

PRO-DIALOG PLUS

**AQUAFORCE™**



\* 30XA unit with low noise option



## 30XA0652-1392

Refrigerant HFC-134a

Nominal cooling capacity 644-1382kW

The Aquaforce liquid chillers are the premium solution for industrial and commercial applications where installers, consultants and building owners require optimal performances and maximum quality

### Benefits:

- Extremely high full load and part load energy efficiency leads to extremely low operation cost.
- Low operating sound with no intrusive low-frequency noise, creates a better working/living environment.
- Environment sound refrigerant HFC-134a of zero ozone depletion potential.
- Easy and fast installation to reduce on-site installation time.
- Exceptional endurance tests ensure superior reliability to minimize chiller down-time.

## Features

### Economical operation

- Extremely high full load and part load energy efficiency:
  - New twin-rotor screw compressor equipped with a high efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
  - Flooded multi-pipe evaporator to increase the heat exchange efficiency, configured with aluminium cladding (standard) to improve thermal insulation and prevent energy loss.
  - Electronic expansion device allows operation at a lower condensing pressure and improved utilization of the evaporator heat exchange surface (superheat control).
  - Economizer system with electronic expansion device to achieve enhanced cooling capacity and efficiency.
  - Average COP of 3.2 at nominal conditions and average integrated part load value (IPLV) of 4.4.

# Operating Range, 30XA0652-1392

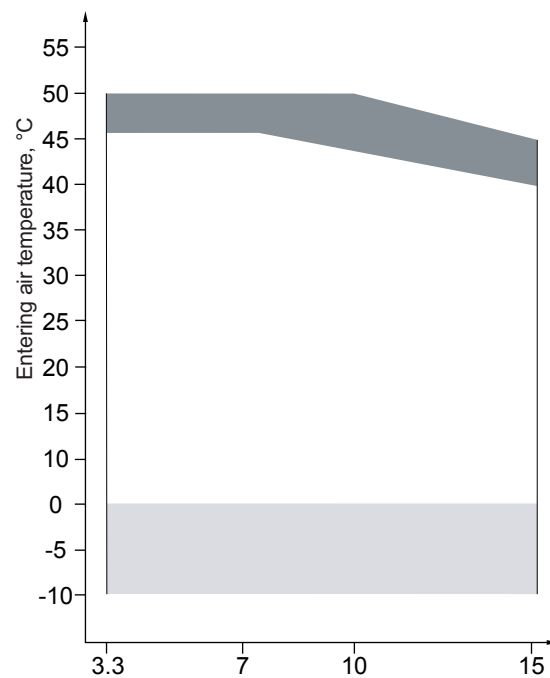
## Cooling mode

Evaporator	Min.temperature	Max.temperature
Entering water temperature (at start) °C	-	45
Entering water temperature (during operation) °C	6.8	21
Leaving water temperature (during operation) °C	3.3	15
Condenser	Min.temperature	Max.temperature
Outdoor air temperature °C	-10*	46**

\* A glycol/water solution or evaporator anti-freeze protection must be used if the air temperature is below 0°C

\*\* Max 50°C during part load operation

## Operating range



### Legend



Part load



Operating range, standard unit.



Below 0°C air temperature the unit must either be equipped with the evaporator frost protection option (41A or 41B), or the water loop must be protected against frost by using a frost protection solution (by the installer).

