



Technical Guide

**Split-system
Air-cooled condensing units
R-454B**

**KD360, 480 and 600
30 - 50 tons**



Description

These units are completely assembled, piped and wired at the factory to provide one-piece shipment and rigging. Each unit is pressurized with a holding charge of nitrogen for storage or shipping.

The compact design, clean styling, low silhouette, and quiet operation make these condensing units suitable for almost any outdoor location. They are suitable for rooftops, because they weigh much less than a single package unit of similar capacity and are much easier to rig and support and also can be located at ground level, because their ample sub-cooling capacity allows them to be located three or more stories below the evaporator coil.

Every condenser coil is pressurized with air to 325 psig and leak tested. After assembly, the unit is pressure tested to 450 psig and additional leak testing is done. During this pressure test, the operation of the high pressure control is checked. As the unit is being evacuated and dehydrated, the operation of the low pressure control is checked. Every compressor, condenser fan motor, crankcase heater, and electrical control circuit is checked to assure a trouble-free start-up and years of reliable operation.

The condenser fan guards are vinyl-coated to provide additional rust protection and to enhance the appearance of the unit.

Compressors are mounted on rubber isolators to reduce the transmission of vibration. Vertical discharge condenser fans direct sound upward and away from any surrounding structures.

All sheet metal parts are constructed of commercial grade galvanized steel. After fabrication, each part is thoroughly cleaned to remove any grease or dirt from its surfaces. The external parts are coated with a powder paint to assure a quality finish for many years. This UL approved coating system has passed the 750-hour, 20% salt spray test per ASTM Standard B117.

All models include a 1-year limited warranty on the complete unit. An additional 4-year extended compressor warranty is available as an option on all models.

A matching line of evaporator blower units is also offered to meet your precise capacity and air handling requirements.

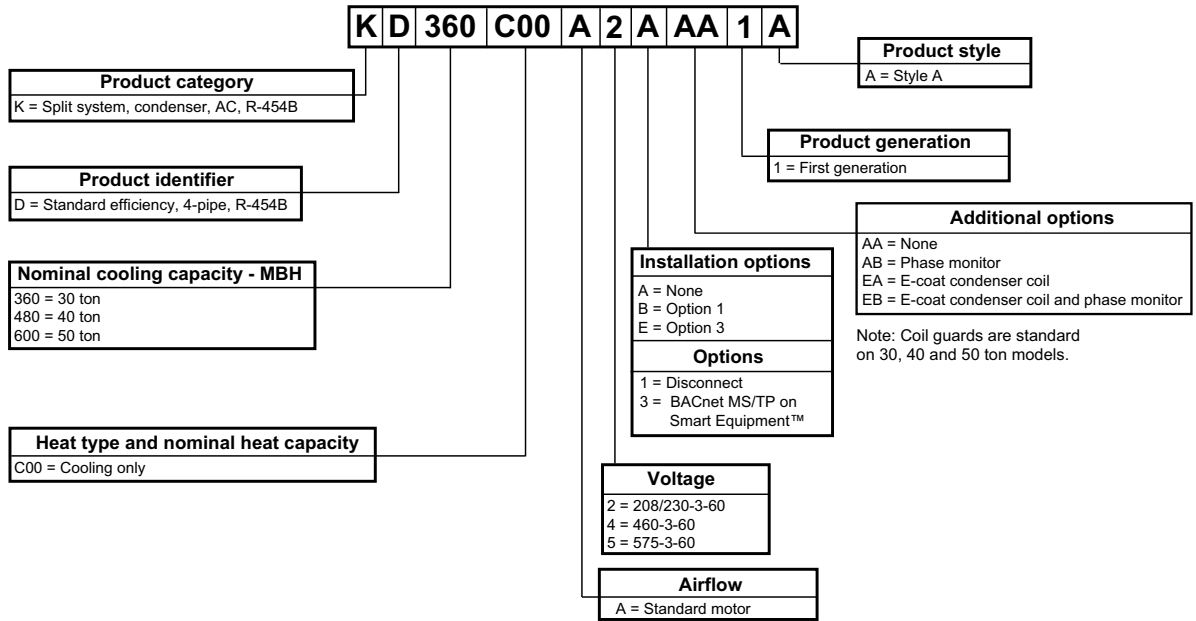


Table of contents

Description	1
Table of contents	2
Condensing unit accessories	4
Guide specifications	5
Field-installed options	6
Physical data	7
Unit limitations	8
Cooling ratings	8
Capacity performance	9
Sound performance	9
Electrical data	9
Typical Wiring Diagrams	10
Weight and dimensions	14

Product nomenclature

Configured split condenser model number nomenclature



Condensing unit features and benefits

- Meets or exceeds ASHRAE 90.1 standards.
- Scroll compressors provide both high efficiency and reliability.
- Smart Equipment™ Controls
- Dual refrigerant circuits.
- Condenser coils are constructed of copper tubes and aluminum fins for durability and long lasting efficient operation.
- Crankcase heaters that will be de-energized when the compressor is operating.
- Both high and low pressure controls. Since these controls are self-contained, there are no capillary lines to be damaged.
- Solid state or internal line break compressor motor protection.
- Class 2, 24-volt thermostat control circuit.
- Factory installed service valves are standard.
- Two filter-driers are shipped in the unit's control box for field installation in the liquid line near the condensing unit.
- Copper stub-outs are factory mounted on the suction and liquid line service valves to simplify the field piping connections.
- Multiple controls to provide stable system operation at ambient temperatures down to 40°F with kits available for operation to 0°F.
- Capacity staging for more economical operation and more even temperature levels within the conditioned space.
- A lockout circuit to prevent the unit from cycling on safety control.
- Pump-out on unit startup to prevent liquid refrigerant returning to the compressor is standard on all models.
- Inherently protected condenser fan motors.
- V-Coil Design with exterior service port connections.
- Five-minute anti-short cycle timer and minimum compressor run time.
- Factory installed disconnect and Technicoat coils option.
- Self contained high and low pressure controls.

