

HiDew

Dehumidifiers

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ID - Dehumidifier for industries

SP - Dehumidifier for swimming pools

TECHNICAL DATA SHEET

DESCRIPTION OF THE PRODUCT

The ductable dehumidifier of the ID (industrial) and SP (swimming pools) range, are designed to be used in commercial, industrial environments and swimming pools with high latent load that require operation 24/7. They are typically installed in environments, such as swimming pools, dairies, basements, ironing shops, curing cellars, warehouses and wherever the formation of condensate can damage the structure or the product.

ID and SP dehumidifiers combine cutting-edge technical solutions and pleasant aesthetics. These units have been designed for being connected to rigid ducts.

The top-quality refrigeration, hydraulic, aeraulic and electrical components make ID and SP units state of the art dehumidifiers in terms of efficiency, reliability and sound power emitted. Moreover, they have been designed to be easily inspected and maintained.

A long list of accessories allows meeting any type of requirement and, in the event that the standard range and available accessories are not enough to meet these demands, HiDew can offer customer specific solutions.

INTERNAL COMPONENTS

REFRIGERATION CIRCUITS

The refrigeration circuit is made in-house, using major brand components, Cu-DHP quality copper pipes by qualified operators through quality assurance processes in compliance with Directive 97/23/EC for all brazing and testing operations. All the machines are made with a single double refrigeration circuit with R410A eco-friendly refrigerant gas.

Refrigeration components:

- Compressors: only scroll compressors of a major international brand are used. The motors are thermally protected by an internal protection device that controls the temperature of the windings and deactivates the power supply when necessary.
- molecular sieve filter drier
- thermostatic valve
- liquid indicator
- liquid interception solenoid valve
- Schrader valves for inspection and/or maintenance
- heat exchange coils
- copper pipe and aluminium fin
- heat exchange coils with surface treatment are used in units for swimming pool for a greater resistance to corrosive atmosphere

VENTILATION

Ventilation can be provided by traditional high or low-pressure centrifugal fans or by state of the art electronic fans, thereby ensuring maximum cost efficiency and a wide scope of use:

- Traditional centrifugal fans are equipped with forward-curved-blades directly coupled or connected to the asynchronous electric motor through belt transmission and pulleys.
- The state of the art fans are radial with reverse blades, directly coupled to the permanent magnet brushless motor, thereby ensuring reduced consumption and sound power emission.

This solution allows installing the ACF (automatic control flow) option, which permits the self-calibration of the unit to the set air flow rate without the need for manual adjustment through dampers, always maintaining the design flow rate.

STRUCTURE

The unit has a unique design that gives the assembly a pleasant aesthetic as well as ensures complete inaccessibility, with closed unit, to all components: this aspect, together with the use of high quality equipment, reduces the level of emitted sound power, to exceptionally low levels.

Most panels can be removed for complete access to the unit. Access to filters, fans, compressor compartment and recuperator is required for routine maintenance. Access is facilitated by removable panels that enable working completely free of obstacles.

All screws and fastening systems are made with non-oxidising materials, stainless steel or carbon steel with surface passivation treatments.

The components distribution guarantees easy access and the lay-out an optimum distribution of the weights on the unit plan.

SERIES

You can choose from a range of 18 models, classified according to the frame and dehumidification yield:

FRAME 2

0130	0160	0190
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FRAME 3

0210	0260	0300
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FRAME 4

0350	0450	0580
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FRAME 5

0750	0950
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FRAME 6

1100	1400
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FRAME 7

1500	1700	1900	2200
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FRAME 8

3000

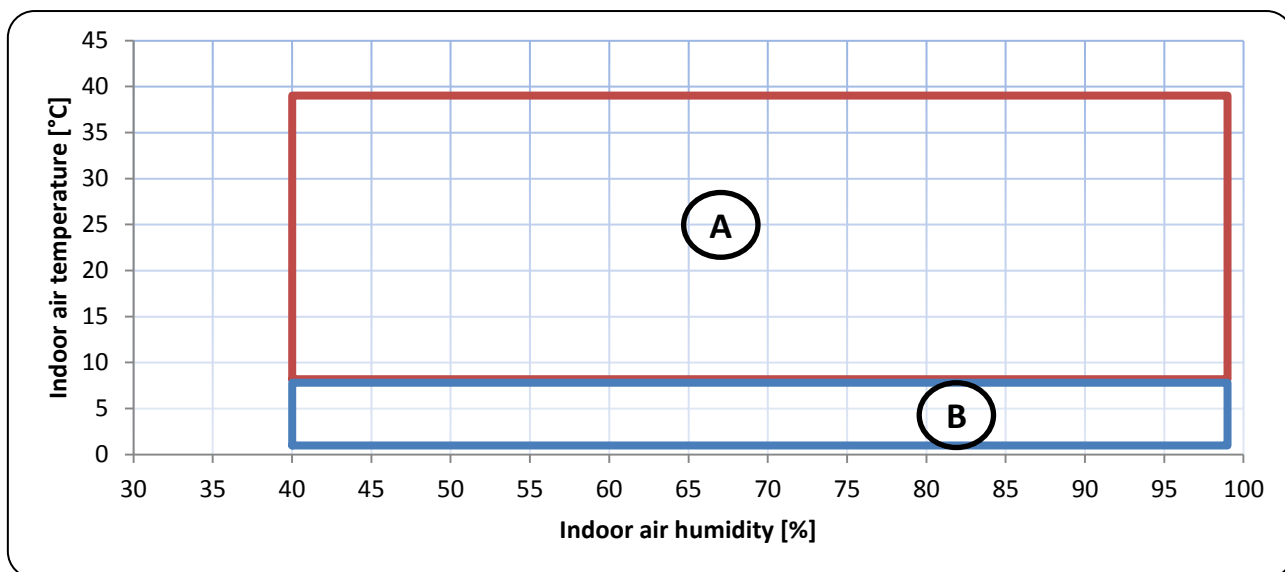
Units of the same frame have the same external dimensions.

The numerical value is indicative of the dehumidification ability in litres/day.

