

MDH / BDH / MDF / BDF series

condensing units

intarbox *centrifugal*

Air-cooled centrifugal condensing units from 1/2 to 5 HP, with inbuilt control board and electronic or electromechanical versions.

Sigilus

Air-cooled low noise condensing units from 1/2 to 10 HP for outdoor installation, with inbuilt control board and electronic or electromechanical versions.

*Due to their triple acoustic insulation, **Sigilus** condensing units are found among the most silent units in the market and, due to their tropicalised design, they can operate under extreme ambient temperature up to 50 °C.*



*Air-cooled low noise condensing units **Sigilus-multi** up to 10 HP, and air-cooled centrifugal condensing units **intarbox-multi** up to 5 HP, featuring **VRC system** for cooling capacity modulation to centralize the cooling production of a set of evaporating units.*

- ✦ Centrifugal motor-fan.
 - ✦ Inbuilt power board.
 - ✦ Electronic control with remote keyboard for evaporating unit control (as an option).
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- ✦ Tropicalised design for ambient temperature up to 50 °C.
 - ✦ Triple acoustic insulation.
 - ✦ Inbuilt power board.
 - ✦ Electronic control with remote keyboard for evaporating unit control (as an option).
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- ✦ VRC system for gradual cooling capacity regulation from 100% to 10% of nominal capacity.

intarbox

Description

Air-cooled condensing units for positive and negative temperature applications, featuring centrifugal condensing fan.

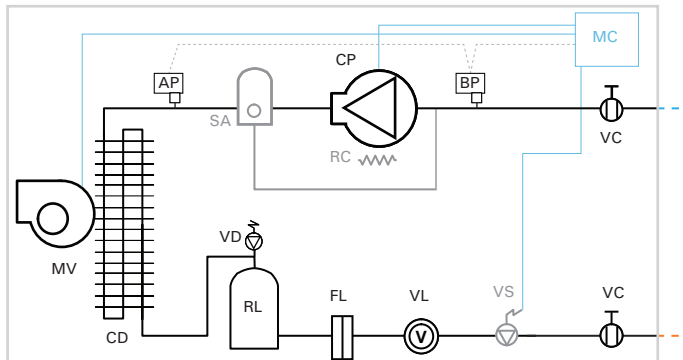
Features

- R-404A refrigerant.
- Hermetic reciprocating compressor, mounted on shock absorbers, with discharge muffler (series 3 and 4) and internal klixon.
- Condensing coil made in copper pipes and aluminium fins.
- Centrifugal motor-fan with available static pressure for a ducted outlet of condenser's hot air.
- Refrigeration circuit equipped with high and low pressure switches, ceramic dehydratant filter, liquid receiver and sight glass.
- Electrical power panel with MCB switch for compressor and motor-fan.
- Digital control of condensing pressure (series 1 to 3) and proportional control of condensing pressure (series 4).

As an option

- Oil separator.
- Crankcase heater.
- Inbuilt solenoid valve.
- Anti-corrosion coil coating.
- Back-flow damper in fan outlet.
- Rectangular to circular duct adaptor.

Refrigeration scheme



STANDARD FEATURES

- CP: COMPRESSOR
MV: CENTRIFUGAL MOTOR-FAN
CD: CONDENSER
FL: DEHYDRATANT FILTER
VL: SIGHT GLASS
RL: LIQUID RECEIVER
VD: SAFETY VALVE
VC: 3-WAY SERVICE VALVE
(connections up to 3/4")

ELECTRONIC VERSION FEATURES (MDH-CF AND BDH-CF SERIES)

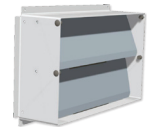
MC: ELECTRONIC MICRO-CONTROLLER

AS AN OPTION

- SA: OIL SEPARATOR
RC: CRANKCASE HEATER
VS: SOLENOID VALVE

Back-flow damper (as an option)

A back-flow damper in each unit allows the connection of all extraction air outlets to a common duct.



