altsource 120

Design Specifications

Date :

Project :

Location :

Engineer :

Contractor :



THERMO 2000

THERMO 2000 | Peak-performance heating systems

August 2026

Altsource 120

Electric thermal mass boiler
Design Specifications



The AltSource 120 is an electric boiler used for hydronic heating and optionally, it can include a copper heat exchanger submerged in the unit's tank that is used to instantly produce domestic hot water. Unique and robust, this unit combines a boiler and storage tank to act as a secondary energy source, maximizing the efficiency of any renewable energy system. Thanks to its static SCR relay, the unit modulates its power from 0 to 100% to provide perfect thermal stability and increased component longevity. Available in single-phase and three-phase configurations, it offers significant space savings while eliminating costly consumption peaks. Its easy-to-use electronic controller provides precise temperature and power control to minimize energy costs and to optimize the boiler's performance.

I – CONFIGURATION AN DESCRIPTION

The **AltSource 120** electric boiler is offered in SCR version only. The SCR version allows for proportional power modulation from 0 to 100% using a solid-state SCR relay, with other additional features.

1. CONTROLLER

The boiler will be operated by a Schneider Electric controller with the following features:

- A 3-inch LCD screen
- The controller is accurate, easily-configured and has a rear-lit display
- The controller's displays the unit's operating status and the following information at a glance:
    - Heat demand
    - Set point temperature
    - Outlet temperature
    - Outdoor temperature when the sensor is connected
    - Boiler power in real time
    - Number of Stagess and percentage of the capacity being used
    - Operating pressure
    - Operating mode: electric, auxiliary or dual-energy
    - "Boost" mode in operation
    - "Warm Weather Shut Down": The boiler shuts down when the outdoor temperature is high
    - Visual and audible alarm with alarm code
    - Operating status indicator lights: green, amber or red
    - Unit (°C/°F) and language (English/French) selector
    - Return temperature display
    - Boiler flow-rate display
    - Display of amperage measured at the boiler
    - Power consumption estimate display

2. TEMPERATURE ADJUSTMENT

- Adjustable set point temperature ranges from 50°F to 200°F (10°C to 93°C)
- There are different ways to control the set point temperature:
    1. Fixed set point temperature
    2. Water temperature modulation via the outdoor temperature sensor

3. Remote water temperature control using an external BACnet IP or MSTP controller
4. Variable water temperature based on a building occupancy schedule

- The controller can be used to set a second, higher set point temperature, which allows you to use an indirect water heater with or without domestic hot water priority.
- “Boost” mode to automatically increase the temperature when demand persists
- Exterior temperature sensor included
- “Warm Weather Shut Down”: The boiler shuts down when the outdoor temperature is high
- External 0-10Vdc temperature control

3. POWER ADJUSTMENT

- The maximum power can be controlled as follows:
  1. The controller has no constraints or limitations
  2. The maximum power is controlled manually
  3. Maximum power modulated based on the sensor’s outdoor temperature
  4. Remote power control (using an external BACnet IP or MSTP controller)
  5. Variable maximum power based on a pre-set schedule
- External 0-10Vdc power control

4. CONNECTIVITY

- Ethernet and BACnet network communication ports enable remote communication
- Standard BACnet IP or MSTP network communication
- Ability to view the operating status and to remotely modify the settings on a webpage
- Operating anomalies information and history
- Can be configured to send alarms by email

5. ELECTRIC CIRCUIT

SINGLE PHASE, 60HZ

- The electrical connection must be 2-wire cable with ground.

THREE-PHASE, 60HZ

- The electrical connection must be 3-wire cable with ground.
- Amperage measurement to detect anomalies and estimate power consumption

SINGLE PHASE, 60HZ & THREE-PHASE, 60HZ

- The heating elements will be square flange immersion type. They shall be low watt density and equipped with a copper sheath to ensure efficient heat transfer.
- The boiler will be equipped with two limit controls, the first will be adjustable with an automatic reset and the second will be at a fixed temperature with a manual reset.
- Control circuit ON/OFF switch
- Electrical control circuits will be equipped with fuses to protect the low-voltage circuits.
- Electrical circuits will be equipped with fuses to protect the high-voltage circuits.
- The unit’s power can be modulated through a solid-state SCR relay from 0 to 100% based on the demand. In addition, it rotates through the Stages to ensure components wear equally.
- A contact to activate an auxiliary boiler as a backup or in dual-energy mode
- Return temperature sensor
- An external contact lowers the heat demand when the building is unoccupied