OPERATION LIMITS

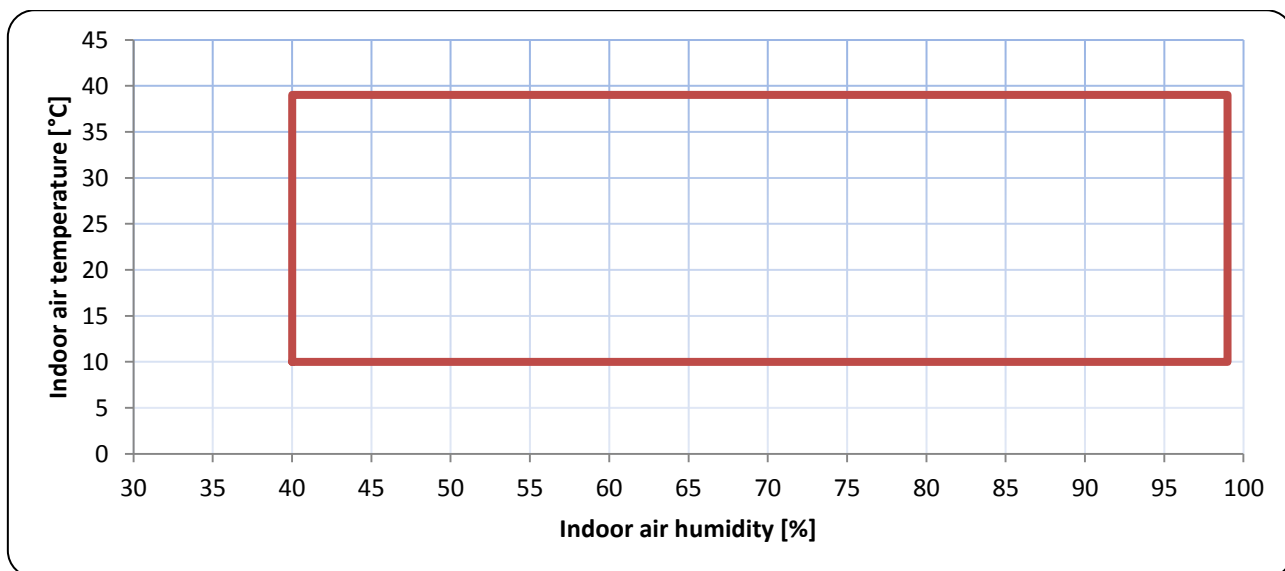
Unit functioning is not guaranteed outside the below-stated limits.

ID - INDUSTRIAL DEHUMIDIFIERS



- A. dehumidifier operational limit
- B. additional operational limit with the installation of hot gas defrosting option

SP - DEHUMIDIFIERS FOR SWIMMING POOLS



AVAILABLE OPTIONS

ADVANCED CONTROL

The advanced control consists of a programmable board and a graphical display. It allows a higher number of combined functions and options, and a simpler and more complete interface for the user.

All management and optimisation software of the refrigeration cycle, of the electronic and electro-mechanical components, is implemented and developed in-house by highly qualified staff.

Customised software are available upon request as special products.

A further advantage of the advanced control is that it allows installing a number of options:

- Electronic radial fans
- ACF (automatic control flow)
- Hot water re-heat coil with modulating valve
- Fresh air modulating damper
- Clock - time slots board
- Humidity probe
- CO₂ probe
- VOC probe

ELECTRONIC RADIAL FANS

Electronic radial backward-curved blade fans with brushless motor and built-in inverter represent the state of the art in ventilation technology for industrial environments. These fans combine high aeraulic efficiency and silent operation.

The built-in inverter allows modulating the number of revs and this, together with the ACF system, makes them particularly suitable for installations where accurate flow rate control is required.

This option is only available with advanced control.

ACF: AUTOMATIC CONTROL FLOW

This option allows setting a constant air flow rate in the unit; in the event of pressure drops along the ducts other than those foreseen by the system designer, the unit will adapt to maintain the set air flow rate, regardless of the shape, length and pressure drop of the duct.

This option is only available with advanced control and [electronic radial fans].

HIGH PRESSURE CENTRIFUGAL FANS

For traditional centrifugal fans with motor coupled directly or with belt transmission, the optional high pressure is available to ensure up to 200 Pa at delivery.

Higher pressures are available upon request as special products.

HOT WATER RE-HEAT COIL

It consists of a hot water re-heat coil and its purpose is to heat the supply air through hot water coming from a boiler or a heat pump.

HOT WATER RE-HEAT COIL WITH MODULATING or ON/OFF VALVE

It consists of a hot water reheat coil and a valve and their purpose is to heat the environment through hot water coming from a boiler or a heat pump, tracking a set temperature set on the user command.

An on/off valve in conjunction with the basic control and a modulating valve in combination with the advanced control is installed.

It cannot be combined with [hot gas defrost] or [electric coils] with basic control.

DE-SUPER HEATER (DEHUMIDIFIERS FOR SWIMMING POOL ONLY)

It consists of a device able to dissipate the compressor heat load; it is suitable for installations in public or private swimming pools where the pool water requires heating.

DIRTY FILTER SENSOR

It consists of a differential pressure switch, which detects when the filters are clogged and compromise proper unit operation. This means the filters must be cleaned when signalled and not constantly.

SOFT START

It consists in a soft start device for every compressor in order to reduce inrush current upon start-up, following a pre-set ramp.

SERIAL BOARD RS 485

Connection to RS485 bus is made available for unit supervision by remote or by home automation system. (further information available from the technical department).

This option is only available with advanced control.

FILTER-HOLDER FRAME FOR INTAKE DUCTING

It consists of a frame inserted at the intake of the dehumidifier, which allows removing the air filter from the front for an easier connection to the intake duct.

AIR FILTERS WITH EU4 EFFICIENCY

This type of filter, replacing the polyurethane model in the dehumidifier, increases air purification and holds dust particles more effectively.

This option is only available with [filter-holder frame for intake ducting].

CONDENSATE DRAIN PUMP

It consists in a pump that collects and drains the condensate of the dehumidifier. This option is particularly useful when the dehumidifier cannot drain the condensate by gravity (for example when located in a basement). The pump is equipped with a double contact float, which activates it and, if a certain threshold is exceeded, turns the compressors off and sets off the alarm.

CLOCK - TIME SLOTS BOARD

It consists of an additional clock board and a control software that allow the dehumidifier to operate in daily time slots, setting the humidity, temperature, air renewal and on-off values.

This option is only available with advanced control.

HUMIDITY PROBE

It consists in a humidity probe, which acquires the value of the humidity in the air and allows adjusting dehumidification according to a set-point set on the display.

This option is only available with advanced control.

MECHANICAL HUMIDISTAT

It consists in a humidistat, which is located in the room and connected to the dehumidifier and activates the compressors when the set humidity value is exceeded

MODULATING or ON/OFF FRESH AIR DAMPER

It consists in a damper with servo-motor that controls the fresh air flow.

An on/off control with basic control and with advanced control is installed while modulating control is installed with advanced control and [CO₂ or VOC probe].

STAINLESS STEEL STRUCTURE

All units can be equipped with stainless steel structure.

HOT GAS DEFROSTING

It consists of a gas valve that injects hot gas in the evaporator coil, thereby allowing for quick defrost and extending the dehumidifier application limit.

It cannot be combined with [hot water reheat coil with on/off valve] or [electric coils] with basic control.

CO2 OR VOC PROBE

These options consist of a CO2 (carbon dioxide) or VOC (volatile organic compounds) probe (also known as “air quality sensor”) and a control software. Their purpose is to control the introduction of fresh air according to the true requirements of the environment. In fact, a fixed point air renewal is not optimal to meet the true needs of the room and its occupants. In fact, it can be insufficient or excessive. These probes ensure air renewal with minimal energy waste (due to the fresh air), thereby ensuring maximum comfort.

This option is only available with advanced control and [modulating fresh air damper].

ELECTRIC COILS

It consists of multi-stage electric coils and allows heating the supply air when hot water is not available. Safety is ensured by a thermostat, which, in the event of overheating, immediately switches the coils off and sets off an alarm.

One-stage on/off electric coils are installed with basic control or two-stage electric coils with advanced control.

