

ADVANCE COOLING

INDUSTRIAL COOLING SOLUTIONS



Panel Airconditioner



Air to Air Heat Exchanger



Fan Coil Unit



Spindle Chiller



Oil Chiller



Water Chiller



Coolant Chiller



Compressed Air Dryer

HEAT MANAGEMENT DEVICES

ISO 9001:2008 COMPANY

Advance Cooling Systems Pvt. Ltd., Navi Mumbai (ACS) was formed in 1989. We were the first in India to design a panel ac in 1986 and after 3 years of successful trials launched commercial production in 1989. Today, we have diversified our spectrum of refrigeration based products and our product portfolio includes

- a. Panel Air Conditioners
- b. Water / Coolant / Oil / Glycol Chillers
- c. Air to Air / Air to Water Heat exchangers
- d. Compressed Air Driers

We have installed over 120,000 cooling devices till date and have a customer base of over 3,000 satisfied users which meets the needs of vital industries - metal cutting, telecom, food processing, chemical, instrumentation, electrical and electronics, medical and other fields. Our products are used around the globe with installations in the Middle East, Turkey, Indonesia, Vietnam, Singapore, Japan, Malaysia, Korea, Sri Lanka, South Africa, Nigeria, Australia, United Kingdom and USA.

Our business hinges on offering the customer superior value. We are an ISO 9001:2008 certified company and Quality is accorded top most priority. It marks every stage of manufacturing - from raw material which is subjected to strict incoming inspection to final testing, checking and commissioning.

Great emphasis is laid on research and development, so that we can offer our customers better solutions that meet changing market complexities. A wide network facilitates customer service and reach. High-calibre engineers study customer requirements, assess problems and provide solutions for high operational safety and reliability. Service contracts are also offered, each call attended to with utmost care and dedication. Training for customers is also provided wherever necessary. Underlying this effort is our conviction that we are your Partners in Progress.

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Panel Airconditioner

Panel Airconditioner

The advent of “Factory Automation” and demand for high productivity levels has resulted in usage of State of the Art and highly sensitive electronic hardware like Drives, VFD's, SSR's, PLC, Thyristors etc in CNC Machine tools, Robotics, Material handling Systems Control Panels and other Automation Equipment

To achieve these high productivity levels, it is very important to provide a “clean and controlled environment” to this electronic hardware.

Our Panel Air conditioners offer you protection against Heat, Dust and Humidity for trouble free performance of your vital and expensive electronic equipment. The first to manufacture Panel Air conditioners in India, today we have over **100,000** panel cooling devices installed worldwide.



Models:

Over 120 models to select from in the following configurations:

Side/ Door Mounting for direct mounting on the panel

Stand Alone models can be used with mounting space in the panel is a constraint . This model is connected to the panel by plastic flexible hose

Top Placing models are designed to replace top mounting units where water dripping could create serious problems, these models can be used where floor place is a constraint

Rack Mounted: The panel ac can be directly integrated and mounted inside the computer / server rack

Weather Proof (WP): Splash proof model specially designed for outdoor mounting to withstand extreme / harsh weather conditions. Ideal for Telecom shelters and outdoor enclosures.

3 Panel Airconditioner

General Characteristics:

► **Air Flow:** Two independent air circuits, the internal circuit circulates cool air in the panel and the external air circuit dissipates extracted heat to the atmosphere (special ductable models available to expel condenser hot air to other locations)

► **Cooling Circuit:** Includes sealed compressor, metering device and associated refrigeration equipment.

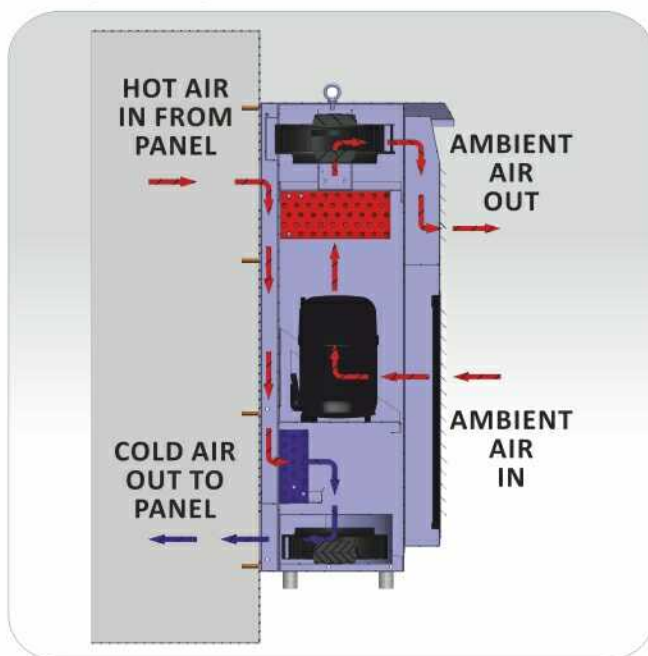
► **Temperature Control:** Microprocessor Controller with LED/ LCD display and easy access man / machine interface. Digital display of actual and set temperature values. Adjustable time delay between starts warranting the minimum time for temperature equilibrium and compressor startups.

Thermostat (electronic or electro-mechanical) in models where space constraints do not permit the use of microprocessor controller.

► **Alarm:** Where required, potential free output for High Temperature Alarm can be provided with electronic temperature controller at no extra cost.

► **Drain Pipe:** To remove moisture / condensate in the panel.

► **Enclosure:** Aesthetically pleasing designed with the help of latest 3D CAD/CAM software. CRC powder coated panels manufactured using sophisticated CNC Turret and Bending machines.



Options:

- State of the art LCD temperature controller with programmable timer for filter cleaning indication
- Potential free alarm for high and low temperature
- High / Low pressure switch.
- Door limit switch interface.
- Available in special voltage and frequency
- Three Phase power supply
- Aluminum/GI body (telecom applications)
- Stainless Steel body (coastal areas, food processing and pharmaceutical applications).
- De humidification module.
- Heating Module (low ambient areas)
- High Ambient operation with Air cooled condenser
- Water-cooled condenser for high ambient and extremely dusty environment.
- Custom built size for replacement of Imported units and special applications.
- Hot Gas Bypass valve for Accurate Temperature Control
- IP 55 certified models available
- CE marked models available

Model	Rated Cooling Capacity (in watts)	Refrigerant	Voltage	Rated Current (in Amps)	Dimensions (in mm)		
					W	H	D
T 160 D	160	R 134a	230V, 50 Hz, 1Ph.	2.00	385	370	255
T 250 STD	250	R 134a	230V, 50 Hz, 1Ph.	2.00	382	370	255
T 250 SP R6	250	R 134a	230V, 50 Hz, 1Ph.	2.00	270	340	280
T 300 M4	300	R 134a	230V, 50 Hz, 1Ph.	2.00	270	550	200
T 500 HMG	500	R 134a	230V, 50 Hz, 1Ph.	2.50	280	480	300
T 500 N53	500	R 134a	230V, 50 Hz, 1Ph.	2.50	280	600	230
T 600 N53	600	R 134a	230V, 50 Hz, 1Ph.	3.00	280	600	230
T 850 M23	850	R 134a	230V, 50 Hz, 1Ph.	2.50	300	780	250
T 1000 M23	1000	R 134a	230V, 50 Hz, 1Ph.	3.50	300	780	250
T 1500 R10	1500	R 22/R134a	230V, 50 Hz, 1Ph.	4.50	381	982	254
T 2000 R60	2000	R 22/R134a	230V, 50 Hz, 1Ph.	7.00	440	982	300
T 3000 SM	3000	R 22/R134a	230V, 50 Hz, 1Ph.	9.00	440	1335	300
T 4500 SM	4500	R 22/R134a	230V, 50 Hz, 1Ph.	11.00	500	1550	550
T 6000 SM	6000	R 22/R134a	230V, 50 Hz, 1Ph.	15.00	500	1550	550
T 7500 SM	7500	R 22/R134a	415V, 50 Hz, 3Ph.	7.50	600	1550	600
T 9000 SM	9000	R 22/R134a	415V, 50 Hz.,3Ph.	9.00	600	1760	600
T 11250 SM	11250	R 22/R407C	415V, 50 Hz.,3Ph.	11.00	800	1800	900
T 15000 SM	15000	R 22/R407C	415V, 50 Hz.,3Ph.	15.00	1000	1800	1000

