

REVERSO: Air / water reversible heat pumps
for outdoor installation, equipped with scroll compressors and axial fans
Cooling Capacity: **19,2 ÷ 261,0 kW**
Heating Capacity: **23,9 ÷ 333,0 kW**



reverso

rcgroupairconditioning



MAIN FEATURES

- Air / water reversible heat pump.
- 29 models available, for a wide selection opportunity..
- Average step of 12kW.
- EER up to 3,00.
- COP up to 4,06.
- ESEER up to 4,12.
- Scroll compressors.
- R410A Refrigerant charge.
- Single, double refrigerant circuit.
- Plate type heat exchanger.
- Axial fans EC.
- Electronic expansion valve.
- Single air circuit.
- Suitable for outdoor installation.

MAIN BENEFITS

- Units with two scroll compressors for each refrigerant circuit to reach a high efficiency.
- Units with single, double refrigerant circuit.
- Defrosting dynamics control system IDEA®.
- Availability of kit for the reduction and the extreme reduction of the noise.
- Availability of pumping groups.
- Availability of partial heat recovery system.
- Axial fans EC for an high efficiency.
- Easily of maintenance.
- Eurovent Certification.

FANS WITH BRUSHLESS TYPE EC MOTOR

These electric motors are ensuring high performances, minimum energy consumption and total absence of electromagnetic noise.

IDEA® DEFROSTING SYSTEM

"Patented" defrosting system with dynamic reading of working parameters. Thanks to proprietary software it senses the real presence of brine on the coil starting defrosting cycles only in that situation. This brings a remarkable energy saving (more than 20-30% on the average) and a higher working continuity compared with traditional systems.

WORKING LIMITS IN COOLING MODE

Chilled water outlet temperature: -12÷20°C
Ambient temperature: -10÷45°C

WORKING LIMITS IN HEATING MODE

Hot water outlet temperature: 30÷60°C
Ambient temperature: -10÷30°C



MAIN COMPONENTS

FRAMEWORK

- Base, self supporting frame and panelling in steel plate with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders.
- Colour: RAL 9002

COMPRESSORS

- Orbiting spiral (SCROLL) hermetic compressors with spiral profile optimized for R410A refrigerant.
- ON / OFF capacity control (0 / 100% each compressor).
- 2-pole 3-phase electric motor with direct on line starting.
- Phase sequence electronic relay.
- Crankcase heater.
- Electric motor thermal protection via internal winding temperature sensors.
- Terminal box with IP54 enclosure class.
- Rubber supports.

PLANT HEAT EXCHANGER

- Copper brazed plate type with cover plates, plates and connections in AISI 316 stainless steel:
 - With single refrigerant circuit for S version machines.
 - With double refrigerant circuit for D version machines.
- Anticondensate insulation made of polyurethane.
- Temperature sensors on water inlet and outlet.
- Differential water pressure switch for water flow control.
- Antifreeze heater.

EXHAUSTION HEAT EXCHANGER

- Heat exchanger coil with internally corrugated copper tubes and high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops. The combination of two factors, special tubes and fins, allow to optimally combine the following aspects:
 - Maximum capacity relative to the size of the exchanger.
 - Minimum charge of refrigerant.
 - Reduction of the air flow required for the heat exchange.
- Particular circulation on refrigerant side, in order to optimize performance in heat pump mode.
- Ambient temperature sensor
- Frame in galvanized steel.

FANS SECTION

- Axial fans with sickle-shaped blades, fan guard and optimized for low noise levels.
- Brushless type synchronous EC motor with integrated electronic commutated system and continuous variation of the rotation speed. The motor rotation control is obtained with the EC system (Electronic Commutation) that manage the motor according to the 0÷10V proportional signal coming from the microprocessor control.
- Maintenance-free bearings
- IP54 enclosure class.

REFRIGERANT CIRCUIT

Components for each refrigerant circuit:

- Reversing valve for refrigeration cycle inversion.
- Electronic expansion valve that allows high performance and system efficiency thanks to a timely and accurate response to changes in temperature and pressure.
- Energy reserve module for the electronic expansion valve to allow the closure of the valve in the event of lack of power supply.
- Sight glass.
- Liquid receiver with service valve.
- Filter dryer on liquid line.
- Service valves on suction line and gas discharge.
- Non-return valve
- Safety valve on low pressure side.
- Safety valve on high pressure side.
- Pressure transducers with indication, control and protection functions, on low and high refrigerant pressure.
- High pressure safety switch with manual reset.
- Oil drainage and oil recovery systems.

- IDEA® defrosting system.
RC Group patented defrosting system based on a dynamic reading of the evaporating parameters.
Through sensors the microprocessor realize the real ice presence on the gas/air heat exchanger and activates the defrosting cycle only when necessary, with consequent energy saving.
- Refrigerant circuit with copper tubing with anticondensate insulation of the suction line.
- Plastic capillary hoses for pressure sensors connection.
- R410A refrigerant charge.