II – IDENTIFICATION

ALTSOURCE 120 (COIL) (KW) (VOLTAGE) (X)PH

Example:
ALTSOURCE 120 60 600-3PH
ALTSOURCE 120 COIL 54 240 1PH

III - PRESSURE VESSEL

The tank shall be fabricated from steel in accordance with CSA B51-24 and shall bear a Canadian Registration Number (CRN) as well as an ASME “H” stamp, certifying that the tank is constructed in compliance with Section IV of the ASME Boiler and Pressure Vessel Code. The tank shall have a maximum operating pressure of 100 psi (689.5 kPa) and a water volume of 120 US gallons (454 liters). It shall be hydrostatically tested at 150 psi (1,034 kPa) in accordance with the ASME Code.

The unit shall be equipped with five (5) 2" NPT male connections allowing for multi-position installation and facilitating system connections. The tank shall include 12 openings for the installation of square-flange heating elements. It shall also be equipped with a ¾" ball-type drain valve and shall be shipped from the factory with an ASME-compliant safety relief valve with a 50 psi (345 kPa) trigger point. Refer to Section V for available safety relief valve options.

IV - CABINET

The outer steel jacket is coated with a baked enamel finish. The cabinet is designed to minimize floor space requirements while providing convenient access to internal components. The tank shall be insulated with polyurethane foam insulation, limiting heat loss to ½°F per hour. The upper compartment provides access to the heating elements and certain temperature sensors.The lower compartment provides access to the power and low-voltage control components. This lower compartment has a panel which holds the controller in place and can be removed to access only the low-voltage control components.

V - AVAILABLE OPTIONS

MODELS WITHOUT COIL

Addition of a Low Water Cut-Off Control
☐ ALTLWCO

30 psi Safety Relief Valve
☐ ALT3050

60 psi Safety Relief Valve
☐ ALT6050

100 psi Safety Relief Valve
☐ ALT10050

MODEL WITH COIL

Addition of a Low Water Cut-Off Control
☐ ALTLWCO

30 psi Safety Relief Valve
☐ ALT3050

60 psi Safety Relief Valve
☐ ALT6050

Safety Relief Valve T&P 100 psi / 210 °F (Available on models 4,5kW to 30kW)
☐ ZMC200-SVTP100

Safety Relief Valve T&P 100 psi / 210 °F 40XL (Available on models 31kW to 60kW)
☐ ZMC200-SVTP10XL

VI - WARRANTY

The steel tank is covered by a 10-year limited warranty for closed-circuit heating applications. The optional coil is covered by a 10-year limited warranty. Parts and accessories have a 2-year warranty. The boiler must be tested, certified and bear the CSA Canada and US logos according to CSA C22.2 No. 165-92 and UL834 standards.

VII – START UP

To facilitate start-up, a pre-adjustment form is available in the event you would like to change the ALTSOURCE 120 unit's default operating settings to values that correspond to your project's needs. Just indicate the values you need for your application and Thermo 2000 will program the controller in the factory.

Thermo 2000 Inc. reserves the right to modify, at any time without notice, the colours, components, materials, design specifications, or models that are described in this document.

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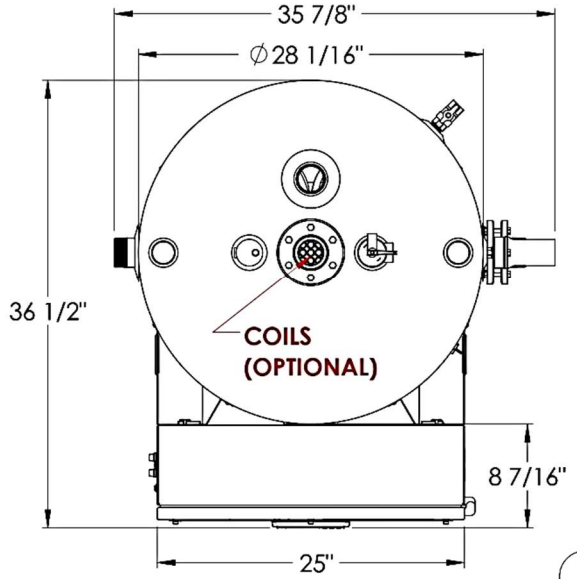
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TECHNICAL DRAWING

AltSource 120

THERMO 2000 inc.

