

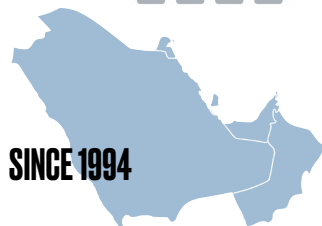
ASKA C9-CHILLERS CATALOGUE



اسكا للهندسة التكييف



RANGE 1 TR - 500+ TR



CONTENT

Introduction.....

Legend.....

General Data.....

Main Component Features.....

Specification.....

Product Feature.....

Location and Space Requirements.....

Recommended Clearance.....

Water Piping Measures.....

Typical Wiring Diagram.....

Notes.....

Contact Sheet.....



ASKA reserves the right to change, in part or in whole the specifications of its Air Conditioning Equipment at any time in order to add the latest technology. Therefore, the enclosed information may change without any prior notice.

INTRODUCTION

Aska - Cloud 9 Series environment friendly chillers are designed and manufactured to provide utmost performance, efficiency, reliability, to meet the requirements and long life from Gulf's severe climatic condition.

Cloud-9 series chiller are available from 1 TR to 500+ TR, we customize the chillers according to the clients need.

Cloud-9 Series Chillers have low noise and minimum vibration ideal for vast range of applications including hotels, high-rise buildings, stores, hospitals, and modern cooling applications of modern manufacturing industries.

Cloud-9 units are factory assembled, leak tested, evacuated, internally wired and fully charged. Every unit is fully tested before delivery and is ready for installation.

Cloud-9 Chillers are designed and manufactured as per Aska Quality, Environment, Occupational, Health and Safety Management Systems that confirms with governmental laws and regulations

Cloud-9 provides qualified service and stock of replacement parts in all major cities of the G.C.C. countries, Egypt, Jordan and Africa.

LEGEND

TR - Tons	F - Fahrenheit
BTU - British thermal units	C - Degree Celsius
kW - Kilowatts	dB(A) - A-weighted decibel
Amps - Ampere	GPM - Gallons per minute
HP - Horsepower	Inch - Inches
Mm - Millimeter	Kgs - Kilogram
Cm - Centimeter	Ph - Phase

GENERAL DATA

High COP

Shell and Tube Evaporators, which are very efficient and novel in technology, are used in High COP Aska - Cloud-9 Series chillers to significantly reduce running costs. High

COP is made possible by the new generation of Shell and Tube Evaporators and their ideal profile.

Higher part load efficiencies are provided by steeples capacity control because it offers accurate capacity as needed by the system load. Modern microprocessor control, which precisely monitors the water temperature and regulates the compressor in accordance, allows the compressor to be loaded from 25 or 35 to 100% of capacity depending on the necessity.

Maintenance Free Operation

Aska's Cloud-9 Series chillers are available in a compact design and are delivered as a complete unit that is ready for wiring and piping. Because there are fewer moving parts in our compressors, they operate almost completely without maintenance. Longer compressor operating times are made possible by special bearings, which eliminate the need for maintenance.

Wide Operating Range

Aska's Cloud-9 Series chillers are designed to operate at a wide range of ambient temperature along with client's special requests.

Customization

Cloud-9 chillers can be customized according to customer's needs ideally suited for Hotels, high rise buildings, stores, hospitals and to any modern cooling applications.

MAIN COMPONENT FEATURES

Compressors

High performance and high efficiency screw / scroll compressors are used in Aska's Cloud-9 Series Chillers. Emerson Copeland and Danfoss are our affiliated brands (subject to availability) Our compressors are equipped with protection against oil level changes, phase failure, motor winding temperature, discharge temperature, and phase reversal (All compressors for above 50 TR Water Chiller).



