

APPLICATION INFORMATION FOR BPHX INSTANTANEOUS WATER HEATER

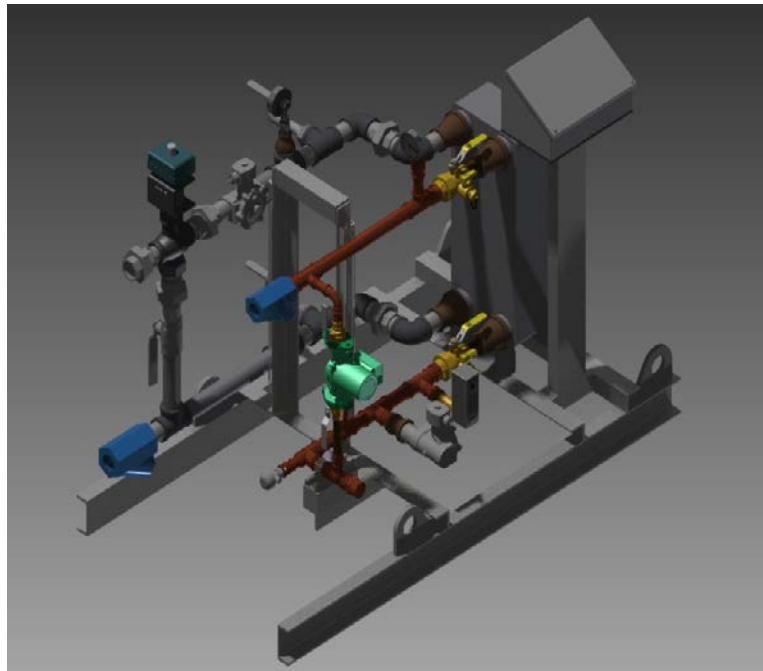
RECO USA manufactures a wide range of products for indirect commercial water heating that utilize steam or boiler water as the heat source. Tubular heat exchangers (most commonly u-tube bundles) are the most widely used. You'll find them in our Thermomaster, Thermodyne & Thermodyne HX. They perform very well with a long service life and are economical way to generate large volumes of hot water from conventional boilers.

The introduction of high efficiency hot water boilers and their increased use has prompted RECO USA to introduce the BPHX instantaneous water heater.

THE BPHX UTILIZES A PLATE-TYPE HEAT EXCHANGER FOR A VERY COMPACT AND EFFECTIVE COMMERCIAL WATER HEATING SOLUTION.

DESIGNED FOR OPTIMAL USE WITH LOW TEMPERATURE BOILER WATER FROM CONDENSING BOILERS.

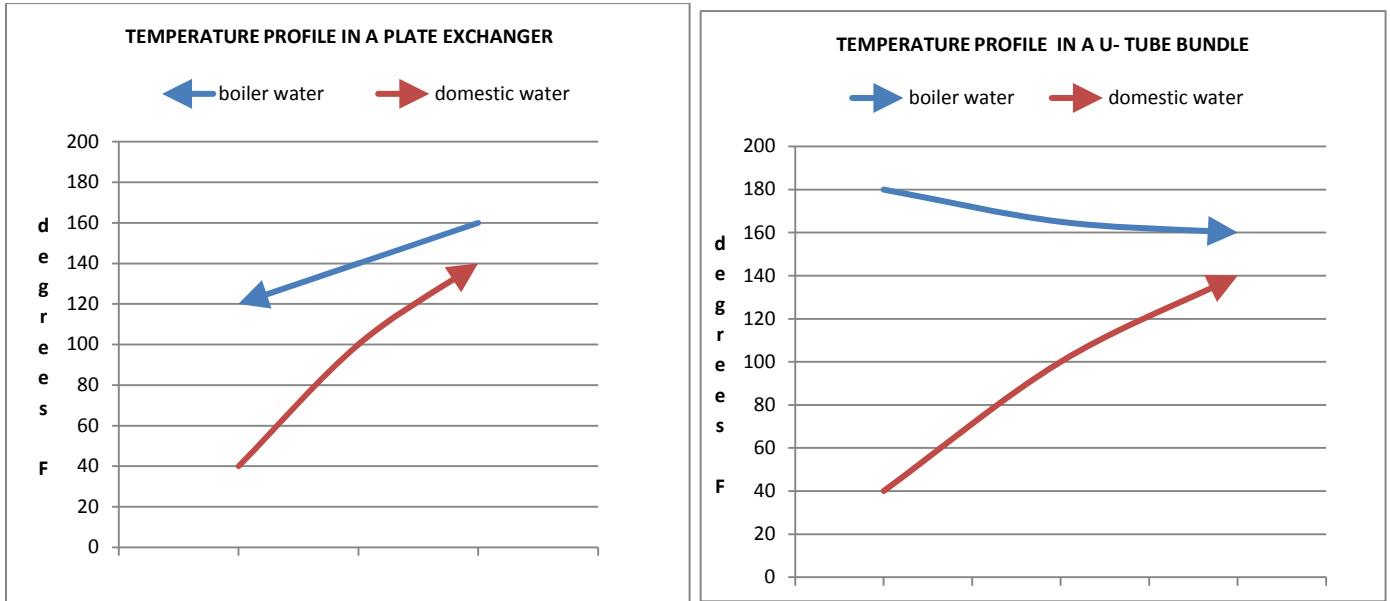
AVAILABLE WITH BRAZED PLATE OR GASKETED PLATE AND FRAME DESIGNS, AND EACH AVAILABLE IN SINGLE OR DOUBLE WALL CONSTRUCTION.



