Klimallco®
climate experience

# Air Cooled Condensing Units

KDC-**B** R407c
KDC-**C** R134a
KDC-**D** R410a

KDC


Klimallco sa Air Treatment Experts

## Outdoor Installation

Cooling capacity : 18.5 kW - 246.3 kW R407c

Cooling capacity : 19.1 kW - 240.9 kW R410a

Cooling capacity : 22.4 kW - 567.0 kW R134a

2019

# Contents



# 1. General Description

## Air Cooled Condensing Units

The KDC air cooled condensing unit series is available in cooling only versions able to cover a wide capacity range with models from 18.5 up to 567 kW.

The Klimallco KDC series covers all the technological and high aisthetic demands of the market. The units are ready to be installed with the corresponding indoor unit.

**Operating up to 52°C ambient temperature (R134a).**
**Assembly: Fully bolted/welding free**
**Compressor: Scroll, Tandem Scroll and Screw**
**Safety and functional devices:**
**- high/low pressure manometers or pressure transmitters**
**- service valves - pressure switches**
**- phase sequence - phase failure - reverse phase and voltage - monitoring device**
**- contactors, relays, fuses for fans and compressors**
**- digital controller.**

# 2. Technical Description

## General

The KDC-R series of Condensing rooftop units contains a wide range of units.

The new series fulfils both aesthetically and technically the latest market need for CONDENSING units.

The compact appearance of the units is the result of detailed study and design of Klimallco. These units thus offer

- Reduced external dimensions
- Simple construction method providing easy installation and access for maintenance
- Fittings to enable easy transport and on-site positioning

The units are constructed in one section, completely factory assembled, $N_2$ precharged, tested and ready for installation.

## Casing

Depending by the model and compressor type and size unit casing is constructed :

1. By heavy extruded Aluminum profiles, jointed together by means of special corner pieces made of solar radiation resistant glass reinforced polyamide, of excellent mechanical characteristics. The profiles are fixed on the corner pieces via galvanized allen head screws, that are completely hidden, thus creating an aesthetically perfect box.

2. By special designed metal parts fabricated from heavy gauge galvanized steel sheets, formed to ensure maximum rigidity that guarantees and preserves the units operation during the years. After fabrication all parts are degreased, phosphatised, and electro statically powder coated with an epoxy-polyester RAL 7042 coating of a thickness 60-70 μ. This fully automatic process ensures superior corrosion resistance against the most aggressive ambient conditions. The treatment can successfully withstand a salt spray test of 500 hours, according to ASTM B-117. All components are assembled together using bolts thus avoiding the need for welding which may harm the galvanization of the steel, and ensures that the whole assembly can fully withstand adverse weather conditions.

The compact footprint of the unit arises from detailed study and design by our engineering teams and results in a machine, which fits easily in restricted areas and is simple and easy to install and maintain.

Removable side panels are used to permit access only to authorized personnel to internal components of the unit for inspection and maintenance.

Electrical and electronic equipment and components for proper unit operation are located in a weather proof (IP 55) electrical panel with access only via a special key.

## Base Frame

The base frame height is from 100 up to 160mm and consist of heavy steel parts, epoxy or electrostatically powder coated and has been designed with special fittings for easy transport and lifting.

## Exchangers

All unit air heat exchangers are manufactured from high quality inner grooved copper tubes according to ASTM B-280, having an outside diameter of 9,52 mm (3/8"). The fins are manufactured from aluminum and form the secondary extended heat transfer surface. The fins are continuous across the heat exchanger and are fabricated in high precision dedicated press lines. The fin surface is waffle formed, so as to increase the fin rigidity, and have special louvers that help increase heat transfer. The combination of internally grooved Copper-tubing and louvered fins has resulted in a heat transfer performance 30% superior to that of a conventional coil for this particular application. The assembly of the finned pack is achieved by mechanical expansion of the tubes in such a way as to form a perfect mechanical bond with the fins. For this purpose, the fin holes have a peripheral extrusion (collar) of adjustable height. This extrusion serves to define the distance between fins (and consequently the total heat transfer surface) and to ensure perfect contact of the fins to the tubes. Alternative fin materials are available upon request such as epoxy – coated aluminum or copper for applications in especially aggressive environments.

The top-bottom casings as standard are made of galvanized steel. Side plates are of Aluminum. All coils are tested at 35 or 48 Bar depending of the refrigerant type. Units are factory pre charged by Nitrogen.

## Compressors

Depending by the unit model compressors are either SCROLL or SCREW type.

**SCROLL compressors** are low-noise, maintenance free with low vibration levels, specially optimized for use with all refrigerant, selected from world class suppliers. They are equipped with a crankcase electrical heater for the oil, and are internally protected against potential overloading or electrical spikes. The compressors are mounted on special anti-vibration rubber mounts to eliminate vibration to the unit's.

