ENGINEERING
TOMORROW

Product Overview

Danfoss Drives
– for your applications

Quality

application-optimized products, which target your needs



www.danfossdrives.com

VLT® | VACON®

Contents

VLT® products

Low power drives 3
Full power range and dedicated VLT® drives 4
Power options 6
Decentral drives 9
Enclosed VLT® drives 10
Soft starters 12
Software 13

VACON® products

Low power drives 14
Full power range and dedicated VACON® drives 15
Decentral drives 20
Software 21

Communications functionality

This legend indicates the communication interface and fieldbus protocol functionality which is specific to each product. For details, please refer to the individual product brochures.

Integrated

BAC	BACnet, MS/TP
ASi	AS interface
META	JCI Metasys N2
MOD	Modbus RTU
FLN	Siemens FLN P1
BIP	BACnet IP

Optional

PB	PROFIBUS DP V1
PN	PROFINET RT
PL	Powerlink
DN	DeviceNet
CAN	CANopen
AKD	LONworks for AKD
LON	LonWorks
BAC	BACnet (MSTP)
TCP	Modbus TCP
EIP	EtherNet/IP
ECAT	EtherCAT
DCP	DCP 3/4
DSP	CANopen DSP 417
BIP	BACnet IP
ASi	AS interface



True system independence

System independence

When it comes to optimizing system efficiency to meet your needs exactly, the right components are vital. Whether it's a particular vendor, certain motor technology or a standardized way to communicate, Danfoss Drives can provide the right AC drive to meet your specific needs. You'll always get the most flexible VLT® or VACON® drive adapted to:

- Meet the unique requirements of your applications
- Operate at peak performance
- Optimize efficiency

When you have the freedom to select the optimal components for your system, a potential energy saving of up to 60% is possible.

Fieldbus independence

One other important aspect of any system is the ability to efficiently communicate over standard interfaces such as PROFINET or EtherNet/IP in industrial applications or BACnet/IP in building automation applications. Regardless of your application or your preferred communication protocol, both VLT® and VACON® drives have an extremely wide variety of communication protocols to select from. In this way you can ensure that the AC drive integrates seamlessly into your chosen system. The control system attains optimal efficiency while also reducing costs related to training, commissioning and maintenance.

Motor independence

With increasingly stringent demands on motor efficiency, traditional induction motors cannot always comply. New motor technologies therefore continue to emerge, extending both full-load and part-load efficiency. The unique requirements of these newer motor technologies – such as permanent magnet (PM) motors and synchronous reluctance (SynRM) motors – also demand special motor control algorithms within the AC drive. Both VLT® and VACON® drives have the built-in capabilities to control whatever motor technology your application requires, at optimum efficiency. The required performance of your system is always available exactly when you need it.

Low power drives



VLT® Micro Drive FC 51



VLT® Midi Drive FC 280

VLT® drives position you at the forefront of the energy-efficiency race. Outmaneuvering other precision drives, they excel, with remarkable fit, functionality and diverse connectivity.

VLT® drives play a key role in the rapid urbanization through an uninterrupted cold chain, fresh food supply, building comfort, clean water and environmental protection. Benefit from the universally-compatible VLT® effectiveness where ease of use unites seamlessly with high precision, synchronization and speed. You achieve servo-like performance with rationalized elegance, free of complexity.

Secure long-term economic benefits with documented low system-lifetime cost. VLT® drives consistently deliver, whether in Food and Beverage, Water and Wastewater, HVAC, Refrigeration, Material Handling, or Textile applications.

The steadfast longevity of VLT® drives is directly attributable to world-class quality assurance placing VLT® drives right at the sharp end. The sharp end of global resource management and factory automation.

VLT® Micro Drive FC 51

The smallest AC drives in the VLT® Micro Drive FC 51 series are particularly suitable for side-by-side mounting with a high integration density. The typical features of Danfoss Drives are still retained.

Compact

VLT® Micro Drive is up to 40 percent smaller than other AC drives with comparable power and built-in features.

Protection for electronics

To ensure a long service life, the cooling air does not flow directly over the power electronics.

Power range

1 x 200-240 V . . . . . 1/4 to 3 HP (0.18-2.2 kW)
3 x 200-240 V . . . . . 1/3 to 5 HP (0.25-3.7 kW)
3 x 380-480 V . . . . . 1/2 to 30 HP (0.37-22 kW)

Fieldbus

MOD

Enclosure

IP00	IP20	IP21/Type 1
	▪	*(kit available)*
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

VLT® Midi Drive FC 280

The VLT® Midi Drive delivers flexible and efficient motor control for use in a wide variety of of automation and machine building applications.

Flexible. Communicative.

This medium power-range drive is strong on control performance, functional safety, and flexible fieldbus communication. Integrated functionality such as DC choke, RFI filter, Safe Torque Off (STO), and brake chopper saves you from finding space and budget to install extra components.

Easy retrofit

VLT Midi Drive is prepared for compatibility with the VLT® 2800. Its exterior dimensions, cable plugs, cable lengths, and set-up software tools enable easy retrofit in established plant or machinery concepts.

Easy to use

A USB port provides easy PC connectivity. The VLT® Memory Module MCM 102 option facilitates fast implementation of factory settings, and transfer of settings during retrofit.

Power range

1 x 200-240 V . . . . . 1/2 to 3 HP (0.37-2.2 kW)
3 x 200-240 V . . . . . 1/2 to 5 HP (0.37-3.7 kW)
3 x 380-480 V . . . . . 1/2 to 30 HP (0.37-2.2 kW)

Fieldbus

MOD				
PB	PN	CAN	EIP	PL

Enclosure

IP00	IP20	IP21/Type 1
	▪	▪
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

Full power range and dedicated VLT® Drives



VLT® HVAC Basic FC 101



VLT® Refrigeration Drive FC 103

VLT® HVAC Basic Drive FC 101

Optimized for basic operation of pumps and fans, the variable torque AHRI Certified™ VLT® HVAC Basic Drive has built-in HVAC functions that reduce initial costs and increase productivity.

The FC101 is part of the Danfoss 2-tier strategy leaving the product available to OEM HVAC accounts only.

Features

- Integrated fan, pump functionality
- Fire Override Mode for enhanced safety
- Automatic Energy Optimizer function Saves 5 – 25% energy
- Unique cooling concept with no forced air flow over electronics
- Built-in DC coils – no harmonic concerns
- Category C1 filters: meets protection Class C1 and C2

Power range

3 x 200-240 V . . . . . 1/3 to 60 HP (0.25-45 kW)
3 x 380-480 V . . . . 1/2 to 125 HP (0.37-90 kW)
3 x 525-600 V . . . . . 5 to 125 HP (3.7-90 kW)

Fieldbus

MOD	META	BAC	FC	FLN

Enclosure

IP00	IP20	UL Type 1
	▪	▪ *(with kit)*

IP54	IP55/Type 12	IP66
▪ *(480 V)*		

VLT® Refrigeration Drive FC 103

A variable torque drive specialized for control of compressors, pumps and fans for significant energy savings in refrigerating plants, whilst prolonging the service life of components.

Improving COP (Coefficient of performance)

Intelligent power adjustment increases system stability and optimizes the volumetric efficiency of the evaporator, the compressor, and the total refrigeration system.

