ENERCOV

Energy saving product!

Heat Recovery Unit Air Cooled Condenser For Precision Temperature & Humidity Control

ENERCOV EV Series,

The best solution to improve room humidity and temperature as per your requirement. ENERCOV EV series are very flexible to design wide range of saturated suction temperature (SST) and saturated condensing temperature (SCT). This capability means lower sensible heat ratio controllable and selectable based on each application.

EV Series are providing standard full safety functions to improve operation reliability such as high/low pressure controls, suction accumulator and liquid reciever tank including desuperheat TXV as standard equipments.

EV Series

Air cooled condensing unit
for HVAC heat recovery application
cooling capacity 34 - 165 kW

Total solution to create the perfect climate as per your needed.

EV-Series
Accessories
Component

3 Way Hot Gas Modulating Valve

Hot Gas Bypass Valve (HGBP)

High Temperature Solenoid Valve

Compressor Variable Speed Drive (VSD) 30-50 Hz (Option)

Hot Gas Modulating Valve
Valves with magnetic actuator for modulating capacity control of refrigeration units of ENERCOV's heat recovery system for room temperature and relative humidity control application. Hot gas modulating valve is high accuracy, high resolution, short positioning time, hermetically sealed, versatile electrical interface, low friction, robust and maintenance free.

Hot Gas Bypass Valve (HGBP)
HGBP is designed for system capacity control. On many air conditioning and refrigeration systems it is desirable to limit the minimum evaporating pressure during periods of low load either to prevent coil icing or to avoid operating the compressor at a lower suction pressure than it was designed to operate. This feature will prevent compressor cycling on/off and maintain very accurate of room temperature and humidity.

High Temperature Solenoid Valve
Soleniod valve is also the one of refrigernat flow management devices such as hot gas bypass on/off control. The soleniod valve is controlled by DDC controller in the function of cooling, heating, dehumidifying and humidifying mode.

Compressor Speed Control By VSD (Option)
Compressor VSD is the one of very efficiency device for compressor capacity control. When adjust compressor speed, we can manage saturated suction temperature which is effect to supply air dew point and sensible capacity of the cooling coil. That mean the cooling coil's sensible and latent capacity are varied upon heat load condition.