Condensing unit accessories

- Low ambient VFD control to 0° F.
- Phase Monitors - Designed to prevent unit damage. The phase monitor will shut the unit down and out-of phase condition.
- Hot Gas Bypass Kit - That will provide a metered flow of compressor discharge gas to the system's evaporator coil during reduced load operation.
- Optional skid for fork truck handling (requires 96" length forks).

Guide specifications

Split system cooling only condensing units Models KD360, KD480 AND KD600

The installer shall:

- Furnish York® air-cooled condensing units or equivalent in accordance with the performance schedule shown on the plans, and
- Install each unit as shown on the plans in accordance with:
 - The manufacturers recommendations and
 - All applicable national and local codes

Each unit shall be:

- CSA approved.
- Completely assembled for one-piece shipping and rigging.
- Leak pressure and functionally tested at the factory to assure a trouble-free start-up after installation.
- Covered by a 1-year limited parts warranty on the complete unit.
- In current production with published literature available to check performance, limitations, specifications, power requirements, dimensions, operation and appearance.

Each unit shall have:

- A steel angle frame to provide the rigid support required for shipping, rigging and years of dependable operation.

- Zinc-coated steel that has been finished by a powder paint process to provide a long lasting, quality appearance.
- Removable panels for easy access to all internal components during maintenance and service.

The dimensions of each unit shall:

- Not exceed those specified on the plans.

Each compressor shall:

- Be mounted on isolators to minimize the transmission of vibration.

All condenser coils shall:

- Be draw through design.
- Be constructed of copper tubes arranged in staggered rows and mechanically expanded into aluminum fins.

The condenser fan motors shall:

- Be directly connected to the condenser fans.
- Have permanently lubricated ball bearings.
- Have inherent overload protection.
- Motors shall be three phase.
- The propeller-type condenser fans shall be arranged for vertical discharge of the condenser air.

The wiring for each unit shall include:

- A crankcase heater (one per compressor)
- All 24-volt temperature control circuit.
- Both high and low pressure cutouts.
- Solid-state or internal line break compressor motor protection.
- Condenser fan motor control to assure stable operation

Field-installed options**Field-installed accessories - Electrical**

Model	Voltage	Description	Nominal tons	Weight (lb)
2LA04713925	208/230-3-60	LOW AMBIENT TO 0° F: This kit includes one VFD68 (Variable Frequency Drive) control to vary condenser fan speed to maintain stable head pressure. The 30-50 ton Models may require two low ambient kits if both refrigerant systems are to be operated below 40°F.	30	20
2LA04713946	460-3-60		30	20
2LA04713958	575-3-60		30	20
2HG04700824	All	HOT GAS BYPASS KIT Includes discharge bypass valve and Copper pipe fittings for field installation. Used to modulate capacity at low load conditions.	30	15
2PM04700124		PHASE MONITOR KIT Includes control and all associated wiring. This accessory provides protection against phase reversal, loss or unbalance.	ALL	5
2LA04714025	208/230-3-60	LOW AMBIENT TO 0° F: This kit includes one VFD68 (Variable Frequency Drive) control to vary condenser fan speed to maintain stable head pressure. The 30-50 ton Models may require two low ambient kits if both refrigerant systems are to be operated below 40°F.	40	20
2LA04714046	460-3-60		40	20
2LA04714058	575-3-60		40	20
2HG04700824	All	HOT GAS BYPASS KIT Includes discharge bypass valve and Copper pipe fittings for field installation. Used to modulate capacity at low load conditions.	40	15
2PM04700124		PHASE MONITOR KIT Includes control and all associated wiring. This accessory provides protection against phase reversal, loss or unbalance.	ALL	5
2LA04714025	208/230-3-60	LOW AMBIENT TO 0° F: This kit includes one VFD68 (Variable Frequency Drive) control to vary condenser fan speed to maintain stable head pressure. The 30-50 ton Models may require two low ambient kits if both refrigerant systems are to be operated below 40°F.	50	20
2LA04714046	460-3-60		50	20
2LA04714058	575-3-60		50	20
2HG04700824	All	HOT GAS BYPASS KIT Includes discharge bypass valve and Copper pipe fittings for field installation. Used to modulate capacity at low load conditions.	50	15
2PM04700124		PHASE MONITOR KIT Includes control and all associated wiring. This accessory provides protection against phase reversal, loss or unbalance.	ALL	5

Note: Low ambient are field installed kits on 30, 40, 50 ton models.

Physical data

KD360 - 600 Physical data

Component	MODELS		
	KD360	KD480	KD600
Nominal tonnage	30	40	50
Refrigerant			
Refrigerant type	R-454B	R-454B	R-454B
Operating charge (lb) ¹	System #1	33.75	43.38
	System #2	33.50	43.38
Holding charge	Nitrogen		
Dimensions (in.)			
Length	128.5	128.5	128.5
Width	88.5	88.5	88.5
Height	37.5	57.7	57.7
Weights (lb)			
Shipping	1853	2233	2345
Operating	1850	2230	2381
Compressors			
Type	Tandem scroll	Tandem scroll	Tandem scroll
Quantity	2	2	2
Cooling			
Nominal capacity (ton)	System #1	15	20
	System #2	15	20
Capacity stages	System #1	2	2
	System #2	2	2
System data			
Number of refrigeration circuits	2	2	2
Suction line OD (in.)	1 5/8	1 5/8	1 5/8
Liquid line OD (in.)	7/8	7/8	7/8
Outdoor coil data			
Face area (sq. ft.)	System #1	32.5	45.5
	System #2	32.5	45.5
Rows	2	2	2
Fins per in.	16	16	16
Tube diameter (in.)	3/8	3/8	3/8
Circuitry type	Interlaced	Interlaced	Interlaced
Refrigerant control	---	---	---
Condenser fan data			
Number of fans / diameter (in.)	4/30	4/30	4/30
Type	Axial	Axial	Axial
Drive type	Direct	Direct	Direct
No. speeds	1	1	1
	System #1	2	2
Number of motors	System #2	2	2
Motor hp (ea.)	1 1/2	1 1/2	1 1/2
Rotation ²	CW	CW	CW
rpm	1140	1140	1140
	System #1	15400	19400
Nominal cfm	System #2	15400	19400

¹ Includes matched evaporator unit with 25 ft of piping.