Refrigeration terminology

The use of refrigeration terminology allows quick and easy configuration.

AC drive as standard

The combination of speed-controlled and mains-operated compressors enables the design of low-wear and energy-efficient systems.

Power range

3 x 200-240V . . . . 1 1/2 to 60 HP (1.1 - 45 kW)
3 x 380-480V 1 1/2 to 1350 HP (1.1 - 1000 kW)
3 x 525-600V 1 1/2 to 1550 HP (1.1 - 1400 kW)
With 110% overload torque

Fieldbus

MOD		
AKD	PB	PN

Enclosure

IP20	IP21/Type 1	IP54/Type 12
	▪	▪

IP55/Type 12	Type 3R	IP66/Type 4X
▪	▪	▪

Use of the AHRI Certified™ mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org



VLT® AutomationDrive FC 302, VLT® AQUA Drive FC 202 and VLT® HVAC Drive FC 102

VLT® HVAC Drive FC 102

The ideal choice for fan and pump applications in modern buildings. The AHRI Certified™ FC 102 HVAC Drive offers maximum flexibility in installation, bus connections and control intelligence.

HVAC Inside

The drive is specially engineered for building automation with intelligent HVAC functions.

Optimal EMC protection

Standard integrated chokes and high-quality RFI filters ensure interference-free operation at all times.

EC+

The intelligent VVC+ control principle enables the use of permanent magnet motors or synchronous reluctance motors with efficiency equal to or better than EC technology.

Power range

1 x 200-240V. . . . . 1 1/2 to 30 HP (1.1 - 22 kW)
3 x 200-240V. . . . . 1 1/2 to 60 HP (1.1 - 45 kW)
3 x 380-480V 1 1/2 to 1350 HP (1.1 - 1000 kW)
3 x 525-600V 1 1/2 to 1550 HP (1.1 - 1400 kW)
3 x 525-690V. . . . . 1.1-1400 kW
With 110% overload torque

Available in LHD and 12 pulse options.

Fieldbus

MOD	META	BAC	FLN	FC
DN	LON	BAC	TCP	EIP
PB	PN	BIP		

Enclosure

IP00	IP20	IP21/Type 1
▪	▪	▪
IP54 & IP55/Type 12	Type 3R	IP66/Type 4X
▪	▪	▪

VLT® AutomationDrive FC 301 & 302

A modular drive designed to comply with modern automation application requirements with easy configuration and a wide power range.

Safety where it matters

The VLT® AutomationDrive FC 302 features Safe Torque Off as standard. Easily configurable options are available: SS1, SLS, SMS & SSM.

High functionality

All functions necessary for automation applications with common motor technologies can be realized and configured quickly and easily.

Harmonic mitigation

Active compensation of harmonics is available via variants incorporating advanced active filters (AAF) or 12-pulse technology.

Power range (FC-301)

3 x 200-240V. . . . .0.33 to 50 HP (0.25 - 37 kW)
3 x 380-480V. . . . 1/2 to 100 HP (0.37 - 75 kW)

Power Range (FC-302)

3 x 200-240V. . . . 0.33 to 50 HP (0.25 - 37 kW)
3 x 380-500V. .1/2 to 1200 HP (0.37 - 800 kW)
3 x 525-600V. . .1 to 1350 HP (0.75 - 1000 kW)
3 x 525-690V. . . . . 1.1 to 1200 kW

Available in LHD and 12 pulse options.

Fieldbus

MOD				
DN	CAN	PB	TCP	EIP
ECAT	PN	PL		

Enclosure

IP00	IP20	IP21/Type 1
▪	▪	▪
IP54/Type 12	IP55/Type 12	IP66/Type 4X
▪	▪	▪

VLT® AQUA Drive FC 202

The VLT® AQUA Drive FC 202 drives and controls all types of pumps. In addition to the widely used centrifugal pumps (quadratic load torque), the VLT® AQUA Drive FC 202 is ideal for displacement pumps or eccentric screw pumps (constant load torque).

Focusing on water and pumps

Dedicated functions such as burst pipe monitoring, dry-running protection and flow compensation secure and empower your pumping application independent of the motor technology.

Cascade controller as standard

The cascade controller connects or disconnects pumps as necessary and according to specified limits. It also enables master/follower operation. Extended functionality is available via an option.

Power range

1 x 200-240V. . . . . 1 1/2 to 30 HP (1.1 - 22 kW)
1 x 380-480V. . . . . .10 to 50 HP (7.5 - 37 kW)
3 x 200-240V. . . . . .3 to 60 HP (0.25 - 45 kW)
3 x 380-480V 1/2 to 1350 HP (0.37 - 1000 kW)
3 x 525-600V. . .1 to 1550 HP (0.75 - 1200 kW)
3 x 525-690V. . . . . 1.1-1400 kW
with 110% Normal Overload

Available in LHD and 12 pulse options.

Fieldbus

MOD	FC			
PN	DN	PB	TCP	EIP

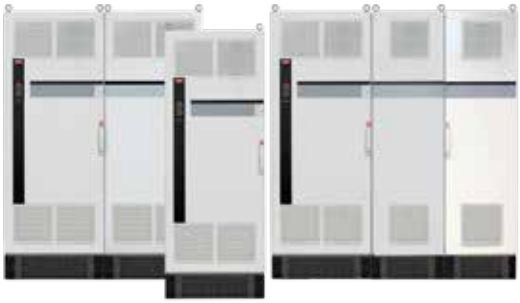
Enclosure

IP00	IP20	IP21/Type 1
▪	▪	▪
IP54 & IP55/Type 12	Type 3R	IP66/Type 4X
▪	▪	▪

VLT® power options



VLT® Low Harmonic Drive



VLT® 12-pulse Drives

VLT® Low Harmonic Drive

Meets the toughest harmonic requirements under all load/grid conditions. The Danfoss VLT® Low Harmonic Drive is the first solution combining an active filter and a drive in one package. The VLT® Low Harmonic Drive continuously regulates harmonic suppression according to the load and grid conditions without affecting the connected motor.

The Total Harmonic Current Distortion is reduced to less than 3% under ideal conditions and to less than 5% on heavy distortion grids with up to 2% phase unbalance. As individual harmonics also fulfil the toughest harmonic requirements, the VLT® Low Harmonic Drive meets all present harmonic standards and recommendations. Unique features such as sleep mode and back channel cooling offer unmatched energy efficiency for Low Harmonic Drives.

Power range - Low harmonic drive

Normal Overload
380-480 V. . . . . 250 to 1000 HP (160-710 kW)

High Overload
380-480 V. . . . . 250 to 1000 HP (132 - 630 kW)

VLT® 12-Pulse Drive

The VLT® 12 Pulse high power drive is perfect for retrofit or new construction. Danfoss starts with its 6-pulse FC102, FC103, FC202, and FC302 premiere drive technology and adds an additional rectifier to accept two outputs from a phase shifting transformer (not supplied by Danfoss). This effectively cancels the 5th and 7th harmonic resulting in a possible Thid level of 10%.

