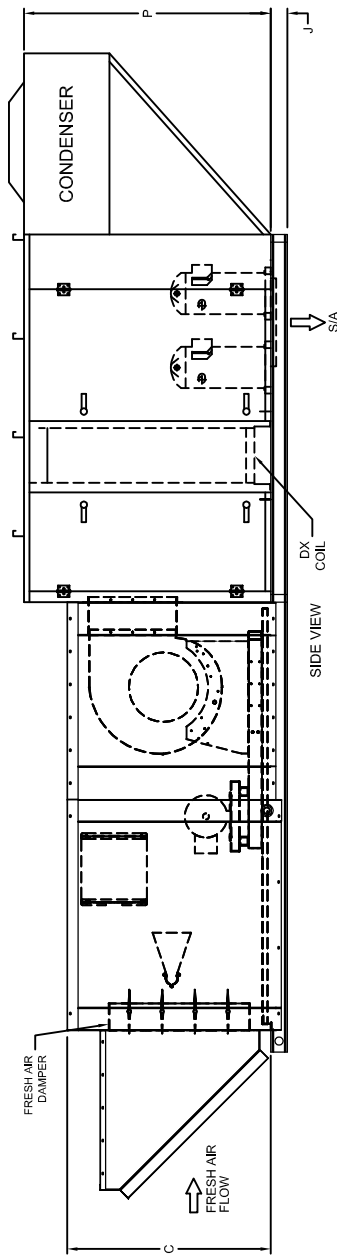
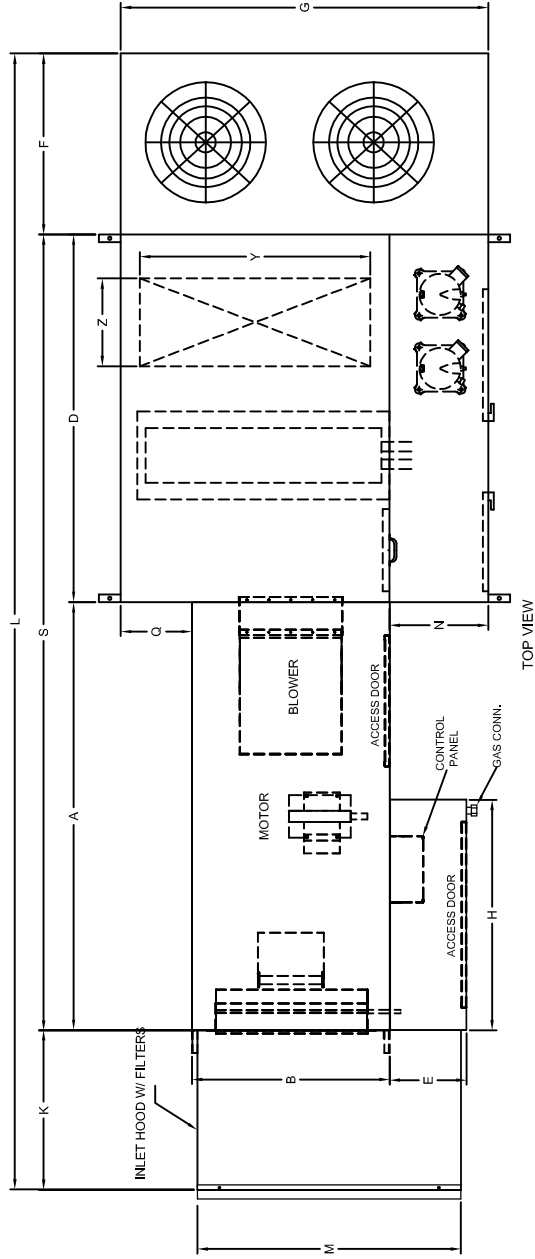


Direct Fired Units w/ Packaged Cooling

Quick Select (Direct Fired BMA Type w/ Packaged Cooling)	S-1
Direct Fired BMA 109 ~ BMA 125 w/ Packaged Cooling.....	S-2
BMA Type w/ Packaged Cooling Typical Specifications	S-9
BMA Direct Fired Series Performance Specifications	S-14



MODEL	CFM RANGE	NOMINAL TONNAGE RANGE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S	Y	Z
BMA 109 DX	1000~2500	2 ~ 5	78	36	38	48	14	30-5/8	36	42	3-4	29	185-5/8	48	0	38	0	126	26	12
BMA 112 DX	2500~4400	5 ~ 10	78	36	38	65	14	33	67	42	3-4	29	205	48	18	38	13	143	36	14
BMA 115 DX	4400~7000	10 ~ 15	78	36	38	67	14	45-7/8	67	42	3-4	29	219-7/8	48	18	52	13	145	42	16
BMA 118 DX	7000~10000	15 ~ 25	84	48	46	82	18	45-7/8	110	42	4	58-1/4	272-1/8	66	32	57	15	166	58	18
BMA 120 DX	10000~14000	25 ~ 33	84	48	46	84	18	45-7/8	110	42	4	58-1/4	274-1/8	66	32	67	15	168	62	20
BMA 122 DX	14000~17000	33 ~ 40	86-5/8	52	46	88	20	60	110	56	4	70-1/2	295-1/8	70	32	78	13	174-5/8	68	24
BMA 125 DX	17000~20000	40 ~ 50	98-5/8	60	52-1/2	106	20	60	122	56	4	79	343-5/8	80	32	89	15	204-5/8	80	30

NOTE:

1. 1 1/2" INLET AND DISCHARGE FLANGES
2. SERVICE ACCESS PANELS MUST NOT BE OBSTRUCTED. RECOMMENDED CLEARANCE 24 INCHES. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.