² When viewing the shaft end of the motor.

Commercial splits factory provided match-ups - 30 to 50 ton

Product	Tonnage	Product	AHU		
		Tonnage	30	40	50
Product	Tonnage	Outdoor unit / indoor units	GD360	GD480	GD600
AC	30	KD360	X	—	—
	40	KD480	—	X	—
	50	KD600	—	—	X

Unit limitations

Condenser unit limitations

Model	Nominal tonnage	Unit voltage	Applied voltage ¹		Outdoor DB temp cooling (°F)		Indoor DB temp cooling (°F)	
			Min ²	Max	Max	Min [†]	Max	Min
KD360	30	208/230-3-60	187	252	125	40	86	68
		460-3-60	432	504				
		575-3-60	540	630				
KD480	40	208/230-3-60	187	252	125	40	86	68
		460-3-60	432	504				
		575-3-60	540	630				
KD600	50	208/230-3-60	187	252	125	40	86	68
		460-3-60	432	504				
		575-3-60	540	630				

¹ Rated in accordance with AHRI Standard 110, Range "A" Utilization Voltage.

² Low Ambient accessories are available to permit stable system operation at ambient temperatures down to 0°F.

Cooling ratings

Cooling ratings

Outdoor unit	Condensing unit only		
	Gross Capacity ¹ (MBH)	kW	EER
KD360	354	35.5	11.2
KD480	463	45.6	12.4
KD600	585	64.8	11.0

¹ Condensing unit only ratings are at 45 F SST and 95 F entering-air temperature.

EER = Energy Efficiency Ratio at full load - the cooling capacity in Btu's per hour (Btuh) divided by the power input in watts, expressed in Btuh per watt (Btuh/watt).

EER; condensing unit only ratings based on 45° F SST and 95°F entering outdoor air temperature.

Legend

EER = Energy Efficiency Ratio

SST = Saturated Suction Temperature

Capacity performance

Condenser only cooling capacities

Model	Suction press. and corresponding temp. @ saturation		Temperature of air on condenser coil, °F																	
			65			75			85			95			105			115		
	PSIG	°F	MBH	kW	EER	MBH	kW	EER	MBH	kW	EER	MBH	kW	EER	MBH	kW	EER	MBH	kW	EER
KD360	97	35	405	12.6	32.0	368	13.9	26.5	330	15.1	21.9	293	16.3	18.0	275	18.3	15.1	257	20.2	13.9
	107	40	402	12.6	31.8	376	13.9	27.0	350	15.3	22.9	324	16.6	19.6	303	18.5	16.4	283	20.4	13.9
	118	45	400	12.6	31.6	385	14.0	27.4	370	15.4	24.0	355	16.8	21.1	332	18.7	17.7	309	20.7	15.0
	129	50	397	12.6	31.4	393	14.1	27.8	389	15.6	25.0	386	17.1	22.6	361	19.0	19.0	336	20.9	16.1
	142	55	394	12.6	31.2	402	14.2	28.3	409	15.8	25.9	417	17.4	24.0	389	19.2	20.3	362	21.1	17.2
KD480	97	35	463	15.4	30.1	437	17.0	25.7	410	18.6	22.0	384	20.3	18.9	356	22.4	15.9	329	24.5	13.4
	107	40	504	15.4	32.7	477	17.1	27.9	450	18.8	23.9	423	20.5	20.6	393	22.7	17.4	364	24.8	14.6
	118	45	544	15.4	35.3	516	17.2	30.1	489	18.9	25.8	461	20.7	22.3	430	22.9	18.8	398	25.1	15.8
	129	50	584	15.4	37.9	556	17.2	32.3	528	19.1	27.7	500	20.9	23.9	467	23.2	20.1	433	25.4	17.0
	142	55	624	15.4	40.5	596	17.3	34.4	567	19.2	29.6	539	21.1	25.6	503	23.4	21.5	468	25.7	18.2
KD600	97	35	570	21.5	26.5	537	23.9	22.5	504	26.3	19.2	471	28.7	16.4	417	32.3	12.9	364	35.8	10.1
	107	40	633	21.7	29.1	598	24.2	24.7	563	26.6	21.1	528	29.1	18.1	475	32.6	14.6	423	36.1	11.7
	118	45	695	21.9	31.7	658	24.4	26.9	621	27.0	23.0	585	29.5	19.8	533	33.0	16.2	482	36.4	13.2
	129	50	757	22.1	34.2	718	24.7	29.1	680	27.3	24.9	642	29.8	21.5	591	33.3	17.8	541	36.7	14.7
	142	55	819	22.3	36.6	779	25.0	31.2	738	27.6	26.8	698	30.2	23.1	649	33.6	19.3	600	37.0	16.2