Power range

Normal Overload
380-480 V. . . .450 to 1350 HP (315 - 1000 kW)
525-600 V. . . .450 to 1550 HP (450 - 1400 kW)
525-690 V. . . . . 450 - 1400 kW

High Overload
380-480 V. . . . .350 to 1200 HP (250 - 800 kW)
525-600 V. . . .400 to 1350 HP (355 - 1200 kW)
525-690 V. . . . . 355 KW - 1200 kW

Enclosure

IP00	IP20	IP21/Type 1
		▪

IP54/Type 1	IP55/Type 12	IP66/Type 4X
▪		

Enclosure

IP00	IP20	IP21/UL Type 1
		▪

IP54/Type 12	IP55/UL Type 12	IP66/Type 4X
▪		



VLT® Advanced Active Filter AAF 006

VLT® Advanced Harmonic Filter AHF 005/010

VLT® Advanced Active Filter AAF 006

The active filter analyzes load-applied harmonics and compensates these by active counter-control. It is suitable for the compensation of AC drives and improvement of the system quality.

Easy to use

The VLT® Advanced Active Filter is configured for most applications upon leaving the factory.

Optimal filtering

Use the individually adjustable compensation modes for adaptation to suit specific requirements.

Versatile

VLT® Advanced Active Filter supporting central, individual or group compensation.

Power range

380-480 V. . . . . .190/250/310/400 A
Up to 4 units can be paralleled for higher power

VLT® Advanced Harmonic Filter AHF 005/010

Harmonic filters with additional functions specially adapted for use with VLT® drives. When connected upstream of a an AC drive, the filter reduces the total current distortion fed back to the system to 5% or 10% based on product selected.

Compact units

The small, compact enclosure fits perfectly in a control cabinet.

Retrofit

The filter is simple to use forretrofitting in existing installations.

Flexible

One filter module can be used for several AC drives in parallel.

Power range

440 – 480 V AC (60 Hz) . . . . . 10 - 436 Amps*
600 V AC (60 Hz) . . . . . 15 - 395 Amps*

* Higher rating when connected in parallel

Enclosure

IP00	IP20	IP21/Type 1
	▪	▪

IP54/Type 12	IP55/Type 12	IP66/Type 4X

Enclosure

IP00	IP20	IP21/Type 1
▪	▪	▪

IP54/Type 12	IP55/Type 12	IP66/Type 4X

VLT® power options



VLT® Sine-Wave Filters



VLT® dV/dt Filters



VLT® Common Mode Filter

VLT® MCC 101 Sine-wave Filter

VLT® Sine-wave Filters smooth the output voltage of a VLT® drive and reduce motor insulation stress and bearing currents as well as noise development in the motor.

For critical motors

Use the filter especially for AC drive operation of older motors, low permitted voltages in terminal boxes or without phase insulation.

Long motor cables

Enable use of motor cables with a length of 500 m and more, using a sine-wave filter.

Power range

3 x 200 – 500 V, 2.5 – 800 A
3 x 525 – 690 V, 4.5 – 660 A

VLT® dV/dt Filters

VLT® dV/dt Filters reduce the rate of voltage rise on the motor terminals and protect old or weak motor insulation against breakdown. This is particularly important for short motor cables.

Retrofit

Retrofit is easy in older systems or motors.

Compact

These filters are smaller, lighter and more affordable, compared to sine-wave filters.

Power range

3 x 200 – 690 V (up to 880 A)

VLT® Common Mode Filter

High-frequency common mode cores reduce electromagnetic interference and protect against bearing currents.

Wide coverage

Just five sizes cover the Danfoss FC series drives from A thru F frames.

Combinable

The filters can be combined with other output filters.

Enclosure

IP00	IP20	IP23
■	■*	■**
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

Enclosure

IP00	IP20/23	IP21/Type 1
■	■	
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**
■ *up to 177 A*		

** wall-mounted enclosure up to 75 A (500V)/45 A (690V)*
*** floor-standing enclosure from 115 A (500V)/76 A (690V)*

VLT® decentral drives



VLT® Decentral Drive FCD 302



VLT® DriveMotor FCP 106



VLT® OneGearDrive®

VLT® Decentral Drive FCD 302

This decentral drive in a rugged design offers a high degree of flexibility and functionality. It can be mounted close to the motor and is ideal for demanding applications.

One-box concept

Integrated two pc design (drive and Installation Box) house all required modules into one single housing. Integrated service switch and Safe Torque Off (STO) function available.

Minimizing installation costs

Fewer external components and connectors save installation, assembly and maintenance time. Integrated power and fieldbus looping reduces installation cost.

Hygienic design

The VLT® Decentral Drive FCD 302 complies with all requirements for ease of cleaning and hygienic design according to EHEDG (European Hygienic Engineering & Design Group).

Power range

3 x 380-480 V . . . . . 1/2 to 4 HP (0.37-3 kW)

VLT® DriveMotor FCP 106

For full flexibility in motor choice, system design and energy efficiency, choose your own PM or induction motor and attach the standalone VLT® DriveMotor FCP 106.

Easy to install

Installation is simple due to the integrated cooling system and an individually adjustable motor adapter plate.

High performance

The standalone VLT® DriveMotor FCP 106 provides you with a high level of flexibility and stable, energy-efficient operation as the drive automatically sets the optimal parameters for the attached motor.

Power range

3 x 380-480 V . . . . 0.75 to 10 HP (.55 - 7.5 kW) (with 110% overload torque)
3 x 380-480 V . . . . 0.75 to 7.5 HP (.55 - 5.5 kW) (with 160% overload torque)

VLT® OneGearDrive®

The highly efficient combination of a permanent magnet motor and optimized bevel gearing, powered by a central or decentral VLT® drive, contributes significantly to operating and maintenance cost savings.

Long service intervals

VLT® OneGearDrive® operating under partial load does not require an oil change until after 35,000 operating hours.

Fewer variants

With only one motor type and three gear ratios available, the motor concept covers most typical conveyor drives.

Hygienic version

Use it with confidence in wet areas including aseptic areas and clean room production areas.

Power range

380-400 V. . . . . 1 to 4 HP (.75 - 3 kW)

Fieldbus

MOD				
PN	EIP	PB	PL	ECAT

Enclosure

IP 00	IP20	IP21/Type 1
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**
		■

Fieldbus

MOD	BAC	FC
PB		

Enclosure

IP00	IP20	IP21/Type 1
IP54/UL Type 3R	**IP55/Type 12**	**IP66/Type 4X**
		■

Enclosure

IP00	IP20	IP21/Type 1
IP54/Type 12	**IP67/IP 69K**	**IP65/IP 67**
	■*	■**

**OGD-H version*
*** OGD-S version*

Enclosed VLT® drives

We take responsibility for every element of our products. The fact that we develop and produce our own features, hardware, software, power modules, printed circuit boards and accessories is your guarantee of reliable products.

Danfoss Drives:
Rugged - Reliable - Respected





VLT® Traditional Bypass Panels



VLT® Vertical Bypass Panels

VLT® Traditional Bypass Panels

Danfoss Traditional Bypass Panels are known for their product quality and premium design standards. With this quality comes a wide array of choices among our standard base products, insuring you can have your Danfoss drive panel your way.

