

Condensing Units

Superior efficiency.
Superior value.





With over seven decades of experience in comprehensive cooling solutions, Blue Star brings you a range of reliable Condensing Units to meet the cooling needs of large commercial spaces and corporate customers.

With a unique modular design, these units deliver consistent performance over a wide operating range and ambient conditions. Available in more than 20 models, they are ideally suited to meet the cooling requirements of a wide variety of applications such as auditoriums, marriage halls, exhibition centres, textile showrooms and factory shop floors. Allowing the use of various sizes of air handling units as evaporators.

Unique features of the Blue Star Condensing Unit



Open Chassis Structure:

The structure panels are MS fabricated and liquid painted. The structural design provides easy access to the electric panel, compressors, filter driers, service valves and HP/LP pressure switches.



Highly Efficient Compressor:

These Condensing Units are equipped with highly energy-efficient scroll compressors. Some of the key advantages of the scroll compressor:

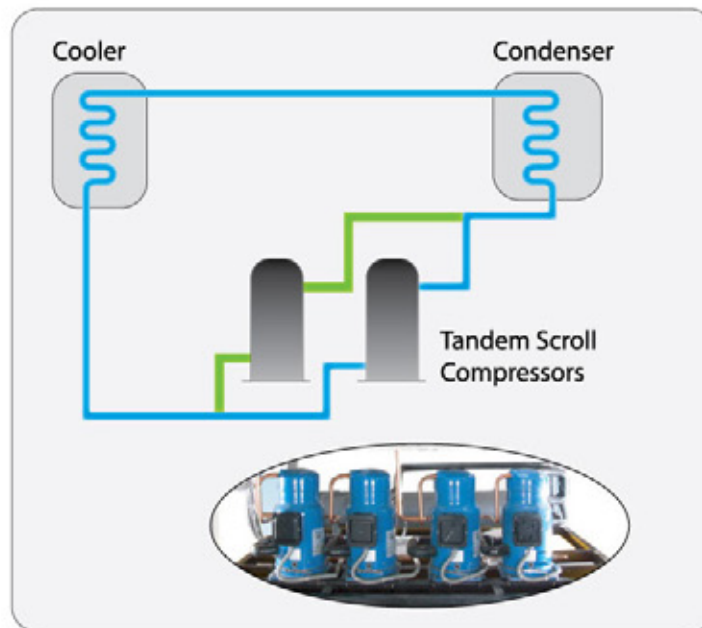
- Superior liquid handling capability
- 100% volumetric efficiencies during the compression process, resulting in high operational efficiency
- Vertical orientation reduces the size of the unit, lending to a small footprint
- Fewer movable parts with no intake or discharge valves
- Smooth and silent operation



Mega Condensing Units:

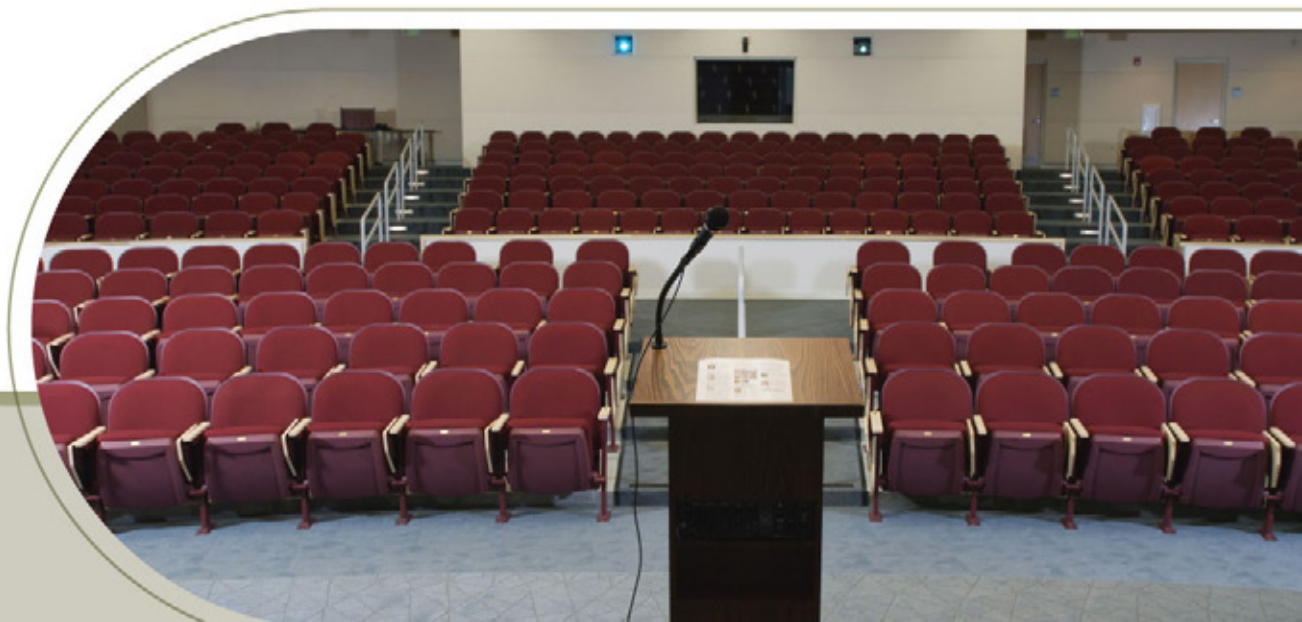
For large capacities, we can offer Mega Condensing Units which use a Tandem compressor design. A Tandem compressor design ensures:

- Excellent part load characteristics
- 15% - 20% energy savings over conventional units at part loads by virtue of using larger condensing area



Low Roof-load Weight:

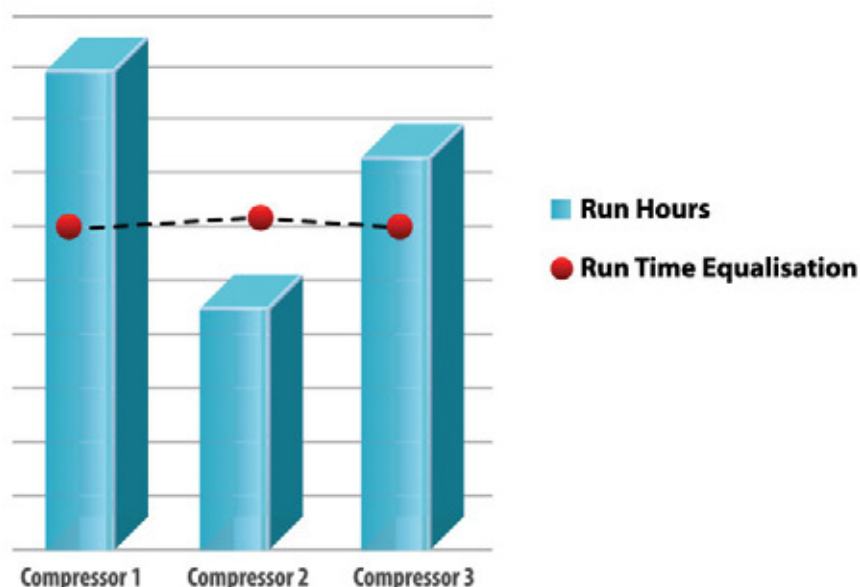
Low roof-load weight distribution makes them an excellent selection for rooftop or on-ground installations on commercial and industrial airconditioning applications.





Run Time Equalisation:

The intelligent controller ensures that all compressors (in multi-compressor units) run for an equal number of hours, thus ensuring equal wear.



Shell & Tube Condenser (Water Cooled Models):

Shell & Tube Condensers are optimised for the requisite heat rejection to water and low pressure drop. The external finned copper tubes provide additional area for efficient heat transfer.



Capacity Modulation in Steps:

The entire range is developed with multiple compressors. In case of part loads using superior Microprocessor Controller logic, only the required number of compressors are run. Thereby achieving excellent capacity control as well as good part load efficiency. Moreover in Mega Condensing Units, Tandem design is applied to achieve capacity modulation and energy efficiency.

Intelligent Controller

All Blue Star Condensing Units are provided with Microprocessor Controllers.



Key Features



Digital Setting of Temperature Levels:

The Controller allows setting and controlling the desired temperature level of air supplied, based on return air temperature sensing.



Built-in Time Delay:

Usually, compressors need a few minutes to operate again after being switched off, or in the case of a power failure. The Controller however, ensures that these time delays are adhered to automatically.



Auto Distribution Load:

The microprocessor switches the compressors 'on' and 'off' depending on the varying load. It also ensures that the switching is distributed evenly across all the compressors, achieving run time equalisation.



Protection Mechanism:

The Controller protects the compressor from single-phasing or phase-reversal errors. It also ensures complete alarm management. Password protection at different levels enables desired access control. Low pressure and high pressure protection is provided. Through a continuous current monitoring module, conditions of over as well as under current are provided in the Controller.