In order for a condensing boiler to remain in its high efficiency condensing mode, the boiler's return water temperature must be approximately 130 degrees F or less. A non-condensing boiler would typically operate at 180 F supply and 160 F return. At a lower temperature differential, the cost and size of a u-tube may no longer be practical. This is about as low a temperature as is practical for using a u-tube heat exchanger to generate 140 F domestic water. With a u-tube heat exchanger the domestic water outlet cannot exceed the boiler water return temperature. With a RECO USA BPHX, typical boiler operating temperatures can be 160 F supply and 120 F return. In the table below, these two cases are listed. The conditions on the domestic water side are the same, but a plate exchanger is able to do the same job with a lower temperature heat source.

Heat exchanger type	Tci (F)	Tco (F)	Mc(gpm),	Thi (F)	Tho (F)	Mh(gpm)
U-tube heat exchanger	40	140	40	180	160	204.3
Plate exchanger	40	140	40	160	120	101.1

The temperature profiles of these cases are shown in the charts below. The u-tube is primarily parallel flow and the plate exchanger is primarily counter flow. The plate exchanger allows for a “crossing” of temperatures, where the u-tube does not.



The stack of counter flow plates affords a more effective use of material and results in much more compact package.

Overall dimensions

brazed plate heat exchanger
9 ½” wide x 5” deep x 26” high

U tube heat exchanger
12” diameter x 42” long

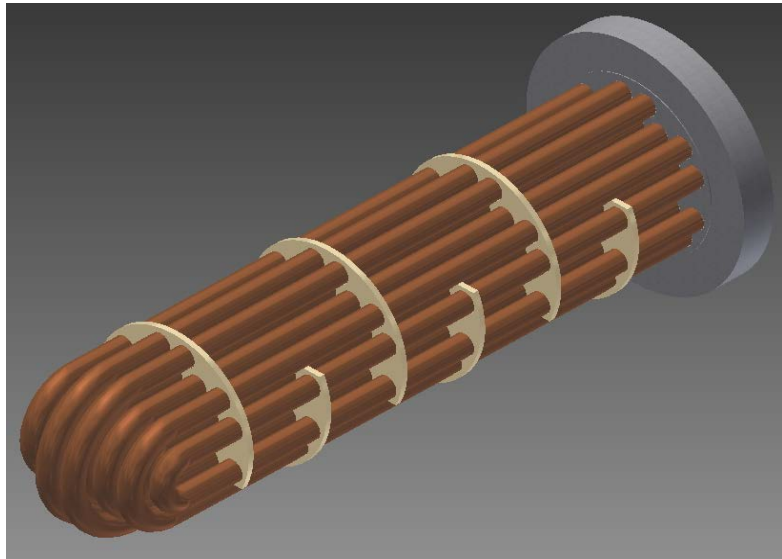
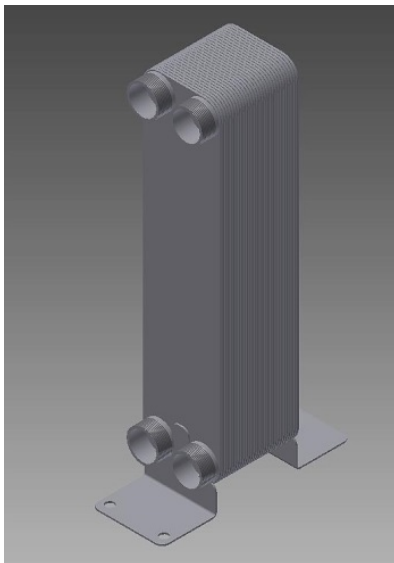


Plate exchangers are ideal for the reasons shown above with lower temperature heating medium and potable water. They are not recommended for use with hard water. U-tube bundles are still preferred when the heating medium is steam or for higher temperature boiler water systems.

