

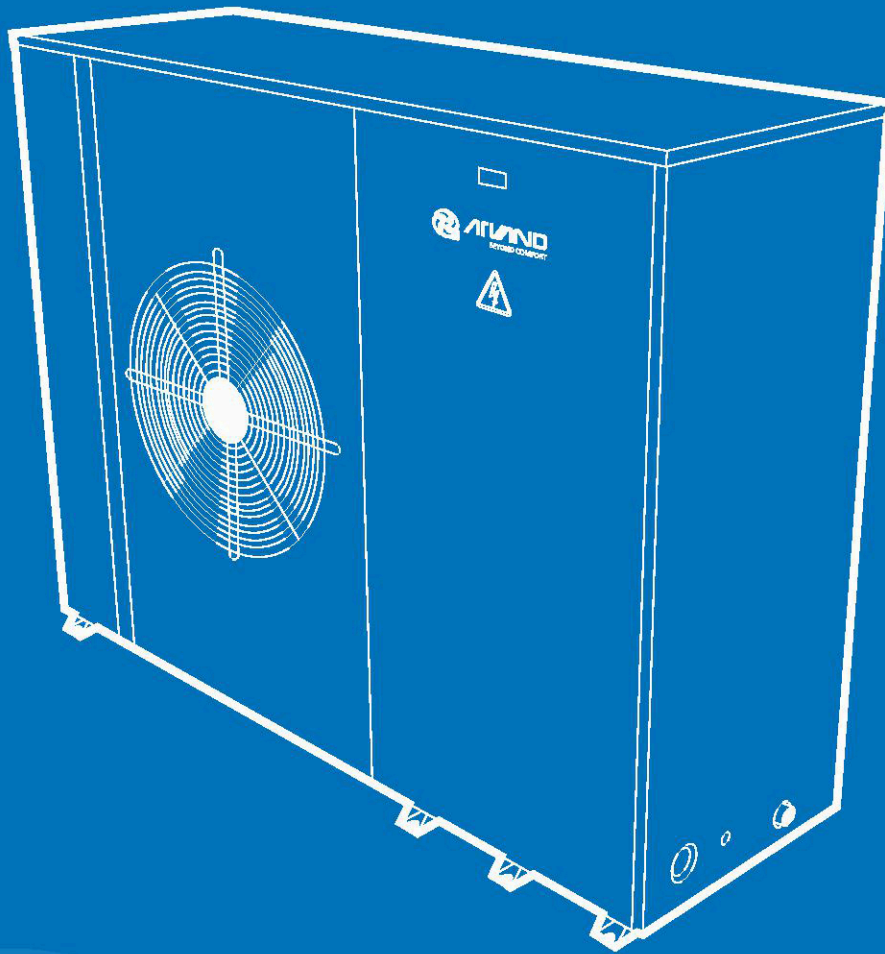


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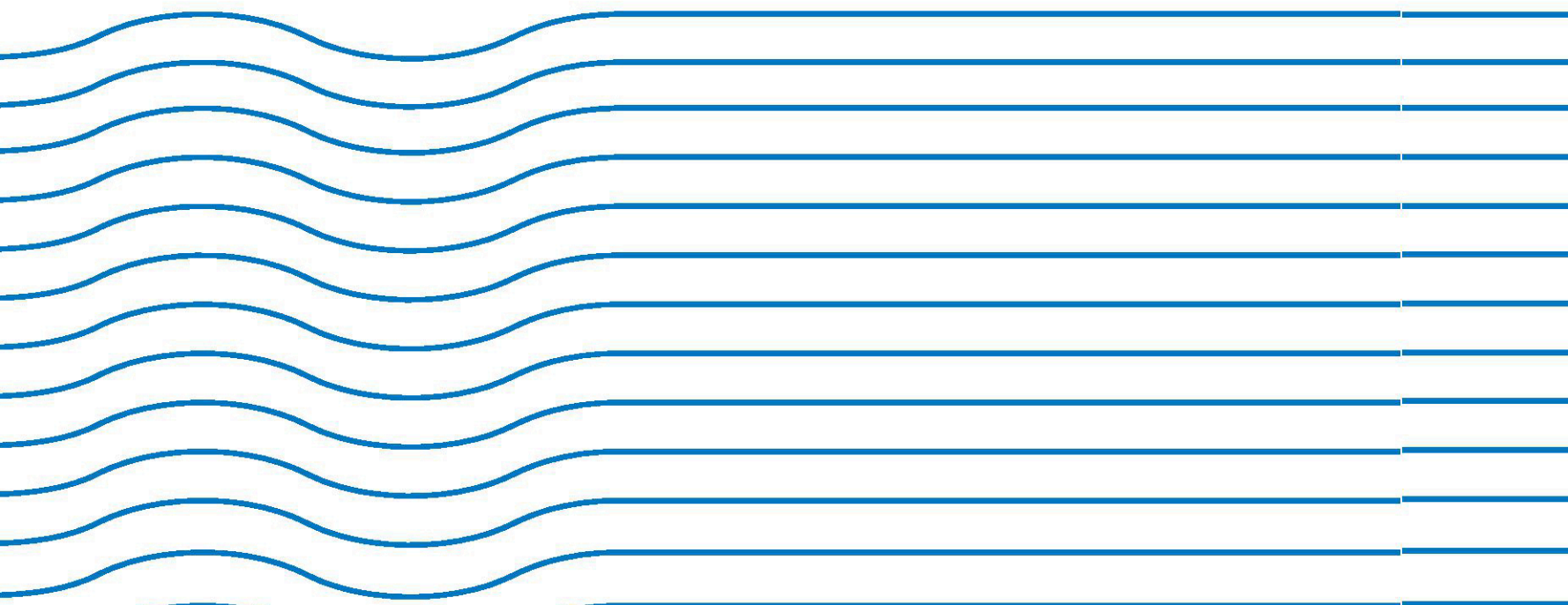
TECHNICAL CATALOGUE



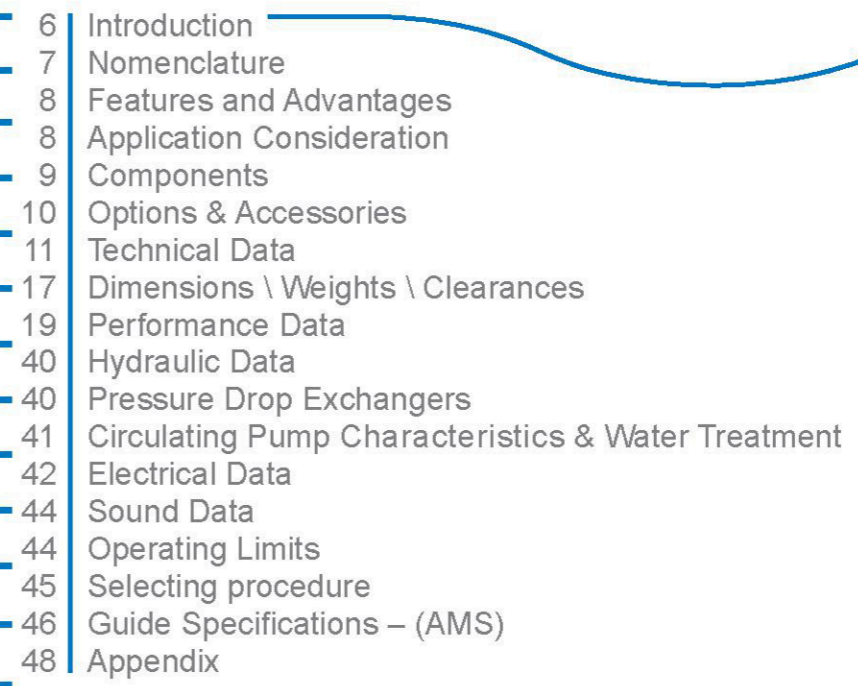
Mini Chiller

CT-02-38/01

2022

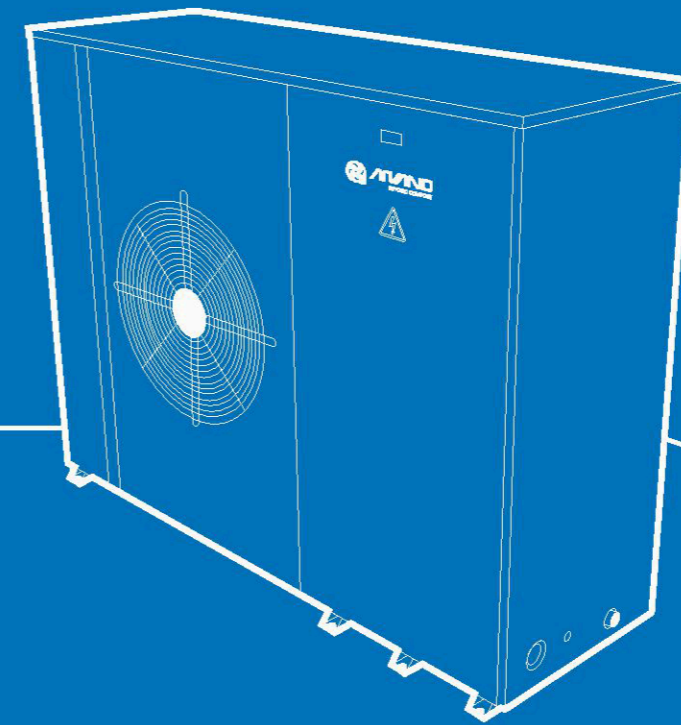


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AMS MINI CHILLER

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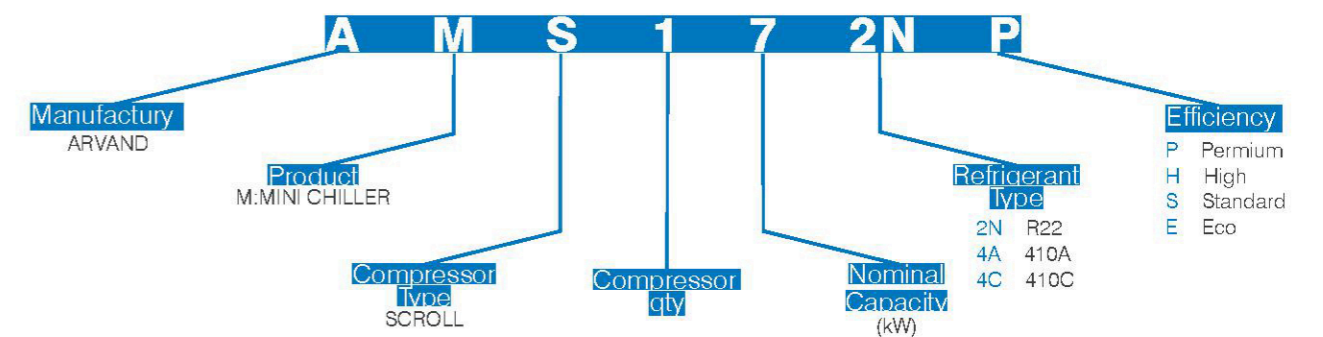
INTRODUCTION

For years, Yekta Tahvīyeh Arvand has earned a reputation for providing the industry with various highest qualities and most technologically advanced air conditioning systems. Now Arvand is proud to introduce the new generation mini air-cooled chillers, AMS Mini Chiller series. Inherited from the advantage of the earlier product experiences and introduced the most up-to-date technology, the new AMS Mini Chiller series are designed with the always-in-mind concept to satisfy customers requirements of high efficiency, comfort, safety, intelligence to maximum extent. Providing the features such as high efficiency, low noise, compactness, simple operation, safety running, easy installation and maintenance etc., the unit is widely equipped in plant, residential apartment, station, hotels, villas, office building, top-level apartment as well as process cooling application.

In order to response the country's air conditioning industry requirement and support national production, AMS mini chillers series with three different types of refrigerants, including R22, R407c and R410A, in two single and two-compressors models are produced by Yekta Tahvīyeh Arvand company. These models can be used to provide cooling for residential and commercial buildings in the capacity range of 6 to 42 kW (1.7 to 12 TR). All units are designed for outdoor installation and equipped with brazed plate evaporator, programmer controller, air cooled condenser, thermostatic expansion valve, axial fans with safety protection grilles, filter dryer, service valve, pump, expansion tank, storage tank, high-pressure switch, temperature sensor and etc. Also, Arvand's mini chillers are equipped with variable speed fans so that the units can keep high efficiency working when the ambient temperature decreases. In addition, without decrease efficiency in any condition variable speed fans can help to comfort of the people in residential and commercial building. The type of units control system is a programmer controller and capable to connect the building management system (BMS) through the Modbus protocol.



NOMENCLATURE



Features and Advantages

Superior Performance

- Stringent quality control and component selection ensure performance and reliability. Major components are rigorously tested and qualified prior to usage in the machine.
- Every machine design has passed many hours of rigorous testing to ensure the machine reliability, durability and quality.
- Scroll compressor brings much higher energy efficiency. Dedicated water pump particularly designed for air conditioning engineering is operating steadily with minimum vibration and noise.
- Extensive research work coupled with world leading manufacturing technology has caused the new design with superb performance and high efficiency.
- Proper efficiency operation in wet climates and high ambient temperatures up to 52 °C.
- Equipped with Danfoss & Copeland (optional) Fixed scroll compressor.

Simple To Operate

The AMS Mini Chiller is complete with intelligent microprocessor controller and temperature sensor to automatically control the operation to its optimum condition, making it very simple to operate. All temperature settings are finished before shipment. The only thing for user to do is to start the unit by pressing the ON/OFF button after ensuring unit proper function, then every operation can be automatically performed by the unit itself.

Safety Control

The microprocessor-based controller automatically directs system ON or OFF by processing the water temperature feedback. If the water temperature falls to unacceptable low point, the controller automatically shut off the system to prevent hydraulic system internal freeze for unit safety operation. Meanwhile, the microprocessor-based controller automatically monitors every component operating status and malfunction, and feedback it to indoor controller to greatly ease the work of status monitor and troubleshooting.

Easy Installation

The machine has been designed with easily installation and complete machine in factory with high quality martial component.

Threaded fitting is provided for easy water piping connection on site.

Wonderful design with outdoor installation capability.

All Weather

- The cabinet is made of hot dip galvanized steel sheet, coated with baked polyester powder to ensure the units extra durability in all climates against sun, rain, wind corrosion.
- The machine uses high quality parts to ensure durability in various climate conditions.
- Hydrophobic blue or Gold Fin coating usage to prevent condenser fin corrosion

Simple to Maintain

The simple design of the machine allows for maximum serviceability. All components are with reach of the maintenance technician upon open up of the servicing panel. If emergency shutoff occurs, the microprocessor-based controller will indicate the fault cause to quicken and ease troubleshooting.

Application Consideration

Accessing the unit

The access to the unit must be granted exclusively to qualified personnel trained to operate on this type of units and provided with the necessary protection equipment.

Unit Sizing

Unit capacities are listed in the performance data section. Intentionally over sizing a unit to assure adequate capacity is not recommended. Irregular system operation and excessive compressor cycling are often a direct result of an oversized chiller. In addition, an oversized unit is usually more expensive to purchase, install, and operate. If over sizing is desired, consider using multiple units.

Water Treatment

Dirt, scale, products of corrosion and other foreign material will adversely affect heat transfer between the water and system components. Foreign matter in the chilled water system can also increase pressure drop and consequently, reduce water flow. Proper water treatment must be determined locally, depending on the type of system and local water characteristics. Neither salt nor brackish water is recommended for use in Arvand air-cooled series AMS mini-chillers.

