



DYNACIAT LGN

Water chillers
Without condenser



Compact and silent

High energy efficiency

Scroll compressors

High-efficiency brazed-plate heat exchangers

Self-adjusting electronic control

Cooling capacity: 23 to 175 kW



Cooling



Hydraulic
module

R-410A 

USE

The latest generation of **DYNACIAT LGN** water chillers without condenser are the perfect solution for all cooling applications in the Offices, Healthcare, Industry, Administration, Shopping Centres and Collective Housing markets.

These units are designed to be installed in machine rooms that are protected against freezing temperatures and inclement weather.

For quick and easy installation, an optional hydraulic module offer is available on the evaporator side (chilled water production).

DYNACIAT is optimised to use ozone-friendly HFC R410A refrigerant.

This range guarantees compliance with the most demanding requirements for high energy efficiency and CO₂ reduction to comply with the various applicable European directives and regulations.

RANGE

DYNACIAT LGN series

Split system cooling only version without condenser.

DESCRIPTION

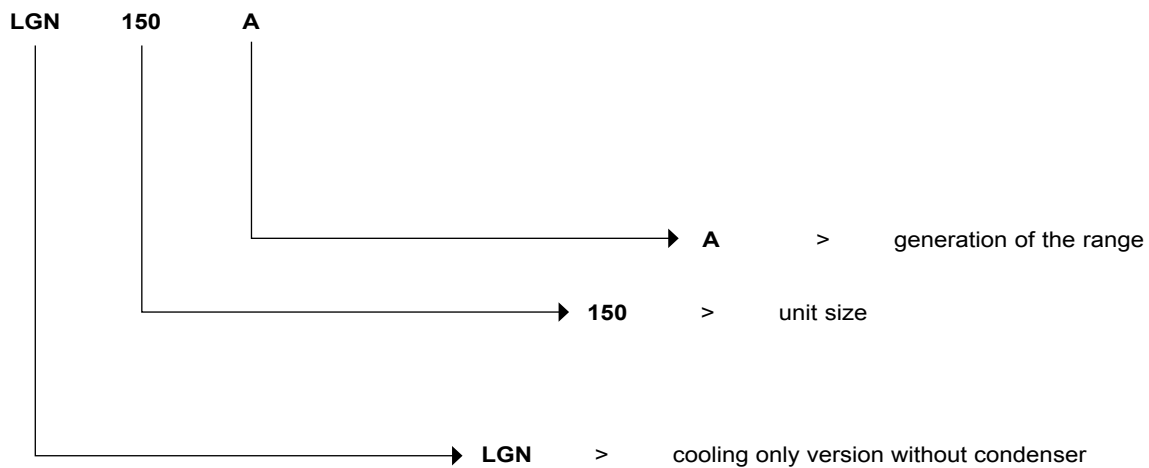
Units in the DYNACIAT LGN series are split-system type machines without condenser, supplied as standard with the following components:

- Hermetic SCROLL compressors
- Chilled-water evaporator with brazed plates
- Electrical power and remote control cabinet:
 - 400V-3ph-50Hz (+/-10%) general power supply + Earth
 - transformer fitted as standard on the machine for supplying the remote control circuit with 24V
- Connect Touch electronic control module
- Casing for indoor installation

The entire range complies with the following EC directives and standards:

- Machinery directive 2006/42/EC
- Electromagnetic compatibility directive 2014/30/EC
- EMC immunity and emissions EN 61800-3 'C3'
- Low voltage directive 2014/35/EU
- RoHS 2011/65/EU
- Pressure equipment directive (PED) 2014/68/EU
- Machinery directive EN 60-204 -1
- Refrigeration systems and heat pumps EN 378-2

DESCRIPTION



CONFIGURATION

LGN	Standard
LGN LN option	Standard Low Noise

DESCRIPTION OF THE MAIN COMPONENTS

■ Compressors

- Hermetic SCROLL type
- Electronic motor overheating protection
- Crankcase heater
- Mounted on anti-vibration mounts

■ Evaporator

- Brazed-plate exchanger
- Plate patterns optimised for high efficiency
- 19 mm armaxflex thermal insulation

■ Refrigerating accessories

- Dehumidifier filters
- Hygroscopic sight glasses
- Electronic expansion valves
- Service valves on the liquid line

■ Regulation and safety instruments

- Low and high pressure sensors
- Safety valves on refrigerating circuit
- Water temperature control sensors
- Evaporator antifreeze protection sensor
- Factory-fitted evaporator water flow controller

■ Electrical cabinet

- Electrical cabinet with IP 23 protection rating
- A connection point without neutral
- Main safety switch with handle on front
- Control circuit transformer
- 24V control circuit
- Compressor motor circuit breaker
- Compressor motor contactors
- Connect Touch microprocessor-controlled electronic control module
- Wire numbering
- Marking of the main electrical components

■ Casing

Frame made from RAL7035 light grey & RAL 7024 graphite grey painted panels.

■ Connect Touch control module

- User interface with 4.3-inch touch screen
- Intuitive, user-friendly navigation using icons
- Clear text display of information available in 6 languages (F-GB-D-E-I-NL)



The electronic control module performs the following main functions:

- Regulation of the water temperature (at the return or at the outlet)
- Regulation of the water temperature based on the outdoor temperature (water law)
- Regulation for low temperature energy storage
- Second setpoint management
- Complete management of compressors with start-up sequence, timer and operating time balancing
- Self-regulating and proactive functions with adjustment of the control to counter parameter drift
- Optimised defrosting with free defrost function to optimise performance at partial load and the SCOP
- In-series staged power control system on the compressors according to the thermal requirements
- Management of compressor short cycle protection
- Frost protection (exchanger heaters)
- Phase reversal protection
- Management of occupied/unoccupied modes (according to the time schedule)
- Compressor and pump runtime balancing
- Management of the machine operation limit according to outdoor temperature
- Sound level reduction device (night mode according to the user programme) with limitation of compressor capacity and fan speed
- Diagnostics of fault and operating statuses
- Management of a fault memory allowing a log of the last 50 incidents to be accessed, with operating readings taken when the fault occurs
- Blackbox memory
- Master/slave management of the two machines in parallel with operating time balancing and automatic changeover if a fault occurs on one machine
- Weekly and hourly time schedule for the machine, including 16 periods of absence
- Pump standby based on demand (energy saving)
- Calculation of the water flow rate and operating pressure (hydraulic module version)
- Electronic adjustment of the water pump speed and water flow rate (variable-speed pump option)
- Display of all machine parameters (3 access levels, User/Maintenance/Factory, password-protected): temperature, setpoints, pressures, water flow rate (hydraulic version), runtime.
- Display of trend curves for the main values
- Storage of maintenance manual, wiring diagram and spare parts list.

■ Remote management

Connect Touch is equipped as standard with an RS485 port and an ETHERNET (IP) connection, offering a range of options for remote management, monitoring and diagnostics.

Using the integrated Webserver, a simple internet connection uses the unit's IP address to access the Connect Touch interface on the PC, facilitating everyday management tasks and maintenance operations.

A range of communication protocols are available: MODBUS/JBUS RTU (RS485) or TC/IP as standard, LONWORKS – BACNET IP (Certified BTL) as an option, enabling most CMS/BMS to be integrated.

Several contacts are available as standard, enabling the machine to be controlled remotely by wired link:

- Automatic operation control: when this contact is open, the machine stops
- Setpoint 1/setpoint 2 selector: when this contact is closed, a second cooling setpoint is activated (energy storage or unoccupied mode, for example)
- Power limitation: closing the contact concerned allows the power or refrigerating consumption of the machine to be limited by stopping one or more compressors (this limit can be set with a parameter)
- Fault reporting: this contact indicates the presence of a major fault which has caused one or both refrigerating circuits to stop
- Operational status reporting indicates that the unit is in production mode.
- Switch control for the customer pump, external to the machine (on/off).

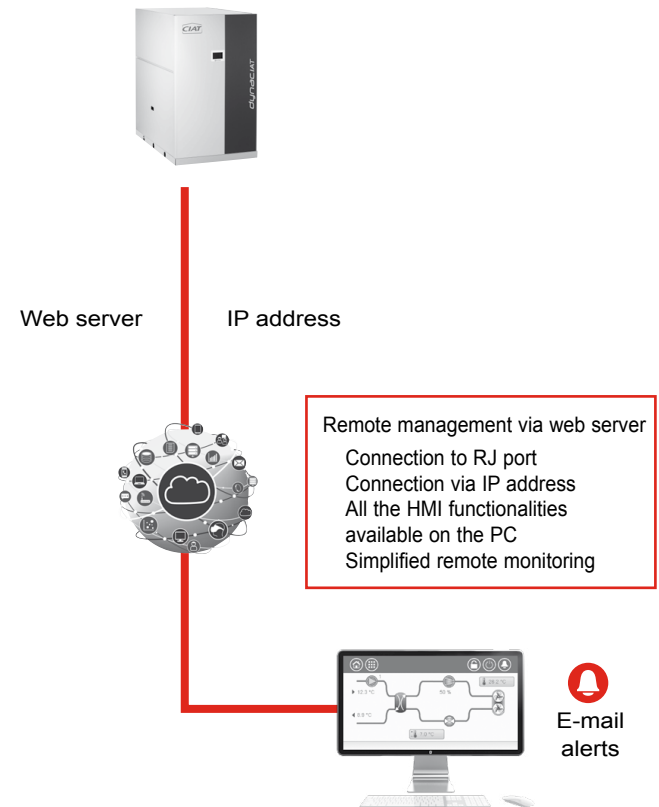
Contacts available as an option:

- Setpoint adjustable via 4-20 mA signal: this input is used to adjust the setpoint in COOLING mode.

■ Maintenance

Connect Touch has two maintenance reminder functions as standard, making users aware of the need to regularly perform maintenance operations and to guarantee the service life and performance of the unit. These two functions can be activated independently.

A reminder message appears on the unit's HMI screen, and stays there until it is acknowledged by the maintenance operator. The information and alert relating to these functions are available on the communication bus to be used on the CMS/BMS.



- The scheduled maintenance reminder: when activated, this function enables the period between two maintenance inspections to be set. This period may be set by the operator in either days, months or operating hours, depending on the application.
- The compulsory F-GAS sealing test maintenance reminder: when activated, this function, which is the default factory setting, enables the period between two sealing tests to be selected, according to the refrigerant charge, in compliance with the F-GAS regulations.

■ CIATM2M, the CIAT supervision solution

CIATM2M is a remote supervision solution dedicated to monitoring and controlling several CIAT machines in real time.

Advantages

- Access to the operating trend curves for analysis
- Improved energy performance
- Improved availability rate for the machines

Features

CIATM2M will send data in real time to the supervision website, www.ciatm2m.com.

The machine operating data can be accessed from any PC, smartphone or tablet.

Any event can be configured to trigger a mail alert.

Parameters monitored:

- Overview
- Control panel for the controllers
- Events
- Temperature curves

Monthly and annual reports are available to analyse:

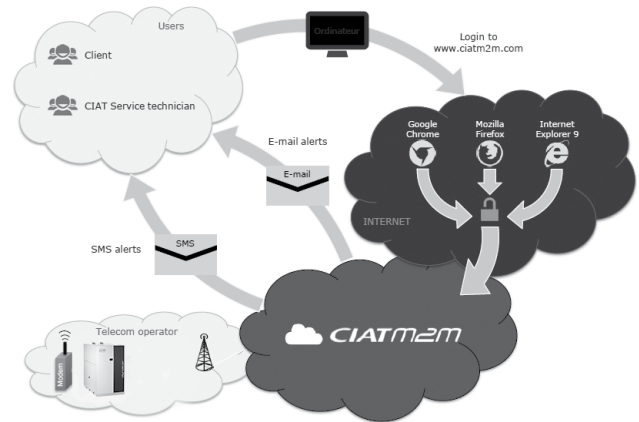
- The performance and operation of the machine
Example: operating curves and time, number of compressor start-ups, events, preventive maintenance actions to be performed, etc.

Incidents such as a drift in the measurements on a temperature sensor, incorrectly set control parameters, or even incorrect settings between one compressor stage and the other are immediately detected, and the corrective actions put in place.

Equipment

This kit can be used on both machines which are already in use (existing inventory), and on new machines which do not have sufficient space in their electrical cabinets.

