SN Series - Safety Shower Heaters

Tankless Water Heating Solutions

- 36 - 144 kW (122,800 - 491,300 BTUs)
- Temperature overshoot purge system
- Lead-Free Design
- NEMA 4 enclosure standard
- ETL and cETL certified to UL and CSA Standards
- Liquid-Cooled Solid State Relays
- 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

Standard Equipment

Tankless Water Heating Specifications

Keltech, Inc. Tankless Shower Heaters provide warm water intended to supply 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. Keltech's 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 hot water purge. SN-Series units are also suited to applications where 3 Phase Delta 480V or 600V is required and 1" connections are available.

Construction

Temperature Controller

Keltech's 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 element. The Keltech design ensures greater protection, durability and resistance to scaling from hard water because continuous flushing and no dead space means sediment will not precipitate.

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 SN-Series requires only one service feed per unit. Includes internal fusing as standard. Internal fusing provides superior protection so the incoming circuit can be higher than 48 amps (NEC). Keltech protects both sides of each heating element with fusing.

Cabinet Enclosure

The floor-mounted standard cabinet enclosure is NEMA 4 rated and made from 16 gauge electro galvanized steel and powder coated with ANSI 61 gray, corrosive resistant paint. The NEMA 4X enclosures are corrosion resistant for harsher environments and made from 16 gauge 304 stainless steel. The NEMA 4X enclosure can also be specified with 316 stainless steel.

Independent Safeties

Each heater has three-tier anti-scald protection and hot water evacuation (overshoot purge protection). The controller alarm will disconnect power to the elements if the temperature reaches 90°F (32°C). Both switch and cutoff prevent overshoot or scalding. The 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 manual reset cutoff acts as a fail-safe and must be manually reset before power can be restored to the elements if the temperature limit is exceeded.

Standard on SN safety heaters, the overshoot purge will automatically open and purge excess temperature water.

Temperature Safety Values:
Auto reset high limit switch: 95°F (35°C)
Manual reset cutoff: 100°F (38°C)
Overshoot purge: 95°F (35°C)

Optional Fuse Disconnect

Internal fuse disconnect interlocks with enclosure door when energized, prohibiting access to a live cabinet. Select the FDS option for an additional level of safety and convenience at the heater location.

Optional Alarm Selections

Keltech offers visible alarm hook ups for an audible alarm system including a stacklight option.

Optional Freeze Protection

This option is powered off the main service so it does not require a separate circuit, which means no additional wiring. Choose from -20°F or -30°F. Includes insulation in the standard NEMA 4 Enclosure and thermostatically controlled forced air heater to maintain temperatures above freezing. ENHT Package has a Mechanical Ambient Sensor that can provide a signal to the DCS if the power has been removed from the heater and the enclosure temperature reaches 40°F.

Optional Ground Fault

Equipment protection ground fault package includes fault status light test and reset buttons on exterior control panel.

Other Product Options

For additional heater options, reference the Product Options Section of this document.

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

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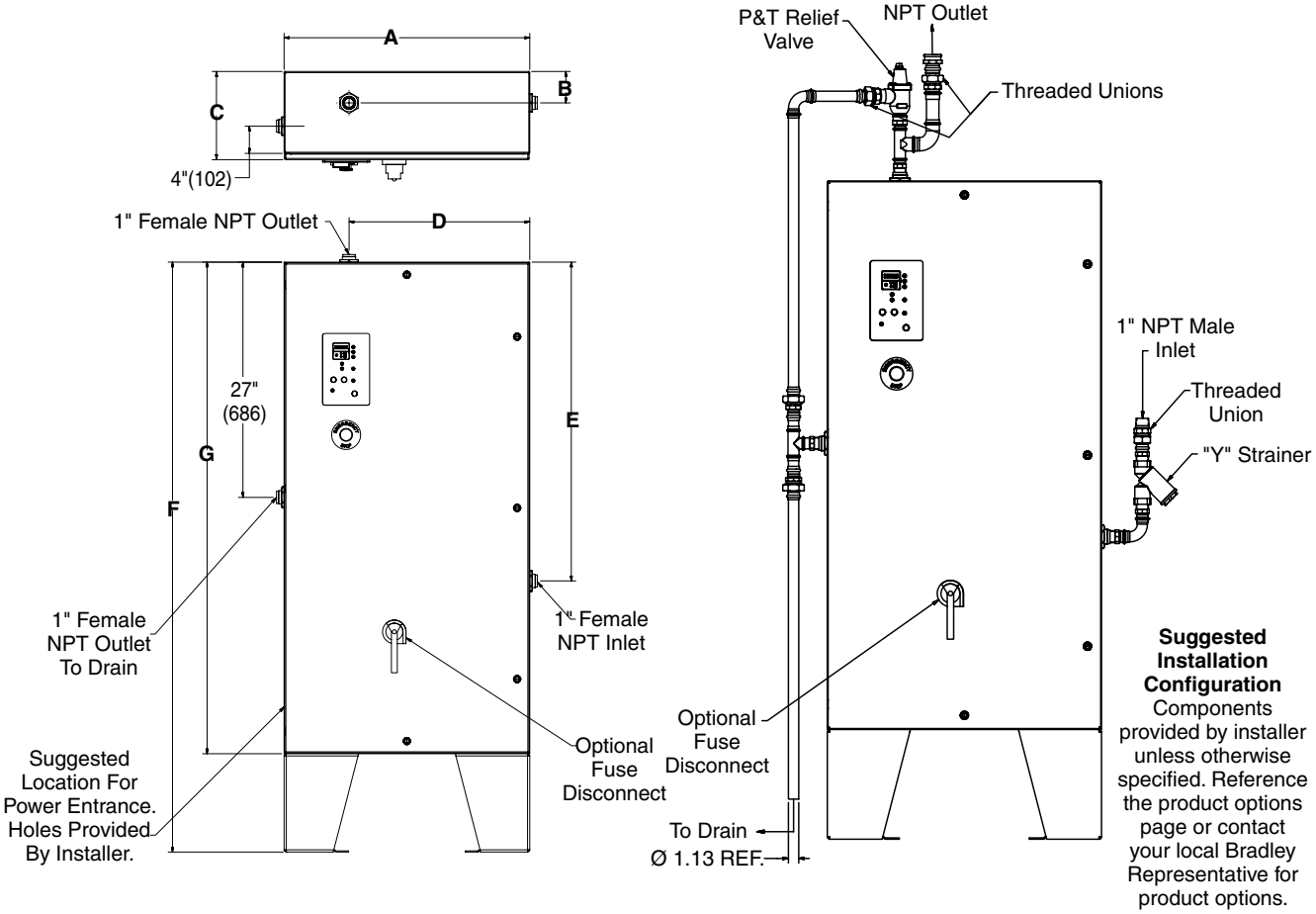
SN Series - Dimensions (mm)

