

Snow Melt Series

50K BTU - 350K BTU Installation Guide

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Safety Procautions



Only suitably qualified individuals with formal training in electrical controls and hydronic systems should attempt the installation of this panel. Incorrect installation will affect the warranty provided with this panel.

During installation and operation, avoid injury from touching the hot surface of the pipe.

Please follow all warning signs on the panel for your own safety while dealing with the installation and service of this panel.

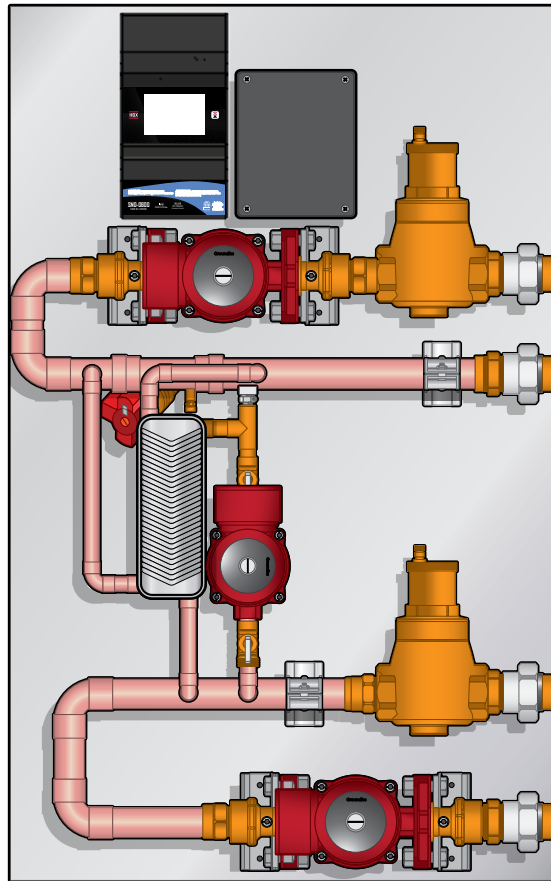
This User Guide is Applicable to:

Tamas Snow Melt Panels

- T-SM-XXX*-50HX** 50,000 BTU Snow Melt Panel with Snow Melt Control
- T-SM-XXX*-100HX** 100, 000 BTU Snow Melt Panel with Snow Melt Control
- T-SM-XXX*-150HX** 150,000 BTU Snow Melt Panel with Snow Melt Control
- T-SM-XXX*-200HX** 200,000 BTU Snow Melt Panel with Snow Melt Control
- T-SM-XXX*-250HX** 250,000 BTU Snow Melt Panel with Snow Melt Control
- T-SM-XXX*-300HX** 300,000 BTU Snow Melt Panel with Snow Melt Control
- T-SM-XXX*-350HX** 350,000 BTU Snow Melt Panel with Snow Melt Control

Note:
 * The model number on your Tamas Snow Melt Panel will denote the Snow Melt Controller used. For example, **T-SM-HBX-400HX** for the HBX SNO-0600. Refer to the provided Snow Melt Controller manual for information and wiring guides for your specific configuration.

The following parts lists and application drawings are general samplings. Each panel configuration dictates the required components, including pump type. See the Technical Data section of the manual for specific information on each part in your particular variation of the Tamas Snow Melt Panel.



T-SM-HBX-150HX Model Shown

Description

The Tamas Snow Melt Panel provides mixing and distribution for outdoor snow and ice melting applications.

The adopted configuration is an innovative variant with the use of the injection pump, and an automatic balancing of the primary flow particularly practical and reliable.

The snowmelt system pump is piped independently from the boiler loop so that the only head loss that needs to be calculated in the system is the piping from the panel to the manifold, and the loops in the slab. This feature allows for higher flow rates and head losses if needed, which in turn expands the range of pumping ability for the system pump.

The control on the panel measures slab temperature, return temperature, as well as boiler loop temperature to ensure the return water going back to the boiler does not shock the boiler heat exchanger.

