



# Flex Series™ Chillers

Air/water chillers with axial or centrifugal fans; plate or shell and tube exchangers.



## **FLEX SERIES™**

The patented series of modular packaged chiller and heat pump with scroll compressors and R-410A refrigerant oriented towards higher energy efficiency and low noise emissions.

## **MODULAR**

Due to the multiple configuration available, Flex Series™ is suitable for air conditioning any environment. More than 200 compositions are possible and the power range can be increased over time in a simple and economical way, thus following the development of the projects.

## **ECOLOGICAL**

The ecological refrigerant gas R-410A is not dangerous for the ozone; it allows high efficiency systems (ODP = 0) and convenient electrical consumption, and therefore, lower emissions of CO<sub>2</sub> in the atmosphere.  
The scroll compressor, optimized for R410A are more efficiently, compact and silent.

## **EFFICIENT**

The unit assure coefficients ESEER and IPLV extremely high and a perfect continuous response to the installation load variation. FLEX SERIES™ single circuit units operating with R410A are characterized by an ESEER clearly superior to the traditional dual-circuit units operating with R407C.

## **SILENT**

Due to the special axial fans with owlet or Hy Blade profile of the shovels, Flex Series™ is more silent: it reaches a noise reduction of 6 dB(A) compared to standard axial fans version.

## **RELIABLY EVEN IN EXTREME CONDITIONS**

Flex Series™ units can be equipped with low outdoor ambient kit: up to -20°C

## **PATENTED**

Flex Series™ is covered by international patents:

External Air Recover® In heat pump mode it allows free heating of external air, avoiding the use of an external heat recovery with an increase of 40% for the COP.

Energy Multiplier Water Storer® Regenerative recovery system to increase the power and efficiency by using chilled water storage at medium heat.

Hybrid Smart Cooling® With the hybrid smart cooling system the unit can match the load request at any outdoor temperature.

Flex Series™ is the only chiller able to increase capacity with the increase of the outdoor temperature.

## **BASIC VERSIONS**

C Chiller  
CM Cooling only condensing unit  
MC Modular chiller

## **ENERGETIC VERSIONS**

D Partial recovery stainless steel brazed plate type desuperheater, externally insulated.  
R Total recovery stainless steel brazed type exchanger, externally insulated.

## **ACOUSTIC VERSIONS**

LN Low Noise includes condensing control with variable fan speed regulation up to size 1130 and 2 speed condensing control from size 1140 to 1300 and sound compressors jackets. Compared to basic versions, LN versions allows a reduction of about 2 dB(A) in sound levels.

SL Super Low Noise includes condensing control with variable fan speed modulation, oversized coils, muffler on the compressor delivery lines and soundproof box. Compared to basic versions, SL versions allows a reduction of about 5 Db(A) in sound levels.

## **HYDRAULIC VERSIONS**

B/M/A Hydraulic kit including: N.1 or N.2 pumps, available head pressure (B) Low (150 kPa), (M) Medium (250 kPa), (A) High (450 kPa), expansion vessel.

SB/SM/SA Hydraulic kit including N.1 pump, available head pressure (B) Low (150 kPa), (M) Medium (250 kPa), (A) High (450 kPa), expansion vessel, buffer tank.

XB/XM/XA Hydraulic kit including N.2 pumps, available head pressure (B) Low (150 kPa), (M) Medium (250 kPa), (A) High (450 kPa), expansion vessel, buffer tank.

## **MAIN FEATURES**

**PERSONALIZATION ON INDUSTRIAL SCALE**

Medium and high powered cooling units have always been built on order, each time personalized according to the client requirements. Thanks to Flex Series™, Trane introduces the big mass production into this sector, without renouncing the flexibility obtained thanks to a more personalized production, on the contrary enforcing it thanks to the concept of modularity.

**HIGH ENERGETIC EFFICIENCY**

All basic modules are fitted out with twinned scroll compressors in order to assure constantly very high classes of energetic efficiency and seasonal energetic indexes (ESEER and IPLV). This allows to perfectly and quickly follow system load variations. Moreover, the Hybrid Smart Cooling enables to increase to 40% the energetic efficiency.

**HYBRID SMART COOLING, A NEW LOGIC TO CHOOSE A COOLING UNIT**

The choice isn't anymore at 35°C, but at a lower temperature, as for instance at 30°C. It's from this temperature on that Hybrid Smart Cooling works and the cooling unit is able to exactly satisfy the system power demand.

Hybrid Smart Cooling is the only system in the world which allows to reduce consumption of energy and meanwhile to reduce the initial investment costs.

Hybrid Smart Cooling uses water. Anyway consumptions are extremely low. If outdoor temperature is up to a 30°C there is no consumption, at 35°C the water consumption is equal to 7 litres/hour for each cooling kWh produced, increasing to 10 litres/hour for each kWh when the outdoor temperature raises to 45°C.

The water requirements can be compared to an evaporative tower (about 7/litres/h kWh) but it is just necessary when the air temperature is higher than 30°C.

**PARTIAL LOAD HIGH EFFICIENCY THANKS TO THE HUGE NUMBER OF CHOKING STEPS**

Thanks to the combination of multiple machines it is possible to increase efficiencies at partial loads. For the sizes equipped with two compressors of different power, it is possible to obtain 3 capacity steps. This increases partial load efficiency and the seasonal average efficiencies of the individual machine and the system of n machines.

**INNOVATIVE COOLING CIRCUIT**

C setting: cooling circuit entirely made of copper, it includes refrigerant charging, thermostatic expansion valve up to size 1200, electronic expansion valve from size 1200 to size 1300, dehydrating filter, liquid indicator, solenoid valve, high and low pressure transducers, high and low pressure switches. The cooling circuits are made up of controlled atmosphere welds and they are evacuated, desiccated, pressure tested, loaded with precision by means of a specially provided electronic instrumentation.

**ELECTRONICS FOR SINGLE UNITS**

Electrical and control panel; made up according to CEI 44-5/IEC 204-2 laws. It includes the isolator door block handle; protection fuses for compressors, contactors for compressors, protection fuses for fans, contactors for fans; 220 V auxiliary circuit protection fuses; 24 V circuit voltage transformer; 24V auxiliary circuit protection; user junction-box with low voltage clamps. Sull'unità sono utilizzati cavi FG7, ideali per le installazioni esterne grazie alla loro resistenza ai raggi UV, maggiore rispetto ad altri cavi standard. The unit is equipped with FG7 cables, with a very good behaviour in an outside installation thanks to their resistance to UV exposure, more higher in comparison with others standard cables.

Microprocessor

A multi-function 6 button controller with graphic display to set up the adjustment set point of the device power; to monitor the system analog state variables (in/out water temperature, pressure); to monitor the implement state (on-off compressors, valves, antifreeze strengths, etc.); to read the text and code of the activated alarm; to switch on/off the unit and change the function cycle; to change the device function parameters and through password input: proportional calling band of power steps, on-off compressor timing, antifreeze timing (for heat pumps), intervention threshold for antifreeze protection, eventual ventilator speed regulation curve in function of the condensation pressure, etc.

**ALARM MANAGEMENT:** the user interface provides complete information about the unit state and the possibility to decode in a direct and easy way eventual alarm situations, such as: lack of water flow; high/low pressure; thermal compressor; thermal ventilator; broken/ unrelated temperature/pressure drill, etc.

**CONNECTIONS:** Through the contacts (with standard equipment) over the electric panel, it is possible to manage the unit fundamental functions in remote mode: to switch on/off the unit; to select the function cycle (heating and cooling) in remote mode for heat pump versions; to detect the activation of the external water pump; to detect the general state alarm over the device; to detect the compressor on/off state. The controller can be interfaced to a supervisor software via a local or remote PC (via modem), or through complex BMS systems using Modbus protocol.

## **ELECTRONICS FOR MODULAR APPLICATIONS**

Flex Series™, for the modular installations, is equipped with the most innovative control system: Trane applies the most recent hardware technology available on the market and has developed its own control software, properly implemented for this product line, with the purpose to maximize efficiency and performances.

16 bit microprocessors with a 2MB storage capacity, real time clock in order to have an alarm archive, multilingual control software. Conceived to be inserted into a local network of electronic cards for the coordinated management of many cooling circuits on the basis of a single power regulation probe, with diversified control and alarm signals of condensation which just stop their circuit instead of the whole network.

The card addressed as master calls the power steps allotted on the whole system and manages the general alarms. The slave cards manage their own compressors according to the timing suggested by the master one, to condensation and to their circuit alarms. It is possible to manage each single network card by means of a unique 6 buttons terminal with LCD graphical display; to set the device power regulation setpoint; to monitor the analogical variables of the system status (in/out water temperatures, pressure on each circuit); to monitor the actuators status on each circuit (on/off compressors, antifreeze resistances, etc.); to read text and code of the intervened alarm; to switch on/off the unit and to change the functioning cycle; to modify the functioning parameters of the device by means of the input of a password: proportional calling band of power steps, on/off compressors timing, defrosting timing (for heat pumps), intervention threshold of antifreeze protection, possible regulation curve of fans speed depending on the condensation pressure, pre-starting timing and post switching off of the water circulation pump.

There are three types of alarms:

**SERIOUS ALARMS:** managed by a master card, they have as consequence the deactivation of the whole system, warning on the display, alarm buzzer, relay exit activation of the general alarm (mail on the master card).

They are: lack of water flow; possible warning of serious alarm on digital input (lack/inversion of the triad of power supply voltages of the machine, current leakage to ground).