**SCREW compressors** are semi-hermetic, accessible and are designed for use with R134a refrigerant. The compression of the refrigerant is succeeded via twin screw shafts. The first

one is directly driven by the motor and the second one is driven by the first. As a result the refrigerant gets through the screws and compressed. The compressors consist of twin screws moving in opposite directions, specially made out of steel and are installed in a separate compartment from the electric motor. The original seating design of the twin screws in 11-B type ball bearings, constantly varying performance through an axial shaft that ensures not only long life but also high performance. Movement to the screws is transmitted direct connection through the induction motor. The 3 phase 2 pole induction motor is suitable for a 400V-50Hz network and does not require any heat dissipation as it is cooled by the refrigerant medium itself. The windings design does not require any additional external cooling. A reduced starting current startup configuration ensures minimum startup current. The compressors are equipped with continuous (stepless) capacity control system.

In continuous (stepless) capacity control system, a normally open solenoid valve and a normally closed solenoid valve are equipped to the inlet and outlet of the piston cylinder respectively. These two solenoid valves are controlled by the chiller micro controller, refrigeration capacity control can be modulated at anywhere within 25%-100%. The compressor is equipped with a special oil-separator ensuring the minimum possible lubricant circulation in the refrigerant circuit. Fitting lubrication is accomplished with effusion created by the pressure differential during normal operation, without the use of an additional mechanical pump. Compressors have been equipped with crankcase electrical heater for the oil, glass observation window for the oil level, an oil filter, with a designated cleaning / charging port, constant oil level control, and are internally protected by special thermistors against potential overheating or electrical spikes. Externally the compressor is equipped with a watertight IP-55 protected electrical panel, bearing all the necessary connections for operation and control.

Inside the electrical panel an installed microprocessor controls all the safety and operation features of the compressor.

In order to ensure correct operation, the compressor also features:

- High temperature sensor for the refrigerant medium (PT-100).
- High temperature sensor for induction motor windings (PT-100).
- Low oil level safety switch.
- Refrigerant gas suction filter- accessible.
- Discharge valve.
- Check valve in discharge line.
- Pressure safety setup ensuring the highly pressurized refrigerant gas is within safety limits.
- Additional cooling through the suction chamber via a thermo expansion valve when necessary, through refrigerant liquid spray ensuring temperatures are kept within designated limits.
- Special rubber pads to absorb noise from the unit's operation.

## Refrigerant Circuits

Each unit is equipped with one or two refrigerant circuits.

Each refrigerant circuit comprises of one or tandem scroll compressors or screw type compressor.

Each circuit includes standard suction and liquid line shut off valves, high and low pressure gauges or pressure transmitters, and high – low safety pressure switches. Screw compressors are equipped as standard with liquid injection plus solenoid valves and pressure relief valve on discharge chamber. Filter dryer, sight glass, solenoid valves are optional. Optional items are H.G.B.P with relative shut off valve and solenoid valve, H & L pressure transmitters. Unit protection devices are Manual reset H.P.S & Auto reset L.P.S.

## Fans

Condensing fans are of the axial type, directly coupled to single phase electric motor with external rotor, 6 poles, internally protected against potential overheating, silent and suitable for outdoor installation. Due to the sophisticated aerodynamic design of the blades and inlet cones, as well as the perfect static and dynamic balancing, their operation is completely vibration-free. Condenser fan motors are of the external rotor type, aerodynamically shaped so as not to interfere with the airflow. They have permanently lubricated bearings that do not require servicing. Continuous linear fan speed regulation is achieved according to condenser coil temperature, or upon request according to condensing pressure, including fan silent mode operation. Fan speed regulation for single phase motors is standard. Units equipped with three phase motors, regulation is optional. This future saves energy optimizing capacity and reduces sound levels.

## Electrical Board

Electrical and electronic equipment and components for proper unit operation are located in a weather proof (IP 55) electrical panel with access only via a special key.

The electrical board includes everything necessary for the control and protection of the unit as: Main disconnect switch, contactors, relays, circuit breakers for compressors and axial fans and transformer for secondary circuits.

Depending by the size and unit location electrical board is equipped with special ventilation inlet air fan and outlet air filter.

Control of the unit is via electronic programmable microprocessor. This control ensures complete management of all the functions of the unit and also ensures protection of all the unit's basic components as well as full diagnostics so that all possible malfunctions become immediately obvious to the user.

