



BLUE STAR

Air Cooled Screw Chillers **R-134a**

New Generation Screw Chillers from the Experts





A range of air cooled screw chillers for your needs.

- Series I Chillers (375 to 635 KW)
- Series II Chillers (495 to 1395 KW)





Blue Star, India's largest central airconditioning company has been providing expert cooling solutions for over six decades. It has been manufacturing a wide range of chillers for over two decades. Drawing from this expertise, Blue Star presents a wide range of air cooled screw chillers with environment-friendly R134a refrigerant.

These chillers are manufactured at Blue Star's own ISO 9001 certified factory with the chiller test bench certified by the Airconditioning, Heating and Refrigeration Institute (AHRI). Blue Star screw chillers are equipped with effective capacity control. They provide excellent efficiency making them ideal for varying load applications such as office spaces, hotels, hospitals, malls and multiplexes.






Air Cooled Screw Chillers from Blue Star are available in two series:

- Series I: 375 to 635 KW (AHRI-certified series) – 5 models in capacities of 375, 525, 555, 625 & 635 KW. This series has been certified by AHRI.
- Series II: 495 to 1395 KW – 9 models in capacities of 495,765,875,915,985,1055,1155,1255,1395 KW.



Compressor

The salient features of these compressors are:

-  Highly efficient and low noise levels.
-  Due to few moving parts and slider valve, these compressors have minimal wear and tear, thereby, resulting in longer life of the compressor.
-  This compressor has stepless capacity control, from 25% to 100% making it suitable for varying load applications and efficient under part load conditions. The capacity control also helps in limiting the starting current and the loading is done steplessly.
-  Due to its inherent characteristics, screw compressor has the highest volumetric efficiency and derating at higher temperature is negligible.
-  Each compressor has the latest 5 to 6 patented profile design with separate radial and axial force bearings, built-in oil separator, PTC motor winding protection, discharge temperature protection with its controller, oil level switch and oil differential pressure switch. This guarantees reliability and long life of bearings under heavy working operating conditions.



Economiser

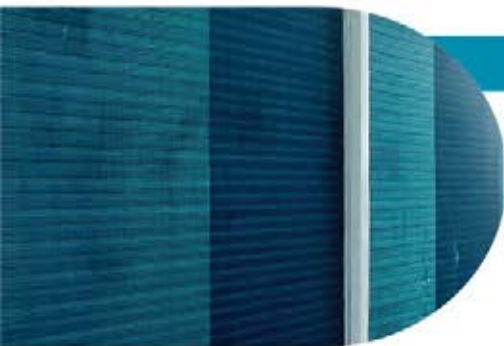
Refrigerant liquid-to-liquid plate type heat exchanger is provided for the Economiser system. The liquid refrigerant is sub-cooled to enhance the capacity, thereby reducing specific power consumption (lkW/TR) and enhancing the Coefficient of Performance (COP).





Cooler

The shell and tube evaporator has been built using imported, internally enhanced and highly efficient finned copper tubes and has been optimised for refrigerant and water velocities. The expansion of the tube is done with torque controlled process.



Air Cooled Condenser

- Fin and tube condensers are manufactured using Super Slit aluminum fins. The copper tubes used are inner grooved type with higher height trapezoidal cross section to increase the internal surface area of heat transfer.
- Hydrophobic coated fins can be manufactured as an optional feature which give corrosion resistance, typically 3 to 5 times more than the uncoated fins, depending upon the ambient conditions. The coated fins are tested for 500 hours of salt spray test.

Liquid Injection

The refrigerant suction gas cools the winding of the semi-hermetic screw compressor motor. During the part load operation where the suction gas circulation is less, as a precaution, liquid refrigerant is injected into the suction side of the compressor to cool the motor winding. This is done to keep the motor winding temperature within limits. It is provided as a standard feature to enhance the life of the compressor.



Fans

The chiller is incorporated with 5-lobe, bird-wing design fans. This profile optimises the noise level as well as power consumption against the required airflow and static pressure.



Spring Isolators

Specially designed spring isolators are supplied along with the units to minimise the transmission of vibration.

Acoustic Enclosure

An acoustic enclosure can be optionally provided for the compressor to reduce the noise levels.