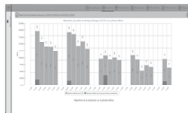
- 1 transportable cabinet
- 1 wall-mounted antenna



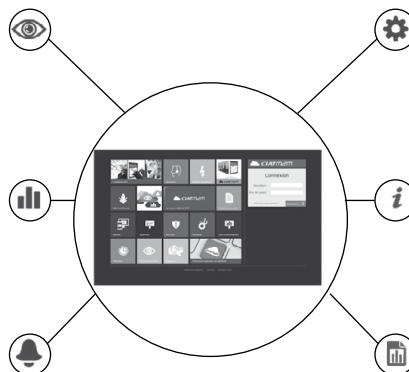
Overview



Curves



Events (real time and archives)

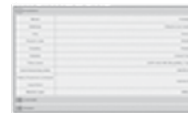


CIATM2M supervision platform

Parameters



Information



Reports



AVAILABLE OPTIONS

Options	Description	Advantages	LGN
Medium-temperature brine solution	Low-temperature chilled water production down to 0 °C with ethylene glycol and propylene glycol.	Covers specific applications such as ice storage and industrial processes	●
Soft Starter	Electronic starter on each compressor	Reduced start-up current	●
Master/slave operation	Unit equipped with supplementary water outlet temperature sensor kit (to be field installed) allowing master/slave operation of two units connected in parallel	Optimised operation of two units connected in parallel operation with operating time equalisation	●
Evap. single pump power/ control circuit	Unit equipped with an electrical power and control circuit for one pump evaporator side	Quick and easy installation: the control of fixed speed pumps is embedded in the unit control	Sizes 360 to 600
HP evap. single-pump	Evaporator hydraulic module equipped with high-pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included). Option with built-in safety hydraulic components available.)	Easy and fast installation (plug & play)	Sizes 360 to 600
LP evap. single-pump	Evaporator hydraulic module equipped with low pressure fixed-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included. Option with built-in safety hydraulic components available)	Easy and fast installation (plug & play)	●
HP evap. variable-speed single-pump	Evaporator hydraulic module equipped with high-pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included. Option with built-in safety hydraulic components available)	Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability.	●
LP VSD single-pump	Evaporator hydraulic module equipped with low -pressure variable-speed pump, drain valve, air vent and pressure sensors. For more details, refer to the dedicated chapter (expansion tank not included. Option with built-in safety hydraulic components available.)	Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability	●
Dual high-pressure variable-speed pump.	Dual high-pressure water pump with variable speed drive (VSD), pressure transducers. Multiple possibilities of water flow control. For more details, refer to the dedicated chapter (expansion tank not included; option with built-in hydraulic safety components available)	Easy and fast installation (plug & play), significant pumping energy cost savings (more than two-thirds), tighter water flow control, improved system reliability	●
Lon gateway	Bi-directional communication board complying with Lon Talk protocol	Connects the unit by communication bus to a building management system	●
Bacnet over IP	Bi-directional high-speed communication using BACnet protocol over Ethernet network (IP)	Easy and high-speed connection by Ethernet line to a building management system. Allows access to multiple unit parameters	●
Condenser control	Control box for communication with the condenser via a bus. For OPERA condenser need to select the cabinet with option control cabinet manage by the chiller Connect' Touch control	Permits the use of an energy-efficient plug-and-play system	●
Compliance with Russian regulations	EAC certification	Compliance with Russian regulations	●
Insulation of the evap. in/out ref.lines	Thermal insulation of the evaporator entering/leaving refrigerant lines with flexible, UV resistant insulation	Prevents condensation on the evaporator entering/ leaving refrigerant lines	●

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

Options	Description	Advantages	LGN
Low noise level	Compressor sound enclosure	Reduced sound emissions	●
Evaporator screw connection sleeves (kit)	Evaporator inlet/outlet screw connection sleeves	Allows unit connection to a screw connector	●
Replaceable filter drier	Filter drier with cartridge to replace hermetic filter	Easy filter replacement without emptying the refrigerant circuit	●
Safety hydraulic components, evap. side	Screen filter, expansion tank and relief valve integrated in the evaporator hydraulic module	Easy and fast installation (plug & play), operating safety	●
M2M supervision (accessory)	Monitoring solution which allows customers to track and monitor their equipment remotely in real time	Real-time expert technical support to improve equipment availability and reports at customer hand to monitor and optimize operating equipment.	●
Anti-vibration mounts (kit)	Elastomer antivibratils mounts to be place under the unit (Material classified B2 fire class according to DIN 4102).	Isolate unit from the building, avoid transmission of vibration and associate noise to the building. Must be used in conjunction with a flexible connection on the water side	●
Exchangers flexibles connection (kit)	Flexible connections on the exchanger water side	Easy installation. Limit transmission of vibrations on the water network	●
Flexible refrigerating sleeves	Flexibles connections on the refrigerant pipes	Easy installation. Limits the transmission of vibrations to the refrigerant network	●
Exchangers water filter (kit)	Water filter	Eliminate dust in the water network	● Without pump option
Set point adjustment by 4-20mA signal	Connections to allow a 4-20 mA signal input	Simplified energy management, enabling the setpoint to be set by a 4-20 mA external signal	●
External temperature sensor	External temperature sensor control for using weather compensation	Allow to adjust set point using weather compensation and define autorisation operation mode to external temperature	●
Free Cooling dry cooler management	Control & connections to a Free Cooling Drycooler Opera or Vextra fitted with option FC control box	Easy system management, Extended control capabilities to a drycooler used in Free Cooling mode	●

● ALL MODELS

Refer to the selection tool to find out which options are not compatible

HYDRAULIC MODULE

■ The "ALL-IN-ONE" solution

The PLUG & COOL solution offered by DYNACIAT

The entire DYNACIAT LGN range can be equipped with a hydraulic module on the evaporator side, with all the components required to ensure the smooth running of the installation:

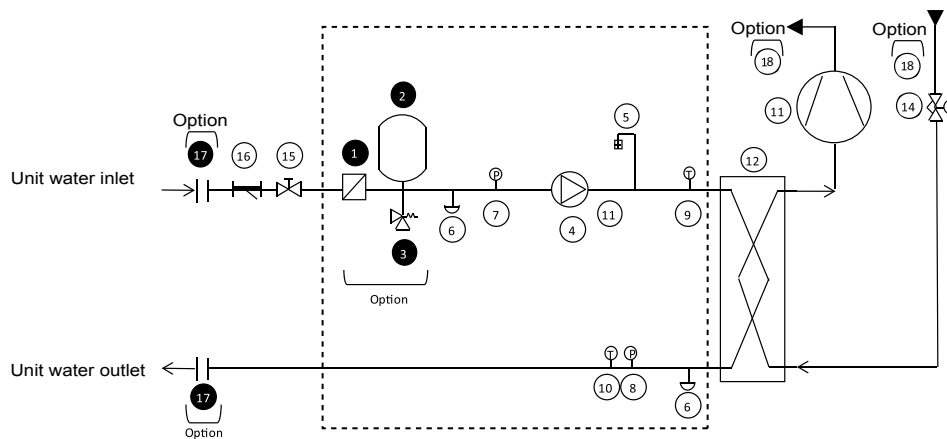
- Expansion vessel (option):
 - 8 litres, 12 litres, 25 litres or 35 litres, depending on the model
- Wide choice of pumps:
 - High or low pressure single pumps.
 - Fixed-speed or variable-speed pumps.
- Water temperature and pressure sensors.

- Water filter
- Relief valve (option)
- Drain circuit
- Air bleed valve

The components in the hydraulic system are carefully selected and factory assembled and tested to make the installation of the units simple and economical.

This ensures conditioning times, implementation times and space requirements are kept to a minimum.

■ Diagram with hydraulic module



Components of unit and hydraulic module

- 1 Victaulic screen filter
- 2 Expansion tank (optional hydraulic safety components on evaporator and condenser side)
- 3 Relief valve (optional hydraulic safety components on evaporator and condenser side)
- 4 Water pump
- 5 Air bleed valve
- 6 Water drain valve
- 7/8 Pressure sensor inlet/outlet
- 9/10 Temperature sensor inlet/outlet
- 11 Compressor
- 12 Evaporator
- 14 Expansion device
- 15/16 800 µm screen filter and valve (Compulsory with a pump option and optional without)
- 17 Flexible connection coupling (Option)
- 18 Flexible refrigerating sleeves (Option)

NOTE:

- Units without hydraulic module include a flow switch.
- For LGN units, the evaporator and its water loop have been removed.

VARIABLE FLOW PUMP

■ Description

The DYNACIAT may be equipped with one or two variable-speed pumps on the evaporator side which save you energy by adjusting the electrical consumption of one pump to the actual requirements of a hydraulic system, in particular for oversized installations.

■ Simple to use

The "variable-speed pump" is fully integrated on the machine, with full protection, and, as it is installed outdoors, there is no need for any work in the machine room.

The assembly is factory-fitted and pre-set on the unit; it is therefore quick to install and reduces the cost of work, in particular because there is no water flow control valve on the unit's outlet.

The ability to adjust the water flow to your requirements means that the pump pressure can be adapted precisely to the actual pressure drop on the system when it is started up on-site.

■ Operating principle

- Operation at full load

A regulator, with a direct display of the flow rate and pressure on the Connect Touch screen, enables one pump (pump A in the example below) to be adapted, by lowering its pressure P1 to the requirements of system P2, to obtain the optimal water flow rate setpoint. Electricity bills relating to the pump's consumption are reduced proportionately; this means you will see a return on investment (ROI) in only a few years, compared with the same fixed-speed pump equipped with a simple flow control valve.

- Operation at part load

There are three operating modes for part load:

● Fixed speed

The control ensures the pump continuously runs at a constant speed, based on the capacity of the compressor(s). When the compressors are powered off, the Connect Touch "standby" function manages the electrical power consumed by the pump by reducing its speed to the minimum.

This provides energy savings of around 33%

● Variable flow rate: Constant regulation of the pressure difference

The control continuously acts on the pump speed to ensure a constant ΔP . This solution is suitable for installations with two-way valves. This control mode is used to ensure a uniform supply in each hydraulic circuit to make sure that each terminal unit operates at a satisfactory pressure

● Variable flow rate: Constant regulation of the temperature difference

The regulation maintains a constant temperature difference whatever the load rate of the unit by reducing the flow rate to the minimum acceptable limit. This control mode is suitable for most comfort applications.

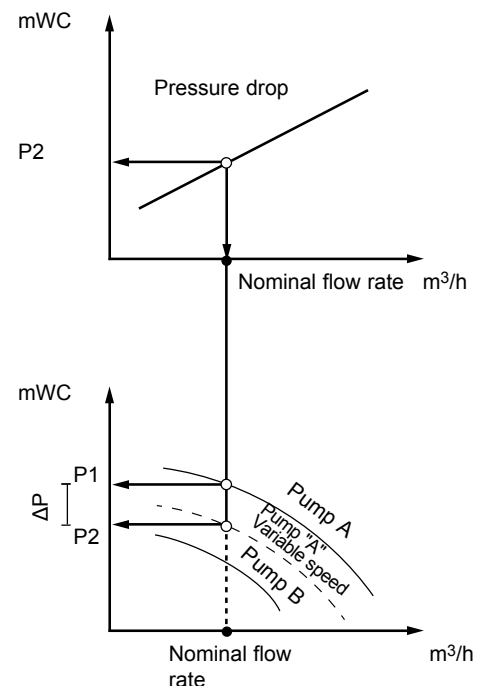
This provides energy savings of around 66% for the pump in each of these last two operating modes

■ SOFT START

A SOFT START function prevents any current peaks when the pump is started up to protect the electrical system, thereby limiting the building's electricity use at peak times and preventing any hammering in the pipework.

■ STANDBY function

Lowering the speed when the compressors are on standby reduces the water flow rate to ensure the water loop is perfectly homogenised and the control temperature sensors are well irrigated. This reduces the pump's electricity consumption by around 80% during standby periods, which represents a significant proportion of the machine's normal operating time, in particular for air conditioning applications.



