



R410A
R454B
Discover the full range



NEW! **R454B**

AIR/WATER HIGH EFFICIENCY CHILLERS AND HEAT PUMPS



ErP
COMPLIANT



**MICRO
CHANNEL
COILS**



WE MAKE INNOVATIONS. WE PROVIDE SOLUTIONS.

Thermocold
THE AIRVOLUTION®

AIR/WATER HIGH EFFICIENCY CHILLERS AND HEAT PUMPS WITH EC FANS AND SCROLL COMPRESSORS

R410A
R454B

DOMINO SEA and DOMINO HP XEA Are now available with **R410a** and **R454B** refrigerant from 50 to 135 kW for COMFORT and PROCESS applications.

SUITABLE FOR:

- ❖ REPLACEMENT OF EXISTING UNITS
- ❖ BUILDINGS IN HISTORIC CENTERS
- ❖ BUILDINGS WITH STATIC PROBLEMS
- ❖ EXPANSION OF PLANTS



NEW! **R454B**

WHY R454B?

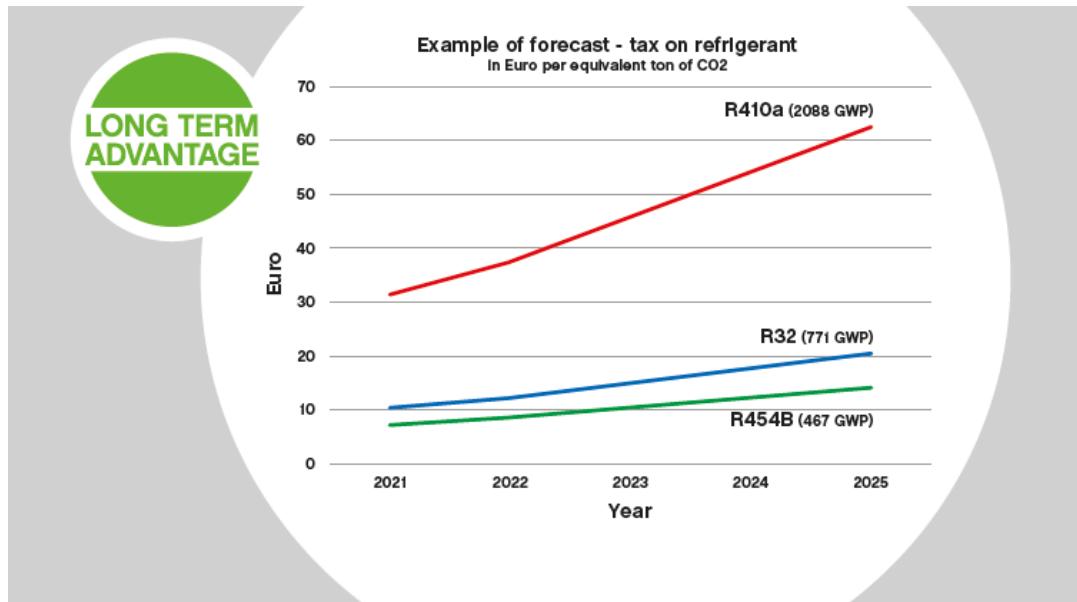
R454B is the **lowest GWP refrigerant value option** to replace R410A. Compared to R410a (with a GWP of 2088!!), R454B has a GWP of 467, thus offering a **decrease of 78%** and a **reduction of 39%** compared to R32.



The global warming potential represents the contribution to the greenhouse effect of a gas, with respect to CO₂, whose reference potential is equal to 1.

Saying that R454b has a GWP of 467 means it has an impact 467 times bigger than CO₂ in heating the atmosphere.

A Look into the Future



R454B is future-proofness refrigerant. It guarantees a long-term advantage in terms of availability, access to government subsidies, taxes and local regulations on R410a refrigerant use.

The DOMINO SEA line is available with R410a and R454B with a cooling capacity from 52 up to 126 kW

DOMINO SEA R454B

Con refrigerante R454B a basso GWP
With Low GWP R454B refrigerant



DATI TECNICI GENERALI - GENERAL TECHNICAL DATA

Mod.	Vers.	055	060	065	070	075	077	080	115	125	135	
Refrigerazione - Cooling ⁽¹⁾												
CC	C	kW	52,1	57,8	61,2	64,0	70	73	76	107	117	
PI		kW	16,2	15,2	17,3	19,7	21,9	23,7	27,4	40,2	44,8	
EER			3,21	3,15	3,10	3,03	3,07	3,01	2,93	3,10	2,91	
EC		A	A	A	B	B	B	B	A	B	B	
WF		m ³ /h	8,96	9,95	10,53	11,0	12,0	12,6	13,1	18,5	20,1	21,6
WPD		kPa	16,9	20,6	23,2	25,3	13,1	14,3	15,5	16,9	19,8	23,0

The DOMINO HP XEA line is available with R410a and R454B with heating capacity from 50 up to 116 kW

DOMINO HP XEA R454B

Con refrigerante R454B a basso GWP
With Low GWP R454B refrigerant



DATI TECNICI GENERALI - GENERAL TECHNICAL DATA

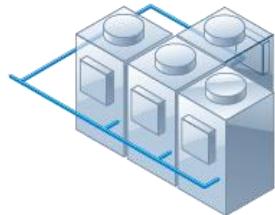
Mod.	Vers.	055	060	065	070	075	080	085	110	120	130	
Refrigerazione - Cooling ⁽¹⁾												
CC	H	kW	49,8	53,3	58,5	61,2	66,3	69,2	76,7	100	108	
PI		kW	16,5	18,0	20,4	22,0	23,6	25,4	25,6	36,7	41,4	
EER			3,02	2,96	2,87	2,78	2,81	2,73	2,99	2,73	2,61	
EC		B	B	C	C	C	B	C	D	D		
WF		m ³ /h	8,57	9,18	10,1	10,5	11,4	11,9	13,2	17,2	18,6	20,0
WPD		kPa	27,7	31,7	38,0	41,6	20,6	22,4	27,5	24,8	29,0	33,2
Riscaldamento - Heating ⁽²⁾												
HC	H	kW	54,6	58,6	64,9	69,0	72,4	76,3	83,7	109	120	
PI		kW	17,4	18,6	20,5	21,8	22,3	23,7	26,6	34,7	38,1	41,6
COP			3,13	3,15	3,16	3,16	3,24	3,22	3,15	3,16	3,15	3,12
EC		B	B	B	B	A	A	B	B	B	B	
WF		m ³ /h	9,47	10,2	11,3	12,0	12,6	13,2	14,5	19,0	20,8	22,6
WPD		kPa	32,6	37,5	45,8	51,5	24,1	26,8	32,1	29,1	34,9	40,9