ELECTRICAL PANEL

In accordance with EN60204-1 norms, suitable for outdoor installation, complete with:

- Main switch with door lock safety.
- Magnetothermic switch or fuses for each compressor.
- Magnetothermic switches for fans or water pumps (if scheduled).
- Contactors for each load.
- Transformer for auxiliary circuit and microprocessor supply.
- Panel with machine controls.
- Summer / Winter working mode selector.
- Power supply: 400/3/50.

CONTROL SYSTEM

- MP.COM microprocessor system with graphic display for control and monitor of operating and alarms status. The system includes:
 - Voltage free contact for remote general alarm.
 - Main components hour-meter.
 - Clock card for alarms date and time displaying and storing.
 - Nonvolatile "Flash" memory for data storage.
 - Menu with protection password.
 - LAN connection.

HYDRAULIC CONNECTIONS OF HEAT EXCHANGERS

- The heat exchangers' threaded hydraulic connections are available up to a diameter of 3" included, and correspond to ISO 228/1 – G M.
- The pipes' threaded hydraulic connections are available up to a diameter of 3 " included, and correspond to ISO 7/1 – R.
- The hydraulic connections with flange (FL) are not supplied with counter flange.
- The hydraulic connections with grooved end are not supplied with flexible joint (optional accessory).

OPTIONAL ACCESSORIES

REVERSO	21 P1	24 P1	28 P1	30 P1	34 P1	40 P1	50 P1	52 P2	52 P2	58 P2	58 P2
SIZE	S	S	S	S	S	S	S	S	D	S	D
	C1	C1	C1	C1	C2	C2	C2	C2	C2	C3	C3
739 - Pumping group (1 pump)	•	•	•	•	•	•	•	•	•	-	-
740 - Pumping group (2 pumps)	-	-	-	-	-	-	-	-	-	•	•
756 - Pumping group LN (1 pump)	•	•	•	•	•	•	•	•	•	•	•
757 - Pumping group LN (2 pumps)	-	-	-	-	-	-	-	-	-	•	•
768 - Chilled water storage tank	•	•	•	•	•	•	•	•	•	•	•
150 - LNO kit (noise reduction)	•	•	•	•	•	•	•	•	•	•	•
151 - ELN kit (extremely noise reduction)	•	•	•	•	•	•	•	•	•	•	•
170 - Spring antivibration holders (kit)	•	•	•	•	•	•	•	•	•	•	•
172 - Rubber support (kit)	•	•	•	•	•	•	•	•	•	•	•
118 - Kit brine A	•	•	•	•	•	•	•	•	•	•	•
119 - Kit brine B	•	•	•	•	•	•	•	•	•	•	•
Plant heat exchanger flexible joint with adapter pipe (solder type)	-	-	-	-	-	-	-	-	-	•	•
Plant heat exchanger flexible joint with adapter for flange connection	-	-	-	-	-	-	-	-	-	•	•
450 - Desuperheater	•	•	•	•	•	•	•	•	•	•	•
251 - Coils protection nets	•	•	•	•	•	•	•	•	•	•	•
351 - Coils with pre-painted fins	•	•	•	•	•	•	•	•	•	•	•
Coil in special execution	•	•	•	•	•	•	•	•	•	•	•
Silencing plenum on air discharge	•	•	•	•	•	•	•	•	•	•	•
731 - Safety water flow switch	•	•	•	•	•	•	•	•	•	•	•
605 - Compr. power factor capacitor - 0,9	•	•	•	•	•	•	•	•	•	•	•
Ambient temperature sensor	•	•	•	•	•	•	•	•	•	•	•
923 - RC-Com MBUS/JBUS Serial board	•	•	•	•	•	•	•	•	•	•	•
926 - LON Serial board	•	•	•	•	•	•	•	•	•	•	•
931 - BACnet Ethernet - SNMP - TCP/IP Serial board	•	•	•	•	•	•	•	•	•	•	•
932 - BACnet MS/TP Serial board	•	•	•	•	•	•	•	•	•	•	•
942 - Serial card for GSM Modem	•	•	•	•	•	•	•	•	•	•	•
943 - Data Logger	•	•	•	•	•	•	•	•	•	•	•
934 - MP.COM expansion card	•	•	•	•	•	•	•	•	•	•	•
889 - Master plant SEQUENCER	•	•	•	•	•	•	•	•	•	•	•
962 - Kit modem GSM	•	•	•	•	•	•	•	•	•	•	•
957 - Plantwatch without modem	•	•	•	•	•	•	•	•	•	•	•
930 - Remote graphic terminal kit	•	•	•	•	•	•	•	•	•	•	•

