Electric Make-up Air, Space Heating and Ventilating Units

BRASCH

How to Select The Unit

NOTE: Selection of the proper unit, heating load and temperature control system is dependent on the application of the unit.

A. Make-up Air Unit - used for heating 100% outside air to the indoor design temperature with discharge temperature of 70° F.

B. Space Heating Unit - used for heating 100% return air from the conditioned space to make up for building heat loss only with a maximum discharge temperature of 120° F.

C. Combination Make-up Air and Space Heating Unit - used to heat outside and return air combined through the mixing box option.

D. Ventilation Unit - used to replace air exhausted from the space and without heating capability.

I. Determine Heating Load — KW

A. Make-up Air Only — discharge temperature of 70° F. Use the following formula to compute the total KW needed when air volume (CFM) and the indoor-outdoor design temperature difference (△ T) are known:

$$KW = \frac{CFM \times \triangle T\ (^\circ F)}{2745}$$

Note: Based on 0° F entering air.

B. Space Heating Only

1. Calculate building design heat loss. Then,

$$KW = \frac{BTUH}{3413}$$

2. Determine the minimum CFM required in order not to exceed 120° F discharge temperature:

$$CFM = \frac{BTUH}{(120^\circ F - \text{indoor design temp}) \times 1.085}$$

C. Combined Make-up Air and Space Heating (heating and ventilating). The two KW's found in A and B above may be added together, provided the following limitations are met:

1. The make-up CFM must equal or exceed the value found in B-2.
2. The total KW must not exceed the maximum value given in capacity table.

Adjustment of the CFM, heating capacity or both may be required.

II. Determine unit size and motor horsepower.

A. Find the smallest applicable unit size from table for the required CFM and specified system static pressure.

B. Add pressure drop for accessories and any external duct-work to obtain total system static pressure.

C. Note motor horsepower for the unit selected, at the specified CFM and total system static pressure. If no motor horsepower is given in table for the specified system static pressure and CFM combination, check the next larger unit size.

III. Select the Temperature Control System.

A. Determine the number of temperature controller steps. Average temperature control is from 6 to 14° F rise per step. Finer or coarser control can be utilized.

$$\frac{3160 \times \text{Total KW}}{\text{CFM} \times \text{Degrees per step}} = \text{Number of Controller Steps}$$

B. Select the type of control system desired.

TC-1 1 to 14* step discharge temperature control for make-up air application where tamper-proof air temperature control is required.

TC-2 1 to 14* step discharge temperature control for make-up air applications with a remote set point.

TC-3 **This option Is no longer available**

TC-4 1 to 14* step room temperature control for space heating applications.

(* - Max. 13 steps on unit size M110)

Unit Selection Example

Given:	Indoor design temperature	70° F
	Outdoor design temperature	0° F
	Desired △ t per step	10° F
	Building heat loss	200,000 BTUH
	Make-up Air CFM	4000
	External static pressure	0.5 in. W.C.
	Electrical power service	240 Volts, 3 Phase, 60 HZ
	Accessories: Rain hood, Permanent filters, inlet damper.	

I-A. $\frac{4000 \times 70}{2745}$ = 102.0 KW make-up air heating load.

I-B. $\frac{200{,}000}{3413}$ = 58.6 KW space heating load.

$\frac{200{,}000}{(120\text{-}70)\ 1.085}$ = 3686 CFM

I-C. 4000 CFM O.K. (3686 CFM minimum)
102.0 + 58.6 = 160.6 KW total heating load
(170 KW allowed.)

II-A. Select M115E unit.

II-B. Total system static pressure = external + rain hood + filters + inlet damper = .5 + .02 + .10 + .02 = 0.64 in W.C.

II-C. 2 HP motor. (Note that 1 HP motor could have been used if no accessories had been specified.)

III-A. $\frac{3160 \times 160}{4000 \times 10}$ = 12.6 Use 12 control steps.

III-B. Select TC-3 temperature control system for make-up air and space temperature controls.

