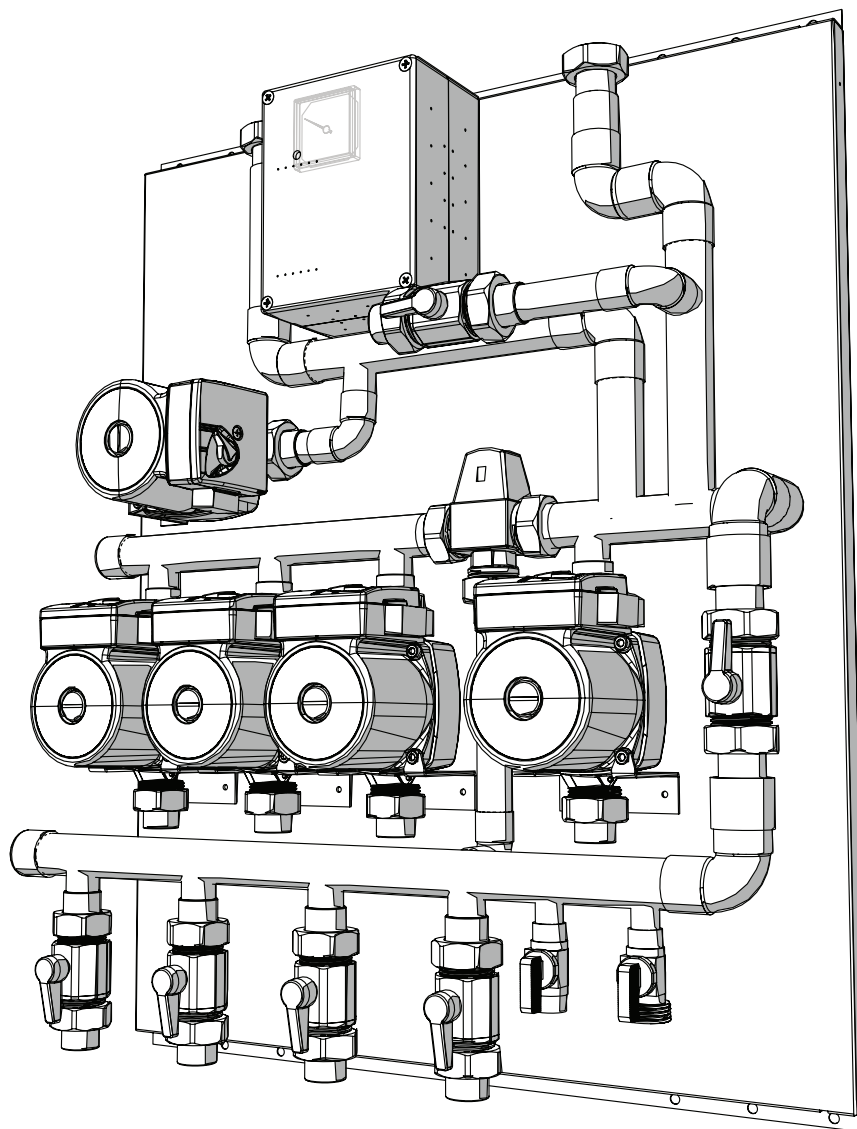




Bosch Boiler Series

Installation and Commissioning Guide

Introduction.....	3
Components.....	4
Operation.....	5
Technical Data.....	6-8
Wiring.....	9-10
Modular Expansion Panels.....	11
Commissioning.....	12
Warranty.....	13

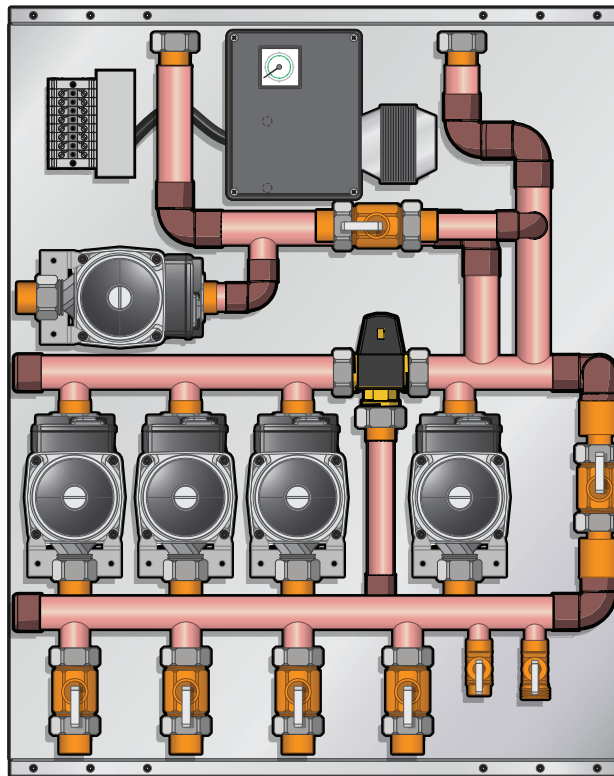
This User Guide is Applicable to:

Bosch Boiler Panels - DHW Priority

T-BO-BD-1111	ZBR Panel with (1) DHW Zone with Priority, (1) Low Temp Zone and (1) Take Off
T-BO-BD-1121	ZBR Panel with (1) DHW Zone with Priority, (2) Low Temp Zones and (1) Take Off
T-BO-BD-1131	ZBR Panel with (1) DHW Zone with Priority, (3) Low Temp Zones and (1) Take Off
T-BO-BD-1140	ZBR Panel with (1) DHW Zone with Priority and (4) Low Temp Zones
T-BO-BD-1210	ZBR Panel with (1) DHW Zone with Priority, (1) Hi Temp Zone and (1) Low Temp Zone
T-BO-BD-1220	ZBR Panel with (1) DHW Zone with Priority, (1) Hi Temp Zone and (2) Low Temp Zones
T-BO-BD-1230	ZBR Panel with (1) DHW Zone with Priority, (1) Hi Temp Zone and (3) Low Temp Zones
T-BO-BD-1310	ZBR Panel with (1) DHW Zone with Priority, (2) Hi Temp Zones and (1) Low Temp Zone
T-BO-BD-1320	ZBR Panel with (1) DHW Zone with Priority, (2) Hi Temp Zones and (2) Low Temp Zones

* Note:

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 Bosch Boiler Panel.



T-BO-BD-1230 Model Shown

Description

The Bosch Greenstar Boiler Panel is configured specifically to work in unison with the Bosch Greenstar boiler. The panel is designed to fit underneath the boiler so that the supply and return connections on the bottom of the boiler will line up directly to the supply/ return connections on the Tamas panel. The Tamas panel can support up to a maximum of 5 pumps, including the Domestic Hot Water Pump.

Installation

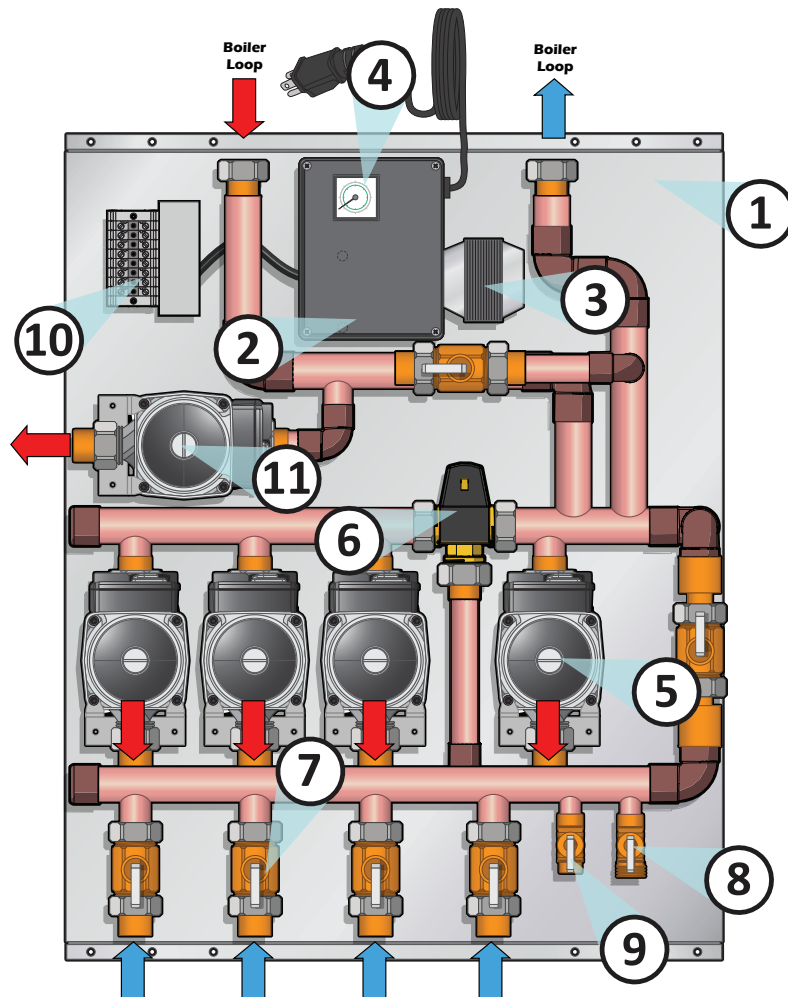
Prior to mounting the panel, ensure the wall is capable of supporting the weight of the panel. Ensure that an 115V receptacle is within reach of the 5-foot cord and plug.

Main Features

- Pre-designed and assembled
- Function & pressure tested
- Packaged, compact design
- Certified to CSA C22.2 No. 14-95
- Conforms to UL Standard 598A

Technical Data

- Flow Range: 0-17 US GPM
- Head Range: 0-19 Feet
- Motors: 2 Pole, Single Phase
- Maximum Fluid Temperature: 230 °F (110 °C)
- Minimum Fluid Temperature: 36 °F (2°C)



Components

1	22" x 26" Galvanized Backpan	7	Tamas Ball Valves
2	Tamas Control Box with 5' Power Cable	8	Hose Bib Hook-Up
3	24V AC Transformer with Internal Fuse	9	Expansion Tank Hook-Up
4	Temperature Gauge	10	Terminal Block
5	Zone Pumps UPS15-58	11	Domestic Hot Water Pump UPS15-58
6	Thermostatic Mixing Valve		