Auto Restart:

In case of a power failure, the Controller restarts automatically when the power returns, with all the settings intact.

Optional Features

Based on the customer's requirement, the following optional features are available:

1. Hydrophobic blue/Thermoguard coating for air cooled condensers
2. BMS connectivity for Mega Condensing Units



Technical Specifications

Scroll Mega Condensing Unit – R22

DESCRIPTION	UNIT	ACUS2Y-052E	ACUS2Y-070E	ACUS2Y-090E
Nominal Cooling Capacity	kW (TR)	182.8 (52)	246.1 (70)	316.4 (90)
Nominal Dimensions:				
Length	mm	2980	2980	2980
Width	mm	2040	2040	2040
Height	mm	2492	2492	2492
Net Weight / Unit (Approx.)	Kg.	1800	2100	2150
Power Supply	V/PH/Hz	380 / 420V, 3Ph, 50Hz		
Total Power Consumption	kW	58.5	80.8	99.3
Scroll Compressor Type		Hermetic Scroll	Hermetic Scroll	Hermetic Scroll
Quantity	No.	4	4	4
Condenser (Fin & Tube Type)Qty.	No.	4	4	4
Tube Material		Inner Grooved Copper Tube	Inner Grooved Copper Tube	Inner Grooved Copper Tube
Tube size (OD)	Inch	3/8"	3/8"	3/8"
Face Area	Sq. Mt.	8.24	8.24	8.24
Rows Deep	No	2	3	4
Condenser Fan Motor Qty.	No.	2	4	4
Type		T.E, Pad Mounted	T.E, Pad Mounted	T.E, Pad Mounted
Speed	RPM	910	910	910
Power	Kw	1.9	1.9	1.9
Class of Insulation		F	F	F
Fan Qty.	No.	2	4	4
Dia.	mm	915	915	915
Refrigerant Connections	No.	2 Each	2 Each	2 Each
Liquid Line Size	Inch	7/8"	1-1/8"	1-1/8"
Suction Line Size	Inch	1-5/8"	2-5/8"	2-5/8"

Scroll Mega Condensing Unit – R407c

DESCRIPTION	UNIT	ACUS2Y-052ER2	ACUS2Y-070ER2	ACUS2Y-090ER2
Nominal Cooling Capacity	kW (TR)	173.7 (49.4)	233.8 (66.5)	291.1 (82.8)
Nominal Dimensions:				
Length	mm	2980	2980	2980
Width	mm	2040	2040	2040
Height	mm	2492	2492	2492
Net Weight / Unit (Approx.)	Kg.	1800	2100	2150
Power Supply	V/PH/Hz	380 / 420V, 3Ph, 50Hz		
Total Power Consumption	kW	56.6	79.3	98.3
Scroll Compressor Type		Hermetic Scroll	Hermetic Scroll	Hermetic Scroll
Quantity	No.	4	4	4
Condenser (Fin & Tube Type) Qty.	No.	4	4	4
Tube Material		Inner Grooved Copper Tube	Inner Grooved Copper Tube	Inner Grooved Copper Tube
Tube size (OD)	Inch	3/8"	3/8"	3/8"
Face Area	Sq. Mt.	8.24	8.24	8.24
Rows Deep	No	3	3	4
Condenser Fan Motor Qty.	No.	2	4	4
Type		T.E, Pad Mounted	T.E, Pad Mounted	T.E, Pad Mounted
Speed	RPM	910	910	910
Power	Kw	1.9	1.9	1.9
Class of Insulation		F	F	F
Fan Qty.	No.	2	4	4
Dia.	mm	915	915	915
Refrigerant Connections	No.	2 Each	2 Each	2 Each
Liquid Line Size	Inch	7/8"	1-1/8"	1-1/8"
Suction Line Size	Inch	1-5/8"	2-5/8"	2-5/8"

Rating Conditions :

The Ratings are based on 7.2°C (45°F) evaporating and 35°C Condenser air over temperature

