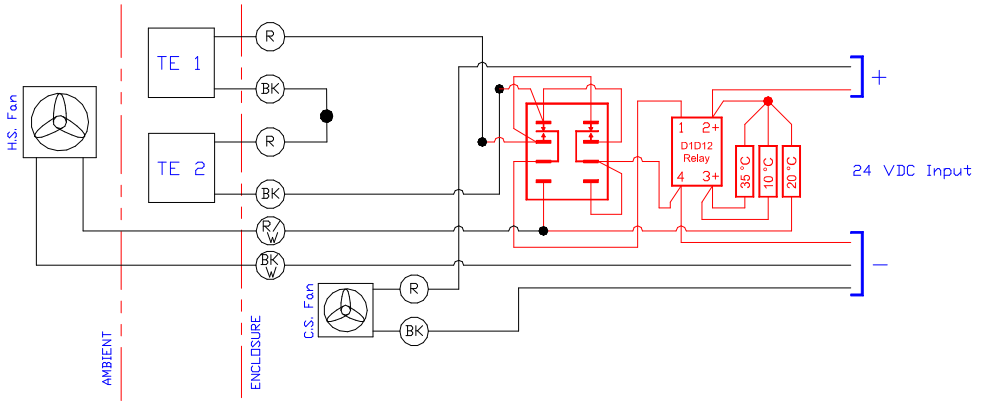
SCALE

MASTER: MASTER

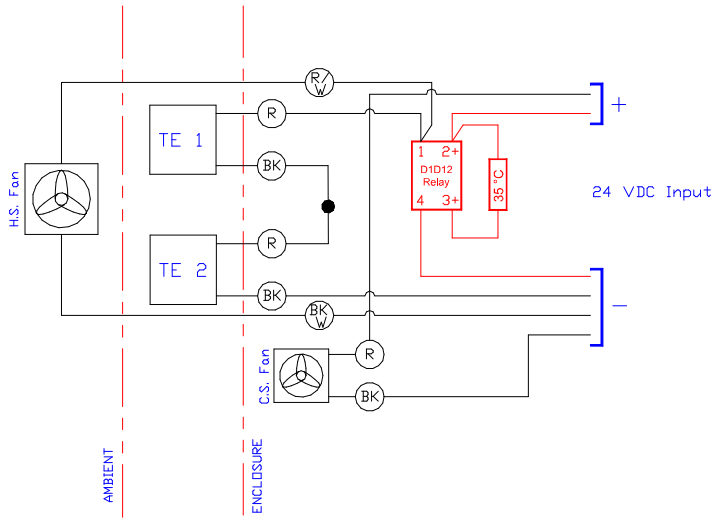
SHEET



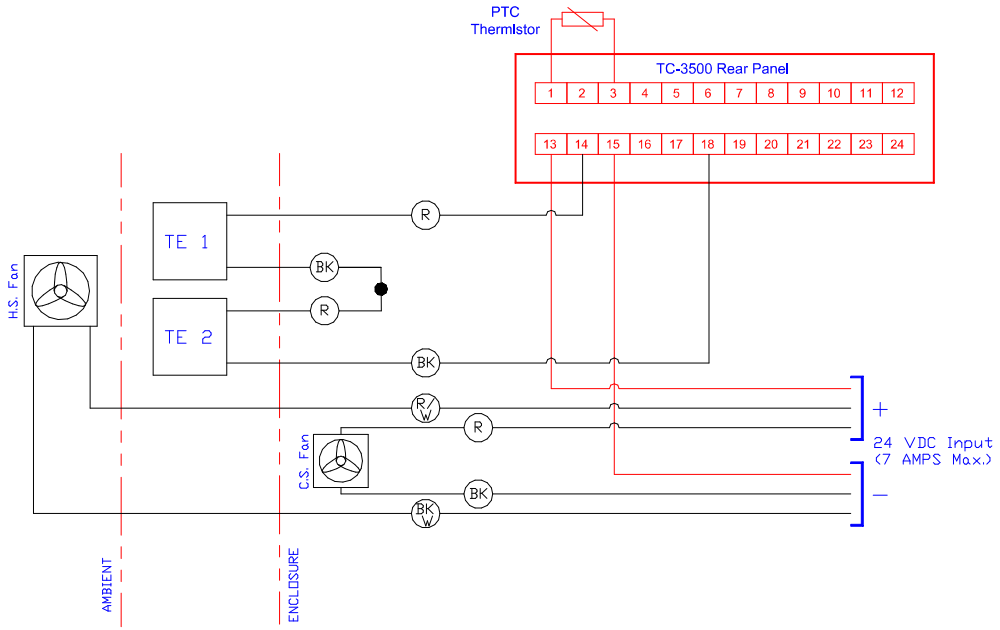

24 VDC, Cool only with TC-4F (shown in RED)




24 VDC, Heat/Cool with TC-7F (shown in RED)




24 VDC, Cool only with TC-1F (shown in RED)




24 VDC, Heat/Cool with TC-3500 (shown in RED)

| REV | DESCRIPTION | Date | APPROVED |