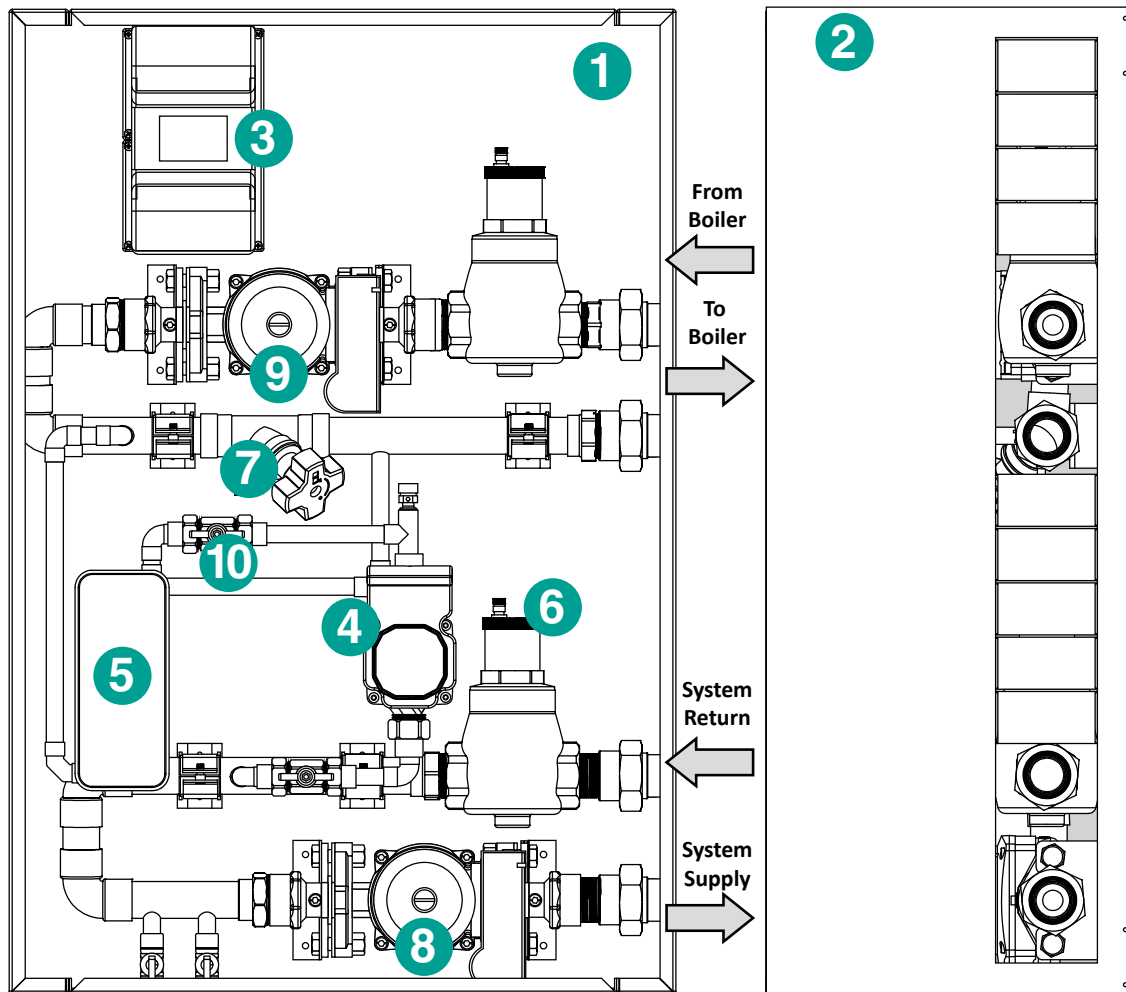
Main Features

- Stainless steel back plate and lockable Powder Coated steel cover
- Brazed heat exchanger
- 3/4" connections.
- Dynamic balancing valve
- ETL approved

