SNA-SKID Series - Preassembled Safety Shower Heater Skid

Tankless Water Heating Solutions

- Pre-assembled skid system
- Back-to-back heater models, SNA & SNAR
- High Flow Demand Safety Shower Applications
- 216 - 288 kW (737,000 - 983,000 BTUs)
- Temperature overshoot purge system
- NEMA 4 enclosure standard
- AL3 building communication alarm option included
- ASME/NB Certified options available
- Dual flow activation
- Internal fusing (included) adds safety and permits single power connection
- Controller-locked temperature setting, output fixed at 80°F (27°C)
- Meets ANSI Z358.1 standards
- Emergency stop button & door cutoff switch

Standard Equipment

Tankless Water Heating Specifications

Bradley® Safety Shower Heater Skids ***Powered by Keltech™*** provide warm water intended to supply multiple safety fixtures. The heaters uniquely perform in applications with low line pressure, while still accommodating ANSI standard flow rates. The durable components withstand higher pressures which result in longer service life, while ensuring the delivery of precise output temperature. Durable components withstand power abnormalities found in industrial environments and ensure tepid water standards are never exceeded (100°F) with it's three-tier anti-scald protection and TepidGuard™ hot water purge. SNA and SNAR units are also suited to applications with 3 Phase Delta 480V or 600V, 50/60 Hz. The heat exchanger features o-ring seals that outlast typical gasket construction. Common 2" brass NPT female inlet and outlet connections with 1-1/4" heater inlet and outlet connections. 2" Y-strainer included with inlet pipe assembly.

Construction

Skid

The skid option includes skid & pre-piped assemblies with 2" shut-off ball valves, 2" inlet Y-strainer and two 1" outlet pressure & temperature relief valves mounted to SNA & SNAR heaters. Skid is #10 gauge electro galvanized steel frame, powder coat painted "safety" yellow.

Temperature Controller

The PID Temperature Controller is more energy efficient and reliable than traditional microprocessors using staged elements. Power is infinitely variable, with no fixed inputs. The PID controller makes it possible to modulate the amount of power applied to the elements while also dispersing the required power evenly across all elements. This unique feature increases the product's life cycle.

Heating Element

Each heater features a heavy duty, low watt density, Incoloy® 800 sheathed resistive element. The heater design ensures greater protection, durability and resistance to scaling from hard water because water is only heated when flowing; this means sediment will not collect in the heat exchanger.

Solid State Relays

The liquid cooled solid state relays provide silent switching, which has a fast response and works in conjunction with the PID controller to infinitely modulate and add to the life of the heater.

Electrical

The SNA-SKID Series requires one service feed per heater. Includes internal fusing as standard. Internal fusing provides superior protection so the incoming circuit can be higher than 48 amps (NEC). Each heating element is protected by fusing.

Cabinet Enclosure

The skid-mounted cabinet enclosures are NEMA 4 rated and made from 14-gauge mild steel and powder coated with ANSI 61 gray, corrosion resistant paint. The optional NEMA 4X enclosures are corrosion resistant for harsher environments and made from 16-gauge 304 stainless steel. Additional service access panel located on top of cabinet enclosures.

SNA-SKID Series

Independent Safeties

Each heater has independent three-tier anti-scald protection and hot water evacuation (overshoot purge protection). The controller alarm sends a signal to disconnect power to the elements if the temperature reaches 90°F (32°C). The internal thermostat with auto reset high limit switch ensures that when the temperature limit is reached, the unit will power down a bank of elements; when the temperature returns to the set point, power is restored. The surface mounted bi-metal thermostat with manual reset acts as a fail-safe and must be manually reset before power can be restored to the elements if the temperature limit is exceeded.

TepidGuard™ is an anti-scald feature, standard on all SNA-Series Safety Shower Heaters. This overshoot purge will automatically open and purge excess temperature water. This feature actively monitors temperature within the heater while operational. It also passively monitors water temperature while the heater is inactive. This is beneficial for outdoor installations where sun and weather can cause water temperature to exceed ANSI standards.

Temperature Safety Values:
Internal thermostat with auto reset high limit switch: 95°F (35°C)
Surface mounted bi-metal thermostat with manual reset: 100°F (38°C)
Overshoot purge: 95°F (35°C)

Dual Flow Activation

Bradley Safety Shower heaters have a dual flow activation. The low flow activation is used with eyewashes, eye/face washes, and drench hoses. The high flow activation is for safety shower usage. This allows just the right capacity of heated water to be used for each application. Heater operating pressure range: 30 - 150 psi.

Related Products

Halo S19314 Combination Drench Shower and Eyewash

Complies with ANSI/ISEA Z358.1

Protected by one or more of the following patents: 7,007,316 B2; 7,243,381 B2.