MODULAR
SYSTEM

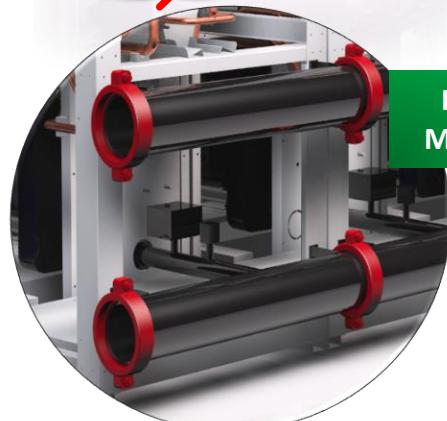
MODULAR CONFIGURATION

PERMIT TO EXPAND THE TOTAL CAPACITY UP TO 800 kW!



- ✓ HIGH SYSTEM'S RELIABILITY
- ✓ CENTRALIZED CONTROL
- ✓ INVESTMENT FLEXIBLE
- ✓ NO STOP OPERATION

HYDRAULIC MODULARITY



EASY TO INSTALL

The installation of units in modular configuration is facilitated by the hydraulic connection kit which allows an easy connection of the individual modules.

WHAT'S NEW ???

HYDRAULIC CONNECTION KIT FOR CONNECTION AMONG SINGLE MODULES (OPTIONAL)

already equipped with:

- ❖ Hydraulic manifolds for delivery and return
- ❖ Water strainers
- ❖ Flow switch
- ❖ Motorized shut-off valve
- ❖ Non-return valve on the discharge branch, to cut off the hydraulic circuit in case of maintenance (available for hydraulic version with water pumps).

HOW DO YOU SELECT THE HYDRAULIC CONNECTION KIT?

Select 1 hydraulic connection kit for each module of the system

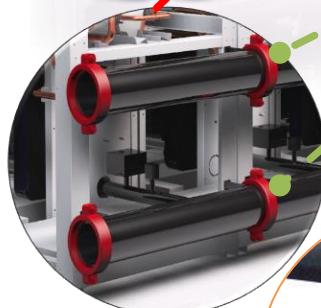
WARNING!!!

The optional «Hydraulic connection kit for connection among single modules» is not available in combination with the following options:

- D (deshuperheater) and R (total recovery) versions
- Hydraulic Versions with water pumps and buffer tank (SB/SA - XB/XA.)

HYDRAULIC MODULARITY

NEW



OPTIONS TO BE SELECTED FOR MODULAR CONNECTION AMONG SINGLE UNITS

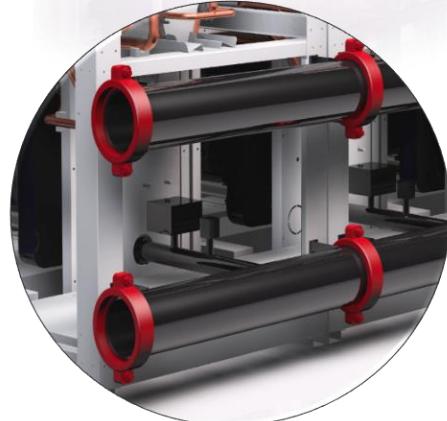
Victaulic clamps (n. 2 pcs to be mounted on the unit manifold)

- Loose option, to be mounted on site
- N° 1 kit for each module of the system

Victaulic caps and clamps (n. 2 pcs to be mounted on the unit manifold)

- Loose option, to be mounted on site
- N° 1 kit for the whole modular system

HYDRAULIC MODULARITY



HOW MANY KITS DO YOU NEED TO SELECT FOR YOUR
MODULAR SYSTEM?

Modular system of 8 units with B1L1 hydraulic version in 1 series:

- 8 hydraulic connection kit
- 8 Victaulic clamps kit
- 1 Victaulic clamps and caps kit

Modular system of 8 units with B1L1 hydraulic version in 2 series (4 units for each series):

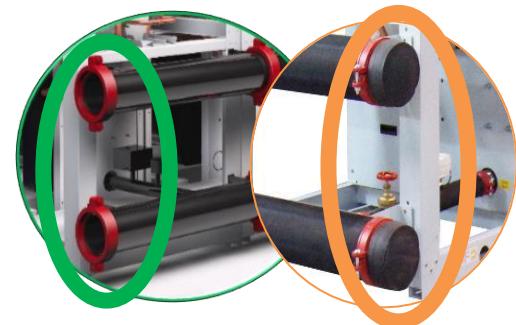
- 8 hydraulic connection kit
- 8 Victaulic clamps kit
- 2 Victaulic clamps and caps kit

HYDRAULIC CONNECTION KIT + MULTIMANAGER CONTROLLER FOR MODULAR CONFIGURATION

How to select in TH-Sel?