It cannot be combined with [hot water reheat coil with on/off valve] or [hot gas defrosting] with basic control.

SWIVEL WHEELS

All ID and SP dehumidifiers up to model 0950 can be easily and safely moved from one room to the other thanks to the swivel wheels it is equipped with

WALL REMOTE TERMINAL

It consists of an outdoor device to be fitted on the wall that controls all dehumidifier functions. The electronic control on the machine and the remote terminal are identical from a dimensional, aesthetic and electronic (hardware) point of view.

This option is only available with advanced control.

OUTDOOR VERSION

Thanks to specific modifications to the carpentry and electronics, the unit can be installed outdoors without inserting it in a specific technical room.

This option combined with [hot water reheat coil] requires advanced control.

PRESSURE GAUGES

All units can be equipped with high and low pressure gauges for every refrigerant circuit. They immediately show the pressure levels in the refrigerant circuit.

SUMMER/WINTER FUNCTION

The summer/winter function allows heating with hot water in the winter and cool with cold water in the summer.

This option must be combined with [hot water reheat coil with modulating valve] and requires advanced control.

TECHNICAL DATA
INTRODUCTION
POWER SUPPLY TOLERANCES

230V / 1~+N / 50Hz	➔	+/- 10%
400V / 3~+N / 50Hz	➔	+/- 10%

STORAGE LIMITS

TEMPERATURE	➔	-10 ÷ +43 °C
HUMIDITY	➔	90 % rh

TECHNICAL DATA TABLES
FRAME 2

MODEL		130	160	190
Compressor	type	rotating		scroll
Refrigeration circuits	No.	1		
Refrigerant	type	R410A		
Dehumidification power	L/24h	128	157	190
Centrifugal fans nominal power	kW	1.7	2.5	3.8
Centrifugal fans nominal current	A	7	11	18
Centrifugal fans maximum power	kW	2.1	3.4	5.2
Centrifugal fans maximum current	A	10	15	24
Centrifugal fans inrush current	A	38	64	99
Radial fans nominal power	kW	1.4	2.3	3.7
Radial fans nominal current	A	6	10	17
Radial fans maximum power	kW	2.5	3.6	5.3
Radial fans maximum current	A	11	16	24
Radial fans inrush current	A	40	65	100
Power supply	V / Ph / Hz	230/1~+N/50		
Hot water coil heat output	kW	9.8		
Water coil nominal capacity	m³/h	0.84		
Water pressure drop	kPa	38		
Air flow fan	No.	1		
Recirculation air flow rate	m³/h	1200	1600	
Recirculation static pressure	Pa	50		
Maximum allowable pressure high pressure side (PS)	bar-r	42		
Dimensions (base x depth x height)	mm	700 x 550 x 900		
Unladen weight	Kg	100	105	110

FRAME 3

MODEL		210	260	300
Compressor	type	scroll		
Refrigeration circuits	No.	1		
Refrigerant	type	R410A		
Dehumidification power	L/24h	210	268	302
Centrifugal fans nominal power	kW	3.7	4.8	4.9
Centrifugal fans nominal current	A	8	10	10
Centrifugal fans maximum power	kW	5.2	6.5	6.7
Centrifugal fans maximum current	A	10	12	12
Centrifugal fans inrush current	A	51	66	66
Radial fans nominal power	kW	3.5	4.6	4.8
Radial fans nominal current	A	6	8	8
Radial fans maximum power	kW	5.5	6.7	6.9
Radial fans maximum current	A	9	10	11
Radial fans inrush current	A	49	64	64
Power supply	V / Ph / Hz	400 / 3~+N / 50		
Hot water coil heat output	kW	16.5	17	
Water coil nominal capacity	m³/h	1.42	1.46	
Water pressure drop	kPa	30	31	
Air flow fan	No.	1		
Recirculation air flow rate	m³/h	2000	2800	
Recirculation static pressure	Pa	50		
Maximum allowable pressure high pressure side (PS)	bar-r	42		
Dimensions (base x depth x height)	mm	700 x 850 x 900		
Unladen weight	Kg	120	130	140

The dehumidifying capacity is declared in 30°C nominal point at 80% RH

Current and power consumption are declared in 30°C nominal point at 80% UR

The hot water coil power is declared with room air 30 °C, in water 80° and out water 70°C

Pressure, currents and absorbed power are declared at nominal flow with centrifugal fan

Under conditions other than those declared, they can be subjected to variations that can be considerable the farther they are from nominal operating conditions.

FRAME 4

MODEL		350	450	580
Compressor	type	scroll		
Refrigeration circuits	No.	1		
Refrigerant	type	R410A		
Dehumidification power	L/24h	358	452	581
Centrifugal fans nominal power	kW	5.2	6	8.8
Centrifugal fans nominal current	A	12	13	18
Centrifugal fans maximum power	kW	7.4	9	12.3
Centrifugal fans maximum current	A	16	18	24
Centrifugal fans inrush current	A	69	72	102
Radial fans nominal power	kW	4.6	5.5	8.5
Radial fans nominal current	A	8	9	14
Radial fans maximum power	kW	8.6	10	13.4
Radial fans maximum current	A	14	16	22
Radial fans inrush current	A	67	70	100
Power supply	V / Ph / Hz	400 / 3~+N / 50		
Hot water coil heat output	kW	26.5		27
Water coil nominal capacity	m ³ /h	2.28		2.32
Water pressure drop	kPa	40		
Air flow fan	No.	1		
Recirculation air flow rate	m ³ /h	3800	4000	4800
Recirculation static pressure	Pa	50		
Maximum allowable pressure high pressure side (PS)	bar-r	42		
Dimensions (base x depth x height)	mm	830 x 850 x 1350		
Unladen weight	Kg	220	230	240

The dehumidifying capacity is declared in 30°C nominal point at 80% RH

Current and power consumption are declared in 30°C nominal point at 80% UR

The hot water coil power is declared with room air 30 °C, in water 80° and out water 70°C

Pressure, currents and absorbed power are declared at nominal flow with centrifugal fan

Under conditions other than those declared, they can be subjected to variations that can be considerable the farther they are from nominal operating conditions.

FRAME 5

MODEL		750	950
Compressor	type	scroll	
Refrigeration circuits	No.	1	
Refrigerant	type	R410A	
Dehumidification power	L/24h	760	955
Centrifugal fans nominal power	kW	10	13.2
Centrifugal fans nominal current	A	19	24
Centrifugal fans maximum power	kW	15.9	19.6
Centrifugal fans maximum current	A	27	33
Centrifugal fans inrush current	A	150	200
Radial fans nominal power	kW	9.7	13
Radial fans nominal current	A	18	24
Radial fans maximum power	kW	16.3	20
Radial fans maximum current	A	27	33
Radial fans inrush current	A	151	201
Power supply	V / Ph / Hz	400 / 3~+N / 50	
Hot water coil heat output	kW	48	55
Water coil nominal capacity	m ³ /h	4.13	4.73
Water pressure drop	kPa	36	38
Air flow fan	No.	1	
Recirculation air flow rate	m ³ /h	7000	8200
Recirculation static pressure	Pa	200	
Maximum allowable pressure high pressure side (PS)	bar-r	42	
Dimensions (base x depth x height)	mm	1000 x 1400 x 1350	
Unladen weight	Kg	410	430

The dehumidifying capacity is declared in 30°C nominal point at 80% RH

Current and power consumption are declared in 30°C nominal point at 80% UR

The hot water coil power is declared with room air 30 °C, in water 80° and out water 70°C

Pressure, currents and absorbed power are declared at nominal flow with centrifugal fan

Under conditions other than those declared, they can be subjected to variations that can be considerable the farther they are from nominal operating conditions.