**CIRCUIT ALARMS:** they deactivate only the circuit where they have occurred, give a text alarm on the display, activate the buzzer and the general alarm output relay fitted on the master card. They are: high/low pressure; compressor thermal protection; fans thermal protection; temperature or pressure probe failure;

**SIGNAL-ONLY ALARMS:** they only give a signal text on the display and activate the general alarm output relay fitted on the master card, but they don't deactivate any circuit of the machine. They are: unit maintenance time; compressor maintenance time; water pump maintenance time; net self-control failure: for the multi-card cooling units, this means that one or more slave-addressed cards are off-line.

## **UNIT DESCRIPTION**

### **SCROLL COMPRESSORS**

Hermetic scroll compressors, complete with a heating protection of the electric engine with automatic reinsertion and a crankcase resistance in order to prevent the refrigerant thinning in the oil during device downtimes.

The junction-box is contained into a covering with an IP 54 protection degree.

### **FRAME**

Lattice framework piece of furniture with elements made of varnished zinc-coated steel able to withstand the mechanical stress both during transport and functioning. The high corrosion strength, assured by an epoxy powder based treatment, and the weather events strength allows the outdoor installation. The building shape assures a perfect air transition through finned parcel exchangers and allows accessibility to internal components so as to simplify repairs and maintenance.

### **CONDENSING COILS**

Condenser coils with seamless copper tubes expanded into aluminum corrugated fins. They are of high efficiency type, complete with subcooling circuit which allows an increase of cooling capacity without an increase of the power input.

**FOR SL VERSIONS:** air side high efficiency and low by-pass impact finned parcel exchangers occupying a wide area, with aluminium gills and copper pipes mechanically expanded. The ranks number has increased in order to assure a full load functioning up to an outdoor temperature equal to 45°C even with a reduced air delivery.

### **EVAPORATORS**

Directly expanded braze welded plated, externally isolated with closed cells anti-condensate mat, fitted with antifreeze electrical resistance driven by thermostat and water differential gear pressure switch.

### **RECOVERY OF HEAT EXCHANGERS**

**D VERSION:** brazed plate heat exchanger with partial recovery (desuperheater), externally insulated.

**R VERSION:** brazed plate heat exchanger with total recovery, externally insulated.



## FLEX SERIES™

### FANS

The technology of ECOPROFILE propeller fans, has blades statically and dynamically balanced, driven directly by the electric motors, closed type, external rotor and thermal protection for outdoor installation. Class F windings, internal protection according to VDE 0730. Ecoprofile are characterized by low speed and "owlet" profile to reduce the effect of vortices, thereby reducing the energy consumed for operation and noise, reducing it by an average of 6dB (A) compared with standard fans.

ECOPROFILE ELECTRONIC fans are available as well in the brushless version, which uses brushless electric motors, further improving both power consumption and noise emissions. In addition, these fans provide a continuous adjustment of condensation.

Condensing control by variable fans speed modulation is included on all Flex Series™ version up to 1140 Z size.

#### CONDENSING CONTROL IN THE ACOUSTIC VERSIONS:

##### LN (Low Noise)

- variable fan speed modulation up to size 1130;
  - 2 steps condensing/evaporating control control from size 1140 up to size 1300 (Δ/Y);
- Fan speed is automatically increased if the units works in extreme outdoor conditions.

##### SL (Super Low Noise)

- Condensing control with variable fan speed modulation for all the sizes.
- Fan speed is automatically increased if the units works in extreme outdoor conditions.

## GENERAL TECHNICAL DATA

MODEL		140 Z	150 Z	155 Z	160 Z	170 Z	180 Z	190 Z	1110 Z
Total capacity	kW	40,7	48,7	55,1	60,5	71,6	83,2	94,1	106,0
Compressors power input	kW	14,9	17,4	19,8	23,4	25,3	28,3	34,1	38,9
Total EER		2,48	2,57	2,58	2,43	2,53	2,66	2,54	2,53
<b>COMPRESSORS</b>									
Compressors number	n	2	2	2	2	2	2	2	2
Refrigerant circuits	n	1	1	1	1	1	1	1	1
Part load	n	2	2	2	3	2	2	3	3
Refrigerant charge	kg	3,9	5,6	5,8	5,8	13,4	16,7	16,9	20,4
Oil charge	kg	6,0	6,6	6,6	6,6	6,6	13,4	13,4	13,4
<b>WATER EXCHANGER</b>									
Water flow	m <sup>3</sup> /h	7,0	8,4	9,4	10,4	12,3	14,3	16,2	18,2
Water pressure drop	kPa	48	52	45	54	57	76	63	55
<b>FANS</b>									
Fans number	n	1	1	1	1	2	2	2	2
Air flow	m <sup>3</sup> /h	22480	22200	21400	21400	46640	45160	45160	45040
Power input for each fan	kW	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50
Absorbed current for each fan	A	3,00	3,00	3,00	3,00	3,00	3,00	3,00	3,00
<b>SOUND LEVEL</b>									
Sound power level (ISO 3744)	db	78,0	79,0	79,0	80,0	82,0	85,0	86,0	86,0
Sound pressure level at 10 m (ISO 3744)	db	46,3	47,3	47,3	48,3	50,1	53,1	54,1	54,1
<b>DIMENSIONS AND WEIGHT</b>									
Length	mm	1460	1460	1460	1460	2558	2558	2558	2558
Depth	mm	1100	1100	1100	1100	1100	1100	1100	1100
Height	mm	2025	2025	2025	2025	2090	2090	2090	2090
Weight	kg	473	488	503	509	699	819	829	892

## GENERAL TECHNICAL DATA

MODEL		1120 Z	1130 Z	1140 Z	1150 Z	1160 Z	1190 Z	1200 Z	1220 Z
Total capacity	kW	114,5	127,1	136,9	150,3	162,4	186,8	196,4	214,1
Compressors power input	kW	39,9	45,9	48,4	55,6	58,2	67,1	77,3	74,8
Total EER		2,67	2,60	2,59	2,50	2,59	2,61	2,40	2,65
<b>COMPRESSORS</b>									
Compressors number	n	2	2	2	2	2	2	3	2
Refrigerant circuits	n	1	1	1	1	1	1	1	1
Part load	n	3	3	3	3	2	3	2	2
Refrigerant charge	kg	20,4	20,7	20,7	20,8	30,4	30,6	30,6	40,6
Oil charge	kg	13,4	13,4	13,9	13,9	14,4	13,9	20,1	13,4
<b>WATER EXCHANGER</b>									
Water flow	m <sup>3</sup> /h	19,7	21,8	23,5	25,8	27,9	32,1	33,7	36,7
Water pressure drop	kPa	64	58	67	50	53	57	63	56
<b>FANS</b>									
Fans number	n	2	2	3	3	3	3	3	4
Air flow	m <sup>3</sup> /h	42480	42480	66960	66960	66480	63720	63720	88640
Power input for each fan	kW	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50
Absorbed current for each fan	A	3,00	3,00	3,00	3,00	3,00	3,00	3,00	3,00
<b>SOUND LEVEL</b>									
Sound power level (ISO 3744)	db	86,0	86,0	87,0	87,0	87,0	89,0	88,0	91,0
Sound pressure level at 10 m (ISO 3744)	db	54,1	54,1	55,0	55,0	55,0	57,0	56,0	59,0
<b>DIMENSIONS AND WEIGHT</b>									
Length	mm	2558	2558	3599	3599	3599	3599	3599	2558
Depth	mm	1100	1100	1100	1100	1100	1100	1100	2200
Height	mm	2090	2090	2205	2205	2205	2205	2205	2205
Weight	kg	915	922	1199	1236	1299	1343	1453	1541

**GENERAL TECHNICAL DATA**

<b>MODEL</b>		<b>1250 Z</b>	<b>1300 Z</b>
Total capacity	kW	243,9	302,6
Compressors power input	kW	89,3	114,0
Total EER		2,56	2,46
<b>COMPRESSORS</b>			
Compressors number	n	3	3
Refrigerant circuits	n	1	1
Part load	n	2	2
Refrigerant charge	kg	41,0	41,9
Oil charge	kg	21,6	20,1
<b>WATER EXCHANGER</b>			
Water flow	m <sup>3</sup> /h	41,8	51,9
Water pressure drop	kPa	60	81
<b>FANS</b>			
Fans number	n	4	6
Air flow	m <sup>3</sup> /h	84960	134400
Power input for each fan	kW	1,50	1,50
Absorbed current for each fan	A	3,00	3,00
<b>SOUND LEVEL</b>			
Sound power level (ISO 3744)	db	89,0	92,0
Sound pressure level at 10 m (ISO 3744)	db	57,0	59,8
<b>DIMENSIONS AND WEIGHT</b>			
Length	mm	2558	3530
Depth	mm	2200	2260
Height	mm	2205	2400
Weight	kg	1752	2351