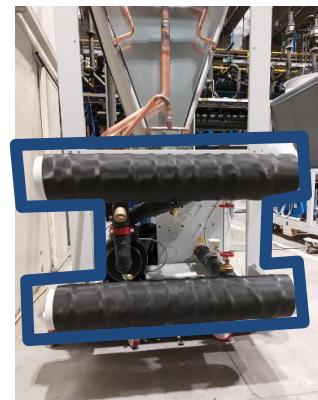
1 x MASTER UNIT:

- D-14 = A = with **hydraulic connection kit** among single modules
- D-15 = A = with **Victaulic caps and clamps**
- D-16 = A = with **Victaulic clamps**
- D-24 = 1 = with serial card for modbus
- D-44 = F = **with Flex master controller**



1 up to 5 SLAVE UNIT(S):

- D-14 = A = with **hydraulic connection kit** among single modules
- D-16 = A = with **Victaulic clamps**
- D-24 = 1 = with serial card for modbus
- D-44 = F = **Slave unit to be connected to Flex Master**

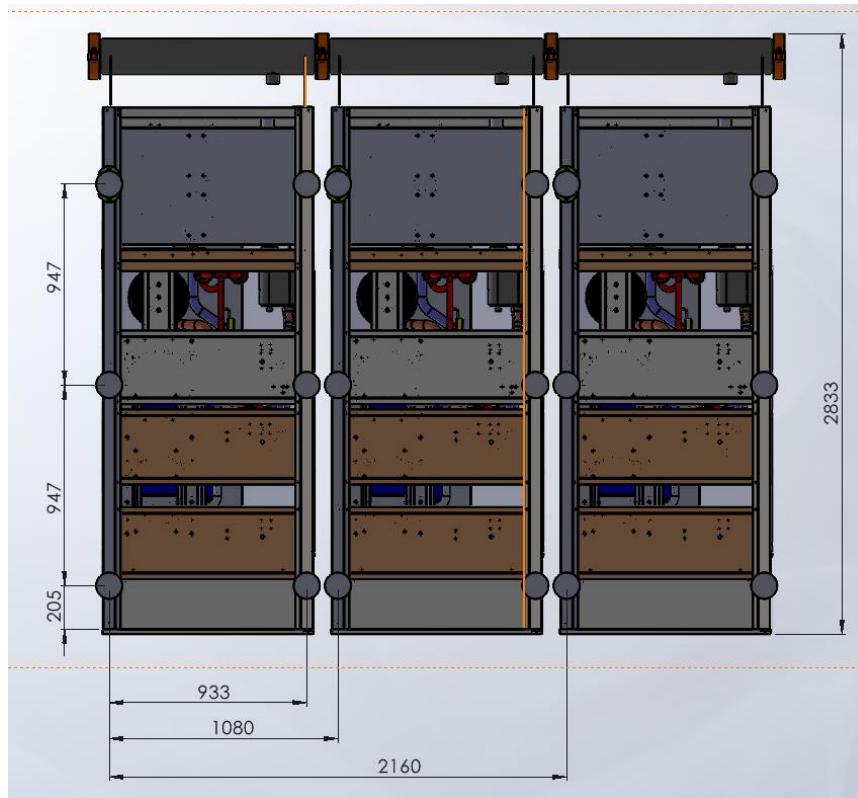


HYDRAULIC CONNECTION KIT + MULTIMANAGER CONTROLLER FOR MODULAR CONFIGURATION



Minimum space required between units, to allow to hose dampers.

HYDRAULIC CONNECTION KIT + MULTIMANAGER CONTROLLER FOR MODULAR CONFIGURATION



Bottom view.

The space between two attached units allow the isolators to be installed.

In case of maintenance, the electrical cabinet is easily removable to access unit's compressors (*electric cables are longer than needed to allow this*).

HYDRAULIC CONNECTION KIT + MULTIMANAGER CONTROLLER FOR MODULAR CONFIGURATION



Note: the picture here shows a possible installation example.

DESIGN



- ✓ **EASY TO MAINTAIN**, complete accessibility of all components

EASILY REMOVABLE ELECTRICAL PANEL

2,34m

ACCESS TO COMPRESSORS



- ✓ **EASY TO HANDLE**, thanks to the compact and light design!

11 MODELS WITH THE SAME FOOTPRINT!

ACCESS TO HEAT EXCHANGER

WARNING !!!

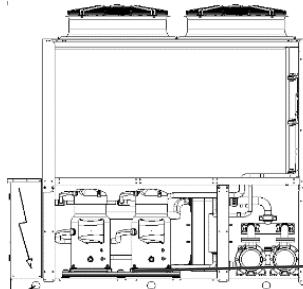
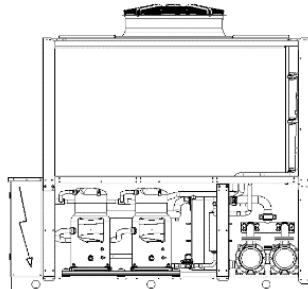
The length increases by only 0,5 m in case the following options are selected:

- Hydraulic versions with pumps and buffer tank: SB/SA - XB/XA.
- Hydraulic versions (ALL) combined with D (desuperheater) and R (total recovery) versions

DESIGN



ULTRA
COMPACT

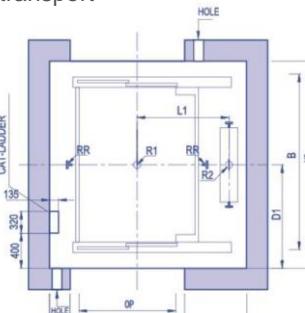


Sizes		
DOMINO SEA	055 - 077	080 - 135
DOMINO HP XEA	055 - 080	085 - 130
Length	mm	2489
Width	mm	1004
Height	mm	2408

All DOMINO SEA chillers & HP are 1 meter width to fit in typical elevators

Access anywhere

- ✓ For applications with limited accessibility
- ✓ Ideal for replacement projects
- ✓ Fits through doorways and in elevators for easy internal transport



Standardized Elevator Door
Width = 1,1 m

COMPONENTS

The best quality of the selected components

Do you need silence?

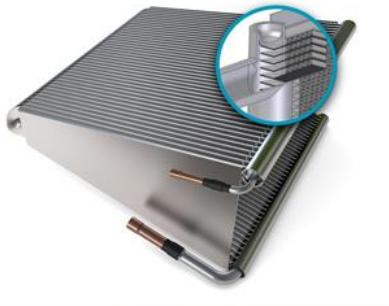
Choose Axitop for fans!



COMPONENTS

MICRO-CHANNELS COILS

The coil is made up of three components: the multichannel tubes, the aluminum fins which are placed between the microchannels and the two refrigerant headers.