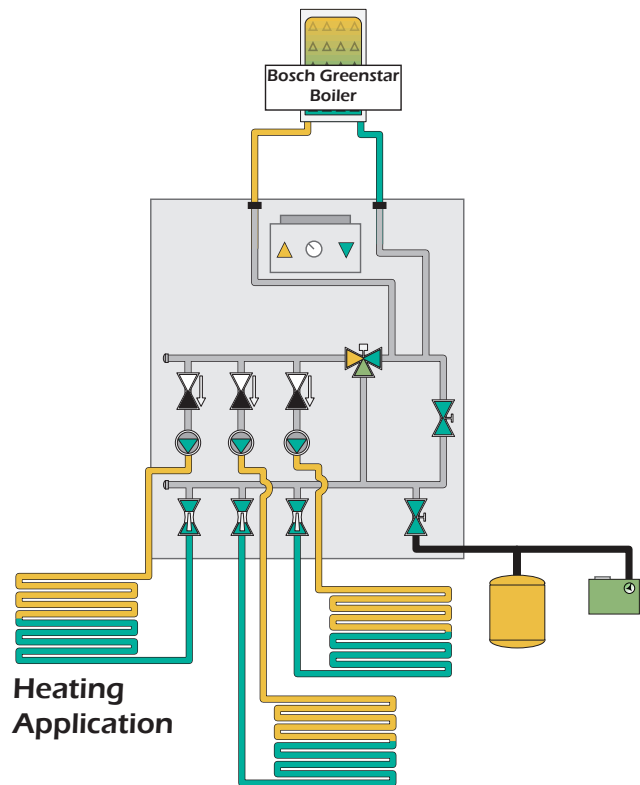
Operation

Operation of the Primary

The primary circuit is composed of a DHW pump and ball valves for the pump maintenance. When the Bosch Boiler panel is connected to the boiler, the panel regulates the water distribution quantity to accommodate the demand. The hydraulic separation (close tees) permits the dynamic separation of the primary and secondary flow.

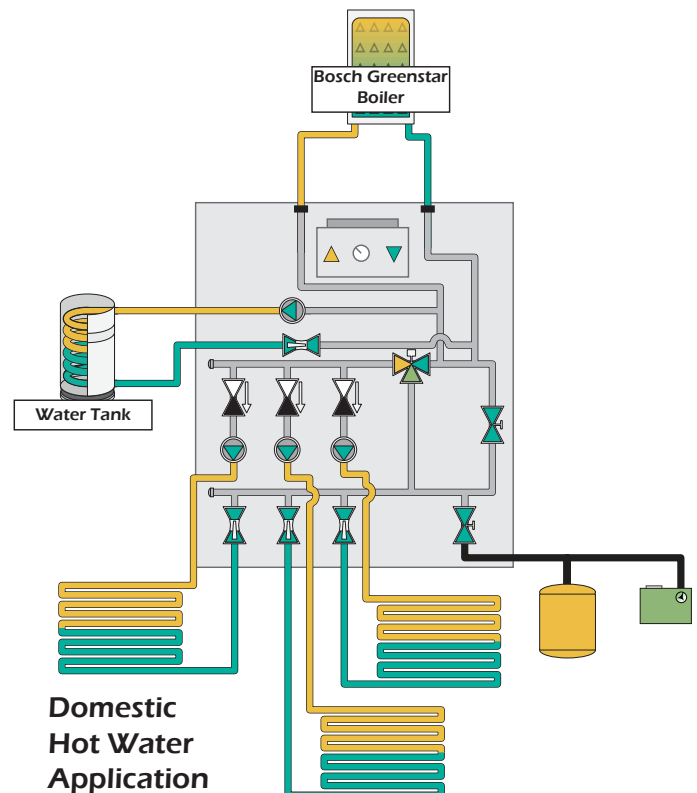
Operation of the Secondary

On the secondary side, different configurations are possible; one, two, three or four zones can be supplied. If the zone temperature falls below the users designated setting on a thermostat (sold separately), for example, the panel initiates a signal back to the boiler and turns on the zone pumps. When the zone temperature is satisfied, the thermostat or aquastat disconnects the boiler and the zone pump.



Operation of the Domestic Hot Water (DHW)