Applications: _____

- ♦ CNC Machine Tools, Drive Panels, PLC Panels, Instrument Panels
- ♦ CPU/Server Enclosures
- ♦ Telecom Equipment
- ♦ Medical Electronic Equipment
- ♦ Process Control Equipment
- ♦ Robotics
- ♦ Gas Analyzer Equipment
- ♦ Crane/Material Handling Equipment
- ♦ Any panel housing sensitive electronic components



Electronic control panels contain a highly packed set of temperature sensitive components but have a small surface area with which to reject the generated heat. Dust, moisture and aggressive atmosphere prevent the use of ventilation.

In situations where the ambient air is not excessively hot or moisture laden and where the electronic controls can operate at a temperature differential slightly above the ambient, it is recommended that an ADVANCE AIR TO AIR HEAT EXCHANGER be used to transfer heat from inside the electronic enclosure to the outside atmosphere.



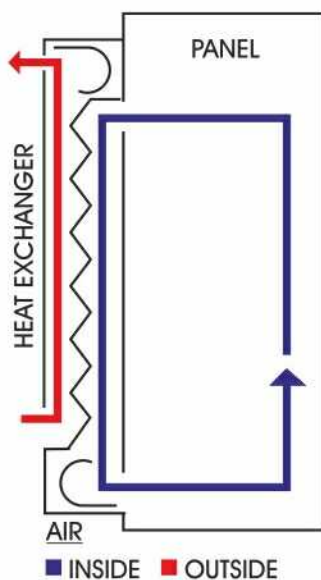
Air to Air Heat Exchanger

Air to Air Heat Exchanger

Principle of Operation:

ADVANCE AIR TO AIR HEAT EXCHANGER attaches directly to the panel and circulates two totally separate air streams, sealed from each other, in two sets of channels formed from thin gauge aluminum. The internal stream picks up the component heat from top and travels downwards through one set of channels. The external stream travels upwards through the other set and cools the internal stream without mixing, through the thin aluminum wall of the channels. The rate of heat transfer can be as high as 150 W/K. Two sets of fans move the airstreams, one each. (See figure).

Thus heat is transferred from the interior of the panel at a high rate, without introduction of dust, moisture or fume laden outside air. The channels form a removable module which can be easily cleaned by washing periodically.



Salient Features:

- MS powder coated body
- Aluminium heat exchange module
- Low noise, high reliability fans
- Light weight, rugged unit
- Internal or External mounting
- Negligible maintenance required
- Very low operational costs
- Cooling without refrigeration circuit

Options:

- Aluminum body
- Fan failure module with alarm
- Temperature controller to shut down internal / external air circuit at pre-determined temperature
- Outdoor weather load
- Custom design
- 48 V DC models available

Applications:

- ♦ CNC Machine Tools, Drive Panels , PLC Panels , Instrument Panels
- ♦ CPU/Server Enclosures ♦ Telecom Equipment
- ♦ Medical Electronic Equipment ♦ Process Control Equipment ♦ Robotics
- ♦ Gas Analyzer Equipment ♦ Crane/Material Handling Equipment
- ♦ Any panel housing sensitive electronic components

SR.NO	MODEL	WIDTH	DEPTH	HEIGHT	RATING (K/W)	CURRENT (AMP)	VOLTAGE (V)	FREQUENCY (Hz,1PH)
1	HE-10	180mm	150mm	380mm	10	0.25A	230V	50Hz
2	HE-15-N	225mm	100mm	590mm	15	0.25A	230V	50Hz
3	HE-15-R2	180mm	150mm	590mm	15	0.25A	230V	50Hz
4	HE-22-R1	375mm	100mm	650mm	22	0.5A	230V	50Hz
5	HE-35	450mm	150mm	590mm	35	0.5A	230V	50Hz
6	HE-50	375mm	100mm	650mm	50	1A	230V	50Hz
7	HE-60	450mm	150mm	1000mm	60	1A	230V	50Hz
8	HE-80	381mm	220mm	932mm	80	1A	230V	50Hz
9	HE-100	450mm	150mm	1495mm	100	1A	230V	50Hz
10	HE-120	460mm	180mm	1495mm	120	1A	230V	50Hz
11	HE-130	550mm	200mm	1250mm	130	1A	230V	50Hz
12	HE-150	450mm	170mm	1495mm	150	1A	230V	50Hz



Electronic control panels contain a highly packed set of temperature sensitive components but have a small surface area with which to reject the generated heat. Dust, moisture and aggressive atmosphere prevent the use of ventilation.

In situations where the ambient air is not excessively hot or moisture laden and where the electronic controls can operate at a temperature differential slightly above the ambient, it is recommended that an ADVANCE WATER TO AIR HEAT EXCHANGER be used to transfer heat from inside the enclosure to chilled water circulating in the coil. There are no filters to be cleaned and no hot air is expelled to the environment. Ideal for use in contaminated, dusty and high ambient temperature environment. Either in-house chilled water can be used or a separate Chiller can be supplied to suit various applications.

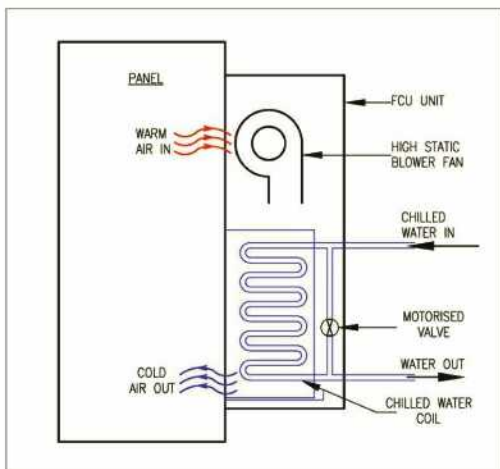


Fan Coil Unit

Principle of operation:

The basic working of the fan coil unit is as follows:

- a) Chilled water is passed through the heat exchanger in the fan coil unit.
- b) Warm air from the panel is sucked by the blower fan in the fan coil unit and passed over the chilled water coil.
- c) The heat from the warm air is carried away by the chilled water in the coil and the cold air is injected back into the panel.
- d) The return panel air temperature is sensed by an inbuilt digital temperature controller. Once the desired temperature is attained, the controller gives the signal to the 3 - Way motorized valve which diverts the chilled water to the return line. This ensures temperature control in the panel. Since the panel heat is rejected to the chilled water of the fan coil unit, no heat is expelled in the room / cabin / enclosure where the panels are installed and there is no rise in ambient temperature. These fan coil units can work very well in harsh environment with dust, cotton fluff, high ambient temperatures and panels with excessive heatload.