FRAME 6

MODEL		1100	1400
Compressor	type	scroll	
Refrigeration circuits	No.	2	
Refrigerant	type	R410A	
Dehumidification power	L/24h	1120	1350
Centrifugal fans nominal power	kW	14	16.8
Centrifugal fans nominal current	A	26	32
Centrifugal fans maximum power	kW	22	25.8
Centrifugal fans maximum current	A	38	45
Centrifugal fans inrush current	A	121	168
Radial fans nominal power	kW	13.5	16.7
Radial fans nominal current	A	25	32
Radial fans maximum power	kW	23.5	26.7
Radial fans maximum current	A	38	45
Radial fans inrush current	A	121	169
Power supply	V / Ph / Hz	400 / 3~+N / 50	
Hot water coil heat output	kW	76	83
Water coil nominal capacity	m³/h	6.54	7.14
Water pressure drop	kPa	55	58
Air flow fan	No.	2	2
Recirculation air flow rate	m³/h	11000	12500
Recirculation static pressure	Pa	200	
Maximum allowable pressure high pressure side (PS)	bar-r	42	
Dimensions (base x depth x height)	mm	1000 x 1950 x 1640	
Unladen weight	Kg	650	720

The dehumidifying capacity is declared in 30°C nominal point at 80% RH

Current and power consumption are declared in 30°C nominal point at 80% UR

The hot water coil power is declared with room air 30 °C, in water 80° and out water 70°C

Pressure, currents and absorbed power are declared at nominal flow with centrifugal fan

Under conditions other than those declared, they can be subjected to variations that can be considerable the farther they are from nominal operating conditions.

FRAME 7

MODEL		1500	1700	1900	2200
Compressor	type	scroll			
Refrigeration circuits	No.	2			
Refrigerant	type	R410A			
Dehumidification power	L/24h	1480	1710	1870	2180
Centrifugal fans nominal power	kW	18	20	22	26
Centrifugal fans nominal current	A	34	39	40	50
Centrifugal fans maximum power	kW	28	31	35	39
Centrifugal fans maximum current	A	48	54	58	66
Centrifugal fans inrush current	A	170	178	191	234
Radial fans nominal power	kW	17	20	22	27
Radial fans nominal current	A	32	37	38	49
Radial fans maximum power	kW	29	32	36	40
Radial fans maximum current	A	48	54	58	67
Radial fans inrush current	A	170	178	191	234
Power supply	V / Ph / Hz	400 / 3~+N / 50			
Hot water coil heat output	kW	98	107	107	118
Water coil nominal capacity	m ³ /h	8.43	9.2	9.2	10.15
Water pressure drop	kPa	60	63	63	68
Air flow fan	No.	2	2	2	2
Recirculation air flow rate	m ³ /h	13000	15000	15000	17000
Recirculation static pressure	Pa	200			
Maximum allowable pressure high pressure side (PS)	bar-r	42			
Dimensions (base x depth x height)	mm	1000 x 2500 x 1640			
Unladen weight	Kg	780	840	900	950

The dehumidifying capacity is declared in 30°C nominal point at 80% RH

Current and power consumption are declared in 30°C nominal point at 80% UR

The hot water coil power is declared with room air 30 °C, in water 80° and out water 70°C

Pressure, currents and absorbed power are declared at nominal flow with centrifugal fan

Under conditions other than those declared, they can be subjected to variations that can be considerable the farther they are from nominal operating conditions.

FRAME 8

MODEL		3000
Compressor	type	scroll
Refrigeration circuits	No.	2
Refrigerant	type	R410A
Dehumidification power	L/24h	2960
Centrifugal fans nominal power	kW	35
Centrifugal fans nominal current	A	62
Centrifugal fans maximum power	kW	53
Centrifugal fans maximum current	A	87
Centrifugal fans inrush current	A	264
Radial fans nominal power	kW	34
Radial fans nominal current	A	60
Radial fans maximum power	kW	54
Radial fans maximum current	A	88
Radial fans inrush current	A	265
Power supply	V / Ph / Hz	400 / 3~+N / 50
Hot water coil heat output	kW	168
Water coil nominal capacity	m³/h	14.45
Water pressure drop	kPa	60
Air flow fan	No.	3
Recirculation air flow rate	m³/h	25000
Recirculation static pressure	Pa	200
Maximum allowable pressure high pressure side (PS)	bar-r	42
Dimensions (base x depth x height)	mm	1000 x 3390 x 1640
Unladen weight	Kg	1250

The dehumidifying capacity is declared in 30°C nominal point at 80% RH

Current and power consumption are declared in 30°C nominal point at 80% UR

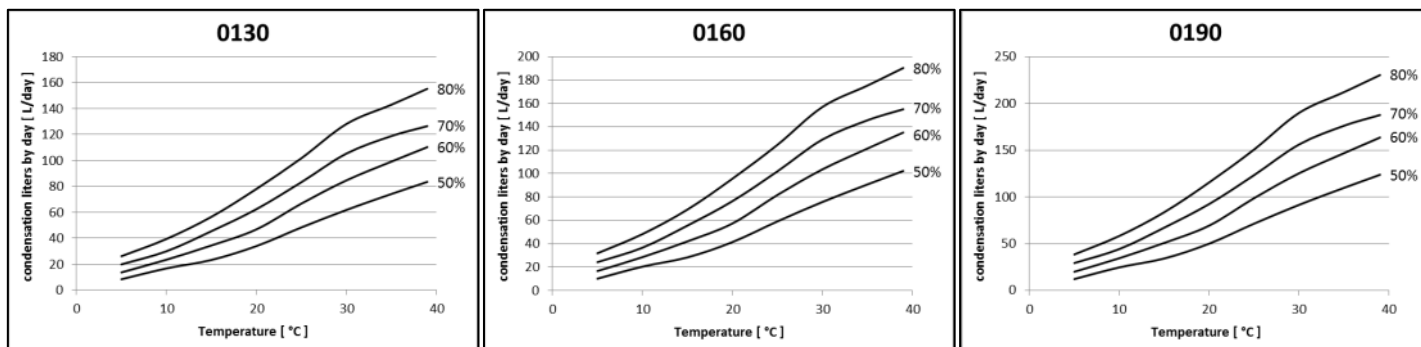
The hot water coil power is declared with room air 30 °C, in water 80° and out water 70°C

Pressure, currents and absorbed power are declared at nominal flow with centrifugal fan

