ENGINEERING
TOMORROW

Product Overview

Danfoss Drives
- for your applications

Quality,

application-optimized products, which target your needs

drives.danfoss.com

VLT® | VACON®

Contents

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 (MSTP)
ASi	AS interface
META	Metasys N2
MOD	Modbus RTU
TCP	Modbus TCP
BIP	BACnet/IP

Optional

PB	PROFIBUS DP V1
PN	PROFINET
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

Welcome

National Sales Manager Bjarke Byllemos, South Island Regional Manager Aslam Raza and Business Development Manager Ian Cartwright bring proven track records and a professional approach to the North, South and Pacific Island Markets.

Combining their 75+ years experience, the iDrives team offers unequalled factory trained experience from an innovative, market leading global manufacturer with full applications and service support.

iDrives is focussed on providing intelligent drive solutions and passionate about growing the Danfoss brand by helping customers maximise their opportunities and productivity. High stock levels are held in Christchurch and Auckland backed up by national and international Danfoss stocks.

The iDrives management and team look forward to combining their customer and application understanding with variable speed drive, soft starter, active and passive filter solutions, sales and service support to meet customer needs.

iDrives
INTELLIGENT DRIVE SOLUTIONS

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.

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.

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.

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
■	■	■	■		■			■	■	■
■	■	■	■		■		■	■	■	■
■	■	■	■		■			■	■	
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Danfoss ecoSmart™

MyDrive® Portfolio

Everything at your fingertips

Danfoss ecoSmart™

Now it's easy to determine IE and IES classes according to EN 50598-2, for VLT® and VACON® drives alone and in combination with a motor.

Danfoss ecoSmart™ uses nameplate data to perform the efficiency calculations, and produces a pdf report for documentation.

Danfoss ecoSmart™ app:

GET IT ON Google Play

Download on the App Store

Danfoss ecoSmart™ online tool:
http://ecosmart.danfoss.com

MyDrive® Portfolio

MyDrive® Portfolio provides an overview of the entire Danfoss AC-drives portfolio. You can use it to search for information on a particular product or to find comprehensive material related to a specific industry and its applications and products. There are also links to case studies, videos, brochures and manuals. You can browse through the information online and also download the PDFs to your mobile device. Everything you find can also be added to an e-mail for sharing.

MyDrive® Portfolio app:

GET IT ON Google Play

Download on the App Store

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® 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.....0.18-2.2 kW
3 x 200-240 V.....0.25-3.7 kW
3 x 380-480 V ..... 0.37-22 kW

Fieldbus

MOD

Enclosure

IP00	IP20	IP21/Type 1
	■	■

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

VLT® Midi Drive FC 280

The VLT® Midi Drive FC 280 delivers flexible and efficient motor control for use in a wide variety of automation and machine building applications.

Flexible. Communicative.
The VLT® Midi Drive FC 280 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, transfer of settings, and easy commissioning.

Power range
1 x 200-240 V .....0.37-2.2 kW
3 x 200-240 V .....0.37-3.7 kW
3 x 380-480 V .....0.37-22 kW

Fieldbus

MOD			
PB	PN	CAN	EIP

Enclosure

IP00	IP20	IP21/Type 1
	■	■

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

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

VLT® AutomationDrive FC 302

The VLT® AutomationDrive FC 302 is a modular drive designed to comply with all modern automation application requirements with easy configuration and a broad 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 and SSM.

Integrated Motion Controller

The Integrated Motion Controller software enables the VLT® AutomationDrive FC 302 to run induction and PM motors in positioning and synchronization applications, both with and without encoders.

Harmonic mitigation

Advanced active filter variants reduce harmonics to below 3% at best, and 12-pulse drives provide robust cost-effective harmonics reduction in supply applications.