Model	Cooling Capacity (Watts)	Voltage	W	D	H
FCU-300	300	230V/50Hz/60Hz/1Ph	300	150	500
FCU-500	500	230V/50Hz/60Hz/1Ph	300	150	600
FCU-1000	1000	230V/50Hz/60Hz/1Ph	300	150	660
FCU-1500	1500	230V/50Hz/60Hz/1Ph	350	250	800
FCU-2300	2300	230V/50Hz/60Hz/1Ph	350	250	800
FCU-3500	3500	230V/50Hz/60Hz/1Ph	350	250	800
FCU-5000	5000	230V/50Hz/60Hz/1Ph	400	320	900
FCU-6000	6000	230V/50Hz/60Hz/1Ph	400	320	900
FCU-9000	9000	415V/50Hz/60Hz/3Ph	600	450	1760
FCU-10000	10000	415V/50Hz/60Hz/3Ph	600	450	1760
FCU-15000	15000	415V/50Hz/60Hz/3Ph	800	550	1860

Salient Features:

- MS /GI powder coated body
- Low noise, high reliability fans
- Light weight, rugged unit
- Internal or External mounting
- Negligible maintenance required
- Very low operational costs

Applications:

- ♦ CNC Machine Tools, Drive Panels, PLC Panels, Instrument Panels
- ♦ CPU/Server Enclosures
- ♦ Telecom Equipment
- ♦ Medical Electronic Equipment
- ♦ Process Control Equipment
- ♦ Robotics
- ♦ Gas Analyzer Equipment
- ♦ Crane/Material Handling Equipment
- ♦ Any panel housing sensitive electronic components



The constant loads and continuous functioning of the spindle in a CNC machine leads to a generation of a lot of heat. For proper functioning and durability of the spindle, it is very essential to remove this excess heat.

Advance Cooling chillers keep the spindle cool so as to control spindle and head growth. These chillers are very essential component of spindles as they add life to the spindle and they are typically used in long cycles or high duty cycles. Advance Cooling has introduced new range of spindle chillers which have a compact footprint and pleasing aesthetics and looks.

Salient Features:

- Advance Cooling Chillers are ruggedly designed to work 24 x 7 throughout the year in extremely harsh industrial environment.
- Chillers are available in wide range from 500 kcal/hr to 15000 Kcal/hr cooling capacities and liquid oil temperature range of +25 to 40 Deg C., (Higher Temperature Models on request)
- Self Sufficient Chillers with built in Refrigeration circuit , oil reservoir , transfer pump and necessary controls.
- Extra large Sized Condenser Coil and Air Filters for operation in High Ambient up till 50 Deg c.
- Plug and Play type fully factory tested ,pre wired charged and piped for easy installation.
- Advanced Microprocessor based temperature controller with LED/LCD digital display for temperature status and alarm outputs. Easy to use with tamper proof password facility built in the controller.
- Use of latest energy efficient components like Scroll compressors and PHE heat exchangers for enhanced energy efficiency
- Chiller manufactured in state of art facilities along with ISO 9001: 2008 procedures and thoroughly tested and packaged before dispatching
- Chiller designed on latest 3D CAD software to ensure components placed for easy access and compact body footprint.

Spindle Chiller

Spindle Chiller

Component Features and Options:

- Compressors (Reciprocatory & Scroll)
- Evaporators (Compact Brazed Plate Type , Coil in Shell Type) Gear / Vane / Trochoid Pump options
- Air and water cooled Condensers (fin and tube, plate type and shell-in- tube)
- Refrigerant R22 /R134a/R407C
- MS/GI powder coated or stainless steel outer sheet metal body
- Refrigerant circuit consists of filter dryer, thermostatic expansion valve / capillary, sight glass, accumulator, receiver, solenoid valve, hot gas bypass, Gauges and other controls
- Safety devices include - high/low refrigerant pressure switches Anti freeze thermostat, oil pressure and flow switch ,inline filter.
- Built in Electrical control box with MCB, Contactors, Thermal Relay /MPCB/ Phase Sequence relay and all status/fault indicating LEDs and audio alarms.
- State of the Art Digital temperature controller with LED/ LCD for precise temperature controlling
- Potential free alarm /control signals and interlocks available for Machine - Chiller Interfacing and Remote Signaling. Optional Rs 232/485 communication is also available
- High Quality Refrigerant grade copper tubing with internal mirror finishing
- Unit mounted on C Channels or Castor wheels with lockable brakes for easy movement.

SPECIFICATIONS

Model		DO - 4PTS	DO - 6PTS	DO - 8PTS	DO - 1RPTS	DO - 1.5RPTS	DO - 2RPTS
Power Source	V		3Ø 415 V 50 Hz			3Ø 415 V 50 Hz	
Cooling Capacity	Kcal / H	850	1450	1700	2550	3700	5000
Compressor Power	W	600	650	800	1200	1880	1880
Pump Power	W	200	400	400	400	750	750
Oil Pump Discharge Rate	L / min	6	12	12	20	30	30
Piping Size IN/OUT	PT	1/2"	3/4"	3/4"	3/4"	1"	1"
Dimensions	W (mm)	360	420	420	520	700	700
	D (mm)	440	520	520	520	550	550
	H (mm)	840	1070	1070	1080	1130	1130

Order code mentioned below:

- | | | | |
|----------|--------------------------------|----|--|
| DO - 4 : | Model Number | PT | : Equipped with the pump-oil tank |
| S : | The Touch Pad controlling type | □ | : Mechanical Controlling type |
| A : | The Fixed Temperature type | B | : The differential temperature controlling type - adjusting according to the room temperature and the machine temperature. |

Applications:

- ◆ **Metal Cutting** – Turning, Machining Centers, Grinding, Honing, Broaching, Drilling, Gear Hobbing .



Advance closed loop Water Chillers are used to provide chilled water at a precise temperature to sensitive water cooled equipment. Designed to work in hostile industrial environment, these chillers are appreciably reducing costs in a broad range of industries. Our Chillers for process cooling and equipment cooling enhance production processes and lower operating costs.

Unlike a cooling tower which may provide adequate cooling during certain months but fail during the hotter months, Advance Water Chillers maintain constant cooling temperature in the equipment right through the year.

Unlike water chillers in the market which are for general purpose applications, our chillers come with a focused application design. You therefore get the optimum solution to your heat management problem.



Water Chiller

Salient Features:

- Advance Chillers are ruggedly designed to work 24 x 7 throughout the year in extremely harsh industrial environment.
- Chillers are available in wide range from 0.3 tr to 150 tr cooling capacities and liquid temperature range of +5 to 25 Deg C.
- Self Sufficient Chillers with built in Refrigeration circuit, water reservoir, transfer pump and necessary controls.
- Extra large Sized Condenser Coil and Air Filters for operation in High Ambient up till 48 Deg C.
- Plug and Play type fully factory tested, pre wired charged and piped for easy installation.
- Advanced Microprocessor / PLC based temperature controller with LED / LCD digital display for temperature status and alarm outputs. Easy to use with tamper proof password facility built in the controller.
- Use of latest energy efficient components like Scroll compressors and PHE heat exchangers along with multiple refrigeration circuit options for enhanced energy efficiency.
- Chiller manufactured in state of art facilities along with ISO 9001:2008 procedures and thoroughly tested and packaged before dispatching.
- Chiller designed on latest 3D CAD software to ensure components placed for easy access and compact body footprint.

