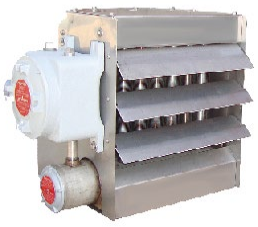
233 SERIES
EXPLOSION-PROOF UNIT HEATER SUBMITTAL

BRASCH



C US

Class I, Divisions 1 & 2, Groups C & D
Class II, Divisions 1 & 2, Groups E, F & G
Class I, Zones 1 & 2, Groups IIB
Ignition Temperature Code T3C, 320°F (160°C)

Unit Heater Listing 60 Hz

KW	Volts	Phase	Total Amps (1)	Frame Size	Approximate Air Temperature Rise °F (°C)	Catalog Number	☒
3	208	1	17	1	15 (8)	BH-233-FA-0036C	☐
	240	1	15	1	15 (8)	BH-233-FA-0036J	☐
	208	3	10	1	15 (8)	BH-233-FA-0036D	☐
	240	3	9	1	15 (8)	BH-233-FA-0036K	☐
	480	3	5	1	15 (8)	BH-233-FA-0036U	☐
	600	3	4	1	15 (8)	BH-233-FA-0036Z	☐
5	208	1	26	1	25 (13)	BH-233-FA-0056C	☐
	240	1	23	1	25 (13)	BH-233-FA-0056J	☐
	208	3	16	1	25 (13)	BH-233-FA-0056D	☐
	240	3	14	1	25 (13)	BH-233-FA-0056K	☐
	480	3	7	1	25 (13)	BH-233-FA-0056U	☐
	600	3	6	1	25 (13)	BH-233-FA-0056Z	☐
7.5	208	1	38	1	28 (16)	BH-233-FA-0086C	☐
	240	1	34	1	28 (16)	BH-233-FA-0086J	☐
	208	3	23	1	28 (16)	BH-233-FA-0086D	☐
	240	3	20	1	28 (16)	BH-233-FA-0086K	☐
	480	3	10	1	28 (16)	BH-233-FA-0086U	☐
	600	3	9	1	28 (16)	BH-233-FA-0086Z	☐
10	240	1	44	1	38 (21)	BH-233-FA-0106J	☐
	208	3	30	1	38 (21)	BH-233-FA-0106D	☐
	240	3	26	1	38 (21)	BH-233-FA-0106K	☐
	480	3	13	1	38 (21)	BH-233-FA-0106U	☐
	600	3	11	1	38 (21)	BH-233-FA-0106Z	☐
15	208	3	44	2	27 (15)	BH-233-FB-0156D	☐
	240	3	38	2	27 (15)	BH-233-FB-0156K	☐
	480	3	19	2	27 (15)	BH-233-FB-0156U	☐
	600	3	16	2	27 (15)	BH-233-FB-0156Z	☐
20	480	3	25	2	35 (19)	BH-233-FB-0206U	☐
	600	3	21	2	35 (19)	BH-233-FB-0206Z	☐
25	480	3	31	3	26 (14)	BH-233-FC-0256U	☐
	600	3	25	3	26 (14)	BH-233-FC-0256Z	☐
30	480	3	37	3	25 (13)	BH-233-FC-0306U	☐
	600	3	30	3	25 (13)	BH-233-FC-0306Z	☐
35	480	3	43	3	29 (16)	BH-233-FC-0356U	☐
	600	3	35	3	29 (16)	BH-233-FC-0356Z	☐

(1) Total Amps = Heating element amps and motor amps.