General Technical Specification

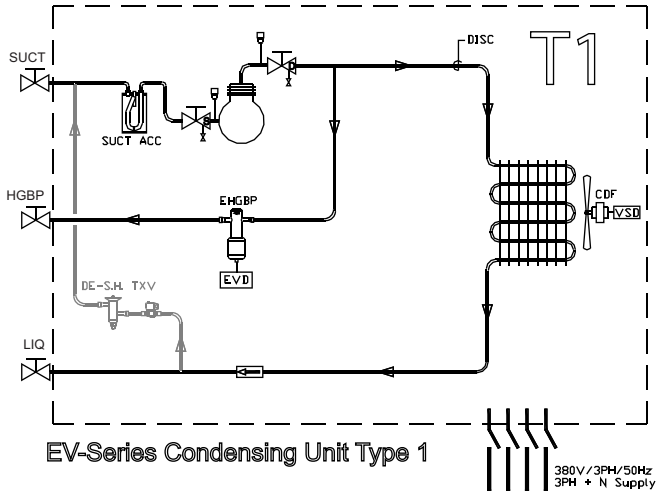
Outdoor Unit Model		Unit	EV110	EV150	EV200	EV250	EV280	EV380	EV500	EV580
Cooling capacity*		kW	31.51	43.20	56.80	74.72	82.41	108.72	151.00	167.40
		Btu/hr	107,543	147,440	193,857	255,017	281,263	371,058	515,358	571,331
Reheat capacity	T1	kW	-	-	-	-	-	-	-	-
	T2	kW	25.00	34.00	45.00	60.00	66.00	87.00	120.00	134.00
	T3	kW	35.00	46.00	62.00	82.00	90.00	120.00	166.00	184.00
Hot gas reheat valve	T1	-	N/A							
	T2	-	Hot gas solenoid valve (on/off)							
	T3	-	3 way modulating hot gas valve (Proportional)							
Capacity controls device		-	Mechanical/Electronic hot gas bypass valve (MHGBP/EHGBP) & Unloader							
Capacity controls range	MHGBP	%	10-100%	20-100%	30-100%	40-100%	45-100%	50-100%	40-100%	45-100%
	EHGBP	%	5-100%	10-100%	10-100%	10-100%	15-100%	20-100%	10-100%	15-100%
	W/VSD	%	0-100%	0-100%	5-100%	5-100%	10-100%	10-100%	5-100%	10-100%
Power source		V/Ph/Hz	380/3/50							
Minimum/Maximum voltage range		Volt	342/415							
Minimum circuit amps		Amps	31.40	44.50	54.60	65.90	71.50	102.50	117.25	127.35
Max. overcurrent protection		Amps	50	70	90	110	125	175	200	250
Compressor Rated Load Amps		Amps(each)	22.1	28.6	37.3	48.9	53.4	78.2	48.9	53.4
Compressor power input		kW	9.8	14.3	17.9	23.6	25.6	37.1	48.3	53.9
Refrigerant		-	R-22 (R-407c Option)							
No. of compressor		-	1						2	
Compressor type		-	Semi-Hermetic Reciprocating							
Suction accumulator		-	Yes							
Suction gas cooled TXV		-	Option							
No. of refrigerant circuit(s)		-	1						2	
CDU Fan	Type	-	Propeller Fan Direct Drive							
	Fan control	-	Fan control speed (FCS) module			Fan VSD				
	Power source	V/Ph/Hz	220/1/50			380/3/50				
	Motor RLA	Amps(each)	3.8		4.0	2.4				
	Fan power input	Watts	1,100		1,200	1,800			4,030	
	No. of fan(s)	-	2						3	3
	Fan diameter	mm	610		810					
	Air flow	CMH	12,500		34,000	36,000	39,500		56,000	
Condenser Coil		-	Aluminium fins/Copper tube							
	No. of row(s)	-	3		1.5	3				
	Fins per inch	FPI	15							
	Face area	sq.m	2.11		4.00		5.00		6.80	
Unit dimension	Height	mm.	1,067		1,282				1,267	
	Width	mm.	1,940		2,200				3,330	
	Dept	mm.	1,093		1,610				1,615	
Starter		-	Direct On Line		Part Winding					
Approx. net operating weight		kg	387	394	554	613	650	681	925	1,066
Pipe conn. Liquid,Suction		inch	5/8,1-3/8		7/8,1-5/8		7/8,2-1/8		2x(7/8,1-5/8)	2x(7/8,2-1/8)
Pipe conn. Reheat Coil (in & out)		inch	7/8		1-1/8		1-1/8		2x1-1/8	2x1-1/8

Note : - Technical specifications are subject to change without prior notice.
- Cooling capacity based on 35°C outdoor air and saturated suction temperature 7.2°C.

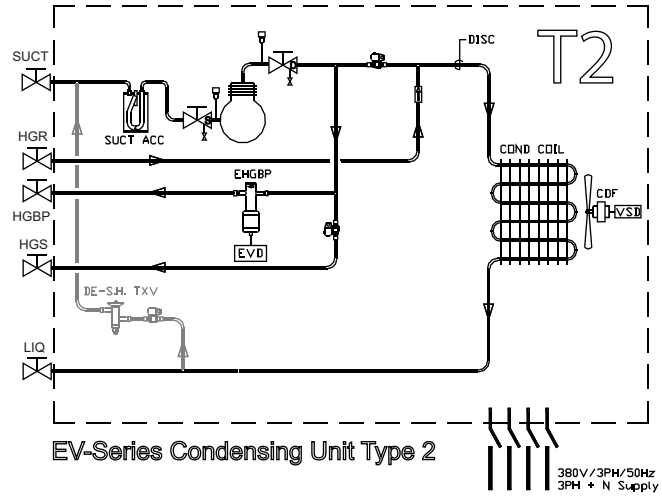
EV-Series
Heat Recovery Application

- High quality casing, compressor, hot gas modulating valve, HGBP, de-superheat TXV and suction accumulator for heat recovery system appliaction.
  - High operating performance
  - Compressor oil-free maintenance
  - High system application flexibility
  - Energy saving