Component Features and Options:

- Compressors (sealed, semi sealed reciprocatory , scroll and screw)
- Evaporators (Stainless Steel / Copper coil-in-tank, plate type, tube-in-tube and shell-in-tube)
- Air and water cooled Condensers (fin and tube, plate type and shell-in-tube)
- Refrigerant R22 / R134a / R407C
- MS / GI powder coated or stainless steel outer sheet metal body
- Inbuilt sufficient fully stainless steel 304 / 316 Grade tank reservoir.
- Flow and pressure of Water Transfer pump selection based on application needs
- Refrigerant circuit consists of filter dryer, thermostatic expansion valve / capillary, sight glass, accumulator, receiver, solenoid valve, hot gas bypass, Gauges and other controls.
- Anticorrosive non ferrous parts used for DM Water / Foodgrade / Pharmaceutical / laser applications.
- Optional fan speed controller used for operation of chiller at low ambient.
- Safety devices include - high / low refrigerant pressure switches Anti freeze thermostat, Water level, pressure and flow switch, inline water filter.
- Built in Electrical control box with MCB, Contactors, Thermal Relay / MPCB / Phase Sequence relay and all status / fault indicating LEDs and audio alarms.
- State of the Art Digital temperature controller with LED / LCD for precise temperature controlling.
- Potential free alarm / control signals and interlocks available for Machine - Chiller Interfacing and Remote Signaling.
- Optional RS 232 / 485 communication is also available.
- High Quality Refrigerant grade copper tubing with internal mirror finishing .
- Unit mounted on C Channels or Castor wheels with lockable brakes for easy movement.

Water Chiller

Model	Cooling Capacity (Kcal/hr)	W	D	H	Refrigerant	POWER	PUMP LPM	Tank Capacity (Ltrs)	No. of Ref. Circuits	Condensor
WC-860	860	550	550	1100	R134a	230V,50Hz,1Ph	10lpm @ 2bar	15	1	Air Cooled
WC-1285	1285	550	550	1100	R22/R134a	230V,50Hz,1Ph	10lpm @ 2bar	15	1	Air Cooled
WC-2250	2250	600	600	1100	R22/R134a	230V,50Hz,1Ph	20lpm @ 2bar	40	1	Air Cooled
WC-3000	3000	600	600	1100	R22/R134a	230V,50Hz,1Ph	20lpm @ 2bar	40	1	Air Cooled
WC-4500	4500	750	750	1100	R22/R134a	230V,50Hz,1Ph	30lpm @ 2bar	60	1	Air Cooled
WC-6000	6000	750	750	1100	R22/R134a	415V,50Hz,3Ph	40lpm @ 2bar	80	1	Air Cooled
WC-7500	7500	750	750	1100	R22/R134a	415V,50Hz,3Ph	90lpm @ 2bar	80	1	Air Cooled
WC-9000	9000	950	950	1300	R22/R134a	415V,50Hz,3Ph	90lpm @ 2bar	120	1	Air Cooled
WC-11250	11250	950	950	1300	R22/R407C	415V,50Hz,3Ph	90lpm @ 2bar	150	1	Air Cooled
WC-15000	15000	1000	1000	1600	R22/R407C	415V,50Hz,3Ph	90lpm @ 2bar	180	1	Air Cooled
WC-22500	22500	1800	1000	1400	R22/R407C	415V,50Hz,3Ph	90lpm @ 2bar	250	2	Air Cooled
WC-30000	30000	2200	1000	1800	R22/R407C	415V,50Hz,3Ph	90lpm @ 2bar	300	2	Air Cooled
WC-45000	45000	2500	1200	1800	R22/R407C	415V,50Hz,3Ph	150lpm @ 2bar	500	3	Air Cooled
WC-60000	60000	2500	1200	2000	R22/R407C	415V,50Hz,3Ph	200lpm @ 4bar	750	2	Air Cooled
WC-75000	75000	3000	1500	2200	R22/R407C	415V,50Hz,3Ph	250lpm @ 4bar	750	2	Air Cooled
WC-90000	90000	3000	1500	2200	R22/R407C	415V,50Hz,3Ph	2 x 300lpm @ 2bar	1000	3	Air Cooled
WC-150000	150000	4500	1600	2200	R22/R407C	415V,50Hz,3Ph	2 x 500lpm @ 2bar	1000	4	Air Cooled
WC-225000	225000	6300	1800	2200	R22/R407C	415V,50Hz,3Ph	800lpm @ 2bar	1000	6	Air Cooled

* Higher Capacity available on request

Applications:

- ♦ **Engineering Industry:** Welding equipment, Induction hardening and Brazing equipment, Ultrasonic equipment, Laser cutting, anodizing, Quenching / Heat treatment equipment die casting Machines, CNC wire cut machines, Plasma Cutting, spindle motor and linear motor cooling in machine tools, Robotics, cryogenic equipment etc.
- ♦ **Plastic and Packaging Industry:** Injection moulding, blow moulding, lamination, extruders, thermo and vacuum forming and blister packing machines.
- ♦ **Pharmaceutical:** Blister Packaging, Tablet Coating, Lamination and drug making process.
- ♦ **Food and Beverage Industry:** Packaging / Bottling / Distillation plants, Dairy, Biscuit making, Breweries, Vineyards Mixers and other process related equipment.
- ♦ **Medical:** x-ray machines, CAT / MRI Scanner, medical electronics, hospitals.
- ♦ **Textile Industry:** Padders, Stenter, Calenders, Mercerisers, Bleaching / Dyeing and other allied equipment
Also widely used Chemical / Pulp and Paper industry, process control industry, Laboratory, Offset printing, and many other applications.

Water Chiller





Hydraulic Oil Chiller

Advance Cooling Hydraulic Oil Chillers are used to maintain precise oil temperature in the powerpacks which are used in hydraulic systems of CNC machine tools, high speed presses and hydraulic powered special purpose machines and hydraulic equipment.



Oil Chiller

Problems associated with high temperature of oil in hydraulic systems:

1. As the temperature of oil increases, the viscosity of oil reduces and it becomes thinner. This low viscous oil causes internal leakage in hydraulic devices and seals. This will cause frequent breakdowns and efficiency losses of the hydraulic system.
2. At high temperatures oil degrades faster and hence it has to be replaced frequently. In conventional method of cooling, the hydraulic oil is cooled by passing Cooling Tower in an heatexchanger.

The disadvantage with this type of method is that Cooling Tower water temperature is not consistent throughout the year which causes variation in hydraulic oil temperature .

Further over a period of time the heatexchanger gets clogged and its efficiency reduces due to scaling caused by the inconsistent water quality of cooling tower.

As opposed to the above, Advance Cooling make "Direct –Oil Chillers" consists of an inbuilt gear pump of the chiller which takes oil from your powerpack .It passes the oil through the Refrigerant-oil Heatexchanger thereby cooling it . The chilled oil is returned to the powerpack .

Further Advance Cooling make oil chillers use state-of-the-art Brazed Plate Heat Exchangers (BPHE) to give you rapid and highly efficient cooling. These are far superior to the conventional shell-and-tube type evaporators designed primarily for non-viscous fluids. Here hot oil flows over the tubes , which is cooled by the refrigerant flowing through them. Since the refrigerant is at a much cooler temperature, a static oil film is formed over these tubes, which acts as an insulator, preventing oil in subsequent layers to be cooled. In other words, only the oil surrounding the tubes is cooled, thereby reducing chiller efficiency.

As opposed to this, BPHE offers the following advantages:

- Compact: BPHE's are around 10 times more compact than their shell-and-tube counterparts. this results in massive space saving.
- High thermal efficiency: The flow of refrigerant and oil is counter current. In addition, the plate design facilitates turbulent flow (thereby preventing formation of static oil film) for optimum heat exchange.