Sound performance

Outdoor sound power levels (dB), 60 Hz

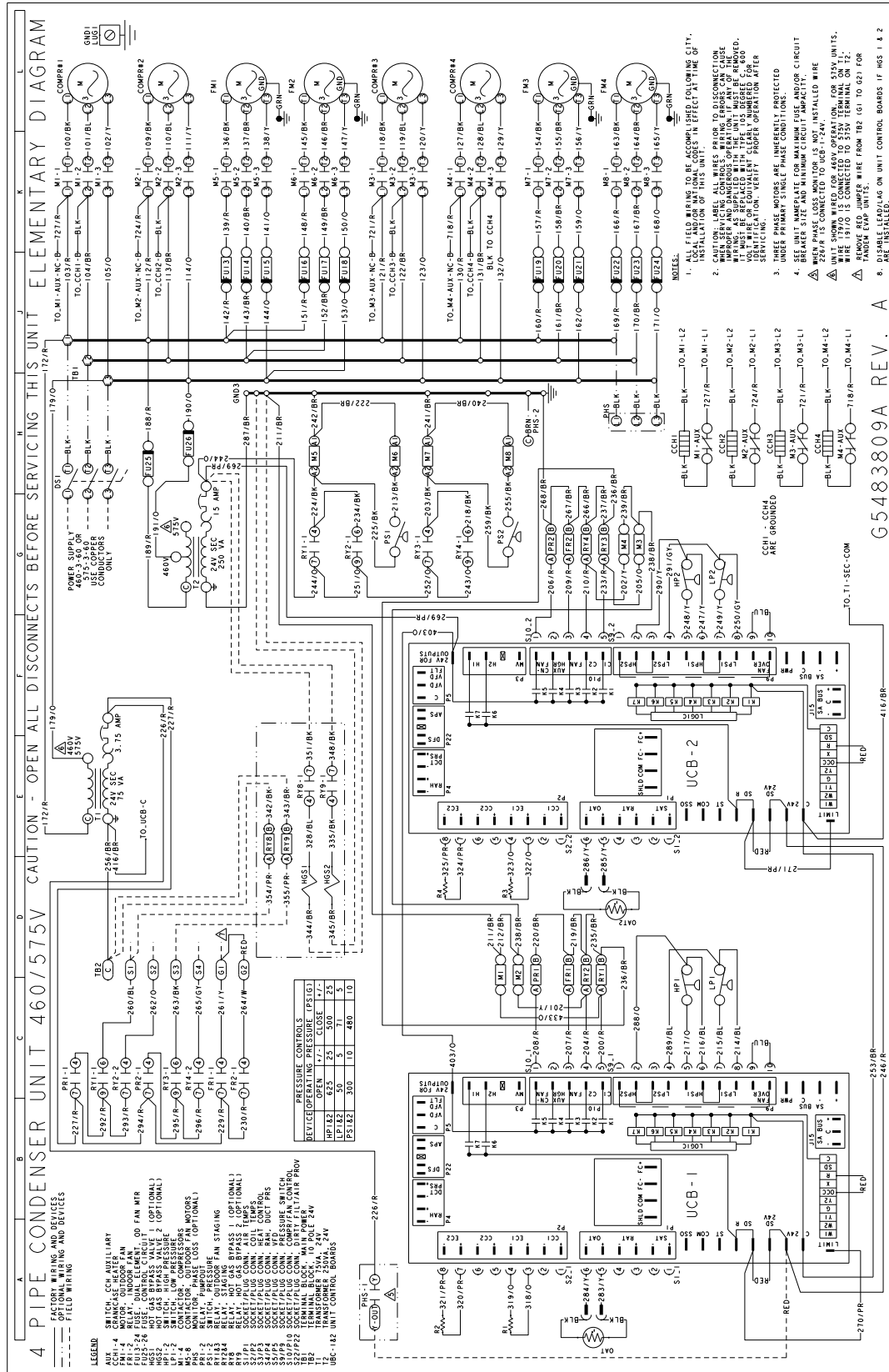
Model	Nominal tonnage	dB(A) ¹	Octave bands (Hz)							
			63	125	250	500	1000	2000	4000	8000
KD360	30	92	90	93	91	89	87	83	79	74
KD480	40	92	90	93	91	89	87	84	80	75
KD600	50	93	91	94	92	90	87	84	80	75

¹ Rated in accordance with AHRI 270 Standard.