Main features:

- Compact:** The heat transfer surface in contact with the refrigerant is greatly increased, so these heat exchangers can provide higher performance compared to the traditional coils
- Reduced refrigerant charge:** the refrigerant charge is reduced by up to 37% compared to equivalent units with Al-Cu fin & tube condensers.
- Reduced emissions of refrigerant into the atmosphere**
- Significant reductions in weight:** reduction of costs and maintenance time, and at the same time lower CO₂ emissions in transport.



REFRIGERANT CHARGE R410A LOWER THAN 14 KG THANKS TO MICRO-CHANNELS COILS

COMPONENTS

MICRO-CHANNELS COILS

Optional coatings are available to protect and to increase the durability of the coil, suitable for high corrosive and chemical risk environments.



E-COATED TREATMENT



- This treatment guarantees the protection of the finned pack coils in the most aggressive environments and in the most particular applications. It is suitable for marine environments and industrial areas. It has a very good UV resistance and limited heat transmission losses.

COMPONENTS

**ELECTRONIC
EXPANSION VALVE**



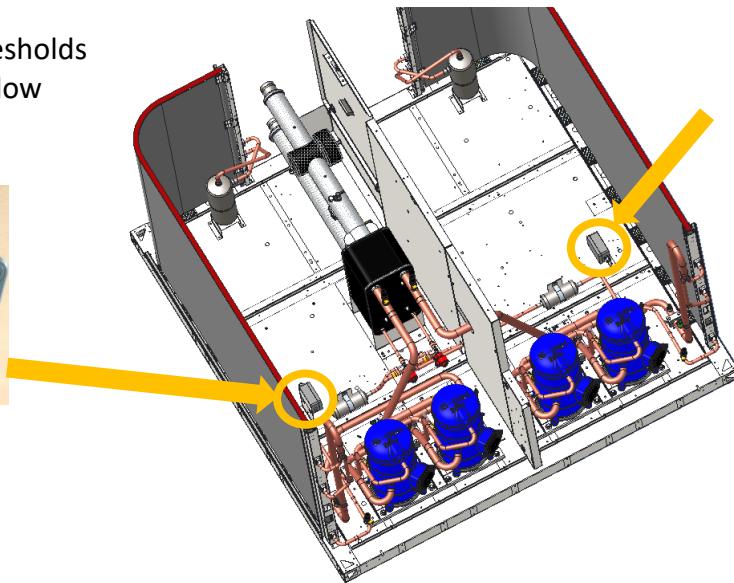
- Maximization of the heat exchange at the evaporator**
- Minimization of the response time according to the load variation**
- Optimization of the superheating regulation**
- Maximum energy efficiency**

STANDARD ON THIS UNIT!

COMPONENTS

REFRIGERANT LEAK
DETECTOR OPTION

- Available only on R454B units
- Factory installed and set according **R454B** critical thresholds
- STANDARD option on Super low noise versions



COMPONENTS

ADVANCED ELECTRONIC CONTROL



- LCD Display with graphic keyboard and with complete descriptions of parameters, alarms and measured variables.
- Compatibility with the main BMS systems: ModBus RS485, Bacnet TCP/IP e MS/TP, Lontalk;
- Remote control by digital input;
- Energy saving;
- DSP (Dynamic Set Point)
- Auto ON-OFF.

□ MULTI MANAGER TECHNOLOGY

Discover more...



COMPONENTS

ADVANCED ELECTRONIC CONTROL

DYNAMIC SET POINT

- Allows to adjust the outlet water temperature (SET POINT) maximizing the efficiency.
- The hydronic terminals can work with a variable water temperature according to outdoor temperature, following a climatic curve.



ENERGY SAVING

- To adjust the set point value to the required value for that time band of day
- Up to 3 time bands
- Optimization of energy consumption

AUTO ON-OFF

- Start and stops according to time bands



COMPONENTS

ADVANCED ELECTRONIC
CONTROL

MULTI MANAGER TECHNOLOGY

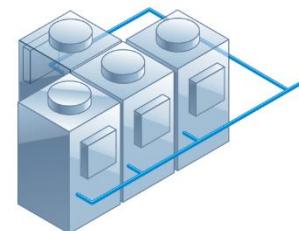
Centralized management and control system for a group of hydronic units

DOMINO SEA system is formed by 11 basic modules which can be combined among them up to a maximum number of 6, in order to reach the wished power.



PAY ATTENTION!

For modular configurations it is mandatory to select the Multi-Manager option, a centralized system that allows to manage by means of a single controller, the main functions and operating modes of a group of hydronic units in modular configuration.



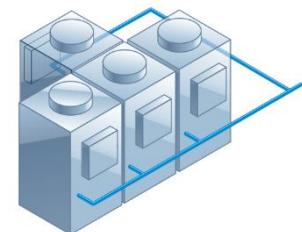
COMPONENTS

ADVANCED ELECTRONIC CONTROL

MULTI MANAGER TECHNOLOGY

Centralized management and control system for a group of hydronic units

- APPLICATIONS:** air-water and water-water chillers, heat pumps, chiller + total recovery, free-cooling chillers
- MAXIMUM CONTROL:** 6 units of equal or different capacity on 2 pipe systems.
- COMMUNICATION** between the Multi-Manager System and the unit is accomplished by means of an RS485 serial connection.
- HYDRAULIC CONTROL:** management of integrated hydronic kit or external hydronic group.
- SET-POINT REGULATION:** regulation can be set according to the inlet or outlet water temperature read by the plant probe, as required.

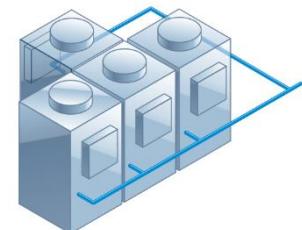


COMPONENTS

ADVANCED ELECTRONIC CONTROL

Main features

- Easy installation thanks to the all-in-one solution
- Password - protected data access
- Multi-language interface
- Management of the plant load allocation by two possible criteria:
 - Balance of the capacity among the different units
 - Saturation of each units.
- Some units can be given priority
- Possibility of choosing the number of units on standby - dynamic standby
- Balancing of single unit/compressors and pumps operating hours
- Easy display of device and unit alarm
- Management of an additional serial connection for the integration with existing BMS.