Select product options shown. Other options available.



Suggested Installation Configuration
Components provided by installer unless otherwise specified. Reference the product options page or contact your local Bradley Representative for product options.

	Dim. "A"	Dim. "B"	Dim. "C"	Dim. "D"	Dim. "E"	Dim. "F"	Dim. "G"
36kW	24" (610)	3.4" (86)	10 13/16" (275)	16" (406)	31¼" (794)	60" (1524)	48" (1219)
54kW	24" (610)	3.4" (86)	10 13/16" (275)	16" (406)	31¼" (794)	60" (1524)	48" (1219)
63kW	24" (610)	3.4" (86)	10 13/16" (275)	16" (406)	31¼" (794)	72" (1829)	60" (1524)
72kW	30" (762) ❶	3.8" (97)	10 13/16" (275) ❷	22" (559)	39¾" (1010)	60" (1524)	48" (1219)
108kW	30" (762) ❶	3.8" (97)	10 13/16" (275) ❷	22" (559)	39¾" (1010)	60" (1524)	48" (1219)
126kW	30" (762) ❶	3.8" (97)	10 13/16" (275) ❷	22" (559)	39¾" (1010)	72" (1829)	60" (1524)
144kW	30" (762) ❶	3.8" (97)	10 13/16" (275)❷	22" (559)	39¾" (1010)	72" (1829)	60" (1524)

❶ +6" (152) for fuse disconnect and freeze protection options

❷ +2" (51) for fuse disconnect and freeze protection options

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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
36	480	43	6
36	600	35	8
54	480	65	4
54	600	52	6
63	480	76	4
63	600	61	4
72	480	87	3
72	600	69	4
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

Code Compliance and Certifications

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, cETL listed to CSA22.2.

NSF Certified to comply with NSF/ANSI Standard 372 - Drinking Water System Components - Lead Content

ASME Certification available. Keltech units over 57kW are the only electric tankless water heaters available. National Board certified with the HLW stamp.

SN Pressure Drop Advantage

GPM	1	2	3	4	5	6	8	10	15	20	25	30	40	45	50
36 - 126 kW PSI	2	2	2	3	3	4	5	6	10	16	23	32	55	69	84
144 kW PSI	0.2	0.4	1	1	1	1	2	3	5	8	11	16	26	33	40
L-MIN	3.8	7.6	11.3	15.1	18.9	22.7	30.2	37.8	56.7	75.6	94.5	113.4	151.2	170.1	189
36 - 126 kW BAR	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.7	1.1	1.6	2.2	3.8	4.7	5.8
144 kW BAR	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.8	1.1	1.8	2.3	2.8

Recommend -PD option

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kW Calculator

SN Series (kW): 36, 54, 63, 72, 108, 126, 144

Temperature ΔºF (ºC)