*Specifications are subject to change due to continuous product development

Scroll Condensing Unit – R22

DESCRIPTION	UNIT	ACUS2-012M	ACUS2-028M	ACUS3-042M
Nominal Cooling Capacity	kW (TR)	42 (12)	98.5 (28)	147.7 (42)
Nominal Dimensions:				
Length	mm	1120	2234	3355
Width	mm	1147	1147	1147
Height	mm	1719	1719	1719
Net Weight / Unit (Approx.)	Kg.	260	624	936
Power Supply	V/PH/Hz	380 / 420V, 3Ph, 50Hz		
Total Power Consumption	kW	11.3	28.2	42.3
Scroll Compressor Type		Hermetic Scroll	Hermetic Scroll	Hermetic Scroll
Quantity	No.	2	2	3
Condenser (Fin & Tube Type) Qty.	No.	2	4	6
Tube Material		Inner Grooved Copper Tube	Inner Grooved Copper Tube	Inner Grooved Copper Tube
Tube size (OD)	Inch	3/8"	3/8"	3/8"
Face Area	Sq. Mt.	1.86	3.72	5.57
Rows Deep	No	3	3	3
Condenser Fan Motor Qty.	No.	1	2	3
Type		T.E, Pad Mounted	T.E, Pad Mounted	T.E, Pad Mounted
Speed	RPM	910	910	910
Power	Kw	0.56	0.56	0.56
Class of Insulation		F	F	F
Fan Blade Qty.	No.	1	2	3
Dia.	mm	660	660	660
Refrigerant Connections	No.	2	2	3
Liquid Line Size	Inch	1/2"	5/8"	5/8"
Suction Line Size	Inch	7/8"	1-3/8"	1-3/8"

Scroll Condensing Unit – R407c

DESCRIPTION	UNIT	ACUS2-012MR2	ACUS2-028MR2	ACUS3-042MR2
Nominal Cooling Capacity	kW (TR)	38.7 (11)	87.9 (25)	131.9 (37.5)
Nominal Dimensions:				
Length	mm	1120	2234	3355
Width	mm	1147	1147	1147
Height	mm	1719	1719	1719
Net Weight / Unit (Approx.)	kg.	260	624	936
Power Supply	V/PH/Hz	380 / 420V, 3Ph, 50Hz		
Total Power Consumption	kW	12	27.6	41.4
Scroll Compressor Type		Hermetic Scroll	Hermetic Scroll	Hermetic Scroll
Quantity	No.	2	2	3
Condenser (Fin & Tube Type) Qty.	No.	2	4	6
Tube Material		Inner Grooved Copper Tube	Inner Grooved Copper Tube	Inner Grooved Copper Tube
Tube size (OD)	Inch	3/8"	3/8"	3/8"
Face Area	Sq. Mt.	1.86	3.72	5.57
Rows Deep	No	3	3	3
Condenser Fan Motor Qty.	No.	1	2	3
Type		T.E, Pad Mounted	T.E, Pad Mounted	T.E, Pad Mounted
Speed	RPM	910	910	910
Power	Kw	0.56	0.56	0.56
Class of Insulation		F	F	F
Fan Blade Qty.	No.	1	2	3
Dia.	mm	660	660	660
Refrigerant Connections	No.	2	2	3
Liquid Line Size	Inch	1/2"	5/8"	5/8"
Suction Line Size	Inch	7/8"	1-3/8"	1-3/8"

Rating Conditions:

The Ratings are based on 7.2°C (45°F) evaporating and 35°C Condenser air over temperature

*Specifications are subject to change due to continuous product development



Water Cooled Scroll Condensing Units

DESCRIPTION	UNIT	WCUS1-015A	WCUS2-030A	WCUS3-045A	
Nominal Cooling Capacity	kW (TR)	52.8 (15)	105.5 (30)	158.2 (45)	
Nominal Dimensions					
Length	mm	1350	1350	1350	
Width	mm	600	1000	1350	
Height	mm	1194	1194	1194	
Weight / Unit (Approx.)	kg.	500	675	850	
Hermetic Compressor (scroll) Qty.	No.	1	2	3	
Power Supply	V/PH/Hz	380-420/3/50			
Total Power Consumption	kW	11.4	22.7	34.1	
Condensor (Shell & Tube Type) Qty.	No.	1	2	3	
Water Flow Rate	Min.	USGPM	35	70	105
	Max.	USGPM	49	98	147
Water Connections	In & Out	No.	1 Each	2 Each	3 Each
	Size	Inch	1-1/4"	1-1/4"	1-1/4"
Refrigerant Connections	No.	1	2	3	
Liquid Line	Inch	5/8"	5/8"	5/8"	
Suction Line	Inch	1-3/8"	1-3/8"	1-3/8"	

NOTE:

The ratings given are based on condenser cooling water at 90/100 deg F temperature with 0.0005 hr.sq ft. deg F/Btu. fouling factor.

Controls / Protection provided

a. MCB & Contactor for each compressor

b. Crankcase heater is provided for each compressor to protect against refrigerant migration

c. Microprocessor controller

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