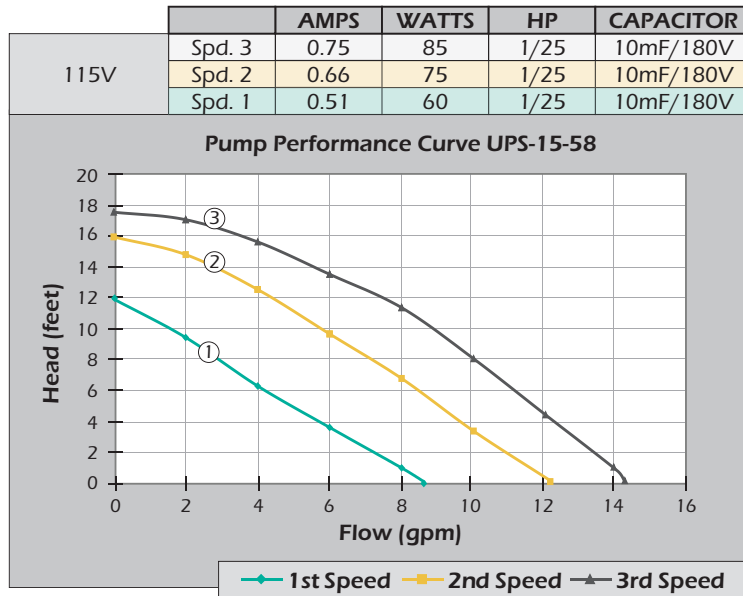
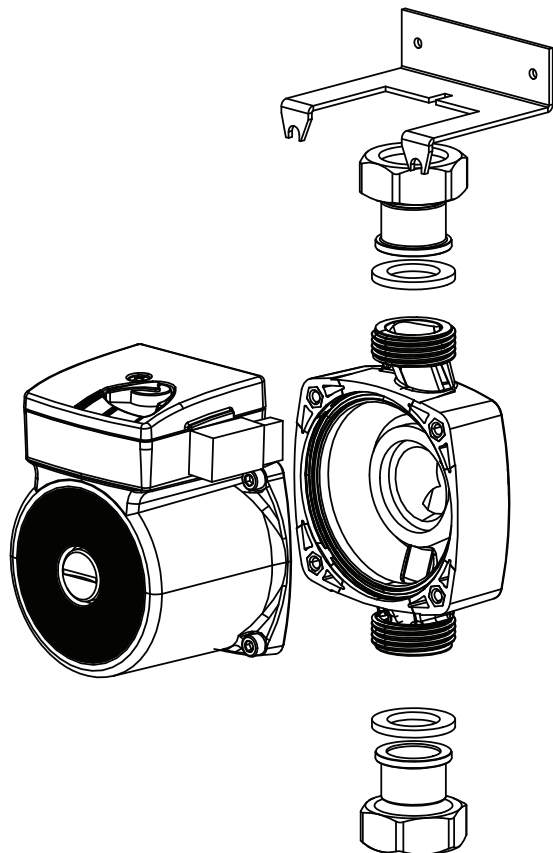
When a domestic hot water demand to the boiler is signaled from a sensor or aquastat (sold separately), the boiler will output 120V to the DHW pump on the Tamas panel. The panel will disconnect the active zone pumps and send a signal to the Bosch boiler to rise the internal temperature. This water is heated and distributed as domestic hot water. When the domestic hot water demand is satisfied; the Bosch boiler disconnects the high temperature target output and reverts to the pre-set zone temperatures that were previously active. This method of providing precedence to the domestic hot water requirements before the zone heating load of a building is known as domestic hot water priority.



UPS 15-58 Pump

The pump is of the canned rotor type, i.e. pump and motor form an integral unit without shaft seal and with only two gaskets for sealing. The bearings are lubricated by the pumped liquid.

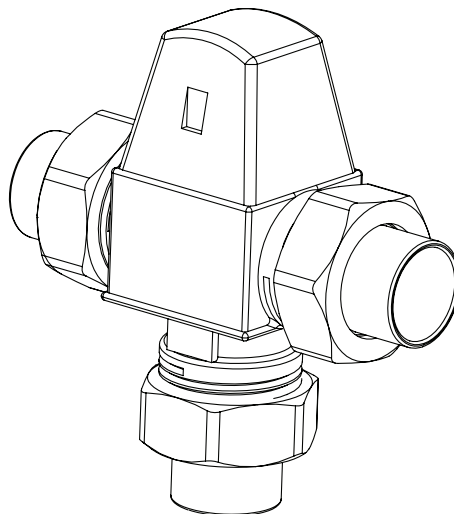
The motor is a 1-phase motor. No additional motor protection is required.



- Flow range: 0 - 17 U.S. GPM
- Head range: 0 - 19 Feet
- Motors: 2 Pole, Single Phase
- Maximum fluid temperature: 230°F(110°C)
- Minimum fluid temperature: 36°F(2°C)
- Maximum fluid temperature with Check Valve present: 200°F

Thermostatic mixing valve (ASSE-1017 listed*)

- Anti-scald function.
- Snap-on cover for protection and to prevent unauthorized adjustment or tampering.
- Cover label for recording settings including recorded outlet temperature and date installed.
- Available temperature ranges:
 - o 70°F – 110°F (20°C - 45°C)* o 85°F – 120°F (29°C - 49°C)*
 - o 95°F – 140°F (35°C - 60°C)* o 85°F – 160°F (30°C - 70°C)* (¾" only)
- Available connections
 - o Threaded body (FPT).
 - o Union solder w/ 1 check valve.
 - o Union CPVC.
 - o Union solder.
 - o Union solder c/w 2 check valves.
 - o Compression (¾" only).
- Maximum working pressure: 150 psi (10 bar)**.
- Maximum system differential pressure between hot and cold: 44 psi (3 bar).
- Maximum system differential pressure: 72 psi (5 bar).
- Maximum hot water inlet temperature: 194°F (90°C).
- Minimum required flow***: 0.5 US gpm.