# Technical Specifications

## Unit with Cu/Al condenser coil

30XA		0652	0712	0762	1052	1152	1252	1312	1392
Nominal cooling capacity	kW	644	697	737	1089	1134	1256	1326	1382
Compressor input power	kW	187	201	211	314	328	367	389	409
EER		3.14	3.15	3.16	3.16	3.15	3.13	3.12	3.10
Refrigerant		HFC-134a							
Circuit A	kg	180	185	195	180	180	190	185	185
Circuit B	kg	-	-	-	110	114	114	180	185
Compressor		Semi-hermetic screw compressor							
Circuit A		1	1	1	1	1	1	1	1
Circuit B		-	-	-	1	1	1	1	1
Minimum capacity	%	30	30	30	15	15	15	15	15
Control		Pre-Dialog Plus, electronic expansion valve(EXV)							
Condenser		Cu/Al heat exchanger							
Fans		Axial Flying Brid with rotating shroud							
Quantity		10	11	12	17	18	19	20	20
Total air flow	l/s	45139	49653	54167	76736	82197	85764	90278	90278
Fan speed	rpm	950	950	950	950	950	950	950	950
Evaporator		Flooded multi-pipe							
Water content	l	78	78	78	144	144	144	156	156
Nominal water flow	l/s	31	33	35	52	54	60	63	66
Nominal water pressure drop	kPa	37	43	47	42	45	55	53	60
Max. water-side pressure without hydronic module	kPa	1000	1000	1000	1000	1000	1000	1000	1000
Water connection		Victaulic							
Nominal Diameter	DN	150	150	150	150	150	150	150	150
Electrical data		400V-3Ph-50Hz							
Nominal power supply		Star-delta start							
Start-up method		24V via internal transformer							
Control power supply		24V via internal transformer							
Nominal unit current draw, Circuit A+B	A	336	363	383	565	590	658	697	730
Maximum unit current draw, Circuit A+B	A	415	452	479	722	769	830	864	884
Maximum start-up current, Circuit A+B	A	629	629	629	1044	1044	1111	1122	1122
Fan and control power	kW	18	20	22	30	32	34	36	36
Unit length	mm	5992	7186	7186	10768	10768	11962	11962	11962
Unit width	mm	2253	2253	2253	2253	2253	2253	2253	2253
Unit height	mm	2297	2297	2297	2297	2297	2297	2297	2297
Unit weight	kg	5250	5809	6002	9108	9188	9723	10344	10344
Operating weight	kg	5328	5993	6081	9252	9333	9867	10500	10500

\* Nominal conditions - evaporator entering/leaving water temperature=12/7°C, outdoor air temperature = 35°C  
Evaporator fouling factor = 0.018m<sup>2</sup>K/kW

## Options & accessories

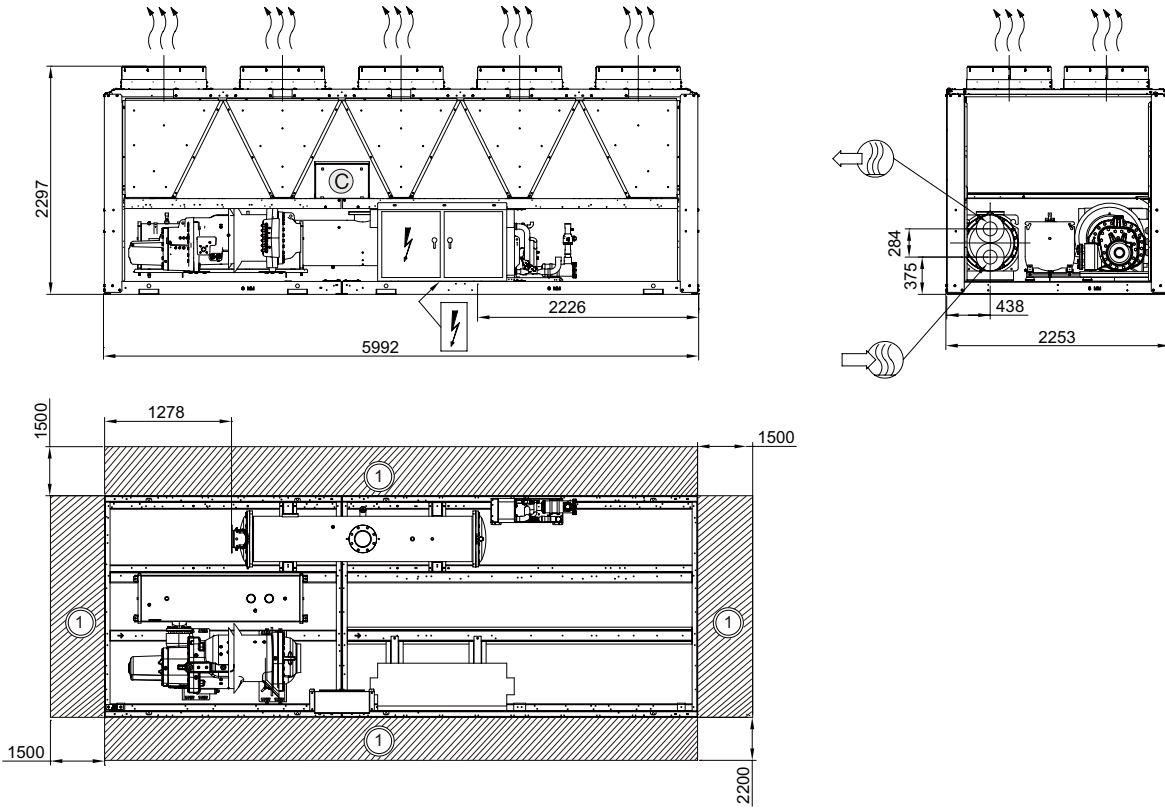
Options	No.	Description	Advantages	Use*
Blygold PoluAL	002B	Coil with factory-applied Blygold PoluAL treatment	Improved corrosion resistance, recommended for heavy marine and industrial environments	30XA0652~1392
Gold Fin	003A	Fin made of pre-treated aluminium (polyurethane and epoxy)	Improved corrosion resistance, recommended for light marine environments	30XA0652~1392
Low noise	015	Compressor sound enclosure	Low operating noise	30XA0652~1392
Low noise	015L	Low-speed fan	Low operating noise	30XA0652~1392
Super low noise	015LS	Compressor sound enclosure and low-speed fan	Super low operating noise	30XA0652~1392
IP54	020A	IP 54 electrical box protection	Improved electrical box protection, recommended for dusty / sandy environments	30XA0652~1392
Reversed water connections	107	Evaporator with reversed water inlet/outlet	Simplification of water piping	30XA0712~0762
J-Bus gateway	148B	Two-directional communication board with J-Bus protocol	Easy connection by communication bus to a building management system	30XA0652~1392
BacNet gateway	148C	Two-directional communication board with BacNet protocol	Easy connection by communication bus to a building management system	30XA0652~1392
LonTalk gateway	148D	Two-directional communication board with LonTalk protocol	Easy connection by communication bus to a building management system	30XA0652~1392
Energy Management Module (EMM)	156	See control manual	-	30XA0652~1392
Touch screen display	158	Pro-Dialog control with touch screen interface	User friendly	30XA0652~1392
Cu/Al condenser coils	254	Coil made of copper tube with aluminium fin	-	30XA0652~1392