Effect of Altitude

Air-cooled series AMS mini-chiller capacities given in the performance data tables are for use at sea level. At elevations substantially above sea level, the decreased air density will reduce condenser capacity and, therefore, unit capacity and efficiency.

Supply Chilled Water Temperature

Arvand's mini chillers are rated as standard base on 7- 12°C leaving water temperature and 35°C ambient temperature. The performance data of the units are presented for customers based on 5- 10°C range of leaving water temperatures and 30- 52°C ambient temperatures. also, Ethylene glycol is recommended to prevent freezing, if the customer needs are below the range of performance data table.

Water Flow Rate

Maximum and minimum water flow rates are determined the maximum and minimum allowable temperature drop in evaporator. The minimum and maximum water flow rates are given in the hydraulic Data table. Evaporator flow rates below the tabulated values will result in laminar flow causing freeze up problems. Flow rates exceeding those listed may result in excessive tube erosion.

Note: The water flow rate in General Data chapter without ethylene glycol. If used glycol for calculation you can use table A.1 in Appendix.

Hydraulic Piping

The hydraulic piping system must be laid out so that the circulating pump discharges directly into the heat exchanger. The inlet and outlet size connection hydraulic piping are given in Technical Data. It is recommended to drain the circulation water circuit in out of operating season. If not able to drain, you should add the ethylene glycol with proper concentration to hydraulic circuit to protect against freeze up during low ambient periods.

A flow switch installed on all units. The flow switch must be installed in the leaving water piping of the cooler. Expansion tanks are also usually required so that chilled water volume changes can be accommodated.

Pollution

The unit contains refrigerant gas and lubricating oil. During discarding such fluids must be recovered and eliminated according to the regulations in force in the country where the unit is installed. The unit must not be abandoned during discarding.

Components

Compressor

Arvand mini-chillers are equipped with Danfoss or Copeland scroll compressors high efficiency, low-level noise and vibration, internal protection, and also longer life span due to less rotating parts. The hermetic scroll compressor is mounted on damper supports and is protected against vibrations, overtemperatures and overcurrent. It is equipped with an electrical heater, that is activated when the compressor turns off, to increase the oil temperature and evaporate the existing refrigerant to protect the compressor from slugging and flooding.

Refrigerant Circuit

It is contained inside a compartment separated from the air flow to simplify maintenance and control operations. It's contained compressor, evaporator, filter drier, expansion valve and sight glass.

Expansion Device

A thermostatic expansion valve with external equalizer, allows the unit to adjust itself to the different operating conditions keeping steady the set superheating.

Filter Dryer

The refrigerant circuit of each unit contains moreover solid core hermetic filter dryer to restrain impurity and moisture.

Pressure Switches

This unit is used for the safety of the refrigeration system. The pressure switch disconnects or connects the system when system receive specified pressure to prevent to damage compressor.

Condenser and fan

The condensers type of usage in Arvand mini chillers are Finned-Tube with seamless inner-grooved copper tubes and by using Hydrophobic or Gold coating aluminum fins as well as tubes with internal grooves in the condenser of Arvand's mini-chillers causes an increase in coil thermal efficiency. Also, in order to increase the efficiency and complete assurance of the condensate process, the coils are designed in such a way that the refrigerant at the end of the condenser is subcooled in a few degrees. The axial fans contained in a sheet nozzle and are equipped with a safety grille. The fans rotational speed can be modulated continuously by a variable speed control the condensation pressure.

Evaporator

Arvand mini chillers are equipped with high efficiency stainless-steel brazed plate or Co-Axial heat exchanger. The heat transfer rate is increased by applying these heat exchangers and causes less refrigerant charging and also, include features such as low space to installation and lower temperature differences. The evaporator is equipped with safety controller such as flow switch, relief valve and also, has elastomeric insulation to prevent condensate production and minimize heat losses.

Electrical panel

It contains all the power, control and security components necessary to guarantee the unit to work properly. The unit is managed by a programmable controller to which all the electrical loads and the control devices are connected.

Framework

Basement, supporting structure and lateral panels are made of galvanized plate with electrostatic powder coating painted to guarantee good resistance to atmospheric agents. Accessibility to internal parts is possible removing the frontal panel. For extraordinary maintenances also the rear panel can be removed.

Hydraulic Circuit

All the Hydraulic piping and components are thermally insulated to avoid condensate generation and minimize thermal losses. In this case the hydraulic equipped with expansion vessel and air vents and safety valve and etc.

Circulator pump

Utilizing High quality circulation pumps with suitable head and flow in Arvand's mini-chillers allow customers to install the device in the desired locations without need to additional pumps and equipment.

Storage Tank

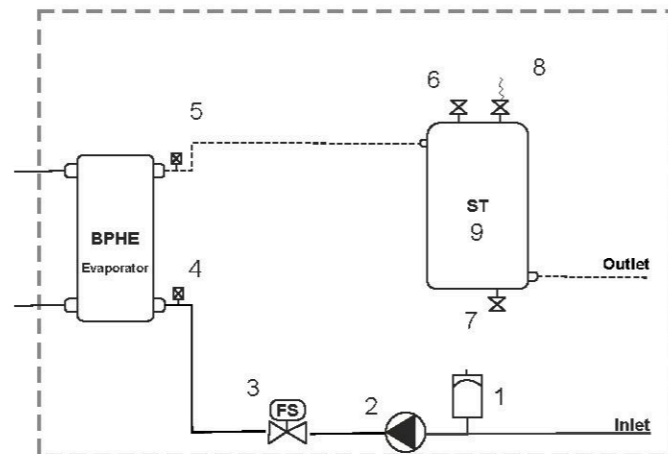
The tank is used as storage to cover peak loads or in situations when a surge in demand exceeds the capacity of the cooling system also prevent the compressor from switching ON/OFF too frequently during low load conditions such as night time which is leading to increase in compressor's life span. An automatic air vent valve is installed on the storage tank to ensure the accurate operation of the hydronic circuit.

Expansion vessel

Expansion tanks are required in a closed loop heating or chilled water HVAC system to absorb the expanding fluid and limit the pressure within a heating or cooling system. this vessel purpose is to maintain the right level of pressure in the system.

Hydraulic schematic

Hydraulic Guide	
No	Description
1	Expansion Tank
2	Pump
3	Flow Switch
4	Probe Water inlet
5	Probe Water Outlet
6	Air Vent Valve
7	Water Drain Valve
8	Safety Valve
9	Storage Tank



Options & Accessories

Connection to BMS

AMS can connect to Building Control Applications and Measuring Monitoring building performance and Interaction with other building systems

Hydrophilic Coatings

Hydrophilic Coating fins Are Effectively Protecting Against Copper Corrosion in High Humidity and Salty Environments.

Stainless Steel Hydraulic Pipe

AMS Hydraulic pipes can to be made with Stainless steel has a very good corrosion resistance performance than carbon steels and some low-alloy steels especially for applications under corrosion environments

One Compressor and One Circuit

Refrigerant R22													
Unit AMS2N		AMS 1062NH	AMS 1072NH	AMS 1092NE	AMS 1122NS	AMS 1142NH	AMS 1172NS	AMS 1202NP	AMS 1212NP	AMS 1262NP	AMS 1302NP	AMS 1342NH	AMS 1422NH
Performance data													
Cooling Capacity	kW	5.91	7.47	9	11.71	13.86	16.56	19.60	20.76	25.30	28.73	34.90	42.91
Total Power Input	KW	1.83	2.33	3.18	3.76	4.29	5.54	5.59	6.29	7.39	8.68	10.45	13.53
EER	-	3.23	3.21	2.95	3.11	3.23	2.99	3.51	3.30	3.42	3.31	3.34	3.17
Energy Class	-	A	A	B	A	A	B	A+	A	A+	A+	A+	A
General Unit Data													
Number of Independent Refrigerant Circuits	-	1											
Refrigerant Charge	kg	3.0	3.2	3.5	4.0	5.0	5.5	6.0	7.0	8.0	10.0	11.0	13.0
Oil Charge	Liters	1.06	1.06	1.06	1.33	1.57	1.57	1.57	3.25	3.25	3.25	3.60	6.20
Compressors, Scroll Qty per Chiller	-	1											
Condensers, High Efficiency Fin/Tube with Integral Subcooler													
Number of Rows	-	2.0	2.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	3.0	3.0	4.0
Fins per inch	-	12.0											
Condenser Fans													
Type	-	Axial											
Number	-	1	1	1	2	2	2	1	1	1	1	1	1
Fan Motor	kW	0.175	0.175	0.175	0.175	0.175	0.175	0.5	0.5	0.5	0.5	0.5	0.5
Fan & Motor Speed	RPM	880	880	880	880	880	880	900	900	900	900	900	900
Fan Diameter	mm	450	450	450	450	450	450	660	660	660	660	660	660
Evaporator, Direct Expansion													
Type	-	Braze Plate Heat Exchanger (BPHE)											
Water Flow Rate	m3/hr	1.02	1.29	1.62	2.02	2.39	2.85	3.37	3.57	4.36	4.95	6.01	7.39
Water pressure drop	Kpa	3.3	5	4.6	3.4	4.7	3.8	5.4	6	4.2	5.3	3.3	4.9
Maximum Water Side Pressure	Bar	30											
Maximum Refrigerant Side Pressure	Bar	30											
Minimum Chilled Water Flow Rate	m3/hr	0.6	0.8	1.0	1.2	1.5	1.7	2.1	2.2	2.6	3.0	3.5	4.4
Maximum Chilled Water Flow Rate	m3/hr	1.0	1.3	1.7	2.1	2.5	3.0	3.6	3.8	4.6	5.2	6.1	7.6
Nominal Water Connections Size	Inches	1-1.4"				1-1.2"				2"			
Electrical													
Power Supply	V/Ph/Hz	230/1N/50	230/1N/50	230/1N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50

data referred to the following conditions:

- ambient temperature & altitude respectively are 35C and 0m at sea level
- Evaporator water inlet-outlet temperature 12-7 °C

Refrigerant R410A														
Unit AMS4A	AMS 1074AS	AMS 1084AE	AMS 1104AE	AMS 1124AS	AMS 1154AS	AMS 1174AS	AMS 1214AP	AMS 1224AH	AMS 1274AP	AMS 1304AP	AMS 1344AP	AMS 1434AH		
Performance data														
Cooling Capacity	kW	7.15	7.51	9.71	12.54	14.73	17.25	20.77	22.01	26.94	29.65	34.89	43.67	
Total Power Input	kW	2.34	2.59	3.40	4.26	4.79	5.81	5.95	6.77	7.92	8.96	9.96	13.34	
EER		3.06	2.90	2.85	2.94	3.08	2.97	3.49	3.25	3.40	3.31	3.50	3.27	
Energy Class	-	B	B	C	B	B	B	A+	A	A+	A+	A+	A	
General Unit Data														
Number of Independent Refrigerant Circuits	-	1												
Refrigerant Charge	kg	3.2	3.5	3.8	4.0	5.2	5.5	7.0	7.5	9.0	10.0	11.0	13.0	
Oil Charge	Liters	1.06	1.06	1.57	1.57	1.57	1.57	1.57	3.00	3.30	3.30	3.30	3.60	
Compressors, Scroll Qty per Chiller	-	1												
Condensers, High Efficiency Fin/Tube with Integral Subcooler														
Number of Rows	-	2.0	2.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	3.0	3.0	4.0	
Fins per inch	-	12.0												
Condenser Fans														
Type	-	Axial												
Number	-	1	1	1	2	2	2	1	1	1	1	1	1	
Fan Motor	kW	0.175	0.175	0.175	0.175	0.175	0.175	0.5	0.5	0.5	0.5	0.5	0.5	
Fan & Motor Speed	RPM	880	880	880	880	880	880	900	900	900	900	900	900	
Fan Diameter	mm	450	450	450	450	450	450	660	660	660	660	660	660	
Evaporator, Direct Expansion														
Type		Braze Plate Heat Exchanger (BPHE)												
Water Flow Rate	m ³ /hr	20.6	21.6	27.9	36.0	42.3	49.5	59.6	63.2	77.3	85.1	100.1	126.3	
Water pressure drop	Kpa	4.7	5.1	4.9	3.9	5.3	4.2	6	6.7	4.7	5.7	3.3	5.2	
Maximum Water Side Pressure	Bar	30												
Maximum Refrigerant Side Pressure	Bar	30												
Minimum Chilled Water Flow Rate	m ³ /hr	0.72	0.76	0.99	1.29	1.53	1.77	2.17	2.28	2.73	3.05	3.52	1.47	
Maximum Chilled Water Flow Rate	m ³ /hr	1.27	1.4	1.75	2.28	2.70	3.14	3.83	4.02	4.79	5.37	6.18	7.76	
Nominal Water Connections Size	Inches	1-1/4"			1-1/2"				2"					
Electrical														
Power Supply	V/Ph/Hz	230/1N/50	230/1N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	

data referred to the following conditions:

- ambient temperature & altitude respectively are 35C and 0m at sea level
- Evaporator water inlet-outlet temperature 12-7 °C

Refrigerant R407c														
Unit AMS4A	AMS 1054CH	AMS 1104CS	AMS 1104CS	AMS 1104CH	AMS 1154CP	AMS 1154CS	AMS 1204CP	AMS 1204CP	AMS 1254CP	AMS 1304CP	AMS 1354CP	AMS 1454CH		
Performance data														
Cooling Capacity	kW	5.97	7.91	9.4	13.81	14.03	16.46	19.53	20.84	25.64	29.04	35.79	43.15	
Total Power Input	kW	1.80	2.66	3.3	4.74	4.28	5.58	5.59	6.00	7.10	8.44	10.37	13.16	
EER		3.32	2.97	2.87	2.92	3.28	2.95	3.50	3.47	3.61	3.44	3.45	3.28	
Energy Class	-	A+	B	C	B	A	B	A+	A+	A+	A+	A+	A	
General Unit Data														
Number of Independent Refrigerant Circuits	-	1												
Refrigerant Charge	kg	3.0	3.2	3.5	4.0	5.2	5.5	6.0	7.0	8.0	10.0	11.5	13.5	
Oil Charge	Liters	1.06	1.06	1.06	1.57	1.57	1.57	1.57	3.25	3.25	3.25	3.60	6.20	
Compressors, Scroll Qty per Chiller	-	1												
Condensers, High Efficiency Fin/Tube with Integral Subcooler														
Number of Rows	-	2.0	2.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	3.0	3.0	4.0	
Fins per inch	-	12.0												
Condenser Fans														
Type	-	Axial												
Number	-	1	1	1	2	2	2	1	1	1	1	1	1	
Fan Motor	kW	0.175	0.175	0.175	0.175	0.175	0.175	0.5	0.5	0.5	0.5	0.5	0.5	
Fan & Motor Speed	RPM	880	880	880	880	880	880	900	900	900	900	900	900	
Fan Diameter	mm	450	450	450	450	450	450	660	660	660	660	660	660	
Evaporator, Direct Expansion														
Type		Braze Plate Heat Exchanger (BPHE)												
Water Flow Rate	m ³ /hr	1.0	1.4	1.6	2.4	2.4	2.8	3.4	3.6	4.4	5.0	6.2	7.4	
Water pressure drop	Kpa	3.4	5.6	4.7	4.1	4.8	3.8	5.3	6	4.3	5.4	3.4	5	
Maximum Water Side Pressure	Bar	30												
Maximum Refrigerant Side Pressure	Bar	30												
Minimum Chilled Water Flow Rate	m ³ /hr	0.60	0.80	0.97	1.27	1.50	1.75	2.09	2.24	2.70	3.05	3.67	4.44	
Maximum Chilled Water Flow Rate	m ³ /hr	0.44	1.42	1.69	2.24	2.65	52.16	60.74	65.53	78.99	89.52	107.50	130.29	
Nominal Water Connections Size	Inches	1-1/4"			1-1/2"				2"					
Electrical														
Power Supply	V/Ph/Hz	40-3N-50	230-1N-50	230-1N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	400-3N-50	

data referred to the following conditions:

- ambient temperature & altitude respectively are 35C and 0m at sea level
- Evaporator water inlet-outlet temperature 12-7 °C

Two Compressor And One Circuit

Refrigerant R22											
Unit AMS2N		AMS 2122NS	AMS 2152NS	AMS 2172NE	AMS 2202NP	AMS 2222NP	AMS 2262NP	AMS 2282NP	AMS 2342NP	AMS 2402NH	
Performance data											
Cooling Capacity	kW	11.33	14.71	16.63	19.62	21.50	26.24	28.01	34.73	41.35	
Total Power Input	KW	3.88	4.76	5.8	5.89	6.48	7.48	8.15	10.13	12.92	
EER	-	2.92	3.09	2.87	3.33	3.32	3.51	3.44	3.43	3.20	
Energy Class	-	B	B	C	A+	A+	A+	A+	A+	A	
General Unit Data											
Number of Independent Refrigerant Circuits	-	1									
Refrigerant Charge	kg	4.0	5.0	5.5	6.0	7.0	8.0	9.0	11.0	12.5	
Oil Charge	Liters	2.12	2.12	2.12	2.12	2.39	2.90	3.14	3.14	6.50	
Compressors, Scroll Qty per Chiller	-	2									
Condensers, High Efficiency Fin/Tube with Integral Subcooler											
Number of Rows	-	3.0	3.0	3.0	2.0	2.0	3.0	3.0	3.0	4.0	
Fins per inch	-	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Condenser Fans											
Type	-	Axial									
Number	-	2	2	2	1	1	1	1	1	1	
Fan Motor	kW	0.175	0.175	0.175	0.5	0.5	0.5	0.5	0.5	0.5	
Fan & Motor Speed	RPM	880	880	880	900	900	900	900	900	900	
Fan Diameter	mm	450	450	450	660	660	660	660	660	660	
Evaporator, Direct Expansion											
Type	-	Braze Plate Heat Exchanger (BPHE)									
Water Flow Rate	m ³ /hr	2.0	2.5	2.9	3.4	3.7	4.5	4.8	6.0	7.1	
Water pressure drop	Kpa	3.2	5.3	3.9	5.4	6.4	4.5	5.1	3.3	4.6	
Maximum Water Side Pressure	Bar	30									
Maximum Refrigerant Side Pressure	Bar	30									
Minimum Chilled Water Flow Rate	m ³ /hr	1.2	1.5	1.7	2.1	2.3	2.7	2.9	3.5	4.1	
Maximum Chilled Water Flow Rate	m ³ /hr	2.1	3.1	3.0	3.6	4.0	4.8	5.1	6.1	7.3	
Nominal Water Connections Size	Inches	1-1/2"			2"					2"	
Electrical											
Power Supply	V/Ph/Hz	230/1N/50	230/1N/50	230/1N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	

data referred to the following conditions:

- ambient temperature & altitude respectively are 35C and 0m at sea level
- Evaporator water inlet-outlet temperature 12-7 °C

Refrigerant R410A											
Unit AMS4A		AMS 2134AE	AMS 2154AE	AMS 2174AE	AMS 2214AP	AMS 2234AH	AMS 2284AP	AMS 2304AH	AMS 2354AP	AMS 2434AS	
Performance data											
Cooling Capacity	kW	13.51	14.82	16.99	20.33	22.69	28.10	29.75	36.07	43.48	
Total Power Input	Kw	5.07	5.30	6.4	6.21	7.05	8.33	9.07	10.52	13.94	
EER	-	2.67	2.80	2.67	3.27	3.22	3.37	3.28	3.43	3.12	
Energy Class	-	D	C	D	A	A	A+	A	A+	A	
General Unit Data											
Number of Independent Refrigerant Circuits	-	1									
Refrigerant Charge	kg	4.5	5.0	5.5	7.0	7.5	9.0	10.0	11.0	13.0	
Oil Charge	Liters	2.12	2.12	2.63	3.14	3.14	3.14	3.14	3.14	6.00	
Compressors, Scroll Qty per Chiller	-	2									
Condensers, High Efficiency Fin/Tube with Integral Subcooler											
Number of Rows	-	3.0	3.0	3.0	2.0	2.0	3.0	3.0	3.0	4.0	
Fins per inch	-	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Condenser Fans											
Type	-	Axial									
Number	-	2	2	2	1	1	1	1	1	1	
Fan Motor	kW	0.175	0.175	0.175	0.5	0.5	0.5	0.5	0.5	0.5	
Fan & Motor Speed	RPM	880	880	880	900	900	900	900	900	900	
Fan Diameter	mm	450	450	450	660	660	660	660	660	660	
Evaporator, Direct Expansion											
Type	-	Braze Plate Heat Exchanger (BPHE)									
Water Flow Rate	m ³ /hr	2.3	2.6	2.9	3.5	3.9	4.8	5.1	6.2	7.5	
Water pressure drop	Kpa	4.5	5.4	4.1	5.7	7.1	5.1	5.7	3.6	5.2	
Maximum Water Side Pressure	Bar	30									
Maximum Refrigerant Side Pressure	Bar	30									
Minimum Chilled Water Flow Rate	m ³ /hr	1.4	1.5	1.7	2.1	2.4	2.9	3.1	3.6	4.4	
Maximum Chilled Water Flow Rate	m ³ /hr	2.4	2.7	3.1	3.78	4.2	5.1	5.4	6.5	7.8	
Nominal Water Connections Size	Inches	1-1/2"			2"			2"		2"	
Electrical											
Power Supply	V/Ph/Hz	230/1N/50	230/1N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	

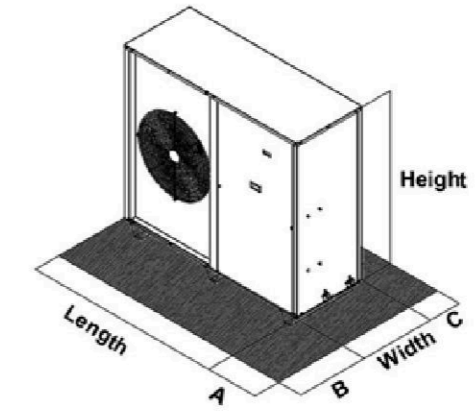
data referred to the following conditions:

- ambient temperature & altitude respectively are 35C and 0m at sea level
- Evaporator water inlet-outlet temperature 12-7 °C

Refrigerant R407c										
Unit AMS4C		AMS 2124CS	AMS 2164CE	AMS 2184CE	AMS 2214CP	AMS 2234CP	AMS 2274CP	AMS 2294CP	AMS 2354CP	AMS 2414CP
Performance data										
Cooling Capacity	kW	11/54	15/57	16/96	19/83	21/90	26/75	28/36	34/77	41/26
Total Power Input	kW	3/79	5/48	6/34	5/97	6/64	7/55	8/10	10/30	12/31
EER	-	3/04	2/84	2/68	3/32	3/30	3/54	3/50	3/38	3/35
Energy Class	-	B	C	D	A+	A	A+	A+	A+	A+
General Unit Data										
Number of Independent Refrigerant Circuits	-	1								
Refrigerant Charge	kg	4/0	5/5	5/7	7/0	7/5	9/0	10/0	11/0	13/0
Oil Charge	Liters	2/12	2/12	2/12	2/12	3/14	3/14	3/14	3/14	6/50
Compressors, Scroll Qty per Chiller	-	2								
Condensers, High Efficiency Fin/Tube with Integral Subcooler										
Number of Rows	-	3/0	3/0	3/0	2/0	2/0	3/0	3/0	3/0	4/0
Fins per inch	-	12/0	12/0	12/0	12/0	12/0	12/0	12/0	12/0	12/0
Condenser Fans										
Type	-	Axial								
Number	-	2	2	2	1	1	1	1	1	1
Fan Motor	kW	0/175	0/175	0/175	0/5	0/5	0/5	0/5	0/5	0/5
Fan & Motor Speed	RPM	880	880	880	900	900	900	900	900	900
Fan Diameter	mm	450	450	450	650	650	650	650	650	650
Evaporator, Direct Expansion										
Type	-	Braze Plate Heat Exchanger (BPHE)								
Water Flow Rate	m ³ /hr	2/0	2/7	2/9	3/4	3/8	4/5	4/9	5/0	7/1
Water pressure drop	Kpa	3/3	5/2	4	5/5	6/6	4/9	5/2	3/4	4/5
Maximum Water Side Pressure	Bar	30								
Maximum Refrigerant Side Pressure	Bar	30								
Minimum Chilled Water Flow Rate	m ³ /hr	1/2	1/7	1/8	2/1	2/4	2/8	3/0	3/5	4/2
Maximum Chilled Water Flow Rate	m ³ /hr	2/1	2/9	3/2	3/8	4/1	4/9	5/2	6/4	7/5
Nominal Water Connections Size	Inches	1-1/2"			2"			2"		2"
Electrical										
Power Supply	V/Ph/Hz	400/3N/50	230/1N/50	230/1N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50

data referred to the following conditions:

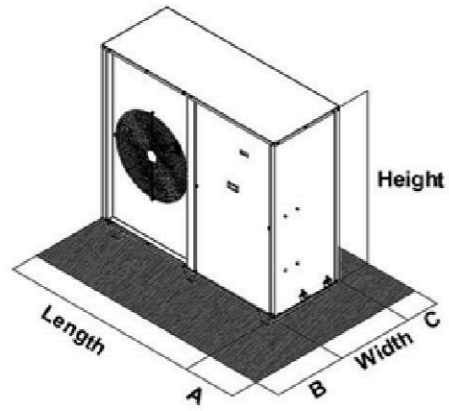
- ambient temperature & altitude respectively are 35C and 0m at sea level
- Evaporator water inlet-outlet temperature 12-7 °C



One Compressor

Refrigerant R22													
Unit AMS2N		AMS1062NH	AMS1072NH	AMS1092NE	AMS1122NS	AMS1142NH	AMS1172NS	AMS1202NP	AMS1212NP	AMS1252NP	AMS1302NP	AMS1342NH	AMS1422NH
Dimension & Weight													
Length	(mm)	1332	1332	1332	1332	1332	1332	1506	1506	1506	1506	1506	1506
Width	(mm)	393	393	393	393	393	393	576	576	576	576	576	646
Height	(mm)	1013	1013	1013	1013	1278	1278	1541	1541	1541	1541	1541	1541
A	(mm)	400											
B	(mm)	600											
C	(mm)	200											
Weight	(Kg)	130	135	140	149	158	165	178	185	205	220	235	250
Refrigerant R410A													
Unit AMS4A		AMS1074AS	AMS1084AE	AMS1104AE	AMS1124AS	AMS1154AS	AMS1174AS	AMS1214AP	AMS1224AH	AMS1274AP	AMS1304AP	AMS1344AP	AMS1434AH
Dimension & Weight													
Length	(mm)	1332	1332	1332	1332	1332	1332	1506	1506	1506	1506	1506	1506
Width	(mm)	393	393	393	393	393	393	576	576	576	576	576	646
Height	(mm)	1013	1013	1013	1013	1278	1278	1541	1541	1541	1541	1541	1541
A	(mm)	400											
B	(mm)	600											
C	(mm)	200											
Weight	(Kg)	130	135	140	149	158	165	178	185	205	220	235	250
Refrigerant R407c													
AMS4C		AMS1054CH	AMS1104CS	AMS1104CS	AMS1104CH	AMS1154CP	AMS1154CS	AMS1204CP	AMS1204CP	AMS1254CP	AMS1304CP	AMS1354CP	AMS1454CH
Length	(mm)	1332	1332	1332	1332	1332	1332	1506	1506	1506	1506	1506	1506
Width	(mm)	393	393	393	393	393	393	576	576	576	576	576	646
Height	(mm)	1013	1013	1013	1013	1278	1278	1541	1541	1541	1541	1541	1541
A	(mm)	400											
B	(mm)	600											
C	(mm)	200											
Weight	(Kg)	130	135	140	149	158	165	178	185	205	220	235	250

- Unit is shipping not operation.
- A,B,C parameters are maintenance & Service spaces



Two Compressors

Refrigerant R22										
Unit	AMS2122NS	AMS2152NS	AMS2172NE	AMS2202NP	AMS2222NP	AMS2262NP	AMS2282NP	AMS2342NP	AMS2402NH	
Dimension & Weight										
Length	(mm)	1550	1550	1550	1660	1660	1660	1660	2150	2150
Width	(mm)	450	450	450	626	626	626	626	626	726
Height	(mm)	1013	1013	1013	1541	1541	1541	1541	1541	1541
A	(mm)	400								
B	(mm)	600								
C	(mm)	200								
Weight	(Kg)	186	198	206	223	231	256	275	294	313
Refrigerant R410A										
Unit	AMS2134AE	AMS2154AE	AMS2174AE	AMS2214AP	AMS2234AH	AMS2284AP	AMS2304AH	AMS2354AP	AMS2434AS	
Dimension & Weight										
Length	(mm)	1550	1550	1550	1660	1660	1660	1660	2150	2150
Width	(mm)	450	450	450	626	626	626	626	626	726
Height	(mm)	1013	1013	1013	1541	1541	1541	1541	1541	1541
A	(mm)	400								
B	(mm)	600								
C	(mm)	200								
Weight	(Kg)	186	198	206	223	231	256	275	294	313
Refrigerant R407c										
Unit	AMS2124CS	AMS2164CE	AMS2184CE	AMS2214CP	AMS2234CP	AMS2274CP	AMS2294CP	AMS2354CP	AMS2414CP	
Dimension & Weight										
Length	(mm)	1550	1550	1550	1660	1660	1660	1660	2150	2150
Width	(mm)	450	450	450	626	626	626	626	626	726
Height	(mm)	1013	1013	1013	1541	1541	1541	1541	1541	1541
A	(mm)	400								
B	(mm)	600								
C	(mm)	200								
Weight	(Kg)	186	198	206	223	231	256	275	294	313

- Unit is shipping not operation.
- A,B,C parameters are maintenance & Service spaces

Model: AMS1062NH																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
5.85	1.49	16.78	3.53	5.55	1.64	16.94	3.30	5.25	1.81	15.05	3.06	5.05	1.91	14.50	2.91	4.85	2.02	13.93	2.76	4.59	2.17	13.16	2.57	4.45	2.25	12.78	2.47
6.03	1.49	17.31	3.68	5.73	1.65	16.45	3.44	5.42	1.81	15.54	3.19	5.22	1.92	14.99	3.04	5.03	2.02	14.42	2.89	4.76	2.17	13.65	2.69	4.62	2.25	13.26	2.59
6.22	1.50	17.84	3.83	5.91	1.65	16.95	3.58	5.59	1.82	16.04	3.32	5.39	1.92	15.47	3.17	5.19	2.03	14.90	3.02	4.92	2.18	14.12	2.81	4.78	2.25	13.73	2.71
6.41	1.51	18.39	3.99	6.09	1.66	17.49	3.73	5.77	1.83	16.56	3.47	5.57	1.93	15.99	3.31	5.37	2.03	15.41	3.15	5.10	2.18	14.63	2.95	4.96	2.25	14.23	2.84
6.63	1.51	19.02	4.18	6.30	1.67	18.08	3.90	5.97	1.83	17.13	3.63	5.77	1.94	16.55	3.47	5.56	2.04	15.97	3.30	5.29	2.18	15.17	3.09	5.15	2.26	14.77	2.98
6.82	1.52	19.57	4.34	6.48	1.68	18.61	4.06	6.14	1.84	17.63	3.77	5.94	1.94	17.05	3.61	5.73	2.05	16.44	3.44	5.45	2.19	15.64	3.22	5.31	2.26	15.23	3.11