Model	Tank Volume	Domestic water connection	Boiler connection	Equipment weight without coil	Equipment weight with coil	Crate weight
ALTSOURCE® 120	120 gal. US	2" Sweat M	2" NPT M	530 lbs	630 lbs	75 lbs

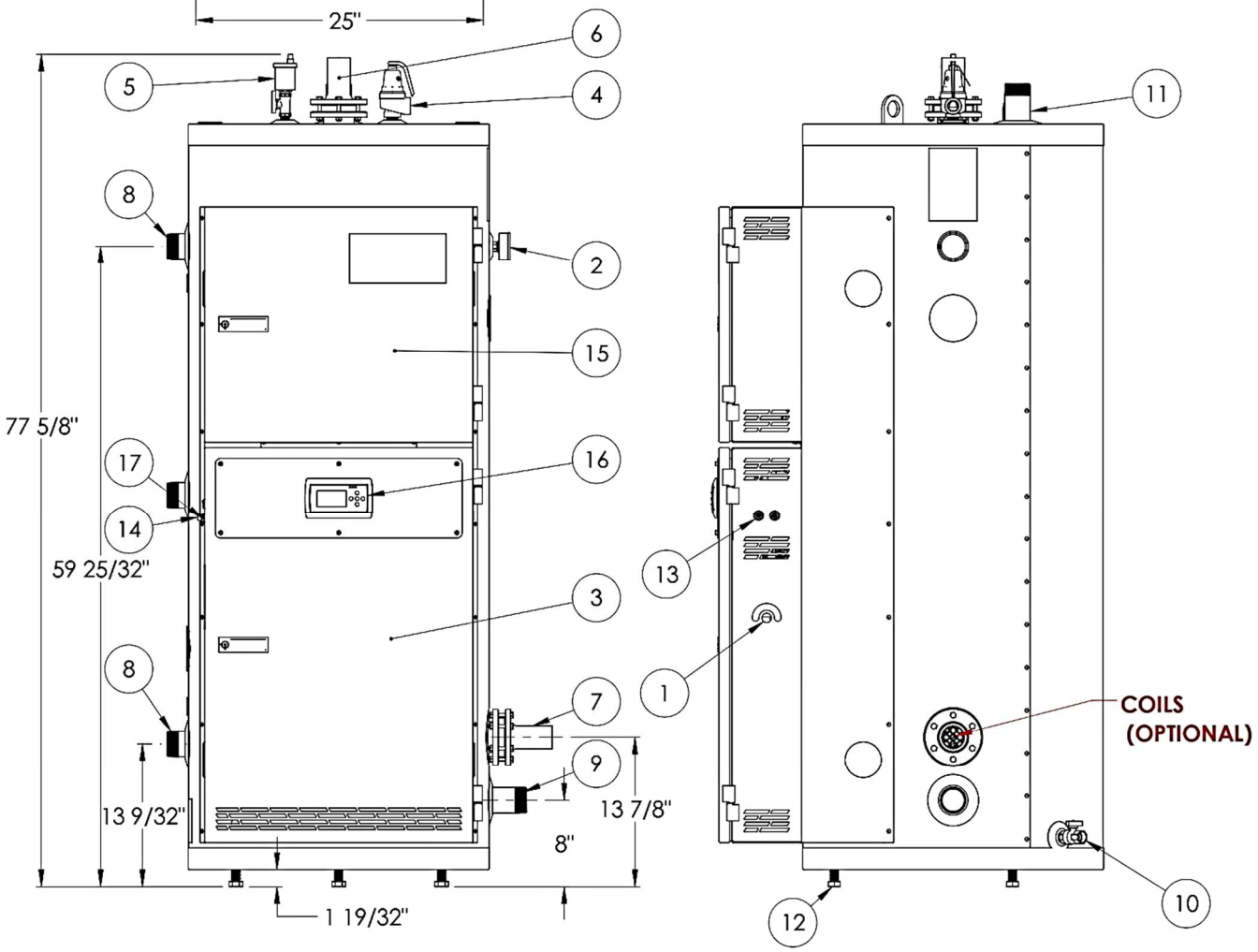


MAXIMUM PRESSURE : 100 PSI (HEATING), 100 PSI (DOMESTIC HOT WATER)