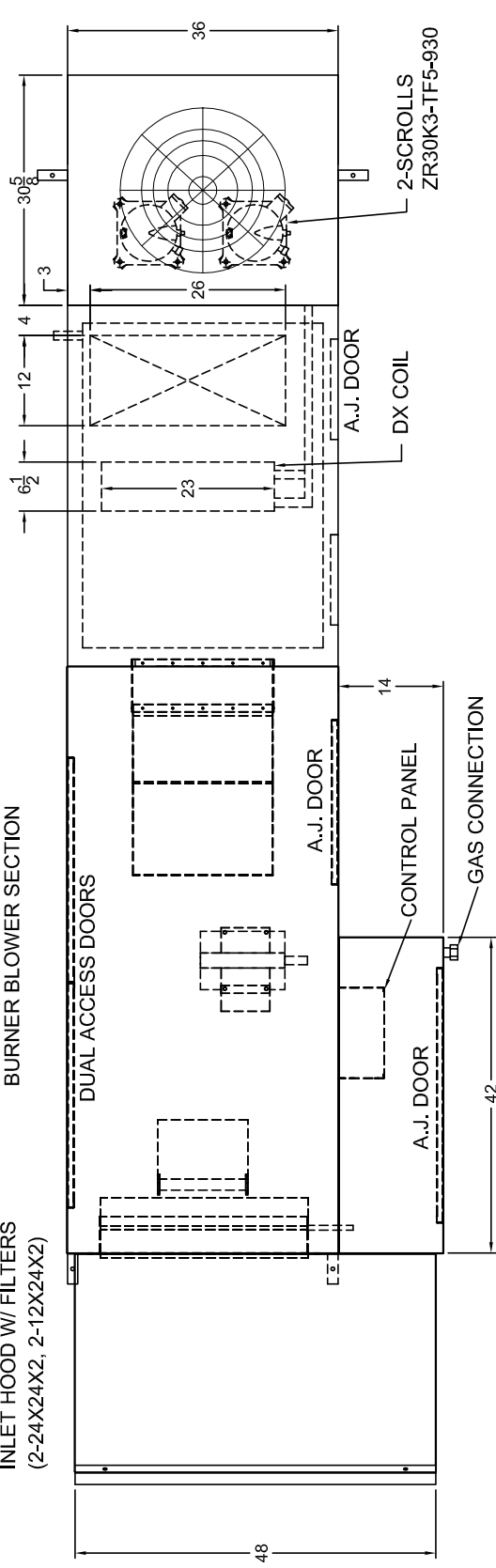


TITLE
BMA 109 ~ 125 SERIES OUTDOOR
HORIZONTAL CONFIGURATION SINGLE BLOWER
C/W INLET HOOD & PACKAGED COOLING

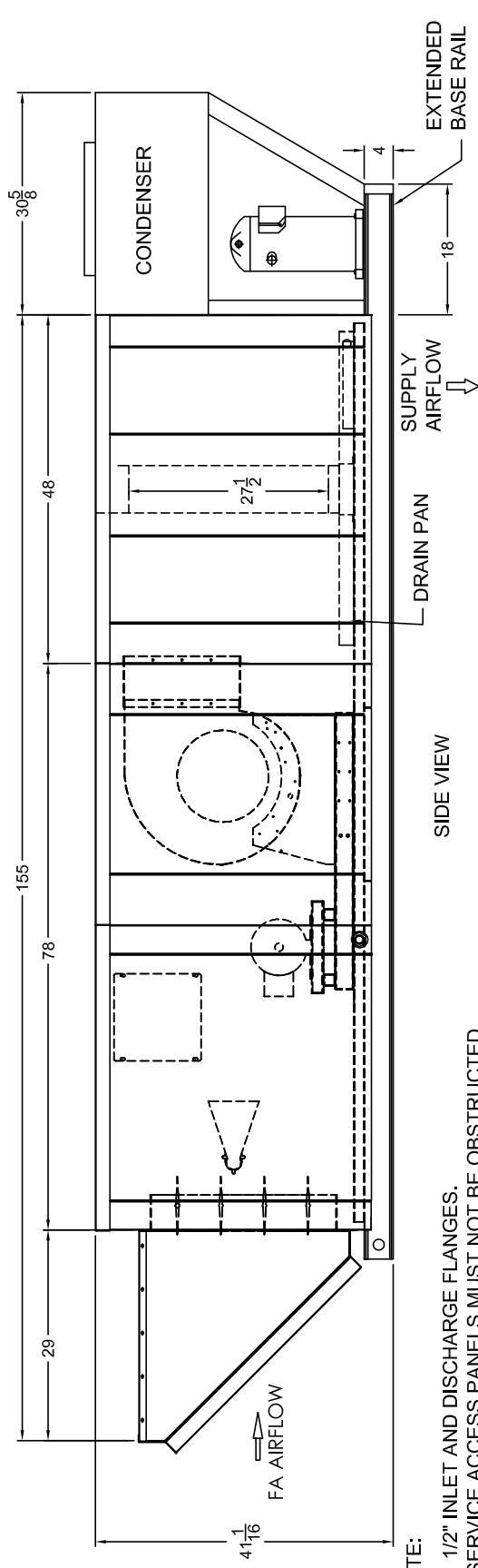
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			S-1

INLET HOOD W/ FILTERS
(2-24X24X2, 2-12X24X2)

BURNER BLOWER SECTION



TOP VIEW



SIDE VIEW

■ HINGED DOORS
■ DAMPER

NOTE:

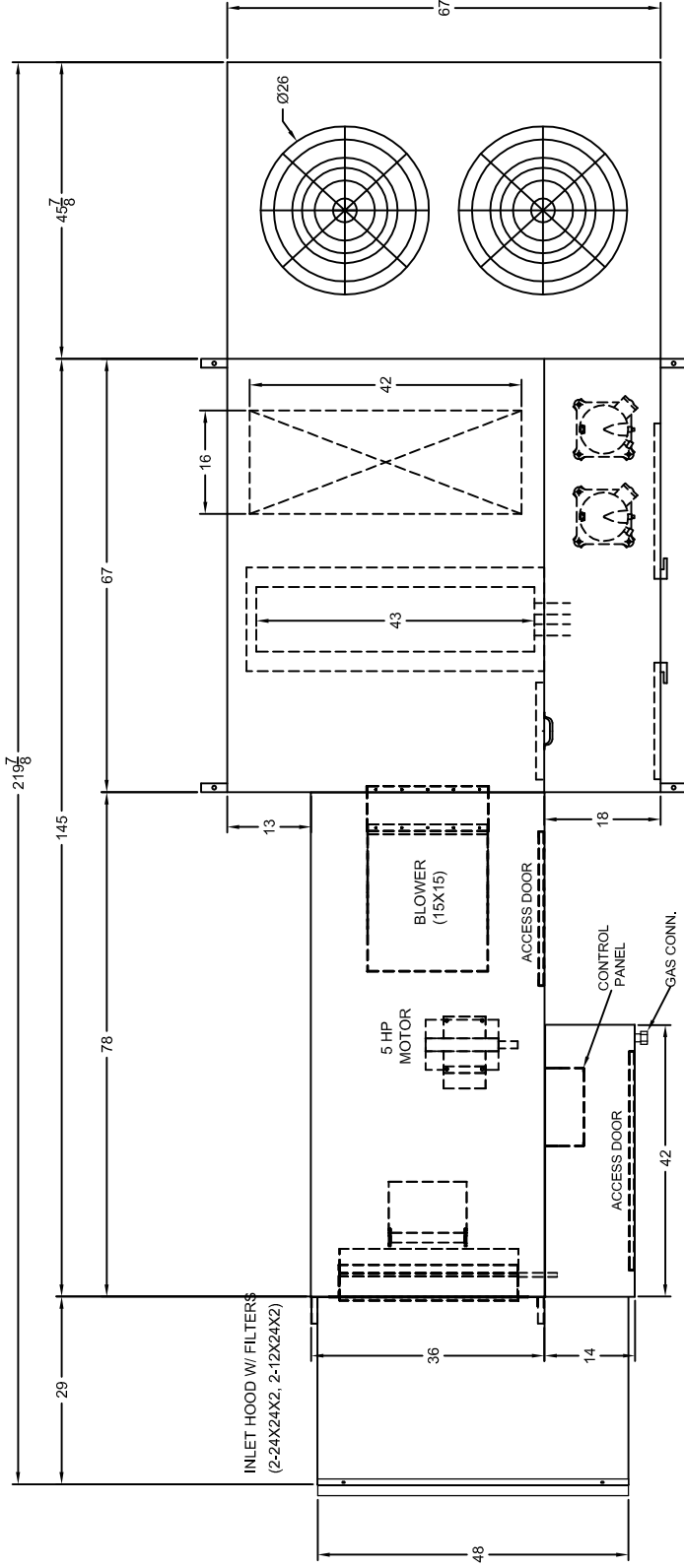
1. 1 1/2" INLET AND DISCHARGE FLANGES.
2. SERVICE ACCESS PANELS MUST NOT BE OBSTRUCTED
RECOMMENDED CLEARANCE 24 INCHES.
3. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.

ICB
WESTERN
BMA SERIES

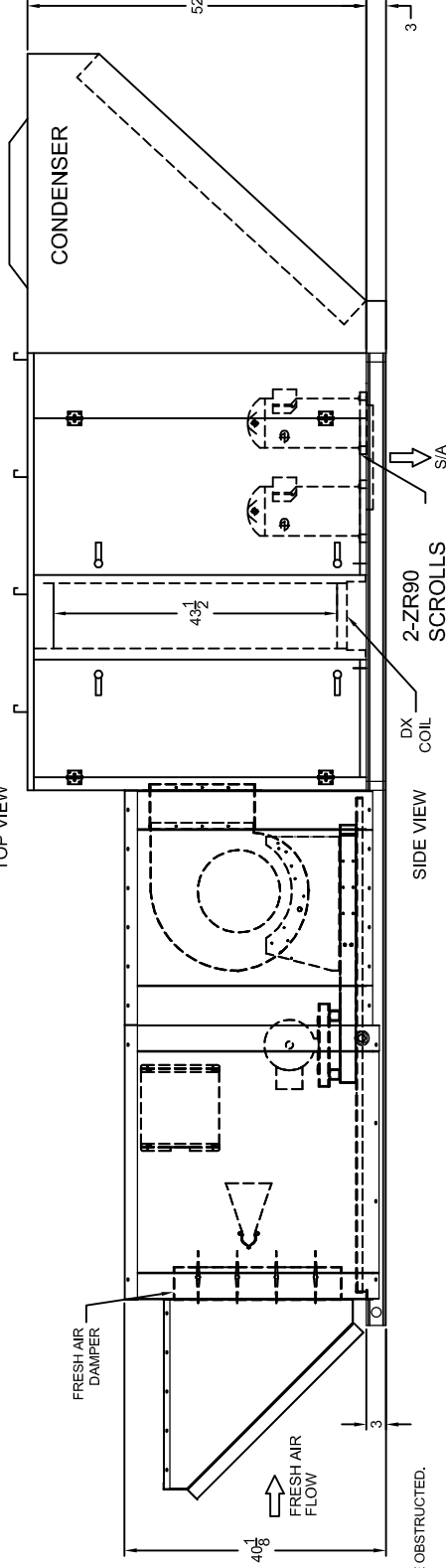
TITLE

BMA 109 DX 05 HORIZ DISCH.
WITH HOOD AND PACKAGED COOLING

Rev	By	Revision Description	Date	DRAWN BY	ISSUED BY	SCALE	DRW. NO.	JOB NO.	PAGE
				JR		1:24	D32845		S-2
				CHK. BY	DATE				



TOP VIEW



NOTE:

1. 1 1/2" INLET AND DISCHARGE FLANGES
2. SERVICE ACCESS PANELS MUST NOT BE OBSTRUCTED. RECOMMENDED CLEARANCE 24 INCHES. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.



