BUFFMAX

Buffer Tank
Storage Tank
Hydraulic Separator

USE AND CARE MANUAL

Including installation instructions for the contractor

Your BUFFMAX tank has been carefully assembled and factory tested to provide years of trouble-free service. In order to insure the service intended, the following information is provided to enable proper installation, operation, safety precautions and maintenance of this product.

It is imperative that all persons who are expected to install, operate or adjust this tank read the instructions carefully so that they may understand how to do so.

Any questions regarding the operation, maintenance, service or warranty of this tank should be directed to the entity from whom it was purchased.

When all installation steps have been completed, replace this installation manual in its original envelope, and keep in a safe place for future reference.

THERMO 2000 INC.
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General Safety Precautions

Be sure to read and understand the entire Use & Care Manual before attempting to install or operate this tank. Pay particular attention to the following General Safety Precautions. Failure to follow these warnings could cause property damage, bodily injury or death. Should you have any problems understanding the instructions in this manual, STOP, and get help from a qualified installer or technician.

Section 1: INTRODUCTION

WARNING

The important safeguards and instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. It should be understood that common sense, caution and care are factors, which cannot be built into every product. These factors must be supplied by the person(s) caring for and operating the unit.

1.1 LOCAL INSTALLATION REGULATIONS

This BUFFMAX tank must be installed in accordance with these instructions and in conformity with local codes, or in the absence of local codes, with the National Plumbing Code and the National Electric Code, current edition. In any case where instructions in this manual differ from local or national codes, the local or national codes take precedence.

1.2 CORROSIVE ENVIRONMENT

The tank must not be installed near an air duct supplying corrosive atmosphere or with high humidity content. When a tank defect is caused by such conditions, the warranty will not apply.

1.3 INSPECTION UPON RECEPTION

Inspect the tank for possible shipping damage. The manufacturer's responsibility ceases upon delivery of goods to the carrier in good condition. Consignee must file any claims for damage, shortage in shipments, or nondelivery immediately against carrier.

1.4 TO BE CHECKED

Please check the identification tag on the unit to make sure you have the right model.

WARNING

The BUFFMAX tank is only designed to contain boiler water (heat transfer liquid) in a closed circuit. In any case, the tank must not be connected to an atmospheric system or domestic hot water supply.

Section 2: TECHNICAL SPECIFICATIONS

2.1 STANDARD EQUIPMENT

The following standard equipment is installed and supplied with the tank:

- 4 standard size connections
- Butterfly ball valve ½" FNPT
- Automatic air vent ½" MNPT
- 2 ½" diameter temperature and pressure indicator.
- Immerson well
- 3 x ½" connections to localize well or adding one
- Polyurethane insulation limitating the heat loss to ½ °F per hour
- ¾" Drain valve
- Adjustment legs
- Lifting lugs (ASME 120, 175 et 200 gallons models only)

2.2 OPTIONAL EQUIPMENT

The following items are optional on the tank; Please see the engineering specifications for more details about the product.

- 2 extra tappings
- Custom tapping diameters
- Class 150 Flange tappings
- Elastomer insulation for chilled water application avoiding condensation risk.
- ½" steel nipple for ASME option