MDH-CF and BDH-CF series (electronic version)

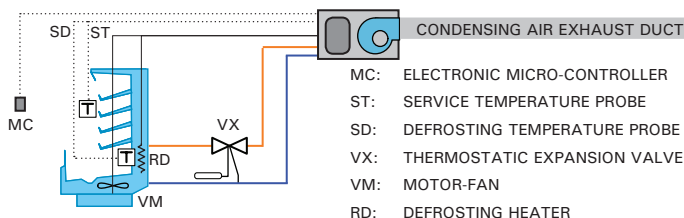
intarbox condensing units, in their electronic version, feature an advanced XWING electronic controller as standard, to control both, condensing and evaporating units. They feature an inbuilt solenoid valve as an option.



- Inbuilt Electronic board with 6 relays to control: compressor, centrifugal condensing fan, liquid solenoid valve, evaporating fan, defrosting and alarm signal.
- Multifunctional electronic keyboard.

Installation electronic version

intarbox condensing units, in their electronic version, are designed to give service to an evaporating unit, with the possibility as an option of including every regulation and control element, except for the thermostatic expansion valve.



MDH-CMF and BDH-CMF series (electromechanical version)

intarbox condensing units, in their electromechanical version, are designed for on/off operation according to low suction pressure (pump down), so the installation is much more simple with no wiring from the condensing unit to the evaporating unit/s.

Sigilus

Description

Air-cooled low-noise condensing units for positive and negative temperature applications, featuring hermetic reciprocating compressor with noise insulation, compact condensing coil and low-speed axial motor-fan.

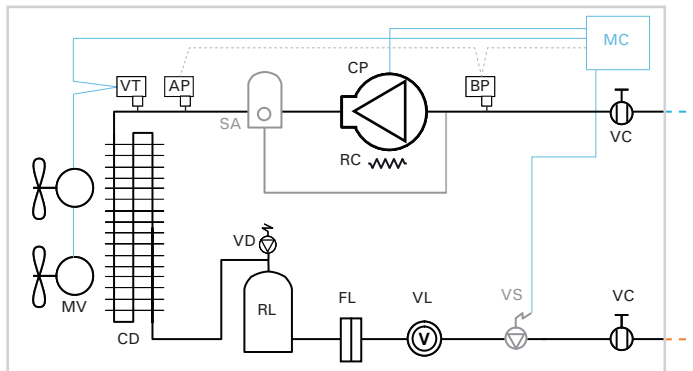
Features

- R-404A refrigerant.
- Hermetic reciprocating compressor, mounted on shock absorbers, with discharge muffler (from 1 HP models), crankcase heater and internal klixon.
- Large-area condensing coil made in copper pipes and aluminium fins, tropicalised for ambient temperature up to 50 °C.
- Low-speed motor-fans, mounted on nozzles, dynamically balanced blades and external protection grille.
- Proportional control of condensing temperature by fan speed control (except for models up to 1034).
- Refrigeration circuit equipped with high and low pressure switches, ceramic dehydratant filter, liquid receiver and sight glass.
- Electrical power panel with protection for compressor and motor-fan.

As an option

- Oil separator.
- Inbuilt solenoid valve.
- Anti-corrosion coil coating.
- Coil protection grille.
- Proportional control of condensing temperature by fan speed control (for models up to 1034).

Refrigeration scheme



Large area L-shaped condensing coil

Antivibratory structure to hold the motor-fan

Low-speed and low-noise axial motor-fan

Acoustic insulated compressor compartment

Electrical power panel with protection

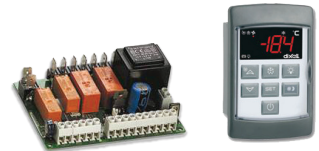
Proportional control of condensing temperature by fan speed control

Discharge muffler

Noise insulated hermetic reciprocating compressor

MDF-NF and BDF-NF series (electronic version)

Sigilus condensing units, in their electronic version, feature an advanced XWING electronic controller as standard, to control both, condensing and evaporating units. They feature an inbuilt solenoid valve as an option.