AIR CAPACITIES, PRESSURE DROP DATA-MAX. KW.

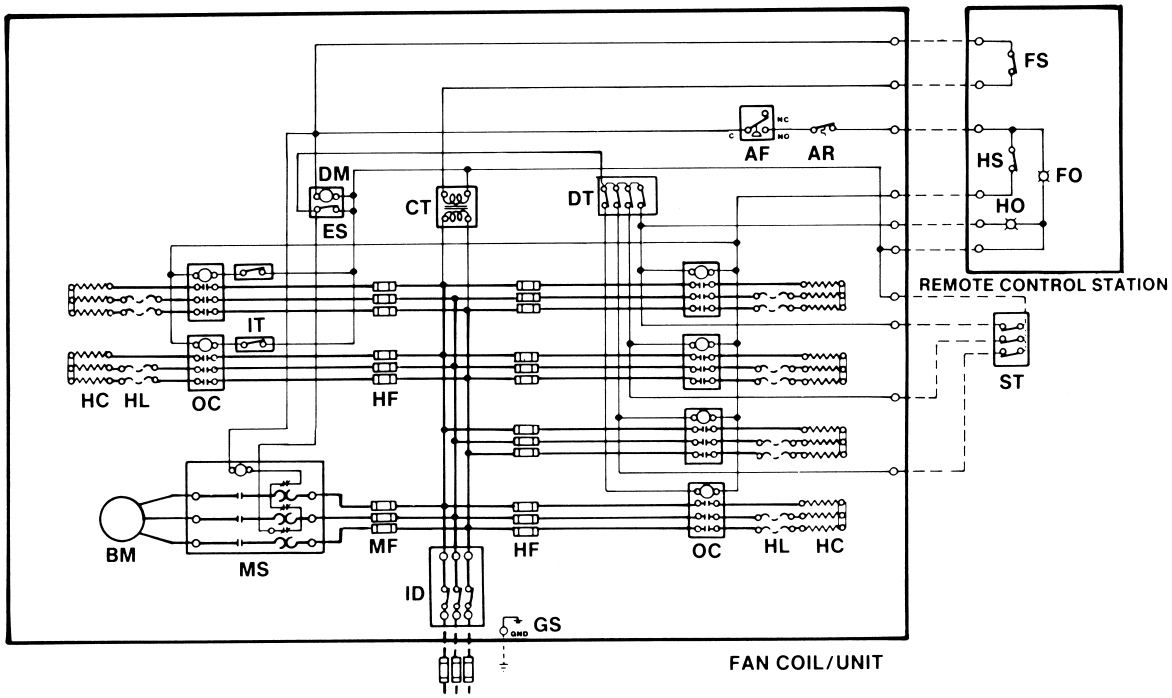
	CFM	Outlet Velocity	Motor Horsepower at System Static pressure of (Inches W.C.): 0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	Maximum Heating Capacity-KW (See I-C under selection) 208	240	480	Pressure Drop Data: Linear Slot Diffuser	Filters: Cleanable Type	Filters: Throwaway 30% Pleated	Filters: Throwaway Std. Fiberglass	Inlet Dampers	Rain Hood and Inlet Screen	Discharge Elbow	Discharge Louvers 0°	Discharge Louvers 22½°	Discharge Louvers 45°
M-110	1000	890	—	—	1/2	1/2	1/2	1/2	1/2	1/2	1/2	—	—	—	—												.10	.12	.13
	1250	1110	—	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	—	—						.10						.17	.18	.20
	1500	1340	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1	1	1					.07		.10					.25	.26	.28
	1750	1560	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1	1	1	1	1						.15				0.10		.32	.34	.37
	2000	1780	1/2	1/2	1/2	1/2	1/2	1	1	1	1	1	1	1	1	**61.2**	**61.2**	**61.2**	N/A	.10	.20	.15	0.02	0.02			.42	.44	.48
	2250	2000	1/2	1	1	1	1	1	1	1	1	1	1	1	1												.52	.55	.60
	2500	2230	1	1	1	1	1	1	1	1	1	1	1	1	—					.15	.25	.20					.64	.68	.74
	2750	2450	1	1	1	1	1	1	1	1	—	—	—	—	—					.18	.30				0.15		—	—	—
	3000	2670	1	1	1	1	—	—	—	—	—	—	—	—	—					.20	.35	N/A					—	—	—
M-115	2500	1150	—	—	1/2	1/2	1/2	1/2	1	1	1	1	—	—	—												.16	.17	.18
	2750	1260	—	1/2	1/2	1/2	1/2	1/2	1	1	1	1	1	1	—						.10						.18	.20	.22
	3000	1380	—	1/2	1/2	1/2	1/2	1	1	1	1	1	1	1	1					.07		.10					.22	.24	.26
	3250	1490	1/2	1/2	1/2	1/2	1	1	1	1	1	1	1	1	1	**120.0**	**120.0**										.26	.28	.30
	3500	1610	1/2	1/2	1	1	1	1	1	1	1	1	2	2	2						.15				0.10		.30	.32	.34
	3750	1720	1	1	1	1	1	1	1	1	2	2	2	2	2												.34	.37	.40
	4000	1840	1	1	1	1	1	1	1	2	2	2	2	2	2					.10		.15					.38	.40	.45
	4250	1950	1	1	1	1	1	2	2	2	2	2	2	2	2			**120.0**	.8 @ 5000 CFM		.20		0.02	0.02			.44	.46	.50