# 3. Technical Specifications

R407c

## KDC-**B**

| SXOD | | 20 | 30 | 42 | 48 | 58 | 66 | 82 | 100 | 115 | 135 | 165 | 195 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nominal Cooling Capacity** *1 | kw | **18,5** | **28,7** | **41,0** | **50,1** | **55,9** | **65,5** | **82,0** | **95,7** | **111,7** | **131,0** | **163,9** | **191,3** | **246,3** |
| | RT | 5,3 | 8,2 | 11,6 | 14,2 | 15,9 | 18,6 | 23,3 | 27,2 | 31,7 | 37,2 | 46,6 | 54,4 | 70,0 |
| | BTU/H | 63.000 | 97.875 | 139.708 | 170.714 | 190.411 | 223.241 | 279.416 | 326.107 | 380.823 | 446.482 | 558831,8 | 652.214 | 839.564 |
| Absorbed unit power | kW | 5,3 | 7,5 | 11 | 15 | 16,2 | 18,4 | 30,4 | 34,4 | 37,2 | 53,6 | 63,2 | 71,2 | 103,6 |
| Nominal unit operating current | kW | 11 | 15,5 | 21,6 | 29,2 | 31 | 34,8 | 48,4 | 60,2 | 62 | 74,8 | 91,6 | 115,2 | 132 |
| **Nominal Cooling Capacity** *2 | kw | 17,7 | 27,6 | 39,1 | 47,9 | 53,7 | 62,7 | 78,1 | 91,6 | 107,4 | 125,4 | 156,2 | 183,2 | 236,3 |
| | RT | 5,0 | 7,8 | 11,1 | 13,6 | 15,3 | 17,8 | 22,2 | 26,0 | 30,5 | 35,6 | 44,4 | 52,0 | 67,1 |
| | BTU/H | 60375 | 94125 | 133142 | 163418 | 183116 | 213757 | 266284 | 312245 | 366232 | 427514 | 532568 | 624491 | 805527 |
| Absorbed unit power | kW | 5,6 | 8,0 | 11,6 | 14,6 | 16,0 | 18,6 | 24,4 | 28,8 | 32,0 | 38,4 | 47,6 | 56,4 | 74,8 |
| Nominal unit operating current | A | 11,4 | 16,1 | 22,6 | 30,2 | 32,2 | 36,4 | 50,4 | 62,2 | 64,4 | 78,0 | 95,6 | 119,2 | 138,0 |
| **Nominal Cooling Capacity** *3 | kw | 17,3 | 26,7 | 37,8 | 46,4 | 52,0 | 61,0 | 75,5 | 88,6 | 104,0 | 122,0 | 151,1 | 177,2 | 229,6 |
| | RT | 4,9 | 7,6 | 10,7 | 13,2 | 14,8 | 17,3 | 21,5 | 25,2 | 29,5 | 34,7 | 42,9 | 50,3 | 65,2 |
| | BTU/H | 58875 | 91125 | 128765 | 158311 | 177280 | 207920 | 257530 | 302032 | 354559 | 415841 | 515059 | 604064 | 782836 |
| Absorbed unit power | kW | 5,9 | 8,3 | 12,2 | 15,2 | 16,6 | 19,2 | 25,6 | 30,0 | 33,2 | 39,6 | 50,0 | 58,8 | 78,0 |
| Nominal unit operating current | A | 11,8 | 16,6 | 23,3 | 31,2 | 33,2 | 37,6 | 51,8 | 63,8 | 66,4 | 80,4 | 98,4 | 122,4 | 142,8 |
| **Nominal Cooling Capacity** *4 | kw | 16,0 | 24,8 | 34,5 | 42,6 | 48,2 | 56,1 | 68,9 | 81,1 | 96,3 | 112,1 | 137,8 | 162,2 | 212,2 |
| | RT | 4,5 | 7,0 | 9,8 | 12,1 | 13,7 | 15,9 | 19,6 | 23,0 | 27,4 | 31,9 | 39,2 | 46,1 | 60,3 |
| | BTU/H | 54375 | 84375 | 117457 | 145180 | 164148 | 191141 | 234914 | 276498 | 328295 | 382282 | 469827 | 552995 | 723273 |
| Absorbed unit power | kW | 6,5 | 9,2 | 13,6 | 17,2 | 18,4 | 21,8 | 28,4 | 53,4 | 36,8 | 44,8 | 55,6 | 105,6 | 87,2 |
| Nominal unit operating current | A | 12,8 | 17,8 | 25,3 | 33,6 | 35,6 | 40,8 | 55,8 | 68,0 | 71,2 | 86,8 | 106,4 | 130,8 | 155,6 |