Condensers

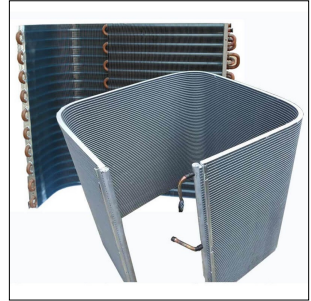
To achieve optimal heat transfer, condenser coils are made of seamless Hi-x copper tubes that are mechanically attached to aluminium fins. At the plant, every coil is pressure tested.

To prevent coil corrosion and promote longer equipment life, condenser fin materials should be matched with site circumstances.

Other alternate condenser fin materials are available for various application needs, including:

- Copper fins;
- Pre-coated aluminium fins;

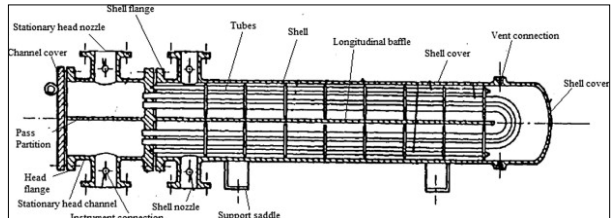
Polyurethane resin that is hydrophobic has been pre-coated. In addition to typical coil construction, this alternative offers significant corrosion protection. This coil is a self-etching, high-performance, modified epoxy finish that was created especially to coat and shield surfaces made of copper and aluminium. The coating is also perfect for shielding both ferrous and non-ferrous materials.



Evaporator

The Aska - Cloud-9 series uses a novel spray evaporator technology.

Spray evaporators have two separate refrigerant circuits with two water passes, and the water cycles in the tubes with the refrigerant outside in the



evaporator shell. Each circuit has a single sight glass on the front and back. Copper tubes and carbon steel are used to construct the evaporator shell.

Axial Fans

To control the operation of these motors, the motor starters are positioned on the chiller unit control panel, which is where the motors are factory wired. At the factory, each fan is dynamically and statically balanced. A appropriate acrylic coated fan protection is



included with the complete fan assembly.

Fluid Water Pump

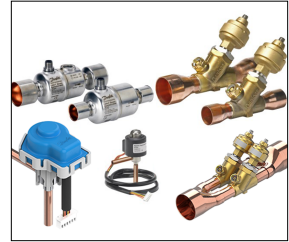
Aska's Cloud-9 Series uses multiple partnered brand for water circulation pump such as Prakash, Pedrollo, Espa (subject to availability and customer's request)

Our pumps are guaranteed to be providing high pressure, long life, power saving, easy to access and minimal maintenance.



Electrical Expansion Valve

Electronic expansion valves are used in the Cloud-9 series of chillers to precisely control refrigerant mass flow. EER (Energy Efficiency Ratio) is improved in full and half load conditions by our electronic expansion valve. Additionally, it expands the range of operating conditions and enhances temperature management.



Control & Electrical parts

Aska's Cloud-9 series chillers comprises of following parts: Digital thermostat, pole contractor, time delay, running capacitor, suction pipe, discharge pipe, careener, capillary, strainer, contractor wiring, expansion valve, solenoid valve, dryer, overload, timer, high pressure / low pressure gauges, low pressure / high pressure cut out switches, oil pressure cut out switch. Our partnered brands are Carrier, Schneider, Emerson copeland (subject to availability)



Structure / Casing Frame

In Aska's Cloud-9 series chillers, the unit casing is built of zinc-coated galvanized steel sheets that adhere to JIS-G 3302 and ASTM A 653, which are then phosphatides and baked after receiving an electrostatic powder coat of roughly 60 microns.

According to ASTM B117, this finish and coating can withstand a 1000-hour test with 5% salt spray at 95°F (35°C) and 95% RH. On robust structural steel skid channels sprayed with one coat of galvanized primer and one coat of black enamel, Cloud-9 chillers are assembled. The box is built to be simple to handle during transportation and sturdy during setup and use.

Refrigerant

Aska's Cloud-9 series use R-22 / R407C.