TITLE
BMA 115 DX 15
HORIZONTAL CONFIGURATION SINGLE BLOWER
C/W INLET HOOD & PACKAGED COOLING

DRAWN BY
JR

ISSUED BY

SCALE
1:24

DRW. NO.

CHK. BY

DATE

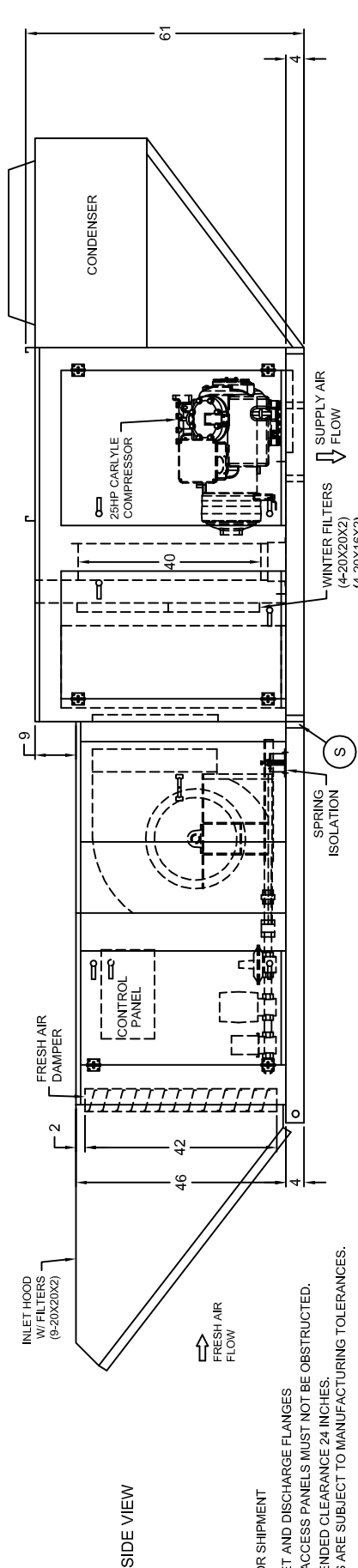
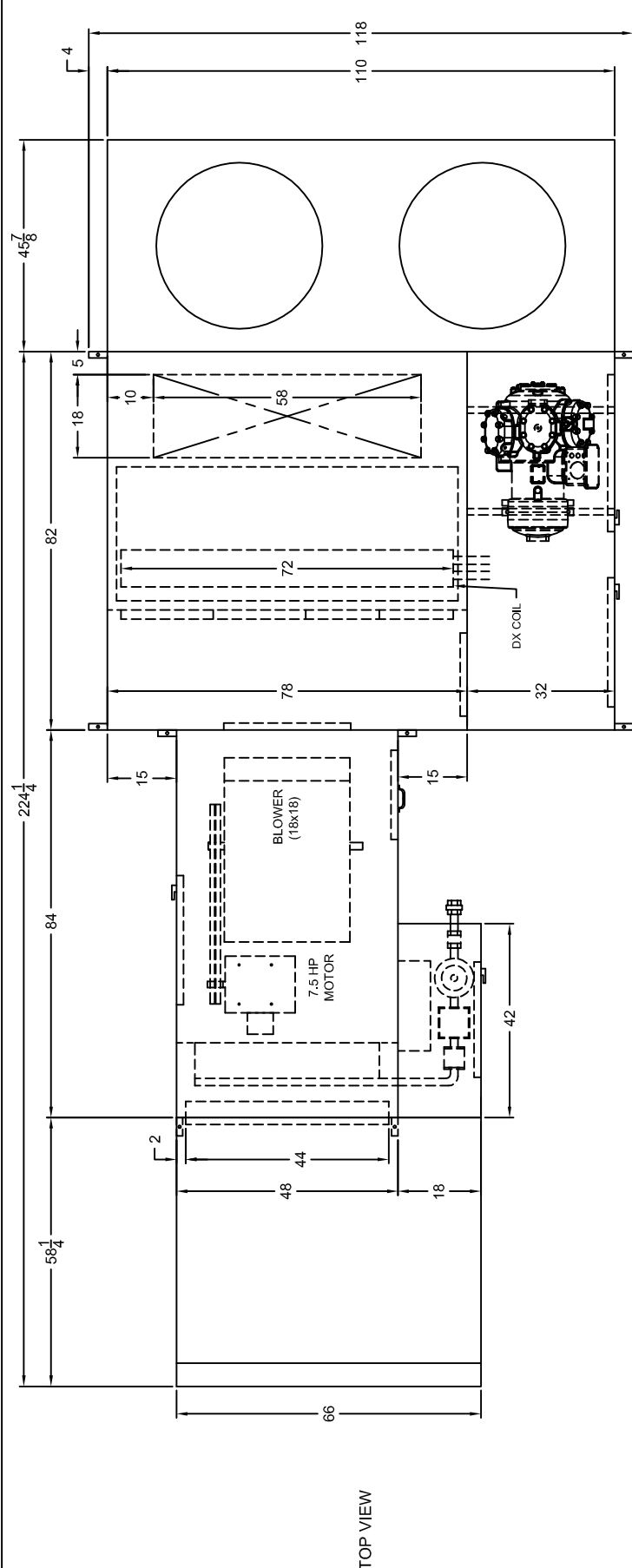
JOB NO.

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S-4

Rev By

Revision Description

Date



NOTE:

(S) SPLIT FOR SHIPMENT

1. 1 1/2" INLET AND DISCHARGE FLANGES

2. SERVICE ACCESS PANELS MUST NOT BE OBSTRUCTED. RECOMMENDED CLEARANCE 24 INCHES. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.



TITLE

BMA 118 DX 25
HORIZONTAL CONFIGURATION SINGLE BLOWER
w/ PACKAGED COOLING

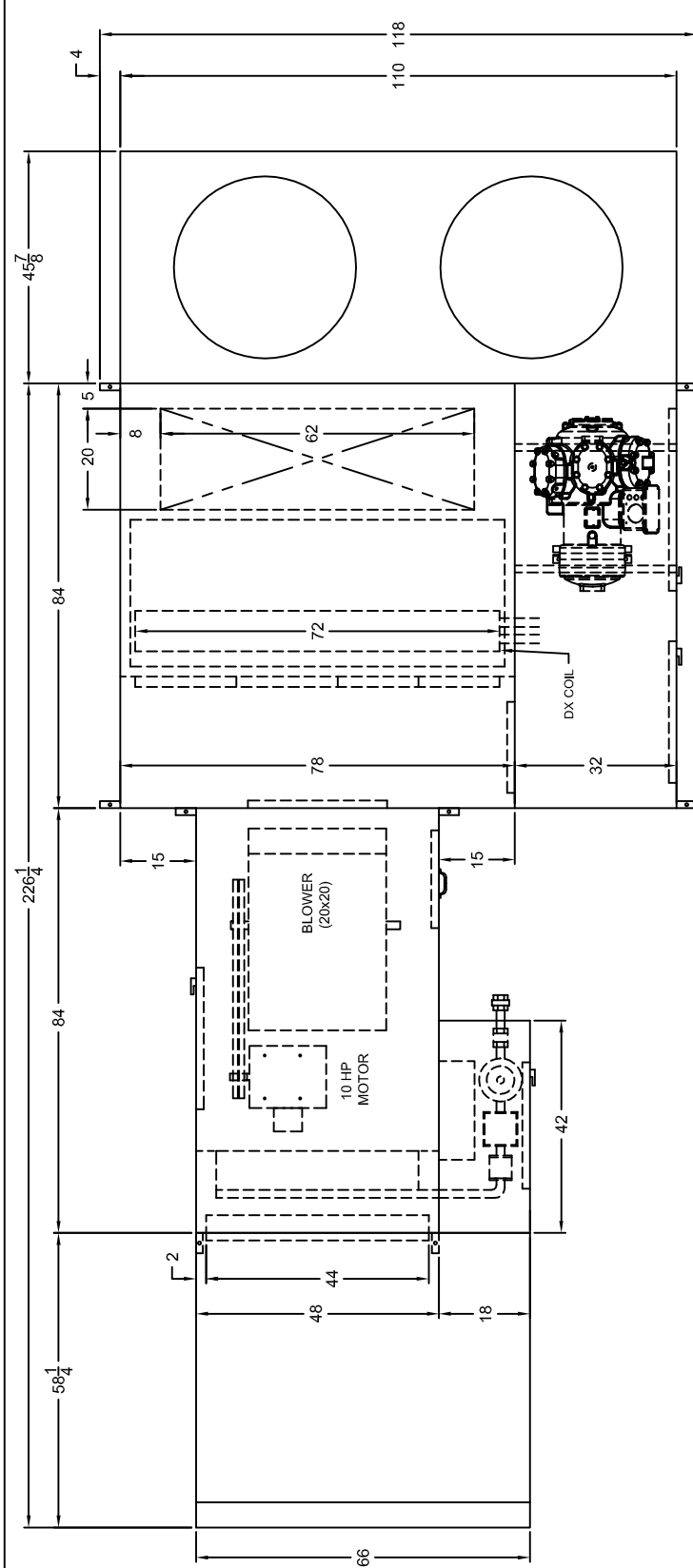
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ISSUED BY DATE