233 SERIES
EXPLOSION-PROOF UNIT HEATER SUBMITTAL

Class I, Divisions 1 and 2, Groups C and D

Class II, Divisions 1 and 2, Groups E, F and G

Class I, Zones 1 and 2, Group IIB

Unit Heater Listing 50 Hz

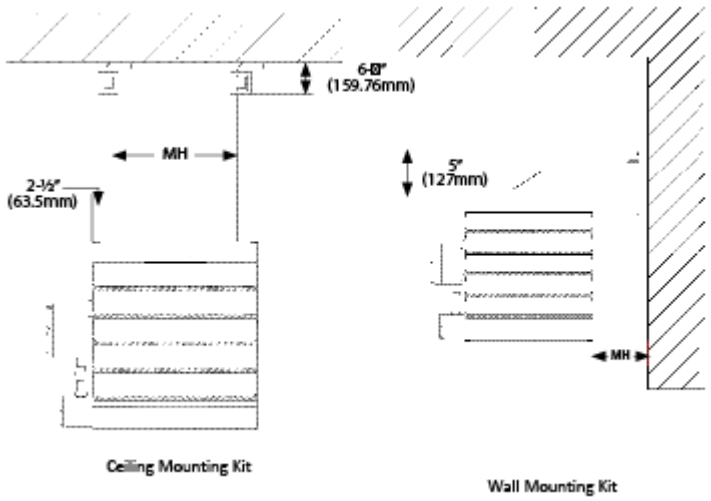
Temperature Code T3C, 320°F (160°C)

KW	Volts	Phase	Total Amps (1)	Frame Size	Approximate Air Temperature Rise °F (°C)	Catalog Number	☒
2.5	220	1	14	1	14 (8)	BH-233-FA-0036E	☐
	220	3	9	1	14 (8)	BH-233-FA-0036F	☐
	380	3	6	1	14 (8)	BH-233-FA-0036G	☐
	400	3	6	1	14 (8)	BH-233-FA-0036H	☐
	414	3	5	1	14 (8)	BH-233-FA-0036I	☐
4.2	220	1	21	1	24 (13)	BH-233-FA-0056E	☐
	220	3	13	1	24 (13)	BH-233-FA-0056F	☐
	380	3	9	1	24 (13)	BH-233-FA-0056G	☐
	400	3	8	1	24 (13)	BH-233-FA-0056H	☐
	415	3	7	1	24 (13)	BH-233-FA-0056I	☐
6.3	220	1	31	1	28 (16)	BH-233-FA-0076E	☐
	220	3	19	1	28 (16)	BH-233-FA-0076F	☐
	380	3	12	1	28 (16)	BH-233-FA-0076G	☐
	400	3	11	1	28 (16)	BH-233-FA-0076H	☐
	415	3	10	1	28 (16)	BH-233-FA-0076I	☐
8.4	220	1	40	1	38 (21)	BH-233-FA-0096E	☐
	220	3	24	1	38 (21)	BH-233-FA-0096F	☐
	380	3	15	1	38 (21)	BH-233-FA-0096G	☐
	400	3	13	1	38 (21)	BH-233-FA-0096H	☐
	415	3	13	1	38 (21)	BH-233-FA-0096I	☐
12.5	220	3	35	2	26 (14)	BH-233-FB-0136F	☐
	380	3	21	2	26 (14)	BH-233-FB-0136G	☐
	400	3	19	2	26 (14)	BH-233-FB-0136H	☐
	415	3	18	2	26 (14)	BH-233-FB-0136I	☐
16.7	220	3	46	2	35 (19)	BH-233-FB-0176F	☐
	380	3	28	2	35 (19)	BH-233-FB-0176G	☐
	400	3	25	2	35 (19)	BH-233-FB-0176H	☐
	415	3	24	2	35 (19)	BH-233-FB-0176I	☐
21	380	3	33	3	26 (14)	BH-233-FC-0216G	☐
	400	3	32	3	26 (14)	BH-233-FC-0216H	☐
	415	3	31	3	26 (14)	BH-233-FC-0216I	☐
25	380	3	39	3	30 (17)	BH-233-FC-0256G	☐
	400	3	37	3	30 (17)	BH-233-FC-0256H	☐
	415	3	36	3	30 (17)	BH-233-FC-0256I	☐

(1) Total Amps = Heating element amps and motor amps.