|---|---|---|---|
| | | | |

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TOLERANCES ARE:

| DECIMALS | ANGLE |
|---|---|
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| .XXX +/– | FRACTION +/– |

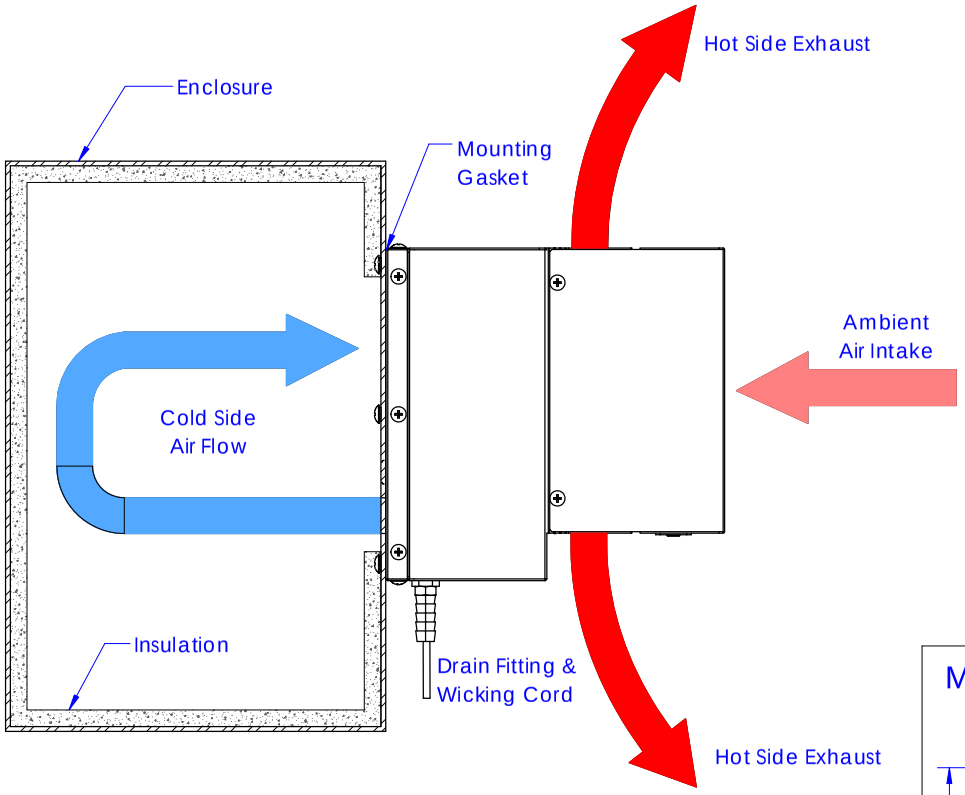
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MATERIAL:

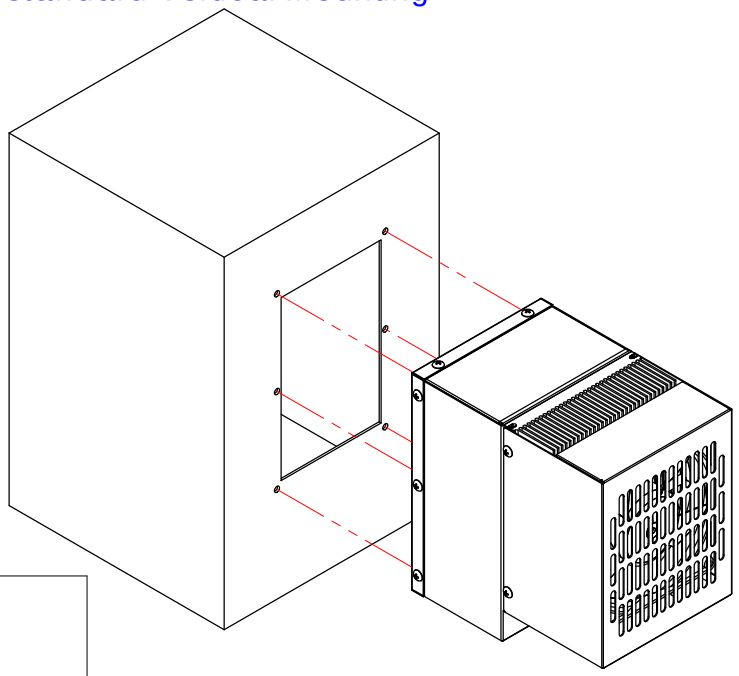
THERMOELECTRIC COOLING AMERICA CORP.