COMPONENTS IDENTIFICATION

1 Electrical main supply
2 Temp. & Press. indicator 1/2" NPTM
3 Access door power circuit
4 Pressure relief valve 3/4" NPTF
5 Automatic air vent 1/2" NPTM
6 Domestic hot water outlet(OPTION)
7 Cold water supply(OPTION)
8 Extra Tappings
9 Boiler Water Intlet
10 Tank drain valve 3/4NPTF
11 Boiler Water Outlet
12 Adjustable legs
13 Electrical control wires access hole
14 Fuses for controls
15 Access door to heating elements
16 Boiler controller
17 "On/Off" switch

OPTION : Copper coils heat exchanger.
47.1 ft² surface area, max 27 gpm



The dimensions provided are for reference only. Please contact Thermo2000 for certified dimensions.

ALTSOURCE 120 600 VAC, 60Hz, 3 Phases[1]								
Model	**BTU/h**	**kW**	**Amps**	**Stages**	**347V element**	**Relay Stages**	**SCR Stages**	**Supply lug size**
Altsource 120 9KW 600V 3PH	30708	9	8,7	1	3 x 3 kW	N.A.	1 x 9 kW	3 x 2/0 AWG
Altsource 120 15KW 600V 3PH	51180	15	14,4	1	3 x 5 kW	N.A.	1 x 15 kW	3 x 2/0 AWG
Altsource 120 18KW 600V 3PH	61416	18	17,3	1	3 x 6 kW	N.A.	1 x 18 kW	3 x 2/0 AWG
Altsource 120 30KW 600V 3PH	102360	30	28,9	2	6 x 5 kW	1 x 15 kW	1 x 15 kW	3 x 2/0 AWG
Altsource 120 36KW 600V 3PH	122832	36	34,6	2	6 x 6 kW	1 x 18 kW	1 x 18 kW	3 x 2/0 AWG
Altsource 120 45KW 600V 3PH	153540	45	43,3	3	9 x 5 kW	2 x 15 kW	1 x 15 kW	3 x 2/0 AWG
Altsource 120 54KW 600V 3PH	184248	54	52	3	9 x 6 kW	2 x 18 kW	1 x 18 kW	3 x 2/0 AWG
Altsource 120 60KW 600V 3PH	204720	60	57,7	4	12 x 5 kW	3 x 15 kW	1 x 15 kW	3 x 2/0 AWG

[1] Electrical supply 600V 3 phase (L1-L2-L3) with 3 conductors Cu or AL, 75 °C with a ground.

ALTSOURCE 120 480 VAC, 60Hz, 3 Phases[1]								
Model	**BTU/h**	**kW**	**Amps**	**Stages**	**277V element**	**Relay Stages**	**SCR Stages**	**Supply lug size**
Altsource 120 9KW 480V 3PH	30708	9	10,8	1	3 x 3 kW	N.A.	1 x 9 kW	3 x 2/0 AWG
Altsource 120 15KW 480V 3PH	51180	15	18,0	1	3 x 5 kW	N.A.	1 x 15 kW	3 x 2/0 AWG
Altsource 120 18KW 480V 3PH	61416	18	21,7	1	3 x 6 kW	N.A.	1 x 18 kW	3 x 2/0 AWG
Altsource 120 30KW 480V 3PH	102360	30	36,1	2	6 x 5 kW	1 x 15 kW	1 x 15 kW	3 x 2/0 AWG
Altsource 120 36KW 480V 3PH	122832	36	43,3	2	6 x 6 kW	1 x 18 kW	1 x 18 kW	3 x 2/0 AWG
Altsource 120 45KW 480V 3PH	153540	45	54,1	3	9 x 5 kW	2 x 15 kW	1 x 15 kW	3 x 2/0 AWG
Altsource 120 54KW 480V 3PH	184248	54	65	3	9 x 6 kW	2 x 18 kW	1 x 18 kW	3 x 2/0 AWG
Altsource 120 60KW 480V 3PH	204720	60	72,2	4	12 x 5 kW	3 x 15 kW	1 x 15 kW	3 x 2/0 AWG

[1] Electrical supply 480V 3 phase (L1 - L2 - L3) with 3 conductors Cu or AL, 75°C with a ground.