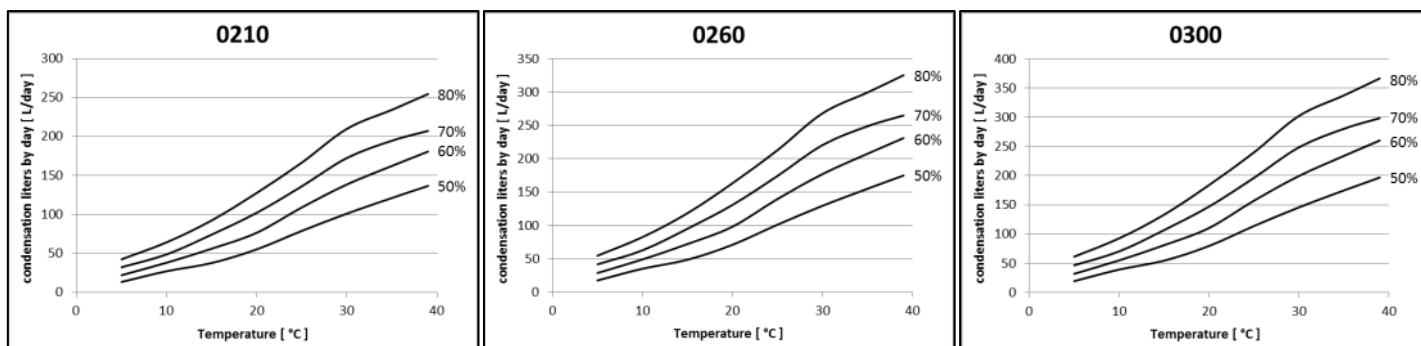
Under conditions other than those declared, they can be subjected to variations that can be considerable the farther they are from nominal operating conditions.

YIELD CURVES

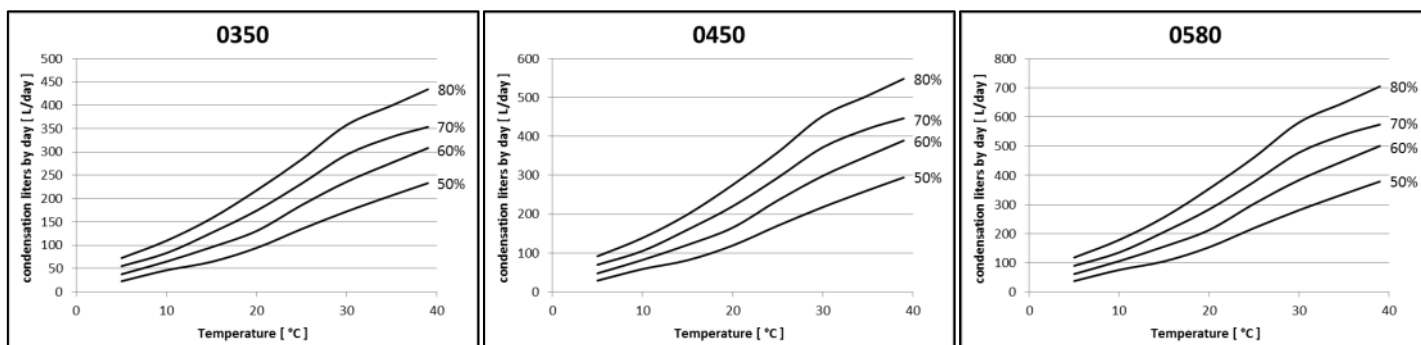
FRAME 2



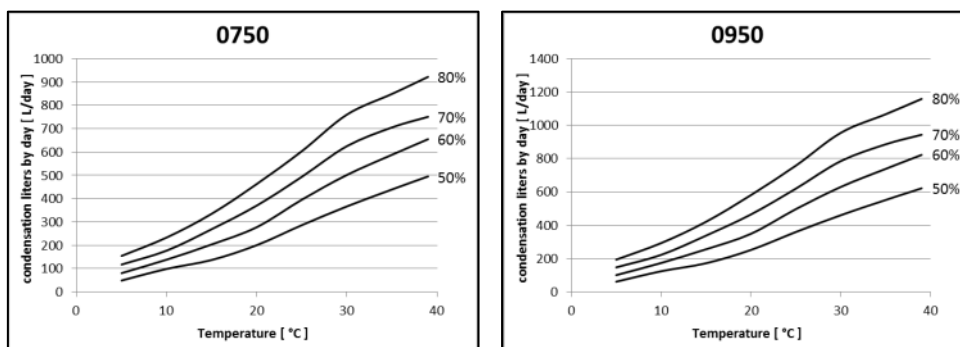
FRAME 3



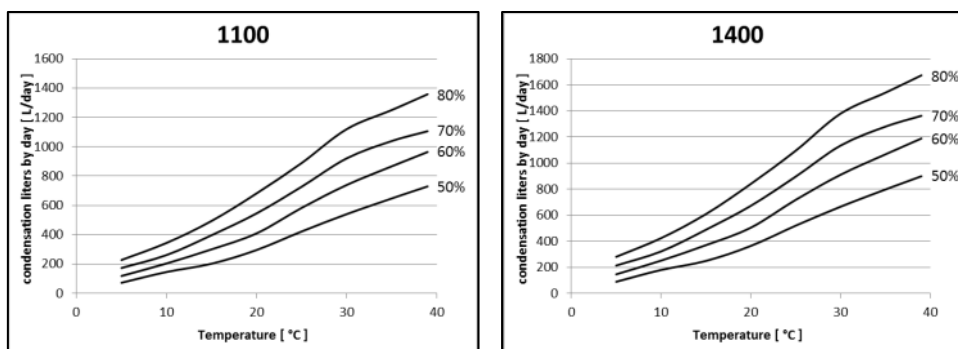
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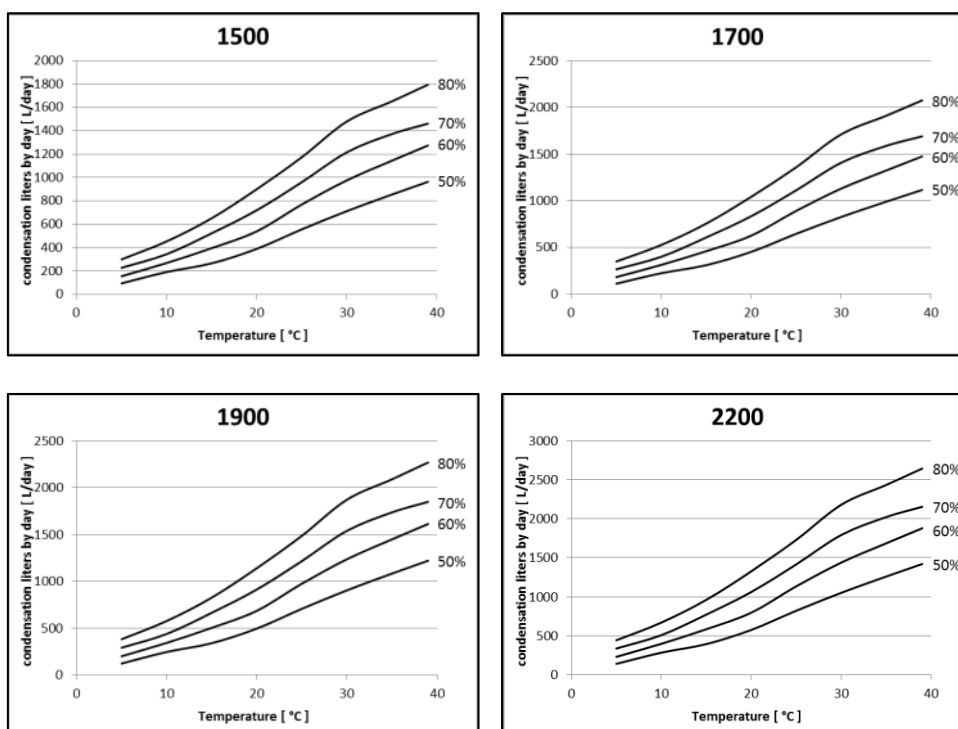
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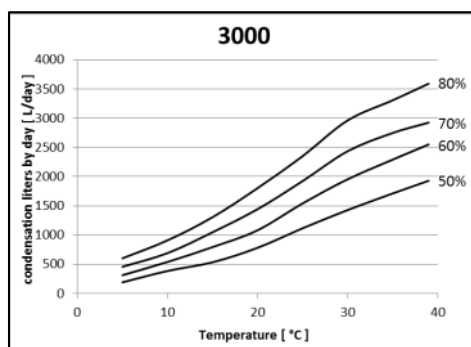
FRAME 6