**PERFORMANCE IN COOLING MODE**

Twout			140						150					
			Outdoor air temperature						Outdoor air temperature					
			25	30	32	35	40	43	25	30	32	35	40	43
<b>5,0</b>	Pf	kW	44,1	41,4	40,3	38,6	35,7	33,8	52,7	49,5	48,2	46,1	42,7	40,5
	Pa	kW	12,1	13,3	13,8	14,7	16,2	17,3	14,1	15,5	16,2	17,1	19,0	20,2
	qw	m <sup>3</sup> /h	7,55	7,09	6,90	6,61	6,12	5,80	9,02	8,48	8,25	7,91	7,32	6,94
<b>6,0</b>	dpw	kPa	56,6	50,0	47,3	43,4	37,2	33,4	60,9	53,8	51,0	46,8	40,0	36,0
	Pf	kW	45,3	42,5	41,4	39,6	36,7	34,8	54,1	50,8	49,5	47,4	43,8	41,6
	Pa	kW	12,2	13,4	13,9	14,8	16,4	17,4	14,2	15,7	16,3	17,3	19,1	20,4
<b>7,0</b>	qw	m <sup>3</sup> /h	7,77	7,29	7,10	6,80	6,29	5,96	9,28	8,72	8,48	8,13	7,52	7,13
	dpw	kPa	59,9	52,8	50,0	45,9	39,3	35,3	64,5	56,9	53,9	49,4	42,3	38,0
	Pf	kW	46,5	43,7	42,5	40,7	37,6	35,7	55,6	52,2	50,8	48,7	45,0	42,7
<b>8,0</b>	Pa	kW	12,3	13,5	14,1	14,9	16,5	17,6	14,3	15,8	16,4	17,4	19,3	20,5
	qw	m <sup>3</sup> /h	7,99	7,50	7,29	6,99	6,46	6,12	9,54	8,96	8,72	8,35	7,72	7,32
	dpw	kPa	63,3	55,8	52,8	48,5	41,4	37,2	68,2	60,1	56,9	52,2	44,6	40,1
<b>9,0</b>	Pf	kW	47,8	44,9	43,7	41,8	38,6	36,7	57,1	53,7	52,2	50,0	46,2	43,8
	Pa	kW	12,4	13,6	14,2	15,0	16,6	17,7	14,5	15,9	16,6	17,6	19,5	20,7
	qw	m <sup>3</sup> /h	8,21	7,71	7,50	7,18	6,63	6,29	9,81	9,21	8,96	8,58	7,93	7,53
<b>10,0</b>	dpw	kPa	66,9	59,0	55,8	51,2	43,7	39,3	72,0	63,5	60,1	55,1	47,1	42,4
	Pf	kW	49,1	46,1	44,8	42,9	39,7	37,6	58,7	55,1	53,6	51,3	47,4	45,0
	Pa	kW	12,5	13,8	14,3	15,2	16,8	17,9	14,6	16,1	16,7	17,7	19,6	20,9
<b>10,0</b>	qw	m <sup>3</sup> /h	8,44	7,92	7,70	7,38	6,81	6,46	10,08	9,46	9,20	8,82	8,15	7,73
	dpw	kPa	70,7	62,2	58,9	54,0	46,1	41,4	76,1	67,0	63,4	58,2	49,7	44,7
	Pf	kW	50,4	47,3	46,0	44,1	40,7	38,6	60,3	56,6	55,0	52,7	48,7	46,2
<b>10,0</b>	Pa	kW	12,6	13,9	14,4	15,3	16,9	18,0	14,7	16,2	16,8	17,9	19,8	21,0
	qw	m <sup>3</sup> /h	8,68	8,14	7,92	7,58	7,00	6,64	10,37	9,73	9,47	9,07	8,37	7,94
	dpw	kPa	74,8	65,8	62,3	57,1	48,7	43,8	80,5	70,9	67,1	61,5	52,5	47,2

Twout			155						160					
			Outdoor air temperature						Outdoor air temperature					
			25	30	32	35	40	43	25	30	32	35	40	43
<b>5,0</b>	Pf	kW	59,6	56,0	54,5	52,2	48,3	45,7	65,5	61,6	59,9	57,3	52,9	50,1
	Pa	kW	16,0	17,7	18,4	19,5	21,6	23,0	18,8	20,8	21,6	23,0	25,6	27,3
	qw	m <sup>3</sup> /h	10,21	9,59	9,34	8,94	8,27	7,84	11,23	10,55	10,27	9,83	9,07	8,58
<b>6,0</b>	dpw	kPa	52,7	46,5	44,1	40,4	34,6	31,1	63,7	56,3	53,3	48,8	41,6	37,2
	Pf	kW	61,2	57,5	56,0	53,6	49,6	47,0	67,3	63,3	61,5	58,9	54,3	51,4
	Pa	kW	16,2	17,8	18,5	19,7	21,8	23,2	18,9	20,9	21,8	23,2	25,8	27,5
<b>7,0</b>	qw	m <sup>3</sup> /h	10,50	9,86	9,60	9,19	8,50	8,05	11,55	10,85	10,55	10,10	9,32	8,81
	dpw	kPa	55,7	49,2	46,6	42,7	36,5	32,8	67,4	59,5	56,3	51,5	43,9	39,3
	Pf	kW	62,9	59,1	57,5	55,1	50,9	48,2	69,2	65,0	63,2	60,5	55,8	52,8
<b>8,0</b>	Pa	kW	16,3	18,0	18,7	19,8	22,0	23,4	19,1	21,1	22,0	23,4	26,0	27,7
	qw	m <sup>3</sup> /h	10,79	10,14	9,86	9,45	8,73	8,27	11,87	11,15	10,84	10,38	9,57	9,05
	dpw	kPa	58,9	52,0	49,2	45,1	38,5	34,6	71,2	62,8	59,4	54,4	46,3	41,4
<b>9,0</b>	Pf	kW	64,6	60,7	59,0	56,5	52,2	49,5	71,1	66,7	64,9	62,1	57,2	54,2
	Pa	kW	16,5	18,1	18,8	20,0	22,1	23,5	19,2	21,3	22,2	23,6	26,2	28,0
	qw	m <sup>3</sup> /h	11,10	10,42	10,13	9,71	8,97	8,50	12,20	11,46	11,14	10,66	9,83	9,30
<b>10,0</b>	dpw	kPa	62,2	54,9	51,9	47,6	40,6	36,5	75,2	66,3	62,7	57,4	48,8	43,7
	Pf	kW	66,4	62,3	60,6	58,0	53,6	50,8	73,0	68,5	66,6	63,7	58,7	55,6
	Pa	kW	16,6	18,3	19,0	20,2	22,3	23,7	19,4	21,4	22,3	23,8	26,4	28,2
<b>10,0</b>	qw	m <sup>3</sup> /h	11,40	10,70	10,41	9,97	9,20	8,72	12,54	11,77	11,44	10,95	10,09	9,54
	dpw	kPa	65,7	57,9	54,8	50,2	42,8	38,5	79,5	70,0	66,1	60,6	51,4	46,0
	Pf	kW	68,2	63,9	62,2	59,6	55,0	52,1	75,0	70,3	68,4	65,4	60,2	57,0
<b>10,0</b>	Pa	kW	16,7	18,4	19,2	20,3	22,5	23,9	19,6	21,6	22,5	23,9	26,6	28,4
	qw	m <sup>3</sup> /h	11,73	11,00	10,70	10,25	9,46	8,97	12,90	12,10	11,76	11,26	10,36	9,81
	dpw	kPa	69,5	61,2	57,9	53,1	45,2	40,6	84,0	73,9	69,9	64,0	54,3	48,6





# FLEX SERIES™

Twout			170						180					
			Outdoor air temperature						Outdoor air temperature					
			25	30	32	35	40	43	25	30	32	35	40	43
<b>5,0</b>	Pf	kW	77,6	73,0	71,0	67,9	62,6	59,2	89,8	84,4	82,2	78,7	72,7	68,9
	Pa	kW	20,2	22,4	23,4	24,9	27,8	29,7	22,7	25,2	26,2	27,9	31,1	33,2
	qw	m <sup>3</sup> /h	13,30	12,50	12,16	11,64	10,73	10,14	15,40	14,47	14,08	13,49	12,47	11,80
	dpw	kPa	66,3	58,6	55,5	50,8	43,2	38,6	88,9	78,5	74,4	68,2	58,3	52,2
<b>6,0</b>	Pf	kW	79,7	74,9	72,9	69,7	64,3	60,7	92,4	86,8	84,5	80,9	74,8	70,8
	Pa	kW	20,4	22,6	23,5	25,1	28,0	29,9	22,9	25,3	26,4	28,1	31,3	33,4
	qw	m <sup>3</sup> /h	13,67	12,85	12,50	11,96	11,02	10,41	15,84	14,89	14,49	13,88	12,82	12,13
	dpw	kPa	70,1	61,9	58,6	53,6	45,5	40,7	94,1	83,2	78,8	72,3	61,7	55,2
<b>7,0</b>	Pf	kW	81,9	76,9	74,8	71,6	65,9	62,3	95,0	89,3	86,9	83,2	76,9	72,7
	Pa	kW	20,5	22,7	23,7	25,3	28,2	30,1	23,0	25,5	26,6	28,3	31,5	33,6
	qw	m <sup>3</sup> /h	14,05	13,20	12,84	12,28	11,31	10,69	16,30	15,32	14,91	14,28	13,19	12,47
	dpw	kPa	74,0	65,3	61,8	56,6	48,0	42,8	99,7	88,0	83,3	76,5	65,2	58,4
<b>8,0</b>	Pf	kW	84,1	79,0	76,8	73,5	67,6	64,0	97,7	91,8	89,3	85,5	79,0	74,7
	Pa	kW	20,7	22,9	23,9	25,5	28,4	30,4	23,1	25,6	26,7	28,5	31,7	33,8
	qw	m <sup>3</sup> /h	14,44	13,56	13,18	12,61	11,61	10,98	16,77	15,76	15,33	14,69	13,56	12,83
	dpw	kPa	78,2	68,9	65,2	59,6	50,6	45,2	105,5	93,1	88,1	80,9	68,9	61,8
<b>9,0</b>	Pf	kW	86,4	81,1	78,8	75,4	69,4	65,6	100,4	94,3	91,8	87,9	81,1	76,7
	Pa	kW	20,9	23,1	24,1	25,7	28,6	30,6	23,3	25,8	26,9	28,7	31,9	34,0
	qw	m <sup>3</sup> /h	14,83	13,92	13,54	12,95	11,92	11,26	17,25	16,20	15,76	15,10	13,93	13,18
	dpw	kPa	82,5	72,7	68,7	62,9	53,3	47,6	111,6	98,4	93,2	85,5	72,8	65,1
<b>10,0</b>	Pf	kW	88,6	83,2	80,9	77,3	71,1	67,3	103,2	96,9	94,3	90,3	83,3	78,8
	Pa	kW	21,0	23,3	24,3	25,9	28,8	30,8	23,5	26,0	27,1	28,9	32,1	34,3
	qw	m <sup>3</sup> /h	15,25	14,31	13,91	13,31	12,24	11,57	17,75	16,67	16,22	15,54	14,33	13,56
	dpw	kPa	87,2	76,8	72,6	66,4	56,2	50,2	118,2	104,2	98,7	90,5	77,0	68,9