\* 30XA0652~1392 – 30XA0652/0712/0762/1052/1152/1252/1312/1392

\* 30XA0712~0762 – 30XA0712/0762







# Dimensions/Clearances

## 30XA0652



**Legend:**

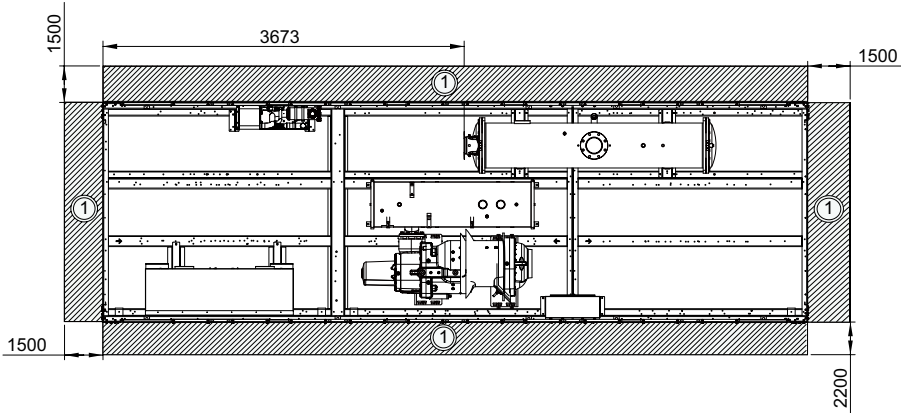
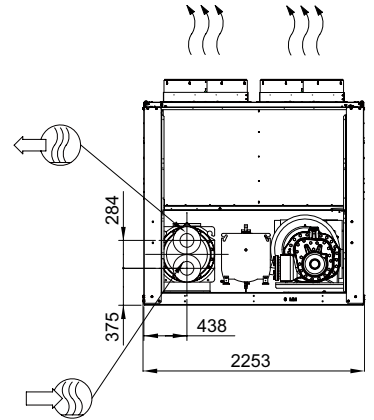
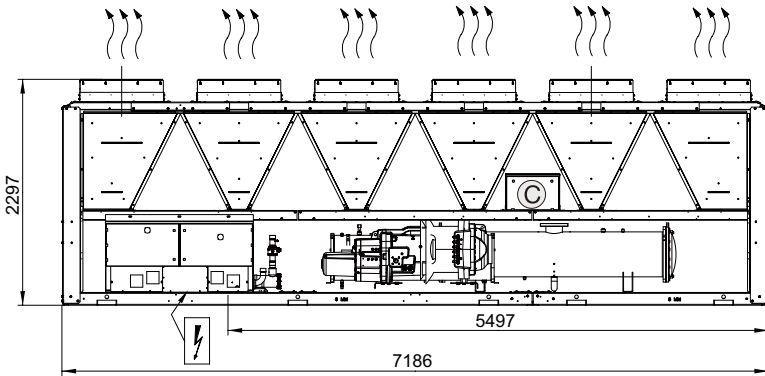
All dimensions are given in mm

-  Required clearances for maintenance and air flow
-  Water inlet
-  Water outlet
-  Air outlet
-  Power supply
-  Control circuit connection