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ALTSOURCE 120 240 VAC, 60Hz, 3 Phases[1]								
Model	**BTU/h**	**kW**	**Amps**	**Stages**	**240V element**	**Relay Stages**	**SCR Stages**	**Supply lug size**
Altsource 120 9KW 240V 3PH	30708	9	22	1	3 x 3 kW	N.A.	1 x 9 kW	3 x 2/0 AWG
Altsource 120 13KW 240V 3PH	46062	13,5	32	1	3 x 4.5 kW	N.A.	1 x 13.5 kW	3 x 2/0 AWG
Altsource 120 15KW 240V 3PH	51180	15	36	1	3 x 5 kW	N.A.	1 x 15 kW	3 x 2/0 AWG
Altsource 120 18KW 240V 3PH	61416	18	43	1	3 x 6 kW	N.A.	1 x 18 kW	3 x 2/0 AWG
Altsource 120 27KW 240V 3PH	92124	27	65	2	6 x 4.5 kW	1 x 13.5 kW	1 x 13.5 kW	3 x 2/0 AWG
Altsource 120 30KW 240V 3PH	102360	30	72	2	6 x 5 kW	1 x 15 kW	1 x 15 kW	3 x 2/0 AWG
Altsource 120 36KW 240V 3PH	122832	36	87	2	6 x 6 kW	1 x 18 kW	1 x 18 kW	3 x 2/0 AWG
Altsource 120 41KW 240V 3PH	138186	40,5	97	3	9 x 4.5 kW	2 x 13.5 kW	1 x 13.5 kW	3 x 2/0 AWG
Altsource 120 45KW 240V 3PH	153540	45	108	3	9 x 5 kW	2 x 15 kW	1 x 15 kW	3 x 2/0 AWG
Altsource 120 54KW 240V 3PH	184248	54	130	3	9 x 6 kW	2 x 18 kW	1 x 18 kW	3 x 2/0 AWG
Altsource 120 60KW 240V 3PH	204720	60	144	4	12 x 5 kW	3 x 15 kW	1 x 15 kW	3 x 2/0 AWG

[1] Electrical supply 240V 3 phase (L1-L2-L3) with 3 conductors Cu or AL, 75 °C with a ground.

ALTSOURCE 120 208 VAC, 60Hz, 3 Phases[1]								
Model	**BTU/h**	**kW**	**Amps**	**Stages**	**240V[2] element**	**Relay Stages**	**SCR Stages**	**Supply lug size**
Altsource 120 7KW 208V 3PH	23065	6,8	19	1	3 x 3 kW	N.A.	1 x 6.8 kW	3 x 2/0 AWG
Altsource 120 10KW 208V 3PH	34598	10,1	28	1	3 x 4.5 kW	N.A.	1 x 10.1 kW	3 x 2/0 AWG
Altsource 120 11KW 208V 3PH	38442	11,3	31	1	3 x 5 kW	N.A.	1 x 11.3 kW	3 x 2/0 AWG
Altsource 120 14KW 208V 3PH	46130	13,5	37	1	3 x 6 kW	N.A.	1 x 13.5 kW	3 x 2/0 AWG
Altsource 120 20KW 208V 3PH	69195	20,3	56	2	6 x 4.5 kW	1 x 10.1 kW	1 x 10.1 kW	3 x 2/0 AWG
Altsource 120 23KW 208V 3PH	76884	22,5	62	2	6 x 5 kW	1 x 11.3 kW	1 x 11.3 kW	3 x 2/0 AWG
Altsource 120 27KW 208V 3PH	92260	27,0	75	2	6 x 6 kW	1 x 13.5 kW	1 x 13.5 kW	3 x 2/0 AWG
Altsource 120 30KW 208V 3PH	103793	30,4	84	3	9 x 4.5 kW	2 x 10.1 kW	1 x 10.1 kW	3 x 2/0 AWG
Altsource 120 34KW 208V 3PH	115326	33,8	94	3	9 x 5 kW	2 x 11.3 kW	1 x 11.3 kW	3 x 2/0 AWG
Altsource 120 41KW 208V 3PH	138391	40,6	113	3	9 x 6 kW	2 x 13.5 kW	1 x 13.5 kW	3 x 2/0 AWG
Altsource 120 45KW 208V 3PH	153767	45,1	125	4	12 x 5 kW	3 x 11.3 kW	1 x 11.3 kW	3 x 2/0 AWG
Altsource 120 54KW 208V 3PH	184521	54,1	150	4	12 x 6 kW	3 x 13.5 kW	1 x 13.5 kW	3 x 2/0 AWG