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Product Options

Fused Disconnect/Ground Fault
Internal fused disconnect interlocks with enclosure door when energized, prohibiting access to a live cabinet. Optional equipment protection ground fault senses leakage current to ground >1 Amp. In the event a fault is detected, this device will terminate the high voltage power supply to heating elements and disable operation of the unit. Fault status is communicated EXTERNALLY at the control interface. Personnel may also test the Ground Fault system and reset any nuisance trips without opening the cabinet. Select the FDS/GF option for an additional level of safety and convenience at the heater location.

Alarm Selections
Bradley offers two levels of building communication alarm options. The AL3 option comes standard on the SNA-SKID and provides dry contacts that open to signal flow >1.5 gpm has activated the heater. The AL3-SL option provides these dry contacts and additionally activates a local audible and visual alarm on the heater. Alarms activate at 1.5 gpm flow or greater.

Freeze Protection
The standard ambient temperature is 33°F (0.6°C). For environments lower than 33°F, A freeze protection package is available. ENHT offers protection to -20°F (-28°C). The ENHT30 offers protection to -30°F (-34°C). Each level of protection utilizes the normal heater supply voltage. No additional dedicated circuit to the unit is required during field installation. Freeze protection (ENHT option) includes an internally insulated NEMA 4/4X enclosure and thermostatically controlled forced air heater to maintain internal temperatures above freezing.

ENHT options also include a connection point for DCS monitoring. In the event of a power interruption or ENHT system failure when internal enclosure temperatures reach 40°F (4.4°C) or lower, the unit will notify a facilities control/monitoring system that the unit is unable to maintain freeze protection. Regardless of state of power to the unit, this warning notifies maintenance personnel and provides an opportunity to correct the condition before any damage occurs to the unit.

Continuous Flow Explosion Proof Purge System
Bradley's EXP2CFPM option makes heaters compliant for classified areas; Class 1, Division 2, Groups A-D, T5. The Purge System requires a supply of clean instrument air or inert gas (provided by installer). This supply maintains a positive internal pressure and prevents the enclosure from filling with flammable gasses, dusts or vapors from the ambient environment. In addition to manufacturer certifications on the purge system, Bradley independently tests and 3rd party certifies all finished product with EXP2CFPM to comply with NFPA 496.

ASME Heat Exchanger
Bradley offers any product above 200,000 btu equivalent (58kw+) the option to be fitted with internal plumbing certified to Section IV of the ASME Boiler and Pressure Vessel Code - an industry exclusive certification. HLW certification represents not only an approved design and method of construction, but an intensively audited construction and documentation process that concludes with a pressure test witnessed by an ASME official. Upon completion of this process, each heat exchanger is issued a unique serial number for registration in the National Board. This information is supplied with the unit via Form "HLW-6 Manufacturer Data Report" for verification and reference by local inspection officials. The HLW options also include additional features such as dry-fire protection, an auto bleed valve, stainless steel bulkheads and boiler drain valves, adding an extra level of quality and durability to the heaters.

Other Product Options
For additional heater options and installation accessories, reference the appropriate section at the end of this document.

Heater Product Compliance

Lead-Free

Products marked with the Lead-Free logo comply with the Safe Drinking Water Act (SDWA) requirements of a weighted average of less than 0.25% lead content on wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

ETL listed to UL499
ETL listed to UL 50E
ETL listed to NFPA 496 (Requires EXP2CFPM Option)
cETL listed to CSA-C22.2 No. 88

Standard product selections contained within this document are third party CERTIFIED to NSF/ANSI 372 meeting the Lead-Free content requirement. Any product configured with custom options will be COMPLIANT with NSF/ANSI 372 meeting the Lead-Free content requirement.

ASME Certification available. Bradley units 58kW (200,000 btu) and higher are the only electric tankless water heaters National Board certified with the HLW stamp (Requires HLW Option).

SNA-SKID Series Pressure Drop Advantage*

GPM	1.5	2	3	4	5	6	8	10	15	20	25	30	35	40	45	50
72–144 kW PSI	0.0	0.0	0.1	0.2	0.3	0.4	0.8	1.2	2.6	4.7	7.3	10.4	14.2	18.5	23.3	28.7
L-MIN	5.7	7.6	11.3	15.1	18.9	22.7	30.2	37.8	56.7	75.6	94.5	113.4	132.5	151.2	170.1	189
72–144 kW BAR	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5	0.7	1.0	1.3	1.6	2.0

*Applies to EACH SNA and SNAR heater.

Electrical Specifications for the Heater (3-Phase)*

All internal fuses necessary for installation are included with the unit.