Twout			190						1110					
			Outdoor air temperature						Outdoor air temperature					
			25	30	32	35	40	43	25	30	32	35	40	43
<b>5,0</b>	Pf	kW	101,7	95,6	93,1	89,1	82,4	78,0	114,5	107,7	104,8	100,5	93,1	88,3
	Pa	kW	27,1	30,2	31,5	33,6	37,5	40,1	31,2	34,6	36,0	38,3	42,5	45,3
	qw	m <sup>3</sup> /h	17,43	16,39	15,95	15,28	14,12	13,37	19,63	18,46	17,96	17,22	15,95	15,13
	dpw	kPa	73,5	64,9	61,5	56,4	48,2	43,2	63,9	56,5	53,5	49,1	42,2	38,0
<b>6,0</b>	Pf	kW	104,6	98,3	95,6	91,6	84,7	80,1	117,7	110,6	107,7	103,2	95,6	90,7
	Pa	kW	27,3	30,4	31,7	33,8	37,8	40,3	31,5	34,8	36,3	38,6	42,8	45,6
	qw	m <sup>3</sup> /h	17,93	16,85	16,40	15,71	14,52	13,74	20,18	18,97	18,46	17,70	16,39	15,55
	dpw	kPa	77,7	68,7	65,0	59,7	51,0	45,7	67,5	59,6	56,5	51,9	44,5	40,1
<b>7,0</b>	Pf	kW	107,5	101,0	98,3	94,1	86,9	82,3	120,9	113,6	110,6	106,0	98,1	93,1
	Pa	kW	27,5	30,6	31,9	34,1	38,0	40,6	31,7	35,1	36,6	38,9	43,2	45,9
	qw	m <sup>3</sup> /h	18,44	17,33	16,86	16,15	14,92	14,12	20,74	19,49	18,97	18,18	16,83	15,97
	dpw	kPa	82,2	72,6	68,7	63,1	53,8	48,2	71,3	63,0	59,7	54,8	47,0	42,3
<b>8,0</b>	Pf	kW	110,4	103,7	100,9	96,7	89,3	84,5	124,1	116,6	113,5	108,8	100,7	95,6
	Pa	kW	27,7	30,8	32,1	34,3	38,3	40,9	32,0	35,4	36,8	39,2	43,5	46,3
	qw	m <sup>3</sup> /h	18,96	17,81	17,33	16,60	15,33	14,52	21,31	20,02	19,49	18,68	17,29	16,42
	dpw	kPa	86,9	76,7	72,6	66,6	56,8	51,0	75,3	66,5	62,9	57,8	49,5	44,7
<b>9,0</b>	Pf	kW	113,4	106,5	103,7	99,3	91,6	86,8	127,5	119,7	116,5	111,7	103,3	98,1
	Pa	kW	27,9	31,0	32,4	34,5	38,5	41,2	32,2	35,6	37,1	39,5	43,8	46,6
	qw	m <sup>3</sup> /h	19,49	18,30	17,81	17,06	15,74	14,90	21,89	20,57	20,01	19,19	17,75	16,85
	dpw	kPa	91,8	81,0	76,7	70,4	59,9	53,7	79,5	70,1	66,4	61,0	52,2	47,1
<b>10,0</b>	Pf	kW	116,5	109,4	106,4	102,0	94,0	89,1	130,8	122,9	119,6	114,6	106,0	100,7
	Pa	kW	28,1	31,2	32,6	34,8	38,8	41,5	32,5	35,9	37,4	39,8	44,1	47,0
	qw	m <sup>3</sup> /h	20,05	18,82	18,32	17,54	16,18	15,32	22,51	21,14	20,57	19,72	18,24	17,32
	dpw	kPa	97,2	85,7	81,1	74,4	63,3	56,8	84,0	74,1	70,2	64,5	55,1	49,7



Twout			1120						1130					
			Outdoor air temperature						Outdoor air temperature					
			25	30	32	35	40	43	25	30	32	35	40	43
<b>5,0</b>	Pf	kW	123,0	116,0	113,1	108,6	101,0	96,2	137,5	129,3	125,8	120,6	111,6	105,9
	Pa	kW	32,1	35,5	37,0	39,3	43,6	46,4	36,6	40,7	42,4	45,2	50,3	53,6
	qw	m <sup>3</sup> /h	21,07	19,88	19,38	18,61	17,31	16,49	23,57	22,15	21,56	20,66	19,13	18,15
	dpw	kPa	73,6	65,5	62,3	57,4	49,6	45,1	67,7	59,8	56,7	52,1	44,6	40,2
<b>6,0</b>	Pf	kW	126,4	119,2	116,2	111,5	103,7	98,8	141,2	132,7	129,2	123,8	114,6	108,7
	Pa	kW	32,3	35,8	37,2	39,6	43,9	46,8	36,9	41,0	42,7	45,5	50,7	54,0
	qw	m <sup>3</sup> /h	21,67	20,43	19,92	19,13	17,79	16,94	24,22	22,76	22,16	21,23	19,66	18,65
	dpw	kPa	77,8	69,2	65,8	60,6	52,4	47,6	71,5	63,2	59,9	55,0	47,1	42,4
<b>7,0</b>	Pf	kW	129,8	122,4	119,3	114,5	106,5	101,4	145,1	136,3	132,6	127,1	117,6	111,6
	Pa	kW	32,6	36,0	37,5	39,9	44,2	47,1	37,2	41,3	43,1	45,9	51,1	54,4
	qw	m <sup>3</sup> /h	22,27	21,00	20,47	19,65	18,28	17,40	24,89	23,39	22,76	21,81	20,19	19,15
	dpw	kPa	82,2	73,1	69,5	64,0	55,4	50,2	75,5	66,7	63,2	58,0	49,7	44,7
<b>8,0</b>	Pf	kW	133,3	125,7	122,5	117,6	109,4	104,1	148,9	139,9	136,1	130,5	120,7	114,6
	Pa	kW	32,8	36,3	37,8	40,2	44,6	47,4	37,5	41,6	43,4	46,2	51,4	54,8
	qw	m <sup>3</sup> /h	22,89	21,58	21,03	20,19	18,78	17,87	25,57	24,02	23,37	22,40	20,73	19,68
	dpw	kPa	86,8	77,2	73,3	67,6	58,4	52,9	79,7	70,4	66,6	61,2	52,4	47,2
<b>9,0</b>	Pf	kW	136,9	129,0	125,8	120,7	112,3	106,8	152,9	143,6	139,7	133,9	123,9	117,6
	Pa	kW	33,1	36,6	38,1	40,5	44,9	47,8	37,8	41,9	43,7	46,6	51,8	55,2
	qw	m <sup>3</sup> /h	23,51	22,16	21,60	20,73	19,28	18,35	26,26	24,67	24,00	23,00	21,28	20,19
	dpw	kPa	91,6	81,4	77,3	71,3	61,6	55,8	84,1	74,2	70,2	64,5	55,2	49,7
<b>10,0</b>	Pf	kW	140,5	132,4	129,1	123,9	115,2	109,6	156,9	147,3	143,4	137,4	127,0	120,6
	Pa	kW	33,4	36,9	38,4	40,8	45,2	48,1	38,1	42,2	44,1	46,9	52,2	55,7
	qw	m <sup>3</sup> /h	24,18	22,79	22,21	21,31	19,82	18,86	27,00	25,35	24,67	23,64	21,86	20,76
	dpw	kPa	96,9	86,1	81,7	75,3	65,1	58,9	88,9	78,4	74,2	68,2	58,3	52,5