BPHX INSTANTANEOUS WATER HEATER

Features:

ELECTRONIC MODULATING CONTROL VALVE - Very fast response , user can select 2 or 3 way operation.

INTEGRATED CONTROLS - (+/-) 4 deg F temperature control under typical diversified building load conditions.

INTEROPERABILITY – Several options are available for connection to building automation systems for control and monitoring.

LONG LASTING – All components in contact with potable water are stainless steel or copper alloy.

CONSTRUCTION DETAILS:

-Structural steel base with lift lugs and designed for pallet jack or forklift access

-Integral recirculation pump

-Heat Exchanger is fitted with isolation valves and test ports

-All components arranged for easy access

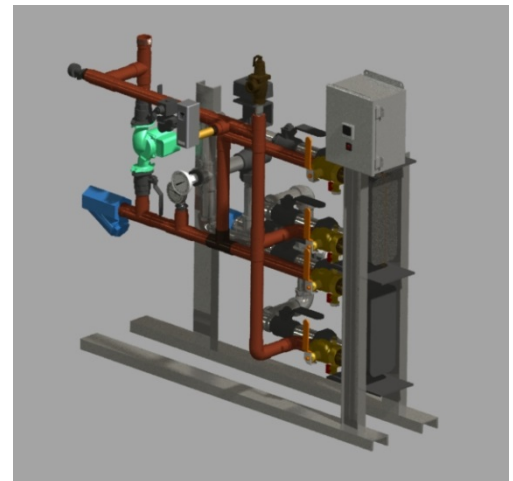
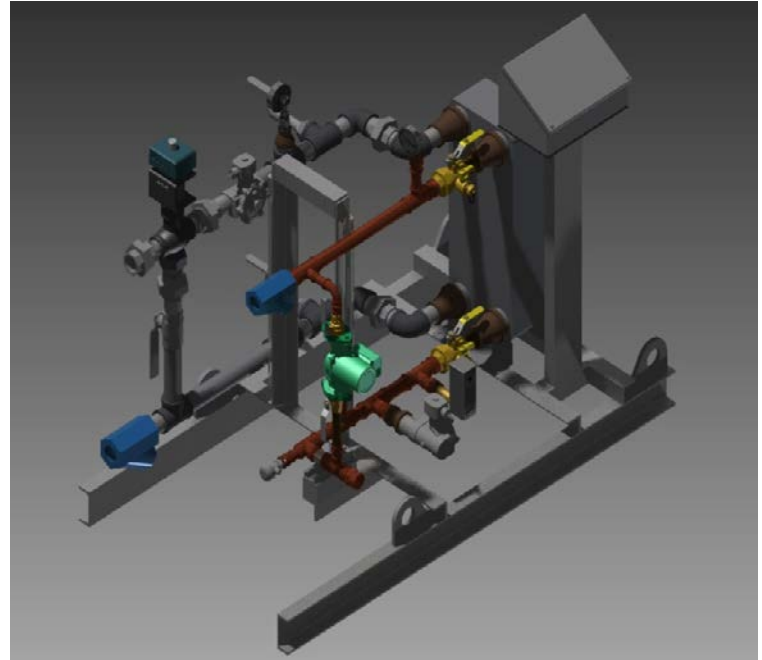
-Foot print is less than 13 sq. ft.

Other packaging options: Packages are available with stacked heaters or with redundant heat exchangers for backup.

On the right is an illustration of a bphx with dual heat exchangers for 100% redundancy. For critical applications a spare heat exchanger is installed with isolation valves and drain /test port. by closing and opening a few valves the spare in in service in a few minutes

Two complete BPHX's can be factory mounted in a rack where floor space is limited.

In applications where water storage is needed, our Thermoplatepac product adds one of hot water storage tanks to a bphx. This also ideal for heat recovery applications.



BPHX MODEL DATA:

MODEL NUMBERING: Example: **SBPHX-SS-SL140-60-DELW** Single Heat Exchanger, Brazed Plate, Stainless Steel plates, SL140 Series HX, 60 Plates, Double Wall construction, Electronic control, for Boiler Water

PACKAGE TYPE	HEAT EXCHANGER TYPE	PLATE MATERIAL	PLATE SIZE	# OF PLATES	CONTROL TYPE	HEATING MEDIUM
S=SINGLE HX	BP=BRAZED PLATE	SS=STAINLESS STEEL	SL070	XX	EL=ELECTRIC	W= BOILER WATER
D = DUAL HX	PF=PLATE & FRAME		SL140			