Note: Single point power connection, power cable arrive from bottom of electrical box, reserve at least 120mm height space below unit for power supply connection (unit aerial installation or cable slot)

# Dimensions/Clearances

30XA0712/0762



**Legend:**

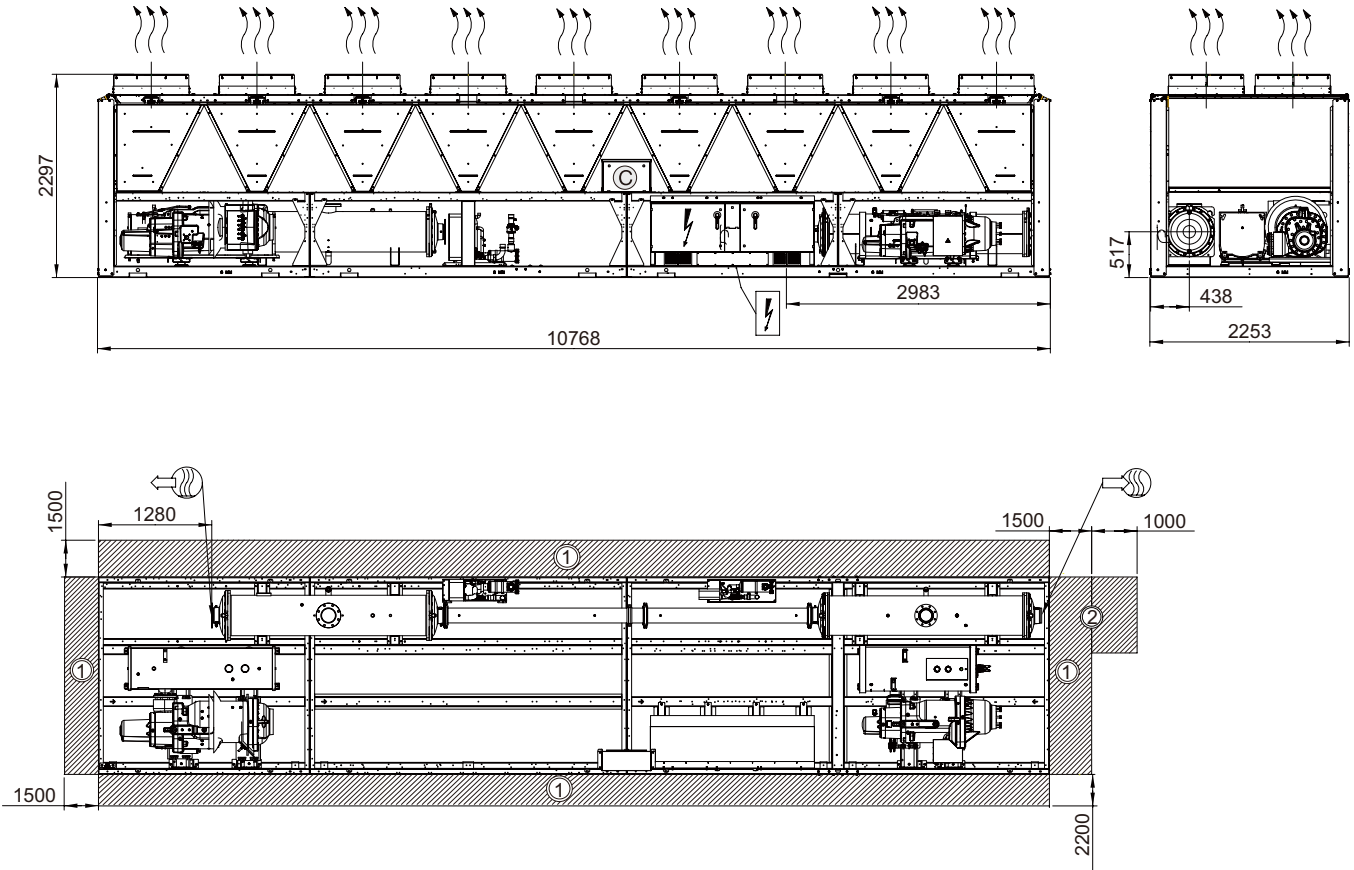
All dimensions are given in mm

- 1 Required clearances for maintenance and air flow
- Water inlet
- Water outlet
- Air outlet
- Power supply
- C Control circuit connection

Note: Single point power connection, power cable arrive from bottom of electrical box, reserve at least 120mm height space below unit for power supply connection (unit aerial installation or cable slot)