	4500	2070	1	1	1	2	2	2	2	2	2	2	2	2	2												.48	.52	.57
	4750	2180	1	2	2	2	2	2	2	2	2	2	2	2	—					.15	.25						.55	.58	.63
	5000	2300	2	2	2	2	2	2	2	2	2	2	2	2	—	**120.0**	**120.0**					.20					.60	.63	.70
	5250	2410	2	2	2	2	2	2	2	2	2	2	2	—	—					.18	.30				0.15		.65	.68	.75
	5500	2530	2	2	2	2	2	2	2	2	2	—	—	—	—												.70	.75	—
	5750	2640	2	2	2	2	2	2	2	—	—	—	—	—	—					.20	.35	N/A					—	—	—
	6000	2760	2	2	2	2	2	—	—	—	—	—	—	—	—												—	—	—
M-118	5000	1660	—	—	—	1	1	1	2	2	2	2	2	2	2												.24	.26	.28
	5250	1740	—	—	1	1	2	2	2	2	2	2	2	2	2						.10						.26	.28	.30
	5500	1830	—	—	1	2	2	2	2	2	2	2	2	2	3												.28	.30	.33
	5750	1910	—	—	2	2	2	2	2	2	2	2	2	3	3	**178.8**	**189.7**			.07		.10			0.10		.30	.33	.35
	6000	1990	—	2	2	2	2	2	2	2	2	2	3	3	3						.15						.33	.36	.38
	6250	2080	—	2	2	2	2	2	2	2	2	3	3	3	3												.37	.39	.42
	6500	2160	2	2	2	2	2	2	2	2	3	3	3	3	3												.40	.45	.46
	6750	2240	2	2	2	2	2	2	3	3	3	3	3	3	3								0.02	0.02			.42	.45	.48
	7000	2330	2	2	2	2	2	3	3	3	3	3	3	3	5												.45	.48	.52
	7250	2410	2	2	2	2	3	3	3	3	3	3	3	5	5			**200.0**	1.2 @ 8000 CFM						0.15		.48	.52	.57
	7500	2490	2	2	2	3	3	3	3	3	3	3	5	5	5					.10		.15					.52	.55	.60
	7750	2570	2	2	3	3	3	3	3	3	3	5	5	5	5												.56	.60	.64
	8000	2660	3	3	3	3	3	3	3	5	5	5	5	5	5						.20						.60	.63	.68
	8250	2740	3	3	3	3	3	3	5	5	5	5	5	5	5	**200.0**	**200.0**										.63	.67	.72
	8500	2820	3	3	3	3	3	5	5	5	5	5	5	5	5												.66	.70	.77
	8750	2910	3	3	3	5	5	5	5	5	5	5	5	5	—										0.20		.70	.73	.80
	9000	2990	3	3	5	5	5	5	5	5	5	5	5	5	—					.15	.25						.74	.78	.84
	9250	3070	5	5	5	5	5	5	5	5	5	5	5	5	—							.20	0.03	0.03			.77	.82	.88
	9500	3160	5	5	5	5	5	5	5	5	5	5	5	—	—												.80	.86	.93
	9750	3240	5	5	5	5	5	5	5	5	5	5	—	—	—					.18	.30				0.25		.86	.90	—
	10000	3320	5	5	5	5	5	5	5	5	—	—	—	—	—												—	—	—