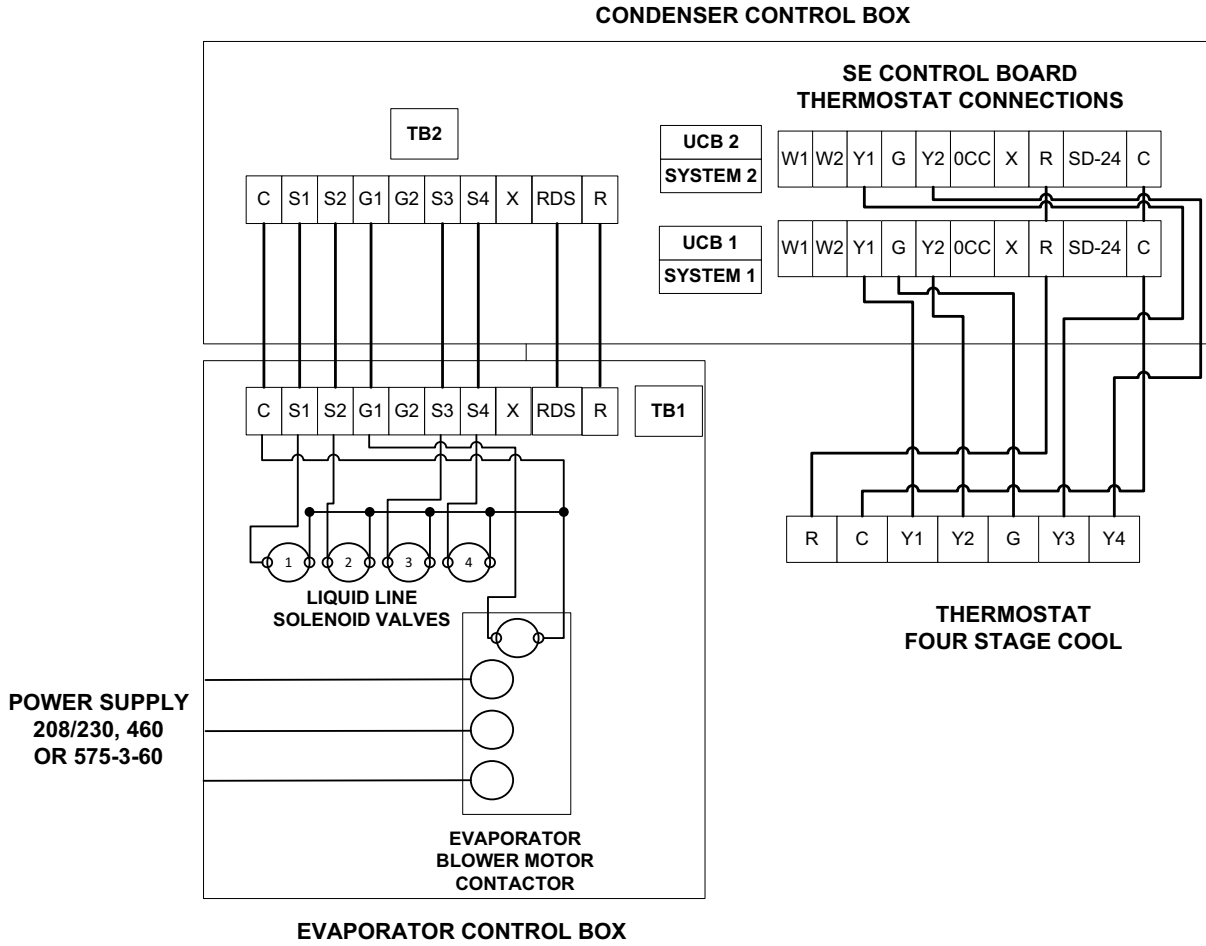
Electrical data

KD360 to KD600 electrical data

Model	Compressors					Outdoor fan motor				Minimum circuit ampacity	Maximum fuse size (A)
	Power supply	Qty	RLA (each)	MCC (each)	LRA (each)	Power supply	HP	Qty	FLA (each)		
KD360	208/230-3-60	4	27.7	43	178.5	208/230-1-60	1 1/2	4	5.80	140.9	150
	460-3-60	4	11.5	18	103	460-1-60	1 1/2	4	2.9	60.5	70
	575-3-60	4	9	14	78	575-1-60	1 1/2	4	2.20	47.1	50
KD480	208/230-3-60	4	28.5	45	255	208/230-1-60	1 1/2	4	5.80	144.3	150
	460-3-60	4	13.5	21	123	460-1-60	1 1/2	4	2.9	69	80
	575-3-60	4	10.7	17	93.7	575-1-60	1 1/2	4	2.20	54.3	60
KD600	208/230-3-60	4	40.8	64	270	208/230-1-60	1 1/2	4	5.80	196.6	225
	460-3-60	4	19.4	30	147	460-1-60	1 1/2	4	2.9	94.1	110
	575-3-60	4	13.7	21	109	575-1-60	1 1/2	4	2.20	67	80

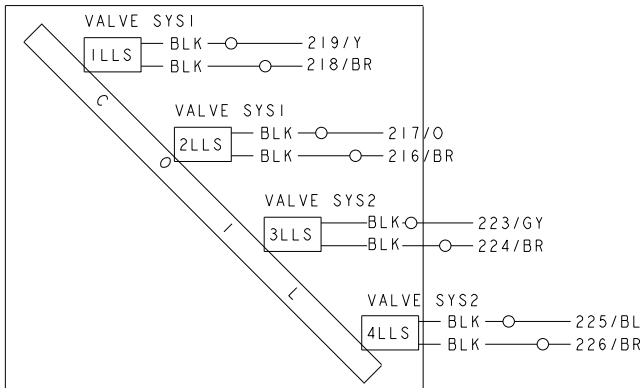


Typical 460/575 Volt, KD360/480/600 Condensing Unit Wiring Diagram

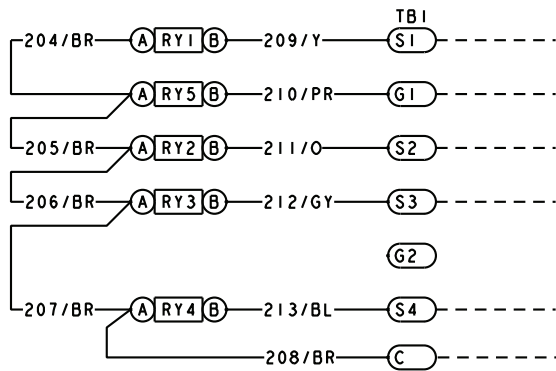


Typical Field Wiring Diagram GD360/480 Evaporator Units, GD600 Air Handler and M2CZ600A Evaporator Coil when Matched with KD360, 480, 600 Condenser

- Note:** Typical field wiring when OD unit is matched with GD air handler. When matching condensing unit with models other than GD an additional control transformer is required on the Indoor unit.
- Note:** For applications on airhandlers/evaporator DX coils other than GD360-600 certified matchups liquid line solenoids may be required for proper operation and refrigerant system dump out.

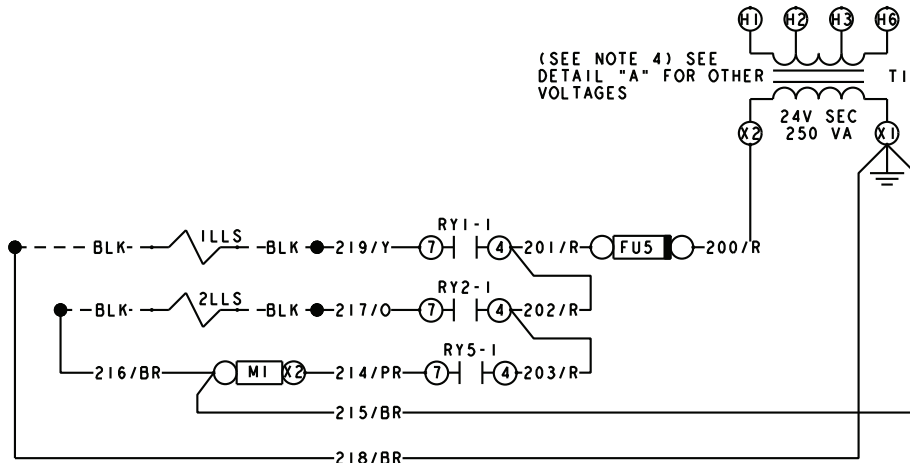


Typical GD360/480 and M2CZ600A Liquid Line Solenoid Wiring

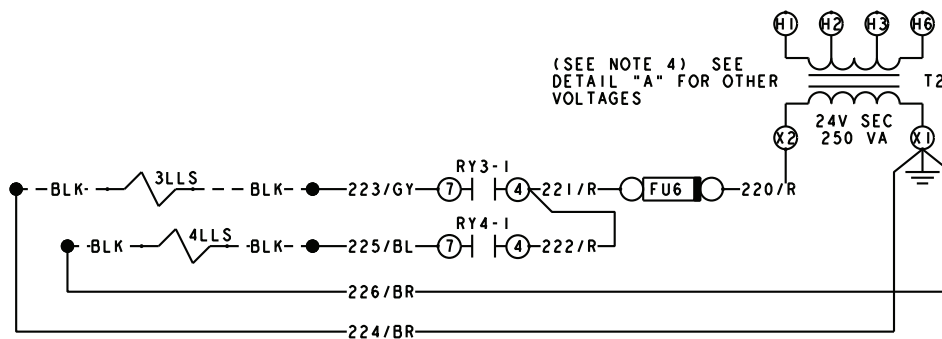


Standard Terminal Block on GD360/480 and GD600 with M2CZ600A models. On non GD models isolation relays must be installed to avoid overloading on 75 VA transformer on condensing unit.