Model: AMS1072NH																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
7.37	1.93	21.15	4.83	7.01	2.11	20.12	4.51	6.64	2.32	19.05	4.19	6.42	2.44	18.41	4.00	6.18	2.58	17.75	3.81	5.86	2.77	16.82	3.54	5.69	2.86	16.33	3.41
7.60	1.95	21.80	5.04	7.24	2.13	20.78	4.72	6.86	2.34	19.70	4.38	6.63	2.47	19.03	4.18	6.40	2.61	18.36	3.98	6.07	2.80	17.42	3.71	5.90	2.90	16.95	3.58
7.83	1.96	22.47	5.26	7.47	2.15	21.43	4.92	7.08	2.36	20.33	4.58	6.85	2.50	19.67	4.37	6.61	2.64	18.98	4.17	6.29	2.84	18.05	3.89	6.12	2.96	17.56	3.75
8.08	1.98	23.18	5.49	7.71	2.17	22.12	5.14	7.32	2.39	21.01	4.79	7.08	2.53	20.32	4.57	6.84	2.67	19.64	4.37	6.51	2.88	18.69	4.08	6.35	2.99	18.22	3.94
8.34	2.00	23.94	5.75	7.95	2.19	22.85	5.38	7.57	2.41	21.73	5.02	7.34	2.56	21.05	4.80	7.09	2.71	20.35	4.58	6.76	2.92	19.40	4.29	6.60	3.04	18.93	4.15
8.58	2.01	24.63	5.98	8.20	2.21	23.53	5.61	7.80	2.44	22.39	5.23	7.56	2.58	21.70	5.01	7.31	2.74	20.99	4.78	6.98	2.96	20.04	4.49	6.82	3.08	19.57	4.34

Model: AMS1092NE																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
9.32	2.70	26.75	4.62	8.85	2.97	25.39	4.35	8.35	3.26	23.97	4.08	8.04	3.44	23.08	3.91	7.73	3.63	22.18	3.75	7.30	3.89	20.95	3.53	7.08	4.02	20.32	3.42
9.66	2.72	27.72	4.82	9.16	2.99	26.30	4.53	8.65	3.28	24.84	4.24	8.34	3.46	23.95	4.07	8.02	3.64	23.01	3.90	7.58	3.90	21.77	3.67	7.37	4.03	21.14	3.56
9.86	2.74	28.31	4.95	9.37	3.01	26.90	4.65	8.86	3.29	25.42	4.36	8.54	3.47	24.50	4.18	8.22	3.65	23.59	4.01	7.78	3.91	22.34	3.77	7.56	4.03	21.71	3.66
10.21	2.76	29.31	5.16	9.70	3.03	27.85	4.85	9.19	3.31	26.37	4.55	8.86	3.49	25.44	4.36	8.54	3.67	24.51	4.18	8.10	3.92	23.26	3.94	7.88	4.04	22.61	3.82
10.53	2.78	30.23	5.36	10.01	3.05	28.74	5.04	9.48	3.33	27.22	4.72	9.17	3.51	26.31	4.53	8.84	3.68	25.37	4.35	8.40	3.93	24.10	4.10	8.17	4.05	23.46	3.98
10.85	2.81	31.13	5.57	10.32	3.07	29.61	5.23	9.78	3.35	28.07	4.90	9.45	3.52	27.13	4.70	9.12	3.70	26.18	4.51	8.68	3.94	24.90	4.26	8.45	4.06	24.25	4.13

- Notes
- Q (Kw): Cooling Capacity
 - P (Kw): Total Absorbed Power
 - Pd (KPa): Pressure Drop of Water in Evaporator
 - WFR (Lit/min): water flow rat
 - Interpolation between rating is permissible but extrapolation is not
 - Calculated water flow rate and pressure drop heat exchanger in ΔT=5°C

Model: AMS2202NP. Ambient Temperature (°C). Table with 12 columns for ambient temperatures (30, 35, 40, 43, 46, 50, 52) and 4 rows for performance metrics (Q, P, WFR, Pd) for each temperature.

Model: AMS2282NP. Ambient Temperature (°C). Table with 12 columns for ambient temperatures (30, 35, 40, 43, 46, 50, 52) and 4 rows for performance metrics (Q, P, WFR, Pd) for each temperature.

Model: AMS2222NP. Ambient Temperature (°C). Table with 12 columns for ambient temperatures (30, 35, 40, 43, 46, 50, 52) and 4 rows for performance metrics (Q, P, WFR, Pd) for each temperature.

Model: AMS2342NP. Ambient Temperature (°C). Table with 12 columns for ambient temperatures (30, 35, 40, 43, 46, 50, 52) and 4 rows for performance metrics (Q, P, WFR, Pd) for each temperature.

Model: AMS2262NP. Ambient Temperature (°C). Table with 12 columns for ambient temperatures (30, 35, 40, 43, 46, 50, 52) and 4 rows for performance metrics (Q, P, WFR, Pd) for each temperature.

Model: AMS2402NH. Ambient Temperature (°C). Table with 12 columns for ambient temperatures (30, 35, 40, 43, 46, 50, 52) and 4 rows for performance metrics (Q, P, WFR, Pd) for each temperature.

Notes
- Q (Kw): Cooling Capacity
- P(Kw): Total Absorbed Power
- Pd (KPa): Pressure Drop of Water in Evaporator
- WFR(Lit/min): water flow rat
- Interpolation between rating is permissible but extrapolation is not
- Calculated water flow rate and pressure drop heat exchanger in ΔT=5°C

Notes
- Q (Kw): Cooling Capacity
- P(Kw): Total Absorbed Power
- Pd (KPa): Pressure Drop of Water in Evaporator
- WFR(Lit/min): water flow rat
- Interpolation between rating is permissible but extrapolation is not
- Calculated water flow rate and pressure drop heat exchanger in ΔT=5°C

Model: AMS2304AH																																		
Ambient Temperature (°C)																																		
30					35					40					43					46					50					52				
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)															
16.48	4.89	47.31	2.67	15.64	5.35	44.88	2.52	14.76	5.85	42.35	2.37	14.23	6.17	40.83	2.28	13.67	6.49	39.22	2.19	12.91	6.94	37.06	2.06	12.54	7.18	35.98	2.00							
16.99	4.93	48.76	2.77	16.13	5.40	46.31	2.61	15.25	5.91	43.76	2.46	14.70	6.22	42.20	2.36	14.15	6.55	40.60	2.27	13.39	7.01	38.44	2.14	13.01	7.24	37.35	2.08							
17.49	4.98	50.20	2.86	16.63	5.45	47.72	2.70	15.73	5.96	45.16	2.54	15.19	6.28	43.58	2.45	14.63	6.61	41.98	2.35	13.88	7.07	39.83	2.22	13.50	7.31	38.75	2.16							
18.02	5.03	51.72	2.96	17.15	5.51	49.21	2.79	16.24	6.02	46.62	2.63	15.69	6.34	45.04	2.53	15.14	6.68	43.45	2.44	14.39	7.14	41.29	2.31	14.00	7.38	40.19	2.24							
18.55	5.08	53.23	3.06	17.65	5.56	50.65	2.89	16.74	6.08	48.05	2.72	16.19	6.40	46.47	2.62	15.64	6.74	44.88	2.52	14.88	7.21	42.71	2.39	14.50	7.45	41.62	2.33							
19.02	5.12	54.58	3.15	18.10	5.61	51.95	2.97	17.16	6.13	49.26	2.80	16.60	6.45	47.64	2.70	16.02	6.79	45.99	2.59	15.26	7.26	43.79	2.46	14.87	7.50	42.67	2.39							

Model: AMS1064CH																																		
Ambient Temperature (°C)																																		
30					35					40					43					46					50					52				
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)															
25.89	6.31	74.29	2.33	24.68	6.87	70.84	2.19	23.40	7.48	67.17	2.06	22.60	7.87	64.88	1.97	21.80	8.28	62.57	1.89	20.69	8.85	59.39	1.79	20.12	9.14	57.75	1.73							
26.70	6.36	76.64	2.42	25.47	6.92	73.09	2.28	24.18	7.54	69.39	2.14	23.37	7.94	67.07	2.05	22.55	8.35	64.72	1.97	21.44	8.94	61.52	1.86	20.86	9.25	59.88	1.80							
27.52	6.41	78.99	2.52	26.24	6.98	75.31	2.37	24.92	7.60	71.53	2.22	24.12	8.01	69.23	2.13	23.30	8.43	66.86	2.05	22.16	9.03	63.61	1.93	21.60	9.35	62.01	1.87							
30.32	7.09	87.02	2.87	28.93	7.71	83.04	2.69	27.50	8.41	78.92	2.52	26.62	8.86	76.39	2.41	25.73	9.33	73.83	2.31	24.61	10.00	70.35	2.17	23.89	10.35	68.57	2.11							
29.37	6.51	84.28	2.74	28.03	7.09	80.45	2.58	26.65	7.74	76.49	2.42	25.80	8.16	74.06	2.32	24.94	8.61	71.59	2.22	23.78	9.24	68.25	2.10	23.19	9.58	66.54	2.03							
30.03	6.55	86.18	2.83	28.64	7.13	82.19	2.65	27.23	7.78	78.15	2.48	26.37	8.21	75.68	2.38	25.49	8.66	73.17	2.28	24.32	9.31	69.81	2.15	23.73	9.66	68.10	2.09							

Model: AMS2354AP																																		
Ambient Temperature (°C)																																		
30					35					40					43					46					50					52				
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)															
19.36	4.84	55.56	3.21	18.41	5.35	52.83	3.03	17.41	5.90	49.98	2.84	16.80	6.25	48.22	2.73	16.15	6.61	46.36	2.62	15.29	7.12	43.87	2.46	14.85	7.38	42.63	2.39							
20.00	4.86	57.41	3.34	19.03	5.37	54.61	3.15	18.01	5.92	51.70	2.96	17.38	6.27	49.87	2.84	16.74	6.63	48.05	2.72	15.86	7.13	45.52	2.56	15.41	7.39	44.23	2.48							
20.63	4.88	59.20	3.46	19.63	5.39	56.33	3.26	18.60	5.94	53.38	3.07	17.96	6.29	51.54	2.94	17.30	6.64	49.66	2.82	16.42	7.14	47.14	2.66	15.98	7.39	45.85	2.58							
21.29	4.90	61.11	3.59	20.27	5.42	58.17	3.39	19.22	5.96	55.16	3.18	18.56	6.31	53.28	3.06	17.91	6.66	51.40	2.94	17.02	7.15	48.86	2.77	16.57	7.40	47.55	2.69							
21.95	4.93	63.00	3.73	20.91	5.44	60.00	3.52	19.83	5.99	56.91	3.30	19.18	6.33	55.04	3.18	18.51	6.68	53.14	3.05	17.61	7.16	50.54	2.88	17.16	7.41	49.24	2.80							
22.63	4.95	64.96	3.87	21.54	5.47	61.82	3.65	20.42	6.01	58.60	3.42	19.75	6.35	56.67	3.29	19.06	6.70	54.69	3.15	18.13	7.18	52.04	2.98	17.66	7.42	50.68	2.89							

Model: AMS1084CS																																		
Ambient Temperature (°C)																																		
30					35					40					43					46					50					52				
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)															
27.65	6.91	79.36	37.02	26.34	7.52	76.60	34.10	24.97	8.18	71.65	31.17	24.10	8.60	69.17	29.39	23.24	9.04	66.70	27.67	22.05	9.65	63.29	25.37	21.43	9.97	61.51	24.22							
28.52	6.97	81.85	39.01	27.18	7.59	78.01	35.96	25.79	8.26	74.01	32.91	24.92	8.68	71.53	31.08	24.04	9.13	68.99	29.26	22.84	9.76	65.54	26.88	22.22	10.09	63.77	25.69							
29.37	7.03	84.29	41.01	28.00	7.65	80.37	37.82	26.59	8.33	76.31	34.65	25.72	8.76	73.81	32.76	24.83	9.22	71.25	30.88	23.62	9.87	67.79	28.42	23.01	10.21	66.04	27.22							
37.75	8.96	108.35	63.34	35.95	9.72	103.18	58.15	34.08	10.56	97.81	52.98	32.92	11.09	94.48	49.89	31.75	11.64	91.11	46.86	30.15	12.43	86.53	42.89	29.34	12.83	84.22	40.95							
31.36	7.16	89.99	45.88	29.93	7.79	85.89	42.35	28.44	8.49	81.63	38.83	27.53	8.95	79.01	36.74	26.62	9.44	76.39	34.70	25.36	10.13	72.79	32.00	24.74	10.49	71.00	30.70							
32.07	7.20	92.04	47.69	30.59	7.84	87.79	43.97	29.07	8.55	83.42	40.29	28.15	9.01	80.78	38.15	27.22	9.51	78.12	36.04	25.95	10.21	74.48	33.26	25.32	10.58	72.65	31.90							

Model: AMS2434AS																																		
Ambient Temperature (°C)																																		
30					35					40					43					46					50					52				
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)															
21.18	5.39	60.79	1.83	20.16	5.91	57.87	1.74	19.09	6.47	54.79	1.64	18.43	6.83	52.89	1.58	17.74	7.20	50.91	1.52	16.81	7.72	48.23	1.44	16.32	7.99	46.83	1.40							
21.89	5.42	62.81	1.90	20.84	5.95	59.82	1.80	19.75	6.51	56.67	1.70	19.07	6.87	54.73	1.64	18.38	7.25	52.74	1.58	17.43	7.77	50.03	1.50	16.95	8.04	48.65	1.46							
22.57	5.46	64.77	1.97	21.50	5.98	61.70	1.86	20.39	6.55	58.51	1.76	19.70	6.92	56.53	1.69	19.00	7.29	54.53	1.63	18.04	7.82	51.79	1.55	17.57	8.10	50.42	1.51							
28.42	6.46	81.57	2.63	27.13	7.03	77.86	2.47	25.80	7.67	74.03	2.32	24.97	8.08	71.66	2.22	24.13	8.52	69.26	2.13	23.00	9.14	66.01	2.01	22.42	9.47	64.36	1.96							
23.99	5.53	68.86	2.12	22.87	6.06	65.65	2.00	21.74	6.64	62.38	1.89	21.03	7.01	60.35	1.82	20.32	7.39	58.31	1.75	19.35	7.93	55.53	1.66	18.86	8.21	54.14	1.62							
24.77	5.57	71.08	2.20	23.61	6.10	67.75	2.08	22.42	6.68	64.34	1.96	21.70	7.05	62.26	1.88	20.96	7.44	60.14	1.81	19.96	7.98	57.29	1.72	19.46	8.27	55.85	1.67							