REVERSO	62 P1	65 P2	65 P2	76 P2	76 P2	98 P2	98 P2	124 P2	124 P2	158 P2	158 P2
SIZE	S	S	D	S	D	S	D	S	D	S	D
	C3	C3	C3	C3	C3	C4	C4	C4	C4	C4	C4
739 - Pumping group (1 pump)	-	-	-	-	-	-	-	-	-	-	-
740 - Pumping group (2 pumps)	•	•	•	•	•	•	•	•	•	•	•
756 - Pumping group LN (1 pump)	•	•	•	•	•	•	•	•	•	•	•
757 - Pumping group LN (2 pumps)	•	•	•	•	•	•	•	•	•	•	•
768 - Chilled water storage tank	•	•	•	•	•	•	•	•	•	•	•
150 - LNO kit (noise reduction)	•	•	•	•	•	•	•	•	•	•	•
151 - ELN kit (extremely noise reduction)	•	•	•	•	•	•	•	•	•	•	•
170 - Spring antivibration holders (kit)	•	•	•	•	•	•	•	•	•	•	•
172 - Rubber support (kit)	•	•	•	•	•	•	•	•	•	•	•
118 - Kit brine A	•	•	•	•	•	•	•	•	•	•	•
119 - Kit brine B	•	•	•	•	•	•	•	•	•	•	•
Plant heat exchanger flexible joint with adapter pipe (solder type)	•	•	•	•	•	•	•	•	•	•	•
Plant heat exchanger flexible joint with adapter for flange connection	•	•	•	•	•	•	•	•	•	•	•
450 - Desuperheater	•	•	•	•	•	•	•	•	•	•	•
251 - Coils protection nets	•	•	•	•	•	•	•	•	•	•	•
351 - Coils with pre-painted fins	•	•	•	•	•	•	•	•	•	•	•
Exhaustion Coil in special execution	•	•	•	•	•	•	•	•	•	•	•
Silencing plenum on air discharge	•	•	•	•	•	•	•	•	•	•	•
731 - Safety water flow switch	•	•	•	•	•	•	•	•	•	•	•
605 - Compr. power factor capacitor - 0,9	•	•	•	•	•	•	•	•	•	•	•
Ambient temperature sensor	•	•	•	•	•	•	•	•	•	•	•
923 - RC-Com MBUS/JBUS Serial board	•	•	•	•	•	•	•	•	•	•	•
926 - LON Serial board	•	•	•	•	•	•	•	•	•	•	•
931 - BACnet Ethernet - SNMP - TCP/IP Serial board	•	•	•	•	•	•	•	•	•	•	•
932 - BACnet MS/TP Serial board	•	•	•	•	•	•	•	•	•	•	•
942 - Serial card for GSM Modem	•	•	•	•	•	•	•	•	•	•	•
943 - Data Logger	•	•	•	•	•	•	•	•	•	•	•
934 - MP.COM expansion card	•	•	•	•	•	•	•	•	•	•	•
889 - Master plant SEQUENCER	•	•	•	•	•	•	•	•	•	•	•
962 - Kit modem GSM	•	•	•	•	•	•	•	•	•	•	•
957 - Plantwatch without modem	•	•	•	•	•	•	•	•	•	•	•
930 - Remote graphic terminal kit	•	•	•	•	•	•	•	•	•	•	•

• available accessory; - not available accessory

OPTIONAL ACCESSORIES

REVERSO	180 P2 S C5	180 P2 D C5	197 P2 S C5	197 P2 D C5	230 P3 S C5	240 P4 D C5	260 P4 D C5
SIZE							
739 - Pumping group (1 pump)	•	•	•	•	•	•	•
740 - Pumping group (2 pumps)	•	•	•	•	•	•	•
756 - Pumping group LN (1 pump)	•	•	•	•	•	•	•
757 - Pumping group LN (2 pumps)	•	•	•	•	•	•	•
768 - Chilled water storage tank	•	•	•	•	•	•	•
150 - LNO kit (noise reduction)	•	•	•	•	•	•	•
151 - ELN kit (extremely noise reduction)	•	•	•	•	•	•	•
170 - Spring antivibration holders (kit)	•	•	•	•	•	•	•
172 - Rubber support (kit)	•	•	•	•	•	•	•
118 - Kit brine A	•	•	•	•	•	•	•
119 - Kit brine B	•	•	•	•	•	•	•
Plant heat exchanger flexible joint with adapter pipe (solder type)	•	•	•	•	•	•	•
Plant heat exchanger flexible joint with adapter for flange connection	•	•	•	•	•	•	•
450 - Desuperheater	•	•	•	•	•	•	•
251 - Coils protection nets	•	•	•	•	•	•	•
351 - Coils with pre-painted fins	•	•	•	•	•	•	•
Exhaustion Coil in special execution	•	•	•	•	•	•	•
Silencing plenum on air discharge	•	•	•	•	•	•	•
731 - Safety water flow switch	•	•	•	•	•	•	•
605 - Compr. power factor capacitor - 0,9	•	•	•	•	•	•	•
Ambient temperature sensor	•	•	•	•	•	•	•
923 - RC-Com MBUS/JBUS Serial board	•	•	•	•	•	•	•
926 - LON Serial board	•	•	•	•	•	•	•
931 - BACnet Ethernet - SNMP - TCP/IP Serial board	•	•	•	•	•	•	•
932 - BACnet MS/TP Serial board	•	•	•	•	•	•	•
942 - Serial card for GSM Modem	•	•	•	•	•	•	•
943 - Data Logger	•	•	•	•	•	•	•
934 - MP.COM expansion card	•	•	•	•	•	•	•
889 - Master plant SEQUENCER	•	•	•	•	•	•	•
962 - Kit modem GSM	•	•	•	•	•	•	•
957 - Plantwatch without modem	•	•	•	•	•	•	•
930 - Remote graphic terminal kit	•	•	•	•	•	•	•