Applications: _____

- ♦ Metal Cutting – Turning, Machining Centers, Grinding, Honing, Broaching, Drilling , Gear Hobbing
- ♦ Metal Forming : Presses, Bending, Shearing, Hydroforming, Deep Drawing, Punching, Rolling, Extrusion
- ♦ Plastics : Injection Moulding, Extrusion
- ♦ Textile : Padder, Dryer, Mercerize
- ♦ General Purpose Hydraulic Equipment

Salient Features: _____

- Advance Cooling Chillers are ruggedly designed to work 24 x 7 throughout the year in extremely harsh industrial environment.
- Chillers are available in wide range from 0.3 tr to 50 tr cooling capacities and liquid oil temperature range of +25 to 40 Deg C., (Higher Temperature Models on request)
- Self Sufficient Chillers with built in Refrigeration circuit , oil reservoir , transfer pump and necessary controls.
- Extra large Sized Condenser Coil and Air Filters for operation in High Ambient up till 50 Deg c.
- Plug and Play type fully factory tested ,pre wired charged and piped for easy installation.
- Advanced Microprocessor based temperature controller with LED / LCD digital display for temperature status and alarm outputs. Easy to use with tamper proof password facility built in the controller.
- Use of latest energy efficient components like Scroll compressors and PHE heat exchangers along with multiple refrigeration circuit options for enhanced energy efficiency
- Chiller manufactured in state of art facilities along with ISO 9001: 2008 procedures and thoroughly tested and packaged before dispatching
- Chiller designed on latest 3D CAD software to ensure components placed for easy access and compact body footprint.

Component Features and Options: _____

- Compressors (sealed, semi sealed reciprocatory & scroll)
- Evaporators (Compact Brazed Plate Type)
- Gear / Vane / Trochoid Pump options
- Air and water cooled Condensers (fin and tube, plate type and shell-in-tube)
- Refrigerant R22 / R134a / R407C
- MS / GI powder coated or stainless steel outer sheet metal body
- Refrigerant circuit consists of filter dryer, thermostatic expansion valve / capillary, sight glass, accumulator, receiver, solenoid valve, hot gas bypass, Gauges and other controls
- Optional fan speed controller used for operation of chiller at low ambient
- Safety devices include - high / low refrigerant pressure switches, Anti freeze thermostat, oil pressure and flow switch, inline filter.
- Built in Electrical control box with MCB, Contactors, Thermal Relay / MPCB / Phase Sequence relay and all status / fault indicating LEDs and audio alarms.
- State of the Art Digital temperature controller with LED / LCD for precise temperature controlling
- Potential free alarm / control signals and interlocks available for Machine - Chiller Interfacing and Remote Signaling. Optional RS232 / 485 communication is also available
- High Quality Refrigerant grade copper tubing with internal mirror finishing
- Unit mounted on C Channels or Castor wheels with lockable brakes for easy movement.

Model	Cooling Capacity (Kcal/hr)	W	D	H	Refrigerant	Power	Pump LPM	No. of Ref. Circuits	Condensor
OC-1000	1000	450	600	800	R134a	230V,50Hz,1Ph	7	1	Air Cooled
OC-1500	1500	450	800	800	R22/R134a	230V,50Hz,1Ph	10	1	Air Cooled
OC-2250	2250	600	600	1100	R22/R134a	230V,50Hz,1Ph	12	1	Air Cooled
OC-3000	3000	600	600	1100	R22/R134a	415V,50Hz,3Ph	15	1	Air Cooled
OC-4500	4500	750	750	1100	R22/R134a	415V,50Hz,3Ph	20	1	Air Cooled
OC-6000	6000	750	750	1100	R22/R134a	415V,50Hz,3Ph	30	1	Air Cooled
OC-7500	7500	750	750	1100	R22/R134a	415V,50Hz,3Ph	40	1	Air Cooled
OC-9000	9000	900	900	1300	R22/R134a	415V,50Hz,3Ph	45	1	Air Cooled
OC-11250	11250	950	950	1300	R22/R407C	415V,50Hz,3Ph	60	1	Air Cooled
OC-15000	15000	1000	1000	1300	R22/R407C	415V,50Hz,3Ph	70	1	Air Cooled
OC-22500	22500	1800	950	1200	R22/R407C	415V,50Hz,3Ph	90	2	Air Cooled
OC-30000	30000	2000	1000	1300	R22/R407C	415V,50Hz,3Ph	110	2	Air Cooled
OC-45000	45000	2200	1500	1800	R22/R407C	415V,50Hz,3Ph	220	2	Air Cooled
OC-60000	60000	2400	1650	1800	R22/R407C	415V,50Hz,3Ph	300	2	Air Cooled
OC-75000	75000	2400	1650	1800	R22/R407C	415V,50Hz,3Ph	300	2	Air Cooled

* Higher temperature and capacity models available on request





Modern CNC machines involve high spindle speeds and fast material removal rates which generate a lot of heat. This heat is directly added to the cutting fluid/coolant associated during the process. The high temperature is not advisable as it can cause the following problems.

- Rejected /scrapped components
- Reduced tool life
- Coolant wastage due to increased evaporation
- Greater machine component wear
- Reduced coolant life

Advance Cooling Coolant Chillers are used to maintain precise coolant temperature by rapidly rejecting the heat which added during the machining process. The chillers are used to operate with water as well oil based coolant fluids.



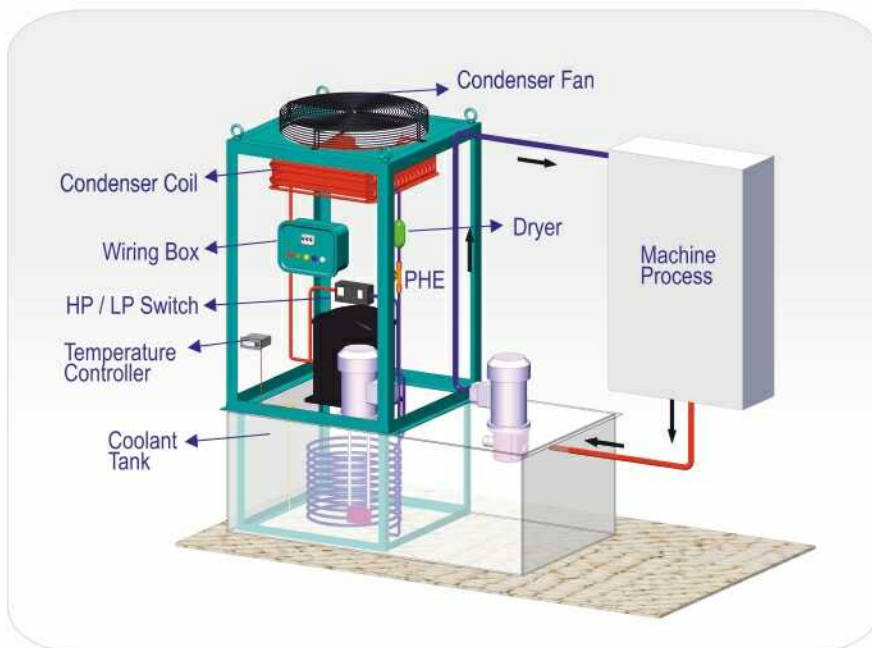
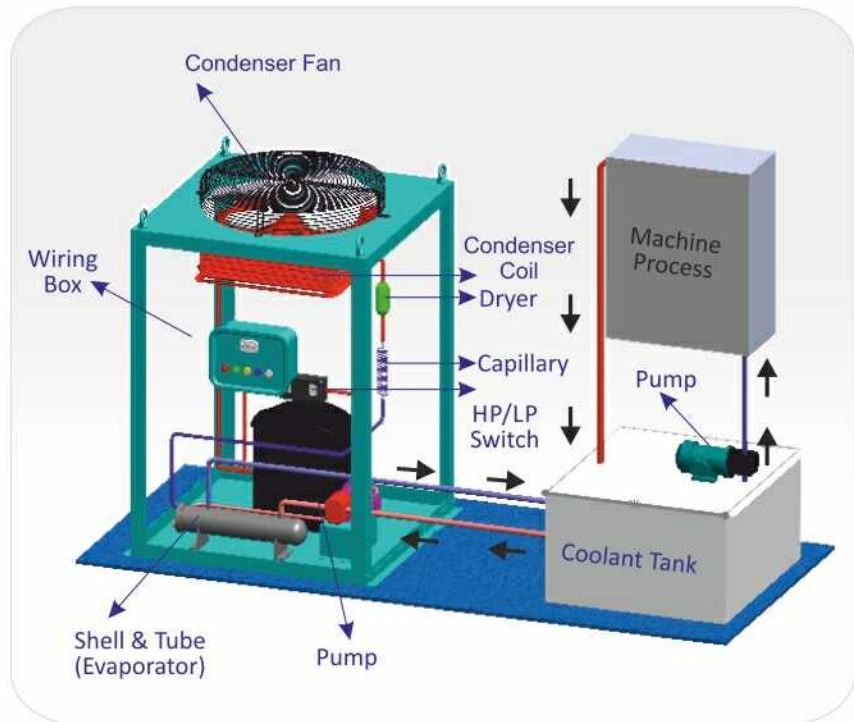
Coolant Chiller