Model: AMS1094CS																																		
Ambient Temperature (°C)																																		
30					35					40					43					46					50					52				
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)															
34.34	8.73	98.55	53.68	32.65	9.47	93.70	49.19	30.87	10.27	88.61	44.68	29.76	10.76	85.42	41.96	28.63	11.27	82.17	39.27	26.97	11.96	77.40	35.49	26.26	12.34	75.37	33.93							
35.41	8.80	101.62	56.63	33.67	9.55	96.64	51.89	31.87	10.36	91.48	47.19	30.76	10.86	88.28	44.39	29.62	11.39	85.00	41.61	28.04	12.12	80.48	37.91	27.25	12.50	78.21	36.12							
36.48	8.87	104.69	59.64	34.73	9.63	99.68	54.75	32.89	10.45	94.40	49.82	31.76	10.97	91.14	46.89	30.61	11.51	87.86	44.03	29.03	12.26	83.32	40.21	28.23	12.65	81.01	38.33							
37.75	8.96	108.35	63.34	35.95	9.72	103.18	58.15	34.08	10.56	97.81	52.98	32.93	11.09	94.51	49.92	31.75	11.64	91.11	46.86	30.17	12.43	86.53	42.89	29.35	12.83	84.25	40.98							
38.77	9.02	111.27	66.37	36.91	9.79	105.94	60.90	34.99	10.64	100.41	55.45	33.79	11.18	96.98	52.20	32.60	11.75	93.55	49.05	30.97	12.55	88.87	44.90	30.13	12.96	86.48	42.85							
39.42	9.06	113.12	68.33	37.50	9.84	107.62	62.60	35.54	10.69	102.01	57.00	34.35	11.24	98.59	53.72	33.13	11.81	95.09	50.45	31.49	12.62	90.38	46.22	30.65	13.05	87.97	44.13							

- Notes
- Q (Kw): Cooling Capacity
 - P(Kw): Total Absorbed Power
 - Pd (KPa): Pressure Drop of Water in Evaporator
 - WFR(Lit/min): water flow rat
 - Interpolation between rating is permissible but extrapolation is not
 - Calculated water flow rate and pressure drop heat exchanger in $\Delta T=5^{\circ}\text{C}$

Model: AMS1124CH

Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
40.63	11.15	116.61	44.51	38.79	12.25	111.34	40.98	36.88	13.41	106.83	37.45	35.72	14.13	102.51	35.40	34.51	14.88	99.06	33.33	32.93	15.91	94.51	30.70	32.11	16.44	92.15	29.38
41.96	11.24	120.43	47.16	40.05	12.33	114.96	43.39	38.12	13.49	109.40	39.72	36.91	14.22	105.93	37.51	35.70	14.97	102.47	35.38	34.06	15.99	97.75	32.56	33.23	16.52	95.37	31.19
43.29	11.33	124.24	49.88	41.34	12.42	118.64	45.91	39.35	13.58	112.93	42.03	38.14	14.30	109.45	39.75	36.89	15.05	105.88	37.48	35.22	16.08	101.09	34.54	34.36	16.60	98.62	33.07
44.87	11.44	128.78	53.23	42.88	12.53	123.06	49.04	40.83	13.68	117.17	44.90	39.58	14.41	113.61	42.48	38.31	15.15	109.95	40.07	36.60	16.17	105.03	36.95	35.72	16.70	102.51	35.40
46.29	11.53	132.85	56.32	44.23	12.62	126.94	51.86	42.09	13.77	120.79	47.41	40.79	14.49	117.07	44.82	39.46	15.23	113.26	42.25	37.68	16.25	108.14	38.91	36.78	16.77	105.57	37.28
47.18	11.59	135.41	58.31	45.04	12.67	129.27	53.59	42.88	13.82	123.06	49.03	41.54	14.54	119.21	46.31	40.19	15.28	115.36	43.66	38.38	16.30	110.14	40.20	37.46	16.82	107.50	38.50

Model: AMS1204CP

Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
17.03	5.27	48.88	4.10	15.98	5.90	46.87	3.68	14.90	6.59	42.76	3.31	14.23	7.03	40.84	3.10	13.56	7.50	38.92	2.91	12.65	8.14	36.30	2.69	12.18	8.48	34.96	2.59
17.54	5.33	50.35	4.32	16.48	5.96	47.29	3.87	15.38	6.65	44.14	3.47	14.71	7.09	42.21	3.25	14.03	7.56	40.27	3.04	13.12	8.21	37.66	2.80	12.65	8.54	36.31	2.69
18.08	5.38	51.88	4.56	17.00	6.02	48.78	4.08	15.88	6.71	45.59	3.65	15.21	7.15	43.65	3.41	14.53	7.62	41.70	3.19	13.62	8.27	39.09	2.93	13.16	8.61	37.76	2.81
18.72	5.44	53.73	4.86	17.61	6.08	50.54	4.34	16.48	6.78	47.30	3.87	15.79	7.23	45.33	3.61	15.11	7.69	43.36	3.38	14.18	8.35	40.70	3.09	13.72	8.69	39.37	2.96
19.19	5.49	55.08	5.10	18.05	6.13	51.80	4.54	16.89	6.83	48.46	4.04	16.19	7.28	46.46	3.76	15.49	7.74	44.44	3.50	14.54	8.39	41.73	3.19	14.07	8.73	40.39	3.06
19.76	5.54	56.71	5.40	18.59	6.19	53.35	4.80	17.42	6.89	50.00	4.26	16.71	7.34	47.97	3.97	16.01	7.81	45.96	3.69	15.07	8.47	43.24	3.36	14.59	8.81	41.88	3.21

Model: AMS1154CP

Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
13.46	4.15	38.62	4.39	12.64	4.64	36.26	4.06	11.78	5.18	33.82	3.71	11.26	5.53	32.31	3.49	10.73	5.89	30.79	3.27	9.99	6.40	28.68	2.98	9.62	6.67	27.60	2.82
13.89	4.18	39.86	4.57	13.05	4.68	37.46	4.23	12.18	5.22	34.95	3.87	11.64	5.56	33.40	3.65	11.10	5.93	31.84	3.43	10.35	6.44	29.71	3.12	9.97	6.70	28.61	2.96
14.36	4.22	41.21	4.77	13.50	4.71	38.75	4.41	12.61	5.26	36.20	4.05	12.06	5.60	34.63	3.82	11.51	5.97	33.02	3.59	10.75	6.48	30.84	3.28	10.35	6.74	29.72	3.12
14.89	4.26	42.74	4.99	14.01	4.76	40.21	4.62	13.10	5.30	37.59	4.25	12.53	5.65	35.97	4.02	11.95	6.01	34.31	3.78	11.17	6.52	32.07	3.46	10.78	6.78	30.94	3.30
15.30	4.29	43.92	5.16	14.40	4.79	41.32	4.78	13.46	5.33	38.62	4.39	12.88	5.68	36.97	4.16	12.29	6.04	35.27	3.91	11.49	6.55	32.97	3.59	11.08	6.81	31.79	3.42
15.81	4.33	45.36	5.37	14.87	4.83	42.67	4.98	13.90	5.37	39.90	4.58	13.31	5.72	38.19	4.33	12.71	6.08	36.47	4.09	11.87	6.59	34.08	3.74	11.46	6.85	32.89	3.57

Model: AMS1224CP

Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
20.31	5.03	58.30	5.70	19.11	5.66	54.86	5.06	17.86	6.34	51.27	4.46	17.10	6.78	49.09	4.13	16.32	7.25	46.85	3.81	15.25	7.90	43.76	3.42	14.72	8.24	42.24	3.25
20.94	5.06	60.11	6.07	19.70	5.68	56.55	5.37	18.44	6.37	52.92	4.73	17.66	6.82	50.69	4.37	16.87	7.28	48.42	4.03	15.81	7.94	45.37	3.62	15.27	8.28	43.81	3.43
21.60	5.09	61.99	6.46	20.33	5.71	58.34	5.71	19.03	6.41	54.62	5.02	18.24	6.85	52.35	4.63	17.45	7.32	50.08	4.27	16.39	7.98	47.03	3.84	15.85	8.32	45.49	3.63
22.38	5.12	64.24	6.97	21.07	5.75	60.47	6.14	19.75	6.44	56.67	5.39	18.94	6.89	54.37	4.97	18.14	7.36	52.05	4.58	17.07	8.02	49.00	4.11	16.53	8.37	47.43	3.89
23.04	5.14	66.14	7.41	21.68	5.78	62.21	6.51	20.30	6.47	58.26	5.70	19.47	6.92	55.87	5.24	18.64	7.39	53.50	4.83	17.55	8.05	50.37	4.32	17.00	8.40	48.80	4.08
23.76	5.17	68.19	7.91	22.34	5.81	64.12	6.94	20.94	6.51	60.10	6.07	20.10	6.96	57.69	5.59	19.27	7.43	55.31	5.14	18.17	8.09	52.14	4.60	17.61	8.43	50.55	4.35

Model: AMS1174CS

Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
14.75	4.33	42.34	4.93	13.85	4.88	39.74	4.56	12.91	5.49	37.05	4.17	12.34	5.89	35.41	3.93	11.74	6.31	33.70	3.69	10.95	6.91	31.42	3.37	10.54	7.22	30.24	3.20
15.24	4.36	43.74	5.13	14.31	4.91	41.07	4.75	13.35	5.53	38.33	4.35	12.77	5.93	36.64	4.11	12.16	6.35	34.91	3.86	11.34	6.94	32.54	3.52	10.92	7.25	31.34	3.35
15.77	4.40	45.25	5.35	14.82	4.95	42.54	4.96	13.84	5.57	39.71	4.55	13.23	5.97	37.98	4.30	12.62	6.39	36.22	4.05	11.78	6.98	33.81	3.71	11.36	7.29	32.60	3.53
16.36	4.44	46.95	5.60	15.38	5.00	44.15	5.19	14.38	5.62	41.27	4.78	13.75	6.02	39.47	4.52	13.13	6.44	37.67	4.26	12.27	7.03	35.22	3.91	11.83	7.34	33.96	3.73
16.84	4.47	48.32	5.79	15.83	5.03	45.44	5.38	14.79	5.65	42.45	4.95	14.16	6.05	40.63	4.68	13.51	6.47	38.76	4.41	12.63	7.06	36.23	4.05	12.17	7.37	34.93	3.87
17.41	4.52	49.96	6.03	16.38	5.08	47.00	5.60	15.31	5.70	43.93	5.16	14.64	6.09	42.03	4.88	13.98	6.51	40.12	4.61	13.07	7.11	37.51	4.24	12.61	7.42	36.20	4.05

Model: AMS1264CP

Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
22.73	5.76	65.23	7.19	21.36	6.47	61.31	6.32	19.94	7.25	57.24	5.50	19.08	7.76	54.75	5.04	18.19	8.29	52.21	4.61	16.98	9.03	48.74	4.07	16.36	9.42	46.95	3.83
23.43	5.80	67.23	7.67	22.02	6.51	63.20	6.73	20.57	7.30	59.05	5.85	19.69	7.80	56.52	5.36	18.81	8.33	53.97	4.91	17.59	9.08	50.49	4.34	16.99	9.47	48.75	4.08
24.12	5.83	69.24	8.17	22.69	6.55	65.12	7.17	21.23	7.34	60.92	6.24	20.34	7.85	58.37	5.72	19.44	8.38	55.79	5.23	18.23	9.13	52.33	4.63	17.63	9.52	50.59	4.35
24.97	5.87	71.66	8.81	23.50	6.60	67.44	7.72	22.00	7.39	63.13	6.71	21.10	7.90	60.57	6.16	20.21	8.44	57.99	5.64	19.00	9.19	54.52	5.00	18.39	9.58	52.77	4.70
25.74	5.91	73.87	9.41	24.19	6.64	69.43	8.22	22.65	7.43	65.00	7.14	21.72	7.94	62.34	6.54	20.80	8.48	59.70	5.98	19.57	9.23	56.16	5.30	18.95	9.63	54.39	4.98
26.50	5.94	76.06	10.04	24.92	6.68	71.52	8.77	23.35	7.48																		

Model: AMS1304CP																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
28.09	6.96	80.62	5.09	26.42	7.74	75.82	4.70	24.69	8.59	70.85	4.31	23.60	9.13	67.74	4.08	22.51	9.70	64.81	3.85	21.02	10.49	60.33	3.54	20.24	10.90	58.10	3.38
28.94	7.00	83.05	5.29	27.24	7.78	78.18	4.89	25.48	8.64	73.13	4.49	24.40	9.18	70.01	4.25	23.30	9.75	66.87	4.01	21.80	10.55	62.56	3.70	21.04	10.96	60.39	3.54
29.84	7.04	85.65	5.50	28.10	7.83	80.64	5.09	26.30	8.69	75.47	4.67	25.21	9.24	72.36	4.43	24.10	9.81	69.17	4.18	22.61	10.60	64.89	3.87	21.85	11.02	62.71	3.71
30.90	7.09	88.68	5.76	29.09	7.89	83.49	5.32	27.25	8.75	78.22	4.89	26.15	9.30	75.04	4.64	25.02	9.87	71.81	4.38	23.52	10.67	67.51	4.06	22.77	11.08	65.34	3.90
31.71	7.13	90.99	5.97	29.84	7.93	85.63	5.50	27.94	8.79	80.20	5.05	26.80	9.34	76.91	4.78	25.66	9.91	73.65	4.53	24.13	10.71	69.24	4.19	23.37	11.13	67.06	4.03
32.68	7.17	93.80	6.22	30.75	7.98	88.26	5.73	28.83	8.84	82.75	5.26	27.67	9.40	79.40	4.99	26.52	9.97	76.11	4.72	24.99	10.77	71.71	4.38	24.22	11.19	69.50	4.21

Model: AMS2124CS																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
43.45	12.00	124.71	4.87	40.93	13.18	117.46	4.44	38.32	14.47	109.97	4.02	36.67	15.28	105.26	3.76	35.02	16.13	100.51	3.51	32.77	17.32	94.05	3.19	31.60	17.93	90.70	3.04
44.88	12.13	128.80	5.13	42.28	13.32	121.35	4.67	39.60	14.60	113.64	4.22	37.94	15.42	108.87	3.96	36.22	16.26	103.97	3.69	33.91	17.44	97.33	3.35	32.73	18.05	93.95	3.19
46.16	12.25	132.47	5.36	43.50	13.44	124.84	4.88	40.75	14.72	116.95	4.41	39.05	15.54	112.07	4.13	37.30	16.38	107.06	3.86	34.94	17.55	100.29	3.50	33.73	18.16	96.80	3.33
47.86	12.40	137.37	5.69	45.09	13.59	129.42	5.17	42.25	14.88	121.25	4.66	40.48	15.69	116.19	4.37	38.68	16.53	111.02	4.07	36.23	17.70	103.97	3.69	34.97	18.30	100.35	3.51
48.97	12.50	140.53	5.90	46.13	13.69	132.39	5.36	43.18	14.97	123.91	4.83	41.36	15.78	118.69	4.51	39.50	16.62	113.36	4.21	36.97	17.78	106.11	3.81	35.69	18.38	102.42	3.61
50.41	12.63	144.67	6.19	47.50	13.83	136.33	5.62	44.49	15.11	127.69	5.06	42.63	15.91	122.34	4.73	40.73	16.75	116.89	4.41	38.15	17.91	109.50	3.99	36.83	18.50	105.69	3.78