TECHNICAL CHARACTERISTICS

DYNACIAT LGN			080	090	100	120	130	150	180	200	240	260	300	
Cooling														
Standard unit Full load performances *	CS1	Nominal capacity	kW	22,8	27	29,1	34	39,2	42,7	54,5	59,1	67,5	78,2	87,4
		EER	kW/kW	3,70	3,76	3,68	3,73	3,75	3,70	3,70	3,66	3,64	3,81	3,77
	CS2	Nominal capacity	kW	31,9	37,6	40,3	47	53,2	61,3	74,5	81,2	94,9	108	121
		EER	kW/kW	5,35	5,25	5,11	5,09	4,99	5,15	5,16	5,15	5,18	5,26	5,13
Sound levels														
Standard unit														
Sound power ⁽¹⁾		dB(A)	67	69	69	69	70	70	72	72	72	73	73	
Sound pressure at 10 m ⁽²⁾		dB(A)	36	37	38	38	39	39	40	41	41	42	42	
Unit with Low Noise option														
Sound power ⁽¹⁾		dB(A)	65	66	66	67	68	68	68	69	69	69	70	
Sound pressure at 10 m ⁽²⁾		dB(A)	34	35	35	35	37	37	37	37	38	38	39	
Dimensions														
Length		mm	1044	1044	1044	1044	1044	1044	1474	1474	1474	1474	1474	
Width		mm	600	600	600	600	600	600	880	880	880	880	880	
Height		mm	901	901	901	901	901	901	901	901	901	901	901	
Operating Weight ⁽³⁾														
Standard unit		kg	164	171	171	177	180	185	321	324	332	339	354	
Unit with evaporator with single LP pump		kg	250	258	258	263	266	271	431	435	442	449	465	
Compressors														
Hermetic Scroll 48.3 r/s														
Circuit A		Qty	1	1	1	1	1	1	2	2	2	2	2	
Number of power stages		Qty	1	1	1	1	1	1	2	2	2	2	2	
Refrigerant ⁽³⁾														
R410A (GWP=2088 following ARI4)														
Oil charge														
160SZ														
Circuit A		L	3	3,3	3,3	3,3	3,3	3,6	3,3	3,3	3,3	3,3	3,6	
Power control														
Connect' Touch Control														
Minimum capacity		%	100	100	100	100	100	100	50	50	50	50	50	
Water type heat exchanger														
Direct expansion, plate heat exchanger														
Evaporator														
Water volume		L	3,3	3,6	3,6	4,2	4,6	5	8,4	9,2	9,6	10,4	12,5	
Max. water-side operating pressure without hydraulic module		kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Hydronic module (optional)														
Single pump (as required)		Pump, Victaulic screen filter, drain valves (water and air), pressure sensors												
Expansion tank volume		L	8	8	8	8	8	8	12	12	12	12	12	
Expansion vessel pressure ⁽⁴⁾		bar	3	3	3	3	3	3	3	3	3	3	3	
Max. water-side operating pressure with hydraulic module		kPa	300	300	300	300	300	300	300	300	300	300	300	
Water connections with or without hydronic module														
Victaulic®														
Connections		inch	1,5	1,5	1,5	1,5	1,5	1,5	2	2	2	2	2	
External diameter		mm	48,3	48,3	48,3	48,3	48,3	48,3	60,3	60,3	60,3	60,3	60,3	
Casing paint														
Colour code RAL 7035/RAL 7024														

* In accordance with standard EN14511-3:2013.

CS1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m². kW

CS2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m². kW

(1) in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power L_w(A).

(3) Values are guidelines only. Refer to the unit name plate.

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

TECHNICAL CHARACTERISTICS

DYNACIAT LGN			360	390	450	480	520	600	
Cooling									
Standard unit Full load performances *	CS1	Nominal capacity	kW	106	119	132	140	159	175
		EER	kW/ kW	3,78	3,78	3,72	3,74	3,81	3,73
	CS2	Nominal capacity	kW	146	166	185	195	218	247
		EER	kW/ kW	5,24	5,17	5,12	5,32	5,17	5,26
Sound levels									
Standard unit									
Sound power ⁽¹⁾			dB(A)	76	77	78	76	77	78
Sound pressure at 10 m ⁽²⁾			dB(A)	44	45	46	44	45	47
Dimensions									
Length			mm	1583	1583	1583	1583	1583	1583
Width			mm	880	880	880	880	880	880
Height			mm	1574	1574	1574	1574	1574	1574
Operating Weight ⁽³⁾									
Standard unit			kg	630	647	665	751	774	796
Unit with evaporator with single LP pump			kg	674	691	709	797	846	868
Compressors									
Hermetic scroll 48.3 rev/s									
Circuit A			Qty	3	3	3	2	2	2
Circuit B			Qty	-	-	-	2	2	2
Number of power stages			Qty	3	3	3	4	4	4
Refrigerant ⁽³⁾									
R410A (GWP=2088 following ARI4)									
Oil charge									
Circuit A			L	3,3	3,3	3,6	3,3	3,3	3,6
Circuit B			L	-	-	-	3,3	3,3	3,6
Power control									
Connect' Touch Control									
Minimum capacity			%	33%	33%	33%	25%	25%	25%
Water type heat exchanger									
Evaporator									
Direct expansion, plate heat exchanger									
Water volume			L	15,18	17,35	19,04	23,16	26,52	29,05
Max. water-side operating pressure without hydraulic module			kPa	1000	1000	1000	1000	1000	1000
Hydronic module (optional)									
Pump, Victaulic screen filter, drain valves (water and air), pressure sensors									
Single pump (as required)			L	25	25	25	35	35	35
Expansion tank volume			bar	4	4	4	4	4	4
Expansion vessel pressure ⁽⁴⁾			kPa	400	400	400	400	400	400
Max. water-side operating pressure with hydraulic module			kPa	400	400	400	400	400	400
Water connections with or without hydronic module									
Victaulic®									
Connections			inch	2,5	2,5	2,5	3	3	3
External diameter			mm	73	73	73	88,9	88,9	88,9
Casing paint									
Colour code RAL 7035/RAL 7024									

* In accordance with standard EN14511-3:2013.

CS1 Cooling mode conditions: evaporator water inlet/outlet temperature 12 °C/7 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m². k/W

CS2 Cooling mode conditions: evaporator water inlet/outlet temperature 23 °C/18 °C, saturated condensing temperature 45 °C, subcooling 5 K, evaporator fouling factor 0 m². k/W

(1) in dB ref=10-12 W, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1.

(2) In dB ref 20µPa, 'A' weighted. Declared dual-number noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power Lw(A).

(3) Values are guidelines only. Refer to the unit name plate.

(4) On delivery, the vessels are preinflated to a standard value, which may not be the optimum one for the installation. To enable the water volume to be varied as desired, adapt the inflation pressure to a value close to that which corresponds to the static height of the installation. Fill the installation with water (bleeding out any air) at a pressure more than 10 to 20 kPa higher than the vessel pressure.

ELECTRICAL SPECIFICATIONS

LGN- Standard unit (without hydraulic module)		080	090	100	120	130	150	180	200	240	260	300
Power circuit												
Nominal voltage	V-ph-Hz	400-3-50										
Voltage range	V	360-440										
Control circuit supply		24 V via internal transformer										
Nominal unit operating current draw⁽³⁾												
Circuit A&B	A	11,4	13,8	14,7	16,5	18,1	21,2	27,6	29,4	33,1	36,4	42,5
Maximum unit power input⁽²⁾												
Circuit A&B	kW	9,2	10,8	11,7	13,7	15,1	17,1	21,5	23,3	27,3	30,3	34,2
Unit power factor at maximum capacity ⁽²⁾		0,85	0,83	0,85	0,85	0,86	0,85	0,83	0,85	0,85	0,86	0,85
Unit max. operating current draw (Un-10%) ⁽⁵⁾												
Circuit A&B	A	17,3	20,8	22	25,8	28,2	32,2	41,6	44	51,6	56,4	64,4
Maximum unit current draw (Un) ⁽⁴⁾												
Circuit A&B - Standard unit	A	15,6	18,7	19,8	23,2	25,4	29	37,4	39,6	46,4	50,8	58
Maximum start-up current, standard unit (Un) ⁽¹⁾												
Circuit A&B	A	98	142	142	147	158	197	161	162	170	183	226
Maximum start-up current, unit with a soft-starter (Un) ⁽¹⁾												
Circuit A&B	A	53,9	78,1	78,1	80,9	86,9	108,4	96,8	97,9	104,1	112,3	137,4

LGN- Standard unit (without hydraulic module)		360	390	450	480	520	600
Power circuit							
Nominal voltage	V-ph-Hz	400-3-50					
Voltage range	V	360-440					
Control circuit supply		24 V via internal transformer					
Nominal unit operating current draw⁽³⁾							
Circuit A&B	A	49,5	54,3	63,6	66	72,4	84,8
Maximum unit power input⁽²⁾							
Circuit A&B	kW	42	44,9	51,2	55,9	59,8	68,3
Unit power factor at maximum capacity ⁽²⁾		0,87	0,85	0,85	0,87	0,85	0,85
Unit max. operating current draw (Un-10%) ⁽⁵⁾							
Circuit A&B	A	77,3	84,7	96,7	103,1	112,9	128,9
Maximum unit current draw (Un) ⁽⁴⁾							
Circuit A&B - Standard unit	A	69,6	76,2	87	92,8	101,6	116
Maximum start-up current, standard unit (Un) ⁽¹⁾							
Circuit A&B	A	193,4	208,8	255	216,6	234,2	284
Maximum start-up current, unit with a soft-starter (Un) ⁽¹⁾							
Circuit A&B	A	127,3	137,7	166,3	150,4	163,1	195,3

- (1) Maximum instantaneous starting current (maximum operating current of the smallest compressor(s) + locked rotor current of the largest compressor).
 (2) Power input, at the unit's permanent operating limits (indication given on the unit's name plate).
 (3) Standardised EUROVENT conditions, water type heat exchanger inlet/outlet 12 °C/7 °C, saturated condensing temperature 45 °C and subcooling 5 K.
 (4) Unit maximum current at 400 V, in non-continuous operation (indicated on the unit name plate).
 (5) Unit maximum current at 360 V, in non-continuous operation.

ELECTRICAL SPECIFICATIONS

■ Short circuit current withstand capability (TN system⁽¹⁾)

DYNACIAT LGN		080	090	100	120	130	150	180	200	240	260	300
Value without upstream protection												
Short time assigned current (1s) - I _{cw}	kA eff	3	3	3	3	3	3	3	3	3	3	3
Allowable peak assigned current - I _{pk}	kA pk	6	6	6	6	6	6	6	6	6	6	6
Value with upstream protection												
Conditional short circuit assigned current I _{cc}	kA eff	40	40	40	40	40	40	40	40	40	40	40
Associated Schneider circuit breaker - Compact type range ⁽²⁾		NSX 100N										

DYNACIAT LGN		360	390	450	480	520	600
Value without upstream protection							
Short time assigned current (1s) - I _{cw}	kA eff	5,5	5,5	5,5	5,5	5,5	5,5
Allowable peak assigned current - I _{pk}	kA pk	20	20	20	20	20	20
Value with upstream protection							
Conditional short circuit assigned current I _{cc}	kA eff	154	154	154	154	154	154
Associated Schneider circuit breaker - Compact type range ⁽²⁾		NSX 100N					

(1) Type of system earthing

(2) If another current limiting protection device is used, its time-current trip and I²t thermal stress characteristics must be at least equivalent to those of the recommended Schneider circuit breaker.

The short-circuit withstand values given above were determined for the TN system.

INTELLIGENTLY-DESIGNED ACOUSTICS

To comply with the various restrictions on integration, the DYNACIAT has two sound finish levels enabling it to be easily integrated into a number of zones without causing disruption to users or their neighbours.

■ Basic version

The distinguishing feature of the DYNACIAT range is its rigorous design incorporating "noiseless" assembly techniques to reduce vibrations and sources of noise:

- New generation scroll compressors with a continuous scrolling motion to lessen vibrations
- Compressor structure separated from the unit by anti-vibration mounts
- Pipes separated from the unit structure

■ Low Noise option

In this version, the compressors are housed inside noise insulating jackets.

■ Acoustic signature

As important as the sound power level, the acoustic signature reflects the noise disturbance generated by the unit.

The installation of a variable-speed pump enables the sound level of the pump function to be reduced by adjusting the pump speed to what is strictly necessary. The soft start improves the signature and reduces nuisance noise.

With all these benefits and its two acoustic finish levels (Standard and Xtra Low Noise), the DYNACIAT ensures any environmental noise constraints can be met.

