Extended functionality and real LHD for high-performance operation

VLT® Enclosed Drives have been designed to meet the most demanding requirements for flexibility, robustness, compactness and service-friendliness, making them a smart choice for diverse applications. They are ideal for low harmonic drive (LHD) usage, with outstanding harmonic mitigation performance.

VLT® Enclosed Drives are configurable with input/output filters, control and enclosure options to meet practically all requirements of the application, eliminating the need for an extra enclosure.

Selectable input/output filters ensure highest quality of the voltage on motor terminals, as well as the lowest harmonics content of mains currents – TDD <3% and it is a best choice, when harmonics frequencies above 2 kHz in the power supply network is a concern to fulfil the IEC 61000-2-4 requirements for harmonics up to 9 kHz.

Back-channel cooling

A unique ducted back-channel passes cooling air over heat sinks with minimal air passing through the electronics area. There is an IP54/Type 12 seal between the back-channel cooling duct and the electronics area of the VLT® drive. This allows 90% of the heat losses to be exhausted directly outside of the enclosure, improving reliability and prolonging life by dramatically reducing temperature rise and contamination of the electronic components. Input/output filters also use the IP54/Type 12-rated back-channel for cooling.

Available for enclosure sizes D and E
- VLT® AutomationDrive FC 302
- VLT® AQUA Drive FC 202
- VLT® HVAC Drive FC 102
- VLT® Refrigeration Drive FC 103

Protection ratings
- IP21 (Type 1)
- IP54 (Type 12)

Supply voltage and power ranges
- 380-480/500 V……90 kW-500 kW
- 525-690 V…….90 kW-710 kW with 150% overload

<3%
Total harmonic distortion, even up to 9 kHz
Real LHD
<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
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<tr>
<td><strong>Built-in options</strong></td>
<td>Eliminate the need for an extra cabinet when options are required. Save cost on equipment and reduce space requirements.</td>
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<td><strong>Back-channel cooling</strong></td>
<td>Reduce the scale of air conditioning required for the room, and even reduce the room size, for savings in up-front cost and operating expenses.</td>
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<td><strong>Variable speed cooling fans</strong></td>
<td>Improve efficiency of the drive and reduce audible noise.</td>
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<td><strong>VLT® drives family with common graphical LCP</strong></td>
<td>Know one drive, know them all. Save time and cost for training, service, ordering and spare parts logistics.</td>
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<td><strong>Integrated selectable input/output filters</strong></td>
<td>Ensure highest quality of the voltage on motor terminals, as well as the lowest harmonics content of the mains currents.</td>
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<td><strong>Door-mounted control compartment</strong></td>
<td>Safe accessibility to control terminals, also during operation of the drive.</td>
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1. **VLT® drive**: Drives with enclosure size D and E with selectable control options cards.
2. **Back-channel cooling assembly** ensures utilization of the drive's back-channel cooling concept in the cabinet.
3. **Mains contactor** is a selectable mains power option.
4. **Mains switch disconnect** is a selectable mains power option.
5. **Bottom entry establishment** ensures IP54/NEMA12 connections to the power supply.
6. **Plinth** is available as an option in 100 mm, 200 mm, and 400 mm sizes.
7. **Magnetics of the input filter assembly** ensures the low harmonics content of mains currents - TDD<3%.
8. **Contactor** to control the harmonics filter of the drive.
9. **Back-channel cooling assembly** for input harmonic filter ensures efficient cooling of magnetics.
10. **Capacitors assembly** of the input harmonics filter.
11. **Top-exit establishment** ensures IP54/NEMA12 connections of motor cables from the top.
12. **Capacitors assembly** of the output sine-wave filter.
13. **Back-channel cooling assembly** for magnetics of the output sine-wave filter.
14. **Sine-wave filter magnetics** of the output filter, as a selectable power option.
15. **Motor connection terminals** are placed in the sine-wave filter cabinet of the enclosed drive.
16. **Enclosed drive cabinet** utilizes Rittal TS8 baying system.