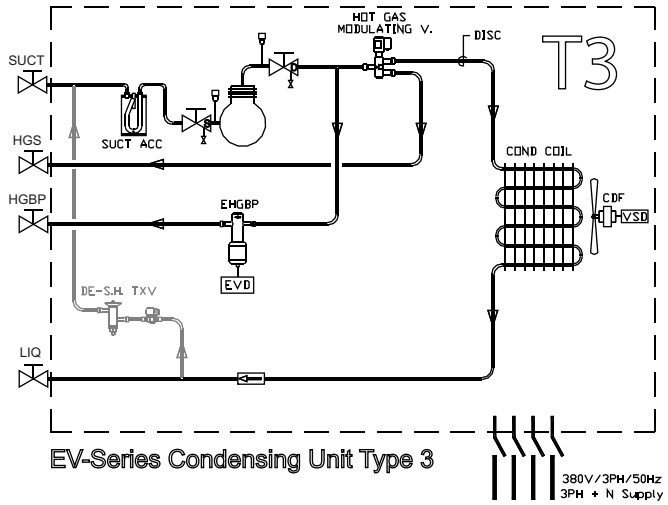
Refrigerant Diagram



EV-Series Condensing Unit Type 1



EV-Series Condensing Unit Type 2



EV-Series Condensing Unit Type 3

FEATURES & BENEFITS

System components

ENERCOV EV series are designed and built to new innovation. EV series are consists of the scroll compressor providing with selectable electronic hot gas bypass (EHGBP) or mechanical hot gas bypass valve, 3 way modulating valve or on/off type solenoid valve for hot gas reheat coil, suction gas cooled TXV and suction accumulator to improve very efficient of cooling/heating/humidifying/ dehumidifying technology and provides trouble-free operation. The cabinets are constructed of heavy zinc coated galvanized steel. Chemically cleaned and phosphatized to bond the specially formulated corrosion inhibiting, polyester powder coating. All materials are protected to ensure long life, good looks, and corrosion resistance.

Reliable operation

Building owners will appreciate the high unit EERs (Energy Efficiency Ratios) offered by the SPA-series. These units provide greater efficiency than similar units in the marketplace, which translates into year-round operating savings.

TYPE OF APPLICATION

EV-Series Type-1

Hot gas bypass valve is installed within condensing unit to bypass refrigerant to evaporator after TXV. Mechanical HGBP is applied for normal application to reduce compressor capacity during partial load. However, electronic HGBP is also operate as the same function, but higher accuracy and lowest 5% partial load controllable. Suction gas cool (SGC) TXV will maintain refrigerant suction temperature not higher than 18 deg C to prevent compressor high discharge superheat gas.

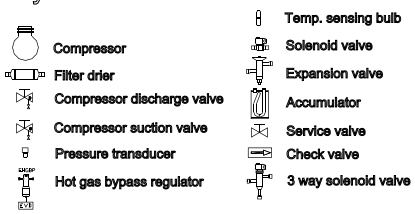
EV-Series Type-2

This type application similar to type-1 with additional on/off function of 2 solenoid valves for hot gas reheat coil of REHEAT function of humidity controls. Solenoid valves are operated as heating and dehumidifying function. The heating coil of this type can operate either on/off nor pulse width modulating (PWM) feature.

EV-Series Type-3

This type application similar to type-1 with 3 way hot gas modulating valve. The hot gas reheat coil is controlled by 3 way modulating valve and can be designed as auxiliary condenser in either parallel or series. The maximum heating capacity of hot gas reheat coil is approximate cooling coil capacity 100%. Heating capacity is regulated in proportional from 0 to 100% adjustable. Temperature and relative humidity are controlled by this heat recovery system can be maintained very precisely and saving energy. The condenser fan speed is varied to control high side pressure of discharge refrigerant. This type can apply for low ambient temperature at minimum -10°C.