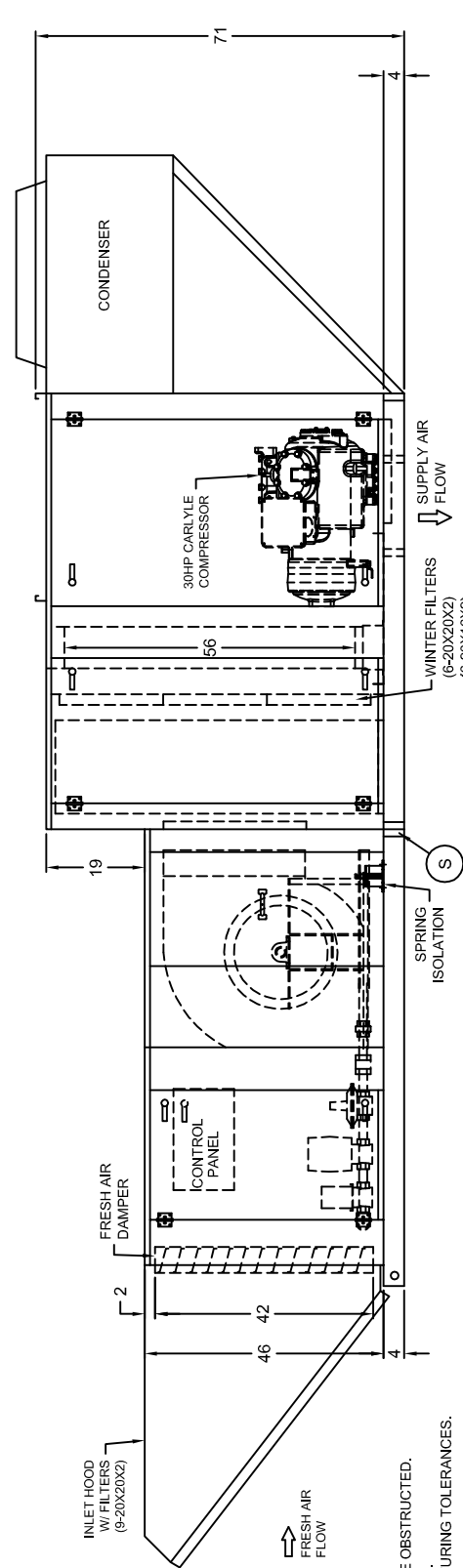
CHK. BY JOB NO.

PAGE S-5

Rev	By	Revision Description	Date
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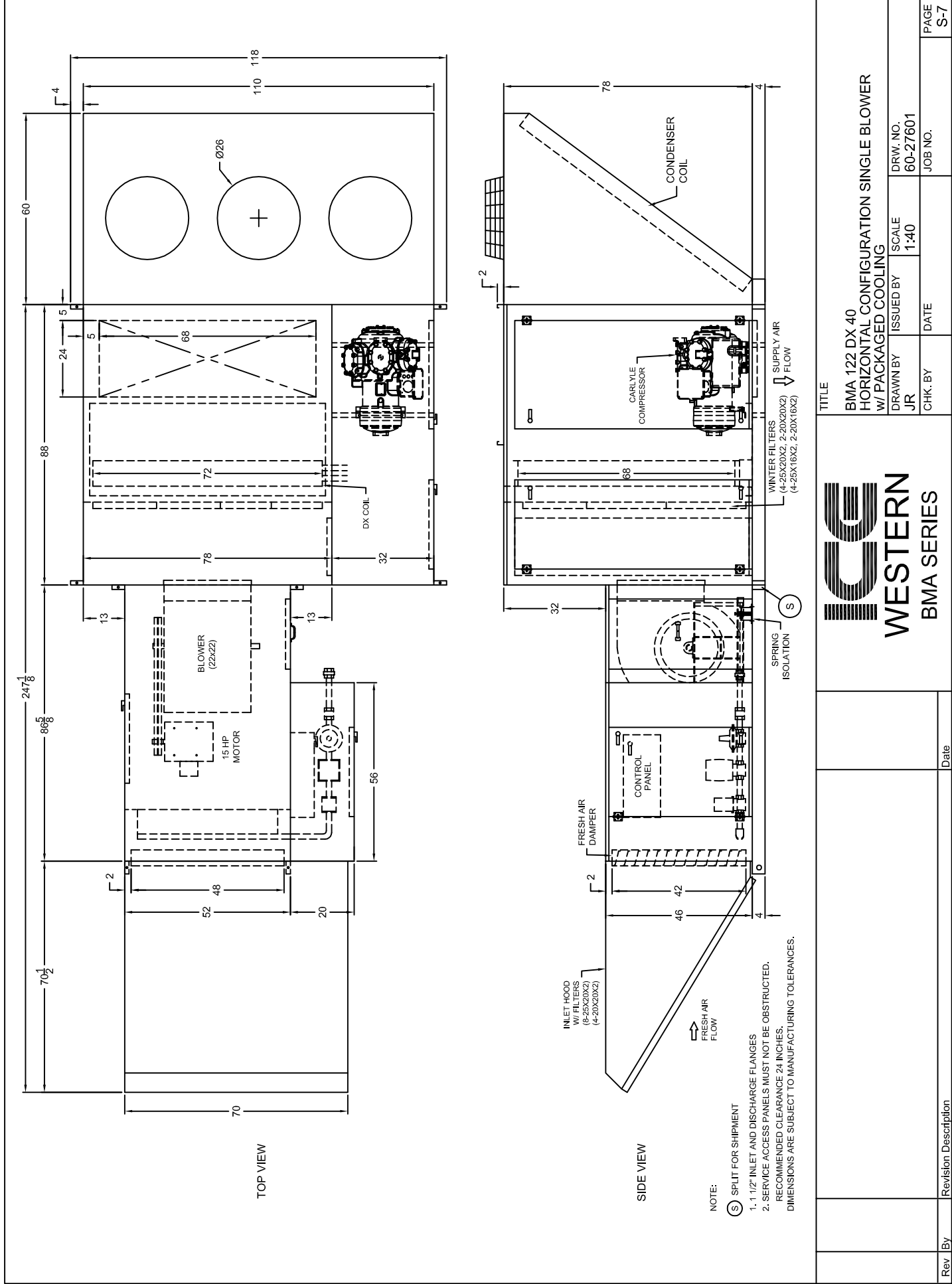
TOP VIEW