2.3 BUFFER TANK

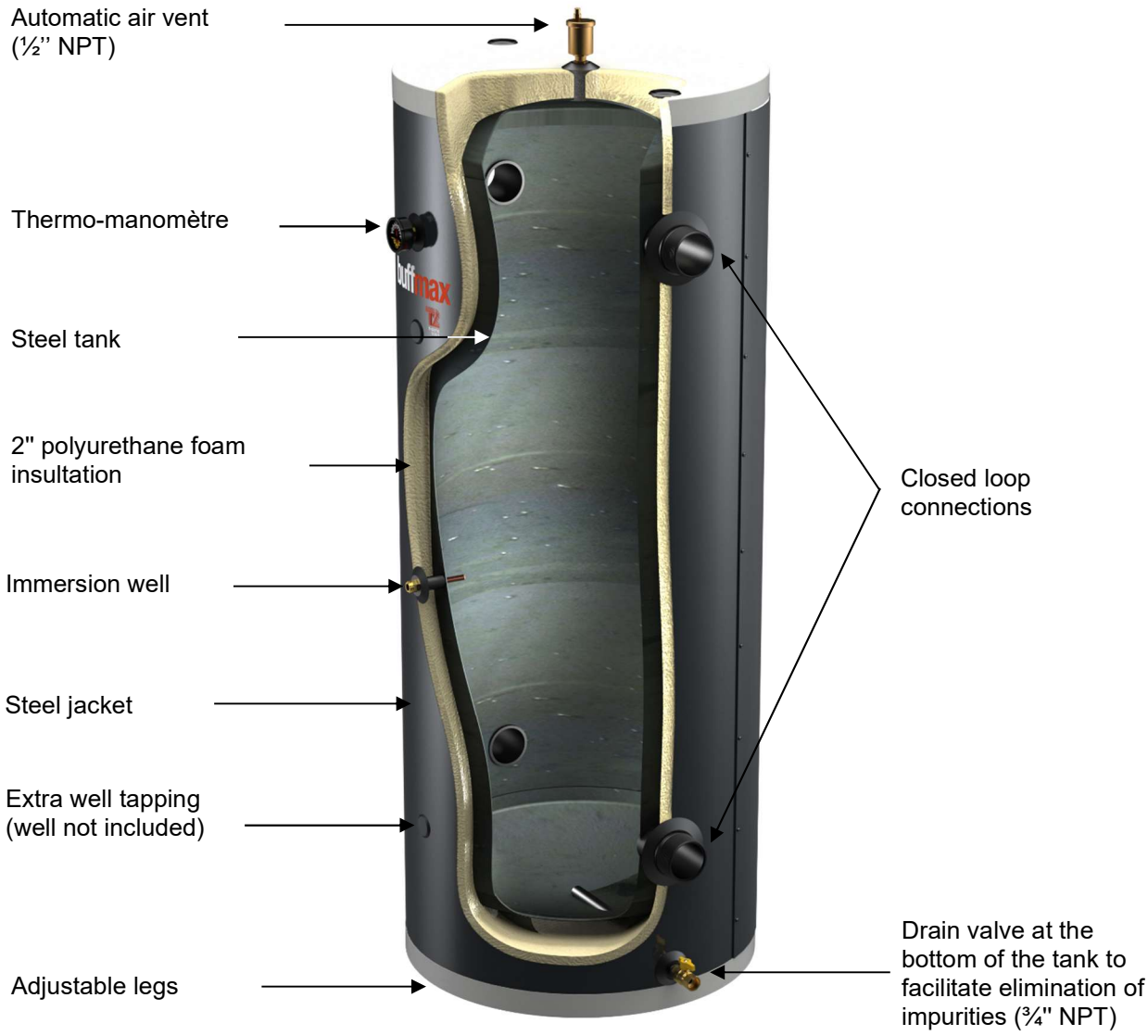
The BUFFMAX optimizes runtimes and limits on/off cycling of the energy source. When the minimum system load is lower than the energy source's minimum capacity, the system will generate short cycles. This causes premature wear of the equipment and substantially decreases the system's energy efficiency.

2.4 STORAGE TANK

Any hydronic heating system with the BUFFMAX stores energy like a battery. When a demand is made for limited heating (for example, when there is little difference between indoor and outdoor temperatures) or when it is used with a low-capacity energy source, the energy required will first come from the tank's thermal storage.

2.5 HYDRAULIC SEPARATOR

Adding a BUFFMAX tank to a hydronic heating system helps to evacuate air, eliminates impurities, and ensures the optimal functioning of the pumps—not only for the energy source but also for the distribution system.