Flow GPM	L-MIN	10º (6º)	15º (8º)	20º (11º)	25º (14º)	30º (17º)	35º (19º)	40º (22º)	45º (25º)	50º (28º)	55º (31º)	60º (33º)	65º (36º)	70º (39º)	75º (42º)	80º (44º)	85º (47º)	90º (50º)	95º (53º)	100º (56º)	105º (58º)	110º (61º)	115º (64º)	120º (67º)	125º (69º)	130º (72º)	135º (75º)	140º (78º)
1.5	5.7	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
2	7.6	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	54	54	54	54
3	11.3	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	54	54	54	54	54	54	54	54	63	63	63	63
4	15.1	36	36	36	36	36	36	36	36	36	36	36	54	54	54	54	54	54	54	63	63	72	72	72	108	108	108	108
5	18.9	36	36	36	36	36	36	36	36	54	54	54	54	54	54	63	63	72	72	108	108	108	108	108	108	108	108	108
6	22.7	36	36	36	36	36	36	36	54	54	54	54	63	63	72	72	108	108	108	108	108	108	108	108	126	126	126	126
7	26.5	36	36	36	36	36	36	54	54	54	63	63	72	72	108	108	108	108	108	108	108	126	126	126	144	144	144	144
8	30.2	36	36	36	36	36	54	54	54	63	72	72	108	108	108	108	108	108	126	126	126	144	144	144	-	-	-	-
9	34.0	36	36	36	36	54	54	54	63	72	108	108	108	108	108	108	126	126	126	144	144	-	-	-	-	-	-	-
10	37.8	36	36	36	54	54	54	63	72	108	108	108	108	108	126	126	126	144	144	-	-	-	-	-	-	-	-	-
12	45.4	36	36	36	54	54	63	72	108	108	108	108	126	126	144	144	-	-	-	-	-	-	-	-	-	-	-	-
15	56.7	36	36	54	63	72	108	108	108	126	126	144	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	75.6	36	54	63	108	108	108	126	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	94.5	54	63	108	108	126	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	113.4	54	72	108	126	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	132.3	54	108	108	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	151.2	63	108	126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	170.1	72	108	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	189.0	108	126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Recommend 144 kW for minimal pressure drop

ASME Certification Available

Sizing for the proper flow rate is important. If the temperature rise requirements exceed a single SN model, consider using multiple SN-Series units. Please contact your Keltech 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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Standard Product - SN Series

36kW Safety Shower Heaters
- ☐ **SN363/480D** Three Phase 36kW, 480V Safety Shower Heater
- ☐ **SN363/600D** Three Phase 36kW, 600V Safety Shower Heater

54kW Safety Shower Heaters
- ☐ **SN543/480D** Three Phase 54kW, 480V Safety Shower Heater
- ☐ **SN543/600D** Three Phase 54kW, 600V Safety Shower Heater

63kW Safety Shower Heaters
- ☐ **SN633/480D** Three Phase 63kW, 480V Safety Shower Heater
- ☐ **SN633/600D** Three Phase 63kW, 600V Safety Shower Heater

72kW Safety Shower Heaters
- ☐ **SN723/480D** Three Phase 72kW, 480V Safety Shower Heater
- ☐ **SN723/600D** Three Phase 72kW, 600V Safety Shower Heater

108kW Safety Shower Heaters
- ☐ **SN1083/480D** Three Phase 108kW, 480V Safety Shower Heater
- ☐ **SN1083/600D** Three Phase 108kW, 600V Safety Shower Heater

126kW Safety Shower Heaters
- ☐ **SN1263/480D** Three Phase 126kW, 480V Safety Shower Heater
- ☐ **SN1263/600D** Three Phase 126kW, 600V Safety Shower Heater

144kW Safety Shower Heaters
- ☐ **SN1443/480D** Three Phase 144kW, 480V Safety Shower Heater
- ☐ **SN1443/600D** Three Phase 144kW, 600V Safety Shower Heater

Product Options

☐	**AL3**	Distributed Control System Link
☐	**AL3-SL**	Stack Light with Distributed Control System Link
☐	**ENHT**	Freeze Protection to -20°F
☐	**ENHT30**	Freeze Protection to -30°F
☐	**EXP2**	Explosion Proof Class1/Division2
☐	**FDS**	Fuse Disconnect
☐	**GF**	Ground Fault Package
☐	**HLW**	ASME Heat Exchanger (63kW and Higher Only)
☐	**N4X**	NEMA-4X Enclosure - Stainless Steel
☐	**PD**	Replaces standard 1" flow switch with 1-1/2" flow switch

Installation Accessories

☐	**BSPP**	Stainless steel thread adapter converts NPT to BSPP
☐	**PR**	Pressure and temperature relief valve
☐	**PRS**	Pressure and temperature relief valve, stainless steel
☐	**YS**	Y-Strainer
☐	**YSS**	Y-Strainer, stainless steel

☑ **Keltech Tankless Water Heaters are non-cancelable, non-refundable and non-returnable.**

☑ **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:_____

Delta T Calculation

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

Model Number Configuration

SN_____/_____D-_____-_____-_____-_____-_____-_____-_____

List applicable option codes alphabetically.

Customer Signoff_____

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