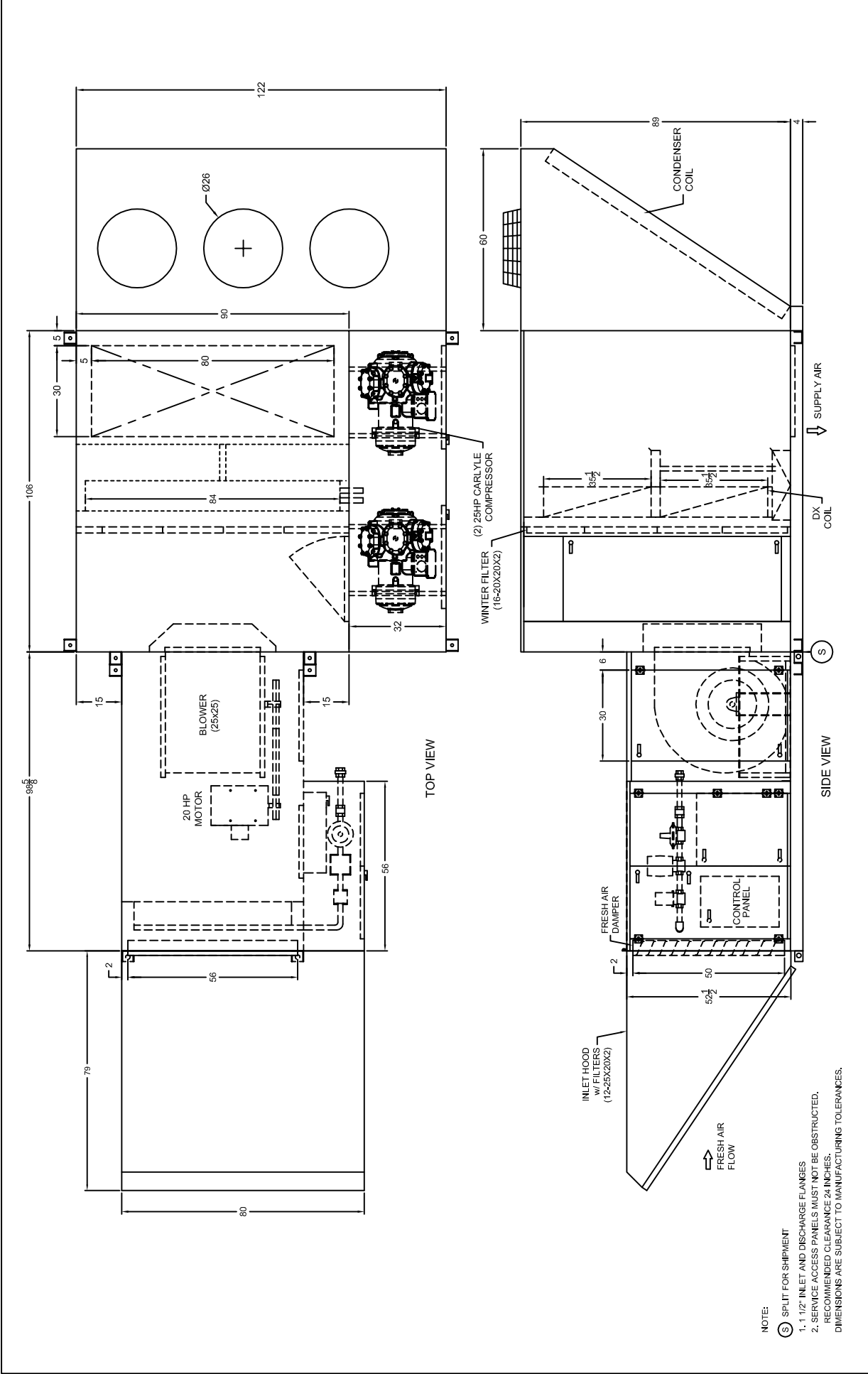


SIDE VIEW

NOTE:
 (S) SPLIT FOR SHIPMENT
 1. 1 1/2" INLET AND DISCHARGE FLANGES
 2. SERVICE ACCESS PANELS MUST NOT BE OBSTRUCTED.
 RECOMMENDED CLEARANCE 24 INCHES.
 DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.

				16-20X16X21	
				TITLE	
				BMA 120 DX 33 HORIZONTAL CONFIGURATION SINGLE BLOWER w/ PACKAGED COOLING	
				DRAWN BY JR	ISSUED BY SCALE 1:26 DRW. NO.
				CHK. BY	DATE JOB NO.
Rev	By				PAGE S-6





			<div>ICG WESTERN BMA SERIES</div>				TITLE		
			BMA 125 DX 50 HORIZONTAL CONFIGURATION SINGLE BLOWER w/ PACKAGED COOLING						
			DRAWN BY	ISSUED BY	SCALE	DRW. NO.			
			JR	JR	1:45				
			CHK. BY	DATE		JOB NO.		PAGE	
Rev	By	Revision Description		Date			S-8		

BMA TYPE W/ PACKAGED COOLING TYPICAL SPECIFICATIONS

Supply an ICE direct fired (make-up unit) (space heater) designed for (indoor) (outdoor) installation. The capacity and configuration shall be as detailed on the drawings. The unit shall be CGA and ETL certified and listed to be in compliance with the current ANSI Z83.18 standard.

The line burner, gas train and controls are to be in accordance with (ANSI) (FM) (IRI) (FM and IRI) requirements.

The unit is to be completely factory test fired to verify proper operation. The unit capacity is to be validated with an instantaneous flow meter. A complete electrical circuit analysis is to be conducted and all systems operated and measured. A combustion analyzer is to be employed while unit is operating at full capacity to verify combustion emissions. Burner combustion must be clean and odorless and no aliphatic aldehydes are to be detectable. Combustion efficiency must limit the products of combustion to a maximum of 5 ppm carbon monoxide and 0.5 ppm nitrogen dioxide.

UNIT CASING

Unit construction is to be of industrial quality heavy gauge bonderized G90 steel. The unit design shall incorporate a full base pan supported by an integral welded channel iron base. Bases are to be of industrial welded structural iron integrity, formed sheet metal bases are unacceptable. All structural iron base supports are to be treated with an industrial epoxy primer enriched with a rust inhibitor.

To ensure the casings are airtight and weatherproof, all panels are to be caulked during assembly. All casings are to be hand fitted and secured with gasketed self-tapping Tek screws. Roof casing are to feature three-break standing seam panel design. Roof casings are to be sloped on outdoor units to prevent standing water. Sloped roofs are to be ¼ in. per foot and feature full drain troughs.

Entire unit casing and accessories are to be insulated with fiberglass insulation with hard neoprene facing. (1 or 2 in. thick 1-1/2# or 2# density) insulation is to be secured with industrial glue and welded pin spots. Insulation is to be certified to fire and flamespread ratings as outlined by the ANSI code. The entire floor of the unit is to feature a steel liner sandwiching the insulation.

Units are to be equipped with access doors to all serviceable components. Access doors are to have full-length stainless steel piano hinges. All access doors are to be equipped with an insulation liner, positive seal latches and gasketing. Access doors are to open outward on negative pressure sections and inward on positive pressure sections. All outdoor unit access doors are to be equipped with drain troughs.

Units are to be finished with an industrial grade chain stop alkyd enamel paint. The medium grey finish coat is to be a minimum of 3 mils thick and provide 100% coverage.

BLOWER / MOTOR SECTION

Unit(s) shall be supplied with AMCA rated centrifugal forward curve DWDI statically and dynamically balanced blower. The fan shall be mounted on a heavy duty machined and polished shaft. The shafts maximum operating speed is not to exceed 75% of its first critical speed. The bearings and motor shall

be mounted in the airstream. The T-frame motor shall be mounted in a motor compartment on a fully adjustable base. The bearings are to be industrial pillow block type supplied with extended grease lines. The blower is to be driven with an (adjustable) (fixed) 1.25 s.f. V-belt drive package concealed in a belt guard. Outdoor units shall have hinged door(s) to provide easy access to maintain and inspect motor, belts & bearings.

BURNER SECTION

Each unit shall be equipped with a wide range fully modulating direct gas-fired burner capable of 30:1 turndown. The burner shall have stainless steel combustion baffles, non-clogging gas ports, spark-ignited intermittent pilot and flame safeguard system. Burner combustion must be clean and odorless. Combustion efficiency must limit the products of combustion to a maximum of 5 ppm carbon monoxide and 0.5 ppm nitrogen dioxide. The burner profile is to be equipped with adjustable profile plates. A heat treated glass observation port shall provide a full view of flame. Hinged access door(s) are to be provided to allow easy maintenance and inspection for burner, ignitor and flamerod.

DAMPERS & FILTER SECTION

The dampers are to be galvanized steel (aluminum airfoil low leak) type (with seals). The dampers shall be equipped with 2-position (modulating) actuators. The filters shall be 2" pleated throwaway type with minimum of 85% arrestance and 30% efficiency. Filter access shall be through a latched and gasketed access doors located on both sides of the unit. (Final filters shall be 4 or 12 inch high efficiency cartridge filters.)

CONTROL/MANIFOLD COMPARTMENT

Unit control enclosure to have hinged access. Terminal strip and all wiring shall be numbered. The controls for the heater shall include;

- blower motor starter w/ambient compensated overloads and auxiliary contact(s).
- primary to 120v control transformer
- 6,000 volt ignition transformer
- control circuit breaker and service switch
- manual reset temperature high limit
- flame safeguard relay w/ LED status and flamerod
- discharge temperature control sensor
- differential air proving safety switch
- automatic low temperature limit (optional)

All wiring external to control enclosure shall be run in conduit. The gas manifold shall include;

- main gas pressure regulator
- high gas pressure regulator (optional)
- manual shutoff & test firing valve
- main gas automatic shutoff valve
- auxiliary main gas automatic shutoff valve
- modulating control system
- pilot pressure regulator
- pilot automatic shutoff valve
- pilot manual shutoff valve

- pilot needle valve
- multiple test ports

Outdoor units shall have hinged doors to provide easy access to maintain and inspect valves and controls.

