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.

**intarbox centrifugal**

Air-cooled centrifugal condensing units from 1/2 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).

- 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).

- VRC system for gradual cooling capacity regulation from 100% to 10% of nominal capacity.
innovative refrigeration solutions

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

Installation electronic version
interbox condensing units, in their electronic version, are designed to give service to an evaporating unit, with the possibilt as an option of including every regulation and control element, except for the thermostatic expansion 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)
interbox condensing units, in their electronic version, feature an advanced XWING electronic controller as standard, to control both, condensing and evaporating units. They feautre an inbuilt solenoid valve as an option.

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

MDH-CMF and BDH-CMF series (electromechanical version)
interbox 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 units.
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**

**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
- RL: LIQUID RECEIVER
- RC: CRANKCASE HEATER
- VC: SERVICE VALVE
- VD: SAFETY VALVE

**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.

Quick selection chart

<table>
<thead>
<tr>
<th>Low-noise axial version</th>
<th>Centrifugal version</th>
<th>Compressor (HP)</th>
<th>Showcase length (500 W/lin)</th>
<th>Display length (1,500 W/lin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-pressure service</td>
<td>Total</td>
<td>Smaller service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDF-VF-103B</td>
<td>1/2</td>
<td>5.0 - 6.0 m</td>
<td>1 m</td>
<td>2.0 - 2.5 m</td>
</tr>
<tr>
<td>MDF-VF-2048</td>
<td>2</td>
<td>6.0 - 7.5 m</td>
<td>1 m</td>
<td>2.5 - 3.0 m</td>
</tr>
<tr>
<td>MDF-VF-2054</td>
<td>2/3</td>
<td>7.0 - 9.0 m</td>
<td>1 m</td>
<td>3.5 - 4.0 m</td>
</tr>
<tr>
<td>MDF-VF-2060</td>
<td>3</td>
<td>8.5 - 10 m</td>
<td>1.5 m</td>
<td>4.0 - 5.0 m</td>
</tr>
<tr>
<td>MDF-VF-3086</td>
<td>3/4</td>
<td>10 - 12 m</td>
<td>1.5 m</td>
<td>5.0 - 6.0 m</td>
</tr>
<tr>
<td>MDF-VF-3108</td>
<td>4</td>
<td>12 - 16 m</td>
<td>2 m</td>
<td>6.5 - 7.5 m</td>
</tr>
<tr>
<td>MDF-VF-4136</td>
<td>5</td>
<td>16 - 20 m</td>
<td>2.5 m</td>
<td>8.0 - 9.5 m</td>
</tr>
<tr>
<td>BDF-VF-1086</td>
<td>3</td>
<td>6.5 - 8.0 m</td>
<td>1.0 m</td>
<td>-</td>
</tr>
<tr>
<td>BDF-VF-2096</td>
<td>3/2</td>
<td>8.0 - 10 m</td>
<td>1.5 m</td>
<td>-</td>
</tr>
<tr>
<td>BDF-VF-2108</td>
<td>4/3</td>
<td>10 - 12 m</td>
<td>1.5 m</td>
<td>-</td>
</tr>
<tr>
<td>BDF-VF-2136</td>
<td>5</td>
<td>12 - 14 m</td>
<td>2.0 m</td>
<td>-</td>
</tr>
<tr>
<td>BDF-VF-3215</td>
<td>7/2</td>
<td>15 - 20 m</td>
<td>2.5 m</td>
<td>-</td>
</tr>
<tr>
<td>BDF-VF-50216</td>
<td>8/2</td>
<td>18 - 22 m</td>
<td>2.5 m</td>
<td>-</td>
</tr>
<tr>
<td>BDF-VF-50272</td>
<td>10</td>
<td>20 - 25 m</td>
<td>2.5 m</td>
<td>-</td>
</tr>
</tbody>
</table>

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.

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.

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.

Quick selection chart

<table>
<thead>
<tr>
<th>Low-pressure service</th>
<th>Positive temperature</th>
<th>Negative temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDF-VF-103B</td>
<td>POSITIVE TEMPERATURE</td>
<td>NEGATIVE TEMPERATURE</td>
</tr>
<tr>
<td>MDF-VF-2048</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDF-VF-2054</td>
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<tr>
<td>MDF-VF-2060</td>
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<td></td>
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<tr>
<td>MDF-VF-3086</td>
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<td></td>
</tr>
<tr>
<td>MDF-VF-3108</td>
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<td>MDF-VF-4136</td>
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<td>BDF-VF-1086</td>
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<td>BDF-VF-2096</td>
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<tr>
<td>BDF-VF-2108</td>
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<tr>
<td>BDF-VF-2136</td>
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<tr>
<td>BDF-VF-3215</td>
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</tr>
<tr>
<td>BDF-VF-50216</td>
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<td></td>
</tr>
<tr>
<td>BDF-VF-50272</td>
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<td></td>
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</tbody>
</table>