Capacity (kW)	Voltage	Maximum Amperage	Minimum AWG Wire Size
108	480	132	1
108	600	104	2
126	480	152	1/0
126	600	121	1
144	480	174	2/0
144	600	139	1/0

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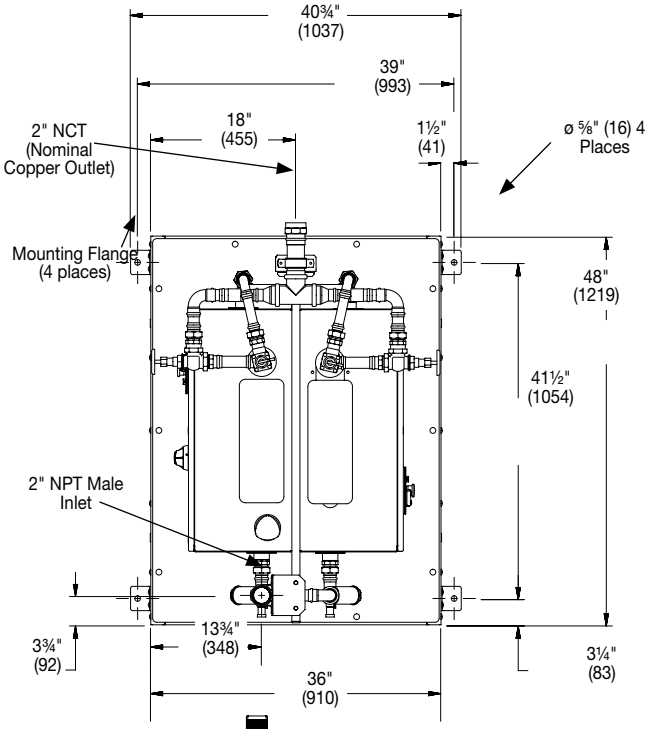
SNA-SKID Series - Dimensions

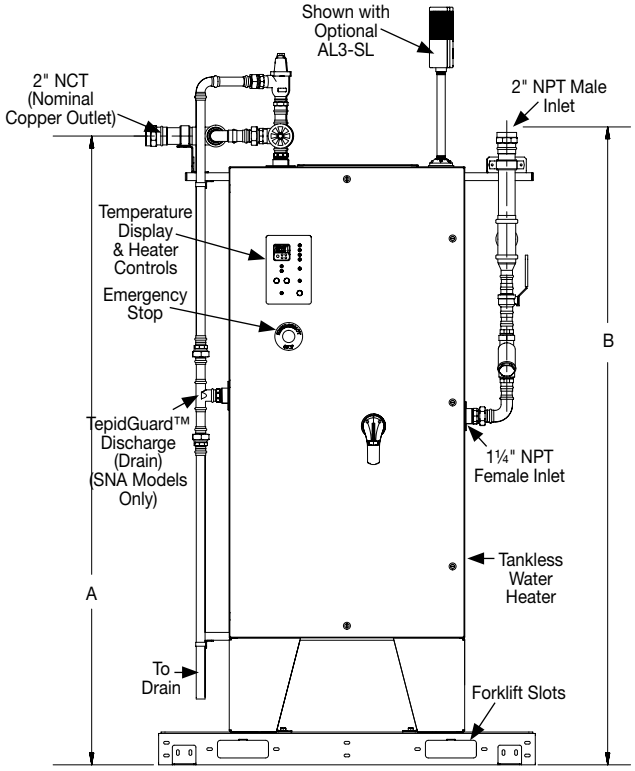
Select product options shown. Other options available.

(mm)

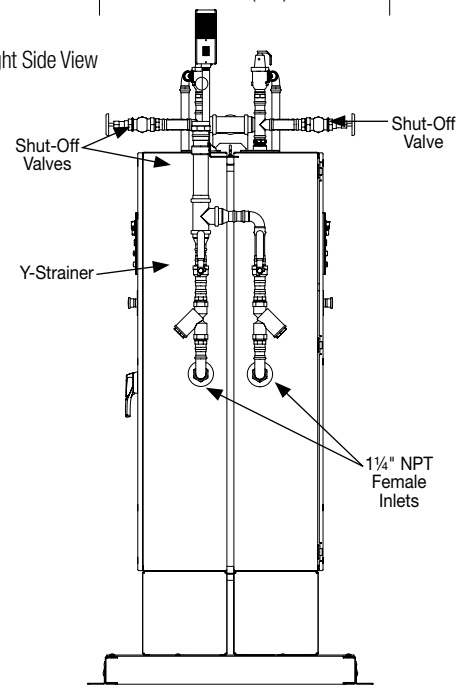
Top View



Front View



Right Side View



	Dim. "A"	Dim. "B"
108kW	68¼"(1734)	69¼"(1759)
126kW	80¼"(2035)	81¼"(2065)
144kW	80¼"(2035))	81¼"(2065)

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kW Calculator

SNA-SKID Series (kW): 216, 252, 288

Temperature Δ°F (°C)