Twout			1140						1150					
			Outdoor air temperature						Outdoor air temperature					
			25	30	32	35	40	43	25	30	32	35	40	43
<b>5,0</b>	Pf	kW	148,3	139,4	135,6	129,8	119,9	113,4	162,9	153,1	149,0	142,7	132,0	125,1
	Pa	kW	38,8	43,0	44,8	47,7	53,0	56,5	44,9	49,6	51,6	54,8	60,7	64,5
	qw	m <sup>3</sup> /h	25,42	23,89	23,25	22,25	20,55	19,44	27,91	26,24	25,53	24,46	22,62	21,44
	dpw	kPa	78,8	69,6	65,9	60,4	51,5	46,1	59,0	52,1	49,4	45,3	38,8	34,8
<b>6,0</b>	Pf	kW	152,4	143,2	139,3	133,3	123,1	116,4	167,2	157,2	152,9	146,5	135,5	128,4
	Pa	kW	39,1	43,3	45,1	48,0	53,4	56,9	45,3	50,0	52,0	55,2	61,1	65,0
	qw	m <sup>3</sup> /h	26,14	24,55	23,89	22,87	21,10	19,96	28,68	26,95	26,23	25,12	23,23	22,01
	dpw	kPa	83,3	73,5	69,6	63,8	54,3	48,6	62,3	55,0	52,1	47,8	40,9	36,7
<b>7,0</b>	Pf	kW	156,6	147,0	143,0	136,9	126,3	119,4	171,7	161,3	157,0	150,3	139,0	131,7
	Pa	kW	39,4	43,6	45,4	48,4	53,7	57,3	45,6	50,3	52,4	55,6	61,6	65,5
	qw	m <sup>3</sup> /h	26,86	25,23	24,54	23,49	21,67	20,50	29,46	27,68	26,93	25,80	23,84	22,60
	dpw	kPa	88,0	77,6	73,4	67,3	57,3	51,2	65,7	58,0	54,9	50,4	43,1	38,7
<b>8,0</b>	Pf	kW	160,8	151,0	146,8	140,6	129,6	122,7	176,3	165,6	161,1	154,3	142,5	135,2
	Pa	kW	39,7	43,9	45,8	48,7	54,1	57,7	46,0	50,7	52,8	56,1	62,1	66,0
	qw	m <sup>3</sup> /h	27,60	25,92	25,21	24,13	22,25	21,06	30,26	28,42	27,65	26,49	24,47	23,21
	dpw	kPa	92,9	81,9	77,5	71,0	60,4	54,1	69,4	61,2	57,9	53,1	45,4	40,8
<b>9,0</b>	Pf	kW	165,1	155,0	150,7	144,3	132,9	125,8	180,9	169,9	165,2	158,3	146,2	138,6
	Pa	kW	40,0	44,2	46,1	49,1	54,5	58,2	46,3	51,1	53,2	56,5	62,5	66,5
	qw	m <sup>3</sup> /h	28,36	26,62	25,88	24,78	22,84	21,60	31,08	29,18	28,38	27,19	25,11	23,81
	dpw	kPa	98,1	86,4	81,7	74,9	63,6	56,9	73,1	64,5	61,0	56,0	47,8	42,9
<b>10,0</b>	Pf	kW	169,5	159,0	154,7	148,0	136,3	129,0	185,6	174,2	169,5	162,3	149,9	142,2
	Pa	kW	40,3	44,6	46,5	49,4	54,9	58,6	46,7	51,5	53,6	56,9	63,0	67,0
	qw	m <sup>3</sup> /h	29,16	27,36	26,61	25,47	23,46	22,20	31,94	29,98	29,16	27,93	25,79	24,46
	dpw	kPa	103,7	91,3	86,3	79,1	67,1	60,1	77,3	68,1	64,4	59,1	50,4	45,3



# FLEX SERIES™

Twout			1160						1190					
			Outdoor air temperature						Outdoor air temperature					
			25	30	32	35	40	43	25	30	32	35	40	43
<b>5,0</b>	Pf	kW	176,2	165,6	161,1	154,1	142,2	134,5	200,8	189,5	184,7	177,4	164,9	157,0
	Pa	kW	47,1	51,9	54,0	57,3	63,5	67,5	54,5	60,0	62,4	66,1	72,8	77,3
	qw	m <sup>3</sup> /h	30,19	28,37	27,60	26,42	24,38	23,06	34,42	32,48	31,66	30,40	28,27	26,90
	dpw	kPa	61,6	54,4	51,5	47,2	40,2	35,9	65,6	58,4	55,5	51,2	44,2	40,1
<b>6,0</b>	Pf	kW	181,0	170,0	165,4	158,2	146,0	138,0	206,3	194,6	189,7	182,1	169,3	161,0
	Pa	kW	47,5	52,3	54,4	57,8	63,9	68,0	54,9	60,5	62,8	66,6	73,4	77,9
	qw	m <sup>3</sup> /h	31,03	29,15	28,36	27,14	25,03	23,67	35,37	33,37	32,52	31,22	29,03	27,62
	dpw	kPa	65,1	57,4	54,3	49,8	42,3	37,9	69,3	61,6	58,6	54,0	46,7	42,2
<b>7,0</b>	Pf	kW	185,8	174,5	169,7	162,4	149,7	141,6	211,8	199,7	194,7	186,8	173,7	165,2
	Pa	kW	47,8	52,7	54,8	58,2	64,4	68,5	55,3	60,9	63,3	67,1	74,0	78,5
	qw	m <sup>3</sup> /h	31,89	29,95	29,12	27,87	25,69	24,29	36,34	34,27	33,40	32,06	29,80	28,34
	dpw	kPa	68,7	60,6	57,3	52,5	44,6	39,9	73,1	65,0	61,8	56,9	49,2	44,5
<b>8,0</b>	Pf	kW	190,8	179,1	174,2	166,7	153,6	145,3	217,5	205,0	199,8	191,7	178,1	169,4
	Pa	kW	48,2	53,1	55,3	58,7	64,9	69,1	55,6	61,3	63,8	67,6	74,5	79,1
	qw	m <sup>3</sup> /h	32,76	30,75	29,90	28,62	26,37	24,95	37,33	35,20	34,30	32,91	30,58	29,08
	dpw	kPa	72,5	63,9	60,4	55,4	47,0	42,1	77,2	68,6	65,1	60,0	51,8	46,8
<b>9,0</b>	Pf	kW	195,9	183,8	178,7	171,0	157,5	148,9	223,2	210,4	205,0	196,7	182,7	173,7
	Pa	kW	48,6	53,5	55,7	59,1	65,4	69,6	56,0	61,8	64,2	68,1	75,1	79,7
	qw	m <sup>3</sup> /h	33,65	31,58	30,70	29,38	27,05	25,58	38,34	36,13	35,21	33,79	31,38	29,83
	dpw	kPa	76,5	67,4	63,7	58,3	49,5	44,2	81,4	72,3	68,6	63,2	54,5	49,3
<b>10,0</b>	Pf	kW	201,0	188,6	183,4	175,4	161,5	152,7	229,1	215,8	210,2	201,7	187,3	178,0
	Pa	kW	48,9	53,9	56,1	59,5	65,9	70,1	56,4	62,2	64,7	68,6	75,7	80,3
	qw	m <sup>3</sup> /h	34,59	32,45	31,55	30,19	27,78	26,28	39,42	37,13	36,17	34,71	32,23	30,63
	dpw	kPa	80,9	71,2	67,3	61,6	52,2	46,7	86,0	76,3	72,4	66,7	57,5	51,9

Twout			1200						1220					
			Outdoor air temperature						Outdoor air temperature					
			25	30	32	35	40	43	25	30	32	35	40	43
<b>5,0</b>	Pf	kW	211,9	199,5	194,3	186,3	173,1	164,6	230,6	217,3	211,7	203,3	189,0	179,9
	Pa	kW	62,2	68,7	71,6	76,1	84,3	89,7	60,9	67,0	69,6	73,6	81,0	85,8
	qw	m <sup>3</sup> /h	36,32	34,18	33,29	31,93	29,66	28,21	39,51	37,24	36,29	34,84	32,40	30,83
	dpw	kPa	73,0	64,7	61,4	56,4	48,7	44,1	65,2	57,9	55,0	50,7	43,9	39,7
<b>6,0</b>	Pf	kW	217,6	204,8	199,5	191,3	177,6	169,0	236,7	223,0	217,3	208,6	193,9	184,5
	Pa	kW	62,7	69,3	72,2	76,7	85,0	90,4	61,3	67,5	70,1	74,2	81,6	86,5
	qw	m <sup>3</sup> /h	37,32	35,12	34,20	32,80	30,46	28,97	40,60	38,24	37,26	35,78	33,25	31,64
	dpw	kPa	77,1	68,3	64,8	59,6	51,4	46,5	68,9	61,1	58,0	53,5	46,2	41,8
<b>7,0</b>	Pf	kW	223,5	210,2	204,7	196,4	182,3	173,4	243,1	228,9	223,0	214,1	198,9	189,2
	Pa	kW	63,2	69,8	72,7	77,3	85,6	91,1	61,7	68,0	70,6	74,8	82,3	87,2
	qw	m <sup>3</sup> /h	38,34	36,07	35,13	33,69	31,28	29,75	41,70	39,27	38,26	36,73	34,13	32,47
	dpw	kPa	81,4	72,0	68,3	62,8	54,2	49,0	72,7	64,4	61,1	56,4	48,7	44,0
<b>8,0</b>	Pf	kW	229,4	215,8	210,1	201,5	187,1	177,9	249,5	234,8	228,7	219,6	204,0	194,2
	Pa	kW	63,7	70,4	73,3	77,9	86,3	91,8	62,1	68,5	71,1	75,3	82,9	87,8
	qw	m <sup>3</sup> /h	39,38	37,04	36,07	34,60	32,12	30,54	42,83	40,32	39,27	37,70	35,02	33,34
	dpw	kPa	85,9	76,0	72,0	66,3	57,1	51,6	76,6	67,9	64,4	59,4	51,2	46,4
<b>9,0</b>	Pf	kW	235,4	221,4	215,6	206,8	191,9	182,5	256,0	240,9	234,6	225,3	209,1	199,0
	Pa	kW	64,2	71,0	73,9	78,5	87,0	92,5	62,5	68,9	71,6	75,9	83,5	88,5
	qw	m <sup>3</sup> /h	40,44	38,03	37,03	35,52	32,97	31,35	43,98	41,38	40,30	38,70	35,92	34,19
	dpw	kPa	90,5	80,1	75,9	69,8	60,2	54,4	80,8	71,5	67,9	62,6	53,9	48,8
<b>10,0</b>	Pf	kW	241,5	227,1	221,1	212,1	196,8	187,2	262,7	247,1	240,6	231,0	214,3	204,1
	Pa	kW	64,8	71,5	74,5	79,1	87,6	93,2	62,9	69,4	72,2	76,5	84,2	89,2
	qw	m <sup>3</sup> /h	41,56	39,08	38,04	36,50	33,87	32,21	45,20	42,51	41,41	39,75	36,88	35,11
	dpw	kPa	95,6	84,5	80,1	73,7	63,5	57,4	85,3	75,5	71,6	66,0	56,8	51,5