EVAPORATOR COILS

Evaporator coils are intended for use with a wide range of applications and refrigerant types. Coils are to be designed to maximize performance under specified conditions with minimal air-side pressure drop.

Coils shall be UL recognized as Refrigerant Containing Component. Coils to be used with refrigerant R-410A shall have undergone cycle testing, and shall be safety listed with 750 psig rating.

Tubes and return bends shall be constructed from seamless UNS C12200 copper conforming to ASTM B224 and ASTM E527. Properties shall be O50 light annealed with a maximum grain size of 0.040 mm.

Tubes are to mechanically expanded into fins (secondary surface) for maximum heat transfer. Materials are to be 3/8" diameter x (0.014, 0.022) wall thickness, 1/2" diameter x (0.016, 0.025) wall thickness, or 5/8" diameter x (0.020, 0.025, 0.035, 0.049) wall thickness.

Secondary surface (fins) shall be of the plate-fin design using aluminum or copper, with die-formed collars. Fin design to be flat, waffle, or sine-wave in a staggered tube pattern to meet performance requirements.

Collars will hold fin spacing at specified density, and cover the entire tube surface. Aluminum properties are to be Alloy 1100 per ASTM B209, with O (soft) temper; copper is to be Alloy 11000 per ASTM B152-06 with soft (anneal) temper. Fins are to be free of oils and oxidation.

Headers are to be constructed of seamless UNS C12200, Type L (drawn) copper material sized to match specified connection size. Type K (drawn) copper headers shall be offered as optional material.

Die-formed copper end caps are brazed on the inside of the headers, unless spun-closed (for sized up to 1-3/8").

Evaporator coils shall be designed with brass liquid distributors (as required), and copper sweat suction connections. Distributors shall be capped using soft-solder for ease of cap removal; suction connections shall be capped.

Coil casing material shall be of G90 galvanized steel, 16 gauge minimum. Heavier material, stainless steel, copper, or aluminum casing are to be provided as required.

Intermediate tube supports are to be provided on all coils 48" and longer fin length. Coil casing on top and bottom of coils are to have double-flange construction, allowing for vertical stacking of coils.

All coils are to be brazed with minimum 5% silver content (BCup-3) filler material to insure joint integrity.

Coils shall be tested at 550 psig using dry nitrogen, submerged under water. Dual-operator verification shall determine that all coils are leak-free.

Coils shall be shipped with nitrogen charge to verify leak-free integrity, and to prevent moisture migration into coil.

Coils shall be certified to withstand 750 psig working pressure.

CONDENSER COILS

Condenser coils are intended for use with a wide range of applications and refrigerant types. Coils are to be designed to maximize performance under specified conditions with minimal air-side pressure drop.

Coils shall be UL recognized as Refrigerant Containing Component. Coils to be used with refrigerant R-410A shall have undergone cycle testing, and shall be safety listed with 750 psig rating.

Tubes and return bends shall be constructed from seamless UNS C12200 copper conforming to ASTM B224 and ASTM E527. Properties shall be O50 light annealed with a maximum grain size of 0.040 mm. Tubes are to mechanically expanded into fins (secondary surface) for maximum heat transfer. Materials are to be 3/8" diameter x (0.014, 0.022) wall thickness, 1/2" diameter x (0.016, 0.025) wall thickness, or 5/8" diameter x (0.020, 0.025, 0.035, 0.049) wall thickness.

Internally enhanced rifled or cross-hatched tubes can be offered as an option.

Secondary surface (fins) shall be of the plate-fin design using aluminum or copper, with die-formed collars. Fin design to be flat, waffle, or sine-wave in a staggered tube pattern to meet performance requirements.

Collars will hold fin spacing at specified density, and cover the entire tube surface. Aluminum properties are to be Alloy 1100 per ASTM B209, with O (soft) temper; copper is to be Alloy 11000 per ASTM B152-06 with soft (anneal) temper. Fins are to be free of oils and oxidation.

Headers are to be constructed of seamless UNS C12200, Type L (drawn) copper material sized to match specified connection size. Type K (drawn) copper headers shall be offered as optional material.

Die-formed copper end caps are brazed on the inside of the headers, unless spun-closed (for sized up to 1-3/8").

Condenser coils shall be designed with copper sweat connections, and shall be shipped with caps on connections.

Coil casing material shall be of G90 galvanized steel, 16 gauge minimum. Heavier material, stainless steel, copper, or aluminum casing are to be provided as required.

Coils designed for hot-gas applications shall have oversized tube sheet holes for hot gas feeds to allow for free expansion and contraction of tubes during operation.

Intermediate tube supports are to be provided on all coils 48" and longer fin length. Coil casing on top and bottom of coils are to have double-flange construction, allowing for vertical stacking of coils.

All coils are to be brazed with minimum 5% silver content (BCup-3) filler material to insure joint integrity.

Coils shall be tested at 550 psig using dry nitrogen, submerged under water. Dual-operator verification shall determine that all coils are leak-free.

Coils shall be shipped with nitrogen charge to verify leak-free integrity, and to prevent moisture migration into coil.

Coils shall be certified to withstand 750 psig working pressure.

REFRIGERATION COMPRESSORS

Compressors shall be either hermetic or semi-hermetic type.

- A) Semi-Hermetic- Semi-hermetic reciprocating compressors shall be provided on systems with total cooling capacity of 25 Tons and larger. Up to 40 tons a single compressor will be used and multiple semi-hermetic compressors over 40 Tons. Compressors shall be completely factory assembled, piped, insulated, internally wired and tested. Units shall be shipped in one piece and come fully charged with refrigerant and filled with compressor oil. Units shall be rated in accordance with ARI standards. The refrigerant system shall be leak tested, evacuated and refrigerant charged at the factory. Compressors shall be suction gas cooled and come with integral spring vibration isolators, oil level sight glass, discharge mufflers, vibrasorbers, automatic reversible oil pump, oil filter screen. Oil charging valve, crankcase heater which de-energizes during compressor operation, liquid line service valves. Unit shall also have the following safety control features:

- Low pressure cutout

- High pressure cutout, manual reset
- Adjustable low ambient lockout
- Liquid line solenoids incorporating pump down system
- Anticycling time device (to prevent excessive cycling and premature wear on compressor and contactors) and phase and brownout protection.
- Oil failure control

Provide cylinder suction pressure unloaders for capacity control, with minimum steps required to provide coil frost protection, based on refrigerant circuit suction temperatures. Provide filter dryers, sight glasses and compressor service valves for each individual compressor. Provide hot gas bypass for each compressor. Compressor staging to be provided by a Honeywell T775 Series standalone controller mounted in the unit.

B) Hermetic compressors- Compressors shall be set on resilient neoprene mounts and complete with line voltage break internal overload protection, internal pressure relief valve and crankcase heater. Each unit shall have a minimum of two compressors. Whereby a unit utilizing two compressors the first stage compressor must be a digital scroll operating with a Emerson EC3 series stand-alone superheat controller with a built in synchronization control for the digital scroll. Unit will provide turndown on cooling. Multiple refrigeration circuits shall be separate from each other. Refrigeration circuits shall be complete with liquid line filter-driers, and service ports fitted with Schraeder fittings. Units shall incorporate load compensated thermal expansion valves with external equalizers (electronic expansion valves on digital systems) and combination sight glass moisture indicators. System charge will be designed for 10 degrees Fahrenheit. Each system shall be factory run and adjusted prior to shipment. Controls shall include:

- Compressor motor contactors
- Overload protection control
- Cooling relays
- Ambient compressor lockout
- Dual pressure controls
- Anti-cycle timers
- Hot gas bypass on lead compressor to maintain adequate suction pressure in the event of low loads
(only when digital scrolls are not being used)

Packaged units shall operate down to 50 degrees Fahrenheit as standard. Minus 40 refrigeration systems are available as an option. Compressors shall be located on the side of the unit in a service enclosure complete with hinged access doors.