# Dimensions/Clearances

## 30XA1052/1152





**Legend:**


All dimensions are given in mm


① Required clearances for maintenance and air flow

② Recommended space for evaporator tube removal

 Water inlet

 Water outlet

 Air outlet

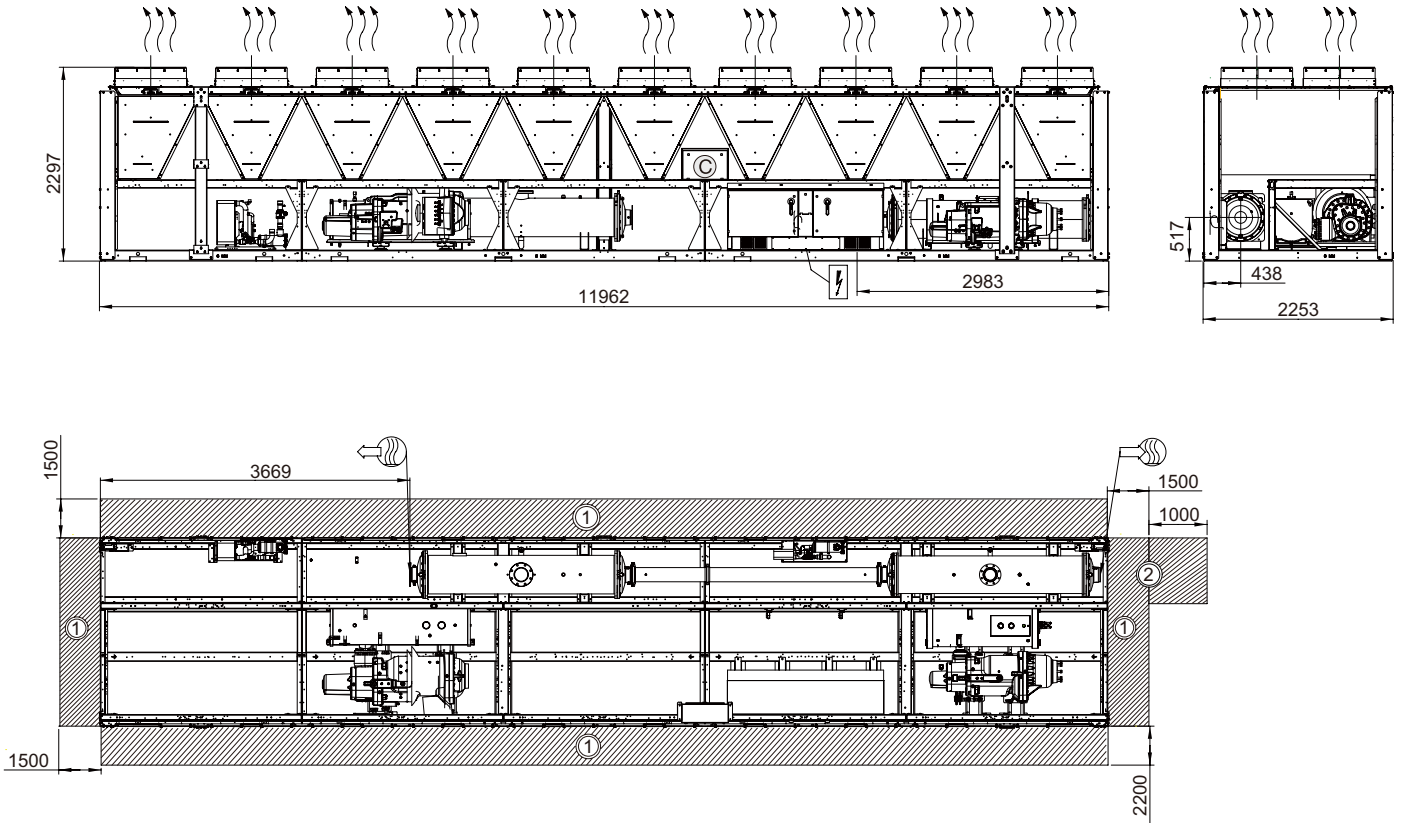
 Power supply

© Control circuit connection

Note: Single point power connection, power cable arrive from bottom of electrical box, reserve at least 120mm height space below unit for power supply connection (unit aerial installation or cable slot)