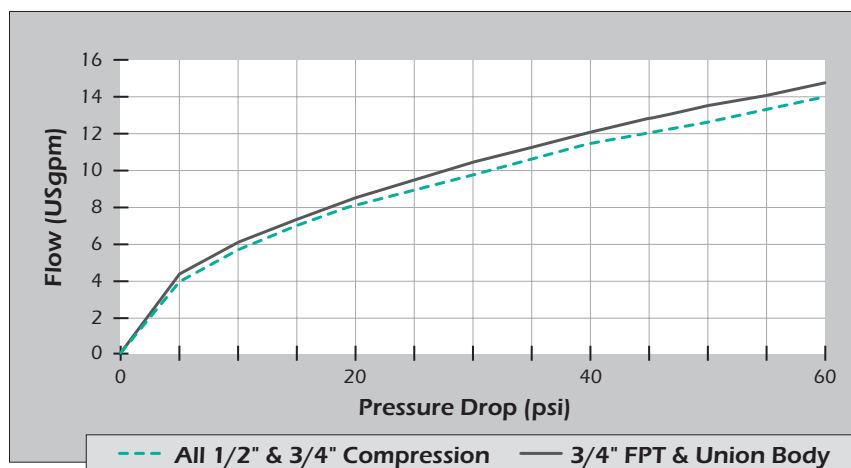
The thermostatic mixing valve will provide a mixed water temperature according to the table below. The outlet temperatures stated are approximate, based on given hot water supply temperature and a cold water supply of 50°F (10°C). For other cold water temperatures correct the outlet temperature by 1°F for every 10°F (or 1°C for every 10°C) deviation from 50°F (10°C), up or down.

Hot Water Temperature	70°F – 110°F						85°F – 120°F						95°F – 140°F					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
120°F	67	74	81	87	94	109	80	90	97	102	107	115	95	106	115	124	131	136
140°F	68	75	82	90	97	113	81	91	99	104	109	117	97	108	117	126	133	140
160°F	69	76	84	92	100	118	82	93	100	106	112	118	99	109	118	127	135	145
180°F	70	77	86	95	102	122	82	95	102	108	114	120	100	111	120	129	136	149

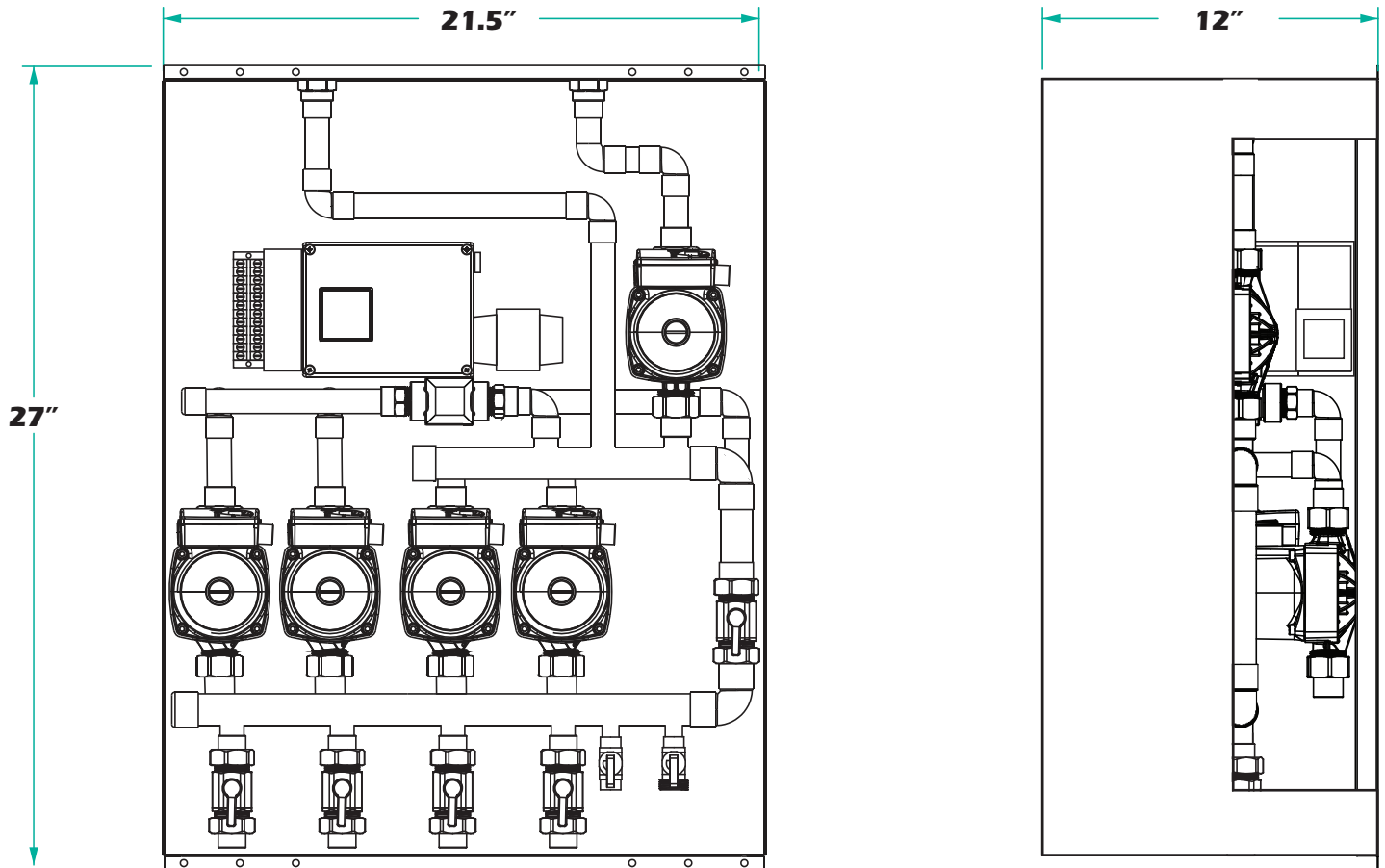
* Only ranges 85-120°F and 95-140°F are listed to ASSE-1017 standard