Technical Data

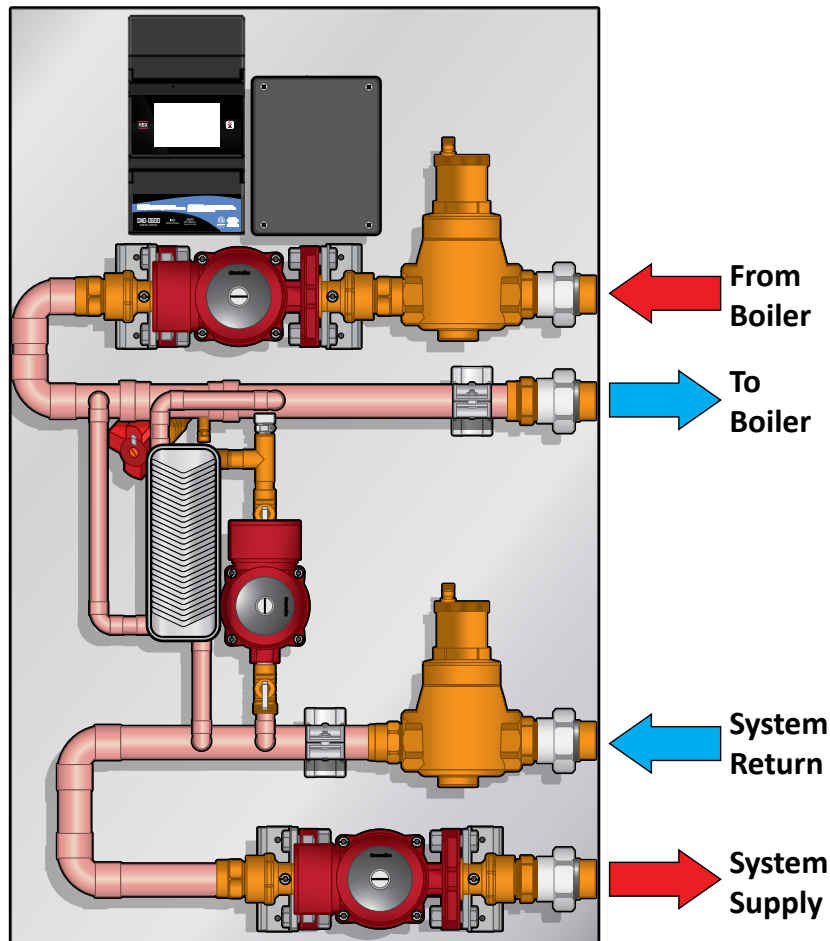
- Max. Operating Temperature: 93°C/200°F
- Max. Ambient Temperature: 49°C/120°F
- Max. Operating Pressure: 10 Bar/145 PSI

Panel Components



Part List

1	<i>Galvanized Steel Back Plate</i>	6	<i>1" Air Eliminator</i>
2	<i>Lockable Powder Coated Steel Cover (Optional)</i>	7	<i>1" Balancing Valve</i>
3	<i>HBX SNO-0600 Snow Melt Control</i>	8	<i>System Pump</i>
4	<i>Injection Pump</i>	9	<i>Boiler Pump</i>
5	<i>Brazed Plate Heat Exchanger</i>	10	<i>Tamas Ball Valves</i>



Operation of the Primary

The primary circuit is composed of a dynamic balancing valve, an automatic air separator and a boiler pump. The water coming from the boiler pass through the air separator who continuously removes the air contained in the water. The circulation of fully de-aerated water enables the panel to operate under optimum conditions, free from noise, corrosion, localized or mechanical damage. The water is pumped into the primary circuit, through the boiler pump and at the same time the balancing valve creates a consistent output pressure to the system.

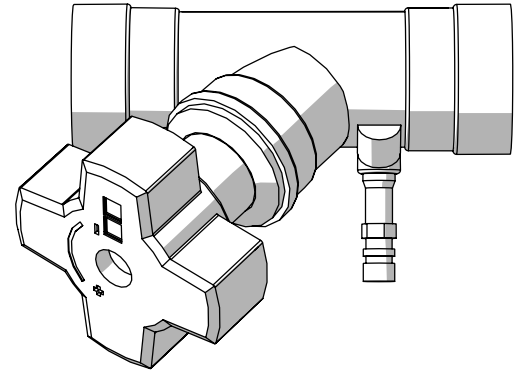
The mixing part of the panel has a brazed heat exchanger and a mixing pump. The heat exchanger allows heat from the primary circuit (water) to pass to the secondary circuit (glycol) without the two fluids having to mix together. The mixing pump injects a mix of warm water (glycol) from the return of the secondary circuit with hot water (glycol) from the heat exchanger.