Model: AMS1364CP																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
29.78	7.69	85.45	5.49	28.01	8.47	80.39	5.07	26.15	9.30	75.06	4.64	25.00	9.83	71.74	4.38	23.81	10.38	68.33	4.12	22.19	11.14	63.69	3.78	21.37	11.54	61.34	3.61
30.68	7.73	88.05	5.71	28.87	8.52	82.86	5.27	26.98	9.36	77.44	4.83	25.83	9.89	74.15	4.57	24.64	10.44	70.73	4.30	23.03	11.20	66.11	3.96	22.20	11.59	63.72	3.78
31.61	7.78	90.71	5.94	29.76	8.57	85.42	5.48	27.85	9.41	79.94	5.03	26.69	9.94	76.59	4.76	25.48	10.49	73.14	4.49	23.88	11.26	68.53	4.14	23.06	11.65	66.19	3.96
32.71	7.83	93.88	6.22	30.81	8.62	88.43	5.74	28.87	9.47	82.86	5.27	27.68	10.01	79.43	4.99	26.48	10.56	75.99	4.71	24.87	11.33	71.36	4.35	24.05	11.72	69.01	4.17
33.58	7.87	96.39	6.45	31.60	8.67	90.70	5.94	29.62	9.52	85.00	5.45	28.39	10.05	81.49	5.16	27.17	10.60	77.98	4.87	25.52	11.37	73.26	4.50	24.70	11.76	70.89	4.31
34.61	7.92	99.32	6.72	32.58	8.72	93.49	6.19	30.54	9.57	87.66	5.68	29.31	10.11	84.11	5.37	28.08	10.66	80.60	5.08	26.43	11.43	75.86	4.70	25.60	11.82	73.48	4.51

Model: AMS2164CE																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
11.34	3.09	32.55	3.53	10.83	3.38	31.09	3.32	10.33	3.69	29.64	3.11	10.03	3.88	28.77	2.99	9.72	4.09	27.90	2.86	9.32	4.37	26.75	2.70	9.12	4.52	26.17	2.62
11.75	3.13	33.72	3.69	11.22	3.41	32.20	3.48	10.70	3.72	30.70	3.26	10.38	3.92	29.78	3.13	10.06	4.12	28.87	3.00	9.64	4.41	27.66	2.83	9.43	4.56	27.05	2.74
12.08	3.15	34.66	3.83	11.54	3.44	33.11	3.61	10.99	3.75	31.56	3.38	10.67	3.95	30.61	3.25	10.34	4.15	29.67	3.12	9.90	4.44	28.42	2.94	9.68	4.59	27.79	2.85
12.46	3.18	35.76	3.98	11.90	3.47	34.16	3.76	11.34	3.78	32.54	3.52	11.00	3.98	31.56	3.38	10.66	4.19	30.59	3.25	36.23	17.70	103.97	14.10	9.97	4.63	28.62	2.97
12.71	3.20	36.48	4.09	12.14	3.49	34.83	3.85	11.56	3.80	33.17	3.61	11.21	4.00	32.17	3.47	10.86	4.21	31.16	3.33	10.38	4.50	29.79	3.13	10.15	4.65	29.14	3.04
13.08	3.23	37.54	4.24	12.49	3.52	35.84	4.00	11.89	3.83	34.14	3.75	11.53	4.03	33.10	3.60	11.17	4.24	32.06	3.46	10.68	4.53	30.66	3.26	10.44	4.69	29.97	3.16

Model: AMS1434CH																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
36.09	8.98	103.57	3.67	33.93	9.90	97.37	3.36	31.67	10.89	90.90	3.04	30.29	11.52	86.94	2.86	28.85	12.18	82.79	2.68	26.90	13.08	77.21	2.44	25.91	13.55	74.37	2.33
37.27	9.03	106.97	3.85	35.07	9.96	100.64	3.52	32.78	10.96	94.06	3.19	31.36	11.59	90.02	3.00	29.94	12.25	85.92	2.82	27.97	13.15	80.27	2.57	26.99	13.62	77.45	2.45
38.33	9.08	110.00	4.02	36.07	10.02	103.52	3.67	33.76	11.02	96.89	3.33	32.35	11.65	92.84	3.14	30.91	12.31	88.70	2.94	28.98	13.22	83.16	2.70	27.99	13.69	80.34	2.57
39.68	9.15	113.89	4.23	37.36	10.09	107.22	3.87	34.97	11.09	100.37	3.51	33.54	11.73	96.25	3.30	32.07	12.38	92.03	3.10	30.11	13.29	86.41	2.84	29.12	13.77	83.57	2.71
40.52	9.18	116.30	4.37	38.11	10.12	109.38	3.98	35.68	11.13	102.39	3.61	34.21	11.77	98.19	3.40	32.71	12.42	93.89	3.19	30.73	13.34	88.21	2.92	29.74	13.81	85.35	2.79
41.73	9.24	119.78	4.58	39.26	10.18	112.69	4.17	36.80	11.19	105.61	3.78	35.31	11.83	101.33	3.56	33.81	12.49	97.04	3.34	31.84	13.40	91.38	3.07	30.84	13.88	88.52	2.93

Model: AMS2184CE																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
15.45	4.47	44.34	5.22	14.54	5.03	41.74	4.84	13.61	5.64	39.06	4.46	13.03	6.04	37.38	4.22	12.45	6.45	35.72	3.98	11.65	7.04	33.44	3.65	11.24	7.35	32.26	3.48
16.05	4.52	46.06	5.47	15.11	5.08	43.37	5.08	14.14	5.70	40.59	4.68	13.54	6.10	38.86	4.43	12.94	6.52	37.14	4.18	12.12	7.11	34.79	3.85	11.70	7.42	33.59	3.67
16.53	4.56	47.44	5.67	15.57	5.13	44.68	5.27	14.58	5.75	41.84	4.86	13.97	6.15	40.09	4.61	13.35	6.57	38.31	4.35	12.51	7.16	35.91	4.01	12.09	7.47	34.69	3.83
17.12	4.62	49.13	5.91	16.12	5.18	46.28	5.50	15.10	5.81	43.33	5.07	14.47	6.21	41.53	4.81	13.84	6.64	39.71	4.55	12.97	7.23	37.23	4.19	12.53	7.54	35.97	4.02
17.53	4.65	50.32	6.08	16.51	5.22	47.38	5.66	15.46	5.85	44.36	5.22	14.81	6.26	42.51	4.95	14.16	6.68	40.63	4.68	13.27	7.27	38.10	4.32	12.83	7.58	36.81	4.14
18.08	4.70	51.88	6.31	17.03	5.28	48.87	5.87	15.94	5.91	45.76	5.42	15															

Model: AMS2214CP																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
16.91	5.23	48.54	4.05	15.90	5.86	46.64	3.65	14.85	6.57	42.63	3.29	14.21	7.02	40.77	3.09	13.55	7.49	38.88	2.91	12.67	8.16	36.35	2.70	12.22	8.50	35.07	2.60
17.53	5.29	50.33	4.31	16.49	5.93	47.31	3.87	15.40	6.64	44.21	3.48	14.74	7.10	42.80	3.26	14.07	7.57	40.37	3.05	13.15	8.24	37.75	2.81	12.69	8.59	36.41	2.70
18.02	5.34	51.73	4.53	16.96	5.99	48.66	4.06	15.85	6.70	45.49	3.63	15.18	7.16	43.56	3.40	14.50	7.64	41.62	3.18	13.57	8.31	38.95	2.92	13.10	8.66	37.60	2.80
18.67	5.41	53.58	4.84	17.56	6.07	50.40	4.32	16.41	6.78	47.09	3.84	15.71	7.24	45.09	3.58	15.01	7.72	43.06	3.34	14.04	8.39	40.29	3.05	13.56	8.74	38.91	2.91
19.04	5.45	54.64	5.02	17.89	6.11	51.36	4.47	16.72	6.82	47.99	3.97	16.00	7.28	45.93	3.69	15.28	7.76	43.85	3.43	14.30	8.43	41.03	3.12	13.80	8.78	39.60	2.98
19.62	5.51	56.32	5.33	18.45	6.18	52.95	4.73	17.25	6.90	49.51	4.19	16.51	7.36	47.39	3.89	15.78	7.84	45.28	3.61	14.78	8.52	42.41	3.27	14.27	8.87	40.95	3.11

Model: AMS2294CP																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
26.41	6.31	75.81	4.70	24.99	6.96	71.71	4.38	23.50	7.68	67.45	4.05	22.57	8.16	64.77	3.86	21.65	8.66	62.14	3.67	20.38	9.38	58.49	3.41	19.72	9.76	56.60	3.28
27.47	6.37	78.83	4.94	25.98	7.01	74.56	4.60	24.44	7.73	70.14	4.26	23.49	8.21	67.41	4.05	22.53	8.71	64.66	3.85	21.19	9.42	60.82	3.57	20.52	9.80	58.90	3.44
28.26	6.42	81.11	5.12	26.75	7.05	76.77	4.77	25.18	7.77	72.26	4.42	24.21	8.25	69.49	4.21	23.22	8.75	66.64	3.99	21.89	9.46	62.82	3.72	21.21	9.84	60.88	3.58
29.39	6.48	84.34	5.39	27.81	7.11	79.82	5.02	26.16	7.83	75.09	4.64	25.15	8.30	72.18	4.41	24.11	8.80	69.20	4.19	22.71	9.51	65.17	3.89	21.91	9.88	62.90	3.72
30.04	6.52	86.22	5.55	28.41	7.15	81.53	5.16	26.71	7.86	76.66	4.76	25.67	8.33	73.68	4.53	24.62	8.83	70.65	4.30	23.18	9.54	66.54	3.99	22.44	9.91	64.41	3.83
30.97	6.57	88.89	5.78	29.31	7.20	84.11	5.37	27.58	7.91	79.16	4.97	26.53	8.38	76.13	4.72	25.44	8.88	73.02	4.48	23.97	9.59	68.80	4.16	23.23	9.96	66.67	4.00

Model: AMS2234CP																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
19.62	4.79	56.31	5.32	18.49	5.41	53.08	4.75	17.34	6.10	49.77	4.23	16.62	6.56	47.70	3.93	15.91	7.04	45.65	3.65	14.93	7.72	42.85	3.32	14.42	8.08	41.38	3.16
20.40	4.82	58.55	5.75	19.24	5.44	55.23	5.13	18.05	6.14	51.81	4.55	17.31	6.59	49.69	4.22	16.57	7.08	47.56	3.91	15.55	7.76	44.64	3.53	15.04	8.12	43.15	3.35
21.01	4.84	60.31	6.11	19.83	5.47	56.90	5.44	18.61	6.17	53.41	4.81	17.85	6.62	51.24	4.45	17.10	7.11	49.07	4.12	16.06	7.80	46.09	3.71	15.53	8.16	44.57	3.52
21.87	4.87	62.76	6.63	20.63	5.50	59.21	5.89	19.36	6.20	55.56	5.19	18.58	6.66	53.34	4.80	17.78	7.15	51.04	4.42	16.71	7.84	47.96	3.96	16.17	8.20	46.40	3.75
22.40	4.89	64.28	6.97	21.12	5.52	60.80	6.17	19.80	6.23	56.84	5.42	19.00	6.69	54.54	5.00	18.18	7.17	52.18	4.60	17.07	7.87	49.00	4.11	16.51	8.23	47.37	3.88
23.14	4.91	66.41	7.47	21.83	5.55	62.67	6.61	20.49	6.26	58.80	5.80	19.66	6.72	56.43	5.35	18.81	7.21	54.00	4.91	17.69	7.91	50.76	4.38	17.11	8.27	49.10	4.13

Model: AMS2354CP																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
28.06	6.84	80.54	5.08	26.50	7.50	76.05	4.72	24.90	8.23	71.48	4.36	23.93	8.71	68.68	4.15	22.91	9.22	65.76	3.93	21.66	9.94	61.87	3.65	20.85	10.32	59.85	3.51
29.17	6.91	83.71	5.34	27.56	7.56	79.10	4.96	25.90	8.29	74.35	4.58	24.87	8.76	71.39	4.35	23.84	9.27	68.42	4.13	22.43	9.98	64.38	3.83	21.71	10.36	62.30	3.68
30.00	6.95	86.11	5.54	28.35	7.60	81.37	5.15	26.67	8.33	76.54	4.75	25.63	8.80	73.56	4.52	24.58	9.31	70.54	4.29	23.14	10.02	66.40	3.98	22.40	10.39	64.29	3.82
31.20	7.02	89.56	5.84	29.48	7.67	84.61	5.42	27.72	8.39	79.56	5.00	26.63	8.86	76.43	4.75	25.52	9.36	73.24	4.50	24.02	10.07	68.93	4.16	23.25	10.44	66.73	4.00
31.89	7.07	91.52	6.01	30.13	7.71	86.48	5.68	28.31	8.43	81.25	5.14	27.20	8.89	78.07	4.88	26.06	9.39	74.78	4.62	24.51	10.09	70.34	4.27	23.73	10.46	68.11	4.10
32.85	7.12	94.32	6.26	31.06	7.76	89.15	5.81	29.21	8.48	83.84	5.35	28.07	8.95	80.55	5.08	26.91	9.44	77.23	4.81	25.33	10.14	72.70	4.45	24.54	10.51	70.44	4.28

Model: AMS2274CP																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
21.62	5.42	62.05	6.48	20.42	6.06	58.62	5.77	19.19	6.78	55.06	5.10	18.43	7.25	52.89	4.72	17.64	7.75	50.62	4.36	16.58	8.47	47.57	3.91	16.05	8.84	46.06	3.71
22.48	5.46	64.51	7.03	21.25	6.10	60.98	6.25	19.97	6.82	57.31	5.51	19.19	7.30	55.07	5.10	18.37	7.80	52.73	4.70	17.27	8.51	49.57	4.20	16.72	8.89	47.99	3.97
23.15	5.50	66.44	7.48	21.89	6.14	62.81	6.64	20.58	6.86	59.08	5.86	19.77	7.33	56.73	5.40	18.95	7.84	54.38	4.98	17.83	8.55	51.18	4.45	17.26	8.93	49.53	4.19
24.11	5.54	69.19	8.16	22.79	6.19	65.40	7.23	21.43	6.91	61.49	6.36	20.59	7.39	59.09	5.86	19.73	7.89	56.63	5.38	18.57	8.60	53.29	4.79	17.97	8.98	51.58	4.51
24.72	5.57	70.94	8.61	23.35	6.22	67.01	7.62	21.95	6.94	62.98	6.68	21.08	7.42	60.49	6.15	20.19	7.92	57.95	5.64	18.99	8.64	54.51	5.00	18.38	9.01	52.75	4.70
25.53	5.61	73.26	9.24	24.13	6.26	69.25	8.18	22.69	6.99	65.11	7.17	21.80	7.46	62.56	6.59	20.89	7.97	59.95	6.03	19.66	8.68	56.43	5.35	19.04	9.06	54.64	5.02

Model: AMS2414CP																											
Ambient Temperature (°C)																											
30				35				40				43				46				50				52			
Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)	Q (kW)	P (kW)	WFR (lit/min)	Pd (kPa)
34.90	8.97	100.17	3.50	32.54	9.67	93.40	3.16	30.14	10.43	86.52	2.84	28.72	10.91	82.41	2.66	27.27	11.41	78.25	2.49	25.31	12.11	72.63	2.26	24.34	12.47	69.86	2.16
36.24	9.06	104.00	3.69	33.78	9.74	96.94	3.33	31.28	10.48	89.79	2.99	29.77	10.95	85.45	2.80	28.26	11.44	81.11	2.61	26.22	12.12	75.24	2.37	25.19	12.47	72.29	2.25
37.28	9.13	106.99	3.85	34.77	9.80	99.78	3.48	32.23	10.53	92.51	3.12	30.68	10.99	88.05	2.91	29.13	11.47	83.62	2.72	27.05	12.13	77.64	2.46	26.00	12.48	74.61	2.34
38.56	9.21	110.68	4.05	35.97	9.88	103.22	3.65	33.31	10.59	95.59	3.27	31.71	11.04	91.00	3.05	30.08	11.51	86.34	2.84	27.90	12.16	80.08	2.56	26.81	12.49	76.95	2.43
39.40	9.27	113.08	4.19	36.73	9.93	105.41	3.77	34.01	10.64	97.60	3.37	32.37	11.08	92.89	3.14	30.71	11.54	88.15	2.92	28.48	12.18	81.73	2.63	27.37	12.50	78.54	2.50
40.64	9.37	116.64	4.39	37.90	10.02	108.77	3.95	35.12	10.71	100.7																	

Hydraulic system equipment: Arvand's mini chillers are equipped with water pump, expansion tank, storage tank, relief valve and flow switch.