Symbols



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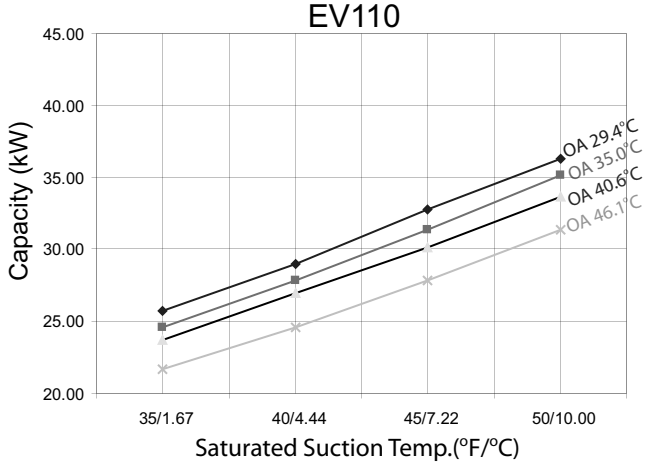
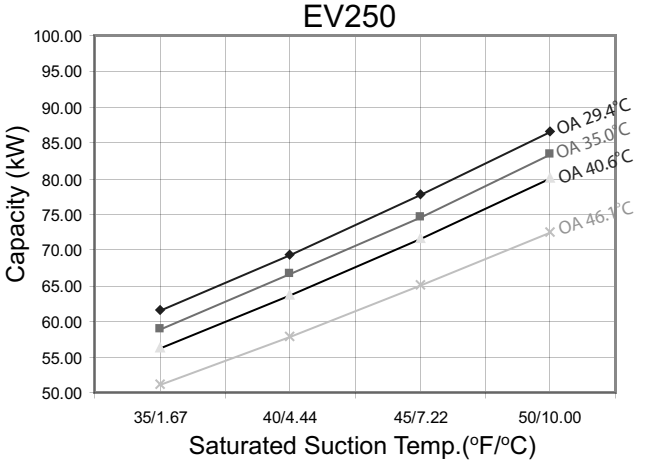
EV Series
Performance Curve