NOTE: Air Volume and Heating Capacities are good up to 1000 ft. elevation.
Consult Brasch Factory for higher altitudes.

Unit Electrical Information

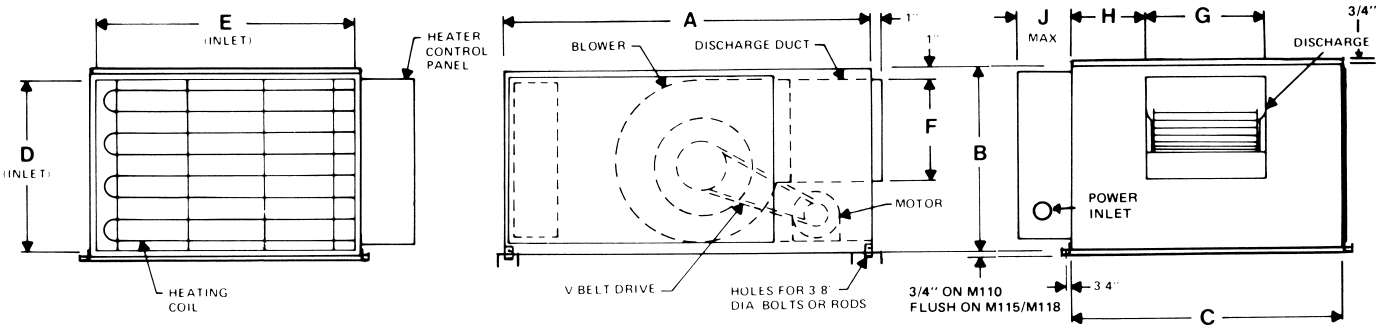
LEGEND

BM	Blower Motor
MS	Motor Starter
MF	Motor Fuses
ID	Interlocking Disconnect (Unfused)
GS	Ground Screw
SV	Supply Voltage (Fused)
HC	Heating Coils
HF	Heater Fuses
HL	Heater Limiters
IT	Inlet Thermostat
OC	Operating Contactor
CT	Control Transformer
DM	Damper Motor (Inlet)
ES	End Switch
DT	Discharge Thermostat
AF	Air Flow Switch
AR	Automatic Reset
ST	Space Thermostat
HS	Heat Switch (On-Off)
FS	Fan Switch (On-Off)
FO	Fan On Pilot Light
HO	Heat On Pilot Light
___	Factory Wired
- - -	Field Wired



Brasch offers a variety of control options utilizing discharge, room and inlet thermostats and fast response electronic step controllers for up to 14 steps of heat control.

BASIC UNIT



E (Electric) & V (Ventilation) DIMENSIONS

	A	B	C	D	E	F	G	H	J	WEIGHT
M110	48	21	30	19	28	11-7/8	13-5/8	8-3/16	13	300
M115	58	27	42	25	40	16-3/8	19-1/8	11-7/16	13	475
M118	67	33	51	31	49	19-3/8	22-3/8	14-5/16	13	725

DO NOT USE THESE DIMENSIONS FOR CONSTRUCTION PURPOSES.
REQUEST CERTIFIED PRINTS FROM FACTORY.