| **Bnmrsq| bshmm** | Material | Galvanized steel | | | | | | | | | | | |
| | Color | Grey (RAL 7042) | | | | | | | | | | | |
| **Compressor type** | | SCROLL | | | | | | | | | | | | |
| Quantity | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 4 | 4 |
| Capacity steps | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 4 | 4 |
| Crankcase heaters power | W | 70 | 70 | 70 | 140 | 140 | 140 | 140 | 140 | 280 | 280 | 280 | 280 | 280 |
| **Condenser** | | High capacity cross finned coil with internally finned tubes and louver fins | | | | | | | | | | | | |
| **Condenser fan type** | | Axial | | | | | | | | | | | | |
| Quantity | | 1 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 6 | 6 | 6 | 8 |
| Nominal air flow | m3/h | 9.500 | 9.500 | 9.500 | 19.000 | 19.000 | 19.000 | 38.000 | 38.000 | 38.000 | 57.000 | 57.000 | 57.000 | 76.000 |
| Speed | RPM | 860 | | | | | | | | | | | | |
| Absorbed power | kW | 0,60 | 0,60 | 0,60 | 1,20 | 1,20 | 1,20 | 2,40 | 2,40 | 2,40 | 3,60 | 3,60 | 3,60 | 4,80 |
| Nominal operating current | A | 2,6 | 2,6 | 2,6 | 5,2 | 5,2 | 5,2 | 10,4 | 10,4 | 10,4 | 15,6 | 15,6 | 15,6 | 20,8 |
| Cond. Motor electrical characteristics | | 240-1-50 | | | | | | | | | | | | |
| Unit electrical characteristics | | 400-3-50 | | | | | | | | | | | | |
| Total unit maximum operating current | A | 16 | 20 | 31 | 37 | 41 | 44 | 66 | 78 | 81 | 94 | 128 | 152 | 185 |
| Power cable cross section | mm² | 2,5 | 4 | 10 | 16 | 16 | 16 | 25 | 35 | 35 | 50 | 95 | 120 | 150 |
| Fuses | A | 3x20 | 3x25 | 3x40 | 3x50 | 3x50 | 3x63 | 3x80 | 3x100 | 3x100 | 3x125 | 3x160 | 3x200 | 3x200 |
| Voltage limits | V | 350-450 V | | | | | | | | | | | | |
| **Refrigerant circuit** | | 1 | | | 2 | | | | | | | | | |
| Expansion device | | Thermo expansion valves | | | | | | | | | | | | |
| Refrigerant type | | R407c | | | | | | | | | | | | |
| Pipe size (liquid) | inch | 1/2 | 5/8 | 5/8 | 1/2 | 5/8 | 5/8 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 | 1 1/8 | 1 1/8 |
| Pipe size (suction) | inch | 7/8 | 1 1/8 | 1 1/8 | 7/8 | 1 1/8 | 1 1/8 | 1 3/8 | 1 3/8 | 1 3/8 | 1 5/8 | 1 5/8 | 2 1/8 | 2 1/8 |
| Noise level at 3m | dbA | 57 | 59 | 59 | 62 | 62 | 62 | 66 | 66 | 66 | 68 | 68 | 68 | 70 |
| **Dimentions** | Length (mm) | 1.324 | 1.324 | 1.324 | 1.324 | 1.324 | 1.477 | 1.936 | 1.936 | 1.936 | 2.854 | 2.854 | 2.854 | 3.466 |
| | Width (mm) | 1.324 | 1.324 | 1.324 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 |
| | Height (mm) | 1664 | 1664 | 1664 | 1664 | 1970 | 1970 | 1970 | 2143 | 2143 | 2296 | 2449 | 2449 | 2.449 |
| **Weight** | kg | 280 | 290 | 320 | 360 | 390 | 450 | 570 | 650 | 800 | 950 | 1.050 | 1.150 | 1.600 |