Coolant Chiller

They are available in the following configurations:

Stand Alone Type

Standalone type chillers consists of an inbuilt pump ,which when energized it draws fluid from the remote coolant tank and pumps it through the evaporator in the chiller and back to the tank. The temperature controller senses the temperature of the fluid entering the chiller and controls the refrigeration effect of the chiller thus ensuring the desired fluid temperature in the tank. The cooler should be installed as near as possible to the tank



DIP IN / SUBMERSIBLE TYPE

Dip in Type Chillers are designed to be mounted on top of a tank to cool the fluid that is passing through it. It has an inbuilt stainless steel immersion coil type evaporator which is submerged into the fluid in the tank. An optional small agitation pump can be provided which can continuously moves the fluid around the evaporator coils ensuring uniform heat transfer. The temperature controller senses the temperature of the

fluid in the tank and controls the refrigeration effect of the chiller thus ensuring the desired fluid temperature in the tank

DIP IN Chillers are very popular as they save on valuable floor space and are ideal for installation on tanks where the coolant is filled with containments like chips. Muck etc,. The evaporator coils can be periodically cleaned by simply lifting the chiller from the tank

Salient Features: _____

- Advance Cooling Chillers are ruggedly designed to work 24 x 7 throughout the year in extremely harsh industrial environment.
- Chillers are available in Stand Alone and Dip In type configurations
- Chillers are available in wide range from 0.3 tr to 50 tr cooling capacities and liquid temperature range of +10 to 40 Deg C., (Higher Temperature Models on request)
- Self Sufficient Chillers with built in Refrigeration circuit, optional fluid reservoir, transfer pump and necessary controls.
- Extra large Sized Condenser Coil and Air Filters for operation in High Ambient up till 50 Deg c.
- Plug and Play type fully factory tested, pre wired charged and piped for easy installation.
- Advanced Microprocessor based temperature controller with LED / LCD digital display for temperature status and alarm outputs. Easy to use with tamper proof password facility built in the controller.
- Use of latest energy efficient components like Scroll compressors and PHE heat exchangers along with multiple refrigeration circuit options for enhanced energy efficiency.
- Chiller manufactured in state of art facilities along with ISO 9001: 2008 procedures and thoroughly tested and packaged before dispatching.
- Chiller designed on latest 3D CAD software to ensure components placed for easy access and compact body footprint

Component Features and Options: _____

- Compressors (sealed, semi sealed reciprocatory & scroll)
- Wide selection of Evaporators made up of Stainless Steel tubes:
Openable Coil In Shell type, Shell in Shell type, Shell in Tube type, Coil intank type, Gear / Vane / Trochoid / Centrifugal Pump options
- Air and water cooled Condensers (fin and tube, plate type and shell-in-tube)
- Refrigerant R22 / R134a / R407C
- MS / GI powder coated or stainless steel outer sheet metal body.
- Refrigerant circuit consists of filter dryer, thermostatic expansion valve / capillary, sight glass, accumulator, receiver, solenoid valve, hot gas bypass, Gauges and other controls
- Optional fan speed controller used for operation of chiller at low ambient
- Safety devices include - high / low refrigerant pressure switches Anti freeze thermostat, oil pressure and flow switch, inline filter.
- Built in Electrical control box with MCB, Contactors, Thermal Relay / MPCB / Phase Sequence relay and all status / fault indicating LEDs and audio alarms.
- State of the Art Digital temperature controller with LED / LCD for precise temperature controlling.
- Fixed Setpoint or Differential w.r.t ambient temperature control available. Potential free alarm / control signals and interlocks available for Machine - Chiller Interfacing and Remote Signaling. Optional RS 232 / 485 communication is also available
- High Quality Refrigerant grade copper tubing with internal mirror finishing
- Unit mounted on C Channels or Castor wheels with lockable brakes for easy movement.

Model	Cooling Capacity (Kcal/hr)	W	D	H	Refrigerant	Power	Pump LPM	No. of Ref. Circuits	Condensor
CC-1000	1000	450	750	800	R134a	230V,50Hz,1Ph	7	1	Air Cooled
CC-1500	1500	450	750	800	R22/R134a	230V,50Hz,1Ph	10	1	Air Cooled
CC-2250	2250	600	600	1100	R22/R134a	230V,50Hz,1Ph	12	1	Air Cooled
CC-3000	3000	600	600	1100	R22/R134a	415V,50Hz,3Ph	15	1	Air Cooled
CC-4500	4500	750	750	1100	R22/R134a	415V,50Hz,3Ph	20	1	Air Cooled
CC-6000	6000	750	750	1100	R22/R134a	415V,50Hz,3Ph	30	1	Air Cooled
CC-7500	7500	750	750	1100	R22/R134a	415V,50Hz,3Ph	40	1	Air Cooled
CC-9000	9000	950	900	1300	R22/R134a	415V,50Hz,3Ph	45	1	Air Cooled
CC-11250	11250	950	950	1300	R22/R407C	415V,50Hz,3Ph	60	1	Air Cooled
CC-15000	15000	1000	1000	1300	R22/R407C	415V,50Hz,3Ph	70	1	Air Cooled
CC-22500	22500	1800	1000	1400	R22/R407C	415V,50Hz,3Ph	90	2	Air Cooled
CC-30000	30000	2000	1000	1300	R22/R407C	415V,50Hz,3Ph	110	2	Air Cooled
CC-45000	45000	2200	1500	1800	R22/R407C	415V,50Hz,3Ph	220	2	Air Cooled
CC-60000	60000	2400	1500	2000	R22/R407C	415V,50Hz,3Ph	300	2	Air Cooled
CC-75000	75000	2400	1500	2000	R22/R407C	415V,50Hz,3Ph	300	2	Air Cooled