Pressure Drop Heat Exchangers

Figure 1 shows the variation of the chilled water flow rate vs evaporator pressure drop for all mini chiller models. classification of mini chiller models according to their models used in Figure 1 is shown and table 1.

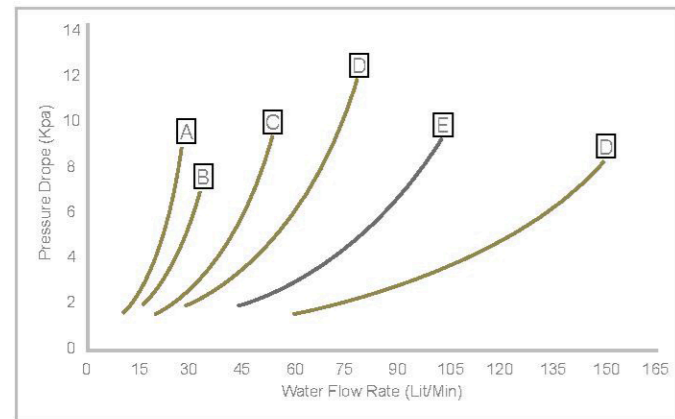


Figure 1 - variation of the chilled water flow rate versus evaporator pressure drop

Based on the figure 1, by selecting the considered mini-chiller model from Table 1, you can see the Minimum and Maximum water flow rate versus evaporator pressure drop.(Table 1)

Model	Model ((AMS-FS-(B,P,T))	Min WFR (lit/min)	Max WFR (lit/min)	STD WFR (lit/min)	Evap Press Drop (Kpa)
A	AMS1062NH	10.2	20.3	17.0	3.3
	AMS1062NH	12.9	25.7	21.4	5
	AMS1074AS	12.3	24.5	20.4	4.7
	AMS1074AS	12.9	25.9	21.6	5.1
	AMS1064CH	10.3	20.6	17.1	3.4
B	AMS1084CS	13.6	27.2	22.7	5.6
	AMS1092NE	16.1	32.3	26.9	4.6
	AMS1104AE	16.7	33.4	27.9	4.9
C	AMS1084CS	16.3	32.5	27.1	4.7
	AMS1092NE	20.17	40.34	33.62	3.4
	AMS1142NH	23.87	47.73	39.78	4.7
	AMS1104AE	21.60	43.20	36.00	3.9
	AMS1154AS	25.37	50.73	42.28	5.3
	AMS1084CS	23.78	47.56	39.63	4.1
	AMS1154CP	24.16	48.33	40.27	4.8
	AMS1092NE	19.52	39.04	32.53	3.2
	AMS1142NH	25.34	50.67	42.23	5.3
	AMS1154AS	23.25	46.50	38.75	4.5
	AMS1154AS	25.52	51.05	42.54	5.4
	AMS1084CS	19.87	39.73	33.11	3.3
	AMS1154CP	26.81	53.62	44.68	5.2

Model	Model ((AMS-FS-(B,P,T))	Min WFR (lit/min)	Max WFR (lit/min)	STD WFR (lit/min)	Evap Press Drop (Kpa)	
D	AMS1142NH	28.51	57.03	47.52	3.8	
	AMS1202NP	33.75	67.49	56.25	5.4	
	AMS1202NP	35.74	71.47	59.56	6.0	
	AMS1154AS	29.71	59.41	49.51	4.2	
	AMS1214AP	35.75	71.50	59.58	6.0	
	AMS1214AP	37.91	75.81	63.18	6.7	
	AMS1154CP	28.31	56.62	47.19	3.8	
	AMS1204CP	33.62	67.24	56.03	5.3	
	AMS1204CP	35.88	71.76	59.80	6.0	
	AMS1142NH	28.63	57.26	47.72	3.9	
	AMS1202NP	33.80	67.60	56.33	5.4	
	AMS1202NP	37.02	74.04	61.70	6.4	
	AMS1154AS	29.27	58.54	48.78	4.1	
	AMS1214AP	35.01	70.01	58.34	5.7	
	AMS1274AP	39.07	78.15	65.12	7.1	
	AMS1204CP	29.20	58.40	48.66	4.0	
	AMS1204CP	34.14	68.28	56.90	5.5	
	AMS1264CP	37.69	75.38	62.81	6.6	
	E	AMS1252NP	43.55	87.10	72.58	4.2
		AMS1302NP	49.45	98.90	82.42	5.3
AMS1274AP		46.41	92.82	77.35	4.7	
AMS1304AP		51.06	102.12	85.10	5.7	
AMS1264CP		44.16	88.32	73.60	4.3	
AMS1304CP		50.02	100.04	83.37	5.4	
AMS1252NP		45.19	90.37	75.31	4.5	
AMS1302NP		48.22	96.44	80.37	5.1	
AMS1304AP		48.38	96.77	80.64	5.1	
AMS1304AP		51.25	102.50	85.42	5.7	
F	AMS1264CP	46.06	92.12	76.77	4.9	
	AMS1304CP	48.82	97.65	81.37	5.2	
	AMS1342NH	60.07	120.15	100.12	3.3	
	AMS1422NH	73.87	147.74	123.12	4.9	
	AMS1344AP	60.08	120.16	100.13	3.3	
	AMS1434AH	75.20	150.39	125.33	5.2	
	AMS1364CP	61.62	123.25	102.71	3.4	
	AMS1434CH	74.31	148.62	123.85	5.0	
	AMS1342NH	59.81	119.61	99.68	3.3	
	AMS1422NH	71.19	142.37	118.64	4.6	
G	AMS1344AP	62.11	124.23	103.52	3.6	
	AMS1434AH	74.90	149.81	124.84	5.2	
	AMS1364CP	59.87	119.74	99.78	3.4	
	AMS2414CP	71.07	142.13	118.44	4.6	

Variation of the chilled water flow rate vs pump available static head for all mini chiller models is illustrated in figure 2. Arvand mini-chillers are applied the best high quality circulation pumps with suitable head and flow. As seen in Table 2, the pumps are used in this series of Arvand mini-chillers are available in two linear models. Based on figure 2, you can observe the pump available static head vs chilled water flow rate by selecting the mini-chiller model nominal tonnage according to table 2.

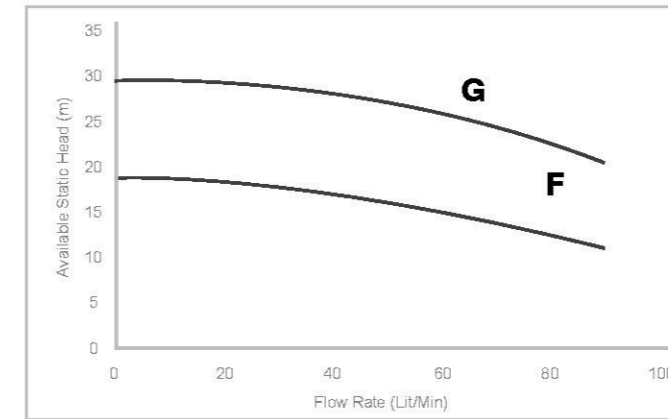


Figure 2- variation of the chilled water flow rate versus evaporator pressure drop

Pump Type	AMS Mini Chiller	
F	5 - 30	Kw
G	30 -40	Kw

Table 2 - variation of the Pump flow rate vs nominal tonnage

Water Treatment

- The best water for use in machine to protection damage heat exchanger from erosion and corrosion shall be accordance to parameters water in following table.

Properties OF Water Circulating		
Parameter	Allowed amount	Unit
PH	7>0	-
Chloride	125>0	Mg/l
Ferrum	50>0	Mg/l
copper	3>0	Mg/l
Aluminum	3>0	Mg/l
CaCO ₃	NO	Mg/l
Chlorine	0.2>0	Mg/l
Fluoride	NO	Mg/l
Sulfide	NO	Mg/l
Hardware	5>0	PPM

Unit Model	Rated Voltage	Compressor Quantity	Fan Quantity	Fan power (kW)	OLA (A)	FLA (A)	ICF (A)	MOP (kW)
AMS1062NH	220-240 V-1ph	1	1	0.19	9	19	60	21.5
AMS1072NH	220-240 V-1ph	1	1	0.19	11	23	97	24.7
AMS1092NE	220-240 V-1ph	1	1	0.19	14	26	97	31.2
AMS1122NS	380-400 V-3ph	1	2	0.19	6	12	50	16.1
AMS1142NH	380-400 V-3ph	1	2	0.19	7	15	70	17.5
AMS1172NS	380-400 V-3ph	1	2	0.19	9	15	82	22.8
AMS1202NP	380-400 V-3ph	1	1	0.5	10	18	87	21.4
AMS1212NP	380-400 V-3ph	1	1	0.5	11	19	98	25.4
AMS1252NP	380-400 V-3ph	1	1	0.5	13	22	130	29.5
AMS1302NP	380-400 V-3ph	1	1	0.5	15	29	130	34.5
AMS1342NH	380-400 V-3ph	1	1	0.5	18	32	145	40.0
AMS1422NH	380-400 V-3ph	1	1	0.5	23	39	175	52.5
AMS1074AS	220-240 V-1ph	1	1	0.19	10	22	97	23.0
AMS1084AE	220-240 V-1ph	1	1	0.19	13	25	97	30.7
AMS1104AE	380-400 V-3ph	1	1	0.19	5	13	60	12.3
AMS1124AS	380-400 V-3ph	1	2	0.19	6	13	70	14.7
AMS1154AS	380-400 V-3ph	1	2	0.19	9	15	82	21.0
AMS1174AS	380-400 V-3ph	1	2	0.19	9	19	87	22.0
AMS1214AP	380-400 V-3ph	1	1	0.5	11	19	100	23.9
AMS1224AH	380-400 V-3ph	1	1	0.5	12	22	98	26.8
AMS1274AP	380-400 V-3ph	1	1	0.5	14	25	142	32.5
AMS1304AP	380-400 V-3ph	1	1	0.5	16	29	142	35.2
AMS1344AP	380-400 V-3ph	1	1	0.5	17	30	147	39.2
AMS1434AH	380-400 V-3ph	1	1	0.5	23	39	197	52.0
AMS1054CH	380-400 V-3ph	1	1	0.19	3	7	30	7.4
AMS1084CS	220-240 V-1ph	1	1	0.19	11	25	97	25.3
AMS1094CS	220-240 V-1ph	1	1	0.19	13	27	97	30.5
AMS1124CH	380-400 V-3ph	1	2	0.19	7	13	60	16.9
AMS1154CP	380-400 V-3ph	1	2	0.19	7	15	70	17.7
AMS1174CS	380-400 V-3ph	1	2	0.19	9	15	87	22.5
AMS1204CP	380-400 V-3ph	1	1	0.5	5	17	87	11.5
AMS1224CP	380-400 V-3ph	1	1	0.5	11	19	98	23.9
AMS1254CP	380-400 V-3ph	1	1	0.5	13	22	130	28.9

All measures are calculated at 35 °C ambient temperature and entering/leaving water temperature 12/7 °C.
 Voltage Utilization Range: +/- 5% of rated voltage. Rated voltage (use range): 400 volt (380-420).
 OLA : Unit Operating Load Amps
 FLA : Unit Full load Amps
 ICF : Instantaneous Maximum Starting amps (any point in starting sequence where sum of LRA for starting compressor is maximum).
 Mop : Unit Maximum Operating Power
 All measures are calculated at 35 °C ambient temperature and entering/leaving water temperature 12/7 °C

Unit Model	Rated Voltage	Compressor Quantity	Fan Quantity	Fan power (kW)	OLA (A)	FLA (A)	ICF (A)	MOP (kW)
AMS1304CP	380-400 V-3ph	1	1	0.5	15	29	130	34.4
AMS1354CP	380-400 V-3ph	1	1	0.5	18	32	145	39.6
AMS1434CH	380-400 V-3ph	1	1	0.5	23	39	175	51.3
AMS2122NS	220-240 V-1ph	2	2	0.19	20	38	120	33.7
AMS2152NS	220-240 V-1ph	2	2	0.19	22	46	194	37.2
AMS2172NE	220-240 V-1ph	2	2	0.19	25	49	194	44.4
AMS2202NP	380-400 V-3ph	2	1	0.5	10	22	90	15.4
AMS2222NP	380-400 V-3ph	2	1	0.5	11	23	95	18.4
AMS2252NP	380-400 V-3ph	2	1	0.5	13	27	120	20.9
AMS2282NP	380-400 V-3ph	2	1	0.5	14	30	140	21.9
AMS2342NP	380-400 V-3ph	2	1	0.5	17	30	164	27.5
AMS2402NH	380-400 V-3ph	2	1	0.5	23	37	196	38.1
AMS2134AE	380-400 V-3ph	2	2	0.19	21	45	194	35.2
AMS2154AE	220-240 V-1ph	2	2	0.19	27	50	194	45.5
AMS2174AE	380-400 V-3ph	2	2	0.19	10	23	105	18.5
AMS2214AP	380-400 V-3ph	2	1	0.5	9	26	120	15.4
AMS2234AH	380-400 V-3ph	2	1	0.5	10	26	130	17.2
AMS2284AP	380-400 V-3ph	2	1	0.5	14	28	152	24.5
AMS2304AH	380-400 V-3ph	2	1	0.5	17	30	164	27.2
AMS2354AP	380-400 V-3ph	2	1	0.5	17	38	174	27.3
AMS2434AS	380-400 V-3ph	2	1	0.5	24	44	196	39.6
AMS2124CS	380-400 V-3ph	2	2	0.19	6	14	60	11.9
AMS2164CE	220-240 V-1ph	2	2	0.19	25	50	194	42.1
AMS2184CE	220-240 V-1ph	2	2	0.19	27	52	194	46.3
AMS2214CP	380-400 V-3ph	2	1	0.5	11	20	90	17.4
AMS2234CP	380-400 V-3ph	2	1	0.5	12	23	105	20.0
AMS2274CP	380-400 V-3ph	2	1	0.5	13	28	130	21.9
AMS2294CP	380-400 V-3ph	2	1	0.5	14	30	140	22.6
AMS2354CP	380-400 V-3ph	2	1	0.5	17	30	174	28.3
AMS2414CP	380-400 V-3ph	2	1	0.5	22	37	196	35.9

All measures are calculated at 35 °C ambient temperature and entering/leaving water temperature 12/7 °C.
 Voltage Utilization Range: +/- 5% of rated voltage. Rated voltage (use range): 400 volt (380-420).
 OLA : Unit Operating Load Amps
 FLA : Unit Full load Amps
 ICF : Instantaneous Maximum Starting amps (any point in starting sequence where sum of LRA for starting compressor is maximum).
 Mop : Unit Maximum Operating Power
 All measures are calculated at 35 °C ambient temperature and entering/leaving water temperature 12/7 °C

One Compressor						Two Compressor					
AMS Mini Chiller		Power Sound [db(A)]	Sound Pressure [db(A)]			AMS Mini Chiller		Power Sound [db(A)]	Sound Pressure [db(A)]		
			1 (m)	5 (m)	10 (m)				1 (m)	5 (m)	10 (m)
(5-15)	Kw	70.0	62.5	48.5	42.5	(12-21)	Kw	73.1	65.6	51.6	45.6
(15-25)	Kw	74.7	67.3	53.3	47.3	(22-32)	Kw	78.4	70.9	57.0	50.9
(26-43)	Kw	80.8	73.3	59.3	53.3	(32-43)	Kw	78.7	71.2	57.2	51.2

Reference conditions

- Unit placed in free field on reflecting surface (directional factor equal to 2).
- The sound power level is measured according to ISO 3744 standard.
- The sound pressure level is calculated according to ISO 3744 and is referred to a distance of 1/5/10 meters from the external surface of the unit.