## Notes

The above cooling capacities are based on the follow conditions:
*1.evaporating temperature 7°C,ambient temperature 35°C
*2.evaporating temperature 7°C,ambient temperature 38°C
*3.evaporating temperature 7°C,ambient temperature 40°C
*4.evaporating temperature 7°C,ambient temperature 45°C

1. Limits of operation Ambient +10 °C / +45 °C.
2. Given cables cross sections are only indicative and have been calculated for 40°C ambient. Always consult local regulations
3. Units are shipped factory wired, $N_2$ precharged and run tested.
4. All units are microprocessor controlled. Optional connection interface for BMS via modbus protocol is available.
5. Leave at least 1,5 m of distance from condenser inlet(s) and 2 m above condenser fans discharge
6. Do not install ducts and/or air silencers on condenser fans discharge.

| TYPE | | 20 | 30 | 42 | 48 | 58 | 66 | 82 | 100 | 115 | 135 | 165 | 195 | 250 | 265 | 320 | 340 | 400 | 460 | 500 | 550 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nominal Cooling Capacity** *1 | kw | **22,4** | **27,9** | **33,3** | **44,7** | **55,7** | **66,5** | **85,1** | **106,1** | **111,5** | **131,5** | **151,6** | **170,2** | **212,1** | **261,4** | **333,1** | **343,0** | **405,2** | **468,7** | **515,5** | **567,0** |
| | RT | 6,4 | 7,9 | 9,5 | 12,7 | 15,8 | 18,9 | 24,2 | 30,1 | 31,7 | 37,4 | 43,1 | 48,4 | 60,3 | 74,3 | 94,6 | 97,5 | 115,1 | 133,2 | 146,5 | 161,1 |
| | BTU/H | 76.214 | 94.991 | 113.400 | 152.427 | 189.982 | 226.800 | 290.127 | 361.555 | 379.964 | 448.445 | 516927,3 | 580.255 | 723.109 | 891238 | 1135776 | 1169657 | 1381787 | 1598335 | 1757944 | 1933470 |
| Absorbed unit power | kW | 15,3 | 8,6 | 10,88 | 14 | 17,2 | 22,4 | 27,6 | 33,6 | 34,4 | 44,8 | 50 | 55,2 | 67,2 | 66,8 | 85,6 | 87,8 | 100,4 | 115,4 | 124,6 | 139,4 |
| Nominal unit operating current | A | 15,3 | 21,4 | 23,2 | 30,6 | 42,8 | 45,8 | 55,4 | 61,6 | 85,6 | 91,6 | 101,2 | 110,8 | 123,2 | 108,8 | 140,2 | 143,6 | 165,2 | 189,6 | 203,2 | 223,4 |
| **Nominal Cooling Capacity** *2 | kW | 19,2 | 23,5 | 28,3 | 38,4 | 47,1 | 56,6 | 73,4 | 91,6 | 94,2 | 114,0 | 130,0 | 146,9 | 183,2 | 224,8 | 286,4 | 295,0 | 348,5 | 403,1 | 443,4 | 487,6 |
| | RT | 5,5 | 6,7 | 8,0 | 10,9 | 13,4 | 16,1 | 20,9 | 26,0 | 26,8 | 32,4 | 37,0 | 41,7 | 52,1 | 63,9 | 81,4 | 83,8 | 99,0 | 114,5 | 126,0 | 138,6 |
| | BTU/H | 65.554 | 80.285 | 96.489 | 131.108 | 160.570 | 192.979 | 250.430 | 312.301 | 321.140 | 388.904 | 443.409 | 500.861 | 624.603 | 766.464 | 976.767 | 1.005.905 | 1.188.336 | 1.374.568 | 1.511.832 | 1.662.784 |
| Absorbed unit power | kW | 6,8 | 8,9 | 10,9 | 13,6 | 17,8 | 21,8 | 28,0 | 34,8 | 35,6 | 41,8 | 49,8 | 56,0 | 69,6 | 81,5 | 104,4 | 111,5 | 122,5 | 140,8 | 152,0 | 170,1 |
| Nominal unit operating current | A | 13,2 | 17,3 | 23,3 | 26,4 | 34,6 | 46,6 | 56,0 | 64,6 | 69,2 | 72,8 | 102,6 | 112,0 | 129,2 | 130,6 | 168,2 | 175,2 | 198,2 | 227,5 | 243,8 | 268,1 |
| **Nominal Cooling Capacity** *3 | kw | 17,9 | 21,8 | 26,4 | 35,9 | 43,6 | 52,7 | 69,1 | 85,8 | 87,3 | 107,6 | 121,8 | 138,2 | 171,5 | 215,6 | 274,8 | 283,0 | 334,3 | 386,7 | 425,3 | 467,8 |
| | RT | 5,1 | 6,2 | 7,5 | 10,2 | 12,4 | 15,0 | 19,6 | 24,4 | 24,8 | 30,6 | 34,6 | 39,3 | 48,7 | 61,3 | 78,1 | 80,4 | 95,0 | 109,9 | 120,9 | 132,9 |
| | BTU/H | 61.134 | 74.393 | 89.860 | 122.269 | 148.785 | 179.721 | 235.699 | 292.414 | 297.570 | 366.807 | 415.420 | 471.398 | 584.829 | 735.271 | 937.015 | 964.967 | 1.139.974 | 1.318.627 | 1.450.304 | 1.595.113 |
| Absorbed unit power | kW | 7,4 | 9,7 | 11,8 | 14,8 | 19,4 | 23,6 | 30,6 | 38,0 | 38,8 | 45,4 | 54,2 | 61,2 | 76,0 | 92,2 | 108,7 | 105,4 | 127,5 | 146,6 | 149,5 | 177,0 |
| Nominal unit operating current | A | 13,9 | 18,2 | 24,2 | 27,8 | 36,4 | 48,4 | 61,0 | 68,4 | 72,8 | 77,4 | 109,4 | 122,0 | 136,8 | 148,0 | 175,3 | 179,5 | 206,5 | 237,0 | 254,0 | 279,3 |
| **Nominal Cooling Capacity** *4 | kw | 17,3 | 21,0 | 25,3 | 34,6 | 41,9 | 50,5 | 66,7 | 82,7 | 83,8 | 104,1 | 117,3 | 133,5 | 165,5 | 196,0 | 249,8 | 257,3 | 303,9 | 351,5 | 386,6 | 425,3 |
| | RT | 4,9 | 6,0 | 7,2 | 9,8 | 11,9 | 14,4 | 19,0 | 23,5 | 23,8 | 29,6 | 33,3 | 37,9 | 47,0 | 55,7 | 71,0 | 73,1 | 86,4 | 99,9 | 109,9 | 120,8 |