SOUND LEVELS

Standard version

■ Sound power levels ref 10^{-12} W \pm 3 dB (Lw)

At nominal EN 14511-3: 2013 operating conditions – Cooling mode

DYNACIAT LGN	SOUND POWER LEVEL SPECTRUM (dB)						Overall power level dB(A)
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
080	60	53	52	63	61	57	67
090	64	56	56	63	60	58	69
100	61	59	58	64	63	60	69
120	64	59	59	64	61	58	69
130	59	60	58	67	64	59	70
150	57	56	57	66	65	62	70
180	47	60	65	68	66	56	72
200	43	61	65	68	67	57	72
240	46	61	67	67	66	55	72
260	40	61	65	70	68	55	73
300	51	64	64	69	69	58	73
360	83	73	71	70	68	65	76
390	84	74	72	71	69	66	77
450	80	75	71	74	72	65	78
480	78	74	71	70	71	65	76
520	79	75	72	71	72	66	77
600	82	76	75	74	71	66	78

■ Sound pressure levels ref 2×10^{-5} Pa \pm 3 dB (Lp)

Measurement conditions: free field, 10 metres from machine, 1.50 metres above floor level, directivity 2

DYNACIAT LGN	SOUND PRESSURE SPECTRUM (dB)						Overall pressure level dB(A)
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
080	29	22	20	32	30	25	36
090	33	25	24	32	29	27	37
100	30	28	26	33	31	29	38
120	33	28	28	33	30	27	38
130	27	28	27	35	32	27	39
150	26	25	26	35	34	31	39
180	16	28	33	37	34	25	40
200	12	30	34	36	36	25	41
240	15	30	35	36	35	23	41
260	9	30	34	38	36	23	42
300	19	33	33	38	38	27	42
360	51	42	39	39	36	33	44
390	52	43	40	40	37	34	45
450	48	44	39	42	40	33	46
480	46	43	39	39	39	33	44
520	47	44	40	40	40	34	45
600	50	45	43	42	39	34	47

NB: Sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

SOUND LEVELS

Standard Version LOW NOISE Option

■ Sound power levels ref 10^{-12} W ± 3 dB (L_w)

At nominal EN 14511-3: 2013 operating conditions – Cooling mode

DYNACIAT LGN	SOUND POWER LEVEL SPECTRUM (dB)						Overall power level dB(A)
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
080	59	58	50	60	57	51	65
090	58	57	55	62	58	54	66
100	58	57	56	61	59	54	66
120	58	57	59	62	59	54	67
130	64	58	56	64	60	53	68
150	58	57	56	65	63	58	68
180	48	57	61	65	62	51	68
200	43	59	61	65	63	51	69
240	47	59	63	65	62	49	69
260	39	58	61	66	63	48	69
300	50	62	60	66	65	52	70
360	80	70	68	67	65	62	73
390	81	71	69	68	66	63	74
450	77	72	68	71	69	62	75
480	75	71	68	67	68	62	73
520	76	72	69	68	69	63	74
600	79	73	72	71	68	63	75

■ Sound pressure levels ref 2×10^{-5} Pa ± 3 dB (L_p)

Measurement conditions: free field, 10 metres from machine, 1.50 metres above floor level, directivity 2

DYNACIAT LGN	SOUND PRESSURE SPECTRUM (dB)						Overall pressure level dB(A)
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
080	27	27	19	29	26	20	34
090	27	26	24	30	26	23	35
100	27	26	24	30	27	23	35
120	27	26	27	31	28	23	35
130	33	27	25	32	29	22	37
150	27	26	25	33	31	27	37
180	16	26	30	34	30	19	37
200	12	27	30	33	32	20	37
240	15	28	32	34	31	18	38
260	8	27	30	35	31	17	38
300	19	30	28	35	33	21	39
360	48	39	36	36	33	30	41
390	49	40	37	37	34	31	42
450	45	41	36	39	37	30	43
480	43	40	36	36	36	30	41
520	44	41	37	37	37	31	42
600	47	42	40	39	36	31	44

NB: Sound pressure levels depend on the installation conditions of each system. As such, the levels listed here are given for information only. Only the sound power levels are comparable and certified.

SYSTEM WATER VOLUME - EVAPORATOR WATER FLOW RATE

The Connect Touch control is equipped with anticipation logic making it highly flexible in adjusting operation to parameter drift, particularly on hydraulic systems with low water volumes. By adjusting compressor running times, it prevents short cycle protection cycles from starting and, in most cases, eliminates the need for a buffer tank.

Note: The minimum volumes of chilled water are calculated for the following nominal conditions:

- Cooling mode (Evaporator)
 - Chilled water temperature = 12°C/7°C
 - Condensing temperature = 45 °C

This value is applicable for most air conditioning applications (unit with fan coil units)

Note: For installations running with a low volume of water (unit with air handling unit) or for industrial processes, the buffer tank is essential.

■ Minimum system water volume and evaporator water flow rate

DYNACIAT LGN	080	090	100	120	130	150	180	200	240	260	300	
Evaporator												
Minimum system water volume, air conditioning application (litres)	61,5	71,7	78,8	91,8	104,6	116,6	145,3	158,5	184,4	209,8	236,4	
Min/max water flow rate without hydraulic module (l/s)	0.5/3.8	0.5/4.1	0.5/4.1	0.6/4.7	0.6/5	0.8/5.4	0.8/9.2	1.0/9.9	1.1/10.3	1.3/10.9	1.5/12.5	
Maximum water flow rate with hydraulic module (l/s)	Low pressure	3,5	3,8	3,8	4,1	4,3	4,5	6,1	6,2	6,3	6,4	8,1
	High pressure	3,7	3,9	3,9	4,3	4,5	4,8	7,9	8,1	8,3	8,4	8,8

DYNACIAT LGN	360	390	450	480	520	600	
Evaporator							
Minimum system water volume, air conditioning application (litres)	287,5	325	360	382,5	430	480	
Min/max water flow rate without hydraulic module (l/s)	0.8/14.4	0.9/16.6	1/18.3	0.8/16.1	0.9/18.3	1/20.2	
Maximum water flow rate with hydraulic module (l/s)	Low pressure	7,5	7,6	8,6	8,6	13,6	14
	High pressure	11,8	12,5	12,8	12,5	13,05	13,3

- (1) Maximum flow rate for a pressure drop of 100 kPa in the plate heat exchanger
 (2) Maximum flow rate for a machine operating pressure of 20 kPa (unit with low-pressure pump) or 50 kPa (high-pressure pump).

OPERATING RANGE

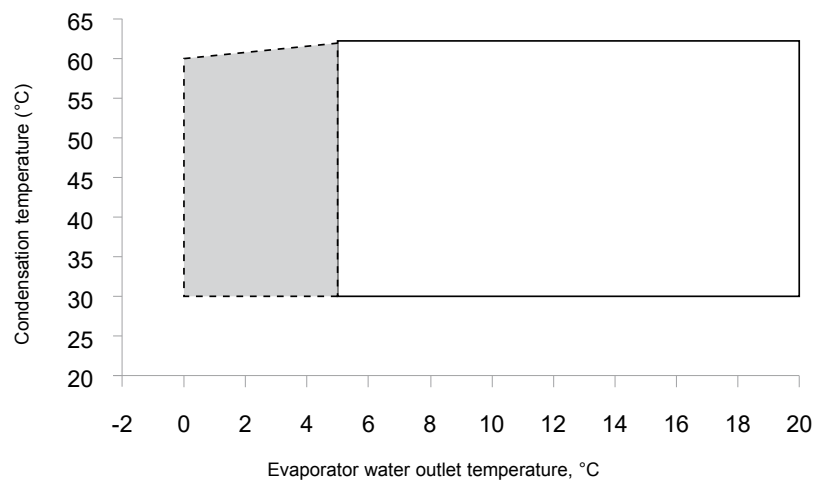
DYNACIAT units have a broad field of application, enabling them to meet a range of cooling requirements in the most varied of climates.

Multi-application: air conditioning, industrial processes

The DYNACIAT can be used for all traditional air conditioning applications in sectors as varied as collective housing, hotels, shopping centres and offices.

■ Operating limits of the LGN water chiller

Cooling mode Production of chilled water from 0°C (with low-temperature brine option) to 20 °C.

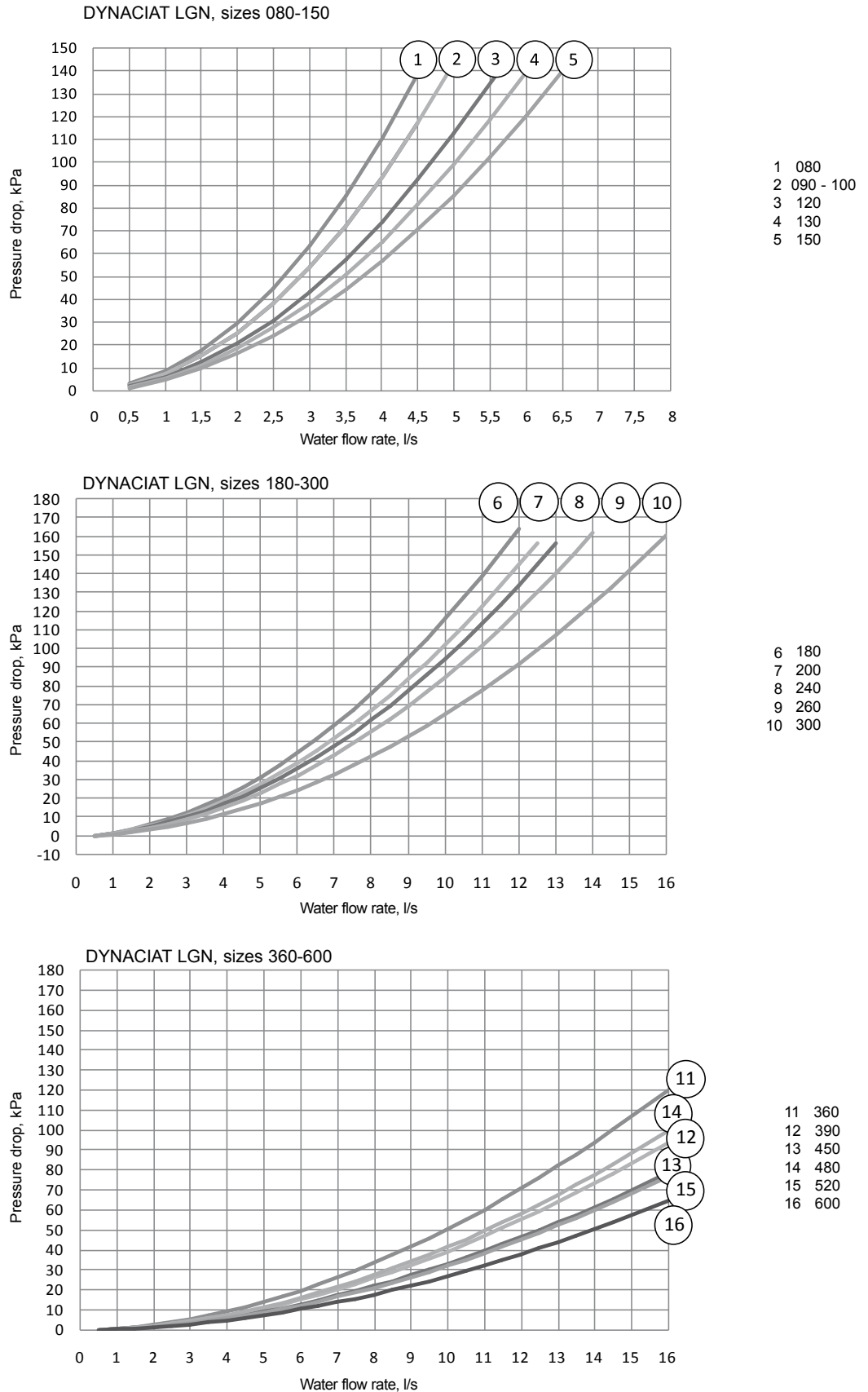


- Standard unit
- Medium temperature brine option (% glycol < 25%)