# AHP-250/270 SERIES 24 VDC TYPICAL WIRING WITH CONTROLLER OPTIONS

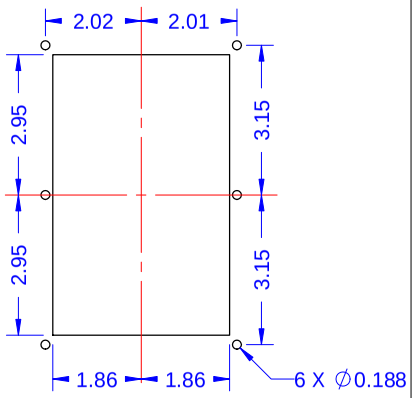
| | | | |
|---|---|---|---|
| DRAWN BY: AA | DRAWING # SK140644 | | REV LEVEL |
| DATE: 06/24/2014 | | | |
| D9259 | SCALE | MASTER: SK140643 | SHEET |



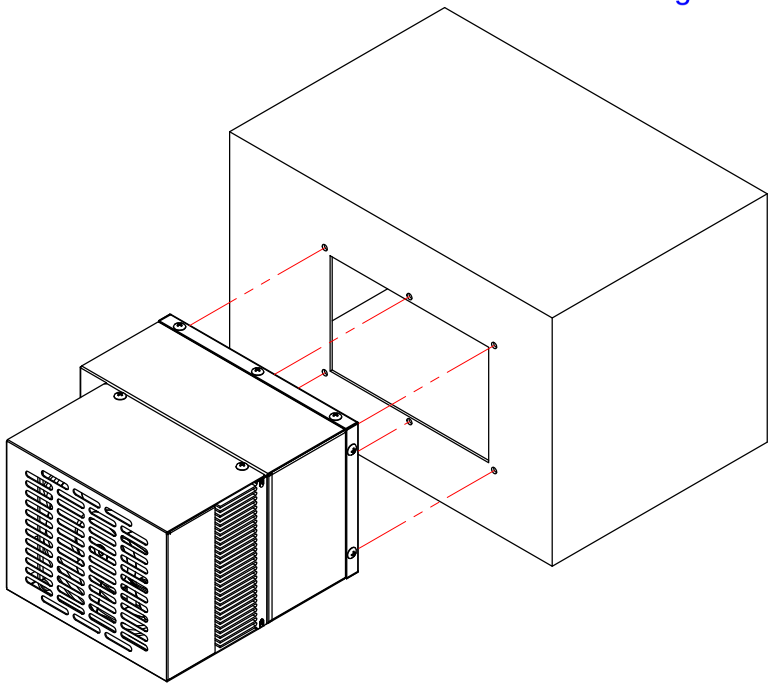

## Standard Vertical Mounting



## Mounting Cutout




## Alternate Horizontal Mounting



| | | | |
|---|---|---|---|
| UNLESS OTHERWISE SPECIFIED: | | NAME | DATE |
| DIMENSIONS ARE IN INCHES<br>TOLERANCES:<br>FRACTIONAL ±<br>ANGULAR: MACH ± BEND ±<br>TWO PLACE DECIMAL ±<br>THREE PLACE DECIMAL ± | DRAWN | AA | 07/05/18 |
| | CHECKED | | |
| INTERPRET GEOMETRIC TOLERANCING PER: | **PROPRIETARY AND CONFIDENTIAL**<br>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF TECA CORPORATION.<br>ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF TECA CORPORATION IS PROHIBITED. | | |
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teca®
ThermoElectric Cooling America Corporation
Chicago, Illinois U.S.A.

FHP-250/270 SERIES
TYPICAL MOUNTING

| SIZE | DWG. NO. | REV |
|---|---|---|
| A | SK180615 | |
| | S1453 | SHEET 1 OF 1 |

# 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.