The secondary circuit is composed of a system pump and air separator. The system pump will recirculate the glycol through the pipes embedded in the slab and the air separator will continuously remove the water from the circuit.

Balancing Valve

Technical Data

Max Static Working Pressure	290 psi (20 Bar)
Temperature Range	-4°F to 250°F (-20°C to 120°C)
Connection	Female NPT and Female Solder
Pressure Tappings	P/T Plugs
Allowable Fluid	100% water, max 50% glycol mixture



Setting Flow Coefficient Values (Cv value=GPM@1psi ΔP)

Size	Number of Turns										Values Cv
	1	2	3	4	5	6	7	8	9	10	
1"	0.56	0.89	1.19	1.74	2.67	4.18	5.80	7.54	9.16	10.20	
2"	2.32	4.18	6.03	8.82	13.80	19.4	24.60	29.00	33.20	36.50	

Based upon the flow or differential pressures required within the system, the flow can be determined by using the equation:

$$Q = Cv \cdot \sqrt{\Delta p}$$

Q = Flow

Cv = Flow coefficient

Δp = Differential pressure

For correction of fluids other than water, the following equation applies provided the viscosity of the fluid is the same for water, which is the case for most glycol and brine solutions:

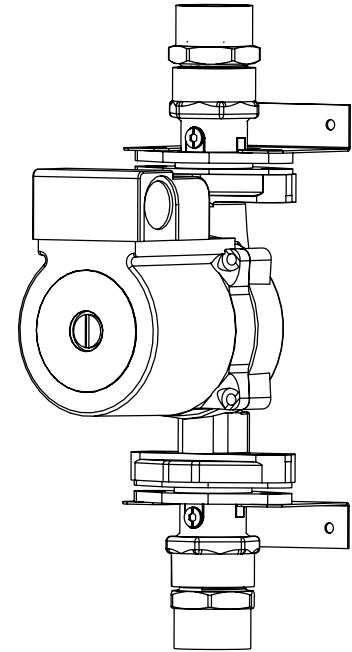
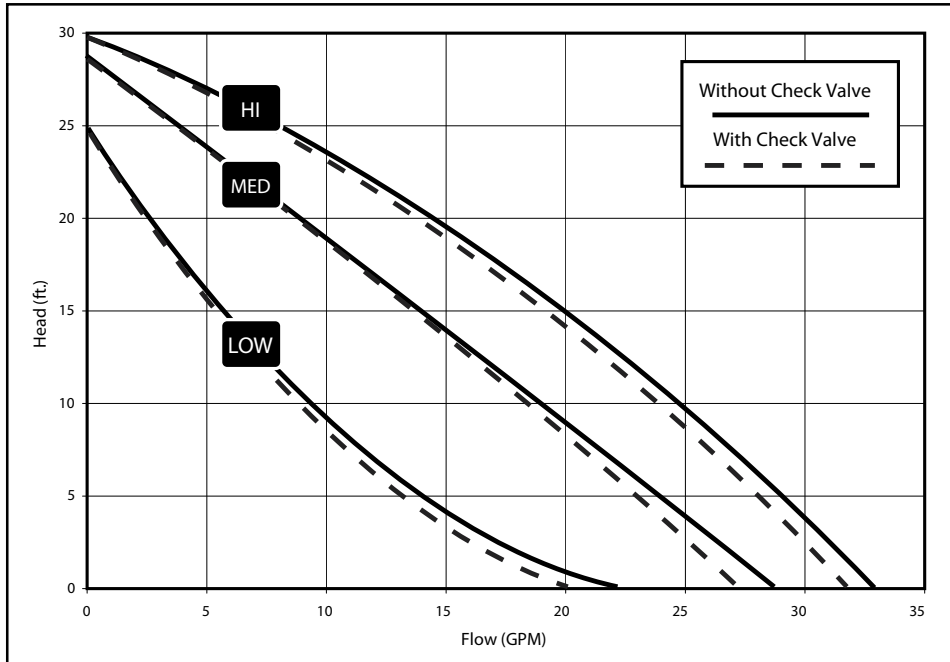
$$Q_R = \frac{Q_M}{\sqrt{\delta}}$$