FRAME 7

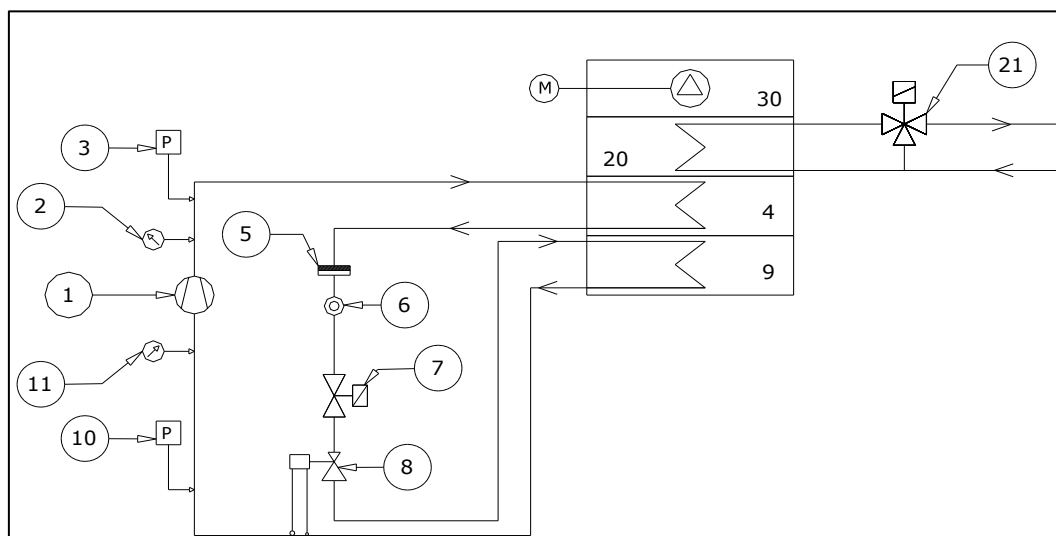


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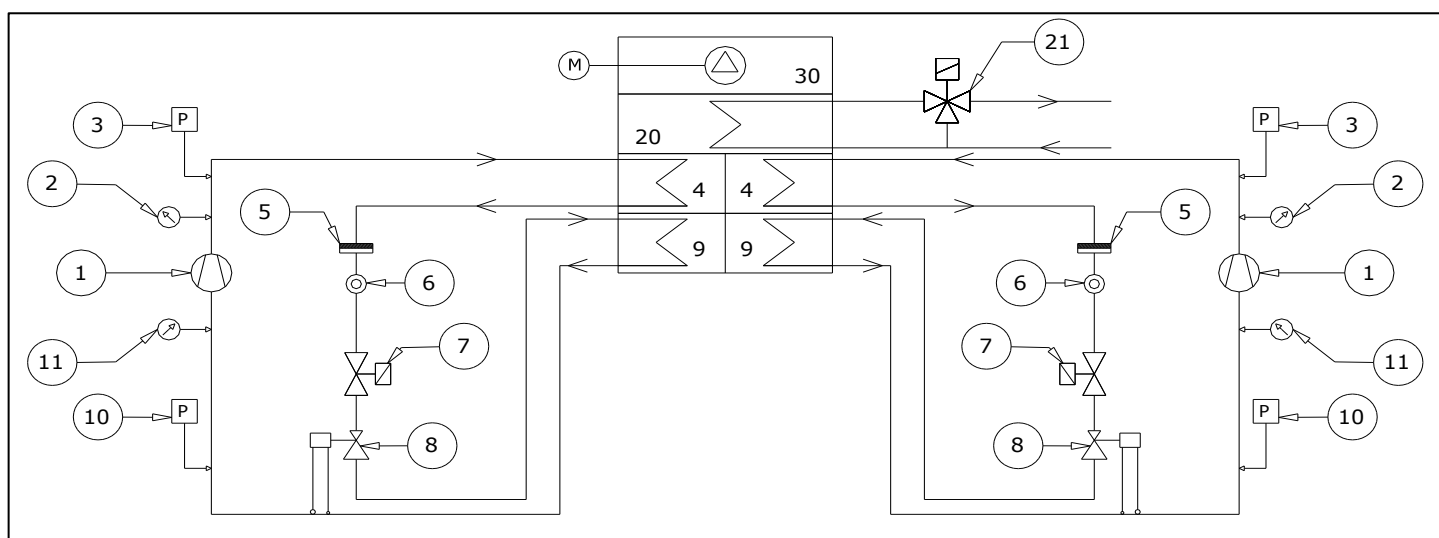