2.6 DIMENSIONS AND STANDARD CONNECTIONS*

Models	Tank Volume	Standard Connections	Total Height	Diameter	Weight
BUFFMAX 20	20 gal. US	1 ¼" NPTM	54"	16"	100 lbs
BUFFMAX 30	30 gal. US	1 ½" NPTM	62 1/2"	18"	125 lbs
BUFFMAX 50	50 gal. US	2" NPTM	63 1/2"	22"	160 lbs
BUFFMAX 80	80 gal. US	2 ½" NPTM	75 1/2"	24"	245 lbs
BUFFMAX 120	119 gal. US	3" NPTM	79"	28"	330 lbs
BUFFMAX 120A	120 gal. US	3" NPTM	78 1/4"	28"	335 lbs
BUFFMAX 175A	175 gal. US	3" NPTM	87"	32"	595 lbs
BUFFMAX 200A	200 gal. US	3" NPTM	94"	32"	650 lbs

*Please see the engineering specifications for details about all available options.

Section 3: INSTALLATION

WARNING

The manufacturer's warranty does not cover any damage or defect caused by installation, or attachment, or use of any special attachment other than those authorized by the manufacturer into, onto, or in conjunction with the water heater. The use of such unauthorized devices may shorten the life of the unit and may endanger life and property. The manufacturer disclaims any responsibility for such loss or injury resulting from the use of such unauthorized devices.

3.1 SAFETY MEASURES

Here is a table for maximum operating temperature and pressure for each BUFFMAX unit

	Maximum Temperature	Maximum Pressure
BUFFMAX 20	121°C (250°F)	150 psi
BUFFMAX 30		
BUFFMAX 50		
BUFFMAX 80		
BUFFMAX 120		
BUFFMAX 120A		125 psi
BUFFMAX 175A		
BUFFMAX 200A		

3.2 LOCATION

The BUFFMAX tank should be installed in a clean, dry location. Long hot water lines should be insulated to conserve water and energy. The tank and water lines should be protected from exposure to freezing temperatures.

The tank must be installed vertically and properly leveled using the adjustment legs.

The tank must be located or protected so as not to be subject to physical damage, for example, by moving vehicles, area flooding, etc.

All models can be installed directly on a combustible wall and into an alcove. The location must have sufficient ventilation to maintain an ambient temperature not exceeding 90°F (32°C).

3.3 CLEARANCES

Minimum clearances required for inspection and servicing are the followings: (Supplementary clearances may be required for piping installation)

	Combustible	Maintenance
Left side	0"	3"
Right side	0"	3"
Top	0"	3"
Front	0"	6"
Back	0"	0"

3.4 INSTALLATION INSTRUCTIONS

1. Make sure the boiler is isolated from any water input and output before starting to work on the system.

2. Before connecting the BUFFMAX to the heating system, make sure the tank is leveled. If necessary, adjust the legs below the unit.

3. Connect the piping using the installation drawings on the next pages.

4. When all the piping is connected, open the water input and output valves of the tank. Make sure to fill the tank completely.

   To facilitate filling, partially unscrew the valve on the top of the automatic air vent on the top of the tank. When the tank is filled, tighten the valve and the automatic air vent will purge all remaining air from the system.

5. Put the system back in operation. When everything is operating, inspect all system components to detect any leaking or problem that could cause any eventual damage or complications.