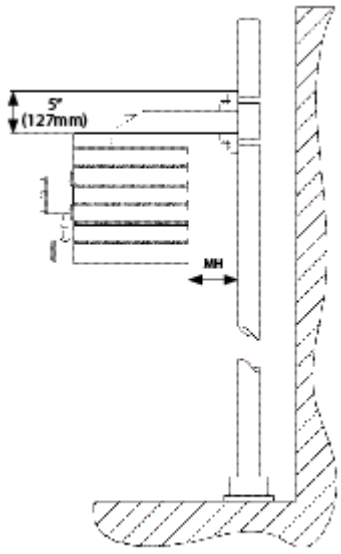
Factory Built-in Options

Code	Option	Description	☒
C1	316 Stainless Steel Corrosion Resistant Construction (Waste Water Treatment Plants)	316 Stainless steel heat exchanger with aluminum fins; 316 stainless steel cabinet; aluminum fan blade; cast aluminum NEMA 4X, 7, 9 control enclosure; corrosion resistant hardware. Frame Size 1 2 3	☐
C2	Dirty Duty Corrosion-Resistant Construction (Chemical Plants)	Epoxy-coated motor; Heresite® coated heat exchanger, cabinet and fan blade; cast aluminum NEMA 4X, 7, 9 control enclosure; corrosion resistant hardware. Frame Size 1 2 3	☐
D	Disconnect Switch	Factory installed on the unit heater above the control enclosure. This in an inexpensive and positive way to meet NEC/CEC requirements for a disconnecting means within sight of the heater. Max Total Motor/Heater Amps Max 15 Amps, **up to** 480V, 1 & 3 Phase Max 60 Amps, **up to** 600V, 1 & 3 Phase	☐
E	Group E (Metal Dust) Construction	Class II, Group E (Metal Dust) Construction Temperature Code T3C, 320°F (160°C).	☐
K	"Warning" Pilot Light	Indicates when the thermal cutouts have tripped and the unit heater needs servicing.	☐
L	"Heater On" Pilot Light	Indicates when the electric heating elements are energized.	☐
M	Manual Reset Thermal Cutout with Backup Contactor	A pilot duty manual reset thermal cutout with a backup contactor is provided for independent secondary over temperature protection. This option cannot be provided if option Code S or V are also specified.	☐
S	Built-In Auto/Fan Selector Switch	A two-position switch wired to the control circuit for auto (automatic heat) and fan only control. This selector switch cannot be provided if option Code M or V are also specified.	☐
S1	Built-In Controls for Remote Auto/Fan Selector Switch	Unit is prewired for field addition of remote auto/fan selector switch. This option cannot be provided if Code M or V are also specified.	☐
T	Adjustable Thermostat	Factory installed and prewired to the control enclosure. Thermostat is adjustable from 50 to 90°F (10 to 32°C) range.	☐
T1	Adjustable Thermostat for Wet Location	Factory installed and prewired to the control enclosure. Thermostat is adjustable from 40 to 80°F (5 to 25°C) range.	☐
V	120 Volt Control Circuit, Fused Secondary and Grounded	This can be provided when required for special external thermostat circuit. This option cannot be provided if option Code S or M are also specified. Nor can both K and L be specified.	☐
W	Wet Location Construction Features – IP55	Unit provided with components suitable for IP55 wet locations.	☐



Ceiling Mounting Kit

Wall Mounting Kit



Pole Mounting Kit

Size	MH In. (mm)	MW In. (mm)	☒
1	11.063 (281)	9 (228.6)	☐
2	15.063 (382.6)	7 (177.8)	☐
3	19.063 (484.2)	5 (127)	☐

Mounting Kits for Sizes 1, 2 & 3

Type	Standard Painted Steel	☒	Stainless Steel Option Codes C1 & C2	☒
Ceiling Mount	BH-1022451	☐	1022451-S	☐
Wall Mount	BH-1022454	☐	1022454-S	☐
Pole Mount	BH-1022457	☐	1022457-S	☐

Wall Mounted Accessories
(Class I, Groups C & D; Class II, Groups E, F & G)

Catalog Number	Description	☒
1007002	Thermostat: 50 – 90°F (10 – 32°C) range. Indoor Type 1	☐
1030790	Thermostat: 40 – 80°F (5 – 25°C) range. IP55, Type 4	☐
1001744	Auto/fan selector: Type 1	☐
1031042	Auto/fan selector: Type 4	☐