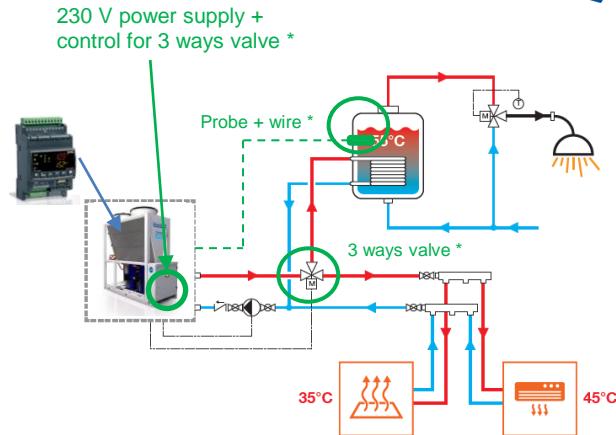


Main accessories

Domestic hot water (DHW) management



- Thanks to 3-Ways valve kit, it's possible to manage domestic hot water production.
- It's therefore possible to have two different hot water set points, one for comfort, another one for DHW production
- 3-ways valve is a 230V Ac one; power feed and control is managed by the electrical cabinet of the heat pump unit
- DHW has the priority (as soon as the temperature inside the tank falls below the set point, the heat pump starts to produce hot water, even if it was in cooling mode); the probe to be placed in the tank is an NTC type, it's already wired to the electric cabinet of the unit
- Anti-legionella function is implemented into the algorithm



* Provided with the 3 ways valve kit

Main accessories

Hydraulic kit

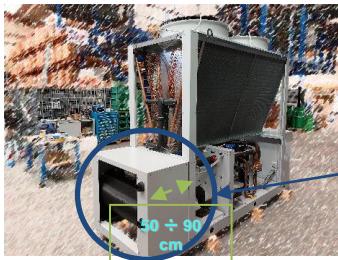
DOMINO units are available in **six hydraulic versions** characterized by complete kits of all major hydraulic components for an easier installation, with reduced time, cost and space.

- Stand-alone version with single pump
- Stand-alone version with single pump and tank (120 l) including expansion vessel by 5 liters capacity
- Stand-alone version with double pump and stand-by pump
- Stand-alone version with double pump and stand-by pump and tank (120 l) including expansion vessel by 5 liters capacity
- Modular version with single pump
- Modular version with double pump and stand-by pump

Those versions are available with different head pressures and **with or without inverter for pumps**.

Water pumps automatic changeover available on request.

To help completing the hydraulic circuit, loose accessories are available in the price list



WARNING!

When the unit has following options:

- Unit with desuperheater or total heat recovery
- Hydraulic Versions with water pumps and tank

the optional «HYDRAULIC CONNECTION KIT» is not available.

→ Meanwhile, DOMINO master controller is always available!

Pay also attention that in those configurations, the length of the unit increases by 0.5 ÷ 0.9 m (see drawings from the website)



Flow switch



Automatic water filling



Water gauges



Water strainer (threaded or Victaulic one according to unit size)

The installation is at customer care

Main accessories



Soft starter

To reduce compressor inrush current.



Over/under voltage + phase failure protection relay

To protect unit from power supply instability issues



Automatic circuit breakers

Automatic circuit breaker can be reset while fuses (standard) cannot, it must be replaced, in case of intervention.



Power factor correction to cos. phi. = 0,91

To reduce the reactive power and therefore the electrical current



Main accessories

Without Neutral and with transformer

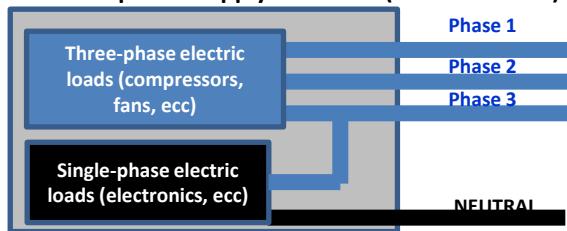
Unit as standard has Neutral. As an option, it can be provided without.



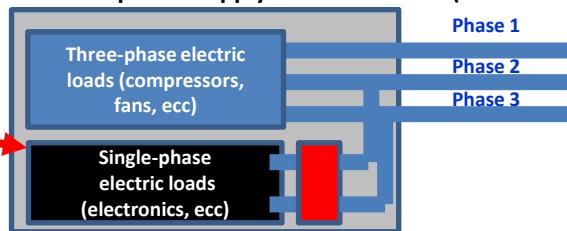
Double isolation
network
transformer



Electrical power supply standard (with NEUTRAL)



Electrical power supply with OPTIONAL (without NEUTRAL)



Main accessories



EC axial fans with high ESP

In case external head pressure is needed, this option grants 80 Pa ESP.
It's also suitable for low air temperature kit.



Control panel electric heater with thermostat

To heat the electric panel when temperature falls below an adjustable value



Gas gauges

High- and low-pressure gauges to quickly check the pressure of the refrigerant circuit



Main accessories



Rubber or spring antivibration mounts.

They reduce the dynamic stresses on the structure on which the unit is mounted → less vibrations, less noise



Victaulic kit

Victaulic KIT includes:

- ✓ Victaulic Adapter (from Threaded to Victaulic)
- ✓ Clamp and pipe



Anti intrusion grills

To protect coils and internal components.



Anti intrusion grills applied on ready to be shipped units

Anti intrusion grills



Unit fitted with Anti intrusion grills

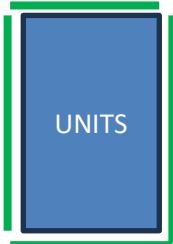
To allow unit to be placed in parallel, dedicated options are provided in TH-Sel.