Flow GPM	L-MIN	10° (6°)	15° (8°)	20° (11°)	25° (14°)	30° (17°)	35° (19°)	40° (22°)	45° (25°)	50° (28°)	55° (31°)	60° (33°)	65° (36°)	70° (39°)	75° (42°)	80° (44°)	85° (47°)	90° (50°)	95° (53°)	100° (56°)	105° (58°)	110° (61°)	115° (64°)	120° (67°)	125° (69°)	130° (72°)	135° (75°)	140° (78°)
5	18.9	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216
10	37.9	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216
15	56.8	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	216	252	252	252	288	288	288	288	-	-
20	75.7	216	216	216	216	216	216	216	216	216	216	216	216	216	252	252	252	288	288	-	-	-	-	-	-	-	-	-
25	95.6	216	216	216	216	216	216	216	216	216	216	252	252	288	288	-	-	-	-	-	-	-	-	-	-	-	-	-
30	113.6	216	216	216	216	216	216	216	216	252	252	288	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	132.5	216	216	216	216	216	216	216	252	288	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	151.4	216	216	216	216	216	216	252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	170.3	216	216	216	216	216	252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	189.2	216	216	216	216	252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55	208.2	216	216	216	216	252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	226.8	216	216	216	252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	246	216	216	216	252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	264.6	216	216	216/252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	283.9	216	216	252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	302.4	216	216	252/288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
85	321.8	216	216	252/288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
90	340.2	216	216/252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95	359.6	216	252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100	378	216	252/288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
105	397.5	216	252/288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	416.4	216	252/288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115	435.3	216/252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	454.2	216/252	288	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ASME Certification Available

Sizing for the proper flow rate is important. The SNA-SKID Series features two heaters (SNA and SNAR) mounted back-to-back on a skid. For simplicity, the chart above combines the kW of the two individual heaters into one number. Please contact your Bradley Representative for additional product information.

How to Size a Heater

1. Calculate Delta-T (ΔT).
   Set point temp - coldest ground water temp = ΔT ΔT = _____
2. Select kW required by using chart or formula below.
   Peak demand in GPM x ΔT x .1465 = kW kW = _____
3. Confirm voltage and phase available on site. Voltage and Phase = _____
4. Confirm minimum flow. Minimum Flow = _____

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Model SNA-SKID
◯ **SNA** SNA Heater, SNAR Heater and Skid

Standard Selections (Must select one from each category)

Kilowatts
◯ **108** 108 kilowatts
◯ **126** 126 kilowatts
◯ **144** 144 kilowatts

AC Power Supply
◯ **3** Three Phase

Voltage
◯ **480** 480 Volts
◯ **600** 600 Volts

System Controller
◯ **D** Digital Control

Cabinet Enclosure
◯ **N4** NEMA-4 Enclosure (standard)
◯ **N4X** NEMA-4X Enclosure - Stainless Steel

☑ **Heaters listed above can be down rated in 380, 400 and 415 volts. Contact your local Bradley Representative for power ratio and effective kW.**

Asset Tag
◯ **00** None
◯ **01** 1 Asset Tag_____
◯ **02** 2 Asset Tags_____
◯ **03** 3 Asset Tags_____
◯ **04** 4 Asset Tag_____
◯ **05** 5 Asset Tags_____

Customer Signoff_____

Product Options (Must select one from each category)

◯ **AL3-SL**	Stack Light with Distributed Control System Lin
◯ **NONE**	None
◯ **ENHT**	Freeze Protection to -20°F
◯ **ENHT30**	Freeze Protection to -30°F
◯ **NONE**	None
◯ **EXP2CFPM**	Continuous Flow Explosion Proof Class1/Division2
◯ **NONE**	None
◯ **FDS/GF**	Internal Fused Disconnect/Ground Fault Package
◯ **NONE**	None
◯ **HLW**	ASME Heat Exchanger with Level Sensor (63kW and Higher Only)
◯ **NONE**	None

Installation Accessories

◯ **PRS***	ASME pressure relief valve, stainless steel
◯ **NONE**	None
◯ **YSS***	Y-Strainer, stainless steel
◯ **NONE**	None

*Inlet y-strainer and bronze pressure and temperature relief valve are included as standard.

☑ **Verify ASME Code applicability for all installations 58kw (200,000 btu) and higher.**

Application Attributes (MANDATORY)

Coldest ground water temperature:_____

Minimum Flow:_____

Maximum Flow:_____

Set point temperature 80˚F/ 27˚C:_____

Delta T Calculation
Set Point Temperature - Coldest Incoming Water Temperature = Minimum Delta T for Application

Model Number SNA-SKID (For Internal Use Only)

Configuration

SNA-SNAR-SKID1 3 / D - - - - - - -
kW Volts

INSTL_ACCESSORY - - -

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