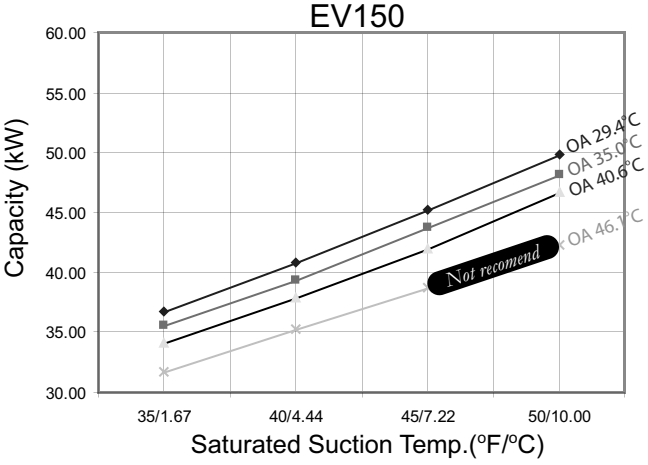
EV110



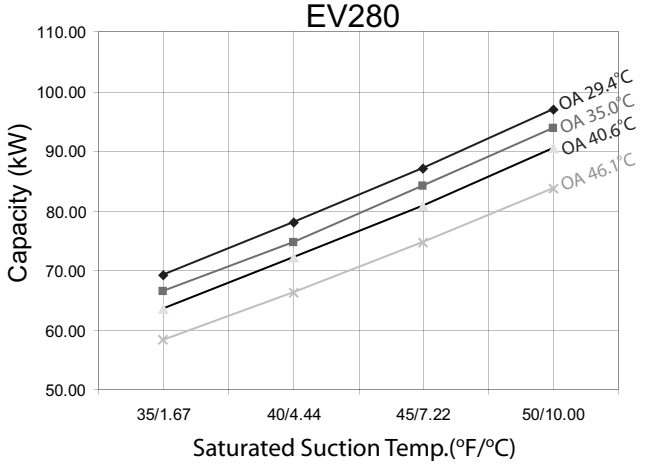
EV250



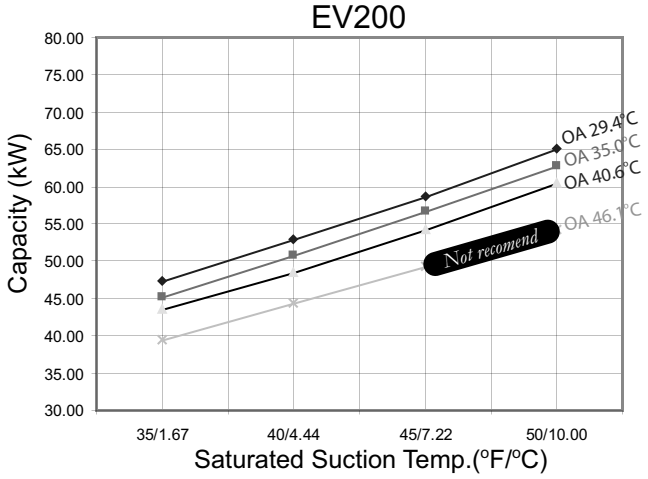
EV150



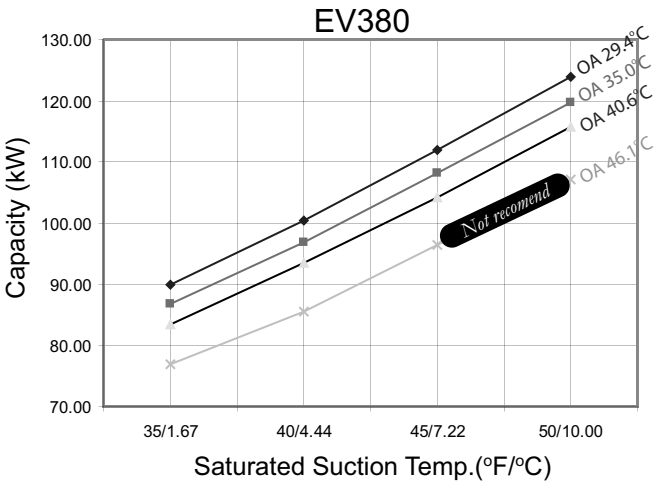
EV280



EV200