Primary side of transformer connect to line side of power supply.



Primary side of transformer connect to line side of power supply.

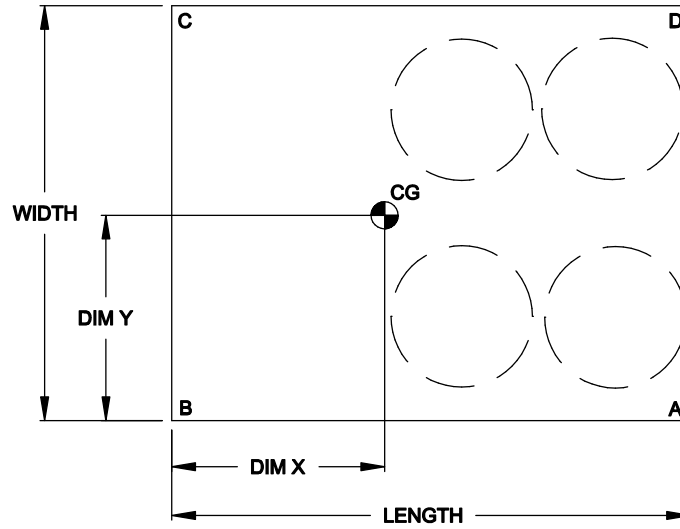


Non GD units may not include any or all of the components required to wire the unit. Use the diagram as general reference only.

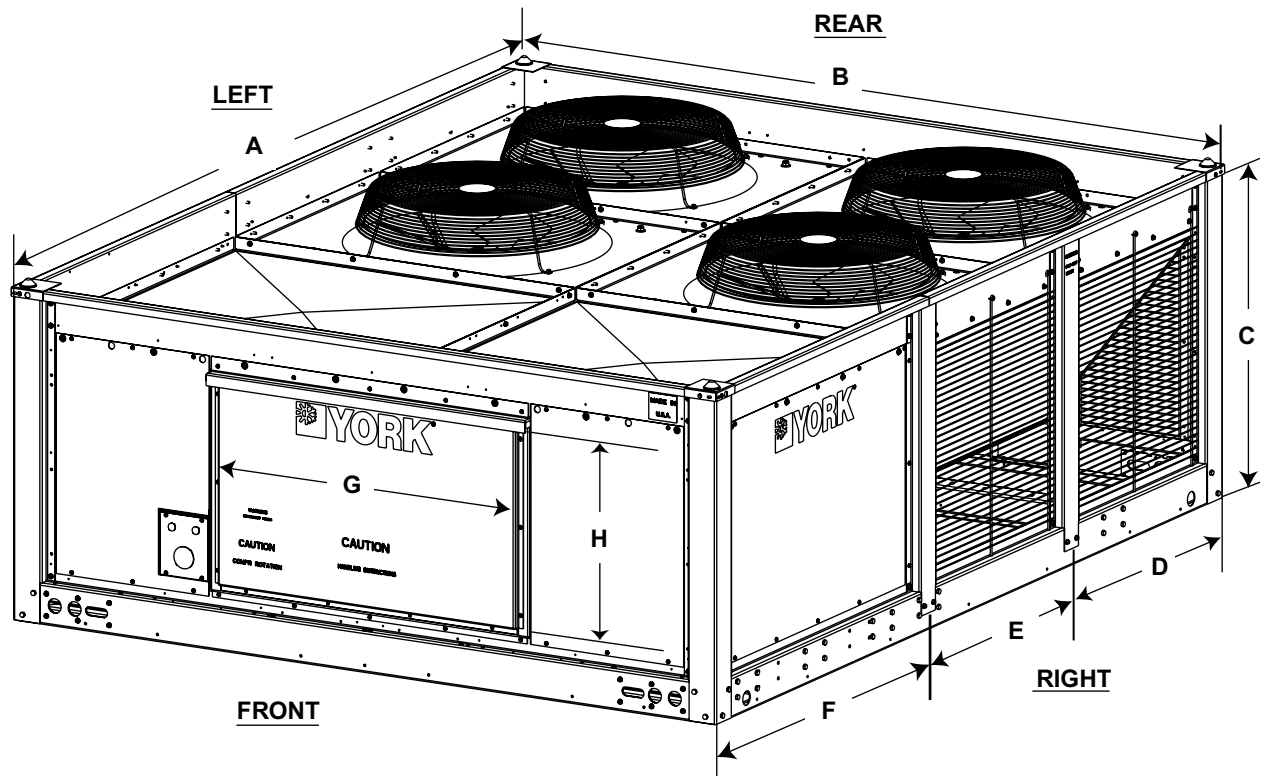
Typical Liquid Line Solenoid Wiring

Weight and dimensions

Size (Tons)	Model	Weight (lbs.)		Center of Gravity		4 point Load Location (lbs.)			
		Shipping	Operating	X	Y	A	B	C	D
30	KD360	1853	1850	55.15	44.6	390	519	537	404
40	KD480	2233	2230	55.375	44	478	631	638	483
50	KD600	2393	2390	53	44	490	698	706	496



Corner weights and center of gravity



KD Unit Dimensions

Model	A	B	C	D	E	F	G	H
KD360	128.5	88.5	37.5	41.8	40.0	46.1	37.1	23.6
KD480	128.5	88.5	57.7	41.8	40.0	46.1	37.1	23.6
KD600	128.5	88.5	57.7	41.8	40.0	46.1	37.1	23.6

Piping And Electrical Connections

Piping connections are made from the rear of the unit. Connections can be made directly to the suction and liquid line service valves.