1.1 FUNCTIONAL DIAGRAM

1.1.1 SINGLE CIRCUIT UNIT DIAGRAM



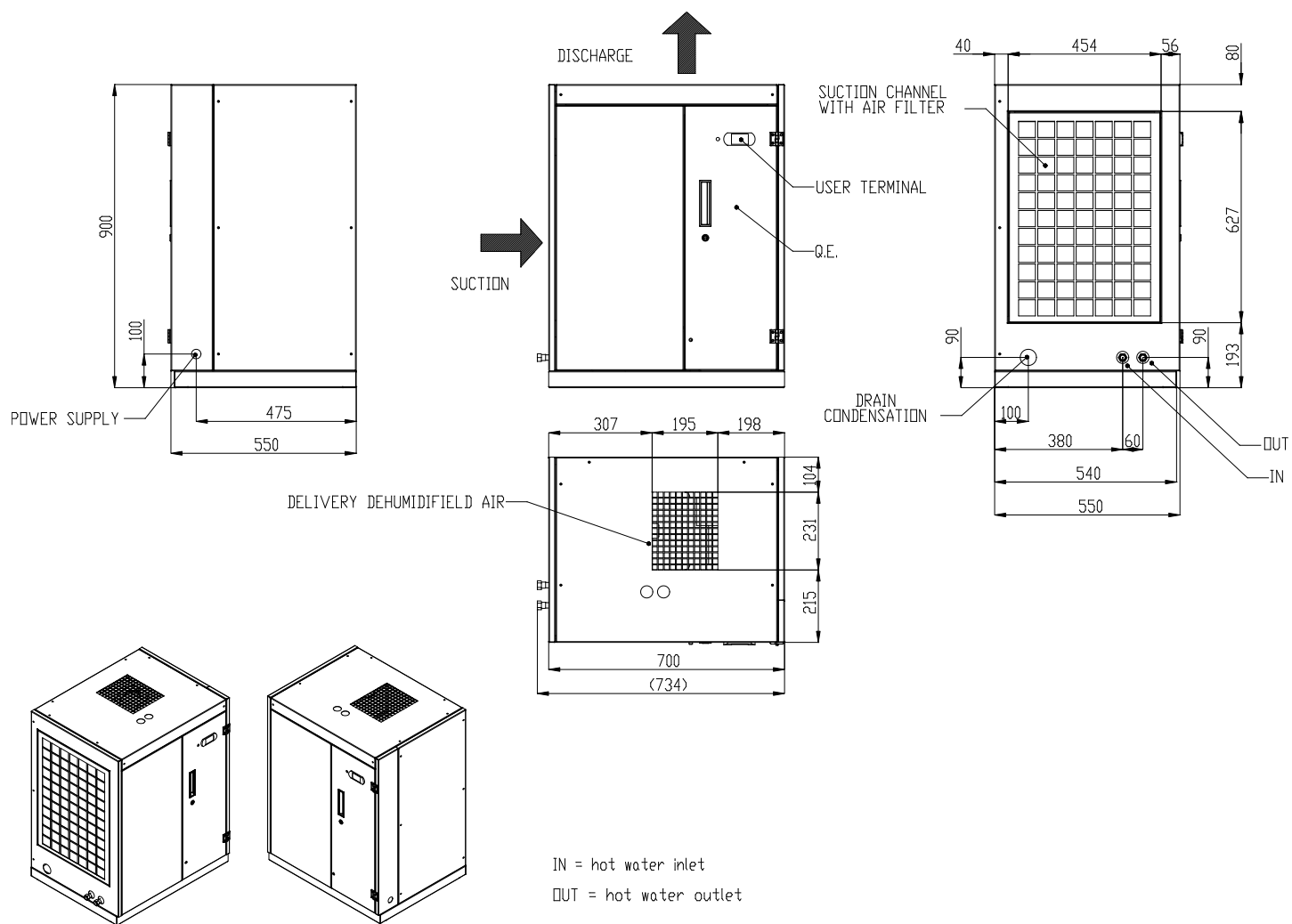
1.1.2 DOUBLE CIRCUIT UNIT DIAGRAM



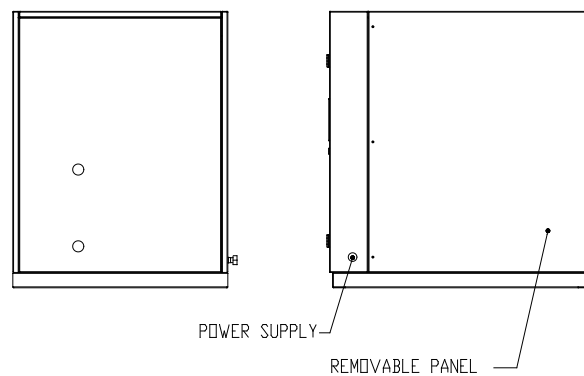
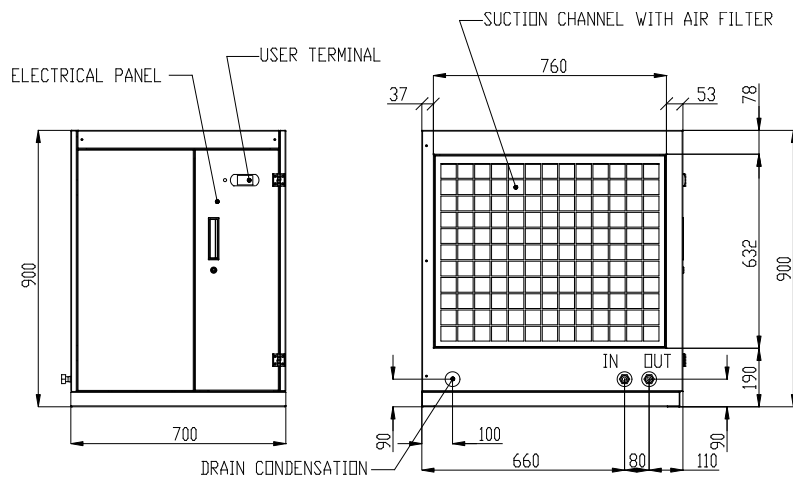
- 1 compressor
- 2 high pressure pressure gauge
- 3 high pressure pressure switch
- 4 condensation coil
- 5 dehydrating filter
- 6 flow indicator
- 7 solenoid valve
- 8 thermostatic valve
- 9 evaporator coil
- 10 low pressure pressure switch
- 11 low pressure pressure gauge
- 20 water reheat coil [optional]
- 21 3-way water valve [optional]
- 30 fan/fans

OVERALL DRAWINGS

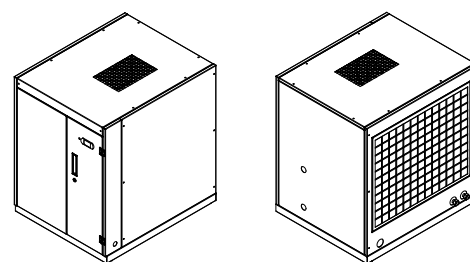
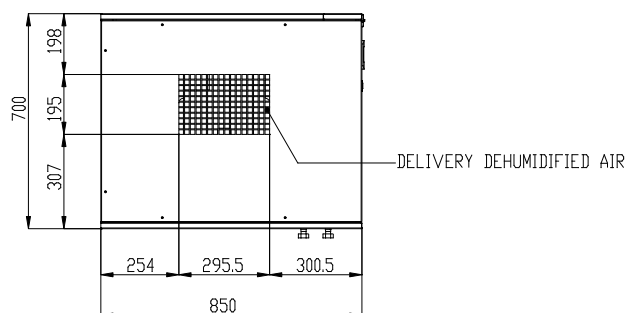
FRAME 2