HYDRAULIC SPECIFICATIONS

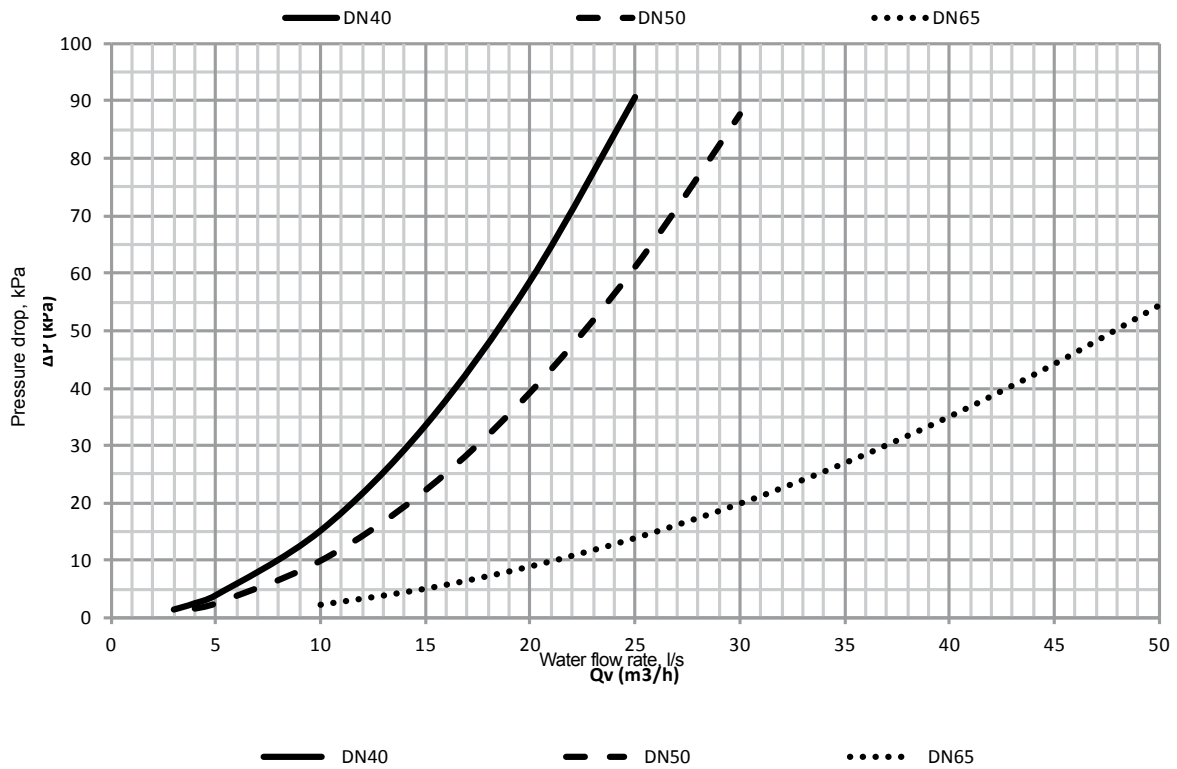
■ Water pressure drop in the evaporator

Data applicable for pure water at 20°C



HYDRAULIC SPECIFICATIONS

■ Water pressure drop in the filter



- 1 LGN80-150
- 2 LGN180-300
- 3 LGN360-600

HYDRAULIC SPECIFICATIONS

■ Available static system pressure

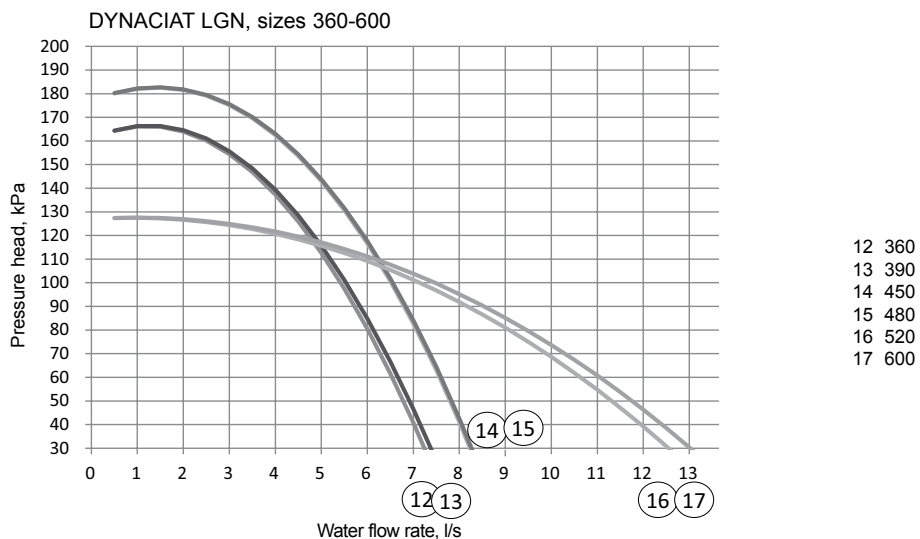
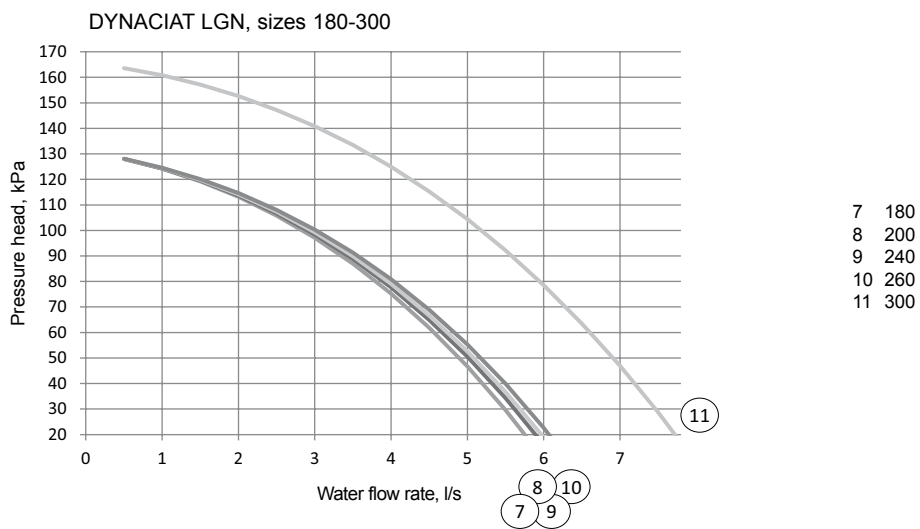
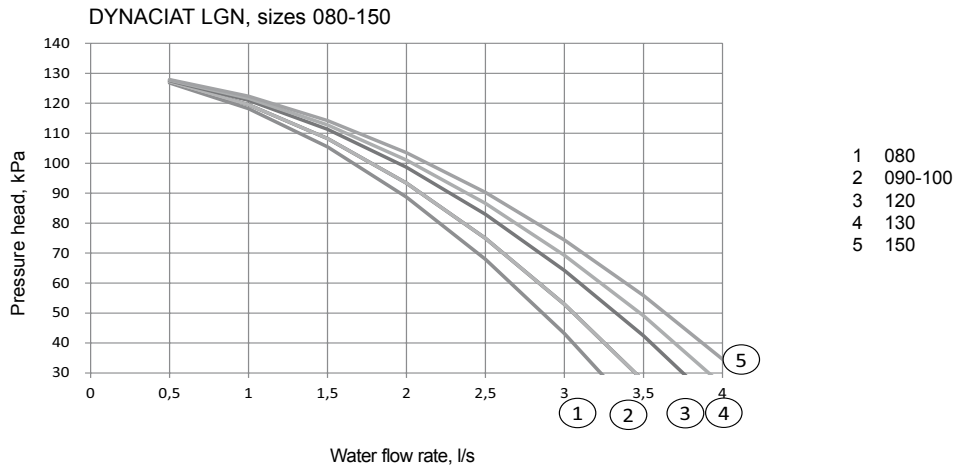
Units with hydraulic module (single variable- and fixed-speed low-pressure pump (*))

Data applicable for:

- Pure water at 20°C
- Refer to the section "Evaporator water flow rate" for the minimum and maximum water flow rate values
- If brine is used, the maximum water flow rate is reduced.

(*) Sizes 360 to 600 only

■ Evaporator



HYDRAULIC SPECIFICATIONS

■ Available static system pressure

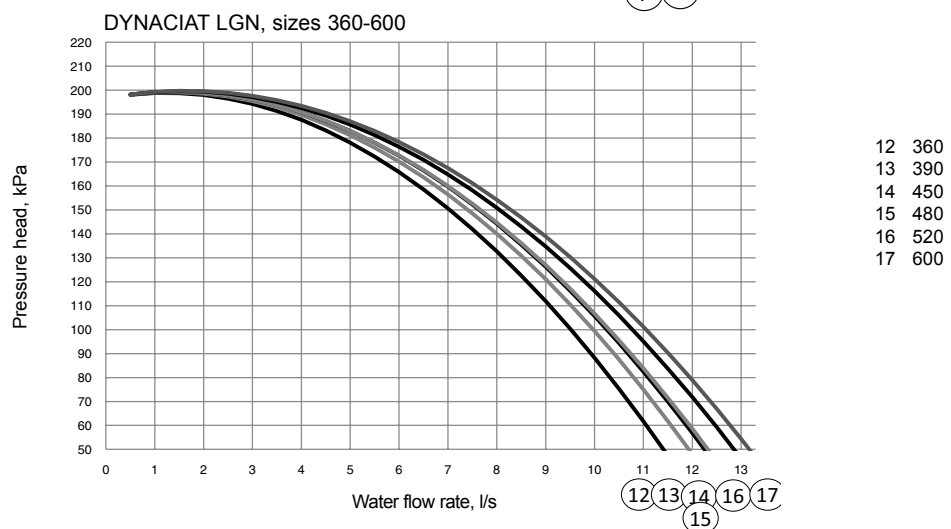
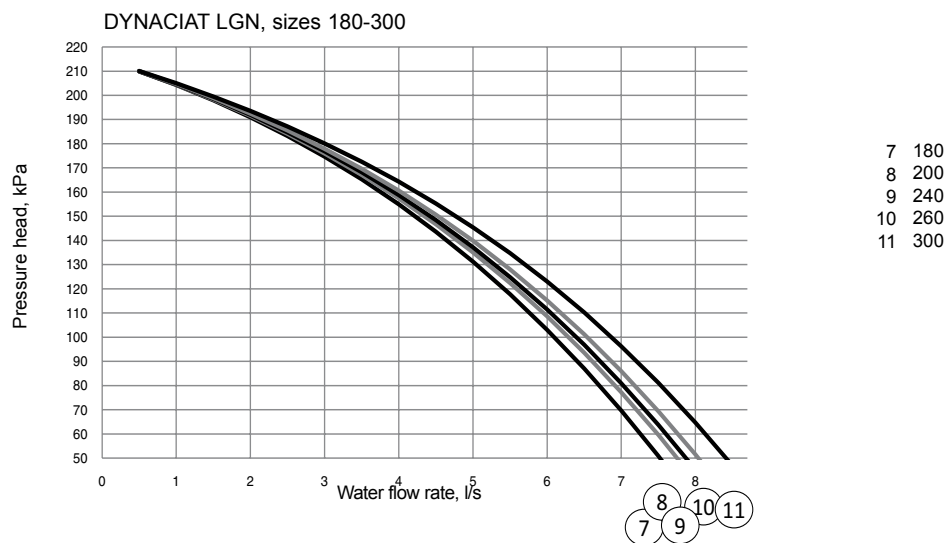
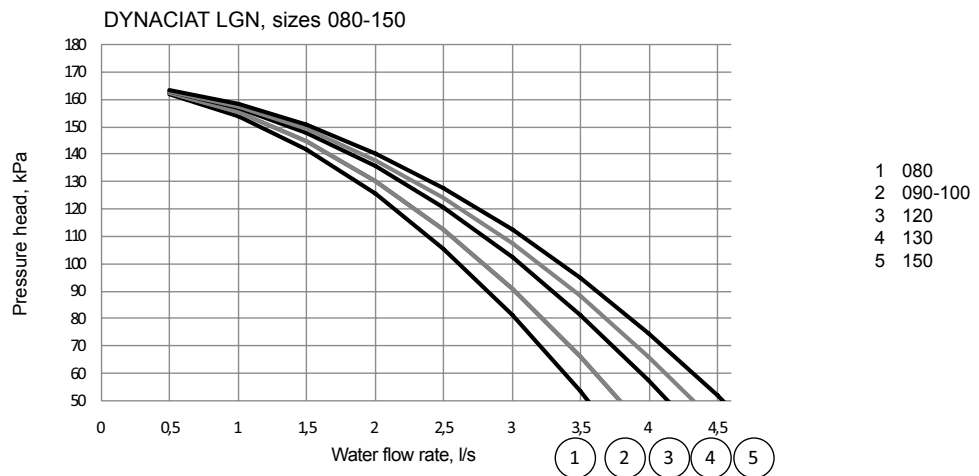
Units with hydraulic module (single variable and fixed-speed (*) high pressure pump)