• available accessory; - not available accessory

TECHNICAL DATA REVERSO

REVERSO		21 P1	24 P1	28 P1	30 P1	34 P1	40 P1	50 P1	52 P2	52 P2	58 P2
		S	S	S	S	S	S	S	S	D	S
SIZE		C1	C1	C1	C1	C2	C2	C2	C2	C2	C3
STANDARD	Summer working mode - Cooling capacity (1) kW	19,2	21,6	25,5	27,7	32,7	37,6	46,8	47,7	47,7	54,3
	Unit power input	kW	6,7	7,7	9,2	11,2	10,9	13,3	17,7	18,8	19,4
	Plant exchanger water flow rate	m³/h	3,3	3,7	4,4	4,8	5,6	6,5	8,1	8,2	9,3
	Plant exchanger pressure drop	kPa	26	33	36	27	35	36	31	32	32
	Winter working mode - Heating capacity (2) kW	23,9	27,2	31,8	32,1	41,0	47,2	60,0	61,7	61,5	70,7
	Unit power input	kW	6,7	7,7	9,1	10,2	11,0	13,1	17,7	18,8	19,5
	Compressors		scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	1	1	1	1	1	1	2	2	2
	Capacity steps	n.	1	1	1	1	1	1	2	2	2
	Axial fans EC	n.	1	1	1	2	2	2	2	2	3
	Total air flow	m³/h	8500	8500	11000	11000	13000	15000	20500	20500	22000
	Air circuits	n.	1	1	1	1	1	1	1	1	1
	Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	10,5	10,6	10,6	10,8	12,9	12,9	14,3	18,1	19,6
	Gas circuits	n.	1	1	1	1	1	1	1	2	1
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max unit operating current (FLA)	A	17,6	22,6	23,6	26,6	34,2	37,2	43,3	47,3	54,7
	Unit starting current (LRA)	A	96,6	112,6	119,6	119,6	143,2	177,2	228,3	143,3	147,7
	EER (1)	kW/kW	2,88	2,79	2,78	2,48	3,00	2,83	2,65	2,54	2,80
	COP (2)	kW/kW	3,56	3,54	3,51	3,14	3,74	3,59	3,39	3,28	3,34
	ESEER		3,52	3,44	3,47	3,15	3,71	3,45	3,27	3,25	3,30
OPTIONAL	Sound power level [Lw] (3)	dB(A)	81,1	81,5	82,2	81,4	82,2	84,9	89,0	86,1	85,9
	Average sound pressure level [Lpm] (4)	dB(A)	64,6	64,9	65,6	64,8	64,9	67,7	71,8	68,9	68,0
	Net weight	kg	390	390	400	410	410	420	650	650	720
	Hydraulic connections										
	Plant exchanger IN/OUT - ISO 7/1 - R	Ø	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	2"	--
	Plant exchanger IN/OUT - OD (5)	Ø mm	--	--	--	--	--	--	--	--	76,1
	Partial heat recovery (6)										
	Heating capacity	kW	7,0	7,9	9,4	10,2	12,0	13,8	17,2	17,5	19,9
	Pumping group										
	1 pump - 2 poles electric motor	kW	0,75	0,75	0,75	0,75	1,5	1,5	1,5	1,5	2,2
LNO KIT 100%	2 pump - 2 poles electric motor	kW	--	--	--	--	--	--	--	--	2,2
	1 pump - 4 poles electric motor	kW	0,37	0,37	0,37	0,37	0,55	0,55	0,55	0,55	1,5
	2 pump - 4 poles electric motor	kW	--	--	--	--	--	--	--	--	1,5
	Water tank - volume	l	130	130	130	130	210	210	210	210	360
	Summer working mode - Cooling capacity (1) kW	19,2	21,6	25,5	27,7	32,7	37,6	46,8	47,7	47,7	54,3
	Unit power input	kW	6,7	7,7	9,2	11,2	10,9	13,3	17,7	18,8	19,4
	Winter working mode - Heating capacity (2) kW	23,9	27,2	31,8	32,1	41,0	47,2	60,0	61,7	61,5	70,7
	Unit power input	kW	6,7	7,7	9,1	10,2	11,0	13,1	17,7	18,8	19,5
	Total air flow	m³/h	8500	8500	11000	11000	13000	15000	20500	20500	22000
	EER (1)	kW/kW	2,88	2,79	2,78	2,48	3,00	2,83	2,65	2,54	2,80
	COP (2)	kW/kW	3,56	3,54	3,51	3,14	3,74	3,59	3,39	3,28	3,34
LNO KIT 85%	Sound power level [Lw] (3)	dB(A)	80,7	80,8	81,6	80,7	81,2	84,3	87,4	85,8	85,5
	Average sound pressure level [Lpm] (4)	dB(A)	64,1	64,2	65,0	64,1	64,0	67,1	70,2	68,6	67,6
	Summer working mode - Cooling capacity (1) kW	18,8	21,1	24,9	27,0	32,0	36,8	45,9	46,6	46,6	53,0
	Unit power input	kW	6,7	7,8	9,2	11,3	11,1	13,4	17,5	18,9	19,6
	Winter working mode - Heating capacity (2) kW	23,6	26,8	31,4	31,7	40,4	46,6	59,4	61,1	60,9	69,8
	Unit power input	kW	6,5	7,5	8,7	10,0	10,8	12,8	17,1	18,2	19,1
	Total air flow	m³/h	7225	7225	9350	9350	11050	12750	17425	17425	18700
	EER (1)	kW/kW	2,82	2,70	2,72	2,39	2,89	2,75	2,62	2,47	2,47
	COP (2)	kW/kW	3,61	3,57	3,59	3,18	3,75	3,63	3,48	3,36	3,43
	Sound power level [Lw] (3)	dB(A)	77,0	77,2	78,0	77,2	77,8	80,7	84,4	82,1	81,8
ELN KIT	Average sound pressure level [Lpm] (4)	dB(A)	60,4	60,7	61,4	60,6	60,6	63,5	67,2	64,9	63,9
	Summer working mode - Cooling capacity (1) kW	18,3	20,4	24,2	26,0	30,9	35,6	44,6	45,0	45,0	51,1
	Unit power input	kW	6,8	8,1	9,3	11,7	11,4	13,6	17,8	19,1	20,5
	Winter working mode - Heating capacity (2) kW	23,2	26,4	30,9	31,1	39,7	45,8	58,4	60,0	59,8	68,5
	Unit power input	kW	6,4	7,4	8,6	9,7	10,6	12,6	16,5	17,6	18,9
	Total air flow	m³/h	5950	5950	7700	7700	9100	10500	14350	14350	15400
	EER (1)	kW/kW	2,68	2,53	2,59	2,23	2,7	2,61	2,51	2,35	2,33
	COP (2)	kW/kW	3,61	3,57	3,61	3,19	3,74	3,63	3,53	3,41	3,45
	Sound power level [Lw] (3)	dB(A)	73,1	73,6	74,2	73,5	74,4	76,9	81,7	78,0	77,8
	Average sound pressure level [Lpm] (4)	dB(A)	56,5	57,0	57,7	57,0	57,2	59,7	64,5	60,7	59,9