# Dimensions/Clearances

## 30XA1252





### Legend:


All dimensions are given in mm


① Required clearances for maintenance and air flow

② Recommended space for evaporator tube removal

 Water inlet

 Water outlet

 Air outlet

 Power supply

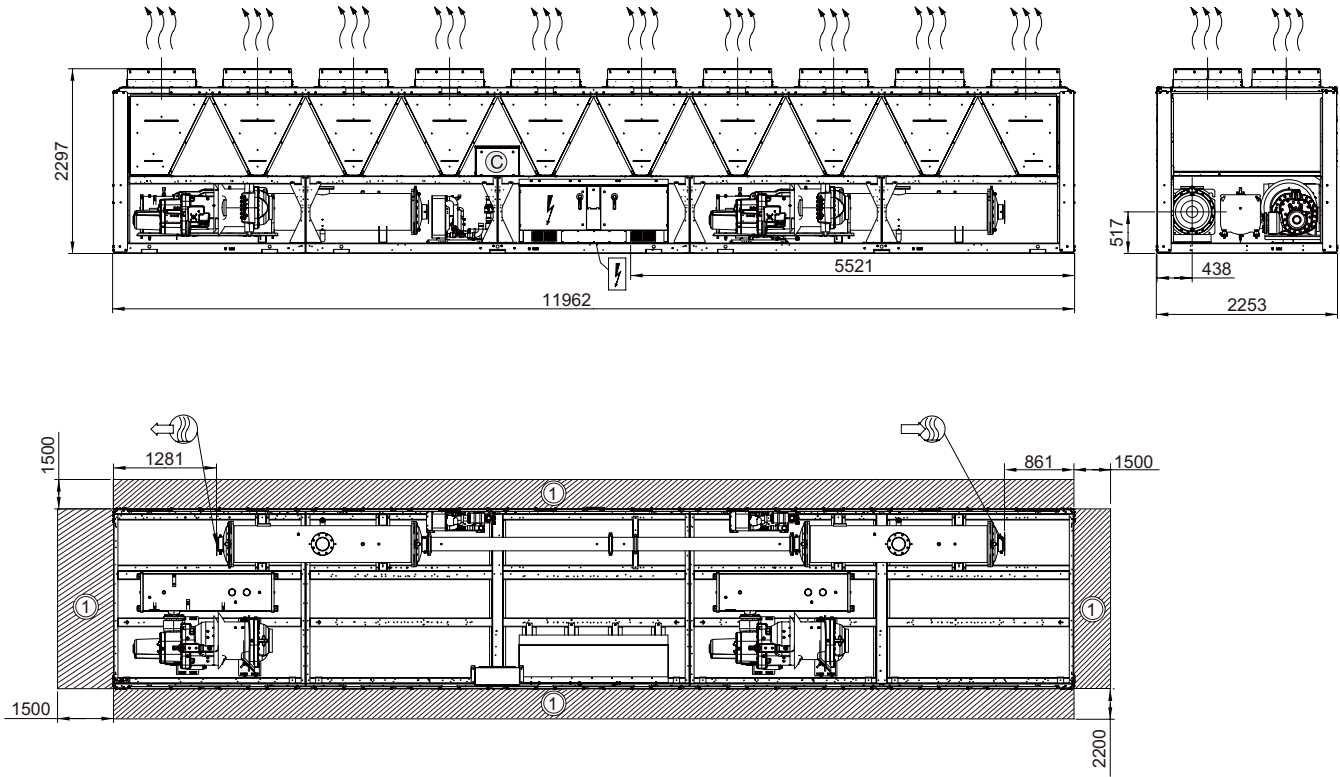
Ⓒ Control circuit connection

Note: Single point power connection, power cable arrive from bottom of electrical box, reserve at least 120mm height space below unit for power supply connection (unit aerial installation or cable slot)