Drive features and options

Danfoss bypass panels are built to UL508 and UL508A standards and most have been seismically certified and OSHPD pre-approved. Disconnects include fused, or circuit breaker. We utilize Class 20 overloads in the bypass and 24V control for all but the largest sizes. The panels are available in Electronic or Electromechanical bypass and feature our premium VLT® HVAC or AQUA drive. Bypass options include 2 contactor with optional drive disconnect or 3 contactor.

Power Range

Normal Overload
3 x 208-240 V . . . . . 0.5 to 60 HP (.37 - 90 kW)
3 x 480 V. . . . . .0.5 to 350 HP (.37 - 250 kW)
3 x 600 V. . . . . .0.5 to 400 HP (.37 - 400 kW)

Fieldbus

MOD	META	BAC	FLN	FC
DN	LON	BAC	TCP	EIP
PB	PN	BIP*		

**BIP coming in Q2 2016*

Enclosure

IP00	IP20	IP21/Type 1
		▪

IP54/Type 12	Type 3R	IP66/Type 4X
▪	▪	

VLT® Vertical Bypass Panel

The Vertical Panel design gives the installer and drive user a reduced horizontal footprint to make better use of available wall space. Engineered panels are available in a variety of configurations with user-specified options to best match individual application requirements.

Drive features and options

The Vertical Panels utilize the same features and options as the Traditional panels but is built in a subset of the Traditional panel sizes. It is available in a 3 contactor bypass design.

Power range

3 x 208-240 V . . . . . 7.5 to 60 HP (5.5 - 45 kW)
3 x 480 V. . . . . .15 to 125 HP (11 - 90 kW)
3 x 600 V. . . . . .15 to 125 HP (11 - 90 kW)

Fieldbus

MOD	META	BAC	FLN	FC
DN	LON	BAC	TCP	EIP
PB	PN	BIP*		

**BIP coming in Q2 2016*

Enclosure

IP00	IP20	IP21/Type 1
		▪

IP54/Type 12	Type 3R	IP66/Type 4X



PHD-102



PHD-202



Multi-pulse Drive Panel

Preferred Harmonic Design (PHD)

The VLT® PHD-102 for HVAC applications and VLT® PHD-202 for Water applications are full-featured, dedicated drive solutions when conformance to IEEE-519 is required, even at the drive terminals. This design has excellent partial load performace often maintaining 5% THiD down to 50% load and outperforms multi-pulse, AFE, and competitive passive filter solutions. The PHD-102 and PHD-202 have an array of functions developed to meet the diverse needs of HVAC and Water applications, and are the most efficient solution to address growing harmonic concerns in the HVAC and Water/Wastewater industries.

Panel features and options

Include non-bypass, 3 contactor bypass or softstart bypass with either a fused or circuit breaker disconnect.

Oshpd pre approval is a result of testing that can place these products in any floor of any building in the United States.

Power range

3 x 460 V. . . . . .1.5 to 600 HP (1.1 - 673 kW)
3 x 575 V. . . . . 1.5 to 650 HP (1.1 – 600 kW)
(Normal Overload)

VLT® Multi-pulse Drive Panels

12-Pulse & 18-Pulse Low Harmonic Solutions offer a cost-effective and completely integrated system for applications requiring enhanced harmonic mitigation. Packages seamlessly combine the reliability and advanced performance of the VLT® Series Drives with best in class 12 & 18 pulse harmonic reduction technology. The result is a complete solution from the supplier you trust.

Each unit ships completely assembled in a free standing enclosure labeled NEMA/ UL Type 1, 12, or 3R as required by the installation. Units require simple three-wire-in and three-wire-out power connections. The entire package is UL 508A Compliant.

Panel features and options

Include non-bypass, 3 contactor or softstart bypass with fused or circuit breaker disconnect, all in a 100ka sccr unit. In a 40^{C} maximum ambient the panels are available as a standard NEMA /Type 1, 12, or 3R. For special requirements custom units are available.

12-Pulse

All 12-Pulse units include two diode bridge rectifiers separate from the VFD's standard 6-pulse bridge to ensure appropriate load sharing and harmonic reduction. Input to the rectifiers is an electro-statically shielded phase shifting drive isolation transformer.

Power range - 12-pulse drive

3 x 380-480 V . . . . . 250-200 kW

18-Pulse

All 18-Pulse units include three diode bridge rectifiers separate from the VFDs standard 6-pulse bridge to ensure appropriate load sharing and harmonic reduction. Input to the rectifiers is phase shifting transformer with the following design criteria:

The high quality phase shifting 18-pulse transformer is the latest topology that performs with a phase imbalance up to 2%. Separate thermal switches are included on each coil.

Power range

3 x 480V . . . . . .1.5 – 300 HP (1.1 - 361 kW)

Enclosure

IP00	IP20	IP21/Type 1
		▪

IP54/Type 12	Type 3R	IP66/Type 4X
▪	▪	

Enclosure

IP00	IP20	UL – cUL Type 1
		▪

UL – cUL Type 12	UL – cUL Type 3R	IP66/Type 4X
▪	▪	

VLT® Soft starters



VLT® Soft Starter MCD 500

VLT® Soft Start Controller MCD 100

VLT® Compact Starter MCD 200

VLT® Soft Start Controller MCD 100

The compact soft starter series is a cost-effective alternative to traditional contactors and can also replace star/delta combinations. The ramp time and the starting torque and kick start are adjusted via controls on the front of the unit.

Almost unlimited number of motor starts

For a power rating of up to 25 A, up to 480 starts per hour are possible. This is a true "fit and forget" soft starter for DIN rail mount. The unique contactor design allows an almost unlimited number of starts per hour without derating.

Technical data

Control voltage.....24-480 V AC or DC
Power ..... 0.1-11 kW (25 A)

Power range 208- 600 V

MCD 100-001..... 2 HP
MCD 100-007..... 10 HP
MCD 100-011..... 15 HP

Enclosure

IP00	IP20	IP21/Type 1
	▪	
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

VLT® Compact Starter MCD 200

While the basic and the starting torque VLT® Compact Starter MCD 201 version is only used for motor starting, the extended VLT® Compact Starter MCD 202 version offers additional motor protection functions. These include, for example, current limitation during motor starting.

Built-in bypass

After the motor is started, the MCD 200 automatically connects the motor to the mains supply via the built-in bypass relay. This minimizes losses during operation under full load.

Technical data

Control voltage 24 V AC or DC/110-440 V AC
3 x 200-575 V 10 to 150 HP 7.5-110 kW (200 A)

Fieldbus

PB	DN	MOD

Enclosure

IP00	IP20	IP21/Type 1
▪	▪	
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

VLT® Soft Starter MCD 500

A comprehensive solution for soft starting and stopping three-phase asynchronous motors. Integrated current transducers measure the motor current and provide important data for optimal start and stop ramps. A built-in bypass is available up to 961 A.

Fast commissioning

The four-line graphic display (choice of eight languages) and quick menu ensures easy and reliable configuration and read-out.

Load-oriented start

Adaptive Acceleration Control (AAC), adjusted to the respective load, ensure the best possible start and stop ramps to avoid water hammer.

Comprehensive protection

Phase error detection, thyristor monitoring and bypass contact overload are just a few integrated monitoring functions.