Power range

3 x 200-240 V.....0.25-37 kW
3 x 380-500 V.....0.37-1100 kW
3 x 525-600 V .....0.75-75 kW
3 x 525-690 V.....1.1-1400 kW

Power range - Low harmonic drive

3 x 380-480 V .....132-710 kW

Power range - 12-pulse drive

3 x 380-500 V..... 250-1000 kW
3 x 525-690 V .....250-1400 kW

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 200-240 V.....1.1-22 kW
1 x 380-480 V.....7.5-37 kW
3 x 200-240 V.....0.25-45 kW
3 x 380-480 V .....0.37-1000 kW
3 x 525-600 V .....0.75-90 kW
3 x 525-690 V.....1.1-1400 kW

Power range - Low harmonic drive

3 x 380-480 V .....132-710 kW

Power range - 12-pulse drive

3 x 380-500 V.....250-1000 kW
3 x 525-690 V .....250-1400 kW

Fieldbus

MOD				
PN	DN	PB	TCP	EIP

Enclosure

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

VLT® HVAC Drive FC 102

The ideal choice for fan and pump applications in modern buildings. The drive offers maximum flexibility in installation, bus connections and control intelligence.

HVAC Inside

The VLT® HVAC Drive FC 102 is especially 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

3 x 200-240 V.....1.1-45 kW
3 x 380-480 V .....1.1-1000 kW
3 x 525-600 V .....1.1-90 kW
3 x 525-690 V.....1.1-1400 kW

Power range - Low harmonic drive

3 x 380-480 V .....132-710 kW

Power range - 12-pulse drive

3 x 380-500 V..... 250-1000 kW
3 x 525-690 V .....250-1400 kW

Fieldbus

MOD	META	BAC		
DN	LON	BAC	TCP	EIP
PB	PN	BIP		

Enclosure

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

Power options

VLT® Advanced Active Filter AAF

VLT® Advanced Harmonic Filter AHF 005 and AHF 010

VLT® Advanced Active Filter AAF

Active filter technology is the most advanced approach for mitigating harmonics. Fast current detection and micro-controlled inverse current injection reduce total harmonics to less than 3% THDi.

Highly efficient
Active filters operate on much lower currents than comparable serial methods and are much more efficient. Dimensioning to the individual harmonics spectrum requirements saves further costs.

Flexible
Active filters support central, individual or group compensation set-ups.

Power range*
380-480 V ..... 190/250/310/400 A

* Additional power ratings and voltage ranges are available on request.

Enclosure

IP00	IP20	IP21/Type 1
		■

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

VLT® Advanced Harmonic Filter AHF 005 and AHF 010

These passive harmonic filters are robust and easy to use. They reduce harmonics while maintaining good system energy efficiency.

Strong performance
The AHF 005 and AHF 010 filters deliver superior system performance, and reduce THDi to less than 5% or 10% respectively, at nominal conditions.

Optimized design
The filters offer superior cooling, very low heat losses and a compact footprint. The integrated capacitors can be switched off to reduce the reactive current at low loads.

Power range
3 x 380/400/500/600/690 V...10-460 A*

* Achieve higher ratings by connecting in parallel. See AHF 005 or AHF 010 Design Guide for details.

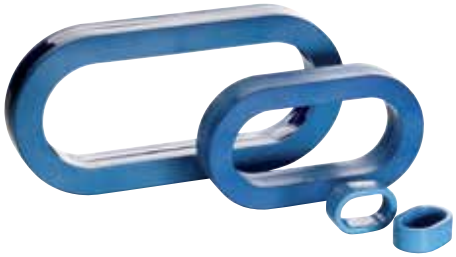
Enclosure

IP00	IP20	IP21/Type 1
■	■	

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

VLT® Sine-Wave Filters

VLT® dU/dt Filters



VLT® Common Mode Filter

VLT® Sine-wave Filters

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 200-690 V ..... 2.5-880 A*

*For higher power ratings, combine multiple modules.

Enclosure

IP00	IP20	IP21/Type 1
■	■	

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

VLT® dU/dt Filters

VLT® dU/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 .....15-800 A*

*For higher power ratings, combine multiple modules.

Enclosure

IP00	IP20	IP21/Type 1
■	■	

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

VLT® Common Mode Filter

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

Wide coverage
Just 5 sizes cover the range up to 480 A.

Combinable
The filters can be combined with other output filters.