Figure 1: BUFFMAX Typical Installation

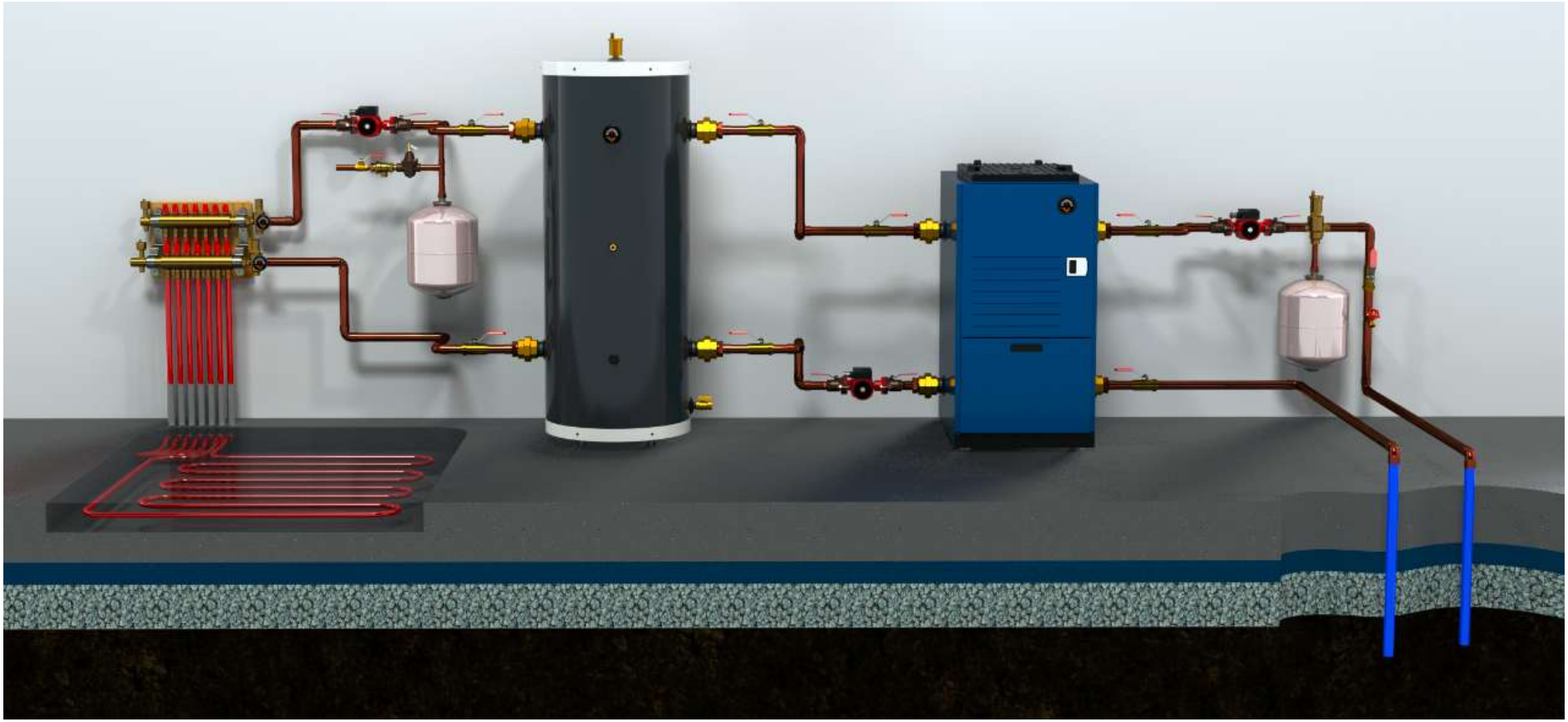


Figure 2: BUFFMAX Installation with geothermal system

BUFFMAX LIMITED WARRANTY

Warranty Coverage for Residential Installation.

Thermo 2000 Inc. hereby warrants to the original residential purchaser that the BUFFMAX installed in a residential setting shall be free of leaks during normal use and service for a period of five (5) years for heating applications only. For chilled water applications, Thermo 2000 inc. hereby warrants to the original purchaser that the BUFFMAX in a residential setting and with option HC or CW shall be free of leaks during normal use and service for a period of five (5) years. The warranty is effective from the date of purchase as long as the original residential purchaser owns the home in which the unit was originally installed. Residential setting shall mean usage in a single-family dwelling in which the consumer resides on a permanent basis. Also, residential setting shall mean use in multiple family dwellings in which one (1) Reserve is to be use in only one (1) dwelling. In the event that a leak should develop and occur within this limited warranty period due to defective material or workmanship, such leak having been verified by an authorized company representative, Thermo 2000 inc. will repair or replace at our sole option the failed unit with the nearest comparable model at the time of replacement.