**Max. working pressure for CPVC: 80 psi (5.5 bar)

***For Correct temperature control



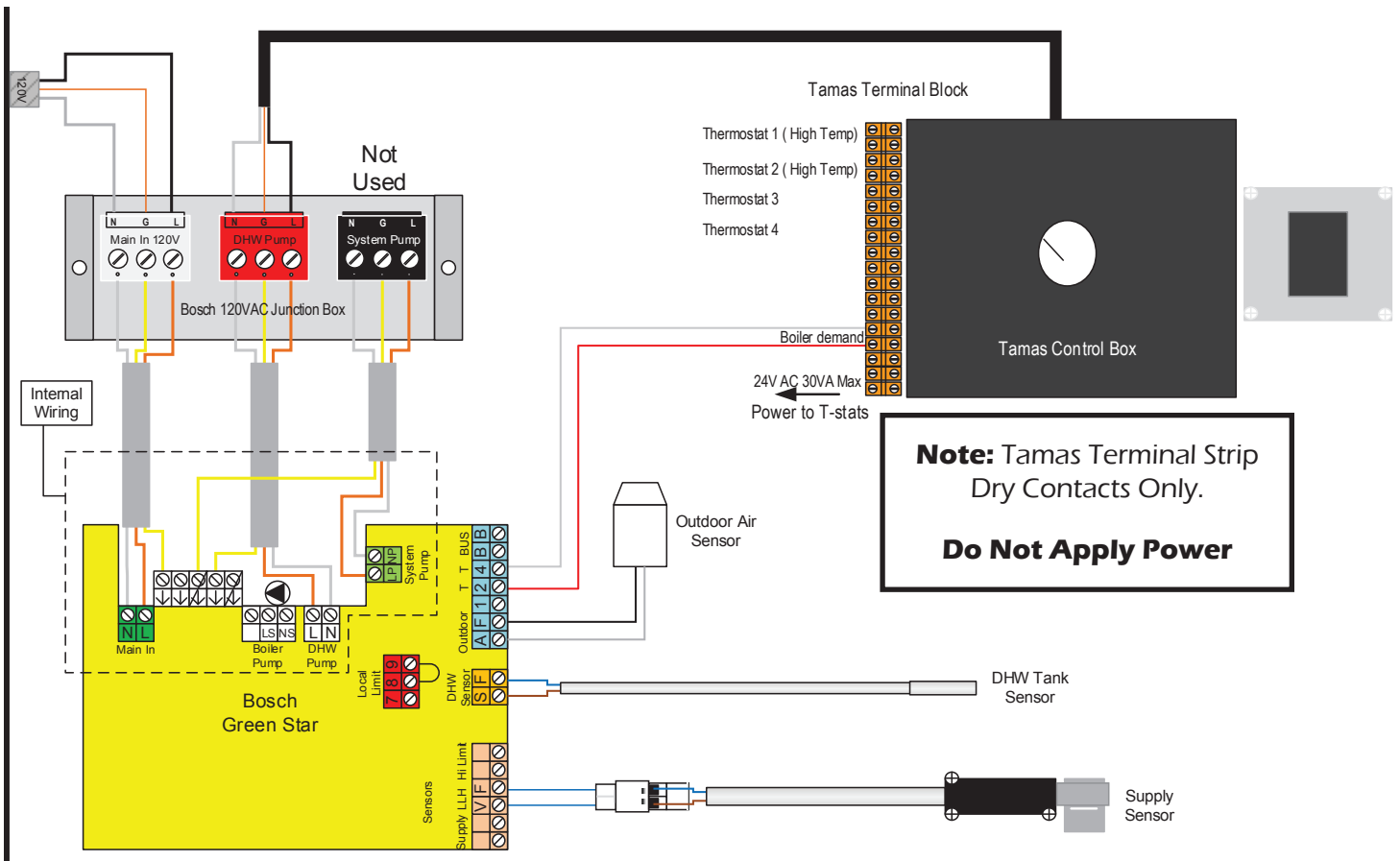
Dimensions



Wiring

All electrical wiring to the panel (including grounding) must conform to local electrical codes and/or National Electrical Code, ANS/NFPA No. 70-latest edition, or the Canadian Electrical Code, C22.1- Part 1.