Data applicable for:

- Pure water at 20°C
- Refer to the section "Evaporator water flow rate" for the water flow rate values

(*) Sizes 360 to 600 only

■ Evaporator



HYDRAULIC SPECIFICATIONS

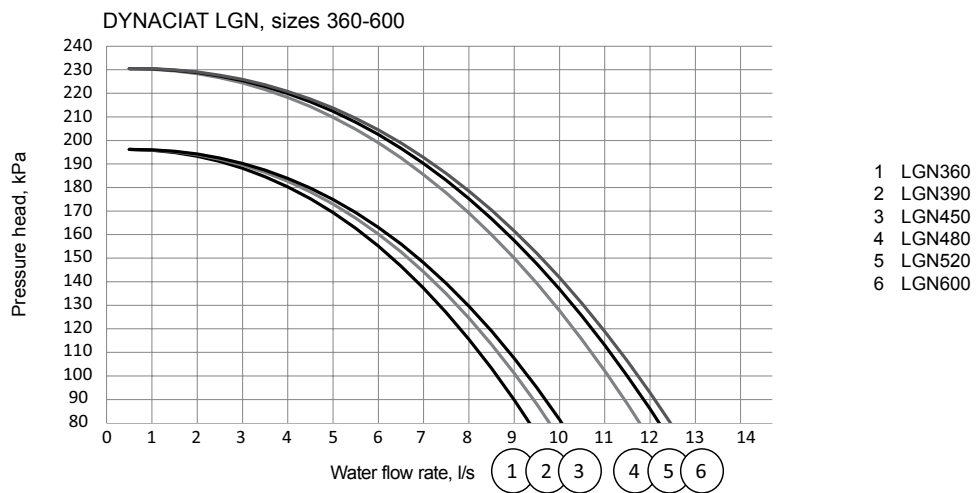
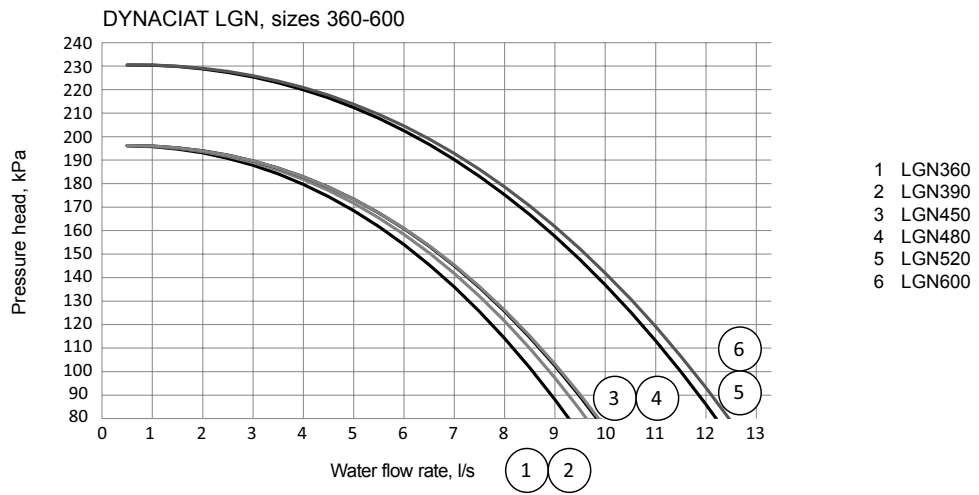
■ Available static system pressure

Units with hydraulic module (dual variable-speed high pressure pump)

Data applicable for:

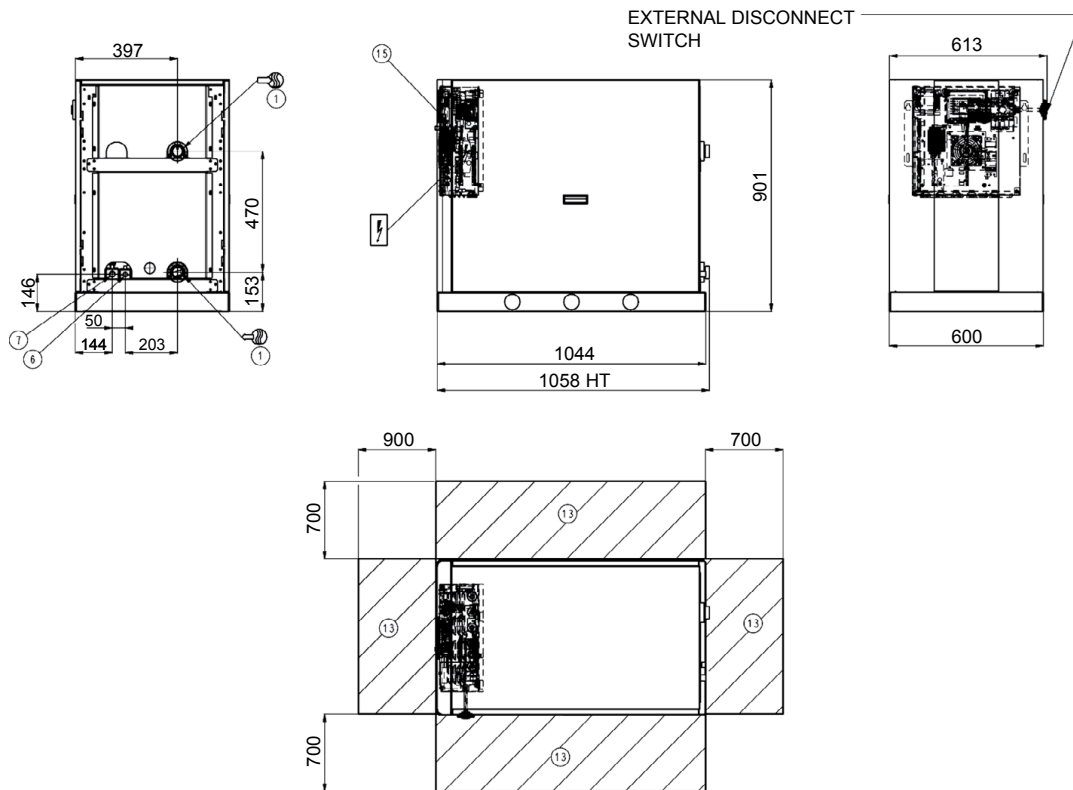
- Pure water at 20°C
- Refer to the section "Evaporator water flow rate" for the water flow rate values

■ Evaporator

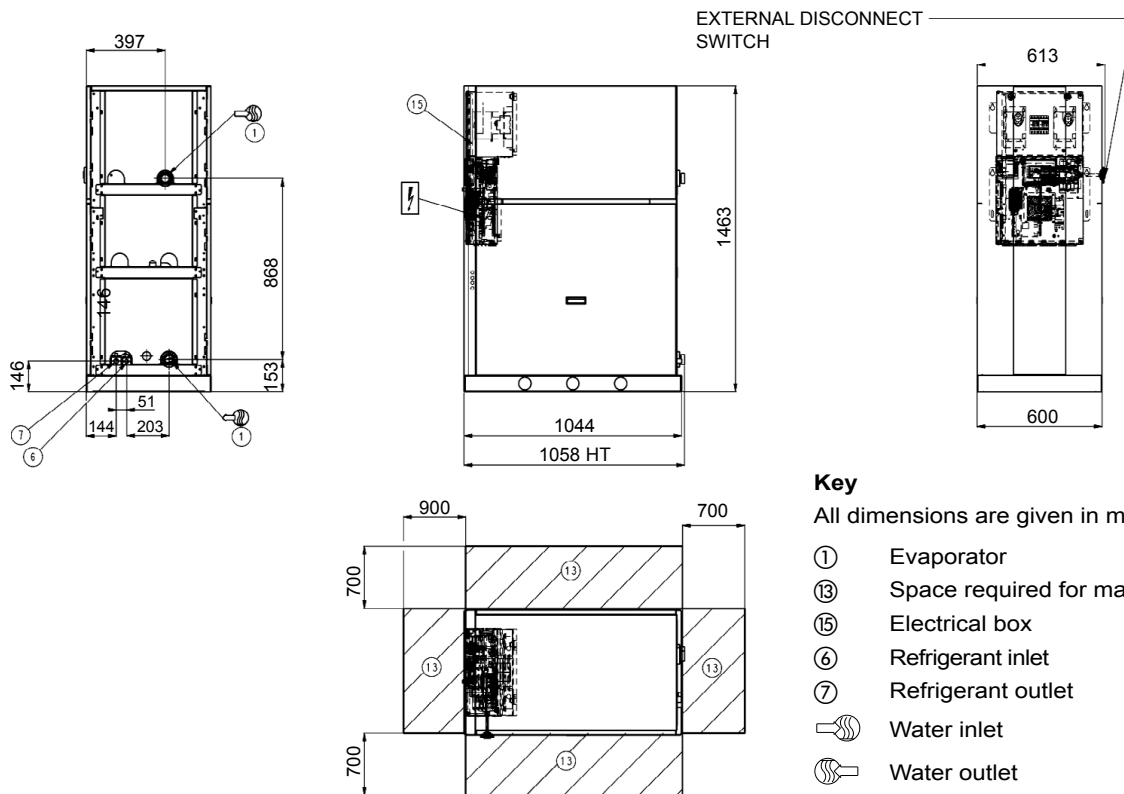


DIMENSIONS

■ DYNACIAT LGN 80 to 150 without hydraulic module



■ DYNACIAT LGN 80 to 150 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator
- ⑬ Space required for maintenance
- ⑮ Electrical box
- ⑥ Refrigerant inlet
- ⑦ Refrigerant outlet
- ⊕ Water inlet
- ⊖ Water outlet
- ⚡ Electrical power connection

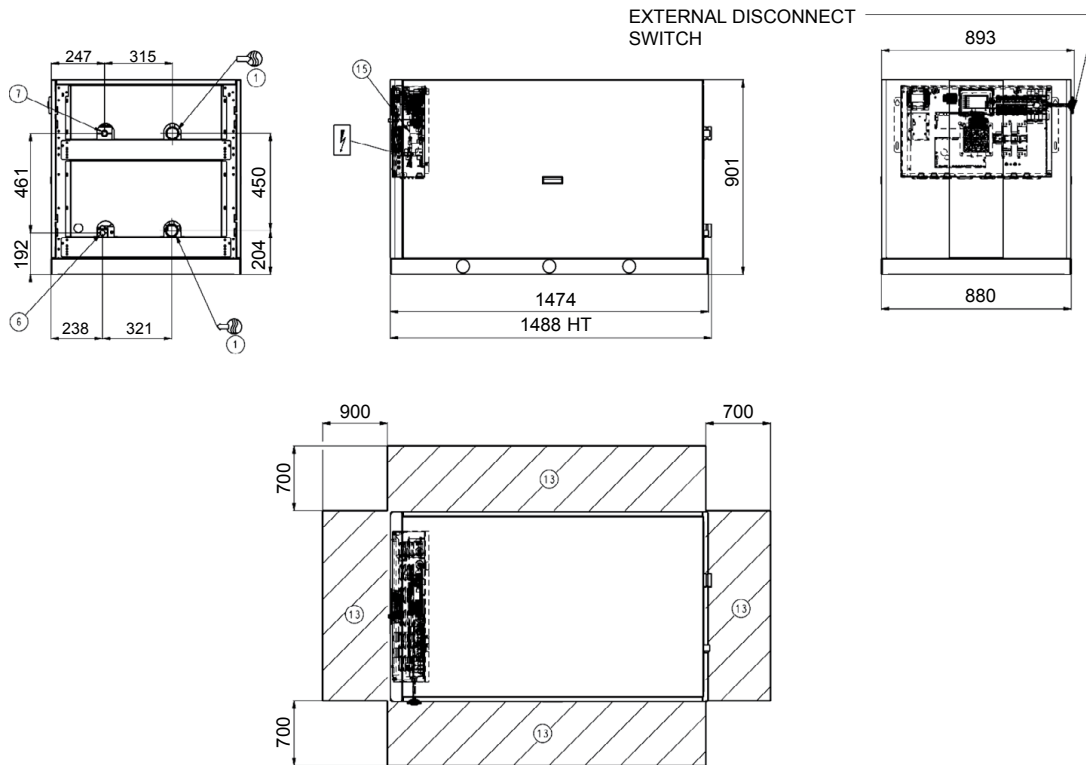
Notes:

Non-contractual drawings.