DIP IN / SUBMERSIBLE TYPE

Model	Cooling Capacity (Kcal/hr)	W	D	Submersible		Refrigerant	Power	Evaporator	No. of Ref. Circuits	Condensor
				H	Stand Height					
SC-960	960	400	400	900	250	R22/R134a	230V,50Hz,1Ph	S. S. COIL	1	Air Cooled
SC-2000	2000	400	500	900	250	R22/R134a	230V,50Hz,1Ph	S. S. COIL	1	Air Cooled
SC-3000	3000	750	750	1390	290	R22/R134a	230V,50Hz,1Ph	S. S. COIL	1	Air Cooled
SC-4500	4500	750	750	1500	400	R22/R134a	230V,50Hz,1Ph	S. S. COIL	1	Air Cooled
SC-6000	6000	750	750	1480	380	R22/R134a	230V,50Hz,1Ph	S. S. COIL	1	Air Cooled
SC-7500	7500	700	700	1340	440	R22/R134a	230V,50Hz,1Ph	S. S. COIL	1	Air Cooled
SC-9000	9000	600	600	1625	325	R22/R134a	415V,50Hz,3Ph	S. S. COIL	1	Air Cooled
SC-11250	11250	1000	1000	1600	500	R22/R134a	415V,50Hz,3Ph	S. S. COIL	1	Air Cooled
SC-12000	12000	1000	1000	1530	430	R22/R134a	415V,50Hz,3Ph	S. S. COIL	1	Air Cooled
SC-15000	15000	1200	1200	1525	425	R22/R134a	415V,50Hz,3Ph	S. S. COIL	1	Air Cooled
SC-18000	18000	1300	1100	1750	450	R22/R134a	415V,50Hz,3Ph	S. S. COIL	2	Air Cooled
SC-22500	22500	1500	1000	1750	450	R22/R134a	415V,50Hz,3Ph	S. S. COIL	2	Air Cooled
SC-30000	30000	2000	1000	1550	450	R22/R134a	415V,50Hz,3Ph	S. S. COIL	2	Air Cooled

* Higher temperature and capacity models available on request (for both Stand Alone and Dip-in)

Applications: _____

- ◆ **Metal Cutting** – Turning, Machining Centers, Grinding, Honing, Broaching, Drilling, Gear Hobbing, Threading etc.
- ◆ **General Purpose Machining Equipment**



High Efficiency Compressed Air filters
(from 3 microns to 0.01 micron)

Untreated compressed air contains water, dirt, oil and other waste particles which will mix together to form unwanted abrasive slurry, this abrasive slurry, generally acidic in nature, will cause wear in pneumatic machinery, valves, orifice etc. causing frequent high maintenance breakdowns and costly air leaks. A typical compressed system wastes approximately 35% air due to "leakages" which are mainly caused due to corrosion.

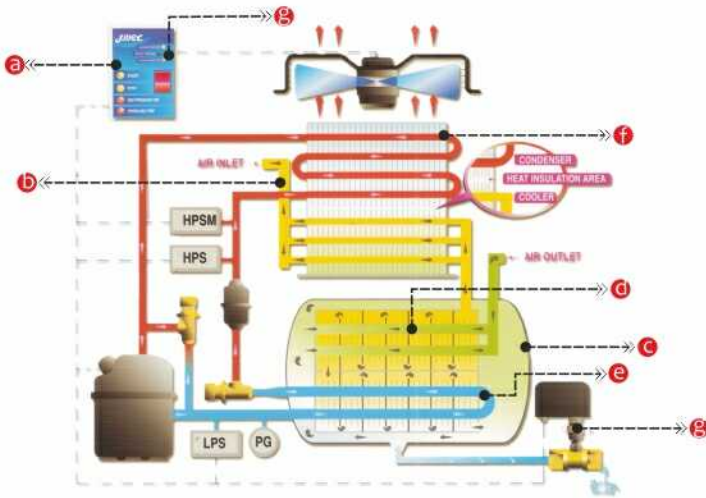
All ferrous metals need two components to cause corrosion; moisture and oxygen. Untreated compressed air contains both. This corrosion attacks piping, joining elements and also the equipment where compressed air is being used. The end result is leakages and malfunctioning of expensive equipment. Rusting commences on ferrous metals when the relative humidity (RH) of air exceeds approximate 30%. However, at this point oxidation is slight and "serious" corrosion starts when RH exceeds 60%. It therefore seems very logical to keep RH value in the air at or below 60%.

It is thus very essential to install a suitable Air Purification System to meet individual needs.

Advance Cooling Systems Pvt. Ltd. has teamed up with the experts in this field, M/S Jia Meng of Taiwan (with heavy presence all over the world) to give you a Complete Air Purification System (CAPS).

Compressed Air Dryer

Compressed Air Dryer



Our **Refrigerated Compressed Air Dryer** consists of :

- a)** A completely automatic self contained Logic controller with standard wiring requiring “no adjustments”
- b)** A “pre-cooler” with excellent air distribution and very low pressure drop, built in the refrigeration condenser coil, with thermal isolation, to cool the incoming compressed air
- c)** A compact Stainless steel (rust free) high pressure vessel. **Two-in-one** design containing Air-to-Air heat exchanger and a high efficiency evaporator
- d)** Air-to-Air Heat Exchanger made out of threaded bronze tubes with aluminium fins and diversion plates plus Reverse Channel design to give better cooling efficiency, higher outlet air temperature and lower energy consumption

efficiency, higher outlet air temperature and lower energy consumption

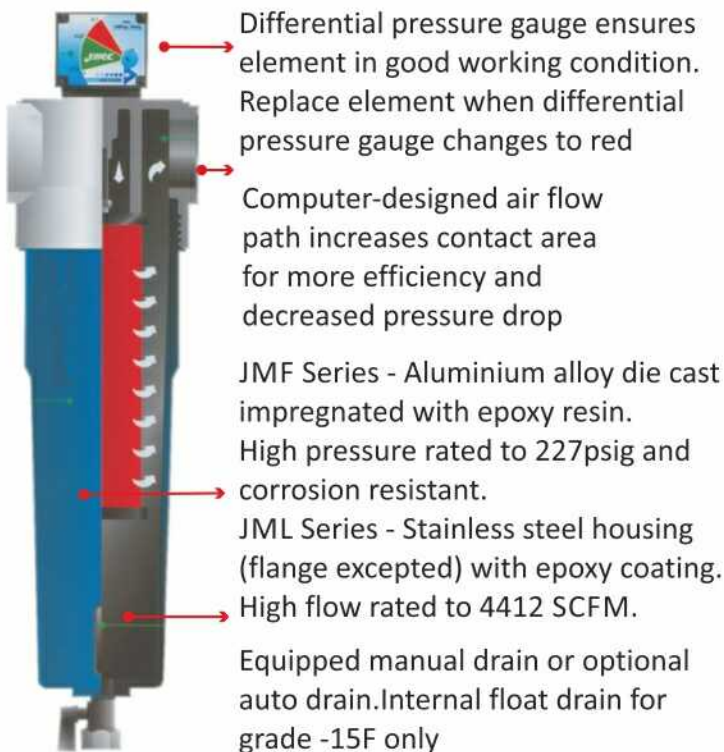
e) Evaporator made out of wave type aluminium fins with diversion plates to increase the contact surface of air and refrigerant so as to give optimum cooling efficiency

f) A very large intake condenser with “blow-up” design for better heat rejection and good ventilation and

g) A “motor-driven” (no more burnt solenoid coils) timer controller electronic drainage with anti-blockage large ball valve.