Complete anti-intrusion grilles		Grills Front and Rear + Lateral
#	X	Without
#	A	Complete anti-intrusion grilles
#	B	Grills Front and Rear for modularity
#	C	Grills Front and Rear + Lateral ✓

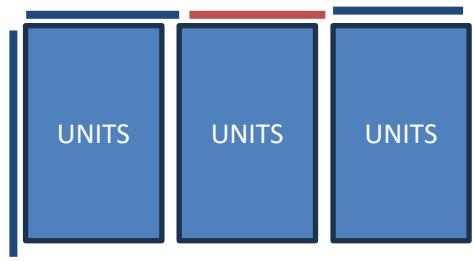
For stand alone units

For modular configuration

Stand alone



Modular



Option A

Option B

Option C

Main accessories

Low ambient air temperature (LAT) kit



-10° C LAT kit for DOMINO SEA chiller includes:

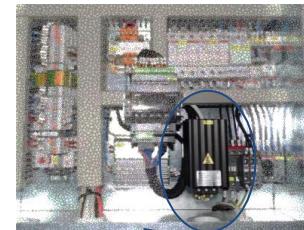
- Additional electric heater on PHE (plate heat exchanger)
- Double insulation for PHE
- Control panel with electric heater with thermostat
- (EC fans already as standard!)

-10° C LAT kit for DOMINO HP XEA heat pump in cooling mode includes:

- EC fans

-15° C LAT kit for DOMINO HP XEA heat pump in heating mode includes:

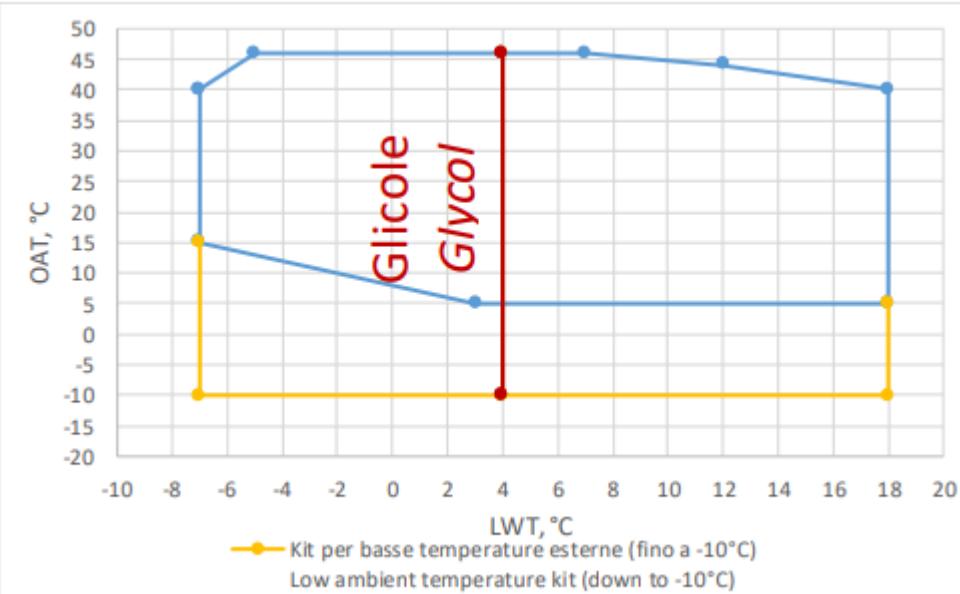
- Control panel with electric heater with thermostat



OPERATING MAP

The unit can work up to 46° C of outdoor temperature.
For leaving water temperatures below 4° C the use of Glycol is mandatory.

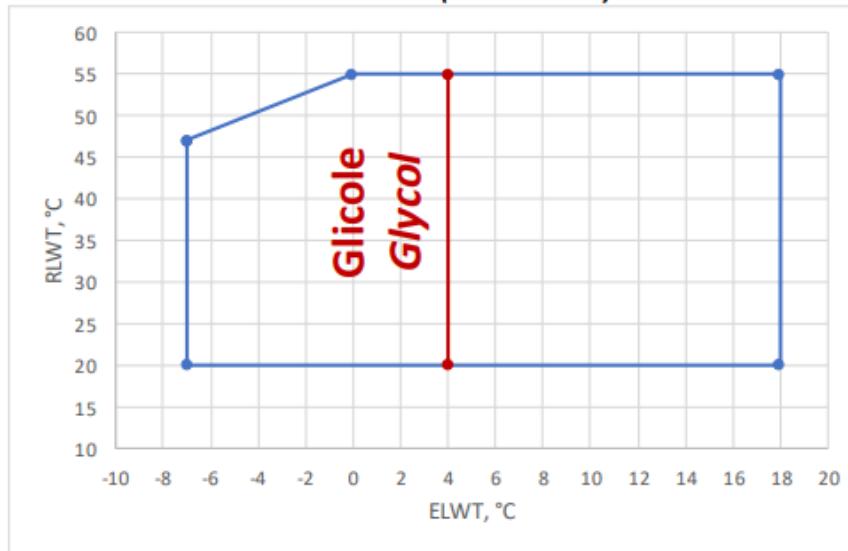
COOLING MODE



OPERATING MAP

The unit in recovery mode can reach 55° C of outlet water temperature.

COOLING + TOTAL RECOVERY MODE (VERSION "R")