1. Referred to chilled water temperature 12/7°C; 35°C ambient air temperature according to Eurovent standard.
2. Referred to hot water outlet temperature 45°C; 7°C ambient temperature according to Eurovent standard.
3. Sound power level [Lw] according to ISO EN 9614 - 2.
4. Average sound pressure level [Lpm] 1m far according to ISO EN 3744.
5. Hydraulic connection with grooved end. The flexible joint is an optional accessory.
6. Referred to chiller water temperature 12/7°C; 35°C ambient temperature and hot water temperature 40/45°C.

TECHNICAL DATA REVERSO

REVERSO		58 P2	62 P1	65 P2	65 P2	76 P2	76 P2	98 P2	98 P2	124 P2	124 P2
SIZE		D C3	S C3	S C3	D C3	S C3	D C3	S C4	D C4	S C4	D C4
STANDARD	Summer working mode - Cooling capacity (1) kW	54,6	58,0	60,6	61,3	70,3	71,4	89,6	91,8	111,0	116,0
	Unit power input kW	20,3	21,6	22,4	22,5	27,2	27,1	33,8	33,9	43,2	43,6
	Plant exchanger water flow rate m³/h	9,4	10,0	10,4	10,5	12,1	12,3	15,4	15,8	19,2	19,9
	Plant exchanger pressure drop kPa	17	27	32	18	33	20	32	23	34	27
	Winter working mode - Heating capacity (2) kW	70,9	74,8	79,1	79,2	91,6	90,8	118,0	118,0	149,0	150,0
	Unit power input kW	19,7	21,5	22,2	22,5	26,9	27,2	34,5	34,6	44,5	44,2
	Compressors	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity n.	2	1	2	2	2	2	2	2	2	2
	Capacity steps n.	2	1	2	2	2	2	2	2	2	2
	Axial fans EC n.	3	3	3	3	3	3	4	4	4	4
	Total air flow m³/h	22000	23000	24000	24000	30000	30000	40000	40000	46000	46000
	Air circuits n.	1	1	1	1	1	1	1	1	1	1
	Refrigerant	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded) kg	17,9	22,9	18,3	23,3	21,6	24	32,3	35,4	36,7	39,8
	Gas circuits n.	2	1	1	2	1	2	1	2	1	2
	Power supply V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max unit operating current (FLA) A	54,7	53,2	66,7	66,7	72,9	72,9	86,5	86,5	108,4	108,4
	Unit starting current (LRA) A	147,7	276,7	175,7	175,7	212,9	212,9	271,5	271,5	331,9	331,9
	EER (1) kW/kW	2,69	2,69	2,71	2,73	2,58	2,63	2,65	2,71	2,57	2,66
	COP (2) kW/kW	3,59	3,48	3,56	3,52	3,40	3,34	3,42	3,41	3,35	3,39
	ESEER	3,56	3,82	3,91	3,56	3,61	3,34	3,73	3,46	3,59	3,39
Sound power level [Lw] (3) dB(A)	85,9	91,6	85,7	85,7	86,1	86,1	84,2	84,2	88,1	88,1	
Average sound pressure level [Lpm] (4) dB(A)	68,0	73,8	67,8	67,8	68,2	68,2	65,6	65,6	69,5	69,5	
Net weight kg	730	700	730	730	920	930	1120	1120	1510	1500	
Hydraulic connections											
Plant exchanger IN/OUT - ISO 7/1 – R Ø		--	--	--	--	--	--	--	--	--	--
Plant exchanger IN/OUT - OD (5) Ø mm		76,1	76,1	76,1	76,1	76,1	76,1	88,9	88,9	88,9	88,9
OPTIONAL	Partial heat recovery (6)										
	Heating capacity kW	20,0	21,3	22,2	22,5	25,8	26,2	32,9	33,7	40,9	42,5