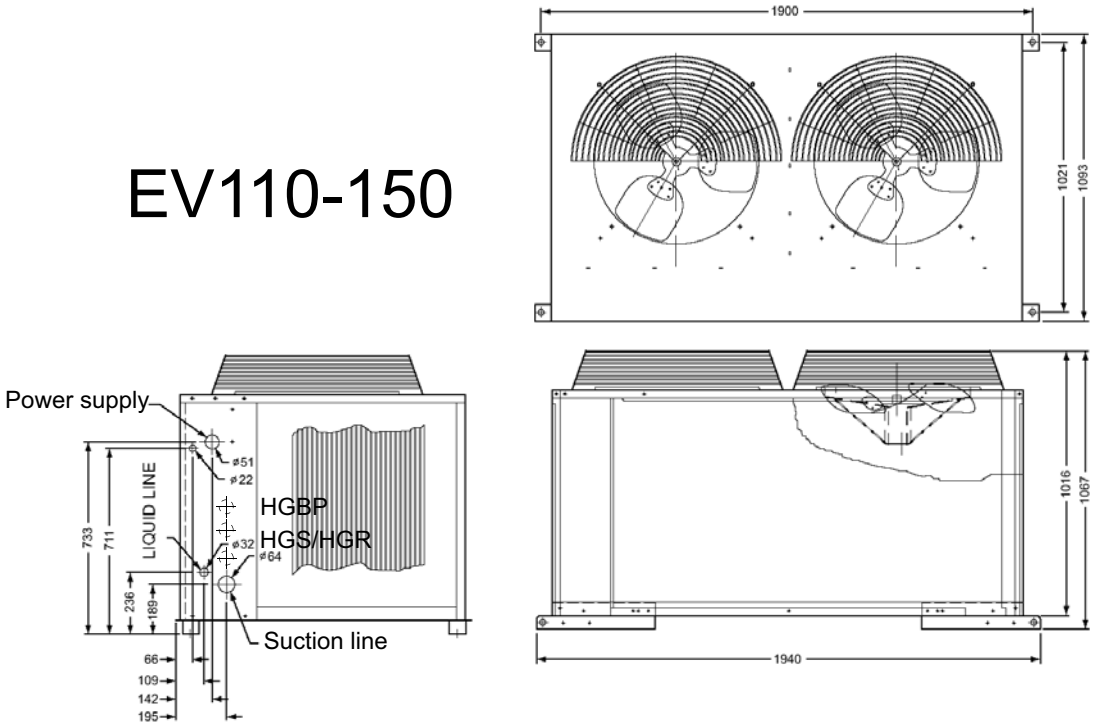
EV380



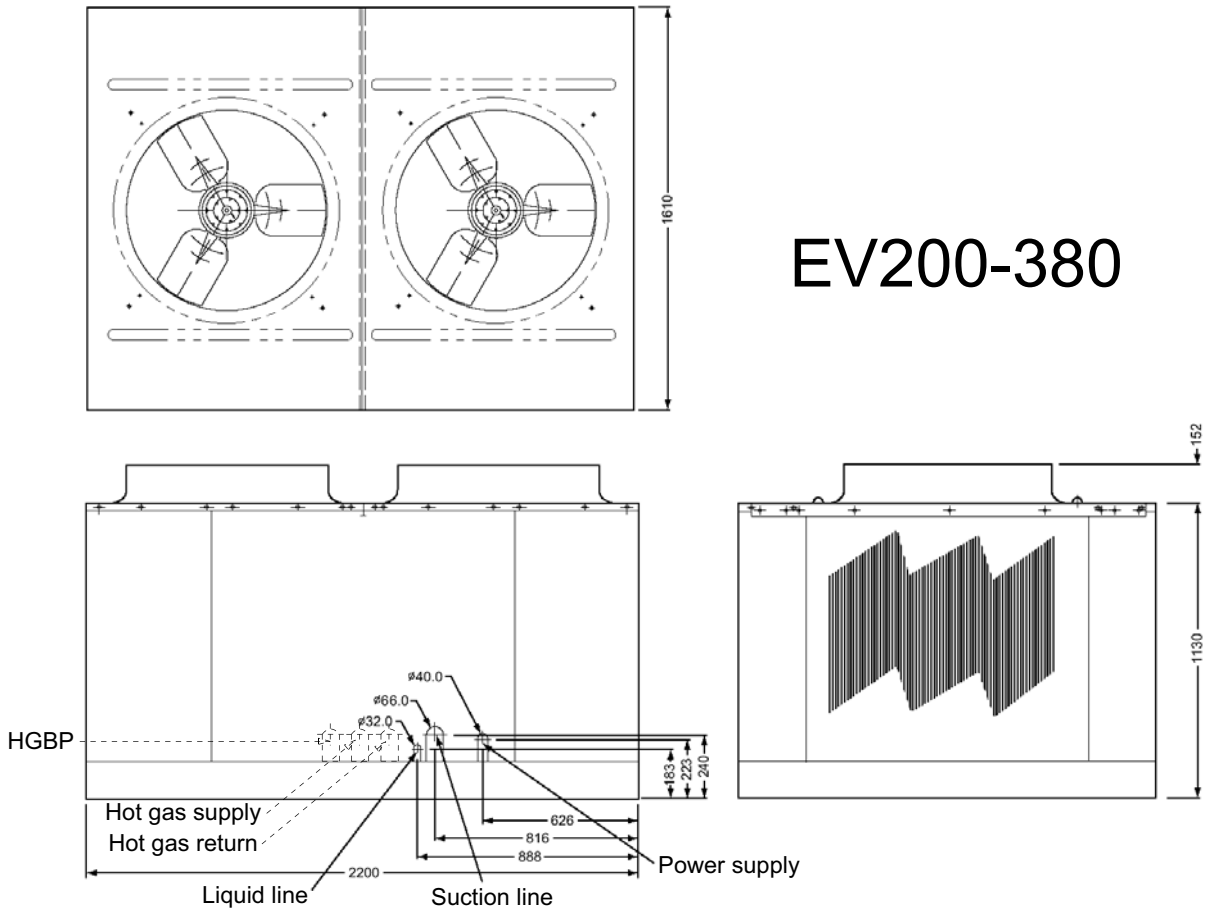
Note : Model EV500 performance curve is approx 2 units of EV250. Model EV580 performance is approx 2 units of EV280.