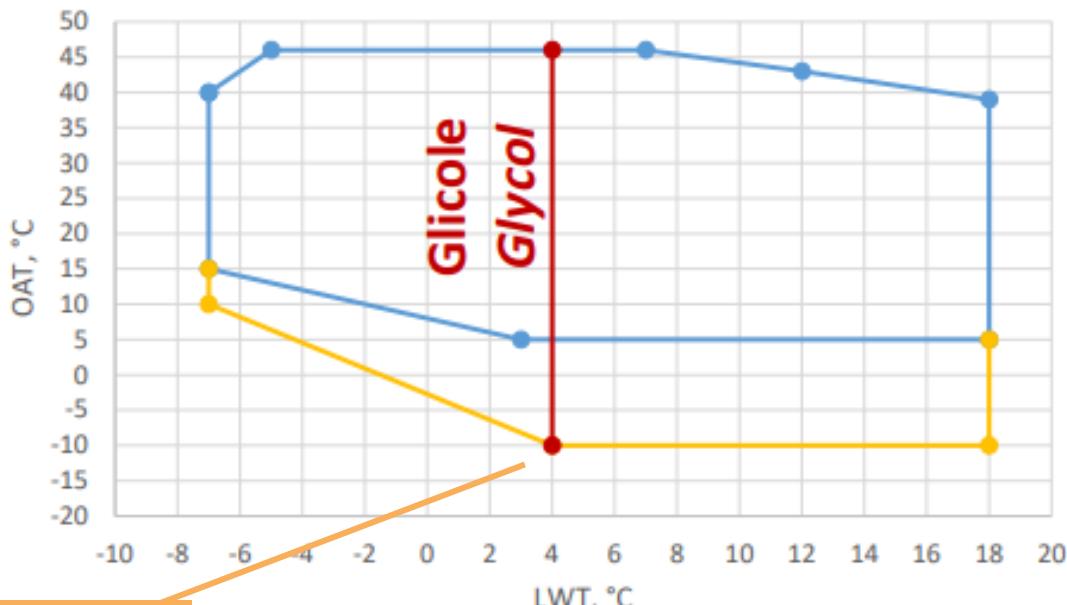


ELWT = Temperatura dell'acqua in uscita dall'evaporatore / Evaporator Leaving water temperature

RLWT = Temperatura dell'acqua in uscita dal recuperatore / Recovery heat exchanger Leaving water temperature

CHILLER MODE

The unit can work with 46° C of outdoor temperature.



Under 4° C the use of Glycol is mandatory

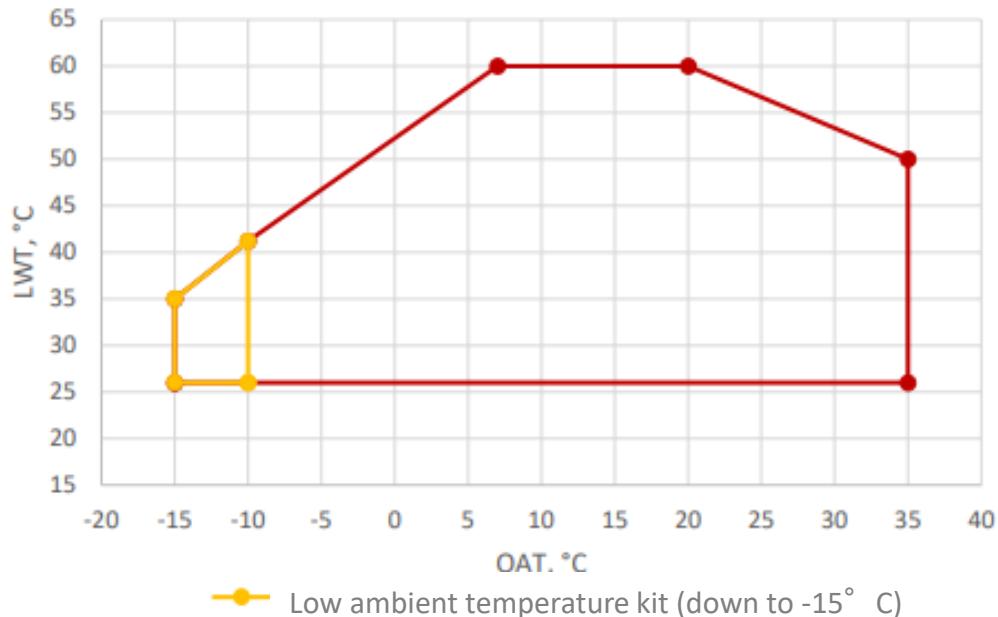
—●— Low ambient temperature kit (down to -10° C)

OAT = Outdoor Air Temperature

LWT = Leaving water temperature

HEAT PUMP MODE

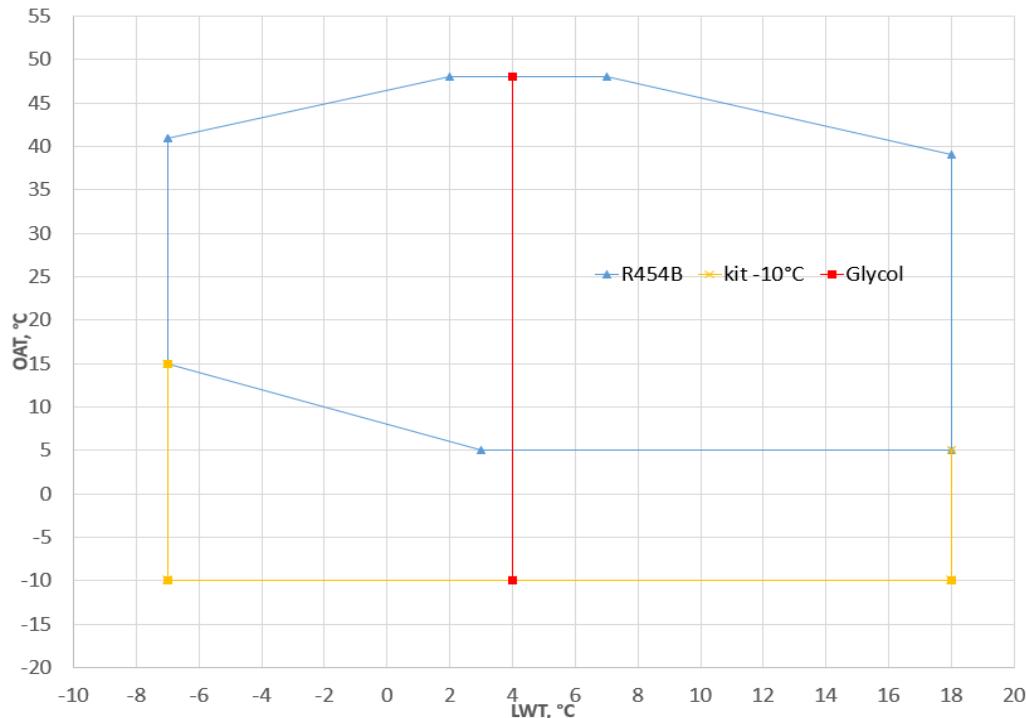
In heating mode, the unit can reach 60° C of leaving water temperature.