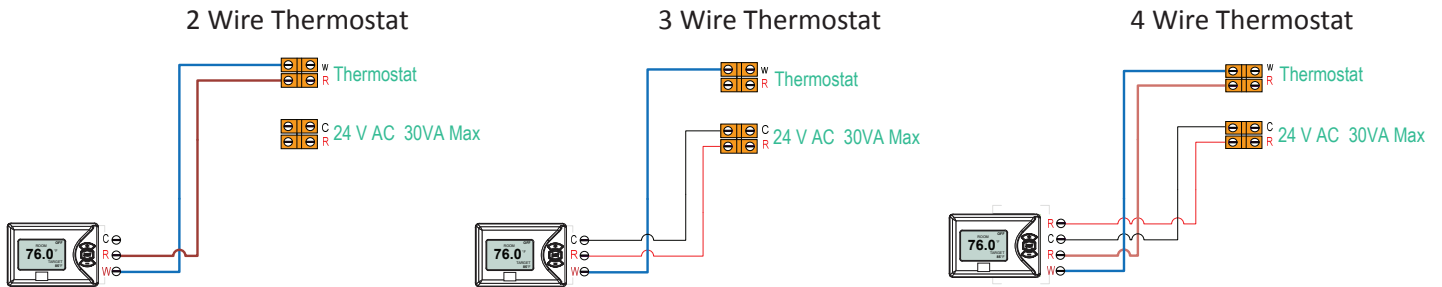
Connections Boiler Panel – Boiler

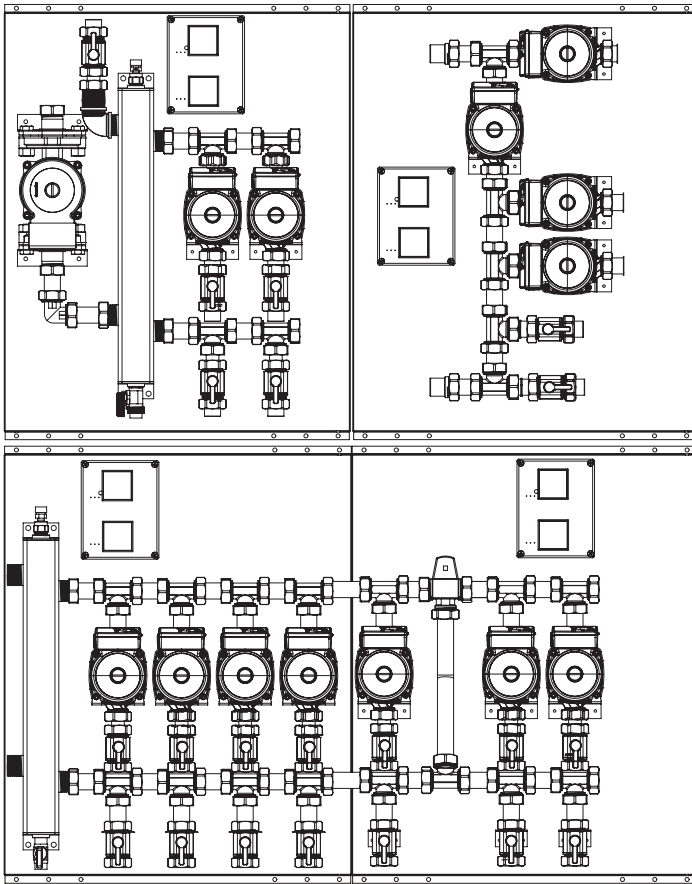


Thermostat Connections

Connect the thermostat for a space heating zone to the terminal block on the Tamas Panel. Do not supply 24V power to the thermostat circuits or attempt to supply 24V AC for any other application.

For the thermostats that require continuous 24V AC power source, connect the thermostat power input to the 24V AC terminal on the Tamas Panel.



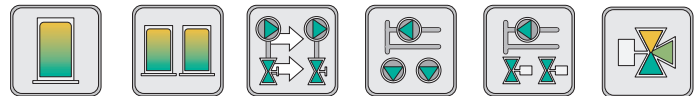


Tamas Hydronics Modular Panels

The Tamas Modular Panel line contains a series of expandable hydronic panels suited for a variety of applications and building sizes.

The comprehensive system provides a versatile method of distributing heat to a multitude of applications. Indoor/outdoor reset controls are utilized to improve system efficiency and management. Specific panels allow for system expansion, multiple boiler management, injection mixing and domestic hot water.

Available panels: Boiler, Staging, Expansion, Low Temperature Injection (Pump, Valve, TMV)