Available from airflow capacities of 18 scfm to 18,000 scfm

High Efficiency Compressed Air Filter



Compressed Air Dryer

MODEL	A2E-05 SG	A2E-08 SG	A2E-10 SG	A2E-10GP	A2E-15GP	A2E-25GP	A2E-40GP	A2E-60GP	A2E-75GP	A2E-100GP
Max. capacity (SCFM)	18	23	35	35	70	106	161	238	311	440*
Connection (inch)	1/2" PT	1/2" PT	3/4" PT	3/4" PT	1" PT	1" PT	1-1/2" PT	1-1/2" PT	2" PT	2"PT
Power source	220V, 1 Phase, 50 Hz.								415V, 3 Phase, 50 Hz.	
Ref. Comp. (kW)	0.26	0.26	0.5	0.5	0.5	0.95	1.2	1.9	2.6	2.6
Operating current (A)	1.2	1.2	2.4	2.4	3	4.3	5	7.5	3.5	3.5
Full-load current (A)	1.5	1.5	2.75	2.75	3.35	4.9	5.7	8.7	4	4
Refrigerant	134a						R22/R407C			
Fan motor (w)	55			60	60	60	180	250	400	400
Dimension (mm)	H475 W210 D600			H735 W380 D500	H775 W380 D600	H775 W380 D600	H960 W500 D700	H960 W500 D700	H1050 W540 D1020	H1050 W540 D1020
Net weight (kg)	19	21	23	40	50	54	83	93	127	173
Air Inlet Temperature	5 to 60 Deg. C				5 to 80 Deg. C					
Evaporator	Tube-in-Tube			Stainless Steel Shell with tube & fin plus Air-to-Air Heat Exchanger						
Max. Working Pressure	1.6 Mpa			1.0 Mpa						
(Standard Models)				High Pressure Models up to 5.0 Mpa						

Operating Scope	Inlet temperature : 5~80°C (@60°C) Ambient temperature : 2~45°C (@38°C)	Working pressure : ≤ 1.0MPa (@0.7MPa) Dew Point : 2~10°C (@10°C)
Remarks	☆ Design condition @ 50Hz : 1. Ref. comp. (Kw) : @ ET10°C, CT54°C 2. Operating current (A) : @ET5°C, CT45°C 3. Full-load current (A) : @ET10°C, CT54°C ☆ Max. working pressure 1.0MPa, high pressure available H1 (1.1-2.0MPa) Designate NH1P. Ex. A2E-15NH1P H2 (2.1-3.0MPa) Designate NH2P. Ex. A2E15NH2P H3 (3.1-4.0MPa) Designate NH3P. Ex. A2E-15NH3P H4 (4.1-5.0MPa) Designate NH4P. Ex. A2E-15NH4P P.S. High pressure inlet temperature @42°C	

DESIGN CONDITION	CORRECTION FACTORS						
Working Pressure : 0.7MPa	0.4	0.5	0.6	0.7	0.8	0.9	1.0
A. Correction Factor	0.63	0.75	0.87	1.00	1.06	1.12	1.17
Dew Point : 10°C	2	5	> 10	Formula: Actual capacity = JM Capacity x (A x B x C x D x E) Corrected Capacity = Demanded Capacity ÷ (A x B x C x D x E)			
B. Correction Factor	0.65	0.85	1.00				
Ambient Temperature : 38°C	42	40	< 38				
C. Correction Factor	0.90	0.95	1.00				
Inlet Temperature : 60°C	80	70	< 60				
D. Correction Factor	0.88	0.94	1.00				

*Higher Models available upto 18,000 SCFM

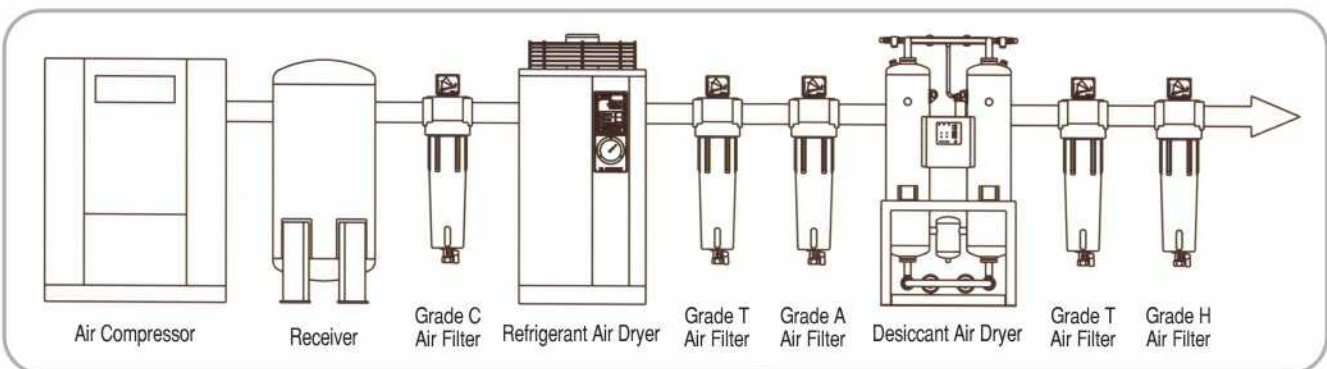
Specifications for Compressed Air Filter

Series	Filter Model	Max. Capacity (SCFM)	Connection (inch)	Dimension (inch)		Weight (lbs)	Replacement Element Part # x Q'ty
				Diameter	Length		
JMF (Ported)	"Grade"-15F	85	1"PT	4.13	12.40	2.86	F1E x 1
	"Grade"-40F	194	1-1/2"PT	5.43	16.73	3.08	F2E x 1
	"Grade"-60F	286	1-1/2"PT	5.43	25.39	7.26	F3E x 1
	"Grade"-100F	530	2"PT	5.79	26.77	9.24	F4E x 1
	"Grade"-150F	880	2-1/2"PT	5.91	33.66	18.04	L1E x 1
JML (Flanged)	"Grade"-150L	880	3"FL	13.78	39.37	99.00	L1E x 1
	"Grade"-350L	1760	4"FL	17.72	43.31	154.00	L1E x 2
	"Grade"-500L	2640	5"FL	21.65	47.24	242.00	L1E x 3
	"Grade"-700L	3520	6"FL	22.83	47.24	330.00	L1E x 4
	"Grade"-900L	4400	6"FL	23.62	51.18	462.00	L1E x 5

Correction Factor

For Model determination, multiply Correction Factor to working pressure other than 100 psig

Inlet Pressure (psig)	43	57	71	85	100	114	128	142	156	170	185	199	213	227
Correction Factor	0.65	0.76	0.85	0.93	1.0	1.07	1.13	1.19	1.25	1.31	1.36	1.41	1.46	1.56



"C" : Grade C filter before air dryer for all contamination removal to 3 micron and oil aerosol removal to 5 ppm.
"T" : Grade T filter before air dryer for all contamination removal to 1 micron and oil aerosol removal to 0.5 ppm.
"A" : Grade A filter after Grade T filter for all contamination removal to 0.01 micron including water and oil aerosol.
"H" : Grade H filter after Grade T filter for all contamination removal to 0.01 micron including water charges oil aerosol and hydrocarbon odor.

We have service tie-ups with local representatives at Ludhiana, Jalandhar, Mohali, Rudrapur, Haridwar, Kashipur, Kanpur, Jaipur, Jodhpur, Kolkatta, Indore, Bhopal, Hyderabad, Coimbatore, Aurangabad, Kolhapur, Nashik, Nagpur, Vapi, Surat, Rajkot and Baroda. Kindly contact the Head Office in case of service related issues in these areas.

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Tel.: 020-765 6545

AHMEDABAD

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