Piping can be routed to the unit from the left or right side.

Electrical connections for power and control wiring is made from the front of all units, left of the electrical control box access. See piping sizes and electrical knockout details.

Unit clearances

Location	Dimensions
Overhead (Top) ¹	120 in.
Front access panels	36 in.
Left Side	30 in.
Right Side	30 in.
Rear	36 in.
Bottom ²	0 in.

¹ Units must be installed outdoors. Overhanging structures or shrubs should not obstruct condenser air discharge.

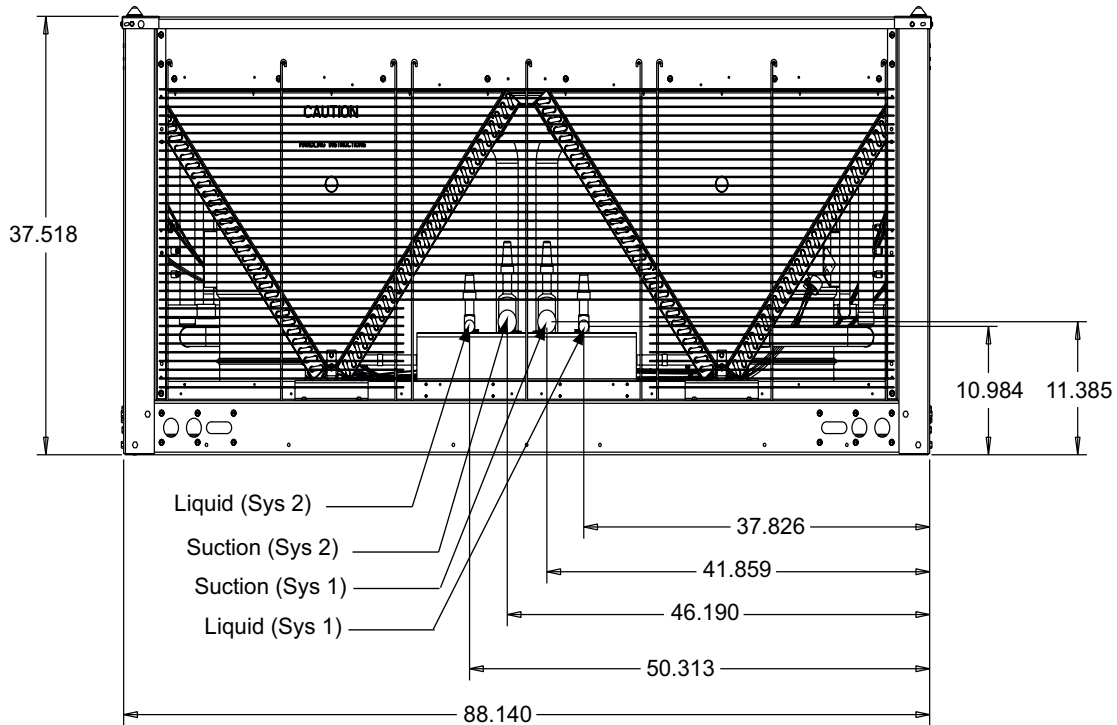
² Adequate snow clearance must be provided if winter operation is expected.

Piping And Electrical Connection Sizes (30/40/50T)

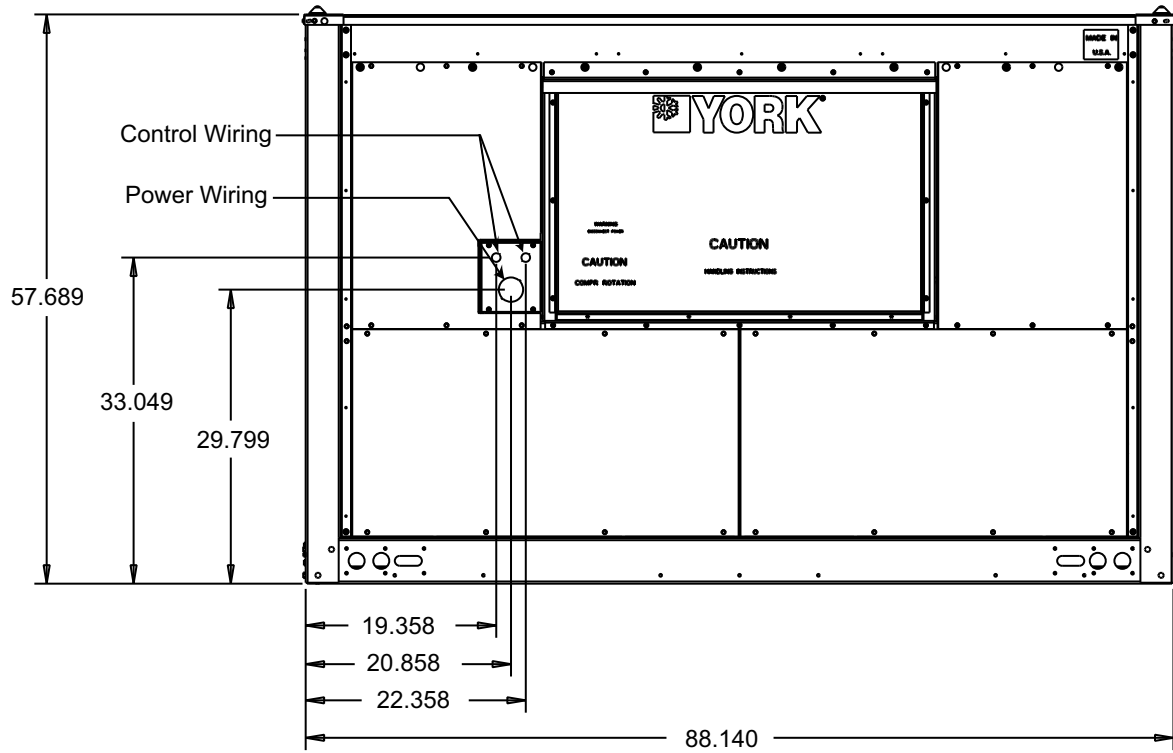
Connection entry	Size
Suction Line Sys #1	1-5/8 in. OD
Liquid Line Sys #1	7/8 in. OD
Suction Line Sys #2	1-5/8 in. OD
Liquid Line Sys #2	7/8 in. OD
Power Wiring Knockout	See below
Control Wiring	7/8 in. HOLE