- Inbuilt Electronic board with 6 relays to control: compressor, centrifugal condensing fan, liquid solenoid valve, evaporating fan, defrosting and alarm signal.
- Multifunctional electronic keyboard.

MDF-MF and BDF-MF series (electromechanical version)

Sigilus condensing units, in their electromechanical version, are designed for on/off operation according to low suction pressure (pump down), so the installation is much more simple with no wiring from the condensing unit to the evaporating unit/s.

Oil separator (As an option)

Sigilus condensing units, when connected to a single evaporating unit, do not usually need an oil separator. Nevertheless, it is recommended for large piping length (>30m), and in every case it is necessary an adequate circuit design to guarantee the oil return.

STANDARD FEATURES

- CP: COMPRESSOR
- MV: AXIAL MOTOR-FAN
- CD: CONDENSER
- FL: DEHYDRATANT FILTER
- VL: SIGHT GLASS
- RL: LIQUID RECEIVER
- RC: CRANKCASE HEATER
- VC: SERVICE VALVE
- VD: SAFETY VALVE (from 1 HP compressor power)
- VT: VOLTAGE REGULATOR
- AP: HIGH PRESSURE SWITCH
- BP: LOW PRESSURE SWITCH

ELECTRONIC VERSION FEATURES (MDF-NF AND BDF-NF SERIES)

- MC: ELECTRONIC MICRO-CONTROLLER

AS AN OPTION

- SA: OIL SEPARATOR
- VS: SOLENOID VALVE

Multi-service condensing units

Description

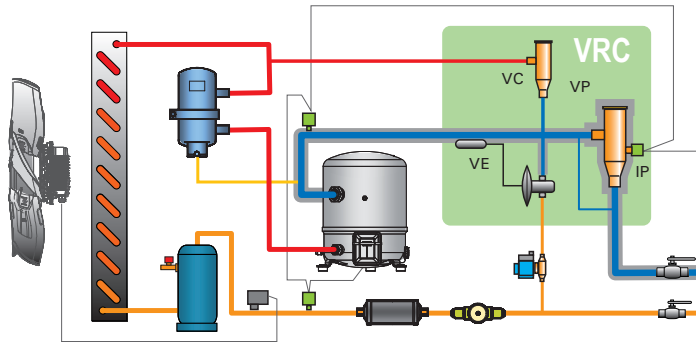
Multi-service air-cooled condensing units featuring VRC system (Variable Refrigerant Capacity) for cooling capacity adaptation to the installation needs on hermetic reciprocating compressors, composed by:

- Suction pressure valve (VP).
- By-pass pressure valve (VC).
- Thermostatic expansion valve for liquid injection (VE).
- Pressure control switch (IP).

Versions of the multi-service condensing units:

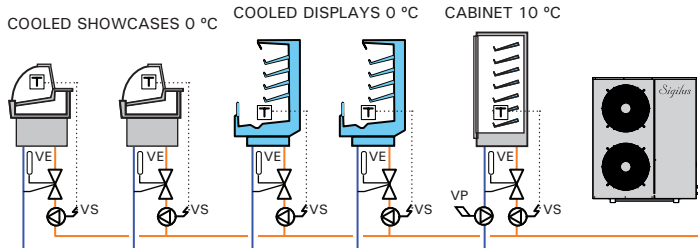
- Sigilus-multi series MDF-VF and BDF-VF.
- intarbox-multi series MDH-CVF and BDH-CVF.
- intarPACK centrifugal series MDV-CVF 5 and BDV-CVF 5.

Principle scheme



Installing example

Multi-service condensing units are specifically designed for cooling production centralization of a set of positive or negative temperature evaporating units.