Q_R = Real flow

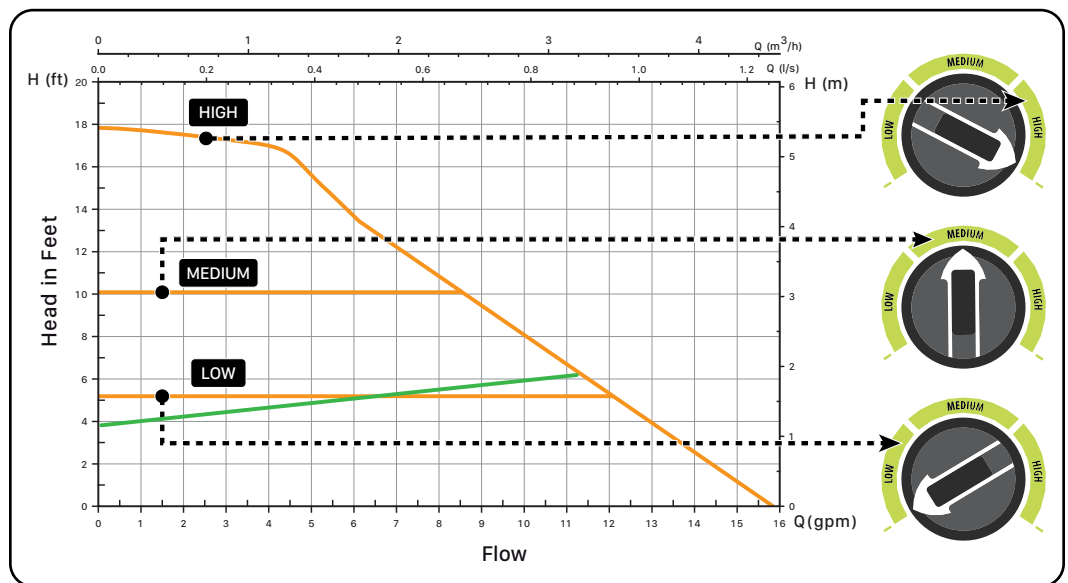
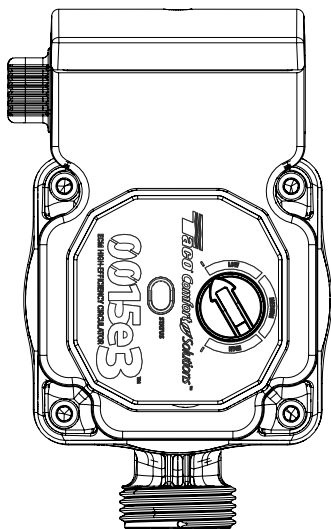
Q_M = Measured flow

δ = Specific density of fluid

UPS 26-99FC/BFC Superbrute



Pump Circulator Taco 0015e3 (3 Speed Pump)



Flow Range:

Head Range (ft):

Max. Water Temp.:

Min. Water Temp.:

0-16 GPM

0-18'

230°F (110°C)

36°F (2°C)

Voltage:

Max. Operating Power:

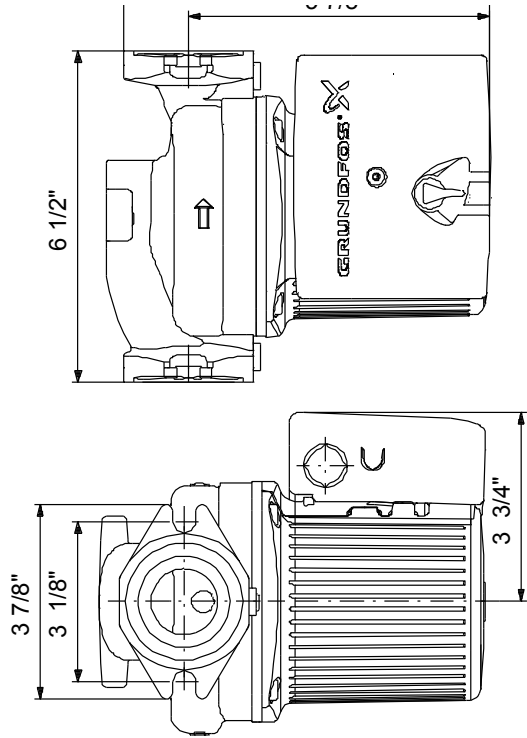
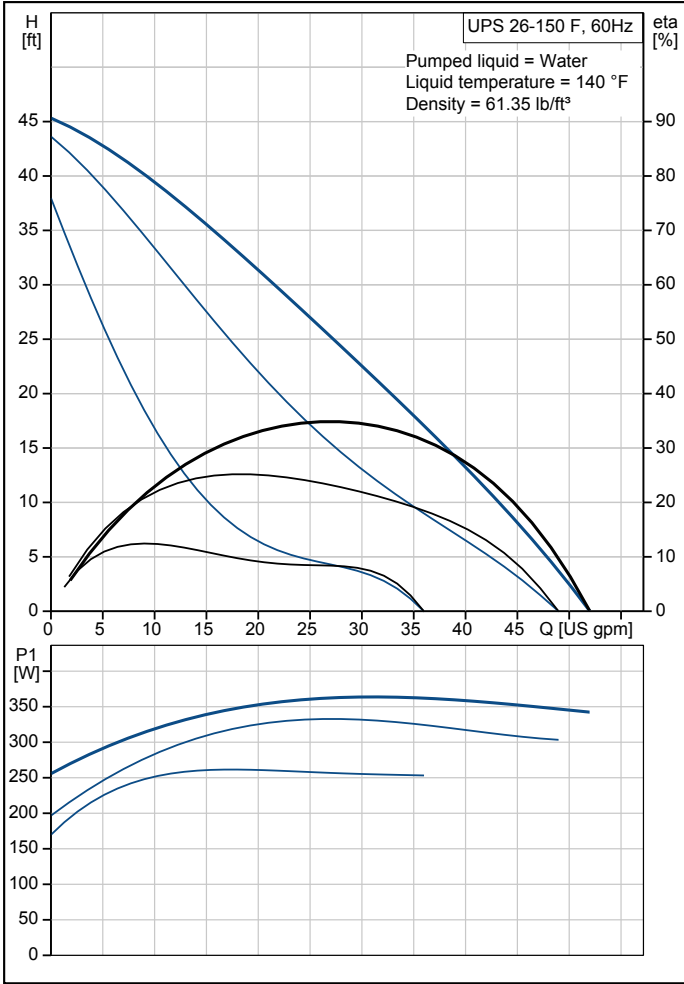
Max. AMP Rating:

120V, 60 Hz Single phase

44W

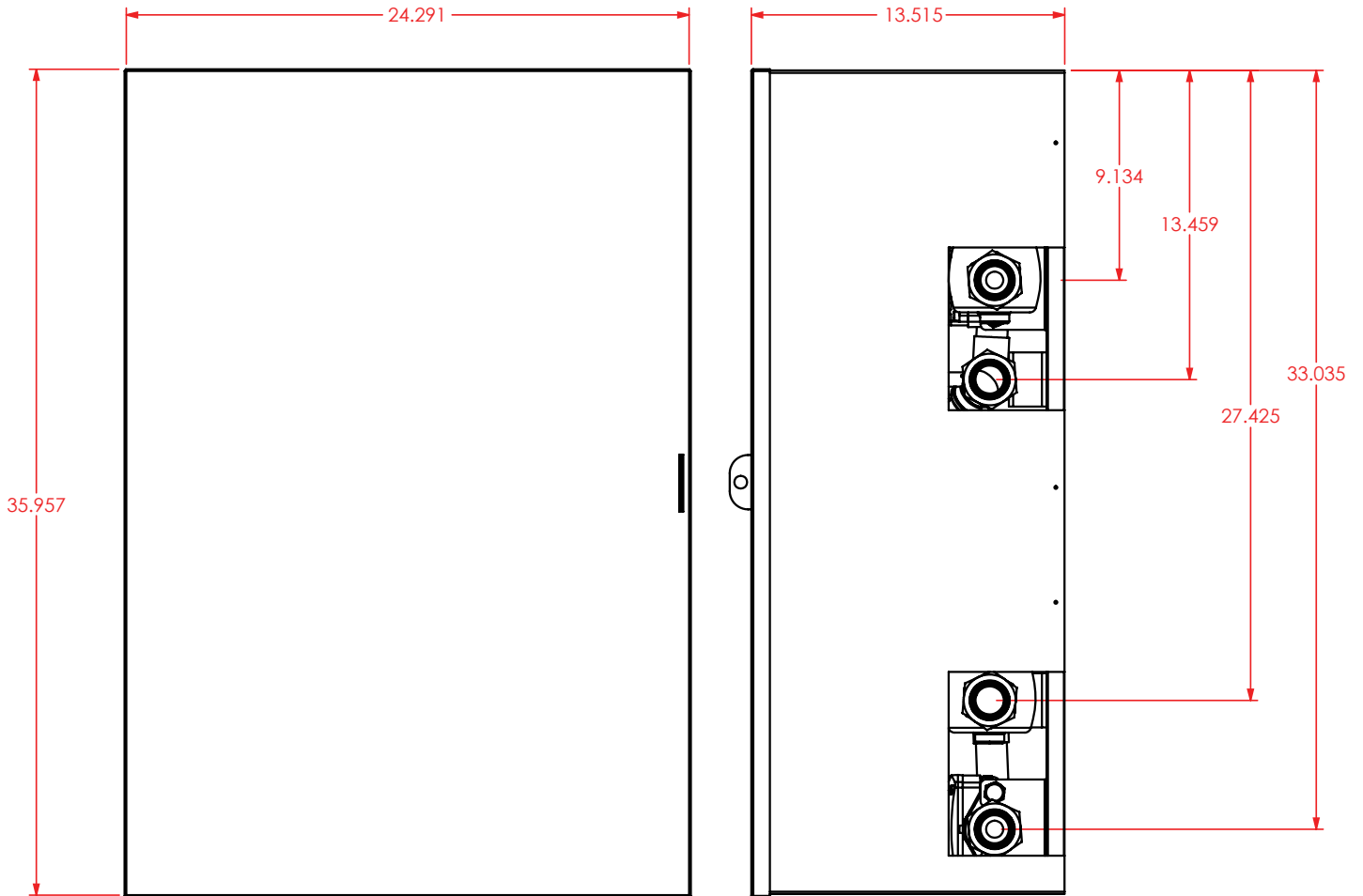
0.54

UPS 26-150 Pump Specifications



Description	Value
Technical:	
Speed Number:	3
Max flow:	52 US gpm
Head max:	45.3 ft
Approvals on nameplate:	ETL, CSA

Panel Dimensions



NOTE: Dimensions are in inches. Includes Optional Lockable Enclosure.

Limited Warranty

Tamas Hydronic Systems Inc. warrants each of its products to be free from defects in workmanship and materials under normal use and service for a period of 24 months from date of purchase from a Tamas Hydronic Systems inc. authorized Dealer.

If the product proves to be defective within the applicable warranty period, Tamas Hydronic Systems inc. on its sole discretion will repair or replace said product. Replacement product may be new or refurbished of equivalent or better specifications, relative to the defective product. Replacement product need not be of identical design or model. Any repair or replacement product pursuant to this warranty shall be warranted for not less than 90 days from date of such repair, irrespective of any earlier expiration of original warranty period. When Tamas Hydronic Systems Inc. Provides replacement, the defective product becomes the property of Tamas Hydronic Systems Inc.

Warranty Service, within the applicable warranty period, may be obtained by contacting your nearest Tamas Hydronics Systems inc. office via the original Authorized Agent and requesting a Return Material Authorization Number (RMA #). Proof of purchase in the form a dated invoice/receipt must be provided to expedite the issuance of a Factory RMA.

After an RMA number has been issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit. The RMA number must be visible on the outside of the package and a copy included inside the package. The package must be mailed or otherwise shipped back to Tamas Hydronic Systems Inc. with all costs of mailing/shipping/insurance prepaid by the warranty claimant.

Any package/s returned to Tamas Hydronic Systems Inc. without an approved and visible RMA number will be rejected and shipped back to purchaser at purchaser's expense. Tamas Hydronic Systems Inc. Reserves the right, if deemed necessary, to charge a reasonable levy for costs incurred, additional to mailing or shipping costs.