Electrical Power Knockout Sizes

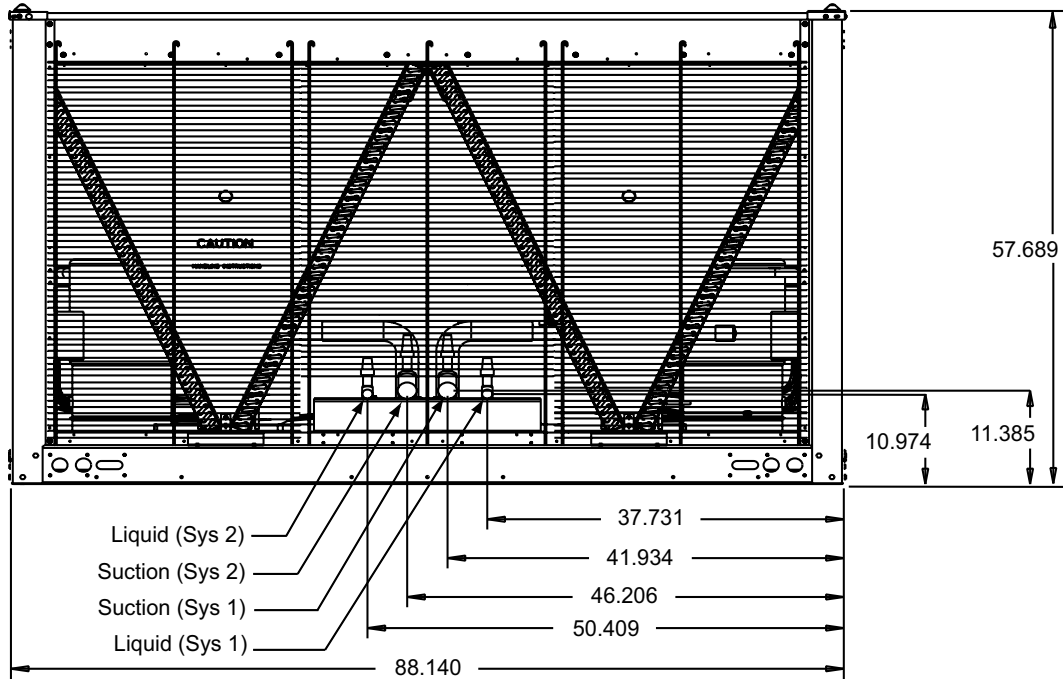
Connection Entry	30-40-50T/230V	30-40-50T/460-575V
Power Wiring	2-1/2 in.	1-1/2 in.



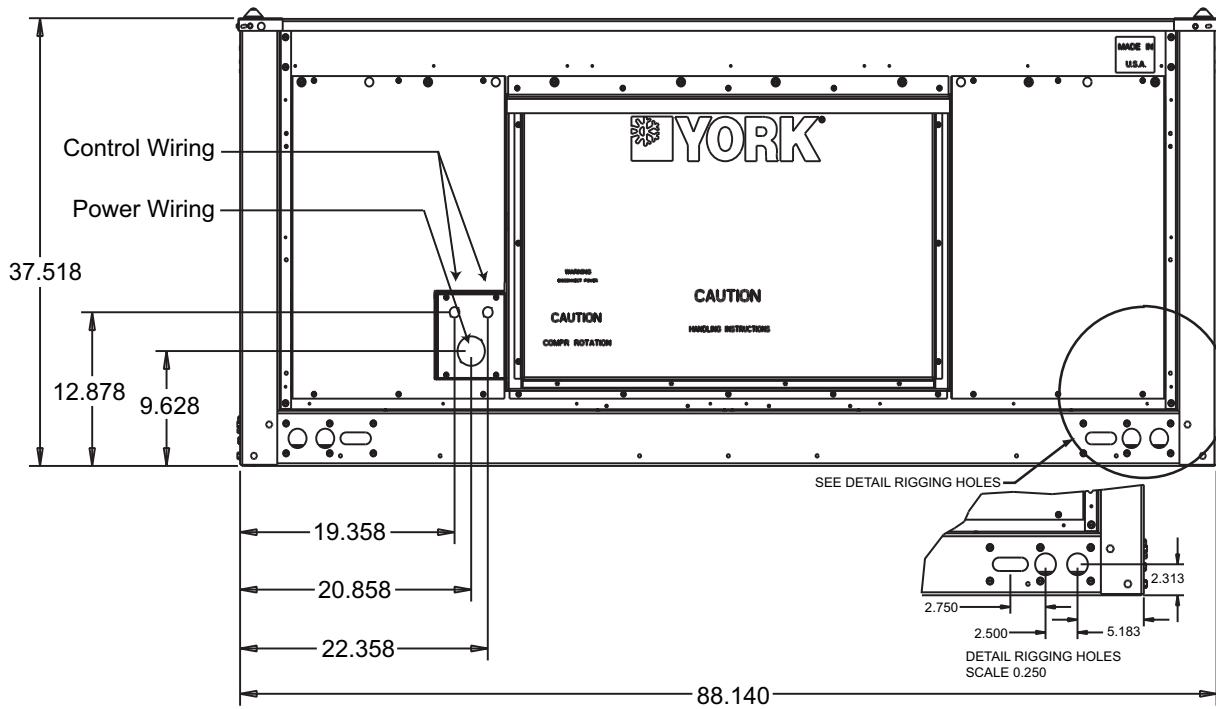
30 Ton Piping Connections



40 and 50 Ton Power and Control Wiring Connections



40 and 50 Ton Piping Connections



30 Ton Power And Control Wiring Connections

Subject to change without notice. Printed in U.S.A.
 Copyright © 2025 by Johnson Controls, Inc. All rights reserved.

6608775-YTG-B-0525
 Supersedes: 6608775-YTG-A-0125

York International Corporation
 5005 York Drive
 Norman, OK 73069