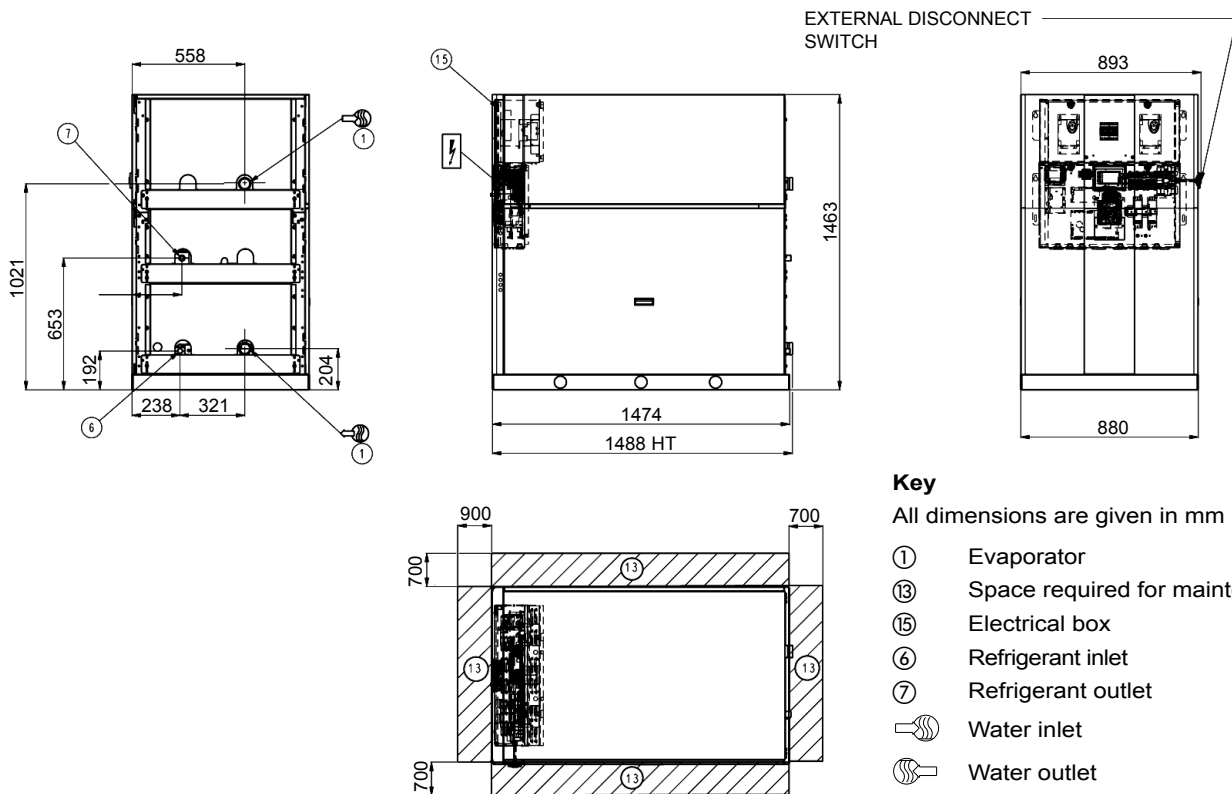
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT LGN 180 to 300 without hydraulic module



■ DYNACIAT LGN 180 to 300 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator
- ⑬ Space required for maintenance
- ⑮ Electrical box
- ⑥ Refrigerant inlet
- ⑦ Refrigerant outlet
- Water inlet
- Water outlet
- Electrical power connection

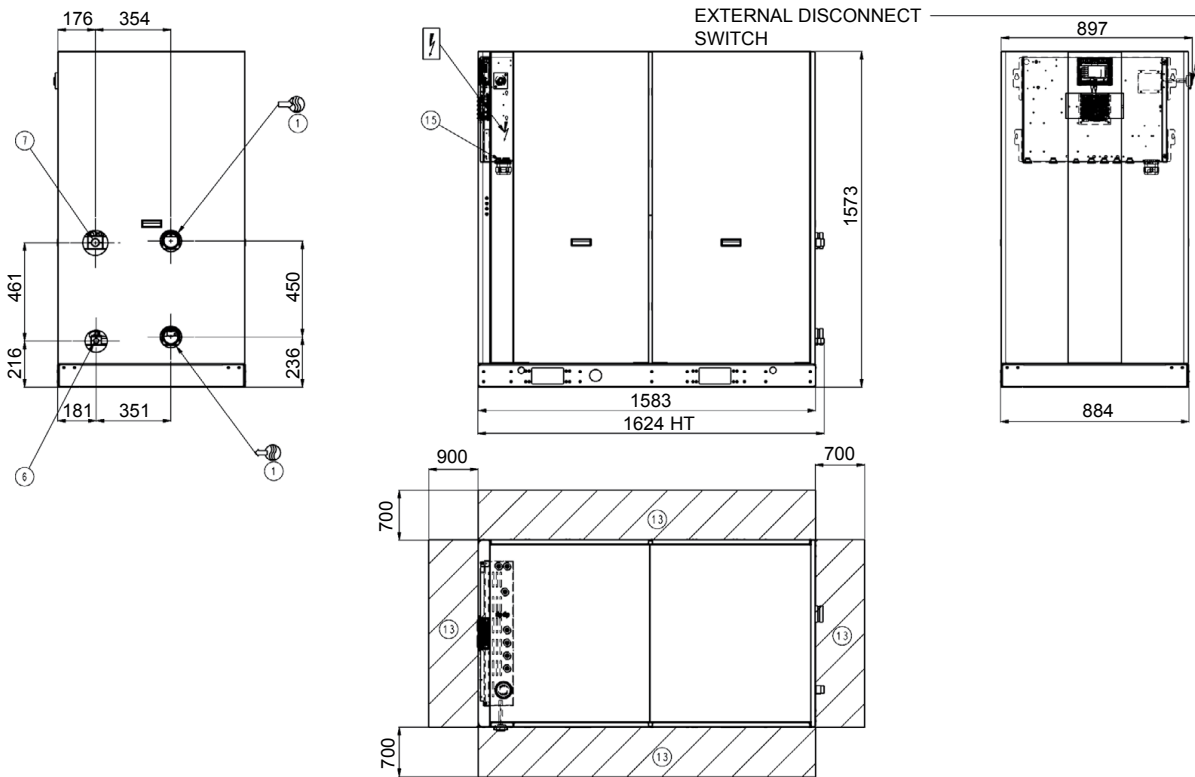
Notes:

Non-contractual drawings.

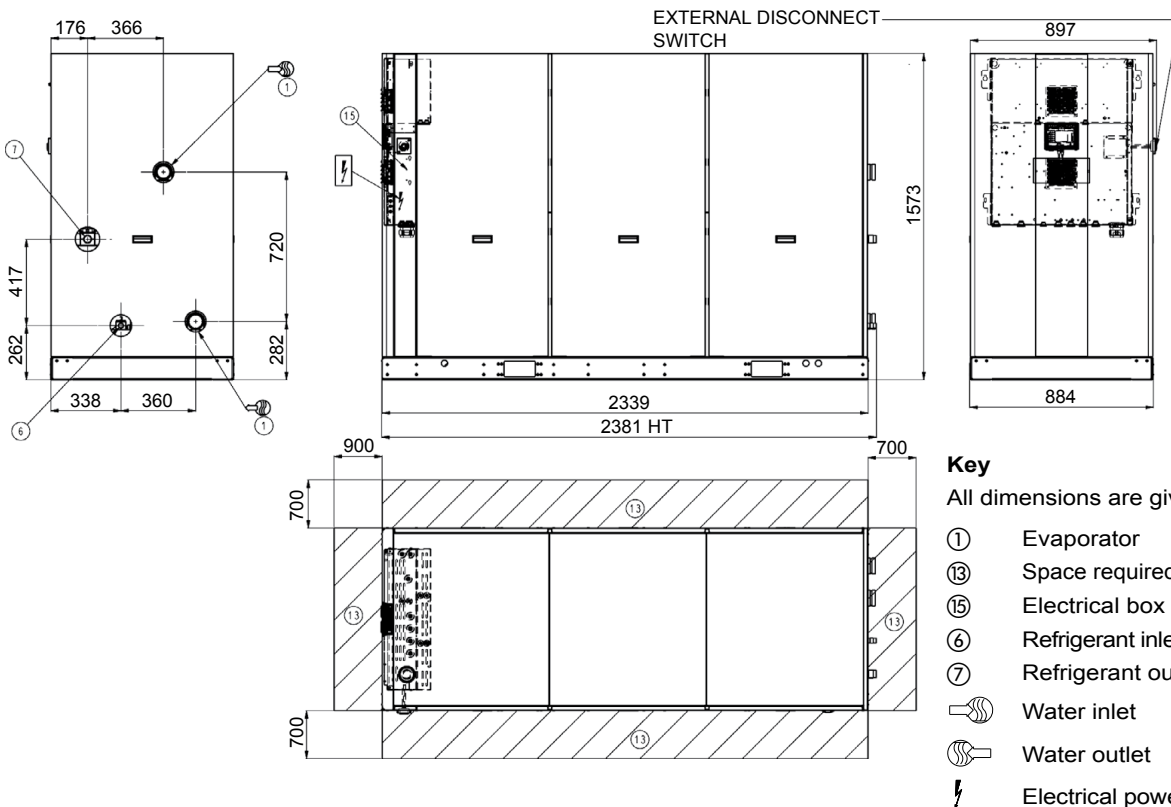
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT LGN 360 to 450 without hydraulic module



■ DYNACIAT LGN 360 to 450 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator
- ⑬ Space required for maintenance
- ⑮ Electrical box
- ⑥ Refrigerant inlet
- ⑦ Refrigerant outlet
- ⊕ Water inlet
- ⊖ Water outlet
- ⚡ Electrical power connection

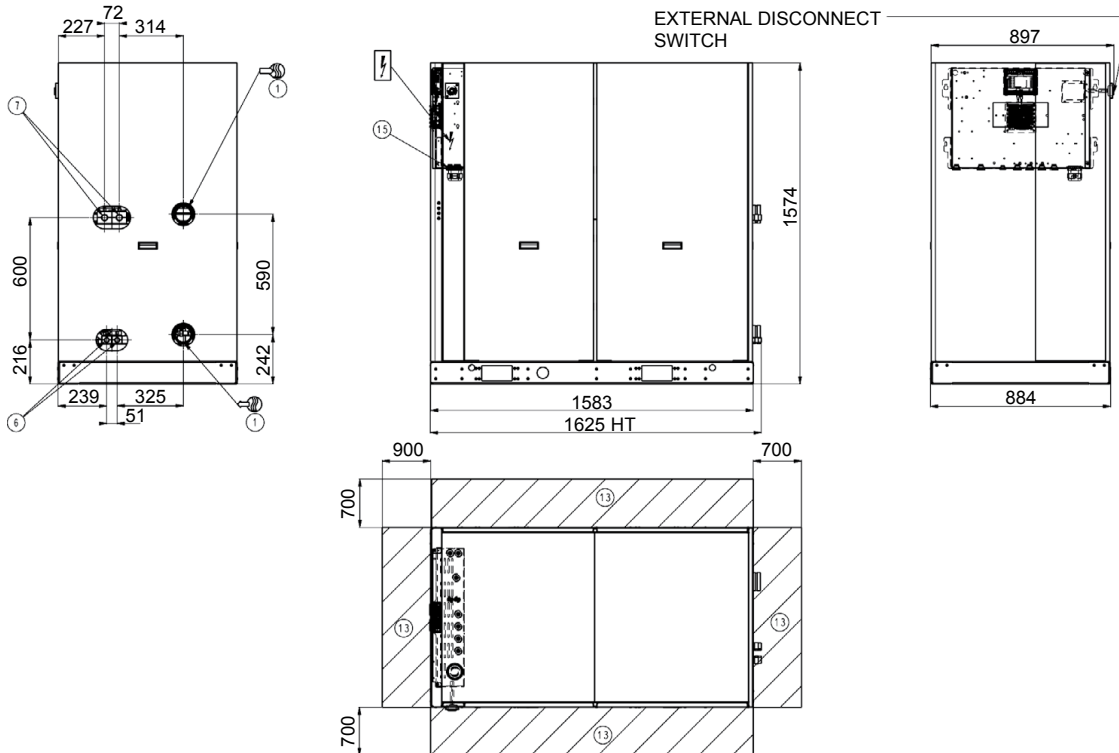
Notes:

Non-contractual drawings.