Refrigerant piping

The copper piping used in the refrigeration circuit is of ACR grade. A filter dryer, electronic expansion valve, and shutoff valve are all parts of a refrigeration circuit. Closed cell pipe insulation with a 12" (13mm) wall thickness is used to insulate the suction line of the refrigeration circuit.

Control Panel

Heavy gauge sheet steel with a baked phosphatized powder-coated finish is used to construct the unit mounted chiller control panel enclosure. For ease of access and security, a hinged access door and key-fastener are supplied. The panel has 220V and 240V controls and is factory wired in line with NEC 430 and 440. It is also branded and tagged.

- Compressors have star-delta start technology.
- Individual contractors for the compressor and condenser fan motors.
- For condenser fan motors and compressor circuit breakers, thermal magnetic circuit breakers.
- Voltage monitoring module for incoming voltage protection from under-voltage, over-voltage, phase loss, phase reversal, and phase imbalance.
- For the control circuit, a circuit breaker.
- Selector switch for local, remote, and off.
- Graphical display on a master board for microprocessors.
- Expansion boards for microprocessors as necessary.
- Control boards for electronic expansion valves.
- Regulatory Relays.
- On/off switch for a control circuit.
- Pump down switches and the on/off switch for the control circuit.
- Volt-free contacts for indicators of run, common fault, and auto mode.
- Voltage-free contact can be accepted for remote start/stop.
- Bus bars and terminal blocks for power and control.

SPECIFICATION FOR 1 TR - 100 TR

Aska's Series - Cloud 9 series was established in 1994 and since its inception we are working to serve our best to satisfy the water chilling need per customer's requirements. We are manufacturing water chillers in wider ranges from 1 Ton to 500 Ton as a standard design and higher design as per project specification.

SPECIFICATION	UNIT	C9-1000	C9-1500	C9-2000	C9-2500	C9-3000	C9-4000	C9-5000
Nominal	TR	1	1.5	2	2.5	3	4	5
	BTU	12000	18000	24000	30000	36000	48000	60000
	kW	3.5	5.25	7	8.75	10.5	14	17.5
Power	220V, 50Hz, 1Ph/ 60Hz						380V, 50Hz, 3Ph/ 60Hz	
Electrical	kW	1.75	2.62	3.5	4.3	5.25	5.2	6.5
	Amps	8	11	13	16	19	10	12
Thermostat	Manual / Digital							
Water flow rate	GPM	2.4	3.6	4.8	6	7.2	9.6	12
Pipe line	As per the customer							
Compressor	Brand	Copeland / Danfoss - Made in France						
Quantity	1							
Type	As per your specification (Piston / Rotary / Scroll)							
Refrigerant	R22 / R407 / R410 / R134							
Evaporator	Type	Shell & tube / PHE / Coil						
Brand	Aska - Made in UAE							
Condensor	Type	Aluminiums fins & copper tube / Water cooled / Copper draft force						
Coating	Here-site. / Anti-corrosion							
Fan	Type	Axial with protection grill						
Quantity	1							2
Diameter	Mm	300	400					
Air Throw	Top / Side throw / without fan if chilled water available							
RPM	1300							
Water pump	Type	Prakash, Pedrollo, Espa						
Water pump	Hp	1/2 HP / As per the customer						
Inlet and outlet	Inch	1" / Male / Female / Union						
Dimensions	Mm	575 x 575 x 800		1000 x 600 x 800				
Weight	KGs	65	75	85		90	105	115
Safety devices	High & low pressure switch, time delayer, antifreeze thermostat, flow switch							