	Pumping group										
	1 pump - 2 poles electric motor kW	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2
	2 pump - 2 poles electric motor kW	2,2	2,2	2,2	2,2	2,2	2,2	3,0	3,0	3,0	3,0
	1 pump - 4 poles electric motor kW	1,5	1,5	1,5	1,5	1,5	1,5	3,0	3,0	3,0	3,0
	2 pump - 4 poles electric motor kW	1,5	1,5	1,5	1,5	1,5	1,5	3,0	3,0	3,0	3,0
	Water tank - volume l	360	360	360	360	360	360	520	520	520	520
	LNO KIT 100%	Summer working mode - Cooling capacity (1) kW	54,6	58,0	60,6	61,3	70,3	71,4	89,6	91,8	111,0
Unit power input kW		20,3	21,6	22,4	22,5	27,2	27,1	33,8	33,9	43,2	43,6
Winter working mode - Heating capacity (2) kW		70,9	74,8	79,1	79,2	91,6	90,8	118,0	118,0	149,0	150,0
Unit power input kW		19,7	21,5	22,2	22,5	26,9	27,2	34,5	34,6	44,5	44,2
Total air flow m³/h		22000	23000	24000	24000	30000	30000	40000	40000	46000	46000
EER (1) kW/kW		2,69	2,69	2,71	2,73	2,58	2,63	2,65	2,71	2,57	2,66
COP (2) kW/kW		3,59	3,48	3,56	3,52	3,40	3,34	3,42	3,41	3,35	3,39
Sound power level [Lw] (3) dB(A)		85,5	89,4	85,4	85,4	85,7	85,7	83,2	83,2	87,3	87,3
Average sound pressure level [Lpm] (4) dB(A)		67,6	71,6	67,5	67,5	67,8	67,8	64,6	64,6	68,7	68,7
LNO KIT 85%	Summer working mode - Cooling capacity (1) kW	53,2	56,8	59,1	59,8	68,8	69,8	87,8	90,0	109,0	113,0
	Unit power input kW	20,5	21,8	22,6	22,7	27,1	26,9	33,9	34,0	43,3	43,6
	Winter working mode - Heating capacity (2) kW	70,0	73,9	78,1	78,3	90,5	89,7	117,0	117,0	147,0	149,0
	Unit power input kW	19,3	21,0	21,7	21,9	26,0	26,2	33,6	33,5	43,1	42,8
	Total air flow m³/h	18700	19550	20400	20400	25500	25500	34000	34000	39100	39100
	EER (1) kW/kW	2,59	2,61	2,62	2,64	2,54	2,59	2,59	2,65	2,52	2,59
	COP (2) kW/kW	3,62	3,52	3,60	3,57	3,48	3,43	3,48	3,49	3,41	3,48
	Sound power level [Lw] (3) dB(A)	81,8	86,8	81,7	81,7	82,0	82,0	79,9	79,9	83,8	83,8
	Average sound pressure level [Lpm] (4) dB(A)	63,9	68,9	63,8	63,8	64,1	64,1	61,3	61,3	65,2	65,2
ELN KIT	Summer working mode - Cooling capacity (1) kW	51,3	54,9	57,0	57,7	66,6	67,6	85,2	87,5	106,0	110,0
	Unit power input kW	21,3	22,3	23,3	23,4	27,5	27,5	34,6	34,7	44,2	44,5
	Winter working mode - Heating capacity (2) kW	68,6	72,5	76,6	76,6	88,8	88,0	115,0	115,0	144,0	146,0
	Unit power input kW	19,0	20,5	21,3	21,5	25,4	25,5	32,9	32,9	42,1	41,7
	Total air flow m³/h	15400	16100	16800	16800	21000	21000	28000	28000	32200	32200
	EER (1) kW/kW	2,41	2,46	2,45	2,47	2,42	2,46	2,46	2,52	2,4	2,47
	COP (2) kW/kW	3,61	3,53	3,60	3,56	3,50	3,45	3,50	3,50	3,42	3,50
	Sound power level [Lw] (3) dB(A)	77,8	84,6	77,6	77,6	77,9	77,9	76,6	76,6	80,3	80,3
	Average sound pressure level [Lpm] (4) dB(A)	59,9	66,8	59,7	59,7	60,0	60,0	58,0	58,0	61,7	61,7