| | BTU/H | 58.925 | 71.446 | 86.178 | 117.850 | 142.893 | 172.355 | 227.597 | 282.102 | 285.785 | 355.022 | 399.952 | 455.194 | 564.205 | 668.428 | 851.832 | 877.243 | 1.036.340 | 1.198.751 | 1.318.458 | 1.450.103 |
| Absorbed unit power | kW | 7,7 | 10,1 | 12,3 | 15,4 | 20,2 | 24,6 | 31,8 | 39,6 | 40,4 | 47,2 | 56,4 | 63,6 | 79,2 | 92,2 | 118,1 | 121,2 | 138,6 | 159,3 | 169,5 | 192,4 |
| Nominal unit operating current | A | 14,2 | 18,8 | 24,7 | 28,4 | 37,6 | 49,4 | 64,0 | 70,4 | 75,2 | 79,6 | 113,4 | 128,0 | 140,8 | 148,0 | 190,7 | 195,3 | 224,7 | 259,8 | 276,4 | 310,5 |
| **Construction** | Material | Galvanized steel | | | | | | | | | | | | | | | | | | | |
| | Color | Grey (RAL 7042) | | | | | | | | | | | | | | | | | | | |
| **Compressor type** | | SCROLL | | | | | | | | | | | | | TWIN SCREW | | | | | | |
| Quantity | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Capacity steps | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 25/50-100% STEPLESS | | | | | | |
| Crankcase heaters power | W | 70 | 70 | 70 | 140 | 140 | 140 | 140 | 170 | 280 | 190 | 320 | 340 | 380 | 2x300 | | | | | | |
| **Condenser** | | High capacity cross finned coil with internally finned tubes and louver fins | | | | | | | | | | | | | | | | | | | |
| **Condenser fan type** | | Axial | | | | | | | | | | | | | | | | | | | |
| Quantity | | 1 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 6 | 6 | 6 | 8 | 6 | 6 | 6 | 8 | 8 | 10 | 10 |
| Nominal air flow | $m^3/h$ | 9.500 | 9.500 | 9.500 | 19.000 | 19.000 | 19.000 | 38.000 | 38.000 | 38.000 | 57.000 | 57.000 | 57.000 | 76.000 | 114000 | 114000 | 114000 | 152000 | 152000 | 190000 | 190000 |
| Speed | RPM | 860 | | | | | | | | | | | | | 900 | | | | | | |
| Absorbed power | kW | 0,60 | 0,60 | 0,60 | 1,20 | 1,20 | 1,20 | 2,40 | 2,40 | 2,40 | 3,60 | 3,60 | 3,60 | 4,80 | 9,0 | 9,0 | 9,0 | 12,0 | 12,0 | 15,0 | 15,0 |
| Nominal operating current | A | 2,6 | 2,6 | 2,6 | 5,2 | 5,2 | 5,2 | 10,4 | 10,4 | 10,4 | 15,6 | 15,6 | 15,6 | 20,8 | 31,5 | 31,5 | 31,5 | 42,0 | 42,0 | 52,5 | 52,5 |
| Cond. Motor electrical characteristics | | 240-1-50 | | | | | | | | | | | | | 400-3-50 | | | | | | |
| Unit electrical characteristics | | 400-3-50 | | | | | | | | | | | | | | | | | | | |
| Total unit maximum operating current | A | 22 | 31 | 37 | 43 | 61 | 73 | 92 | 114 | 122 | 141 | 166 | 180 | 229 | 218 | 256 | 284 | 324 | 368 | 407 | 447 |
| Power cable cross section | $mm^2$ | 6 | 10 | 16 | 16 | 16 | 25 | 35 | 70 | 70 | 95 | 120 | 120 | 240 | 185 | 240 | 300 | 2x120 | 2x150 | 2x150 | 2x185 |
| Fuses | A | 3x25 | 3x40 | 3x50 | 3x63 | 3x80 | 3x80 | 3x100 | 3x160 | 3x160 | 3x160 | 3x200 | 3x200 | 3x250 | 3x250 | 3x300 | 3x300 | 3x400 | 3x400 | 3x630 | 3x630 |
| Voltage limits | V | 360-450 V | | | | | | | | | | | | | | | | | | | |
| **Refrigerant circuit** | | 1 | | | 2 | | | | | | | | | | | | | | | | |
| Expansion device | | Thermo expansion valves | | | | | | | | | | | | Electronic expansion valves | | | | | | | |
| Refrigerant type | | R134A | | | | | | | | | | | | | | | | | | | |
| Pipe size (liquid) | inch | 1/2 | 5/8 | 5/8 | 1/2 | 5/8 | 5/8 | 7/8 | 7/8 | 7/8 | 7/8 | 7/8 | 1 1/8 | 1 1/8 | 1 1/8 | 1 1/8 | 1 1/8 | 1 3/8 | 1 3/8 | 1 3/8 | 1 3/8 |
| Pipe size (suction) | inch | 1 1/8 | 1 3/8 | 1 3/8 | 1 1/8 | 1 3/8 | 1 3/8 | 1 5/8 | 1 5/8 | 1 5/8 | 1 5/8 | 2 1/8 | 2 1/8 | 2 1/8 | 2 5/8 | 2 5/8 | 2 5/8 | 3 1/8 | 3 1/8 | 3 1/8 | 3 1/8 |
| Noise level at 3m | dbA | 57 | 59 | 59 | 61 | 61 | 62 | 63 | 63 | 63 | 68 | 68 | 68 | 69 | 71 | 71 | 72 | 74 | 74 | 76 | 76 |
| **Dimentions** | Length (mm) | 1.324 | 1.324 | 1.324 | 1.324 | 1.324 | 1.477 | 1.936 | 1.936 | 1.936 | 2.854 | 2.854 | 2.854 | 3.466 | 4.200 | 4.200 | 4.200 | 5.500 | 5.500 | 6.800 | 6.800 |
| | Width (mm) | 1.324 | 1.324 | 1.324 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 1.783 | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 |
| | Height (mm) | 1664 | 1664 | 1664 | 1664 | 1970 | 1970 | 1970 | 2143 | 2143 | 2296 | 2449 | 2449 | 2.449 | 2.400 | 2.400 | 2.400 | 2.440 | 2.440 | 2.460 | 2.460 |
| **Weight** | kg | 320 | 340 | 380 | 420 | 440 | 480 | 620 | 710 | 860 | 1.050 | 1.200 | 1.250 | 1.800 | 3.600 | 3.800 | 4.100 | 4.500 | 4.600 | 5.100 | 5.200 |