BMA DIRECT FIRED SERIES PERFORMANCE SPECIFICATIONS

APPLICABLE TO NATURAL AND PROPANE FIRED UNITS

DESIGN AIR FLOW	MODEL NUMBER	BLOWER SIZE	DISCHARGE VELOCITY	**EXTERNAL STATIC PRESSURE (BURNER AND BLOWER ALREADY INCLUDED)						TEMPERATURE RISE							GAS CONNECTION
CFM		INCHES	FPM	BRAKE HORSEPOWER						MBH CAPACITY							INCHES
				0.25"WC	0.50"WC	0.75"WC	1.00"WC	1.50"WC	2.00"WC	60DegF	70DegF	80DegF	90DegF	100DegF	110DegF	120DegF	
1600	BMA109	12-9	1400	0.62	0.75	0.89*	0.97*	1.17*	1.38*	114	133	152	171	190	209	228	1/2
1800	BMA109	12-9	1575	0.70	0.83	0.97	1.18*	1.37*	1.59*	128	150	171	192	214	235	257	
2000	BMA109	12-9	1750	0.78	0.93	1.08	1.23	1.63*	1.87*	143	166	190	214	238	261	285	
2500	BMA109	12-9	2187	1.06	1.20	1.37	1.56	1.94	2.31	178	208	238	267	297	327	356	3/4
	BMA112	12-12	1715	0.88	1.03	1.19	1.36	1.69	2.09	178	208	238	267	297	327	356	
3000	BMA112	12-12	2057	1.16	1.32	1.49	1.67	2.04	2.44	214	249	285	321	356	392	428	1
	BMA115	15-15	1492	0.80	1.32*	1.49*	1.67*	2.04*	2.44*	214	249	285	321	356	392	428	
3500	BMA112	12-12	2400	1.48	1.68	1.88	2.07	2.46	2.87	249	291	333	374	416	457	499	
	BMA115	15-15	1741	1.00	1.19	1.88*	2.07*	2.46*	2.87*	249	291	333	374	416	457	499	
4000	BMA112	12-12	2743	1.90	2.11	2.32	2.55	3.00	3.42	285	333	380	428	475	523	570	
	BMA115	15-15	1990	1.22	1.43	1.64	1.87	3.00*	3.42*	285	333	380	428	475	523	570	
4500	BMA115	15-15	2238	1.50	1.73	1.96	2.19	2.69	3.78*	321	374	428	481	535	588	642	
	BMA118	18-18	1567	1.33	1.59	1.96*	2.19*	2.69*	3.73*	321	374	428	481	535	588	642	
5000	BMA115	15-15	2487	1.83	2.07	2.32	2.57	3.10	3.66	356	416	475	535	594	653	713	
	BMA118	18-18	1742	1.56	1.85	2.14	2.45	3.10*	3.66*	356	416	475	535	594	653	713	
5500	BMA115	15-15	2736	2.22	2.48	2.75	3.02	3.58	4.16	392	457	523	588	653	719	784	
	BMA118	18-18	1916	1.82	2.13	2.44	2.76	3.58*	4.16*	392	457	523	588	653	719	784	
6000	BMA115	15-15	2985	2.69	2.96	3.25	3.54	4.14	4.76	428	499	570	642	713	784	855	
	BMA118	18-18	2090	2.11	2.45	2.78	3.13	3.83	4.76*	428	499	570	642	713	784	855	
	BMA120	20-20	1428	1.66	2.38*	2.72*	3.06*	3.76*	4.58*	428	499	570	642	713	784	855	
6500	BMA115	15-15	3233	3.32	3.51	3.81	4.12	4.76	5.42	463	541	618	695	772	849	927	
	BMA118	18-18	2264	2.45	2.80	3.16	3.53	4.28	5.05	463	541	618	695	772	849	927	
	BMA120	20-20	1547	1.86	2.24	3.09*	3.45*	4.20*	4.97*	463	541	618	695	772	849	927	
7000	BMA115	15-15	3482	4.14	4.19	4.43	4.75	5.43	6.12	499	582	665	748	832	915	998	
	BMA118	18-18	2439	2.83	3.21	3.59	3.98	4.78	5.59	499	582	665	748	832	915	998	
	BMA120	20-20	1666	2.08	2.47	3.48*	3.87*	4.66*	5.48*	499	582	665	748	832	915	998	
8000	BMA118	18-18	2787	3.68	4.11	4.55	4.98	5.87	6.77	570	665	760	855	950	1045	1140	1 1/4
	BMA120	20-20	1904	2.58	3.00	3.44	3.90	5.71*	6.61*	570	665	760	855	950	1045	1140	
	BMA215	2-15-15	1990	2.40	2.81	3.23	4.55*	5.39*	6.24*	570	665	760	855	950	1045	1140	
9000	BMA118	18-18	3135	4.89	5.20	5.68	6.16	7.15	8.14	642	748	855	962	1069	1176	1283	
	BMA120	20-20	2142	3.19	3.64	4.10	4.59	5.61	7.92*	642	748	855	962	1069	1176	1283	
	BMA215	2-15-15	2238	2.95	3.40	3.86	4.33	6.56*	7.50*	642	748	855	962	1069	1176	1283	
10000	BMA118	18-18	3484	6.71	6.81	6.96	7.50	8.57	9.67	713	832	950	1069	1188	1307	1426	
	BMA120	20-20	2380	3.94	4.41	4.91	5.42	6.49	7.64	713	832	950	1069	1188	1307	1426	
	BMA215	2-15-15	2487	3.61	4.10	4.60	5.11	6.16	8.98*	713	832	950	1069	1188	1307	1426	
	BMA218	2-18-18	1742	3.13	3.70	4.54*	5.05*	6.09*	8.91*	713	832	950	1069	1188	1307	1426	
12000	BMA120	20-20	2857	5.99	6.32	6.88	7.45	8.63	9.88	855	998	1140	1283	1426	1568	1711	1 1/2
	BMA122	22-22	2352	4.67	5.25	5.86	6.48	7.81	9.23	855	998	1140	1283	1426	1568	1711	
	BMA215	2-15-15	2985	5.29	5.83	6.40	6.98	8.18	9.41	855	998	1140	1283	1426	1568	1711	
	BMA218	2-18-18	2090	4.23	4.89	5.57	6.26	8.06*	9.29*	855	998	1140	1283	1426	1568	1711	
14000	BMA120	20-20	3333	9.23	9.35	9.50	10.14	11.45	12.81	998	1164	1331	1497	1663	1830	1996	2
	BMA122	22-22	2745	6.65	7.20	7.88	8.56	10.00	11.51	998	1164	1331	1497	1663	1830	1996	
	BMA125	25-25	2086	4.39	5.09	5.83	6.61	9.85*	11.35*	998	1164	1331	1497	1663	1830	1996	
	BMA215	2-15-15	3482	8.29	8.48	8.85	9.50	10.85	12.24	998	1164	1331	1497	1663	1830	1996	
	BMA218	2-18-18	2439	5.65	6.42	7.19	7.97	9.55	11.96*	998	1164	1331	1497	1663	1830	1996	
17000	BMA122	22-22	3333	11.91	12.03	12.13	12.29	14.24	15.92	1212	1414	1616	1818	2020	2222	2424	
	BMA125	25-25	2533	6.37	7.16	7.97	8.82	10.61	12.52	1212	1414	1616	1818	2020	2222	2424	
	BMA218	2-18-18	2961	8.32	9.23	10.14	11.06	12.93	14.83	1212	1414	1616	1818	2020	2222	2424	
19000	BMA122	22-22	3725	16.59	16.98	17.34	17.70	18.06	19.88	1354	1580	1806	2031	2257	2483	2709	
20000	BMA125	25-25	2980	9.30	9.84	10.75	11.69	13.63	15.67	1426	1663	1901	2138	2376	2614	2851	
	BMA127	27-27	2478	6.91	7.74	8.59	9.49	11.44	15.46*	1426	1663	1901	2138	2376	2614	2851	
	BMA218	2-18-18	3484	13.42	13.67	13.93	14.99	17.15	19.33	1426	1663	1901	2138	2376	2614	2851	
	BMA220	2-20-20	2380	8.25	9.22	10.22	11.26	13.44	15.75	1426	1663	1901	2138	2376	2614	2851	