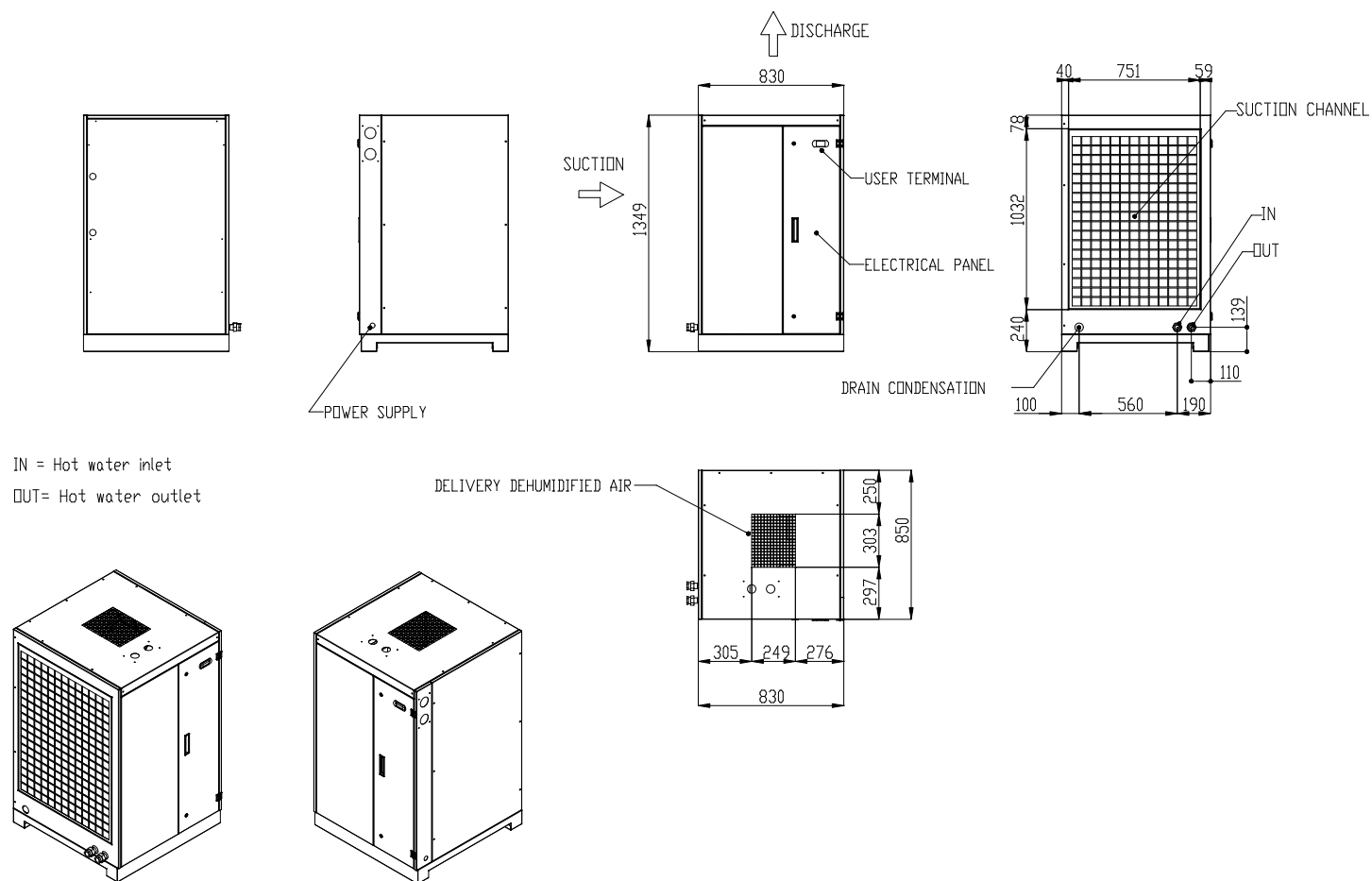
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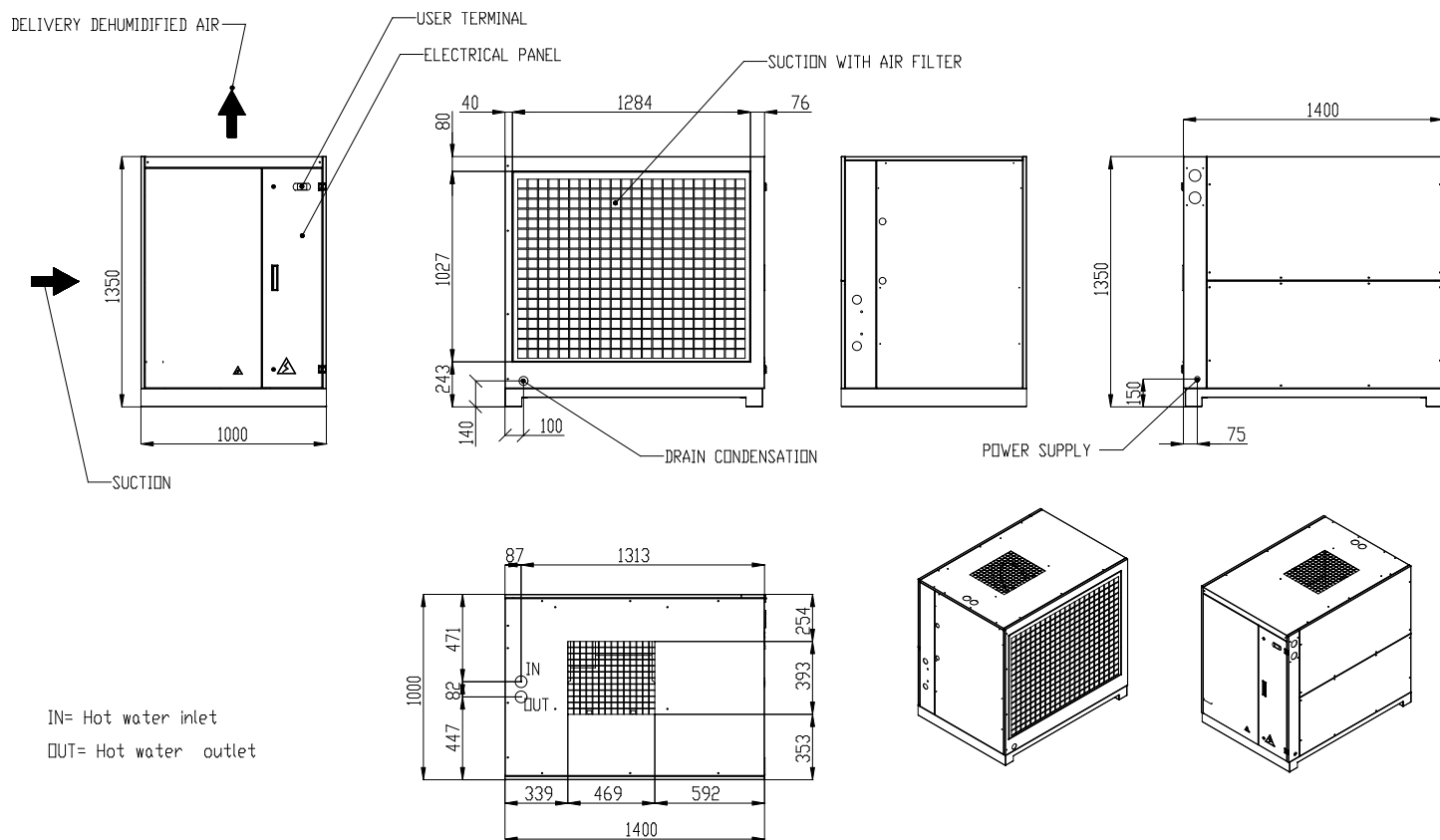
IN = hot water inlet
OUT = hot water outlet
versions only for hot water



FRAME 4



FRAME 5





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