Twout	1250							1300						
	Outdoor air temperature							Outdoor air temperature						
		25	30	32	35	40	43	25	30	32	35	40	43	
<b>5,0</b>	Pf	kW	264,5	248,6	241,8	231,5	213,7	202,1	325,5	306,9	299,1	287,2	267,2	254,3
	Pa	kW	72,3	79,6	82,8	87,9	97,3	103,5	92,9	102,1	106,1	112,2	123,4	130,7
	qw	m <sup>3</sup> /h	45,32	42,60	41,45	39,67	36,62	34,64	55,78	52,59	51,26	49,22	45,79	43,59
	dpw	kPa	70,5	62,3	58,9	54,0	46,0	41,2	93,9	83,5	79,3	73,1	63,3	57,3
<b>6,0</b>	Pf	kW	271,6	255,2	248,3	237,6	219,2	207,3	334,3	315,1	307,1	294,8	274,2	260,9
	Pa	kW	72,8	80,2	83,5	88,6	98,0	104,3	93,5	102,9	106,9	113,1	124,4	131,8
	qw	m <sup>3</sup> /h	46,58	43,77	42,57	40,75	37,59	35,55	57,33	54,03	52,65	50,56	47,01	44,74
	dpw	kPa	74,4	65,7	62,2	57,0	48,5	43,4	99,2	88,1	83,7	77,1	66,7	60,4
<b>7,0</b>	Pf	kW	278,9	262,0	254,8	243,9	224,9	212,6	343,3	323,5	315,2	302,6	281,3	267,6
	Pa	kW	73,4	80,9	84,1	89,3	98,8	105,1	94,2	103,7	107,7	114,0	125,4	132,8
	qw	m <sup>3</sup> /h	47,86	44,95	43,72	41,85	38,59	36,48	58,91	55,50	54,08	51,92	48,26	45,92
	dpw	kPa	78,6	69,3	65,6	60,1	51,1	45,7	104,7	93,0	88,3	81,4	70,3	63,6
<b>8,0</b>	Pf	kW	286,4	268,9	261,5	250,3	230,6	218,2	352,5	332,0	323,4	310,5	288,5	274,5
	Pa	kW	73,9	81,5	84,7	89,9	99,5	105,9	94,8	104,4	108,5	114,9	126,4	133,9
	qw	m <sup>3</sup> /h	49,17	46,16	44,89	42,96	39,60	37,47	60,52	56,99	55,52	53,31	49,53	47,12
	dpw	kPa	82,9	73,1	69,1	63,3	53,8	48,2	110,6	98,0	93,0	85,8	74,0	67,0
<b>9,0</b>	Pf	kW	294,0	275,9	268,3	256,7	236,5	223,7	361,9	340,7	331,8	318,6	295,9	281,5
	Pa	kW	74,5	82,1	85,4	90,6	100,3	106,7	95,5	105,2	109,3	115,8	127,4	134,9
	qw	m <sup>3</sup> /h	50,50	47,39	46,08	44,10	40,62	38,42	62,16	58,52	57,00	54,73	50,83	48,36
	dpw	kPa	87,5	77,1	72,8	66,7	56,6	50,6	116,6	103,4	98,1	90,4	78,0	70,6
<b>10,0</b>	Pf	kW	301,7	283,0	275,2	263,3	242,4	229,4	371,4	349,5	340,4	326,8	303,4	288,7
	Pa	kW	75,0	82,7	86,0	91,3	101,0	107,5	96,1	105,9	110,1	116,6	128,3	136,0
	qw	m <sup>3</sup> /h	51,90	48,70	47,35	45,31	41,71	39,46	63,90	60,13	58,57	56,23	52,20	49,68
	dpw	kPa	92,4	81,4	76,9	70,4	59,7	53,4	123,3	109,1	103,5	95,4	82,2	74,5

**ELECTRICAL DATA**

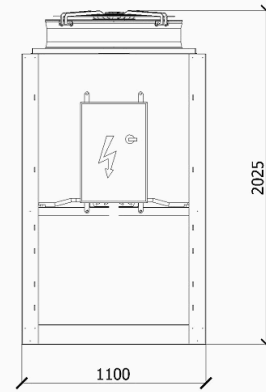
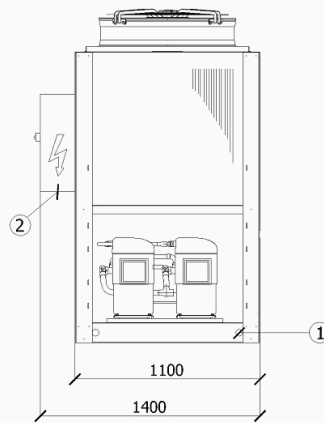
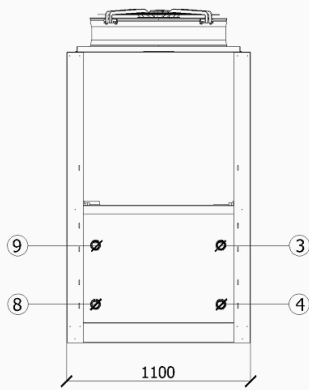
MODEL	Compressors			Fans		TOTAL			MAX VALUE		
	F.L.I. kW	F.L.A. A	L.R.A. A	E.P. kW	O.C. A	F.L.I. kW	F.L.A. A	S.A. A	F.L.I. kW	F.L.A. A	S.A. A
<b>140 Z</b>	14,9	24,8	98,0	1,5	3,0	<b>16,4</b>	<b>27,8</b>	<b>113,4</b>	<b>26,6</b>	<b>47,0</b>	<b>123,0</b>
<b>150 Z</b>	17,4	28,9	142,0	1,5	3,0	<b>18,9</b>	<b>31,9</b>	<b>159,4</b>	<b>30,1</b>	<b>53,0</b>	<b>170,0</b>
<b>155 Z</b>	19,8	32,6	142,0	1,5	3,0	<b>21,3</b>	<b>35,6</b>	<b>161,3</b>	<b>34,6</b>	<b>61,0</b>	<b>174,0</b>
<b>160 Z</b>	23,4	36,1	158,0	1,5	3,0	<b>24,9</b>	<b>39,1</b>	<b>177,3</b>	<b>38,1</b>	<b>67,0</b>	<b>190,0</b>
<b>170 Z</b>	25,3	39,6	158,0	3,0	6,0	<b>28,3</b>	<b>45,6</b>	<b>183,8</b>	<b>43,0</b>	<b>76,0</b>	<b>199,0</b>
<b>180 Z</b>	28,3	50,5	170,0	3,0	6,0	<b>31,3</b>	<b>56,5</b>	<b>201,2</b>	<b>46,4</b>	<b>82,0</b>	<b>214,0</b>
<b>190 Z</b>	34,1	57,0	215,0	3,0	6,0	<b>37,1</b>	<b>63,0</b>	<b>246,2</b>	<b>53,9</b>	<b>95,0</b>	<b>259,0</b>
<b>1110 Z</b>	38,9	61,9	260,0	3,0	6,0	<b>41,9</b>	<b>67,9</b>	<b>291,2</b>	<b>60,1</b>	<b>106,0</b>	<b>304,0</b>
<b>1120 Z</b>	39,9	59,8	260,0	3,0	6,0	<b>42,9</b>	<b>65,8</b>	<b>290,5</b>	<b>60,1</b>	<b>106,0</b>	<b>304,0</b>
<b>1130 Z</b>	45,9	68,4	260,0	3,0	6,0	<b>48,9</b>	<b>74,4</b>	<b>297,8</b>	<b>67,6</b>	<b>119,0</b>	<b>317,0</b>
<b>1140 Z</b>	48,4	77,3	320,0	4,5	9,0	<b>52,9</b>	<b>86,3</b>	<b>360,8</b>	<b>78,8</b>	<b>139,0</b>	<b>380,0</b>
<b>1150 Z</b>	55,6	82,2	320,0	4,5	9,0	<b>60,1</b>	<b>91,2</b>	<b>365,7</b>	<b>85,1</b>	<b>150,0</b>	<b>391,0</b>
<b>1160 Z</b>	58,2	91,1	320,0	4,5	9,0	<b>62,7</b>	<b>100,1</b>	<b>374,5</b>	<b>94,8</b>	<b>167,0</b>	<b>408,0</b>
<b>1190 Z</b>	67,1	100,3	413,0	4,5	9,0	<b>71,6</b>	<b>109,3</b>	<b>466,3</b>	<b>101,1</b>	<b>178,0</b>	<b>501,0</b>
<b>1200 Z</b>	77,3	108,3	260,0	4,5	9,0	<b>81,8</b>	<b>117,3</b>	<b>341,2</b>	<b>110,8</b>	<b>195,0</b>	<b>393,0</b>
<b>1220 Z</b>	74,8	115,0	413,0	6,0	12,0	<b>80,8</b>	<b>127,0</b>	<b>482,5</b>	<b>108,9</b>	<b>192,0</b>	<b>515,0</b>
<b>1250 Z</b>	89,3	136,6	320,0	6,0	12,0	<b>95,3</b>	<b>148,6</b>	<b>423,1</b>	<b>141,4</b>	<b>249,0</b>	<b>490,0</b>
<b>1300 Z</b>	114,0	171,1	413,0	9,0	18,0	<b>123,0</b>	<b>189,1</b>	<b>545,1</b>	<b>163,3</b>	<b>288,0</b>	<b>611,0</b>