Dimensions, Airflows and Weights

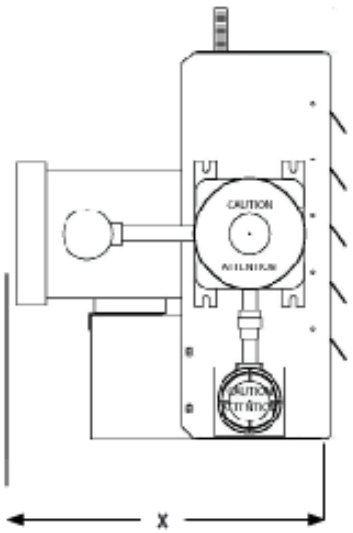
Frame Size		Size 1	Size 2	Size 3
Overall Heater Dimensions	'X' In. (mm)	22.50 (571.50)	22.50 (571.50)	22.75 (577.85)
	'Y' In. (mm)	19.375 (492.125)	23.375 (593.725)	27.375 (695.325)
	'Z" In. (mm)	16.063 (408)	20.188 (512.775)	24.188 (614.375)
Weight	Net Lbs (kgs)	110 (49.89)	150 (68.03)	190 (86.18)
	Shipping Lbs (kgs)	130 (58.96)	169 (76.65)	216 (97.97)

60 Hertz Heaters

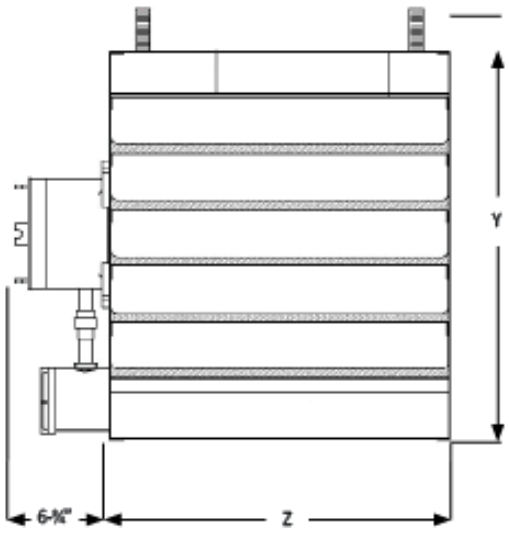
KW Range		3-5	7.5-10	15	20	25	30-35
Airflow Characteristics	Airflow Volume CFM (cubic meter/hr.)	650 (1104)	850 (1444)	1800 (3058)		3110 (5283)	3850 (6541)
	Air Throw Feet (m)	15 (4.5)	25 (7.6)	45 (13.7)		65 (19.8)	75 (22.8)
Motor/Fan	RPM	1725					
	HP	1/4				1/2	
	Fan Blade Dia. In. (mm)	12 (304.8)		16 (406.4)		20 (508)	

50 Hertz Heaters

KW Range		2.5-4.2	6.3-8.4	12.5	16.7	21-25
Airflow Characteristics	Airflow Volume CFM (cubic meter/hr.)	550 (934)	700 (1189)	1500 (2549)		2600 (4417)
	Air Throw Feet (m)	13 (4)	22 (7)	39 (12)		57 (17)
Motor/Fan	RPM	1438				
	HP	1/4				1/2
	Fan Blade Dia. In. (mm)	12 (304.8)		16 (406.4)		20 (508)



Side View



Front View

Sample Specification

A specification can be prepared by using the following information. A check box has been supplied so that you may mark those selections which you require. Material which is part of the standard 233 Explosion-Proof Unit Heater specification has already been checked.

☒ 1. Electric explosion-proof unit heaters shall be BRASCH 233 SERIES, of the KW rating, voltage and phase specified in the schedule. They shall be forced fan type, cCSAus Approved for:

- ☐ Class I, Divisions 1 and 2, Groups C & D; Class II, Divisions 1 and 2, Groups F & G
  Class I, Zone 1 and 2, Group IIB
  Ignition Temperature Code No. T3C, 320°F (160°C) (Standard construction)
- ☐ Class II, Divisions 1 and 2, Group E, is described to the following text
  Ignition Temperature Code No. T3C, 320°F (160°C) (Group E, Metal Dust)

☒ 2. Unit heaters shall have an automatic and a manual reset thermal cutouts for overtemperature protection, controlling magnetic contactor and 24 volt control circuit transformer housed in a NEMA 7, 9 cast aluminum enclosure.