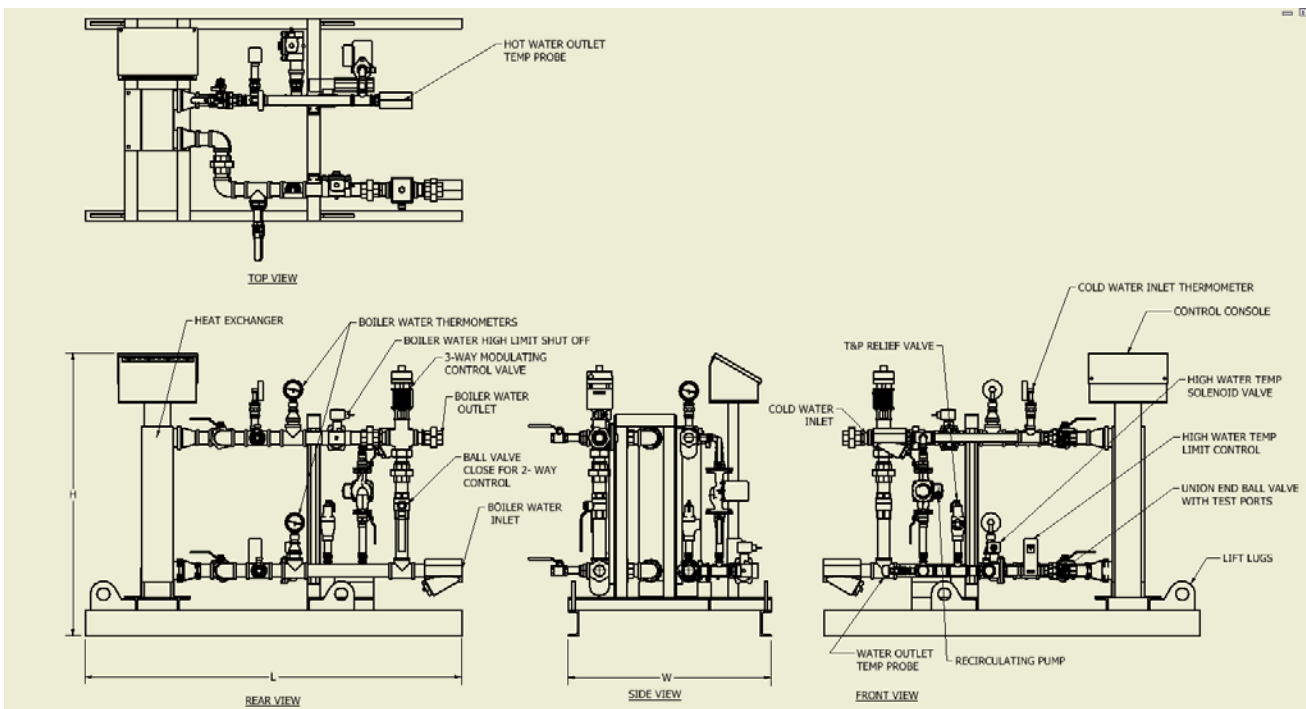
WATER HEATER SELECTION DATA:

DOMESTIC WATER			DOMESTIC WATER			MODEL NUMBER	DOMESTIC WATER CONNECTION SIZE	BOILER WATER CONNECTION SIZE	CONTROL VALVE SIZE
FLOW	INLET	OUTLET	FLOW	INLET	OUTLET				
g.p.m	deg F	deg F	g.p.m	deg F	deg F				
5	40	140	12.6	160	120.0	SBPHX-SS-SL070-14-DELW	0.75	1	0.75
10	40	140	25.3	160	120.0	SBPHX-SS-SL070-20-DELW	1	1.25	1
15	40	140	37.9	160	120.0	SBPHX-SS-SL070-30-DELW	1.25	1.5	1.5
20	40	140	50.5	160	120.0	SBPHX-SS-SL070-50-DELW	1.5	2	1.5
25	40	140	63.2	160	120.0	SBPHX-SS-SL070-60-DELW	1.5	2	2
30	40	140	75.8	160	120.0	SBPHX-SS-SL070-80-DELW	2	2.5	2
40	40	140	101.1	160	120.0	SBPHX-SS-SL140-40-DELW	2	2.5	2.5
50	40	140	126.4	160	120.0	SBPHX-SS-SL140-50-DELW	2.5	3	2.5
75	40	140	189.5	160	120.0	SBPHX-SS-SL140-80-DELW	3	3.5	2+2.5**
100	40	140	252.7	160	120.0	SBPHX-SS-SL140-110-DELW	3	4	2.5+2.5**

** Multiple control valves used

This is an abbreviated list of sizing and available models; contact the factory for other sizes and availability.

DIMENSIONAL DATA	W	L	H
SDBP-SS-SL070-XXX-XELW	32	54	44
SDBP-SS-SL140-XXX-XELW	32	58	44



As part of our efforts to continually improve our products RECO USA reserves the right to make changes without notice.