BMA DIRECT FIRED SERIES PERFORMANCE SPECIFICATIONS

APPLICABLE TO NATURAL AND PROPANE FIRED UNITS

DESIGN AIR FLOW	MODEL NUMBER	BLOWER SIZE	DISCHARGE VELOCITY	**EXTERNAL STATIC PRESSURE (BURNER AND BLOWER ALREADY INCLUDED)						TEMPERATURE RISE							GAS CONNECTION
CFM		INCHES	FPM	BRAKE HORSEPOWER						MBH CAPACITY							INCHES
				0.25"WC	0.50"WC	0.75"WC	1.00"WC	1.50"WC	2.00"WC	60DegF	70DegF	80DegF	90DegF	100DegF	110DegF	120DegF	
22000	BMA125	25-25	3278	12.36	12.76	13.16	14.17	16.23	18.39	1568	1830	2091	2352	2614	2875	3136	2 1/2
	BMA127	27-27	2726	8.58	9.48	10.40	11.34	13.34	15.53	1568	1830	2091	2352	2614	2875	3136	
	BMA220	2-20-20	2619	9.90	10.93	11.99	13.08	15.36	17.76	1568	1830	2091	2352	2614	2875	3136	
	BMA222	2-22-22	2156	9.17	10.27	11.40	12.56	15.02	17.67*	1568	1830	2091	2352	2614	2875	3136	
25000	BMA125	25-25	3725	17.86	18.09	18.36	18.72	21.00	23.35	1782	2079	2376	2673	2970	3267	3564	
	BMA127	27-27	3097	12.30	12.51	13.53	14.56	16.86	18.94	1782	2079	2376	2673	2970	3267	3564	
	BMA130	30-30	2688	9.17	10.27	11.40	12.56	15.02	17.67	1782	2079	2376	2673	2970	3267	3564	
	BMA222	2-22-22	2450	11.09	12.32	13.59	14.90	17.67	20.63	1782	2079	2376	2673	2970	3267	3564	
28000	BMA127	27-27	3469	16.90	17.54	18.23	18.69	21.00	23.39	1996	2328	2661	2994	3326	3659	3992	
	BMA130	30-30	3010	11.88	12.90	14.13	15.38	17.98	20.73	1996	2328	2661	2994	3326	3659	3992	
	BMA133	33-33	2323	9.91	11.12	12.36	13.65	16.40	20.62*	1996	2328	2661	2994	3326	3659	3992	
	BMA222	2-22-22	2740	13.88	15.21	16.57	17.97	20.88	23.96	1996	2328	2661	2994	3326	3659	3992	
30000	BMA130	30-30	3225	14.64	15.01	16.31	17.63	20.34	23.19	2138	2495	2851	3208	3564	3920	4277	
	BMA133	33-33	2489	11.49	12.78	14.09	15.43	18.25	21.28	2138	2495	2851	3208	3564	3920	4277	
	BMA136	36 - 36	2343	10.53	11.78	13.06	14.38	17.22	21.16*	2138	2495	2851	3208	3564	3920	4277	
	BMA225	2-25-25	2235	9.92	11.37	12.89	14.48	17.88	25.23*	2138	2495	2851	3208	3564	3920	4277	
	BMA227	2-27-27	1858	8.21	9.69	12.89*	14.48*	17.88*	25.23*	2138	2495	2851	3208	3564	3920	4277	
32000	BMA130	30-30	3440	17.74	18.29	18.84	20.24	23.08	26.04	2281	2661	3041	3421	3802	4182	4562	
	BMA133	33-33	2655	13.30	14.67	16.05	17.46	20.37	23.48	2281	2661	3041	3421	3802	4182	4562	
	BMA136	36-36	2499	12.12	13.44	14.78	16.16	19.06	22.21	2281	2661	3041	3421	3802	4182	4562	
	BMA225	2-25-25	2384	11.46	12.99	14.57	16.22	19.73	29.38*	2281	2661	3041	3421	3802	4182	4562	
	BMA227	2-27-27	1982	9.24	10.73	14.38*	16.02*	19.51*	23.24*	2281	2661	3041	3421	3802	4182	4562	
35000	BMA130	30-30	3763	23.18	23.78	24.39	25.00	27.88	31.03	2495	2911	3326	3742	4158	4574	4990	
	BMA133	33-33	2904	17.24	17.90	19.41	20.92	24.01	27.24	2495	2911	3326	3742	4158	4574	4990	
	BMA136	36 - 36	2734	15.21	16.26	17.71	19.18	22.21	25.44	2495	2911	3326	3742	4158	4574	4990	
	BMA225	2-25-25	2608	14.57	16.22	17.92	19.68	23.38	27.32	2495	2911	3326	3742	4158	4574	4990	
	BMA227	2-27-27	2168	10.99	12.53	14.19	15.98	22.24*	26.11*	2495	2911	3326	3742	4158	4574	4990	
40000	BMA133	33-33	3319	25.70	26.39	27.08	27.09	31.36	34.87	2851	3326	3802	4277	4752	5227	5702	3
	BMA136	36 - 36	3124	22.66	23.32	23.98	25.17	28.51	31.96	2851	3326	3802	4277	4752	5227	5702	
	BMA225	2-25-25	2980	18.95	20.77	22.62	24.52	28.46	32.61	2851	3326	3802	4277	4752	5227	5702	
	BMA227	2-27-27	2478	14.27	15.94	17.68	19.50	23.46	31.51*	2851	3326	3802	4277	4752	5227	5702	
45000	BMA136	36 - 36	3515	32.31	33.05	33.80	34.54	36.18	39.94	3208	3742	4277	4811	5346	5881	6415	THIS AREA MUST BE PSI IN COMING PRESSURE
	BMA227	2-27-27	2788	18.35	20.20	22.06	23.98	28.04	32.47	3208	3742	4277	4811	5346	5881	6415	
	BMA230	2-30-30	2419	14.95	16.98	19.10	21.33	26.09	31.55	3208	3742	4277	4811	5346	5881	6415	
50000	BMA136	36 - 36	3906	44.29	45.12	45.95	46.78	47.61	49.43	3564	4158	4752	5346	5940	6534	7128	
	BMA227	2-27-27	3097	24.03	25.42	27.47	29.54	33.80	38.34	3564	4158	4752	5346	5940	6534	7128	
	BMA230	2-30-30	2688	18.78	20.98	23.25	25.60	30.56	35.90	3540	4130	4720	5310	5900	6490	7080	
55000	BMA227	2-27-27	3407	31.99	32.90	33.80	36.05	40.61	45.34	3920	4574	5227	5881	6534	7187	7841	
	BMA230	2-30-30	2956	23.27	25.66	28.09	30.58	35.78	41.31	3920	4574	5227	5881	6534	7187	7841	
60000	BMA230	2-30-30	3225	29.29	31.05	33.67	36.32	41.80	47.56	4277	4990	5702	6415	7128	7841	8554	
	BMA233	2-33-33	2489	22.77	25.35	27.96	30.64	36.26	45.80*	4277	4990	5702	6415	7128	7841	8554	
70000	BMA230	2-30-30	3763	46.36	47.57	48.78	49.63	55.76	62.05	4990	5821	6653	7484	8316	9148	9979	
	BMA233	2-33-33	2904	34.48	35.69	37.61	40.63	46.77	53.17	4990	5821	6653	7484	8316	9148	9979	
	BMA236	2-36-36	2734	30.43	31.94	34.83	37.76	43.80	50.21	4990	5821	6653	7484	8316	9148	9979	
75000	BMA233	2-33-33	3112	42.40	43.69	44.59	47.82	54.33	61.03	5346	6237	7128	8019	8910	9801	10692	
	BMA236	2-36-36	2929	37.39	38.63	40.62	43.73	50.07	56.70	5346	6237	7128	8019	8910	9801	10692	
80000	BMA233	2-33-33	3319	51.40	52.78	54.16	55.81	62.71	69.75	5702	6653	7603	8554	9504	10454	11405	
	BMA236	2-36-36	3124	45.33	46.64	47.97	50.35	57.03	63.92	5702	6653	7603	8554	9504	10454	11405	
90000	BMA236	2-36-36	3515	64.61	66.10	67.60	69.08	73.11	80.63	6415	7484	8554	9623	10692	11761	12830	
105000	BMA330	3-30-30	3763	69.62	71.76	73.38	75.06	80.78	86.18	7484	8732	9979	11227	12474	13721	14969	
140000	BMA336	3-36-36	3645	100.80	103.59	106.05	111.78	115.84	130.05	9979	11642	13306	14969	16632	18295	19958	

NOTES:

- THE AIR VOLUME CAPACITIES ARE BASED ON A 75 DEG. ROOM TEMPERATURE AT SEA LEVEL.

- THE INPUT CAPACITIES WERE BASED ON:

MBH = (CFM X C X (LAT - EAT))/1000

MBH - BTUH/1000

CFM - MAXIMUM AIR CAPACITY (CUBIC FEET/MINUTE)

C - 1.188 BASED ON AN AIR DENSITY AT 75 DEG. F

EAT - ENTERING DRY BULB TEMPERATURE (DEG F)

LAT - LEAVING DRY BULB TEMPERATURE (DEG F)

- BRAKE HORSEPOWER DATA IS BASED ON FORWARD CURVED DWDI FANS AND INCLUDES DRIVE LOSSES.

.* INDICATES THAT SMALLER BLOWER(S) IS/ARE REQUIRED TO ACHIEVE THE BRAKE HORSEPOWER LISTED.

- **ADD FOR ACCESSORY STATIC PRESSURE DROPS FOUND ON PAGE 6 AS REQUIRED.

CONSULT THE FACTORY FOR:

- HIGHER AIR CAPACITIES OR SPECIAL APPLICATIONS.

- PERFORMANCE DATA AT HIGHER STATIC PRESSURES THAN LISTED.

- PERFORMANCE DATA AT ELEVATIONS OTHER THAN SEA LEVEL.