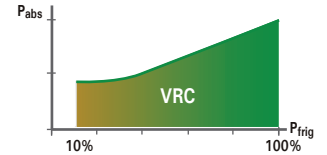
T: THERMOSTAT
VE: EXPANSION VALVE
VS: SOLENOID VALVE
VP: CONSTANT PRESSURE VALVE

Quick selection chart

	Low-noise axial version	Centrifugal version	Compressor (HP)	Showcase length (500 W/ml)		Display length (1.500 W/ml)
				Total	Smaller service	
POSITIVE TEMPERATURE	MDF-VF-1038		1 ³ / ₄	5,0 - 6,0 m	1 m	2,0 - 2,5 m
	MDF-VF-2048	MDH-CVF-4048	2	6,0 - 7,5 m	1 m	2,5 - 3,0 m
	MDF-VF-2054	MDH-CVF-4054	2 ¹ / ₄	7,0 - 9,0 m	1 m	3,0 - 3,5 m
	MDF-VF-2060	MDH-CVF-4060	3	8,5 - 10 m	1,5 m	3,5 - 4,0 m
	MDF-VF-2068	MDH-CVF-4068	3 ¹ / ₂	10 - 12 m	1,5 m	4,0 - 5,0 m
	MDF-VF-3086	MDV-CVF-50097	4	12 - 16 m	2 m	4,5 - 6,0 m
	MDF-VF-3108	MDV-CVF-50109	5	16 - 20 m	2,5 m	5,5 - 7,5 m
		MDV-CVF-50120	6	18 - 22 m	2 m	6,0 - 8,0 m
		MDV-CVF-50137	6 ¹ / ₂	20 - 24 m	2,5 m	7,0 - 9,0 m
	NEGATIVE TEMP.	BDF-VF-1086		3	6,5 - 8,0 m	1,0 m
BDF-VF-2096			3 ¹ / ₂	8,0 - 10 m	1,5 m	-
BDF-VF-2108		BDH-CVF-4108	4 ¹ / ₄	10 - 12 m	1,5 m	-
BDF-VF-2136		BDH-CVF-4136	5	12 - 15 m	2,0 m	-
BDF-VF-3215		BDV-CVF-50192	7 ¹ / ₂	15 - 20 m	2,5 m	-
		BDV-CVF-50216	8 ¹ / ₂	18 - 22 m	2,5 m	-
		BDV-CVF-50272	10	20 - 25 m	2,5 m	-

VRC system: Variable Refrigerant Capacity

The VRC system with one only hermetic reciprocating compressor adjusts the refrigerant flow to the demand of the evaporating units, keeping constant the pressure in suction line.

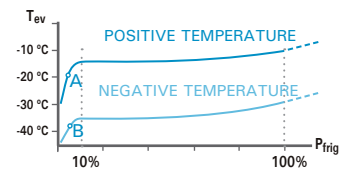


The VRC system is composed by a set of pressure and temperature regulation valves able to progressively change compressor's cooling capacity from 100% to 10% of its nominal capacity, while reducing the absorbed electrical power and protects the compressor as its operation is kept between its safety margins for avoiding reheating risk.

VRC system features:

- exclusively composed by mechanical components with great reliability,
- it keeps constant the evaporation pressure,
- it protects the compressor from motor reheat risk,
- it keeps the compressing ratio between the secure operating margins.

Condensing units, equipped with VRC system, are able to centralize the cooling production of several services, keeping constant the refrigerant pressure and temperature in every evaporating unit.



VRC system can be easily set for a minimum evaporation pressure. Our factory settings give the following minimum evaporation temperatures:

- positive temperature units: -13 °C
- negative temperature units: -35 °C

When the cooling demand is under 10% of the nominal capacity, the evaporation pressure curve falls to the minimum value allowed by the compressor, switching the low pressure switch off (A and B points) and switching off the compressor.

VRC system condensing units are designed to switch on and off the unit depending on the low pressure value (pump-down).

The compressor run can be also controlled by an external on/off switch.

Different temperature evaporating units

When there are several services operating at different temperature values in the same refrigeration circuit, the evaporating units operating at higher temperature should be equipped with constant pressure valves (VP) in their suction lines.