Power range
3 x 380-690 V ..... 10-480 A

Motion drives

VLT® OneGearDrive®

VLT® Integrated Servo Drive ISD 410 System

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
3 x 380-480 V ..... 0.75-3.0 kW

VLT® Integrated Servo Drive ISD 410 System

A decentral compact drive based on a synchronous servomotor that is energy-efficient, precise and easy to install. The drive is especially suited to applications that require high flexibility and dynamics.

Trajectory generator
The motion control is integrated into the drive so that the motion sequences can take place independently.

Hybrid cable
The hybrid cable combines the 300 V DC power supply, the Safe Torque Off (STO) signal, and the bus communication.

Open master system
Programming is based on the standard IEC 61131-3.

Power range
300 V DC ..... nom. 1.7-2.1 Nm /max. 8-11 Nm

Fieldbus

CAN	ECAT	PL

Enclosure * OGD-H version; ** OGD-S version

IP00	IP20	IP21/Type 1

IP54/Type 12	IP67/IP69K	IP67
	■*	■**

Enclosure *shaft is rated IP65 with shaft seal

IP00	IP20	IP21/Type 1

IP54/Type 12	IP55/Type 12	IP67*
■		■

Soft starters

VLT® Integrated Servo Drive ISD 510

VLT® Compact Starter MCD 201 and 202

VLT® Integrated Servo Drive ISD 510

This servo drive system is ideal for demanding applications in the food, beverage, pharmaceutical and packaging industries.

Simple and fast

Installation is simple and fast, with pre-configured hybrid cables in a daisy-chain concept. The servo system comprises VLT® Servo Access Box (SAB®), central power supply, decentral drive modules and cabling infrastructure. Depending on the application, the SAB® can power up to 64 drives in a servo drive system.

Highly flexible

Decentral motion sequences enable scaling of the system size independently of the controller. Program the master via IEC 61131-3.

Power range

300 V DC .....nom. 1.7-3.7 Nm /max. 6.2-13 Nm
565–680 V DC ±10%...nom. 1.5-3.8 Nm /max.6.1-13 Nm

Fieldbus

CAN

Enclosure

IP00	IP20	IP21/Type 1

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

VLT® Compact Starter MCD 201 and 202

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 201 and MCD 202 automatically connect the motor to the mains supply via the built-in bypass relay. This minimizes losses during operation under full load.

Technical data

Input.....3 x 200-575 V
Control voltage .....24 V AC or DC/110-440 V AC
Power..... 7.5 kW-110 kW (200 A)

Fieldbus

PB	DN	MOD	EIP

Enclosure

IP00	IP20	IP21/Type 1
■	■	

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

VLT® Soft Starter MCD 500

VLT® Soft Starter MCD 600

VLT® Soft Starter MCD 500

The VLT® Soft Starter MCD 500 is the 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 in order to avoid water hammering.

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® Soft Starter MCD 600

The VLT® Soft Starter MCD 600 combines the latest in advanced controls and protections with an increased level of intelligence for superior performance in fixed-speed applications.

Flexibility

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.

Integral Bypass

The integrated bypass ensures both extremely high efficiency and harmonic-free operation at full speed, reducing energy consumed and required cooling capacity.

Ease of Use

Ease of use is also greatly increased with new capabilities, such as the pump-clean function, PowerThrough operation, and calendar or run time based scheduling. Furthermore, enhanced protection ensures more uptime.

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

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, the 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. Hard work.

VACON® 20

VACON® 20 comes with 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 supports of a wide variety of fieldbus connections. 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 phase with no need for mains power - saving both time and effort.

Power range

1 x 115 V..... 0.25-1.1 kW
1 x 208-240 V..... 0.25-2.2 kW
3 x 208-240 V..... 0.25-11 kW
3 x 380-480 V..... 0.37-18.5 kW

Fieldbus

MOD				
PB	DN	CAN	ECAT	PN
EIP	TCP			

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 °C 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..... 0.75-1.5 kW
3 x 208-240 V..... 0.75-4.0 kW
3 x 380-480 V..... 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 drives and dedicated 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

3 x 208-240 V.....0.55-90 kW
3 x 380-500 V.....1.1-630 kW
3 x 525-690 V.....5.5-800 kW

Fieldbus

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

Enclosure

*Dependent upon enclosure size

IP00	IP20	IP21/Type 1
■		■*

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

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.