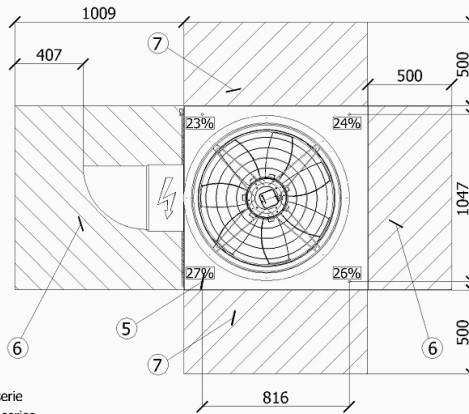
# FLEX SERIES™

## SOUND POWER LEVEL FULL LOAD

MODEL	Octave band (Hz)								Lw dB(A)
	63	125	250	500	1000	2000	4000	8000	
Sound power level (dB)									
<b>140 Z</b>	55,7	51,7	47,1	42,9	40,5	55,7	38,2	27,2	<b>78,0</b>
<b>150 Z</b>	56,7	52,7	48,1	43,9	41,5	56,7	39,2	28,2	<b>79,0</b>
<b>155 Z</b>	56,7	52,7	48,1	43,9	41,5	56,7	39,2	28,2	<b>79,0</b>
<b>160 Z</b>	57,7	53,7	49,1	44,9	42,5	57,7	40,2	29,2	<b>80,0</b>
<b>170 Z</b>	59,5	55,5	50,9	46,7	44,3	59,5	42,0	31,0	<b>82,0</b>
<b>180 Z</b>	62,5	58,5	53,9	49,7	47,3	62,5	45,0	34,0	<b>85,0</b>
<b>190 Z</b>	63,5	59,5	54,9	50,7	48,3	63,5	46,0	35,0	<b>86,0</b>
<b>1110 Z</b>	63,5	59,5	54,9	50,7	48,3	63,5	46,0	35,0	<b>86,0</b>
<b>1120 Z</b>	63,5	59,5	54,9	50,7	48,3	63,5	46,0	35,0	<b>86,0</b>
<b>1130 Z</b>	63,5	59,5	54,9	50,7	48,3	63,5	46,0	35,0	<b>86,0</b>
<b>1140 Z</b>	64,3	60,3	55,7	51,5	49,1	64,3	46,8	35,8	<b>87,0</b>
<b>1150 Z</b>	64,3	60,3	55,7	51,5	49,1	64,3	46,8	35,8	<b>87,0</b>
<b>1160 Z</b>	64,3	60,3	55,7	51,5	49,1	64,3	46,8	35,8	<b>87,0</b>
<b>1190 Z</b>	66,3	62,3	57,7	53,5	51,1	66,3	48,8	37,8	<b>89,0</b>
<b>1200 Z</b>	65,3	61,3	56,7	52,5	50,1	65,3	47,8	36,8	<b>88,0</b>
<b>1220 Z</b>	68,3	64,3	59,7	55,5	53,1	68,3	50,8	39,8	<b>91,0</b>
<b>1250 Z</b>	66,3	62,3	57,7	53,5	51,1	66,3	48,8	37,8	<b>89,0</b>
<b>1300 Z</b>	69,1	65,1	60,5	56,3	53,9	69,1	51,6	40,6	<b>92,0</b>



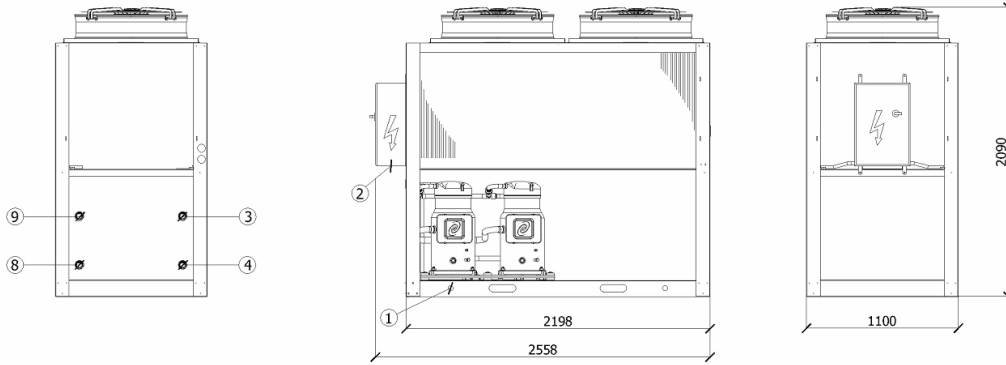
- ①-FORI DI SOLLEVAMENTO  
LIFTING HOLES
- ②-ALIMENTAZIONE ELETTRICA  
ELECTRIC POWER SUPPLY
- ③-ENTRATA ACQUA EVAPORATORE  
WATER INLET EVAPORATOR
- ④-USCITA ACQUA EVAPORATORE  
WATER OUTLET EVAPORATOR
- ⑤-PUNTI DI CARICO  
LOADING POINTS
- ⑥-SPAZIO MINIMO DI RISPETTO FRONTALE  
FRONT MINIMUM DISTANCE
- ⑦-SPAZIO MINIMO DI RISPETTO LATERALE \*  
SIDE MINIMUM DISTANCE \*
- ⑧-INGRESSO ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER INLET HEAT RECOVER/DESUPERHEATERS
- ⑨-USCITA ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER OUTLET HEAT RECOVER/DESUPERHEATERS



### CONNESSIONI IDRICHE WATER CONNECTIONS

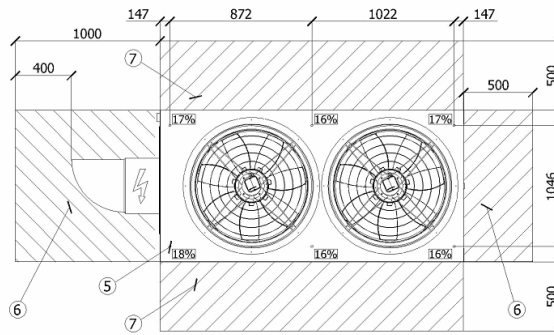
CHILLER		HP	
140	1" 1/4 G.M.	140	1" 1/4 G.M.
150	1" 1/4 G.M.	145	1" 1/4 G.M.
155	1" 1/4 G.M.	150	1" 1/4 G.M.
160	1" 1/4 G.M.	165	2" G.M.

\* ignorare per macchine in serie eccetto la prima e l'ultima della serie  
\* do not consider for Master/slave equipment the first and last of series

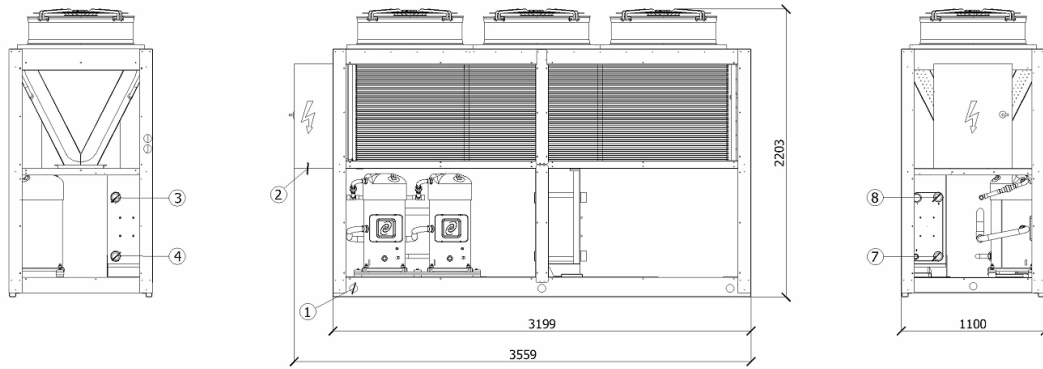


- ①-FORI DI SOLLEVAMENTO  
LIFTING HOLES
- ②-ALIMENTAZIONE ELETTRICA  
ELECTRIC POWER SUPPLY
- ③-ENTRATA ACQUA EVAPORATORE  
WATER INLET EVAPORATOR
- ④-USCITA ACQUA EVAPORATORE  
WATER OUTLET EVAPORATOR
- ⑤-PUNTI DI CARICO  
LOADING POINTS
- ⑥-SPAZIO MINIMO DI RISPETTO FRONTALE  
FRONT MINIMUM DISTANCE
- ⑦-SPAZIO MINIMO DI RISPETTO LATERALE\*  
SIDE MINIMUM DISTANCE\*
- ⑧-INGRESSO ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER INLET HEAT RECOVER/DESURRISCALDATORE
- ⑨-USCITA ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER OUTLET HEAT RECOVER/DESURRISCALDATORE