Sample Engineering Specifications

GENERAL: Furnish and install BRASCH ETL listed units(s) where indicated on the plans, Series M _____ E (electric air heater) or V (ventilation air handler) as manufactured by Brasch Manufacturing Co. of Maryland Heights, Missouri. Unit(s) shall be factory run and tested in order to assure proper assembly and performance of controls and other components.

INSTALLATION, wiring, adjustment and start-up shall be in accordance with the manufacturer's installation and operation manual provided with each unit. Unit(s) shall be installed as indicated on plans.

CONSTRUCTION of the unit shall include a unitary steel frame, and a corrosion resistant, zinc-coated and bonderized steel casing with a finish coat of high-build industrial grade enamel. Finish color shall be gray. Unit shall have a service panel for access to an internally mounted motor, fan drive and temperature controller. Shall be suitable for indoor (outdoor) installation. The interior of the unit shall be insulated with 1" thick fiberglass, 1½ lb. per cubic foot density per NFPA-90. The fan shall discharge horizontally into a full size internal static regain duct section. A protective screen shall be provided on the inlet.

BLOWER shall be a double width-double inlet (DWDI), forward-curved, centrifugal fan, with a steel wheel and housing. Fan shall be arranged for draw-through operation, and wheel shall be statically and dynamically balanced. Fan speed shall be at least 25% below the first critical speed for the shaft. Fan shaft bearings shall be permanently lubricated, self-aligning sealed ball bearings, rubber-mounted for sound and vibration attenuation.

FAN DRIVE shall be a heavy duty V-belt type designed for a 1.5 minimum service factor based on motor horsepower. Adjustable (or) Fixed pitch motor sheave shall be set for the air delivery and total system static pressure shown on the plans.

MOTOR shall be a ball bearing type, designed for continuous duty at the specified voltage. Motor shall be mounted on an adjustable sliding base located out of the heated airstream. Motor shall be controlled by a magnetic motor contactor with overload protection provided in each leg and shall have motor fusing as required by NEC.

ELECTRIC HEATER wattage, voltage, and number of steps shall be shown on plans or as required to meet the National Electric Code. (Three phase heaters shall have balanced three phase steps.) Heater shall be slip-in type with an externally accessible control panel. Heater coils shall be open type, made of nickel-chromium (80-20), and shall be positioned by ceramic bushings in a galvanized steel frame. Power terminals shall be suitable for copper conductors and arranged for single supply. Coil terminals shall be stainless steel with ceramic insulators, and shall be recessed so that heating elements and safety controls are entirely in the air stream. Heater shall have a protective screen on the inlet side.

(Delete electric heater section on ventilation units.)

CONTROL COMPONENTS located in the heater panel shall include disconnecting break magnetic contactors, motor starter, motor fuses, control transformer and supplementary circuit fuses per NEC. Other components shall include differential pressure type air flow switch, high temperature limit, thermal cut-out and temperature controller suitable for the control mode specified. (Add other applicable electrical options.) External control wiring connections shall be made at a terminal strip with marked terminals, located in the heater panel.

(Delete control components section on ventilation units.)

OPTIONS AND ACCESSORIES shall be provided as listed below (from pages 5, 6 and 7):

The Make-up Air Units are now **ETL** listed under **Standard for Safety ANSI/UL 1996.** The following KW limitations apply:

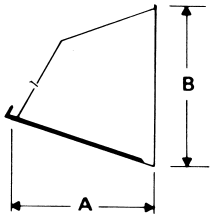
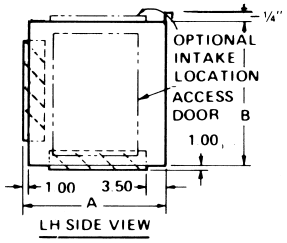
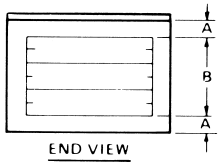
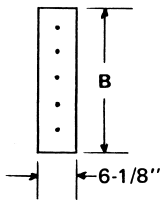
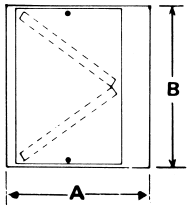
M110E	**(1000 - 3000 CFM)**	**60 KW**
M115E	**(2500 - 6000 CFM)**	**120 KW**
M118E	**(5000 - 10000 CFM)**	**200 KW**

Standard for Safety ANSI/UL 1996 specifies (for test purposes only) an entering air temperature of 77° F which limits KWs to the figures above for ETL listing purposes. The maximum heating capacities shown on page 3 exceed, in some cases, the ETL limits. ETL limits will not be exceeded in straight heating applications furnished with a TC-4 temperature control system which is operated by a room temperature thermostat.

The normal condition for make-up air units is for full heat to be energized only when the minimum outdoor design temperature is experienced. Units for make-up air applications with KWs up to the ETL limits will carry an ETL label. Units for make-up air applications with KWs in excess of ETL limits but within the maximum heating capacities shown on page 3 will be furnished with TC-1, TC-2, or TC-3 temperature control systems which are operated by a discharge temperature thermostat and effectively prevent overheating conditions. These units will not carry the ETL label. When ordering non-ETL listed units, the minimum entering air temperature must be provided.

Accessories & Options

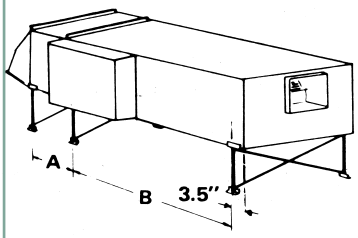
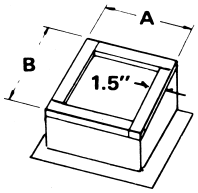
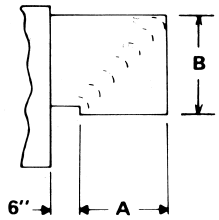
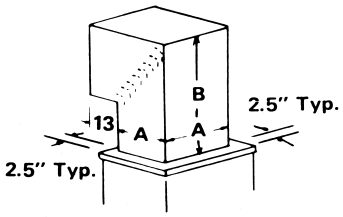
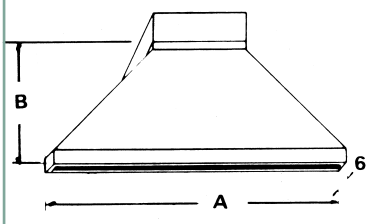
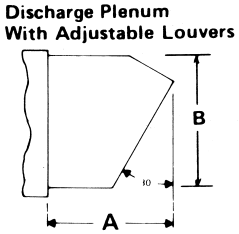
INTAKE ACCESSORIES

PHYSICAL DATA						ENGINEERING SPECIFICATIONS
ITEM		**UNIT**	**A**	**B**	**WEIGHT**	
INTAKE HOOD		**M110**	**18**	**21**	**20**	**Rain Hood** — Unit shall be furnished with a rain hood flanged to the air inlet. Rain hood shall have a rain gutter around the edges and a full size bird screen.
		M115	**24**	**27**	**30**	
		M118	**30**	**33**	**45**	
MIXING BOX		**M110**	**24**	**21**	**70**	**Mixing Box** — Mixing box shall be furnished with the inlet openings as shown. Parallel blades shall direct the air streams for complete mixing. 2-position or modulating motors and linkage are available. See controls page 7.
		M115	**29**	**27**	**125**	
		M118	**34**	**33**	**225**	
		**M110**	**4½**	**12**		**Mixing Box Dampers** — Both dampers furnished in the mixing box are sized according to the chart. All dampers have a 1" flange for easy duct installations.
		M115	**4½**	**18**		
		M118	**4½**	**24**		
INTAKE DAMPER		**M110**	**31**	**21**	**35**	**Dampers** — Inlet damper shall be furnished complete with two-position electric operator. When furnished with a filter section, the intake damper is mounted within the filer section.
		M115	**34**	**27**	**60**	
		M118	**37**	**33**	**90**	
FILTER SECTION		**M110**	**31**	**21**	**45**	**Filter Section** — A V-bank filter section shall be furnished complete with 2" permanent or throwaway (30% pleated or standard fiberglass) filters and shall have a removable gasketed access cover for filter replacement and servicing. Filters *must* be used on all electric applications to reduce maintenance and insure proper operation.
		M115	**34**	**27**	**65**	
		M118	**37**	**33**	**105**	*Do not* operate electric unit without filters!