OAT = Outdoor Air Temperature
LWT = Leaving water temperature

CHILLER MODE

OPERATING MAP

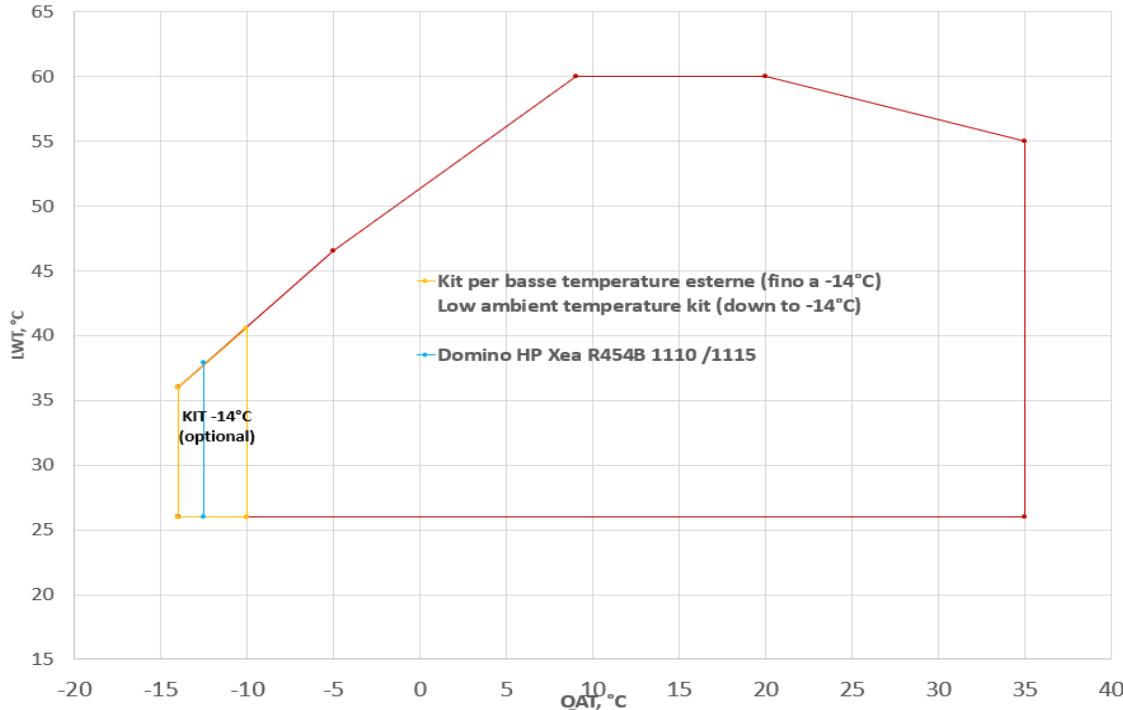
**DOMINO**
HPXEA

OAT = Outdoor Air Temperature

LWT = Leaving water temperature

OPERATING MAP

HEAT PUMP MODE



OAT = Outdoor Air Temperature

LWT = Leaving water temperature

ECODESIGN

UNITS ARE COMPLIANT WITH ECODESIGN REGULATIONS
LOT 21 IN FORCE FROM JANUARY 2021!



EER UP TO 3,2!

SEER UP TO 4,43!

SEPR HT UP TO 5,32!



With the new European regulation ENER LOT21 - Tier 2, in force from 1st January 2021, new performance restrictions have been imposed: the **minimum SEER** value established for air cooled chillers with cooling capacity < 400 kW is **4,1**.

ECO-FRIENDLY DESIGN

In accordance with the reduction of greenhouse gas emissions by 20%

ECODESIGN

UNITS ARE COMPLIANT WITH ECODESIGN REGULATIONS
LOT 21 IN FORCE FROM JANUARY 2021!


ErP
COMPLIANT



COP UP TO 3,22



SCOP UP TO 3,60

ECO-FRIENDLY DESIGN

In accordance with the reduction of greenhouse gas emissions by 20%

CONFIGURATIONS

BASIC VERSIONS

C: Chiller

H: Heat pump

D: Partial recovery version (stainless steel brazed plate type desuperheater, externally insulated)

R: Total recovery version (stainless steel brazed plate type recovery heat exchanger, externally insulated)



**MODULAR CONFIGURATION WITH
MULTI-MANAGER SYSTEM!**

CONFIGURATIONS

HYDRAULIC VERSIONS

Complete kits of all major hydraulic components for an easier installation, with reduced time, cost and space.

B1-A1: n.1 pump ON-OFF o INVERTER, low or high head pressure, safety valve, relief valve, shut off valve, drain valves.

B2-A2: n.2 pumps ON-OFF o INVERTER, low or high head pressure, safety valve, relief valve, check valves, shut off valves, drain valves.

SB-SA: n.1 pump ON-OFF o INVERTER, low or high head pressure, safety valve, relief valve, check valves, shut off valves, drain valve, 120 lt water tank with expansion vessel, safety valve, relief valve and drain valves.

XB-XA: n.2 pumps ON-OFF o INVERTER, low or high head pressure, shut off valves, check valves, drain valve, 120lt water tank with expansion vessel, safety valve, relief valve, and drain valves.

ACOUSTIC LEVEL

ACOUSTIC VERSIONS

**L:** Low noise**S:** Super low noise

Sound jackets

LOW
NOISE = BASE +

= - 2 DB

Basic unit is provided with compressors jacket to reduce noise produced.
This solution led to an overall noise reduction by 2 dB(A).

SUPER
LOW
NOISE = BASE +Sound proof box for
compressorsLeak detector
(for R454B models)

= - 3 DB

Basic unit is provided with sound proof box for compressors to reduce noise produced.
This solution led to an overall noise reduction by 3 dB(A).

**HIGH PERFORMANCE,
EXTENDABLE POWER**