1. Referred to chilled water temperature 12/7°C; 35°C ambient air temperature according to Eurovent standard.
2. Referred to hot water outlet temperature 45°C; 7°C ambient temperature according to Eurovent standard.
3. Sound power level [Lw] according to ISO EN 9614 - 2.
4. Average sound pressure level [Lpm] 1m far according to ISO EN 3744.
5. Hydraulic connection with grooved end. The flexible joint is an optional accessory.
6. Referred to chiller water temperature 12/7°C; 35°C ambient temperature and hot water temperature 40/45°C.

TECHNICAL DATA REVERSO

REVERSO		158 P2	158 P2	180 P2	180 P2	197 P2	197 P2	230 P3	240 P4	260 P4
SIZE		S	D	S	D	S	D	S	D	D
		C4	C4	C5	C5	C5	C5	C5	C5	C5
STANDARD	Summer working mode - Cooling capacity (1) kW	150,0	155,0	170,0	176,0	188,0	194,0	227,0	223,0	261,0
	Unit power input kW	59,8	60,3	63,9	64,7	73,2	73,8	88,0	94,5	109,2
	Plant exchanger water flow rate m³/h	25,8	26,6	29,1	30,3	32,4	33,4	39,0	38,4	45,0
	Plant exchanger pressure drop kPa	32	26	34	33	41	32	41	36	33
	Winter working mode - Heating capacity (2) kW	182,0	195,0	215,0	215,0	238,0	238,0	280,0	288,0	333,0
	Unit power input kW	68,2	48,0	62,3	62,5	70,6	71,0	83,1	89,4	98,8
	Compressors	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	2	2	2	2	2	3	4	4
	Capacity steps	n.	2	2	2	2	2	3	4	4
	Axial fans EC	n.	4	4	5	5	5	5	5	5
	Total air flow m³/h	55800	55800	60000	60000	66000	66000	69000	69000	69000
	Air circuits	n.	1	1	1	1	1	1	1	1
	Refrigerant	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded) kg	37,7	40,4	60,6	63,7	78,8	95,6	79,5	106,8	106,7
	Gas circuits	n.	1	2	1	2	1	2	1	2
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max unit operating current (FLA) A	142,2	142,2	161,7	161,7	178,3	178,3	210,5	208,3	309,1
	Unit starting current (LRA) A	386,8	386,8	453,7	453,7	470,3	470,3	455,1	431,8	601,1
	EER (1)	kW/kW	2,51	2,57	2,66	2,72	2,57	2,63	2,58	2,36
	COP (2)	kW/kW	2,67	4,06	3,45	3,44	3,37	3,35	3,37	3,22
	ESEER		3,53	3,26	3,81	3,46	3,66	3,35	4,02	3,66
OPTIONAL	Sound power level [Lw] (3)	dB(A)	90,6	90,6	88,6	88,6	90,4	90,4	91,2	92,9
	Average sound pressure level [Lp _m] (4)	dB(A)	72,0	72,0	69,3	69,3	71,1	71,1	71,9	73,6
	Net weight	kg	1600	1590	1650	1640	2050	2040	2220	2380
	Hydraulic connections									
	Plant exchanger IN/OUT - ISO 7/1 - R	Ø	--	--	--	--	--	--	--	--
	Plant exchanger IN/OUT - OD (5)	Ø mm	88,9	88,9	88,9	88,9	88,9	88,9	88,9	88,9
	Partial heat recovery (6)									
	Heating capacity kW	55,1	56,9	62,2	64,8	69,1	71,2	83,2	81,9	95,8
	Pumping group									
	1 pump - 2 poles electric motor	kW	2,2	2,2	4,0	4,0	4,0	4,0	4,0	4,0
LNO KIT 100%	2 pump - 2 poles electric motor	kW	3,0	3,0	5,5	5,5	5,5	5,5	5,5	5,5
	1 pump - 4 poles electric motor	kW	3,0	3,0	4,0	4,0	4,0	4,0	4,0	4,0
	2 pump - 4 poles electric motor	kW	3,0	3,0	4,0	4,0	4,0	4,0	4,0	4,0