	M110	M115	M118
Damper Size	12 x 24	18 x 30	24 x 42

	M110	M115	M118
Qty and Size	2:16x25x2	4:20x20x2	6:20x25x2

Accessories & Options (Continued)

	ITEM		UNIT	A	B	WEIGHT	ENGINEERING SPECIFICATIONS
MOUNTING ACCESSORIES	MOUNTING STANDS		M110	25½	41	27	**Mounting Stands** — Mounting stands shall be supplied by the manufacturer for elevating the unit above the mounting surface, and shall be set on pads (or) rails at least 1½" thick, furnished by the contractor, to give a 12" minimum height for roof mounting. 4 legs or 6 legs required.
			M115	28½	51	27	
			M118	31½	60	27	
	ROOF CURB		M110	21¾	21¾	35	**Roof Curb for 90° Downturn — Type DTL** — A 14" high insulated roof curb shall be shipped separately for mounting by the contractor directly to the roof deck. Included with the curb shall be a 1½" nailing strip.
			M115	27¾	27¾	45	
			M118	29¾	29¾	60	
		VIBRATION ISOLATORS					1) 4 or 6 Required 2) Spring or Rubber-in-shear 3) Suspended or Base Mounted
DISCHARGE ACCESSORIES	DT DOWNTURN		M110	11⅞	13⅞	15	**Discharge Elbow** — A 90° miter elbow with turning vanes shall be furnished for direct attachment to the unit discharge collar.
			M115	16⅜	18⅜	20	
			M118	19⅜	21⅜	30	
	DTL DOWNTURN		M110	18	18	25	**Discharge Downturn** — A 90° miter elbow with turning vanes shall be furnished for direct attachment to the unit discharge collar. Used for outdoor installation with roof curb. Elbow shall have an integral counter-flashing to fit directly to the roof curb. See page 5 for roof curb dimensions. (For "G" refer to page 4).
			M115	24	24	35	
			M118	26	30	50	
	LSD-1		M115 & M118 Only	95	23½	37	**Linear Slot Diffuser** — LSD-1 center inlet with 2-5/8" x 94" slot; use with M115 to deliver 5000 CFM @ 0.8" W.C. @ 2900 FPM velocity. Use with M118 to deliver 8000 CFM @ 1.2" W.C. @ 4700 FPM velocity. These units form thermal air curtains for entrances. Use with DTS Special Downturn.
	DISCHARGE LOUVER		M110	21	19	30	**Discharge Louver** — A discharge louver, the full width of the unit shall be mounted to a plenum at the discharge end, and shall have dual deflection vanes for both horizontal and vertical adjustment of the discharge air stream.
			M115	27	25	50	
			M118	33	31	95	

Accessories & Options (Continued)