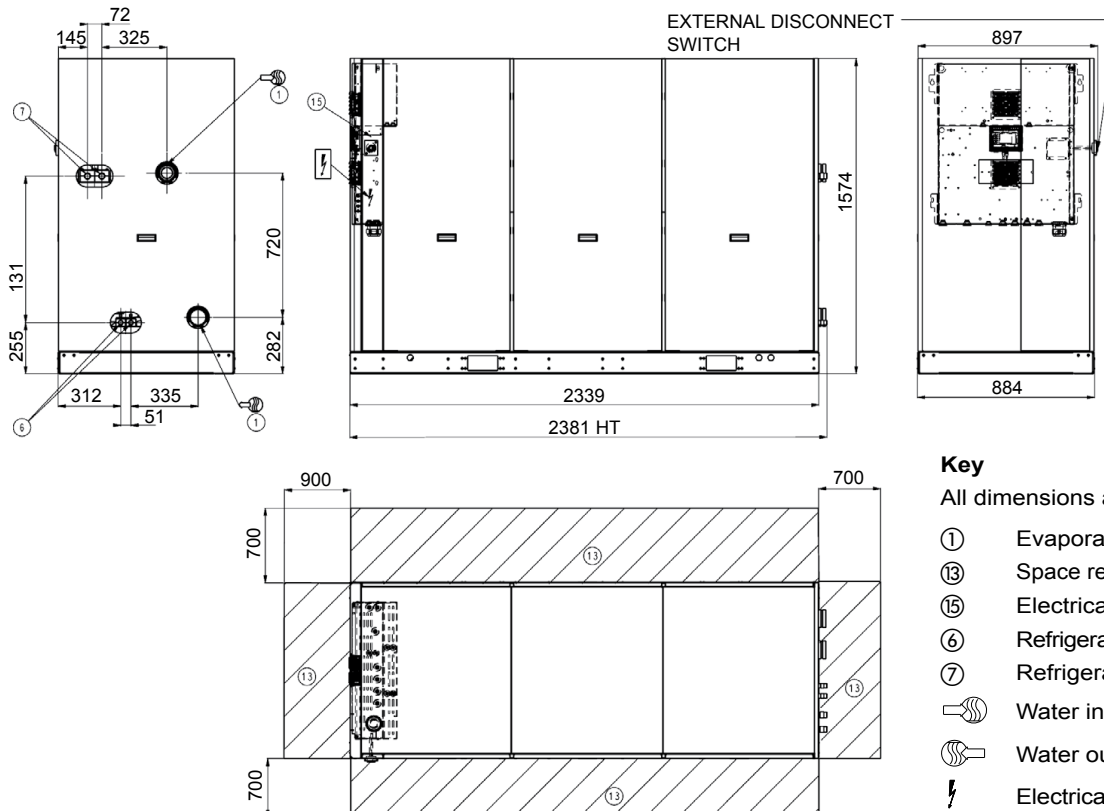
When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

DIMENSIONS

■ DYNACIAT LGN 480 to 600 without hydraulic module



■ DYNACIAT LGN 480 to 600 with hydraulic module



Key

All dimensions are given in mm

- ① Evaporator
- ⑬ Space required for maintenance
- ⑮ Electrical box
- ⑥ Refrigerant inlet
- ⑦ Refrigerant outlet
- Water inlet
- Water outlet
- ⚡ Electrical power connection

Notes:

Non-contractual drawings.

When designing a system, refer to the certified dimensional drawings provided with the unit or available on request.

INSTALLATION RECOMMENDATIONS

■ Water quality criteria to be respected

Warning: It is essential that an 800-micron water filter be placed on the unit's water inlet during installation. The quality of the water used has a direct impact on the correct and compliant operation of the machine and its service life. This is particularly true if the water used clogs or corrodes components or promotes the growth of algae or micro-organisms. The water must be tested to determine whether it is suitable for the unit. It is also tested to determine whether chemical treatment is necessary and will suffice to make it of acceptable quality. This analysis should confirm whether or not the various machine components are compatible with the water they come into contact with on-site.

Warning: failure to follow these instructions will result in the immediate voiding of the unit's warranty.

■ Lifting and handling

The utmost safety precautions must be taken when lifting and handling the unit.

Always follow the lifting diagram on the unit and in the instruction manual.

Before attempting to lift the unit, make sure the path leading to its intended location is free from obstacles. Always keep the unit vertical when moving it. Never tip it or lie it on its side.

■ Choosing a location for the unit

DYNACIAT units are designed for installation in a machine room. Precautions should be taken to protect it from freezing temperatures. Special attention should be paid to ensure sufficient free space (including at the top) to allow maintenance. The unit must be placed on a perfectly level, fireproof surface strong enough to support it when ready for operation. Noise pollution from auxiliary equipment such as pumps should be studied thoroughly.

Potential noise transmission routes should be studied, with assistance from an acoustical engineer if necessary, before installing the unit. It is strongly recommended that flexible couplings are placed over pipes and anti-vibration mounts are fitted underneath the unit (equipment available as an option) to reduce vibrations, and the noise this causes, as much as possible.

■ Machine room ventilation

According to the regulations in force in the installation location, the machine room must comply with certain ventilation rules for fresh air to ensure there is no risk of discomfort or hazard in the event

of a refrigerant leak.

■ Fitting accessories supplied separately

A number of optional accessories may be delivered separately and installed on the unit on site.

You must follow the instructions in the manual.

■ Electrical connections

You must follow the instructions in the manual. All information concerning electrical connections is stated on the wiring diagrams provided with the unit. Always follow this information to the letter.

Electrical connections must be made in accordance with best current practices and applicable standards and regulations.

Electrical cable connections to be made on-site:

- Electrical power supply to unit
- Contacts available as standard enabling the machine to be controlled remotely (optional)

It should be noted that the unit's electrical system is not protected against lightning strikes.

Therefore devices to protect against transient voltage surges must be installed on the system and inside the power supply unit.

■ Pipe connections

You must follow the instructions in the manual. All pipes must be correctly aligned and slope toward the installation's drain valve. Pipes must be installed to allow sufficient access to the panels for maintenance, and must be fitted with heat insulation.

Pipe mountings and clamps must be separate to avoid vibrations and ensure no pressure is placed on the unit. Water flow shut-off and control valves must be fitted when the unit is installed.

Pipe connections to be made on site:

- Water supply with pressure-reducing valve
- Evaporator

Accessories essential to any hydraulic circuit must also be installed, such as:

- Water expansion vessel
- Drain nozzles at pipe low points
- Exchanger shut-off valves equipped with filters
- Air vents at pipe high points
- Check the system's water capacity (install a buffer water tank if necessary)
- Flexible couplings on evaporator inlets and outlets

Warning:

- Pressure in the water circuits below 4 bar for units equipped with the hydraulic module
- Place the expansion vessel upstream of the pump.
- Do not place any valves on the expansion vessel.
- Make sure the water circulation pumps are placed directly at the evaporator inlet.
- Make sure the pressure of the water drawn in by the circulation pumps is greater than or equal to the required minimum NPSH, particularly if the water circuits are "open".
- Test the water quality in accordance with the relevant technical requirements.
- Take the necessary precautions to protect the unit and hydraulic system from freezing temperatures (e.g. allow for the possibility of draining the unit). If glycol is added to prevent freezing, check its type and concentration before system start-up.
- Before making any final hydraulic connections, flush the pipes with clean water to remove any debris in the network.

■ Refrigerant connection

You must follow the instructions in the manual.

Work must be carried out in accordance with the most stringent industry guidelines, which generally include the following:

- Careful study of the pipe routing (slope, trap and diameter) to facilitate the return of oil to the compressor
- Fit the liquid and discharge refrigerant pipes between the DYNACIAT water chiller and the condenser
- The length of the refrigerant pipes between the two devices must be as short as possible, with as few elbows as possible, to minimise pressure drops. Maximum linear length = 30 metres; maximum height difference = 12 metres. If in doubt, consult our technical service.
- Evacuation of the refrigerating circuit, refrigerant charge and system start-up.
- The water chiller unit, refrigerant pipes and condenser assembly must be assembled in accordance with the pressure equipment directive PED 2014/68/EU. The CIAT condenser and water chiller comply with this directive.
- The devices must be connected up using anti-vibration sleeves.

■ System start-up

Units must be commissioned by CIAT or a CIAT-authorized firm.

You must follow the instructions in the manual.

List of system start-up checks (non-exhaustive):

- Correct siting of unit
- Power supply protections
- Phases and direction of rotation
- Wiring connections on unit
- Direction of water flow in unit
- Cleanliness of water circuit
- Water flow rate at specified value
- Pressure in the refrigerant circuit
- Direction of rotation of compressors
- Water pressure drops and flow rates
- Operating readings

■ Maintenance operations

Specific preventive maintenance operations are required at regular intervals and should be performed by CIAT-approved contractors.

The operating parameters are read and noted on a "CHECK LIST" form to be returned to CIAT.

To do this, you must refer to and comply with the instruction manual.

You must take out a maintenance contract with a CIAT-approved refrigeration equipment specialist. Such a contract is required even during the warranty period.

DRYCOOLERS

■ CIAT OPERA series air-cooled condensers are compatible with DYNACIAT LGN units with water-cooled condensers.

■ Available in a wide range of sizes and with 6 ventilation speeds, OPERA can be adapted to the noise constraints or space restrictions of each site.



CONTROL

USER-FRIENDLY INTERFACE CONSOLE

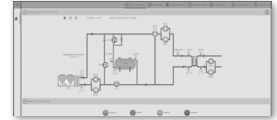
- User-friendly 4.3-inch touch screen.
- Information displayed in a choice of languages.
- Temperature and pressure readings.
- Operating and fault status diagnostics.
- Master/slave control of two machines in parallel.
- Fault memory management.
- Pump management.
- Time schedule.
- IP Web server.
- Programmable maintenance.
- Preventive maintenance.
- FGAS maintenance.
- E-mail alerts.



REMOTE M2M MACHINE SUPERVISION

Two years of Full Serenity with:

- Monitoring of machine operation (operation overviews and curves, alarm logs).
- E-mail alerts for alarms (optional SMS alerts).
- Remote update of the M2M.
- Access to a log of machine operation data.
- Remote advice for using M2M.
- System start-up and operating readings.



PRODUCT FUNCTIONALITY

Drycooler control

Connect Touch management for a CIAT OPERA Drycooler via a simple bus

Dry cooler used as

- Heat rejection
- Free cooling source



POTENTIAL-FREE (DRY) CONTACTS AVAILABLE AS STANDARD

Inputs:

- Automatic operation control
- Selection of setpoints 1 / 2
- Power limitation

Outputs:

- General fault reporting
- Circuit fault reporting
- User fault reporting

Additional inputs available as options:

- Setpoint adjustable by 4-20 mA signal



Via dry contact

Customer
CMSCOMMUNICATION

AVAILABLE OUTPUTS

- MODBUS-JBUS RTU (RS485) or TC/IP (standard) open protocol
- LONWORKS protocol (option)
- BACNET IP (Certified BTL) protocol (option)

Via BUS
communication

CIAT SYSTEM FUNCTIONALITY

Communication with the Hysys system (generator, transmitter, air handling unit), controlled by a touchscreen Easy CIATcontrol or Smart CIATcontrol tablet.

- **Logging** of consumption data and temperatures
- **Optimal Water®**: optimisation of producer performance based on building requirements
- **Optimal Stop and Start**: optimisation of the building restart time





Order No: NA20.762A. Supersedes order No: NA19.762B.

Manufacturer reserves the right to change any product specifications without notice.

Manufacturer: Carrier SCS, Montluel, France.

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