Limitation of Warranties.

If the Tamas Hydronic Systems Inc. product does not operate as warranted above the purchasers sole remedy shall be, at Tamas Hydronic Systems Inc.' s option, repair or replacement. The foregoing warranties and remedies are exclusive and in lieu of all other warranties, expressed or implied, either in fact or by operation of law, statutory or otherwise, including warranties of merchantability and fitness for a particular purpose/application. Tamas Hydronic Systems Inc. neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale, installation maintenance or use of Tamas Hydronic Systems Inc. products.

Tamas Hydronic Systems Inc. shall not be liable under this warranty; if its testing and examination discloses that the alleged defect in the product does not exist or was caused by the purchasers or third persons misuse, neglect, improper installation or testing, unauthorized attempts to repair or any other cause beyond the range of intended use, or by accident, fire, lightning or other hazard.

Limitation of Liability.

In no event will Tamas Hydronic Systems Inc. be liable for any damages, including loss of data, loss of profits, costs of cover or other incidental, consequential or indirect damages arising out of the installation, maintenance, commissioning, performance, failure or interruption of a Tamas Hydronic Systems Inc. product, however caused and on any theory of liability. This limitation will apply even if Tamas Hydronic Systems Inc. has been advised of the possibility of such damage.

Local Law.

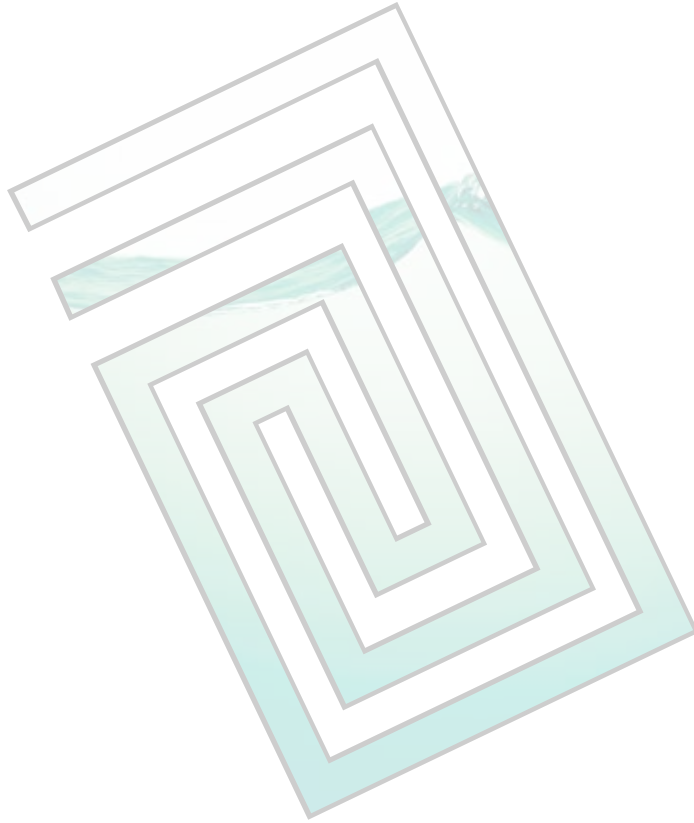
This limited warranty statement gives the purchaser specific legal rights. The purchaser may also have other rights which vary from state to state in the United States, from Province to Province in Canada and from Country to Country elsewhere in the world.

To the extent this Limited Warranty Statement is inconsistent with local law, this statement shall be deemed modified to be consistent with such local law. Under such local law, certain disclaimers and limitations of this statement may not apply to the purchaser. For example, some states in the United States, as well as some governments outside the United States (including Canadian Provinces), may:

Preclude the disclaimers and limitations in this statement from limiting the statutory rights of a consumer (e.g. United Kingdom);

Otherwise restrict the ability of a manufacturer to enforce such disclaimers or limitations; or

Grant the purchaser additional warranty rights which the manufacturer cannot disclaim, or not allow limitations on the duration of implied warranties.



Custom, Reliable Hydronic Systems

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