Electronic Expansion Valve

The units are incorporated with electronic expansion valves for precise control of refrigerant flow through the cooler to accurately maintain the desired superheat. The expansion valve is very sensitive to load variations and adjusts the flow of the refrigerant with short response times to achieve power savings. The microprocessor-based control panel provides the signals for accurate operation of the expansion valve based on the superheat.





Microprocessor Control Panel



The cooler outlet temperature can be controlled accurately within a tolerance of $\pm 0.5^\circ$ F.



In-built time delays for compressors and condenser fans, single phase/phase reversal protection and anti-freeze protection.



Password protection at three levels.



RS 232 and RS 485 ports for remote connectivity, fault indication and status facility.



PC connectivity and remote monitoring without BMS through dedicated telephone line and optional gateway and modem.

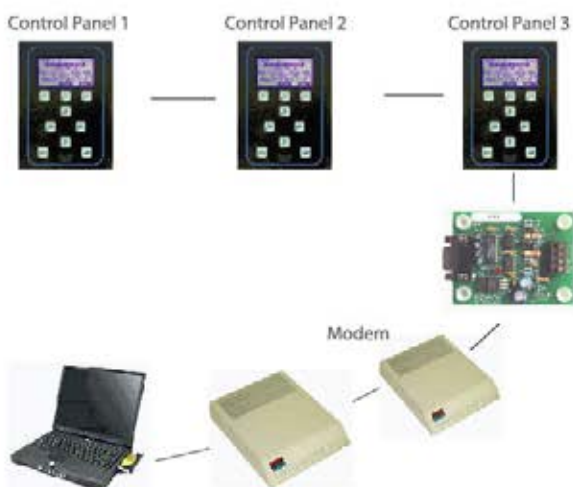


BMS compatibility with Modbus RTU or Johnson N2 as a standard feature. Optional translators available for compatibility with BACnet IP or Modbus IP



Windows based support system provides complete status on all operations both locally and remotely. History, static and dynamic graphing is standard to aid in commissioning, trouble shooting and evaluation.

These features help in accurate operation and protection of the chiller and allow remote monitoring.



Technical Specifications for Series I R134a Aircooled Chillers

| DESCRIPTION | UNITS | LCAX1-0375DA | LCAX1-0525DA |
|--------------------------------|-------|-----------------------------|-----------------------------|
| Nominal Cooling Capacity | TR | 106.70 | 149.90 |
| Compressor | | | |
| Type | | Semi-Hermetic Screw | Semi-Hermetic Screw |
| Quantity | No. | 1 | 1 |
| Operating Speed | RPM | 2900 | 2900 |
| Electrical Power Supply | | | |
| Condenser | | | |
| No. of Rows | No. | 3 | 4 |
| Fan Qty | No. | 6 | 8 |
| Fan Dia | mm | 915 | 915 |
| Air Flow | CFM | 87000 | 116000 |
| Fan Motor Speed | RPM | 910 | 910 |
| Cooler | | | |
| Water Connection Size In / Out | Inch | 6 | 8 |
| No. of Refrigerant Circuit | No. | 1 | 1 |
| Expansion Valve | | Electronic | Electronic |
| Economiser | | Brazed Plate Heat Exchanger | Brazed Plate Heat Exchanger |
| Overall Dimension | | | |
| Length | mm | 4374 | 5502 |
| Width | mm | 2235 | 2235 |
| Height | mm | 2570 | 2570 |
| Weight | | | |
| Operating Weight | Kg | 3800 | 5192 |

#Specifications are subject to change due to continuous product development

Rating Conditions (As per ARI 550/590 std)

1. Condenser Entering Air Temperature at 95 F
2. Cooler Leaving Water Temperature at 44 F at the Flow Rate of 2.4 USGPM/TR
3. Cooler Fouling Factor 0.0001 Hr.Sq.ft.Deg.F/BTU





| LCAX2-0555DA | LCAX1-0625DA | LCAX2-0635DA |
|---|---|---|
| 160.50 | 177.80 | 184.40 |
| Semi-Hermetic Screw | Semi-Hermetic Screw | Semi-Hermetic Screw |
| 2 | 1 | 2 |
| 2900 | 2900 | 2900 |
| | 360 - 440 V, 3 Ph, 50 Hz | |
| 3 | 3 | 3 |
| 10 | 10 | 12 |
| 915 | 915 | 915 |
| 145000 | 145000 | 174000 |
| 910 | 910 | 910 |
| 8 | 8 | 8 |
| 2 | 1 | 2 |
| Electronic Brazen Plate Heat Exchanger | Electronic Brazen Plate Heat Exchanger | Electronic Brazen Plate Heat Exchanger |
| 6986 | 6420 | 7846 |
| 2235 | 2235 | 2235 |
| 2570 | 2570 | 2570 |
| 5750 | 5471 | 6900 |