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

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

3 x 208-240 V.....0.55-90 kW
3 x 380-500 V.....1.1-630 kW
3 x 525-690 V.....5.5-800 kW

Fieldbus

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

Enclosure

*Dependent upon enclosure size

IP00	IP20	IP21/Type 1
■		■*

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

VACON® NXP Air Cooled

VACON® NXC Air Cooled Enclosed Drives

VACON® NXP Liquid Cooled Drive

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.....0.55-90 kW
3 x 380-500 V.....1.5-1200 kW
3 x 525-690 V.....2.0-2000 kW

Fieldbus

PB	DN	CAN	BAC	LON
TCP	EIP	PN	MOD	META
ECAT				

Enclosure

*Dependent upon enclosure size

IP00	IP20	IP21/Type 1
■		■*

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

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.....132-1200 kW
3 x 525-690 V.....110-2000 kW

Power range - AFE supply

500 V.....132-1500 kW
690 V.....110-2000 kW

Power range - Low harmonic, Active Filter supplies

500 V.....132-560 kW
690 V.....110-800 kW

Fieldbus

PB	DN	CAN	BAC	LON
TCP	EIP	PN	MOD	META
ECAT				

Enclosure

IP00	IP20	IP21/Type 1
		■

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

VACON® NXP Liquid Cooled Drive

This dedicated liquid-cooled drive is well-suited to applications where air quality is critical, space is limited, and efficient heat transfer is required.

Compact

No need for air ducts or large fans, combined with a more compact size, means you achieve a 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 even in demanding conditions and with only 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 AC drive applications.

Power range

3 x 380-500 V.....132-4100 kW
3 x 525-690 V.....110-5300 kW

Fieldbus

PB	DN	CAN	BAC	LON
TCP	EIP	PN	MOD	META
ECAT				

Enclosure

IP00	IP20	IP21/Type 1
■		

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

System drives

VACON® NXP Liquid Cooled Enclosed Drive

VACON® NXP System Drive

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.....800-1550 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

Fieldbus

PB	DN	CAN	BAC	LON
TCP	EIP	PN	MOD	META
ECAT				

Enclosure

IP00	IP20	IP21/Type 1

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

Fieldbus

PB	DN	CAN	BAC	LON
TCP	EIP	PN	MOD	META
ECAT				

Enclosure

IP00	IP20	IP21/Type 1
		■

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

VACON® NXP Common DC Bus

VACON® NXP Liquid Cooled Common DC Bus

VACON® NXP Grid Converter

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
3 x 380-500 V..... 1.5-1850 kW
3 x 525-690 V..... 3-2000 kW

Fieldbus

PB	DN	CAN	BAC	LON
TCP	EIP	PN	MOD	META
ECAT				

Enclosure

IP00	IP20	IP21/Type 1
■		

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

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.....7.5-4100 kW
3 x 525-690 V.....110-5300 kW

Fieldbus

PB	DN	CAN	BAC	LON
TCP	EIP	PN	MOD	META
ECAT				

Enclosure

IP00	IP20	IP21/Type 1
■		

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

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

PB	DN	CAN	BAC	LON
TCP	EIP	PN	MOD	META
ECAT				

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 7.5 kW.

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
1 x 208-240 V.....0.75-1.5 kW
3 x 208-240 V.....0.75-4.0 kW
3 x 380-480 V.....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 37 kW, this drive makes the benefits of decentralized solutions available for a wide range of applications.

Power range
3 x 208-240 V..... 1.1-15 kW
3 x 380-500 V .....1.1-37 kW

Fieldbus

MOD				
PB	DN	CAN	LON	TCP
EIP	PN	ECAT	ASI	

Fieldbus

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

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
		■

Software

Danfoss ecoSmart™
Now it's easy to determine IE and IES classes according to EN 50598-2, for VLT® and VACON® drives alone and in combination with a motor. Danfoss ecoSmart™ uses nameplate data to perform the efficiency calculations, and produces a pdf report for documentation.