Technical data

Input .....3 x 200-690 V
Control voltage.....24 V DC or 110-240 V AC
Power ..... 7.5-850 /2400* (1600A) kW

*"Inside delta connection"

Fieldbus

PB	DN	MOD	EIP

Enclosure

IP00	IP20	IP21/Type 1
▪	▪	
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

VLT® Software



VLT® Soft Starter MCD 600

VLT® Soft Starter MCD 600

The VLT® Soft Starter MCD 600 delivers an increased level of intelligence for superior performance in fixed-speed applications.

Fast and flexible installation

The MCD 600 is more flexible than ever to install, thanks to a wide variety of Ethernet and serial-based communication option cards, application-dedicated smart cards and support for eight languages.

Pump Clean / reverse function

The pump clean function uses reverse operation. Motor control is simple, with soft ramps in both directions.

More uptime

Ease of use is in focus with features such as the pump-clean function, PowerThrough operation, and calendar or run time-based scheduling. More extensive motor and starter protections ensure more uptime.

Technical data

Input . . . . . 3 x 200-690 V
Control voltage . . . . . 24 V DC or 110-240 V AC
Current range IP20. . . . . 20-129 A
Current range IP00. . . . . 144-579 A

Fieldbus

PB	DN	MOD	EIP

Enclosure

IP00	IP20	IP21/Type 1
▪	▪	

IP54/Type 12	IP55/Type 12	IP66/Type 4X

VLT® Motion Control Tool MCT 10

VLT® Motion Control Tool MCT 10 is a windows-based engineering tool with a clearly structured interface that provides an instant overview of all the AC drives in a system of any size. The software runs under Windows and enables data exchange over a traditional RS485 interface, fieldbus (PROFIBUS, Ethernet, or other) or via USB.

Parameter configuration is possible both online on a connected drive and offline in the tool itself. Additional documentation, such as electrical diagrams or operating manuals, can be embedded in VLT® Motion Control Tool MCT 10. This reduces the risk of incorrect configuration while offering fast access to troubleshooting.

VLT® Energy Box

Calculate the energy consumption of HVAC applications controlled by VLT® drives and compare this with alternative - and less energy efficient methods of air flow control.

Using VLT® Energy Box it is easy to evaluate and document the savings achieved by using a VLT® HVAC Drive by comparison with other types of capacity control systems - for new installations as well as retrofit situations.

VLT® Motion Control Tool MCT 31

This software is designed to quickly assess the loads placed on the system by AC drives in the planning phase. This allows suitable measures to be taken to correct the system harmonics in advance.

VLT® Motion Control Tool MCT 31 calculates system harmonic distortion for both Danfoss and non-Danfoss AC drives, and calculates the effects of using various harmonic mitigation measures, including Danfoss harmonic filters.

Use VLT® Motion Control Tool MCT 31 in the planning phase to determine whether harmonics will be an issue in your installation, and if so, which strategy is most cost-effective in addressing the problem.



VACON®

Low power drives



VACON® 20



VACON® 20 Cold Plate

Combine innovation and high durability for the sustainable industries of tomorrow.

For long lifetime, top performance, and full-throttle process throughput, equip your demanding process industries and marine applications with VACON® single or system drives.

Reduce emissions and increase fuel efficiency through trailblazing innovation in hybridization trends. Manage heat intelligently, and win focus, with functionalities dedicated to your industry alone. Connect rapidly and program with exceptional flexibility.

All these abilities mean VACON® drives form the robust foundation for optimization in harsh environments.

Whether in Marine and Offshore, Oil and Gas, Metals, Mining and Minerals, Pulp and Paper, Renewable Energy, or other heavy-duty industries, VACON® drives meet the challenge.

Tune total operational cost and cut capital expenditure thanks to compact size and lower air-conditioning load. Of course uncompromising reliability is a constant.

The exceptional VACON® range is continuously advancing, with rigorous application-optimized innovation, ready to be put to work.

VACON® 20

VACON® 20 has the compactness and programming functionality that makes it one of the most easily-adaptable drives available for OEM applications.

Saves machine costs

The VACON® 20 has a built-in PLC functionality according to IEC 61131-1 which brings cost savings to the user. For the OEM or machine builder it is easy to change the software logic of the drive to adapt to their own control needs.

High fieldbus connectivity

The VACON® 20 enables effective machine integration, eliminating the need for external fieldbus gateways and parallel I/O connections.

Configure without mains power

With the optional copying module, parameter configurations can be copied into the VACON® 20 during the installation with no need for mains power - saving both time and effort.

Power range

1 x 105-120 V . . 1/3 to 1 1/2 HP (0.25-1.1 kW)
1 x 208-240 V . . . . . 1/3 to 3 HP (0.25-2.2 kW)
3 x 208-240 V . . . . . 1/3 to 15 HP (0.25-11 kW)
3 x 380-480 V . . . 1/2 to 25 HP (0.37-18.5 kW)
3 x 520-600 V . . . . 1 to 7-1/2 HP (0.75-5.5 kW)

Fieldbus

MOD				
PB	DN	CAN	ECAT	PN
EIP				

Enclosure

IP00	IP20	IP21/Type 1
	▪	▪

IP54/Type 12	IP55/Type 12	IP66/Type 4X

VACON® 20 Cold Plate

For flexibility in cooling, with focus on customer-specific cooling solutions, the VACON® 20 Cold Plate is the perfect AC drive for OEMs with special cooling requirements.

Cooling flexibility

Cold plate cooling allows the drive to be used in the best possible cooling configurations, such as passive heat sinks, liquid-based cooling or any other cold surface onto which the AC drive can be mounted.

Goes into sealed enclosures

VACON® 20 Cold Plate operates at up to 70 ºC ambient temperatures without derating, and is installable at low depth due to its flat form factor. For the user, this means the greatest possible flexibility and the ability to install the drive into sealed enclosures.

VACON 20 benefits

The VACON® 20 Cold Plate contains same user interfaces and options as in the other VACON® 20 products, including built-in support for IEC 61131-1 PLC programming.

Power range

1 x 208-240 V . . . . . 1 to 2 HP (0.75-1.5 kW)
3 x 208-240 V . . . . . 1 to 5 HP (0.75-4.0 kW)
3 x 380-480 V . . . . . 1 to 10 HP (0.75-7.5 kW)

Fieldbus

MOD				
PB	DN	CAN	LON	TCP
EIP	PN	ECAT		

Enclosure

IP00	IP20	IP21/Type 1
▪		

IP54/Type 12	IP55/Type 12	IP66/Type 4X

Full power range and dedicated VACON® drives



VACON® 100 INDUSTRIAL and VACON® 100 FLOW

VACON® 100 INDUSTRIAL

The VACON® 100 INDUSTRIAL is a workhorse for a wide range of industrial applications. It is easy to integrate into all major control systems and is easily adaptable to different needs.

Modules and enclosed drives

All power sizes are available as drive modules. The free-standing enclosed drive version for higher power sizes contains a wide range of configurable options and an innovative control compartment for safe access, without opening the cabinet door.

Cost-effective communication

Integrated Ethernet interfaces support all major industrial protocols. Save on extra interface cards - and use the same drive for all major protocols required.

Easy adaptation

For OEMs, utilizing VACON® PROGRAMMING enables the built-in PLC functionality according to IEC61131-1 to integrate their own functionality into the drive. The VACON® DRIVE CUSTOMIZER facilitates smaller logic adaptations for special needs or retrofit situations.