Operating Limits

Ambient Limitations

Arvand air-cooled chillers are designed for year-round operation over a range of ambient temperatures. Mini chiller could be operating in condition inside envelope charts one & two compressor respect. AMS Mini chiller can even works in lower ambient temperature if you want special machine the out of envelope condition range you can contact with our experts in Arvand company.

Water Flow Limits

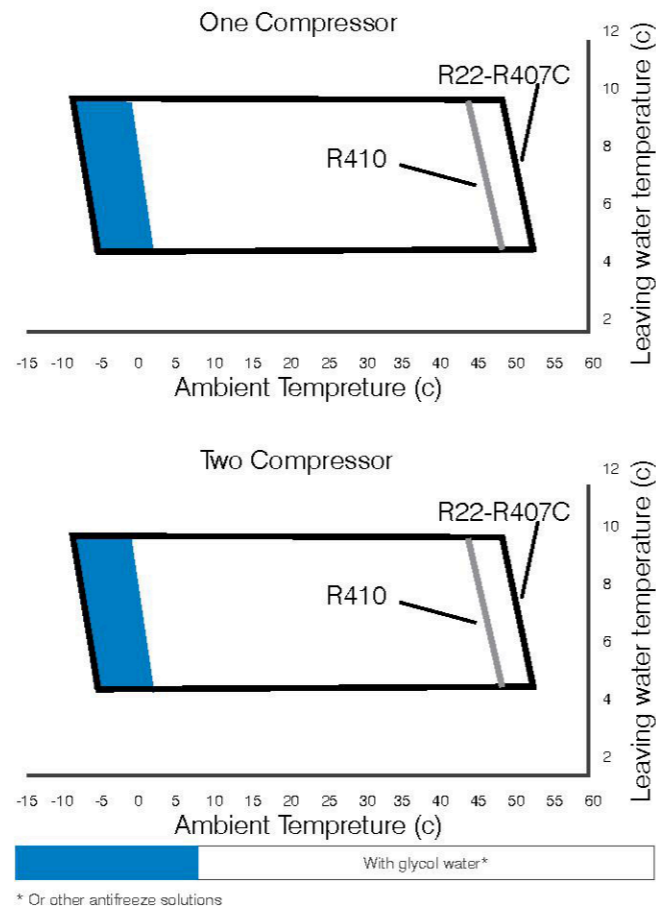
The minimum and maximum water flow rates are given in the Performance Data tables. Evaporator flow rates below the tabulated values will result in laminar flow causing freeze up problems, scaling, stratification and poor control. Flow rates exceeding those listed may result in excessive tube erosion.

Note: Flow rates in General Data tables are for water only. They do not include glycol.

Leaving Water Temperature Limits

Arvand air-cooled AMS Mini chiller have the standard leaving water temperature range 5 to 15°C. Since liquid supply temperature setpoints less than 4.4°C result in suction temperatures at or below the freezing point of water, a glycol solution is required for all low temperature machines.

Cooling Operation	Outdoor ambient temperature	-10C ~ 52C
	Leaving water temperature	5C ~ 10C
	Inlet water Temperature	10C ~ 15C



* Or other antifreeze solutions

Alarm screen shall be capable of filtering faults into specific categories such as compressor, chiller and system faults in order to provide rapid diagnosis, and separation of failure modes.

A centrally located weatherproof control panel shall contain the field power connection points, control interlock terminals, and control system.

Selecting procedure

For the selection of a unit use the performance table and the data tables relative to each unit.

For a correct chiller selection, it is also necessary:

- The type of refrigerant is selected (R22 - R410 - R407)
- Observe the functioning limits as pointed out in the chart "Operating Limits"
- To verify that the chill water flow is between minimum and maximum values of water flow which are tabled in the "Hydraulic Data" section; a very low flow rate can cause laminar flow and thus danger of ice formation and poor unit control; a very high flow can cause great pressure drops and the possibility of tube failure inside the evaporator
- For working temperatures under 5 °C outlet water and 0 °C external air temperature it is necessary to add ethylene glycol or any other antifreeze liquids. Consult the table A.1 "SOLUTIONS OF WATER AND ETHYLENE GLYCOL" to determine the necessary quantity of ethylene glycol, the reduction of cooling capacity, the increase of power absorbed by the compressors, the increase of evaporator pressure drop due to the presence of the ethylene glycol
- If the machine has to be installed at an altitude higher than 500 meters, you must calculate the cooling capacity reduction and the increase of power absorbed by the compressor through the coefficients pointed out in the table A.2 "CONDENSER CORRECTION FACTORS"
- When the difference in temperature between water inlet and outlet is different from 5 °C, the cooling capacity and the absorbed power must be corrected using the table A.3 "CORRECTION FACTORS ΔT≠5 °C".
- A high cooler pressure drop can be expected when the cooler delta-T is low. A mixing loop can help to alleviate this situation a low cooler pressure drop can be expected when cooler delta-T is high.

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For a correct chiller selection, it is also necessary:

- The type of refrigerant is selected (R22 - R410 - R407)
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- A high cooler pressure drop can be expected when the cooler delta-T is low. A mixing loop can help to alleviate this situation a low cooler pressure drop can be expected when cooler delta-T is high.

$Q_{Actual} = K_{c1} \cdot K_{c2} \cdot K_{c3} \cdot Q_{STD}$	Eq 1
$P_{Actual} = K_{p1} \cdot K_{p2} \cdot K_{p3} \cdot P_{STD}$	Eq 2
$Wfr_{New} = K_{FWE1} \cdot Wfr_{Std}$	Eq 3
$Pd_{New} = K_{FWE1} \cdot Pd_{Std}$	Eq 4

- For instance, selecting a proper unit with the following assumption will be described in 9 steps:

Assumptions:

- Actual capacity: 20 kilowatts
- Two compressors
- Refrigerant: R22
- Design temperature; 46 °C.
- Site altitude; 2000m.
- Maximum ambient working temperature ;52 °C
- Minimum ambient temperature -5.
- Inlet and outlet evaporator brine temperatures are 12°C and 7°C.

Step 1:

- Extract K_{c1} , K_{p1} , K_{dp1} and K_{FWE1} from table A.1 in Appendix.
- In this case the freezing temperature must be lower than -5°C, so with adding 20% Ethylene Glycol by weight to Water the freezing point will be -8.7°C and refer to table A.1, $K_{c1}=0.99$, $K_{p1}=0.99$, $K_{dp1}=1.05$ and $K_{FWE1}=1.05$.

Step 2:

- Altitude of site is 2000m. Refer to table A.2; K_{c2} and K_{p2} will be 0.98 and 1.04 in respect.

Step 3:

- Since $\Delta T=12-7=5$; K_{c3} and K_{p3} from table A.3 "CORRECTION FACTORS $\Delta T \neq 5$ °C" are equal to 1.

Step 4

- Ambient temperature in actual full load is 46°C, so refer to "Performance Data" tables to select proper model.

Step 5

- According to the following equations calculate unit capacity and unit absorbed power in standard condition. According to (Eq1 & Eq2):
- $20=0.99*0.98*1*Q$ Standard then Q Standard= $20/0.97$; Q Standard= 20.6 kW.
- Acceptable deviation from capacity is 5%, so required unit has to be between 20 kW and 21 kW ($20 \text{ kW} < \text{unit capacity} < 21 \text{ kW}$).

Step 6

- Since the maximum ambient temperature of operating is 52 °C; select a model from tropical type.
- Refer to technical data table, AMS2202NP unit capacity is 21.50 kW. So, the actual capacity is Q Actual = 21.50 kW

Step 7

- Unit total absorbed power is 6.48 kW. Calculate new absorbed power from Eq2.
- P Actual = $0.99*1.04*1*6.48$ so P Actual = 6.67 kW

Step 8:

- Standard model Water Flow Rate will be calculated by Eq 3.
- Standard Water Flow Rate = 3.7 (m³/hr)
- New Water Flow Rate = $1.27*3.7 = 4.69$ (m³/hr)

Step 9:

- For Calculating Cooler Pressure drop, use Eq 4.
- New Pressure Drop = $1.05 * 6.4 = 6.72$ kPa.

Guide Specifications – (AMS)

Generally

This Section includes design, performance criteria, refrigerants, controls, and installation requirements for air-cooled scroll compressor chillers.

Reference

Considering the following codes and standards :

- AHRI 550/590
- ANSI/ASHRAE 15
- ASME Section VIII
- ANSI UL 1995
- IEC

Delivery and Handling

Chiller shall be delivered to the job site completely assembled and charged with refrigerant and oil by the manufacturer. Comply with the manufacturer's instructions for rigging and handling equipment.

Maintenance

Maintenance of the chillers shall be the responsibility of the owner and performed in accordance with the manufacturer's instructions.

Quality Assurance

Regulatory Requirements Comply with the codes and standards reference item.

Product

All units are manufactured and tested according to internal standards and delivered with full factory refrigerant charged. Each chiller shall consist of hermetic scroll compressor sets (one or two compressors), brazed plate or Co-Axial evaporator, air-cooled condenser section, microprocessor-based control system and all components necessary for controlled unit operation. Chiller shall be functionally tested at the factory to ensure trouble-free field operation.

Refrigeration Circuits

Each unit has one refrigerant circuits, includes a liquid line shut off valve, hermetically caned filter dryer, liquid line sight glass with moisture indicator, charging port and an thermostatic expansion valve, high- and low-pressure switch and chilled water flow switch.

Compressor

- The compressors shall be sealed hermetic, scroll type with crankcase oil heater.
- The compressor motor shall be refrigerant gas cooled, high torque, hermetic induction type, two-pole shall be mounted on rubber vibration isolator pads.
- The compressors could be equipped with an internal module providing compressor protection and communication capability.
- The compressor could have integrated microprocessor control capable of capacity and safety.

Evaporator

- The evaporator shall be a compact, high efficiency, single circuit, brazed plate-to-plate type heat exchanger consisting of parallel stainless-steel plates or Co-Axial heat exchanger with outer shell in steel and inner tubes in copper.
- Minimum leaving water temperature shall be 5°C (41°F), otherwise specified and accepted by the ARVAND technical office.
- The evaporator shall be 12 mm elastomeric insulation usage with $K=0.032$ w/m.k conductivity to prevent condensate production and minimize heat losses.
- Factory shall be installation safety equipment such as flow switch for anti-freeze in the evaporator inlet.

Air Cooled Condenser

- Condenser shall be Air cooled type with fin/tube coil design. The coil shall be constructed of seamless inner-grooved copper tube and die formed aluminum fins having Anti-corrosion coating and self-spacing collars in staggered configuration.
- Condenser shall be equipped with packaged fixed or variable speed fans capable of delivering specified quantity of air according to requirements of operating conditions.

Electrical

Factory installed and wired, and functionally tested at factory before shipment.

Terminal blocks with numbered wiring to match wiring diagram.

Installation

- Install in strict accordance with manufacturer's requirements, shop drawings, and contract documents.
- Adjust and level chiller in alignment on supports.
- Coordinate electrical installation with electrical contractor.

Table A.1 SOLUTIONS OF WATER AND ETHYLENE GLYCOL

SOLUTIONS OF WATER AND ETHYLENE GLYCOL		% ethylene glycol by Weight					
		0	10	20	30	40	50
Freezing Temperature	(°C)	0	-3.7	-8.7	-15.3	-23.5	-35.6
Cooling Capacity Correction Factor	Kc1	1	0.99	0.99	0.98	0.97	0.96
Absorbed Power Correction Factor	Kp1	1	1	0.99	0.99	0.98	0.98
Pressure Drop Correction Factor	Kdp1	1	1.02	1.05	1.07	1.1	1.13
Water Flow Correction Factor	KFWE1	1	1.13	1.27	1.42	1.59	1.77

Multiply the unit performance by the correction factors given in the table.
 KFWE1 – correction factor (referred to the cooling capacity corrected by Kc1) to obtain the water flow with a ΔT of 5 °C.

Table A.2 CONDENSER CORRECTION FACTORS

CONDENSER CORRECTION FACTOR		Altitude (m)					
		0	500	1000	1500	2000	2500
Cooling Capacity Correction Factor	Kc2	1	0.99	0.99	0.98	0.98	0.97
Absorbed Power Correction Factor	Kp2	1	1.01	1.02	1.03	1.04	1.04
Reduction of the Maximum Ambient Air Temperature	Kt2(°C)	0	0.6	1.15	1.75	2.3	2.9

Multiply the unit performance by the correction factors given in the table. ($Q^* = Q \times Kf2$, $Pa^* = Pa \times Kp2$).
 * To obtain the maximum ambient air temperature which the unit could be operated, subtract the values indicated from the ambient air temperature in the Technical table ($Ta^* = Ta - Kt3$).

Table A.3 CORRECTION FACTORS ΔT ≠ 5 °C

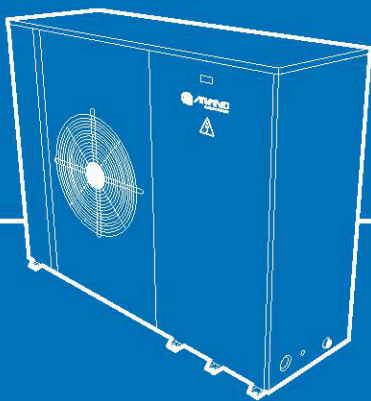
CORRECTION FACTORS ΔT ≠ 5 °C		ΔT						
		4	5	6	7	8	9	10
Cooling Capacity Correction Factor	Kc3	0.99	1	1.01	1.02	1.02	1.03	1.04
Absorbed Power Correction Factor	Kp3	1	1	1	1.01	1.01	1.02	1.02

Multiply the unit performance by the correction factors given in table. ($Q^* = Q \times Kc3$, $P^* = P \times Kp3$).
 The new water flow to the evaporator is calculated with the following equation: $(Fw \text{ (l/h)}) = Q^* \text{ (kW)} \times 860 / \Delta T$ where ΔT is the difference between inlet and outlet water temperature through the evaporator (°C).

Table A.4 CORRECTION FACTORS FOR AMBIENT TEMPERATURE

CORRECTION FACTORS FOR AMBIENT TEMPERATURE		ambient temperature(°C)									
		15	20	25	30	35	40	43	46	50	52
Cooling Capacity Correction Factor	Kc4	1.21	1.17	1.11	1.06	1.00	0.94	0.90	0.86	0.81	0.79
Absorbed Power Correction Factor	Kp4	0.73	0.79	0.85	0.92	1.00	1.09	1.15	1.22	1.31	1.36





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