Danfoss ecoSmart™ online tool:
http://ecosmart.danfoss.com

Danfoss HCS
Danfoss HCS is a professional harmonics simulation tool which is web-based. It provides harmonic analysis of systems using VLT® and VACON® products. This tool uses a scientific simulation platform with an advanced simulation model. It uses more system parameters than the other harmonics simulation tools offered by Danfoss Drives, and therefore delivers more accurate results. Danfoss HCS presents the results of the simulation in table or graphical form.

VLT® Software

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 energyefficient - 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
The MCT 31 harmonic simulation tool is a stand-alone program for Windows and useful in the planning phase. It is easy to use, includes a database of VLT® drives products, and provides a fast overview of the expected general system performance. It can also propose a cost-effective harmonics mitigation strategy based on the Danfoss product range.

VACON® Software

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

VACON® Loader
Updating AC drive firmware and installing application software.
Supported drives: VACON® 10, VACON® 20, VACON® 20 X, VACON® 100 X, VACON® 100 family

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

VACON® NCLoad
Updating AC drive firmware and installing application software.
Supported drives: VACON® NXL, VACON® NXS, VACON® NXP

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

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

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

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

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

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.

DrivePro® Life Cycle Services

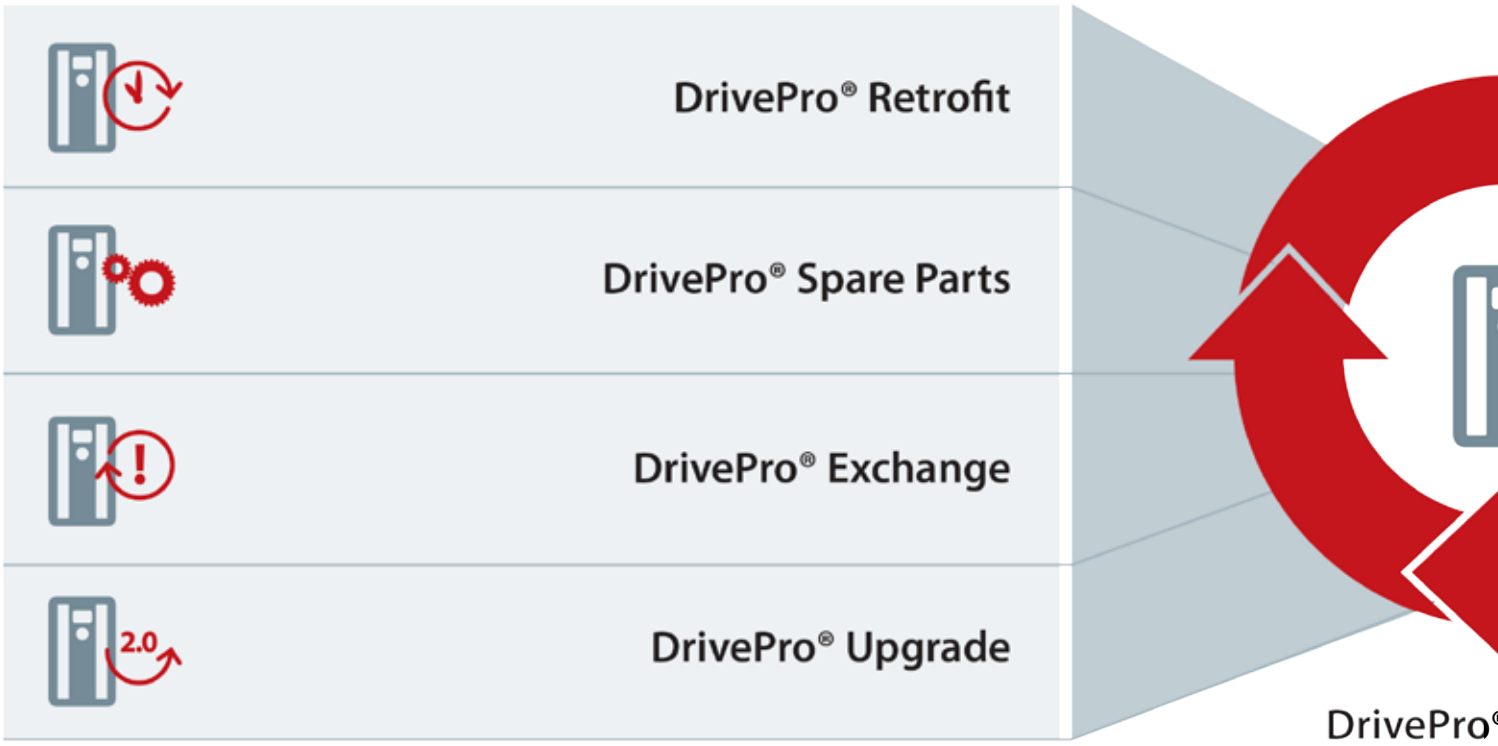
Get the most out of your systems, with the help of DrivePro® services for Danfoss VLT® and VACON® drives. You get services that go beyond simple troubleshooting, maintenance, repairs and replacements. They also proactively improve productivity, performance and uptime.