Power Range [High Overload]

3 x 208-240 V . . . . 1/2 to 100 HP (0.37-75 kW)
3 x 380-500 V . . . . . 1 to 800 HP (0.75-500 kW)
3 x 525-600 V . . . . . 3-650 HP
3 x 525-690 V . . . . . 5 to 650 HP (5.5-630 kW)

Fieldbus

MOD	META	BAC	TCP	BIP
PB	DN	CAN	BAC	LON
TCP	EIP	PN	ECAT	

Enclosure

IP00	IP20	IP21/Type 1
▪		▪*

IP54/Type 12	IP55/Type 12	IP66/Type 4X
▪*		

*Dependent upon enclosure size

VACON® 100 FLOW

Delivering all the benefits of the VACON® 100 family of drives, the VACON® 100 FLOW offers dedicated functionality. It improves flow control and saves energy in industrial pump and fan applications in power sizes up to 800 kW.

Dedicated industrial flow control

The VACON® 100 FLOW provides specific flow control functions to enhance pump and fan performance and protect pipes and equipment, ensuring reliable operation.

Runs high-efficiency motors

Select the most efficient motor for your task, with the ability to run the new high-efficiency motor technologies, such as permanent magnet and synchronous reluctance motors, for improved system efficiency.

Power Range [Low Overload]

3 x 208-240 V . . . . 3/4 to 125 HP (0.55-90 kW)
3 x 380-500 V . . . .1.5 to 1000 HP (1.1-630 kW)
3 x 525-600 V . . . . . .3 to 200 HP
3 x 525-690 V . . . . . 5 to 800 HP (5.5-800 kW)

Fieldbus

MOD	META	BAC	TCP	BIP
PB	DN	CAN	BAC	LON
TCP	EIP	PN	ECAT	

Enclosure

IP00	IP20	IP21/Type 1
▪		▪*

IP54/Type 12	IP55/Type 12	IP66/Type 4X
▪*		

*Dependent upon enclosure size

Full power range and dedicated VACON® drives



VACON® NXS



VACON® X Series X4, X5



VACON® X5 HazLo

VACON® NXS

VACON®NXS is an AC drive for heavy use in machines, buildings and all branches of industry. Typical applications include pumps, multi-pump, conveyors, compressors

Simplified programing

Seven built in application packages for easy commissioning of the drive.

Flexible I/O selection

There are no fixed inputs or outputs in the control unit. There are five slots for I/O boards, and a suitable board can be selected for each slot.

Modular packaging

The drive has the same footprint if IP21/UL Type 1 or IP54/ UL Type 12 enclosure. Allows for field upgrade if required with no change in size.

Power Range *[High Overload]*

3 x 208-240 V . . . 3/4 to 100 HP (0.55 - 75 kW)
3 x 380-480 V . . . . 1 to 550 HP (0.75 - 355 kW)
3 x 525-690 V . . . . . 2 to 500 HP (1.5 - 500 KW)

VACON® X Series – X4, X5

The VACON® X Series is a rugged family of variable speed AC drives, built and designed for harsh industrial environments. IP66/UL Type 4X and IP55/UL Type 3R enclosures are available for the ultimate protection from potential hazards such as moisture, dust or extreme temperatures.

Robust enlosure

The VACON X Series features best in class UL Type 4X, Indoor/Outdoor certified enclosure through 75HP.

Built-in sequencer

The VACON X series features a built-in multi-step sequencer that can replace a small PLC in many applications. X4 supports 9 steps and X5 supports 25 steps.

Power range *[High Overload]*

1 x 110-120 V . . . . . .1/2 HP (0.37 kW)
1 x 200-230 V . . . . . 3 to 10 HP (2.2 - 7.5 kW)
3 x 208-240 V . . . . 1/2 to 20 HP (0.37 - 15 kW)
3 x 380-480 V . . 1/2 to 150 HP (0.37 - 110 kW)
3 x 575 V. . . . . .1/2 to 150 HP (0.37 -110 kW)

VACON® X5 HazLo

VACON X5 HazLo is a first in the world of AC Drives. It has been certified for Class I; Division 2, Groups A, B, C, D in a UL Type 4X enclosure.

Unique enclosure

There is no longer a need for bulky UL Type 7 enclosure to keep driving in harsh environments. The VACON X5 HazLo drive is much smaller and lighter to install.

Proven usability

The keypad is highly accessible from the front face of the drive giving operator ability to control, program and view display locally at all times.

Typical Application Areas

Refineries, spray finishing, water and waste water.

Power Range [High Overload]

3 x 380-480 V . . . . . 10 to 75 HP (7.5 - 55 kW)
3 x 575 V . . . . . .10 to 75 HP (7.5 - 55 kW)

Fieldbus

MOD	META			
PB	DN	CAN	BAC	LON
TCP	EIP	PN		

Enclosure

IP00	IP20	IP21/UL Type 1
		▪

IP54 UL/Type 12	IP55/Type 12	IP66/Type 4X
▪		

Fieldbus X4

MOD

Fieldbus X5

MOD		
DN	EIP	PB

Enclosure

IP00	IP20	IP21/UL Type 1

IP54 UL/Type 12	IP55/UL Type 3R	IP66/UL Type 4X
	▪	▪

Fieldbus

MOD		
DN	EIP	PB

Enclosure

IP00	IP20	IP21/UL Type 1

IP54 UL/Type 12	IP55/Type 12	IP66/Type 4X
		▪



VACON® NXP Air Cooled



VACON® NXC Air Cooled Enclosed Drives

VACON® NXP Air Cooled

The VACON® NXP Air Cooled drive is designed for a broad range of demanding industrial applications, focusing on higher power sizes and system drives.

Top performance

VACON® NXP control flexibility delivers maximum motor control performance and dynamics, in both single-shaft machines and drive systems.

Configurable on all levels

Fully configurable I/O and fieldbuses cater for any connectivity need. Fast optical drive-to-drive communication gives you the flexibility of load sharing and paralleling of power units.

Extremely flexible

Adapt the drive to many diverse usage requirements by loading the VACON application software that best suits the needs. Built-in PLC functionality according to IEC61131-1 enables you to create new functionality in the drive to obtain cost savings and deeper machine integration.

Power Range

3 x 208-240 V . . . . 3/4 to 125 HP (0.55-90 kW)
3 x 380-500 V . . 1.5 to 1800 HP (1.5-1200 kW)
3 x 525-690 V . . . . 3 to 2250 HP (2.0-2000 kW)

Fieldbus

MOD	META			
PB	DN	CAN	BAC	LON
TCP	EIP	PN		

Enclosure

IP00	IP20	IP21/Type 1
■		■*

IP54/Type 12	IP55/Type 12	IP66/Type 4X
■*		

*Dependent upon enclosure size

VACON® NXC Air Cooled Enclosed Drives

The VACON® NXC combines the VACON® NXP product range with a wide range of options in a single enclosed drive format.

Reliable operation

Based on a Rittal TS8 enclosure, the VACON® NXC enclosed drive is fully pre-designed and factory tested in order to ensure reliable and trouble-free operation.

Easy to work with

Access to the control equipment is easy and safe, due to the dedicated control compartment located at the front part of the enclosed drive. It is also internally protected against unintentional touch to increase user safety.