[1] Electrical supply 208V 3 phase (L1-L2-L3) with 3 conductors Cu or AL, 75 °C with a ground.
[2] 240V electrical element operated at 208V

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ALTSOURCE 120 240 VAC, 60Hz, 1 Phase[1]								
Model	**BTU/h**	**kW**	**Amps**	**Stages**	**240V element**	**Relay Stages**	**SCR Stages**	**Supply lug size**
Altsource 120 6KW 240V 1PH	20472	6	25	1	1 x 6 kW	N.A.	1 x 6 kW	3 x 2/0 AWG
Altsource 120 12KW 240V 1PH	40944	12	50	1	2 x 6 kW	N.A.	1 x 12 kW	3 x 2/0 AWG
Altsource 120 18KW 240V 1PH	61416	18	75	2	4 x 4.5 kW	1 x 9 kW	1 x 9 kW	3 x 2/0 AWG
Altsource 120 24KW 240V 1PH	81888	24	100	2	4 x 6 kW	1 x 12 kW	1 x 12 kW	3 x 2/0 AWG
Altsource 120 30KW 240V 1PH	102360	30	125,0	3	6 x 5 kW	2 x 10 kW	1 x 10 kW	2 x 500 MCM
Altsource 120 36KW 240V 1PH	122832	36	150,0	3	6 x 6 kW	2 x 12 kW	1 x 12 kW	2 x 500 MCM
Altsource 120 42KW 240V 1PH	143304	42	175,0	4	4 x 4.5 kW 4 x 6 kW	3 x 10.5 kW	1 x 10.5 kW	2 x 500 MCM
Altsource 120 48KW 240V 1PH	163776	48	200,0	4	8 x 6 kW	3 x 12 kW	1 x 12 kW	2 x 500 MCM
Altsource 120 55KW 240V 1PH	187660	55	229,2	5	5 x 5 kW 5 x 6 kW	4 x 11 kW	1 x 11 kW	2 x 500 MCM
Altsource 120 60KW 240V 1PH	204720	60	250	5	10 x 6 kW	4 x 12 kW	1 x 12 kW	2 x 500 MCM

[1] Electrical supply 240V 2 phase (L1-L2) with 2 conductors Cu or AL, 75 °C with a ground.

ALTSOURCE 120 208 VAC, 60Hz, 1 Phase[1]								
Model	**BTU/h**	**kW**	**Amps**	**Stages**	**240V[2] element**	**Relay Stages**	**SCR Stages**	**Supply lug size**
Altsource 120 5KW 208V 1PH	15377	4,5	22	1	1 x 6 kW	N.A.	1 x 4.5 kW	3 x 2/0 AWG
Altsource 120 9KW 208V 1PH	30753	9	43	1	2 x 6 kW	N.A.	1 x 9 kW	3 x 2/0 AWG
Altsource 120 13KW 208V 1PH	46130	13,5	65	2	4 x 4.5 kW	1 x 6.8 kW	1 x 6.8 kW	3 x 2/0 AWG
Altsource 120 18KW 208V 1PH	61507	18	87	2	4 x 6 kW	1 x 9 kW	1 x 9 kW	3 x 2/0 AWG
Altsource 120 23KW 208V 1PH	76884	22,5	108,2	3	6 x 5 kW	2 x 7.5 kW	1 x 7.5 kW	3 x 2/0 AWG
Altsource 120 27KW 208V 1PH	92260	27	129,8	3	6 x 6 kW	2 x 9 kW	1 x 9 kW	3 x 2/0 AWG
Altsource 120 32KW 208V 1PH	107637	31,5	151,4	4	4 x 4.5 kW 4 x 6 kW	3 x 7.9 kW	1 x 7.9 kW	2 x 500 MCM
Altsource 120 36KW 208V 1PH	123014	36,1	173,6	4	8 x 6 kW	3 x 9 kW	1 x 9 kW	2 x 500 MCM
Altsource 120 41KW 208V 1PH	140954	41,3	199	5	5 x 5 kW 5 x 6 kW	3 x 8.3 kW	1 x 8.3 kW	2 x 500 MCM
Altsource 120 45KW 208V 1PH	153767	45,1	216,8	5	10 x 6 kW	3 x 9 kW	1 x 9 kW	2 x 500 MCM

[1] Electrical supply 240V 2 phase (L1-L2) with 2 conductors Cu or AL, 75 °C with a ground.
[2] 240 electrical element operated at 208V

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