## Notes

The above cooling capacities are based on the follow conditions:
*1.evaporating temperature 7°C,ambient temperature 35°C
*2.evaporating temperature 7°C,ambient temperature 46°C
*3.evaporating temperature 7°C,ambient temperature 50°C
*4.evaporating temperature 7°C,ambient temperature 52°C

1. Limits of operation Ambient +10 °C / +52 °C.
2. Given cables cross sections are only indicative and have been calculated for 40°C ambient. Always consult local regulations
3. Units are shipped factory wired, $N_2$ precharged and run tested.
4. All units are microprocessor controlled. Optional connection interface for BMS via modbus protocol is available.
5. Leave at least 1,5 m of distance from condenser inlet(s) and 2 m above condenser fans discharge
6. Do not install ducts and/or air silencers on condenser fans discharge.

R410a

## KDC-**D**

| SXOD | | 20 | 30 | 42 | 48 | 58 | 66 | 82 | 100 | 115 | 135 | 165 | 195 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Nominal Cooling Capacity** *1 | kw | **19,1** | **28,5** | **40,4** | **47,1** | **55,4** | **64,8** | **80,9** | **95,2** | **110,9** | **129,7** | **161,8** | **190,5** | **240,9** |
| | RT | 5,4 | 8,1 | 11,5 | 13,4 | 15,7 | 18,4 | 23,0 | 27,1 | 31,5 | 36,8 | 46,0 | 54,1 | 68,4 |
| | BTU/H | 65.250 | 97.125 | 137.884 | 160.500 | 188.952 | 221.052 | 275.768 | 324.648 | 377.905 | 442.105 | 551.536 | 649.295 | 821.127 |
| Absorbed unit power | kW | 5,7 | 7,7 | 11,1 | 14,8 | 16,6 | 19 | 30,6 | 34,2 | 38 | 54,8 | 63,6 | 70,8 | 102,4 |
| Nominal unit operating current | kW | 11,5 | 16,2 | 20,8 | 27,2 | 32,4 | 37,2 | 46,8 | 57 | 64,8 | 79,6 | 88,4 | 108,8 | 132 |
| **Nominal Cooling Capacity** *2 | kw | 18,3 | 27,3 | 38,5 | 44,9 | 53,1 | 62,1 | 77,0 | 90,7 | 106,1 | 124,1 | 154,1 | 181,5 | 229,6 |
| | RT | 5,2 | 7,8 | 10,9 | 12,8 | 15,1 | 17,6 | 21,9 | 25,8 | 30,2 | 35,3 | 43,8 | 51,6 | 65,2 |
| | BTU/H | 62.250 | 93.000 | 131.318 | 153.205 | 180.927 | 211.568 | 262.636 | 309.327 | 361.855 | 423.136 | 525.273 | 618.655 | 782.836 |
| Absorbed unit power | kW | 6,1 | 8,2 | 11,8 | 14,4 | 16,4 | 19 | 24,8 | 28,4 | 32,8 | 39,2 | 48,4 | 55,6 | 72,8 |
| Nominal unit operating current | A | 12,1 | 16,8 | 21,8 | 28,2 | 33,6 | 38,6 | 48,8 | 59,2 | 67,2 | 82,4 | 92,4 | 113,2 | 138 |
| **Nominal Cooling Capacity** *3 | kw | 17,6 | 26,4 | 37,2 | 43,4 | 51,4 | 60,1 | 74,5 | 87,7 | 102,7 | 120,3 | 148,9 | 175,5 | 222,6 |
| | RT | 5,0 | 7,5 | 10,6 | 12,3 | 14,6 | 17,1 | 21,2 | 24,9 | 29,2 | 34,2 | 42,3 | 49,9 | 63,2 |
| | BTU/H | 60.000 | 90.000 | 126.941 | 148.098 | 175.091 | 205.002 | 253.882 | 299.114 | 350.182 | 410.005 | 507.764 | 598.227 | 758.727 |
| Absorbed unit power | kW | 6,3 | 8,6 | 12,3 | 15 | 17,2 | 19,8 | 25,8 | 29,6 | 34,4 | 40,8 | 50,4 | 58 | 76 |
| Nominal unit operating current | A | 12,4 | 17,2 | 22,5 | 28,8 | 34,4 | 39,6 | 50,2 | 60,8 | 68,8 | 84,4 | 95,2 | 116,4 | 142 |
| **Nominal Cooling Capacity** *4 | kw | 16,4 | 24,6 | 34,5 | 40,4 | 47,9 | 56,1 | 68,9 | 81,5 | 95,9 | 112,1 | 137,8 | 163,1 | 207,6 |
| | RT | 4,7 | 7,0 | 9,8 | 11,5 | 13,6 | 15,9 | 19,6 | 23,2 | 27,2 | 31,9 | 39,2 | 46,3 | 59,0 |
| | BTU/H | 55.875 | 84.000 | 117.457 | 137.884 | 163.418 | 191.141 | 234.914 | 277.957 | 326.836 | 382.282 | 469.827 | 555.914 | 707.673 |
| Absorbed unit power | kW | 6,9 | 9,3 | 13,4 | 16,2 | 18,6 | 21,8 | 28 | 32 | 37,2 | 44,8 | 54,8 | 62,8 | 82,8 |
| Nominal unit operating current | A | 13,3 | 18,2 | 24,1 | 30,4 | 36,4 | 41,6 | 53,4 | 64,4 | 72,8 | 88,4 | 101,6 | 123,6 | 150,8 |
| **Bnmrsqj bshnm** | Material | Galv anized steel | | | | | | | | | | | | |
| | Color | Grey (RAL 7042) | | | | | | | | | | | | |
| **Compressor type** | | SCROLL | | | | | | | | | | | | |
| Quantity | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 4 | 4 |