Easy to configure

When ordering, choose between a wide range of cabinet-installed options. Both 6 and 12-pulse versions are available.

Power range

3 x 380-500 V 200 to 2250 HP (132-1200 kW)
3 x 525-690 V 125 to 2250 HP (110-2000 kW)

Fieldbus

MOD	META			
PB	DN	CAN	BAC	LON
TCP	EIP	PN		

Enclosure

IP00	IP20	IP21/Type 1
		■

IP54/Type 12	IP55/Type 12	IP66/Type 4X
■		

DrivePro® service and support



Stay calm. You're covered. DrivePro® services add value to help you **achieve your goals**

Sales and Service

Access to contacts worldwide to help optimize your productivity, improve your maintenance, and control your finances.

- 24/7 availability
- Local hotlines, local language and local stock

The Danfoss service organization is present in more than 100 countries – ready to respond whenever and wherever you need, around the clock, 7 days a week.

Find your local expert team on **www.danfossdrives.com**

24 hours
7 days a week

Full power range and dedicated VACON® drives



VACON® NXP Common DC Bus



VACON® NXP System Drive



VACON® NXP Liquid Cooled Drive

VACON® NXP Common DC Bus

VACON® NXP Common DC Bus components are designed to enable systems integrators, machine builders, and OEMs to design and build efficient industrial drives systems.

Comprehensive range

Build almost any kind of system imaginable, with this fully complete range of components, including inverter units (INUs), active front-end units (AFEs), non-regenerative front-end units (NFEs), and brake chopper units (BCUs).

Maximum uptime

Designed for absolutely reliable operation, the common DC bus range supports full availability with a minimum of operational interruptions.

Minimal installation width

Reduce installation cost and space requirements, with slim INU components optimized for minimal width of the complete drive line-up.

Power Range

DC @ 465 – 800 VDC 2 – 2000 HP single module
DC @ 640 - 1100 VDC 3 – 2300 HP single module
Parallel up to 4 modules with Drive Synch
3 x 380-500 V . . . . 2 to 2300 HP (1.5-1850 kW)
3 x 525-690 V . . . . . 3 to 2250 HP (3-2000 kW)

VACON® NXP System Drive

By combining common DC bus components the VACON® NXP System Drive provides you a drive configured and assembled to meet your needs - regardless of whether you need to control one or several motors.

Simplicity in projects

Using pre-designed enclosed drive sections for all main system parts, it enables a short engineering and configuration time for any drive system. Every project design is fully documented for the specific configuration.

Reliability is key

The verified and tested solutions that combine VACON® AC Drives, DC bus components and options result in verified and tested reliability.

Easy serviceability

A pullout system allows quick replacement of drives modules in service situations. Safety is a priority with internal touch protection and high power busbar sections in separate compartments.

Current ratings (main busbars)

3 x 380-500 V . . . . . .630-5000 A
3 x 525-690 V . . . . . .630-5000 A

VACON® NXP Liquid Cooled

A dedicated liquid-cooled drive for applications where air quality is critical, space is limited, and efficient heat transfer is essential. No need for air ducts or large fans and the compact size delivers high power density in your installation - and virtually silent operation.

Uptime and cost savings

Save on both investment and operating costs when removing heat using the liquid medium. Achieve maximum uptime, with robust operation in demanding conditions and minimal air filtering in dusty conditions.

Highest control flexibility

The drive utilizes the full VACON® NXP family control functionality to achieve modularity and scalability in a wide range of applications.

Power Range: Common DC Bus

DC @ 465 – 800 VDC 10 – 2000 HP single module
DC @ 640 - 1100 VDC . . 125 – 1750 HP single module
Parallel up to 4 modules with Drive Synch
3 x 380-500 V .200 to 2300 HP (132-2700 kW)
3 x 525-690 V .125 to 2250 HP (110-2800 kW)

Fieldbus

MOD	META			
PB	DN	CAN	BAC	LON
TCP	EIP	PN		

Enclosure

IP00	IP20	IP21/Type 1
▪		
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

Fieldbus

MOD	META			
PB	DN	CAN	BAC	LON
TCP	EIP	PN		

Enclosure

IP00	IP20	IP21/Type 1
		▪
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

Fieldbus

MOD	META			
PB	DN	CAN	BAC	LON
TCP	EIP	PN		

Enclosure

IP00	IP20	IP21/Type 1
▪		
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**



VACON® NXP Liquid Cooled Enclosed Drive



VACON® NXP Liquid Cooled Common DC Bus



VACON® NXP Grid Converter

VACON® NXP Liquid Cooled Enclosed Drive

The VACON® NXP Liquid Cooled Enclosed Drive offers all the benefits of VACON® NXP Liquid Cooled drives for high power applications in a compact IP54 rated enclosed drive package.

Predesigned is easy

Being predesigned and engineered, these drives are ready to go as soon as you receive them. Simply connect to the cooling system and the power and motor supplies.

Active Front End for clean supply

Drives with active front end minimize harmonic disturbance to the grid, enable regenerative braking and reduce the scale of infrastructure required, such as transformers and generators.

Fast serviceability

Fast access to the modules using pull-out rails saves time and money in service and maintenance situations.

Power range

3 x 525-690 V 800 to 1700 HP (800-1550 kW)

VACON® NXP Liquid Cooled Common DC Bus

This range of liquid-cooled common DC bus components brings the benefits of liquid cooling into common DC bus systems.

For demanding systems

Liquid cooling offers strong benefits in applications where cooling air supply or quality is limited, enabling creation of solutions that work even in demanding situations.

Minimum amount of spare parts

Built on a unified product platform reduces costs and increases availability of spare parts and service units, since there is a common hardware platform for all variants used.

Reliable and cost-saving

Enjoy economical installation cost, maximum uptime and full VACON® NXP control functionality.

Power range

3 x 380-500 V . . . . 2 to 3600 HP (7.5-2700 kW)
3 x 525-690 V . . . 3 to 3100 HP (110-2800 kW)

VACON® NXP Grid Converter

This range of air and liquid-cooled drives is specifically designed for energy storage and marine energy management applications.

Reliable grid

VACON® NXP Grid Converter assures a reliable grid in applications for energy storage and energy management.

Save on fuel and emissions

In marine applications fuel savings and reduced emissions are immediate benefits of grid converters in shaft generator applications.

Power range

Air-cooled
3 x 380-500 V . . . . . 180-1100 kW
3 x 525-690 V . . . . . 200-1200 kW

Liquid-cooled
3 x 380-500 V . . . . . 160-1800 kW
3 x 525-690 V . . . . . 210-1800 kW
To achieve even higher power capacity, combine multiple VACON® NXP Grid Converter units.

Fieldbus

MOD	META			
PB	DN	CAN	BAC	LON
TCP	EIP	PN		

Enclosure

IP00	IP20	IP21/Type 1
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**
■		

Fieldbus

MOD	META			
PB	DN	CAN	BAC	LON
TCP	EIP	PN		

Enclosure

IP00	IP20	IP21/Type 1
■		
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

Fieldbus

MOD	META			
PB	DN	CAN	BAC	LON
TCP	EIP	PN		

Enclosure

IP00	IP20	IP21/Type 1
■		
IP54/Type 12	**IP55/Type 12**	**IP66/Type 4X**

Decentral drives



VACON® 20 X



VACON® 100 X

VACON® 20 X

The VACON® 20 X decentral drive offers all the benefits of decentralized solutions up to 10 HP.