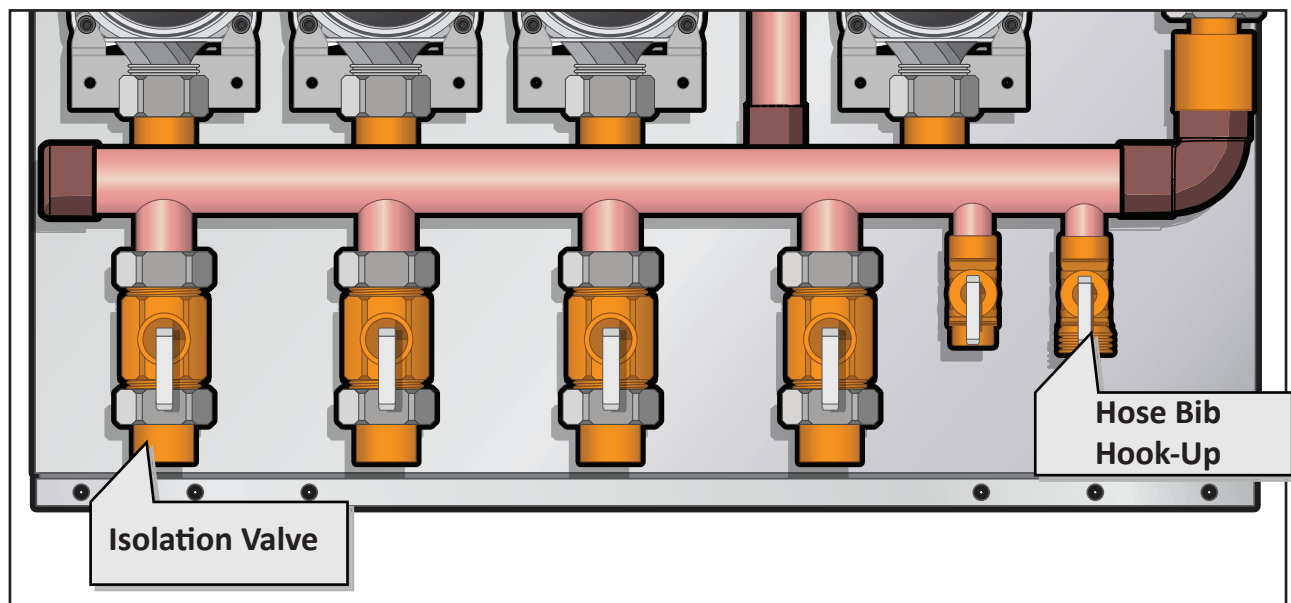
Safety Precautions

During installation and operation, please avoid injury from touching the hot surface of the pipe. The installation and service should be done by qualified personnel only. Please follow all warning signs on the panel for your own safety while dealing with installation and service.

System Filling Procedure

1. Disconnect power from the Tamas Hydronic panel
2. Close all isolation valves to the zones
3. Begin filling the panel through the provided hose bib connection on the panel
4. Open the return isolation valve on the panel
5. Begin filling the system
6. Slowly open the Manual Purging Valve on the return side of the zone line to let the air out of the system
7. After the above procedure is done, close the air Manual Purging Valve
8. Finally close all the valves to isolate the zone from the panel before moving on to the next zone.
9. Repeat this procedure based on the amount of zones on the board
10. Once all the zones have been purged, you can open all the isolation valves

IMPORTANT This procedure applies to filling the system one zone at a time.





Tamas Hydronic Panels **Bosch Boiler Series** Warranty

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

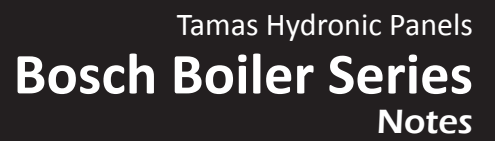
Grant the purchaser additional warranty rights which the manufacturer cannot disclaim, or not allow limitations on the duration of implied warranties.



Bosch Boiler Series

Notes

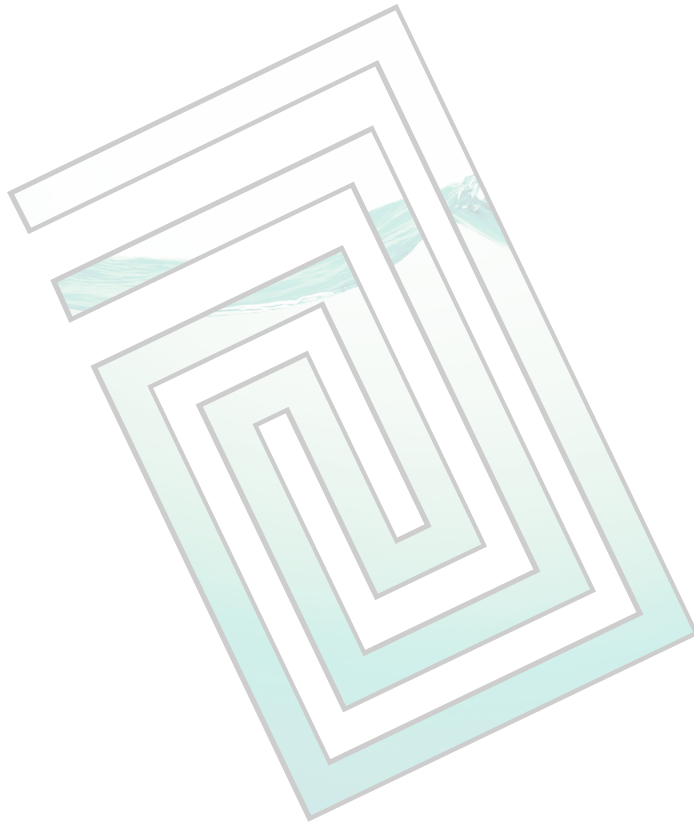
[illegible]



Bosch Boiler Series

Notes

[illegible]



Custom, Reliable Hydronic Systems

Tamas Hydronic Systems Inc.
4516 112 Avenue SE
Calgary, Alberta T2C 2K2

Phone: 1 (403) 279 0020
Fax: 1 (403) 279 0747
info@tamashydronic.com



/TamasHydronicSystems



/TamasHydronic



/company/tamas-hydronic-systems