Danfoss Drives' comprehensive portfolio of services spans the entire lifecycle of your drives.

DrivePro® services are delivered by experts. They are customized to your requirements, whenever and wherever you need them.

What DrivePro® services can do for your operations:

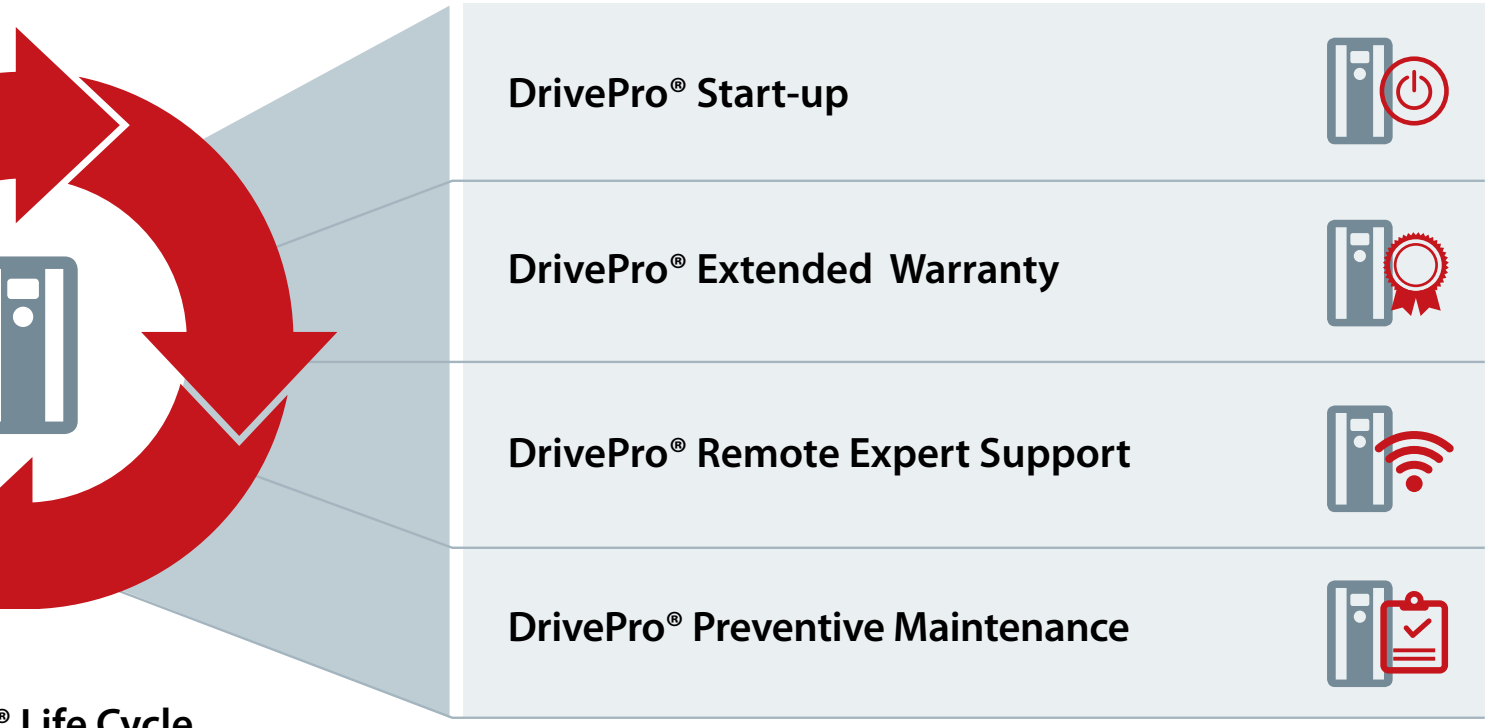
Add value: DrivePro® services add value to your processes and business. You win efficiency, predictability and peace of mind.