EV-Series
Unit Dimension

EV110-150



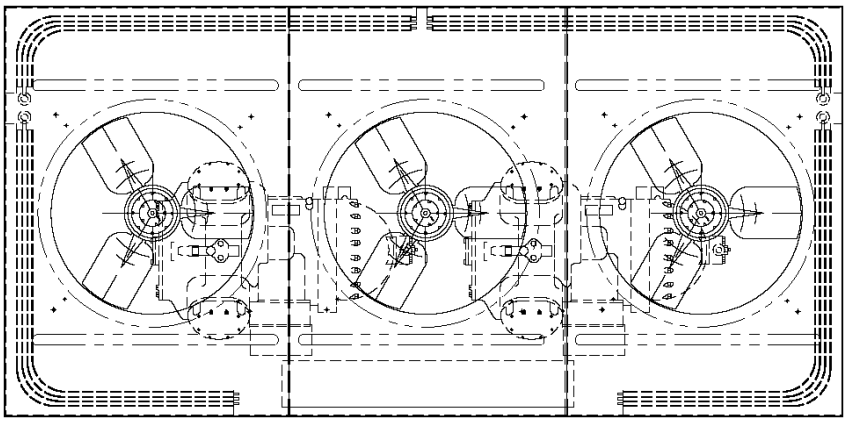
EV200-380

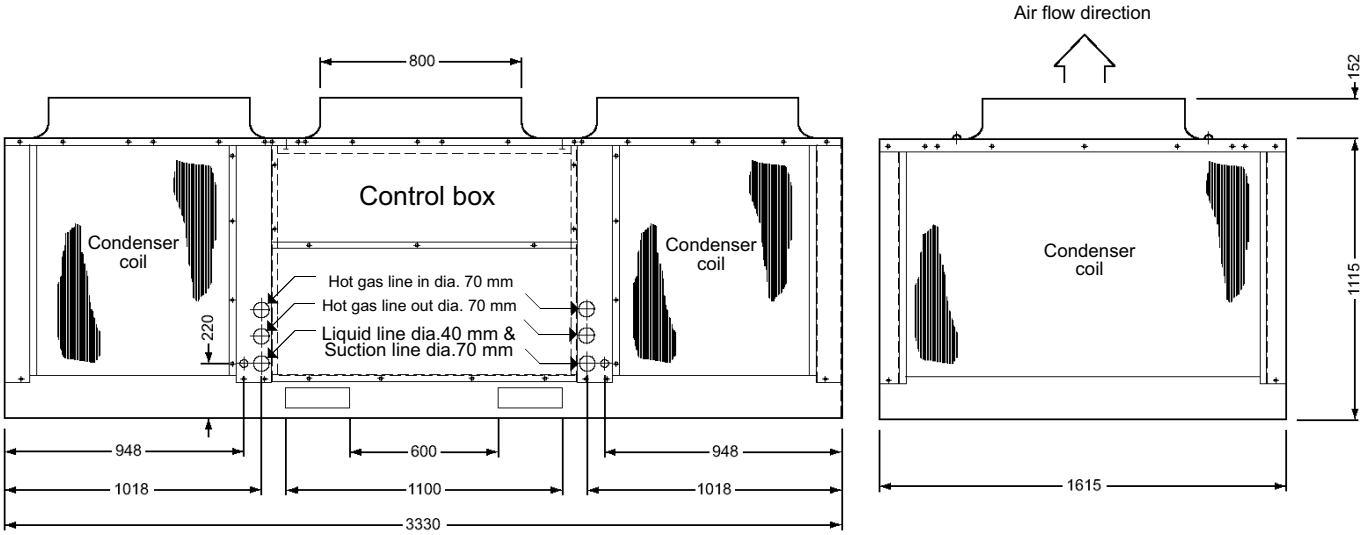


EV Series
Unit Dimension

ENERCOV

EV500-580





Product Nomenclature

EV 250 - T1 - V - A - M

- Product series
- Nom. cooling capacity x1000 btu/h
- Type of application
  - T1 - HGBP only
  - T2 - HGBP + Hot gas reheat solenoid valve (on/off)
  - T3 - HGBP + Hot gas reheat modulating valve (prop.)
- Compressor Variable Speed Drive (VSD) option ;
  - V - With VSD
  - N - Without VSD
- A - With Suction gas cool TXV
  - B - Without Suction gas cool TXV
- M - Mechamical HGBP
  - E - Electronic HGBP

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