# Dimensions/Clearances

## 30XA1312/1392



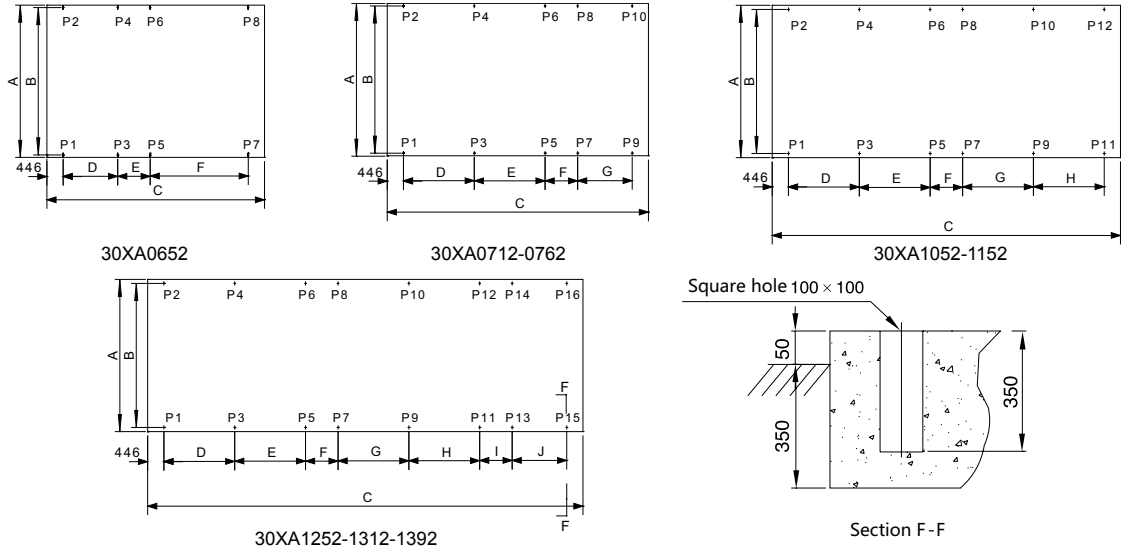
**Legend:**

All dimensions are given in mm

-  Required clearances for maintenance and air flow
-  Water inlet
-  Water outlet
-  Air outlet
-  Power supply
-  Control circuit connection

Note: Single point power connection, power cable arrive from bottom of electrical box, reserve at least 120mm height space below unit for power supply connection (unit aerial installation or cable slot)

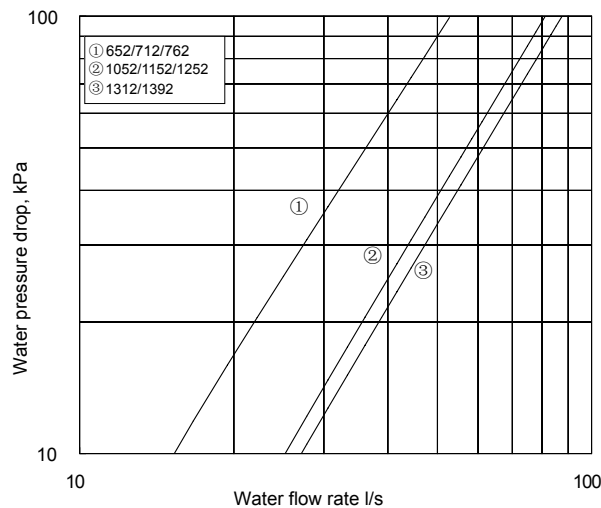
# Weight Distribution, 30XA0652-1392



Models	Dimensions, mm										Weight distribution, kg																Operating weight
	A	B	C	D	E	F	G	H	I	J	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	
30XA0652	2231	2157	5970	1496	892	2690					808	718	740	657	699	620	575	511									5328
30XA0712	2231	2157	7164	1942	1942	892	1496				658	615	636	594	614	573	604	564	587	548							5993
30XA0762	2231	2157	7164	1942	1942	892	1496				668	623	645	603	623	582	613	572	596	556							6081
30XA1052	2231	2157	10746	1496	892	2690	2834	1942			722	732	739	750	750	761	781	793	791	803	809	821					9252
30XA1152	2231	2157	10746	1496	892	2690	2834	1942			729	738	746	756	757	767	789	799	799	809	817	827					9333
30XA1252	2231	2157	11940	1496	892	1942	1942	892	1942	1942	645	657	635	647	629	641	617	628	604	616	598	610	586	597	573	584	9867
30XA1312	2231	2157	11940	1496	892	1942	1942	892	1942	1942	732	668	719	656	711	649	694	634	677	618	669	611	652	595	635	580	10500
30XA1392	2231	2157	11940	1496	892	1942	1942	892	1942	1942	732	668	719	656	711	649	694	634	677	618	669	611	652	595	635	580	10500

Note: (1) foot screw even hole number (far side) represent for evaporator side  
 (2) foot screw, M20X300

# Evaporator Water Pressure Drop, 30XA0652-1392



# Minimum Water Loop Volume

For better control of leaving water temperature, the water loop minimum capacity is given by the formula:

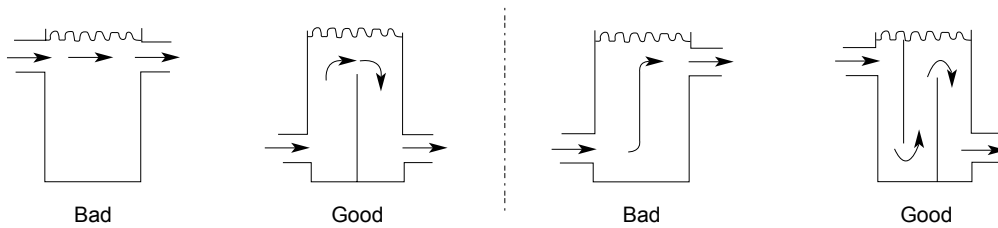
$$\text{Capacity} = \text{CAP (kW)} \times \text{N Liters}$$