SPECIFICATION	UNIT	C9-6000	C9-7500	C9-10000	C9-12500	C9-16000	C9-20000	C9-25000
Nominal	TR	6	7.5	10	12.5	16	20	25
	BTU	72000	90000	120000	150000	192000	240000	300000
	kW	21	26.25	35	43.75	56	70	87.5
Power	400V, 50Hz, 3Ph / 60Hz							
Electrical	kW	8	10	13	17	21	26	33
	Amps	13	15	18	23	30	40	55
Thermostat	Manual / Digital							
Water flow rate	GPM	15	18	24	30	38	48	60
Pipe line	As per the customer							
Compressor	Brand	Copeland / Danfoss - Made in France						
Quantity	2							
Type	As per your specification (Rotary/ Piston/ Scroll)							
Refrigerant	R22 / R407 / R410 / R134							
Evaporator	Type	Shell & tube / PHE / Coil						
Brand	Aska - Made in UAE							
Condensor	Type	Aluminiums fins & copper tube / Water cooled / Copper draft force						
Coating	Here-site / Anti corrosion							
Fan	Type	Axial with protection grill						
Quantity	2							3
Diameter	Mm	500				630		
Air Throw	Top / Side throw / without fan if chilled water available							
RPM	1300							
Water pump	Type	Espa - Made in Spain / Prakash - Made in India						
Water pump	Hp	As per the customer						
Inlet and outlet	Inch	1" / Male / Female / Union				2" / Male / Female / Union		
Dimensions	Mm	980 x 700 x 1400		1180 x 880 x 1150		2000 x 1100 x 2000		
Weight	KGs	200	240	250	260	500	600	700
Safety devices	High & low pressure switch, time delayer, antifreeze thermostat, flow switch							

SPECIFICATION	UNIT	C9-30000	C9-40000	C9-50000	C9-60000	C9-75000	C9-100000
Nominal	TR	30	40	50	60	75	100
	BTU	360000	480000	600000	720000	900000	1200000
	kW	105	140	175	210	262.5	350
Power	400V, 50Hz, 3Ph / 60Hz						
Electrical	kW	39	52	65	78	98	130
	Amps	60	80	110	120	140	160
Thermostat	Manual / Digital						
Water flow rate	GPM	72	96	120	144	180	240
Pipe line	As Per the customer						
Compressor	Brand	Copeland / Danfoss - Made in France					
Quantity	2		4	6			8
Type	Piston						
Refrigerant	R22 / R407 / R410 / R134						
Evaporator	Type	Shell & tube / PHE / Coil					
Brand	Aska - Made in UAE						
Condensor	Type	Aluminiums fins & copper tube / Water cooled / Copper draft force					
Coating	Here-site						
Fan	Type	Axial with protection grill					
Quantity	4			6			12
Diameter	Mm	630					
Air Throw	Top / Side throw / without fan if chilled water available						
RPM	1300						
Water pump	Type	Espa - Made in Spain / Prakash - Made in India					
Water pump	Hp	As per the customer's specification					
Inlet and outlet	Inch	2" / Male / Female / Union		3" / Male / Female / Union			
Dimensions	Mm	2000 x 1100 x 2000		2200 x 2000 x 2000			
Weight	KGs	750	1400	1700	2500	2650	40000
Safety devices	High & low pressure switch, time delayer, antifreeze thermostat, flow switch						

PRODUCT FEATURES

- Ideal for cooling water in various process applications such as: Paper (manufacturer, printing, card boards, labels, BOPP, PET plastic film), Air conditioning (civil, industrial, process, domestic), Steel working machinery (CNC, water jet, hydraulic power packs), Food (beverages, bakeries, confectionery, chocolate, storage), Plastics (injection, blow moulding, extrusion, film extrusion, thermoforming, PET/PC moulding), Medical Machinery (CT scan, Xray, MRI machines), Laser (welding, profiling, cutting, optics, medical, marking, aesthetics), Chemical (oil, gas, petrol chemical, paints, solvents, temperature control), Mechanical (welding, cutting, profiling, polishing, rolling, grinding, water jet cutting machines), Other (wood, ceramic, gold & silver, pharmaceutical, textile) etc.
- Easy to install.
- Optimally sized to minimize power consumption.
- Single point power connection (three phase + 1 neutral)
- Heavy duty Emerson copeland tropicallized reciprocating / scroll compressors (made in France, USA, China, etc)
- Built-in integrated centrifugal circulation pumps (Made in India, Spain, Italy)
- Environmental friendly, energy efficient and operation friendly refrigerant - R-134A/ R-404A/ R-407A/ R-410A/ R-22/ R410 available as per client's request.
- Generously sized 3-sided copper tube / aluminum finned air cooled condensers with anti-corrosive coating.
- High efficiency, brazed tube heat exchangers.
- Heavier frame construction (made from heavy gauge galvanized steel, epoxy powder coating for extra corrosion resistant) for greater resistance to shipping and handling.
- Acoustic - composite axial discharge fans - for low noise levels and higher efficiency.
- Adjustable time - delay switch.
- Standard weather - proof enclosures.
- Temperature control Manually adjustable 5 degree C to 30 degree C (Note: Digital thermometer can be provided on customer's request)
- Warranty terms and conditions: 1 - year full unit warranty against any manufacturing defect and 5 - years on compressor (Note: Refer to warranty card for details)