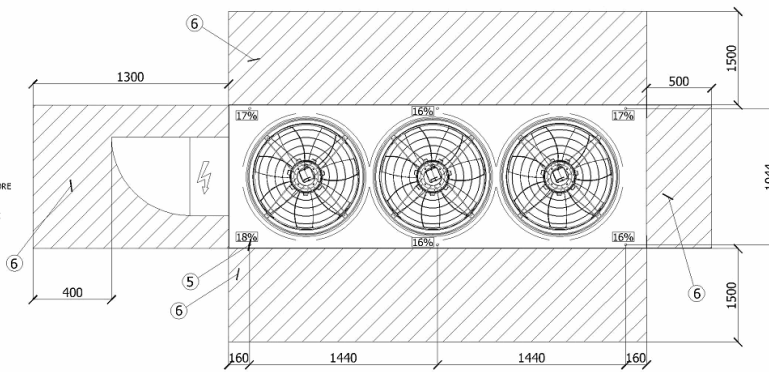
\* ignorare per macchine in serie eccetto la prima e l'ultima della serie  
\* do not consider for Master/slave equipment the first and last of series


**CONNESSIONI IDRICHE  
WATER CONNECTIONS**

CHILLER		HP	
170	2" G.M.	170	2" G.M.
180	2" G.M.	180	2" G.M.
190	2" G.M.	190	2" G.M.
1110	2" G.M.	1105	2" G.M.
1120	2" G.M.	1120	2" G.M.
1130	2" G.M.	1130	2" G.M.



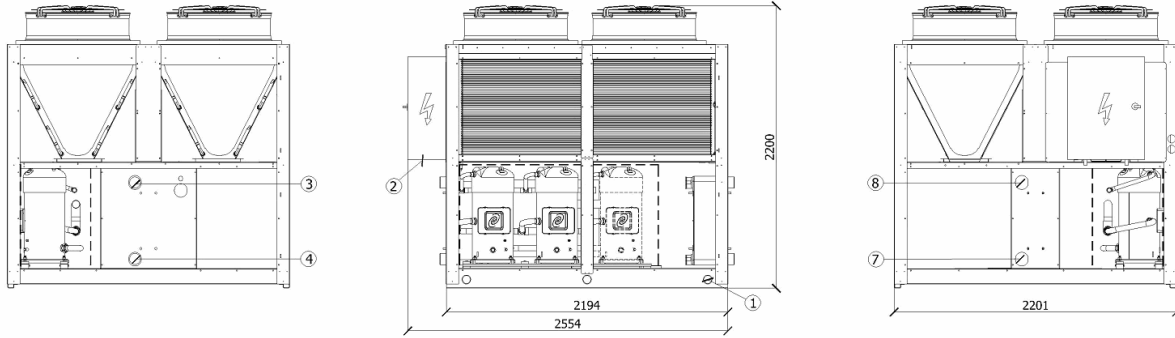
- ①-FORI DI SOLLEVAMENTO  
LIFTING HOLES
- ②-ALIMENTAZIONE ELETTRICA  
ELECTRIC POWER SUPPLY
- ③-ENTRATA ACQUA EVAPORATORE  
WATER INLET EVAPORATOR
- ④-USCITA ACQUA EVAPORATORE  
WATER OUTLET EVAPORATOR
- ⑤-PUNTI DI CARICO  
LOADING POINTS
- ⑥-SPAZIO MINIMO DI RISPETTO FRONTALE  
FRONT MINIMUM DISTANCE
- ⑦-INGRESSO ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER INLET HEAT RECOVER/DESURRISCALDATORE
- ⑧-USCITA ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER OUTLET HEAT RECOVER/DESURRISCALDATORE



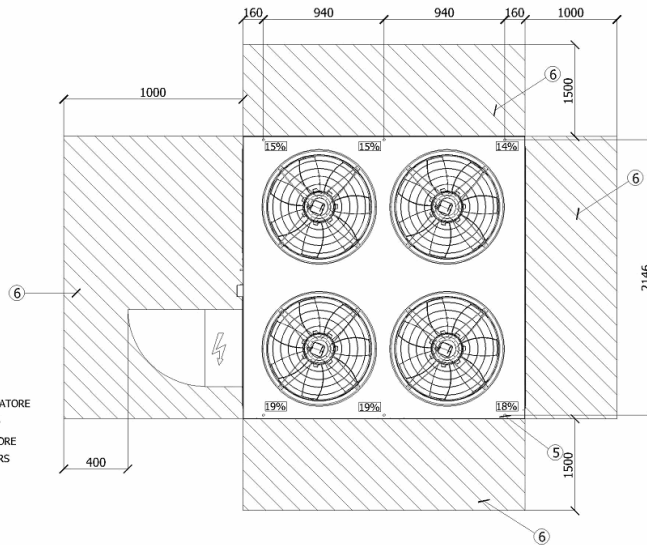
CONNESSIONI IDRICHE  
WATER CONNECTIONS

CHILLER		HP	
1140	2" G.M.	1150	2 1/2" G.M.
1150	2 1/2" G.M.	1160	2" G.M.
1160	2 1/2" G.M.	1180	2 1/2" G.M.
1190	2 1/2" G.M.	1190	2 1/2" G.M.
1200	2 1/2" G.M.		



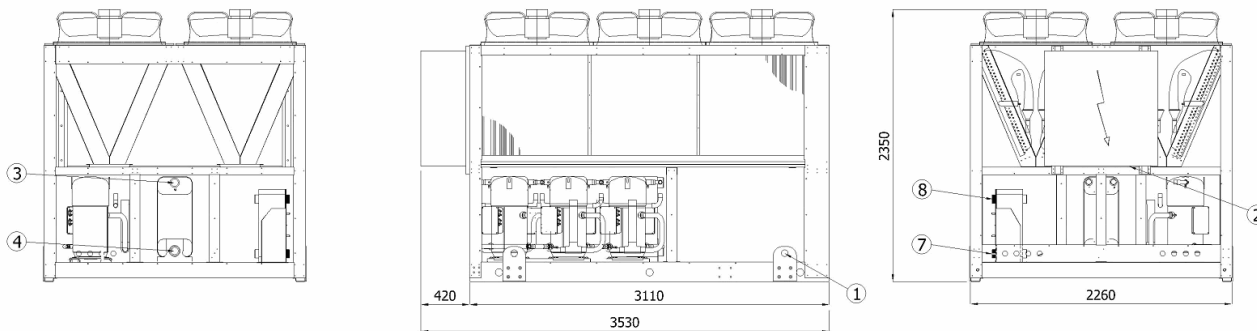


- ①-FORI DI SOLLEVAMENTO  
LIFTING HOLES
- ②-ALIMENTAZIONE ELETTRICA  
ELECTRIC POWER SUPPLY
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WATER OUTLET EVAPORATOR
- ⑤-PUNTI DI CARICO  
LOADING POINTS
- ⑥-SPAZIO MINIMO DI RISPETTO  
MINIMUM DISTANCE
- ⑦-INGRESSO ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER INLET HEAT RECOVER/DESUPERHEATERS
- ⑧-USCITA ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER OUTLET HEAT RECOVER/DESUPERHEATERS

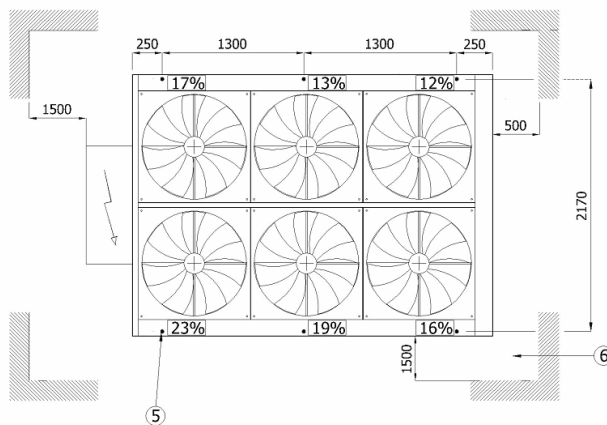


CONNESSIONI IDRICHE  
WATER CONNECTIONS

CHILLER		HP	
1220	2 1/2 G.M.	1200	2 1/2 G.M.
1250	2 1/2 G.M.	1230	2 1/2 G.M.



- ①-FORI DI SOLLEVAMENTO  
LIFTING HOLES
- ②-ALIMENTAZIONE ELETTRICA  
ELECTRIC POWER SUPPLY
- ③-ENTRATA ACQUA EVAPORATORE  
WATER INLET EVAPORATOR
- ④-USCITA ACQUA EVAPORATORE  
WATER OUTLET EVAPORATOR
- ⑤-PUNTI DI CARICO  
LOADING POINTS
- ⑥-SPAZIO MINIMO DI RISPETTO  
MINIMUM DISTANCE
- ⑦-INGRESSO ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER INLET HEAT RECOVER/DESUPERHEATERS
- ⑧-USCITA ACQUA RECUPERATORE/DESURRISCALDATORE  
WATER OUTLET HEAT RECOVER/DESUPERHEATERS



CONNESSIONI IDRICHE  
WATER CONNECTIONS

CHILLER	HP
1300	1280
2 1/2" G.M.	2 1/2" G.M.