☒ 3. The heat exchanger shall be liquid-to-air design, utilizing an all welded steel headers and tube construction with spiral wound aluminum fins. Nontoxic, inhibited, propylene glycol heat transfer fluid shall be used that provides freeze protection down to -49°F (-45°C). Pressure relief valve setting to be 70 psig. The heat exchanger shall include industrial grade BRASCH electric heating elements.

☒ 4. Cabinet shall be provided with adjustable outlet louvers having minimum opening safety stops.

☒ 5. Fan motor shall include permanently lubricated ball bearings and built-in thermal overload protection. Motor to operate at line voltage and be prewired to the control enclosure to eliminate the need for separate field wiring to the motor.

☒ 6. The heater shall be provided with an BRASCH accessory mounting kit designed to bear the weight of the heater assembly (check one):

☐ Ceiling mounting kit ☐ Wall mounting kit ☐ Pole mounting kit

☐ 7. Construction Type (check one):

- ☐ Standard Construction utilizing an all welded heat exchanger consisting of painted steel headers and with spiral wound aluminum fins; industrial grade, corrosion-resistant cabinet fabricated from powder coated 14 gauge steel, epoxy-coated motor; aluminum fan blade; NEMA 7, 9 cast aluminum enclosure.
- ☐ Dirty Duty Corrosion-Resistant Construction (Chemical Plants) with epoxy-coated motor; Heresite® coated heat exchanger, cabinet and fan blade; NEMA 4X, 7, 9 terminal box.
- ☐ 316 Stainless Steel Corrosion-Resistant Construction (Waste Water Treatment Plants) with 316 stainless steel heat exchanger with aluminum fins, 316 stainless steel cabinet; aluminum fan blade; cast aluminum NEMA 4X, 7, 9 terminal box; epoxy-coated motor; aluminum fittings; stainless steel conduit and hardware.

☐ 8. Wet Location Construction:

Wet location requirements – IP55 motor rating and Type 4 enclosures. Requires selecting either Dirty Duty or 316 Stainless Corrosion-Resistant Construction.

☐ 9. The following factory installed and prewired control options are to be supplied:

- ☐ Thermostat: 50-90˚F (10-32˚C); Indoor, Type 1
- ☐ Thermostat: 40-80˚F (5-25˚C) IP55, Type 4 (can be specified for all constructions).
- ☐ Disconnect switch with external handle.
- ☐ Manual reset thermal cutout with backup contactor (cannot be provided if selector switchor 120 volt control circuit is also specified).

- ☐ Two-position auto/fan selector switch for fan only control (cannot be provided if manual reset cutout with backup contactor or 120 volt control circuit is also specified).
  - ☐ Built-in
  - ☐ Remote
- ☐ 120 volt control circuit for special external thermostat circuit (cannot be provided if selector switch or manual reset thermal cutout with backup contactor, nor can both warning and heater on pilot lights be specified).
- ☐ “Heater On” pilot light to indicate when heating elements are energized.
- ☐ “Warning” pilot light to indicate when thermal cutouts have tripped and heater needs to be serviced.
- ☐ 50 Hertz for international requirements.

☐ Accessory room controls shall be furnished with each heater for remote field mounting.

- ☐ Thermostat: 50-90˚F (10-32˚C); Indoor, Type 1; UL Listed and CSA Certified.
- ☐ Thermostat: 40-80˚F (5-25˚C) IP55, Type 4: cCSAus Certified.
- ☐ Remote Fan Switch: Auto/fan selector switch for fan only control; Type 1; UL Listed and CSA Certified. (Cannot be provided if manual rest cutout with backup contactor or 120 volt control circuit is also specified.)
- ☐ Remote Fan Switch: Auto/fan selector switch for fan only control; Type 4; UL Listed and CSA Certified. (Cannot be provided if manual rest cutout with backup contactor or 120 volt control circuit is also specified.)