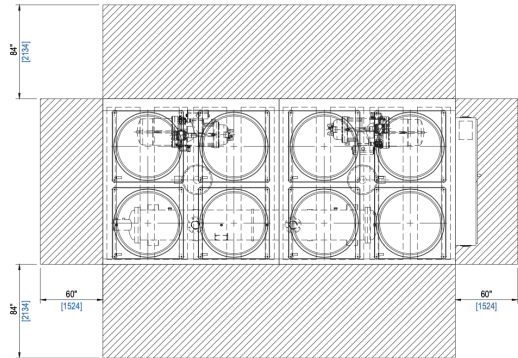
LOCATION AND SPACE REQUIREMENTS

Certain safety measures should be taken before installation in order to improve system performance and operating efficiency.

1. The air discharge shouldn't be blocked in any way.
2. The unit cannot be put in a pit or close to a parapet wall that is higher than the height of the unit.

3. Position the unit so that the direction of the dominant winds is parallel to its length. If this orientation is not practical, a wind-reflecting shield should be taken into consideration.

4. Allow enough space around the device to allow for service access and prevent coil starvation. Refer to the illustration below for suggested clearances.



RECOMMENDED CLEARANCES

To ensure efficient circulation of air that is rejected by the condensers and to give enough space for unit access for servicing and maintenance, it is essential that the units be located with enough free space around them. If the condenser-rejected air comes into contact with any obstructions that raise the temperature of the surrounding air, recycling of air is a possibility.

If the air exit is blocked, the air circulation over the entire heat exchange region will be compromised. These circumstances result in a decrease in the coils' ability to exchange heat, which raises the compressors' discharge pressure. Due to this, capacity is lost, and compressor power input increases.

To prevent airflow reversal, units shouldn't be totally covered by a higher uninterrupted wind screen. If such a setup is unavoidable, it is necessary to construct an exhaust hood or duct that is appropriately designed, has the same height as the surrounding shield, and does not apply any additional pressure to the fans. SKM should be consulted for the appropriate permission for installations requiring greater than three chillers.

FOUNDATION

Provide a steel base robust enough to support the working weight of the unit, or a flat, solid concrete foundation. SKM Air Conditioning is not responsible for any damages or issues with the equipment brought on by flawed foundation design.

WATER PIPING MEASURES

Aska advises adhering to the guidelines and practices for chilled water piping established by the local government since they can give the installer access to the necessary construction and

safety requirements. Minimum bends and horizontal piping levels should be used in water pipe design. The following elements should be present:

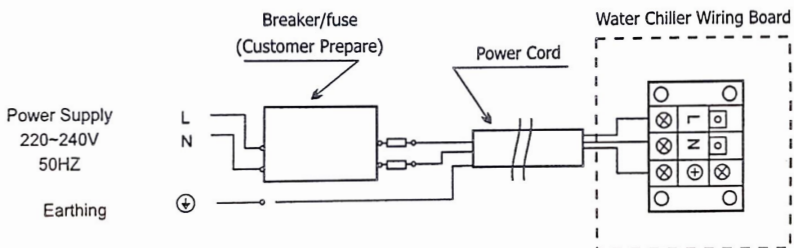
1. Pressure and temperature gauges in the water pipework entering and exiting the chiller for unit servicing and commissioning. The level of all pressure gauge installations must be the same.
2. Vibration eliminators to reduce sound and vibration that is transferred to the building at the entry and exit points of chilled water piping.
3. A pipe strainer in the evaporator's piping prevents water debris from entering the evaporator and maintains the chiller's performance.
4. To ensure that there is a sufficient flow of water into the evaporator, a water flow switch in the chilled water pipe leaving the system must be wired to the terminals provided in the control panel. This will stop the evaporator from freezing up when the water flow is cut off and stop the compressor from lagging when it first starts up.
5. Install a cut off valve on the chilled water piping that enters and exits the unit to isolate it from the piping system when doing maintenance or servicing.
6. As the temperature rises, the expansion tank adds room to the chilled water piping system and, in addition, it maintains a positive pressure within the system's working parameters.
7. To remove air from the chilled water system, there are air vents at high locations in the system.

Before completing the final connection to the unit, flush any chilled water pipework. Aska advises using a water treatment specialist's services to identify the kind of treatment that is required. Inefficient operation and tube damage can result from scaling, erosion, corrosion, or algae caused by improperly treated or untreated chilled water. Aska disclaims responsibility for any harm brought on by improperly treated or cooled water.

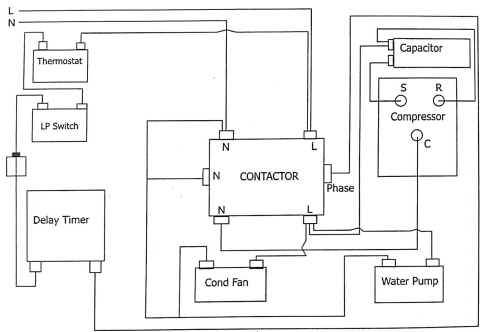
Before beginning the chiller, run the pumps for 2 to 3 minutes to make sure there is no freezing that could harm the evaporator.

TYPICAL WIRING DIAGRAMS

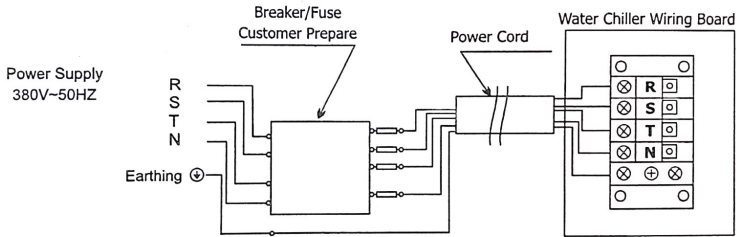
A. POWER SUPPLY FOR 220v 50Hz



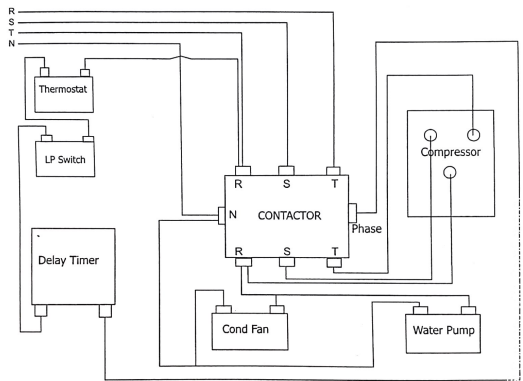
B. WIRING FOR 1 PHASE WATER CHILLER - 1TR/ 1.5TR/ 2TR/ 2.5TR



C. POWER SUPPLY FOR 380v 50Hz



D. WIRING FOR 3 PHASE WATER CHILLER - 3TR/ 4TR/ 5TR



*HIGHER CAPACITY
DIAGRAMS ARE
AVAILABLE IF REQUESTED
BY CLIENTS

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.