Robust and resistant

Due to the IP 66 enclosure and the high vibration resistance the drive is suitable for tough environments. The Gore® vent membrane ensures reliability even when wet.

Easy to integrate

A one-plug I/O connection and access to all main fieldbus protocols ensures easy integration for machine builders. Built-in IEC61131-1 programmability opens up for customized software modification, to meet the needs of most applications.

Power Range *[High Overload]*

1 x 208-240 V . . . . . .1 to 2 HP (0.75-1.5 kW)
3 x 208-240 V . . . . . .1 to 5 HP (0.75-4.0 kW)
3 x 380-480 V . . . . . 1 to 10 HP (0.75-7.5 kW)

VACON® 100 X

Robust enclosure and high functionality is provided by the VACON® 100X for indoor and outdoor applications.

No extra enclosure - even outdoors

The drive withstands high-pressure water, high vibration levels, heat and dirt. The Gore® vent membrane and IP66 enclosure give you the freedom of indoor and outdoor use.

A really cool drive

An optional space heater is available for cold environments.

Wide power range

With power range extending up to 50 HP, this drive makes the benefits of decentralized solutions available for a wide range of applications.

Power Range *[High Overload]*

3 x 208-240 V . . . . . 1.5 to 20 HP (1.1-15 kW)
3 x 380-480 V . . . . . 1.5 to 50 HP (1.1-37 kW)

Fieldbus

MOD				
PB	DN	CAN	LON	TCP
EIP	PN	ECAT		

Enclosure

IP00	IP20	IP21/Type 1
IP54/Type 12	IP55/Type 12	IP66/Type 4X
		▪

Fieldbus

MOD	META	BAC		
PB	DN	CAN	BAC	LON
TCP	EIP	PN	ECAT	

Enclosure

IP00	IP20	IP21/Type 1
IP54/Type 12	IP55/Type 12	IP66/Type 4X
		▪

VACON® Software

VACON® Live
Commissioning, maintenance, parameterization and monitoring of multiple drives.
Supported drives:
VACON® 10, VACON® 20, VACON® 20 X, VACON® 100, VACON® 100 family

VACON® Loader
Updating drive software.
Supported drives:
VACON® 10, VACON® 20, VACON® 20 X, VACON® 100, VACON® 100 family

NCDrive
Commissioning, maintenance, parameterization and monitoring of drives.
Supported drives:
VACON® NXL, VACON® NXS, VACON® NXP

NCLoad
Updating drive software.
Supported drives:
VACON® NXL, VACON® NXS, VACON® NXP

VACON® Customizer
To freely customize the operation of an AC drive.
Supported drives:
VACON® 100 or VACON® 100 INDUSTRIAL and VACON® 100 FLOW

VACON® Programming
An AC drive application programming tool to optimize drive behavior.
Supported drives:
VACON® 20, VACON® 20 X, VACON® 100, VACON® 100 X, VACON® NXS, VACON® NXP

VACON® Key
Manage and handle VACON® NXP Grid Converter licenses.
Supported drives:
VACON® NXP Grid Converter

VACON® Harmonics
Simulate the expected harmonics of an AC drive or group of drives.
Supported drives:
VACON® NXS, VACON® NXP, VACON® 10, VACON® 20, VACON® 20 X, VACON® 100 family

VACON® Save
Calculate energy savings when using an AC drive with pumps, fans and compressors.
Supported drives:
VACON® NXS, VACON® NXP, VACON® 10, VACON® 20, VACON® 20 X, VACON® 100 family

VACON® Layout
Configure and obtain documentation
Supported drives:
VACON® NXP System Drive

VACON® Documentation Wizard
Diagrams and drawings
Supported drives: VACON® NXC



Application focus to boost your business

- Danfoss VLT® and VACON® drives are optimized to create value for you. They enable maximum performance in all major applications irrespective of industry. Contact Danfoss Drives to learn how your own applications can benefit from using a VLT® or VACON® drive.

APPLICATIONS	INDUSTRIES			
	HVAC	Food and Beverage, Packaging	Water and Wastewater	Refrigeration
Pumps	■	■	■	■
Fans	■	■	■	■
Compressors	■	■	■	■
Conveyors		■		
Process, Material Treatment		■	■	
Mills, Drums, Kilns				
Winding, Unwinding				
Drilling				
Propulsion, thrusters				
Winches				
Vertical & horizontal movement		■	■	
Power conversion Generation, smart grids				
Positioning, Synchronization		■		

Marine and Offshore	Mining and Minerals	Metals	Chemical	Cranes and Hoists	Energy	Elevators and Escalators	Material handling	Oil and Gas	Pulp and Paper	Textile
■	■	■	■		■			■	■	■
■	■	■	■		■		■	■	■	■
■	■	■	■		■			■	■	
■	■	■	■		■		■			
	■	■	■		■			■	■	■
	■	■							■	
		■							■	■
	■							■		
■										
■										
■	■	■	■	■	■	■		■	■	■
■				■	■	■				
		■	■				■		■	■

ENGINEERING
TOMORROW



A better tomorrow is **driven by drives**

Danfoss Drives is a world leader in variable speed control of electric motors.
We offer you unparalleled competitive edge through quality, application-optimized products and a comprehensive range of product lifecycle services.

You can rely on us to share your goals. Striving for the best possible performance in your applications is our focus. We achieve this by providing the innovative products and application know-how required to optimize efficiency, enhance usability, and reduce complexity.

From supplying individual drive components to planning and delivering complete drive systems; our experts are ready to support you all the way.

You will find it easy to do business with us. Online, and locally in more than 50 countries, our experts are never far away, reacting fast when you need them.

You gain the benefit of decades of experience, since 1968. Our low voltage and medium voltage AC drives are used with all major motor brands and technologies in power sizes from small to large.

VACON® drives combine innovation and high durability for the sustainable industries of tomorrow.

For long lifetime, top performance, and full-throttle process throughput, equip your demanding process industries and marine applications with VACON® single or system drives.

- Marine and Offshore
- Oil and Gas
- Metals
- Mining and Minerals
- Pulp and Paper
- Energy
- Elevators and Escalators
- Chemical
- Other heavy-duty industries

VLT® drives play a key role in rapid urbanization through an uninterrupted cold chain, fresh food supply, building comfort, clean water and environmental protection.

Outmaneuvering other precision drives, they excel, with remarkable fit, functionality and diverse connectivity.

- Food and Beverage
- Water and Wastewater
- HVAC
- Refrigeration
- Material Handling
- Textile

VLT® | VACON®

Tel. +1 (888) DANFOSS | www.danfossdrives.com | E-mail: salesinformation@danfoss.com
Danfoss Drives: Houston, TX • Loves Park, IL • Milwaukee, WI • Raleigh, NC • Stoney Creek, ON

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed.
All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.

DKDD.PB.416.A7.22

© Copyright Danfoss Drives | 2019.10

EtherNet/IP™ and DeviceNet™ are trademarks of ODVA, Inc.