	Water tank - volume l	520	520	720	720	720	720	720	720	720
	Summer working mode - Cooling capacity (1) kW	150,0	155,0	170,0	176,0	188,0	194,0	227,0	223,0	261,0
	Unit power input kW	59,8	60,3	63,9	64,7	73,2	73,8	88,0	94,5	109,2
	Winter working mode - Heating capacity (2) kW	182,0	195,0	215,0	215,0	238,0	238,0	280,0	288,0	333,0
	Unit power input kW	68,2	48,0	62,3	62,5	70,6	71,0	83,1	89,4	98,8
	Total air flow m³/h	55800	55800	60000	60000	66000	66000	69000	69000	69000
	EER (1)	kW/kW	2,51	2,57	2,66	2,72	2,57	2,63	2,58	2,36
	COP (2)	kW/kW	2,67	4,06	3,45	3,44	3,37	3,35	3,37	3,22
LNO KIT 85%	Sound power level [Lw] (3)	dB(A)	90,3	90,3	88,0	88,0	90,0	90,0	90,8	92,5
	Average sound pressure level [Lp _m] (4)	dB(A)	71,7	71,7	68,7	68,7	70,7	70,7	71,6	73,3
	Summer working mode - Cooling capacity (1) kW	146,0	151,0	165,0	172,0	183,0	189,0	220,0	216,0	252,0
	Unit power input kW	59,1	59,7	64,5	65,2	73,5	74,1	88,7	94,7	111,0
	Winter working mode - Heating capacity (2) kW	179,0	192,0	213,0	213,0	234,0	234,0	275,0	283,0	327,0
	Unit power input kW	65,6	45,6	60,5	60,7	68,2	68,6	80,2	86,3	95,6
	Total air flow m³/h	47430	47430	51000	51000	56100	56100	58650	58650	58650
	EER (1)	kW/kW	2,47	2,53	2,56	2,64	2,49	2,55	2,48	2,28
	COP (2)	kW/kW	2,73	4,21	3,52	3,51	3,43	3,41	3,43	3,28
	Sound power level [Lw] (3)	dB(A)	86,6	86,6	84,4	84,4	86,3	86,3	87,1	88,8
ELN KIT	Average sound pressure level [Lp _m] (4)	dB(A)	68,0	68,0	65,1	65,1	67,0	67,0	67,9	69,7
	Summer working mode - Cooling capacity (1) kW	141,0	146,0	159,0	166,0	176,0	182,0	210,0	207,0	238,0
	Unit power input kW	60,3	60,8	66,5	67,5	75,9	76,5	91,7	98,1	116,7
	Winter working mode - Heating capacity (2) kW	175,0	188,0	208,0	208,0	229,0	229,0	269,0	276,0	318,0
	Unit power input kW	63,9	43,8	59,3	59,4	66,4	67,0	78,4	83,9	93,5
	Total air flow	39060	39060	42000	42000	46200	46200	48300	48300	48300
	EER (1)	kW/kW	2,34	2,4	2,39	2,46	2,32	2,38	2,29	2,11
	COP (2)	kW/kW	2,74	4,29	3,51	3,50	3,45	3,42	3,43	3,29
	Sound power level [Lw] (3)	dB(A)	82,4	82,4	80,7	80,7	82,3	82,3	83,0	84,7
	Average sound pressure level [Lp _m] (4)	dB(A)	63,8	63,8	61,4	61,4	63,0	63,0	63,7	65,4

1. Referred to chilled water temperature 12/7°C; 35°C ambient air temperature according to Eurovent standard.
2. Referred to hot water outlet temperature 45°C; 7°C ambient temperature according to Eurovent standard.
3. Sound power level [Lw] according to ISO EN 9614 - 2.
4. Average sound pressure level [Lp_m] 1m far according to ISO EN 3744.
5. Hydraulic connection with grooved end. The flexible joint is an optional accessory.
6. Referred to chiller water temperature 12/7°C; 35°C ambient temperature and hot water temperature 40/45°C.

DIMENSIONS (mm)

SIZE C			
	a	b	c
C1	1250	890	2010
C2	1800	1040	2060
C3	2600	1200	2060
C4	3700	1260	2050
C5	4950	1260	2090

