Regardless if you want to operate compressors, pumps or fans, the VLT® Refrigeration Drive FC 103 provides you the possibility to save energy and extend the lifetime of the components.

Speed control provides many benefits in all motor driven parts of refrigeration applications. The VLT® Refrigeration Drive moves the user in the position to profit from this in a very simple way.

One drive for all
The VLT® Refrigeration Drive FC 103 covers a power range between 1.1-315 kW. Available in a variety of protection classes the drive suits the needs of pump, fan and compressor applications. Every application and power size can be operated and programmed with the same common user interface.

The wizard menu also supports the commissioning engineers if they encounter any problems. The menu will help the engineer troubleshoot and offer solutions to get the drive up and running again if there is a problem.

Product range
3 x 200 – 240 V .................. 1.1 – 45 kW
3 x 380 – 480 V ................. 1.1 – 450 kW
3 x 525 – 600 V ............... 1.1 – 630 kW
With 110% overload torque

Feature | Benefit
--- | ---
**General features**
Robust single enclosure | Maintenance free
Protection classes IP 20/21/55/66 | Fits every application
Coated electronics (class 3C2 or 3C3) | Withstands challenging environments
Max. ambient temp. 50°C without derating (D-frame 45°C) | No external cooling or oversize necessary

**Software features**
Sleep mode | Optimum system efficiency
Thermostat/Pressostat function | System protection
Fieldbus (AKD LON, Modbus RTU…) | Open for all kind of controllers
Velocity-to-flow conversion | Saves costs
Day/Night Control | Reduces wear and energy consumption
Advanced energy monitoring | Overview of energy consumption
Pressure to temperature conversion | Saves costs

**Compressors features**
High starting torque | Operates all types of compressor
PO optimization | Optimum system efficiency
Injection on/off | Improves refrigeration processes
Discharge temperature monitor | Protects the compressor
Pack controller | Saves energy and reduce maintenance
Neutral zone controller | Handling of unsymmetrical zones

**Pump features**
Pump cascade controller | Saves energy and reduce maintenance
Dry pump protection and end of curve | Protects the pump
Flow compensation | Saves energy

**Fan features**
Broken belt detection | Protects the system
Operate induction motors in parallel | Reduces investment cost
Automatic Energy Optimizer AEO function | Saves energy

**No EMC concerns**
Integrated DC link harmonic filters | Low harmonic load on mains
Integrated EMC filters | No external filters required

Dedicated to refrigeration application
Designed to suit fans, pumps and compressors in any kind of refrigeration application.

www.vlt-drives.danfoss.com
Available enclosure ratings
IP 20 (NEMA 1)................. 1.1 – 400 kW
IP 21 (NEMA 1)................. 1.1 – 630 kW
IP 54 (NEMA 12).............. 110 – 630 kW
IP 55 (NEMA 12).............. 1.1 – 90 kW
IP 66 (NEMA 4X).............. 1.1 – 90 kW

Standard coating providing extra protection for aggressive environments.

Options
A wide range of VLT® Refrigeration FC 103 options are available mounted and tested from the factory or as plug-and-play options for update.

VLT® General Purpose I/O MCB 101
3 digital inputs, 2 digital outputs, 1 analogue current output, 2 analogue voltage inputs

VLT® Relay Card MCB 105
3 relay outputs

VLT® Analog I/O MCB109
3 Pt1000/Ni1000 inputs, 3 analogue voltage outputs
Buffer for Real Time Clock

VLT® 24 V External Supply MCB 107
24 V DC external supply can be connected to supply control- and option cards.

Power options
- VLT® Advanced Harmonic Filter
  For critical demands on harmonic distortion
- VLT® dU/dt Filter
  For special demands on motor isolation protection
- VLT® Sine Wave Filter
  For noiseless motor or special demands on motor isolation protection

PC software tools
- VLT® Motion Control Tool MCT 10
  Ideal for commissioning and servicing the drive

Specifications

<table>
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<tr>
<th>Mains supply (L1, L2, L3)</th>
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<tr>
<td>Supply voltage</td>
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<tr>
<td>Supply frequency</td>
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<tr>
<td>Displacement power factor (cos φ) near unity</td>
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<tr>
<td>Switching on input supply L1, L2, L3</td>
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</table>

<table>
<thead>
<tr>
<th>Output data (U, V, W)</th>
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<td>Output voltage</td>
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<td>Switching on output</td>
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<tr>
<td>Ramp times</td>
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<td>Output frequency</td>
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<thead>
<tr>
<th>Digital inputs</th>
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<tr>
<td>Programmable digital inputs</td>
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<tr>
<td>Logic</td>
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<tr>
<td>Voltage level</td>
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</tbody>
</table>

* 2 can be used as digital outputs

<table>
<thead>
<tr>
<th>Relay outputs</th>
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<tr>
<td>Programmable relay outputs</td>
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<table>
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<tr>
<th>Analogue input</th>
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<td>Voltage level</td>
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<tr>
<td>Current level</td>
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</tbody>
</table>

Fieldbus communication

Standard built-in:
- FC Protocol
- Modbus RTU
- N2 Metasys

Optional:
- LonWorks for AKD (MCA 107)
- Profinet V1 (MCA 101)
- Profinet SRT (MCA 120)

VLT® Refrigeration Drive FC 103 provides speed control of all motor driven components and interacts with the major components.