ELECTRICAL OPTIONS:	**Temperature Controls** *See Page 2 for detailed Explanation*	**TC-1** **TC-2** **TC-3** **TC-4**	The standard Brasch temperature control systems are 100% thermostatic control for the tightest, most reliable, and most economical control available in electric forced air heating.
		**RCS**	Remote control station with blower on/off switch, heater on/off switch and indicating lights. Includes field terminals for field wiring of operating device.
		**NSB**	Night setback automatically reduces space temperature at night and on weekends to decrease heating costs. NSB is a factory assembly including 24-hr. time clock with skip-a-day feature, night stat, timer override and terminals for field wiring, all in a lockable cabinet.
	Exhaust Fan Interlock	**EFI**	Provides an auxiliary contact on motor starter to energize exhaust fan starter by others.
	Kitchen Ventilation System Control	**KVSC**	Provides second motor starter with overload protection and motor fusing for starting of exhaust fan. Factory wired in base unit.
	Low Temperature Cutout	**LTC**	Low temperature cutout incorporates a thermostat and time delay relay in a control arrangement designed to guarantee against cold air discharge.
	Clogged Filter Switch & Light	**CF**	Clogged filter indicating light located in remote control station and operated by pressure differential type air flow switch.
	Mixing Box Controls	**Two Position**	Includes a two position damper motor factory wired and mounted to provide 100% make-up air or 100% return air. No field installation necessary.
		Discharge	Provides a modulating damper motor and a thermostat located to maintain a constant temperature at the discharge of the mixing box while maintaining constant air flow.
		Manual	Provides manual operation of dampers with locking quadrants.
	SCR CONTROLLER:	**Consult Factory**	
	PNEUMATIC OPTIONS:	**Consult Factory**	

The following information must appear in the job or ordering specifications to verify selections and process orders for Series M110, M115 or M118 electric air heaters:

☐ Basic Unit Series _____ ☐ Indoor or ☐ Outdoor
_____ CFM @ _____ W.C. Total T.S.P.

☐ Motor _____ H.P. _____ Volts/ _____ Phase 60/hz

INTAKE

☐ Intake Attachment Rainhood W/Bird Screen

☐ Mixing Box W/Dampers
With ☐ Manual Operation and Locking Quadrants.
With ☐ Two Position Damper Motor.
With ☐ Modulating Damper Motor and Discharge Controller.

☐ Filter Section (Recommended in all applications - required with electric heater).
☐ Filter Sets ☐ Throwaway (☐ 30% Pleated ☐ Std. Fiberglass) ☐ Cleanable

☐ Intake Dampers ☐ Standard ☐ Low Leakage

MOUNTING

☐ Mounting Stands ☐ Set of 2 for 4 legs, or ☐ set of 3 for 6 legs

☐ Roof Curb for:
☐ Base Unit with Hood, Filter Section and Damper
☐ Same as above with Discharge Downturn
☐ Either of above with Mixing Box
☐ Discharge Downturn DTL only

☐ Vibration Isolators: ☐ Base Mounted or ☐ Suspended ☐ Rubber in Shear or ☐ Spring — Set of ☐ 4 legs ☐ 6 legs

DISCHARGE

☐ Discharge Attachments:
☐ DT Downturn — 90° Assist
☐ DTS Downturn — 90° to LSD's
☐ DTL Downturn —90° to Curb

☐ Discharge Louver

OPTIONAL CONTROLS

☐ Remote Control Station ☐ Kitchen Ventilation System Control
☐ Low Temp. Cutout
☐ Clogged Filter Switch W/Light
☐ Night Set-back
☐ Exhaust Fan Interlock

ELECTRIC HEATER

☐ Disconnect Switch (Non-fused, Interlocking)
☐ Heater: _____ KW _____ Volts/ _____ Phase/60hz _____ Steps
☐ Temperature Control Type _____, for _____ Steps of Control
☐ Other:

ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

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Limited Warranty

Brasch Manufacturing Company, Inc. warrants heater resistance coils against defects in material and workmanship for a period of two years from date of shipment. Other components and accessories are guaranteed for a period of one year from date of shipment against defects in material or workmanship. Should evidence of defects in material or workmanship occur during the warranty period, Brasch Manufacturing Company, Inc. will repair or replace the product at its own discretion without charge. Brasch Manufacturing Company, Inc. shall not be held responsible for any charges in connection with the removal or replacement of allegedly defective equipment, nor for incidental or consequential damage.