The original residential purchaser is responsible for all costs associated with the removal and reinstallation, shipping and handling to and from manufacturing plant. The replacement unit will be warranted for the remaining portion of time of the original Warranty.

Warranty Coverage for Commercial Installation.

Thermo 2000 Inc. hereby warrants to the original purchaser that the BUFFMAX installed in a commercial setting shall be free of leaks during normal use and service for a period of five (5) years for heating applications only. For chilled water applications, Thermo 2000 inc. hereby warrants to the original purchaser that the BUFFMAX installed in a commercial setting and with option HC or CW shall be free of leaks during normal use and service for a period of five (5) years. Commercial setting shall mean use in other than residential setting stated above in the residential setting definition. In the event that a leak should develop and occur within this limited warranty period due to defective material or workmanship, such leak having been verified by an authorized company representative, Thermo 2000 inc. will repair or replace at our sole option the failed unit with the nearest comparable model at the time of replacement.

The original purchaser is responsible for all costs associated with the removal and reinstallation, shipping and handling to and from Manufacturer. The replacement unit will be warranted for the remaining portion of time of the original Warranty.

Limited two years warranty on all RESERVE components & parts

All other BUFFMAX components & parts are warranted for a period of two (2) years against defects due to defective material or workmanship. The original purchaser is responsible for all costs associated with the removal and reinstallation, shipping and handling to and from Manufacturer. The components, repaired or replaced are warranted for the residual period of the initial warranty on the unit.

Exclusions.

This warranty is void and shall not apply if:

1. Defects or malfunctions resulting from installation, repair, maintenance and/or usage that are not done in conformity with the manufacturer's installation manual; or
2. Defects or malfunctions resulting from installation, maintenance, or repair that are not done in accordance with regulations in force; or
3. Defects or malfunctions resulting from improper installation, maintenance or repair done carelessly or resulting from consumer damage (improper maintenance, misuse, abuse, accident or alteration); or
4. Installation in which a relief valve (pressure) is not installed or if it is not functioning properly, or when it is not connected to a drain to avoid damage to the property; or
5. Installation in which liquid circulating in the tank does not remain in closed circuit or installation in which piping is leaking; or
6. A polybutylene pipe or radiant panel installation without an oxygen absorption barrier is used; or
7. Installation where the acidity of water is not within the normal Environmental Protection Agency (EPA) (between pH 6.5 – 8.5) guidelines or the water contains abnormal levels of particulate matter or water exceeding 10.5 gpg; or
8. Your home contains any type of water softener system and the unit is not installed and maintained in accordance with the manufacturer specifications; or
9. The BUFFMAX unit is being subject to non-authorized modifications; or
10. Defects or malfunction resulting of storing or handling done elsewhere than Thermo 2000's manufacturing plant; or
11. Units on which the serial number is removed or obliterated.

Limitations.

Thermo 2000 shall not be responsible for any damage, loss, and inconvenience of any nature whatsoever, directly or indirectly, relating to the breakdown or malfunction of the unit. This warranty limits its beneficiary's rights. Nevertheless, the beneficiary may have other rights, which vary from state to state.

This warranty replaces any other expressed or implicit warranty and constitutes the sole obligation of Thermo 2000 towards the consumer. The warranty does not cover cost of removal, reinstallation or shipping to repair or replace the unit, nor administration fees incurred by the original consumer purchaser.

Thermo 2000 reserves its rights to make changes in the details of design, construction, or material, as shall in its judgment constitute an improvement of former practices.

This warranty is valid only for installations made within the territorial limits of Canada and the United States.

Warranty service procedure

Only authorized Reserve dealers are permitted to perform warranty obligations. The owner or its contractor must provide Thermo 2000's head office or authorized depot with defect unit together with the following information: BUFFMAX model and serial number, copy of the original sales receipt and owner's identification certificate.

THERMO 2000 INC.

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