| Capacity steps | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 4 | 4 |
| Crankcase heaters power | W | 70 | 70 | 70 | 140 | 140 | 140 | 140 | 140 | 280 | 280 | 280 | 280 | 280 |
| **Condenser** | | High capacity cross finned coil with internally finned tubes and louv er fins | | | | | | | | | | | | |
| **Condenser fan type** | | Axial | | | | | | | | | | | | |
| Quantity | | 1 | 1 | 1 | 2 | 2 | 2 | 4 | 4 | 4 | 6 | 6 | 6 | 8 |
| Nominal air flow | $m^3/h$ | 9.500 | 9.500 | 9.500 | 19.000 | 19.000 | 19.000 | 38.000 | 38.000 | 38.000 | 57.000 | 57.000 | 57.000 | 76.000 |
| Speed | RPM | 860 | 861 | 862 | 863 | 864 | 865 | 866 | 867 | 868 | 869 | 870 | 871 | 872 |
| Absorbed power | kW | 0,60 | 0,60 | 0,60 | 1,20 | 1,20 | 1,20 | 2,40 | 2,40 | 2,40 | 3,60 | 3,60 | 3,60 | 4,80 |
| Nominal operating current | A | 2,60 | 2,60 | 2,60 | 5,20 | 5,20 | 5,20 | 10,40 | 10,40 | 10,40 | 15,60 | 15,60 | 15,60 | 20,80 |
| Cond. Motor electrical characteristics | | 240-1-50 | | | | | | | | | | | | |
| Unit electrical characteristics | | 400-3-50 | | | | | | | | | | | | |
| Total unit maximum operating current | A | 18 | 21 | 34 | 38 | 42 | 48 | 72 | 78 | 83 | 102 | 140 | 152 | 181 |
| Power cable cross section | $mm^2$ | 4 | 6 | 10 | 16 | 16 | 16 | 25 | 35 | 50 | 50 | 95 | 120 | 150 |
| Fuses | A | 3x25 | 3x32 | 3x40 | 3x50 | 3x50 | 3x63 | 3x80 | 3x100 | 3x100 | 3x125 | 3x160 | 3x200 | 3x200 |
| Voltage limits | V | 350-450 V | | | | | | | | | | | | |
| **Refrigerant circuit** | | 1 | | | 2 | | | | | | | | | |
| Expansion dev ice | | Thermo expansion v alv es | | | | | | | | | | | | |
| Refrigerant type | | R410A | | | | | | | | | | | | |
| Pipe size (liquid) | inch | 1/2 | 5/8 | 3/4 | 1/2 | 5/8 | 5/8 | 5/8 | 7/8 | 7/8 | 7/8 | 1 1/8 | 1 1/8 | 1 1/8 |
| Pipe size (suction) | inch | 3/4 | 7/8 | 1 1/8 | 7/8 | 7/8 | 1 1/8 | 1 1/8 | 1 1/8 | 1 1/8 | 1 3/8 | 1 3/8 | 1 5/8 | 1 5/8 |
| Noise lev el at 3m | dbA | 57 | 59 | 59 | 62 | 62 | 62 | 66 | 66 | 66 | 68 | 68 | 68 | 70 |
| **Dimentions** | Length (mm) | 1324 | 1324 | 1324 | 1324 | 1324 | 1477 | 1936 | 1936 | 1936 | 2854 | 2854 | 2854 | 3466 |
| | Width (mm) | 1324 | 1324 | 1324 | 1783 | 1783 | 1783 | 1783 | 1783 | 1783 | 1783 | 1783 | 1783 | 1783 |
| | Height (mm) | 1664 | 1664 | 1664 | 1664 | 1770 | 1970 | 1970 | 2143 | 2143 | 2296 | 2449 | 2449 | 2449 |
| **Weight** | kg | 280 | 290 | 320 | 360 | 390 | 450 | 570 | 650 | 800 | 950 | 1.050 | 1.150 | 1.600 |

## Notes

The above cooling capacities are based on the follow conditions:
*1.evaporating temperature 7°C,ambient temperature 35°C
*2.evaporating temperature 7°C,ambient temperature 38°C
*3.evaporating temperature 7°C,ambient temperature 40°C
*4.evaporating temperature 7°C,ambient temperature 45°C

1. Limits of operation Ambient +10 °C / +45 °C.
2. Given cables cross sections are only indicative and have been calculated for 40°C ambient. Always consult local regulations
3. Units are shipped factory wired, $N_2$ precharged and run tested.
4. All units are microprocessor controlled. Optional connection interface for BMS via modbus protocol is available.
5. Leave at least 1,5 m of distance from condenser inlet(s) and 2 m above condenser fans discharge
6. Do not install ducts and/or air silencers on condenser fans discharge.

Klimallco®
climate experience

KLIMALLCO's units comply with the European regulations, that guarantee the safety of the product.

KDC

klimallco sa Air Treatment Experts


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CERTIFIED LR
ISO 9001 · ISO 14001

KLIMALLCO's quality management system is certified according to **ISO 9001:2015** and **ISO 14001:2015** for:
Design, manufacturing and trading of air conditioning equipment.

Technical Data
2019