Application		N
Normal air conditioning	30XA0652-1392	3.5
Process cooling	30XA0652-1392	6.5

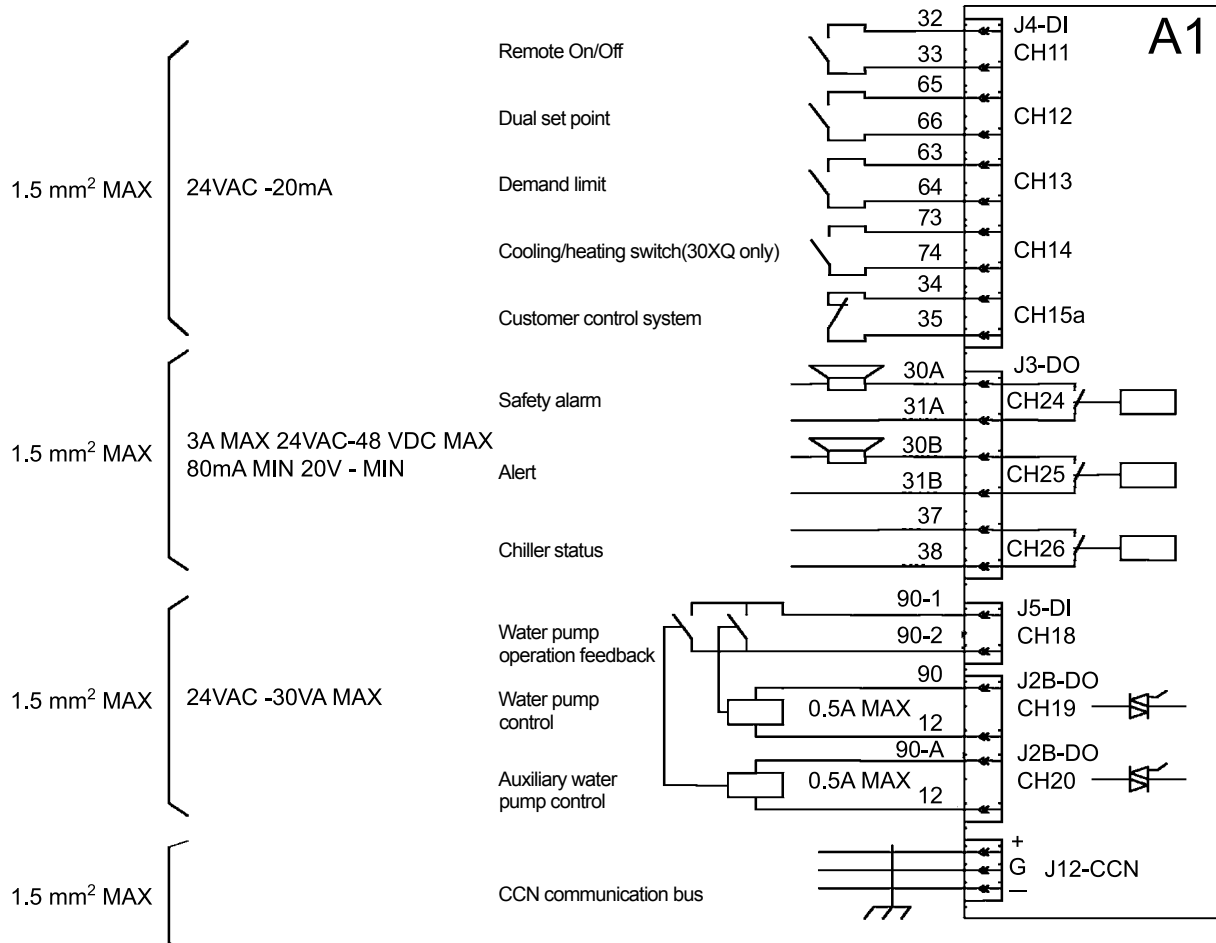
Where Cap is the nominal system cooling capacity (kW) at the nominal operating conditions of the installation.

This volume is necessary for stable operation and accurate temperature control.

It is often necessary to add a buffer water tank to the circuit in order to achieve the required volume. The tank must be internally baffled in order to ensure proper mixing of the liquid (water or brine). Refer to the exam.



## Field Control Wiring, 30XA



Carrier Corporation identified six specific areas of concentration that directly impact how we, as a world manufacturer, balance our customer' needs for comfort with the environment's needs for responsible consumption.