Technical Specifications for Series II R134a Aircooled Chillers

| DESCRIPTION | UNITS | LCAX1-0495DA | LCAX2-0765D | LCAX2-0875D | LCAX2-0915D |
|--------------------------------|-------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Nominal Cooling Capacity | TR | 140.80 | 217.60 | 248.86 | 260.20 |
| Compressor | | | | | |
| Type | | Semi-Hermetic Screw | Semi-Hermetic Screw | Semi-Hermetic Screw | Semi-Hermetic Screw |
| Quantity | No. | 1 | 2 | 2 | 2 |
| Operating Speed | RPM | 2900 | 2900 | 2900 | 2900 |
| Electrical Power Supply | | | | | 360 - 440 V, 3 Ph, 50 Hz |
| Condenser | | | | | |
| No. of Rows | No. | 3 | 3 | 3 | 3 & 4 |
| Fan Qty | No. | 8 | 12 | 14 | 14 |
| Fan Dia | mm | 915 | 915 | 915 | 915 |
| Air Flow | CFM | 116000 | 174000 | 203000 | 203000 |
| Fan Motor Speed | RPM | 910 | 910 | 910 | 910 |
| Cooler | | | | | |
| Water Connection Size In / Out | Inch | 8 | 10 | 6 & 8 | 6 & 8 |
| No. of Refrigerant Circuit | No. | 1 | 2 | 2 | 2 |
| Expansion Valve | | | | | |
| | | Electronic | Electronic | Electronic | Electronic |
| Economiser | | | | | |
| | | Brazed Plate Heat Exchanger | Brazed Plate Heat Exchanger | Brazed Plate Heat Exchanger | Brazed Plate Heat Exchanger |
| Overall Dimension | | | | | |
| Length | mm | 5502 | 7846 | 9901 | 9901 |
| Width | mm | 2235 | 2235 | 2235 | 2235 |
| Height | mm | 2570 | 2570 | 2570 | 2570 |
| Weight | | | | | |
| Operating Weight | Kg | 4700 | 7406 | 8500 | 9271 |

#Specifications are subject to change due to continuous product development

Rating Conditions (As per ARI 550/590 std)

1. Condenser Entering Air Temperature at 95 F
2. Cooler Leaving Water Temperature at 44 F at the Flow Rate of 2.4 USGPM/TR
3. Cooler Fouling Factor 0.0001 Hr.Sq.ft.Deg.F/BTU



| | | | | |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| LCAX2-0985D 280.00 | LCAX2-1055D 300.10 | LCAX2-1155D 328.50 | LCAX2-1255D 356.89 | LCAX3-1395D 396.79 |
| Semi-Hermetic Screw | Semi-Hermetic Screw | Semi-Hermetic Screw | Semi-Hermetic Screw | Semi-Hermetic Screw |
| 2 | 2 | 2 | 2 | 3 |
| 2900 | 2900 | 2900 | 2900 | 2900 |
| | | | | |
| 3 | 4 | 3 & 4 | 3 | 3 |
| 16 | 16 | 18 | 20 22 | |
| 915 | 915 | 915 | 915 | 915 |
| 232000 | 232000 | 261000 | 290000 | 319000 |
| 910 | 910 | 910 | 910 | 910 |
| | | | | |
| 8 | 8 | 8 | 8 | 8 & 10 |
| 2 | 2 | 2 | 2 | 3 |
| | | | | |
| Electronic | Electronic | Electronic | Electronic | Electronic |
| Brazed Plate Heat Exchanger | Brazed Plate Heat Exchanger | Brazed Plate Heat Exchanger | Brazed Plate Heat Exchanger | Brazed Plate Heat Exchanger |
| | | | | |
| 11029 | 11029 | 11947 | 12865 | 13776 |
| 2235 | 2235 | 2235 | 2235 | 2235 |
| 2570 | 2570 | 2570 | 2570 | 2570 |
| | | | | |
| 9400 | 10384 | 10663 | 10942 | 12877 |



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