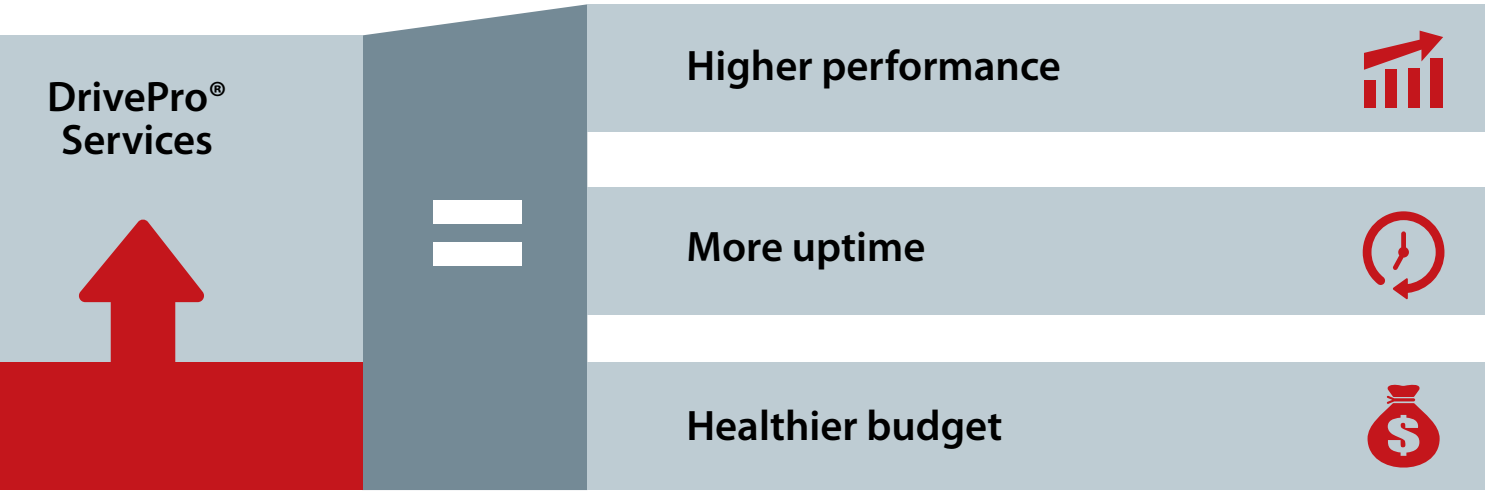
Deliver know-how: DrivePro® experts understand the special characteristics, needs and requirements of your AC drives applications, your industry, and your business.

Keep you at the forefront: DrivePro® services ensure you have access to all the latest innovations in the form of upgrades or exchanges. Because we understand your application needs, we are confident in making recommendations for the future.

When you deal with us, we also offer you access to training, as well as the application knowledge to help you in planning and preparation. Our experts are at your service.



® Life Cycle



DrivePro® National Support...

There when you need it the most

- Dedicated Service Personnel
- Factory Trained Technicians
- NZ Electrical Registration
- Spare Parts on Hand
- Loan Drives
- Rapid Response

Authorised DrivePro®

Service Partner
Factory Trained Technicians

DrivePro® Part of your Service Team

Preventative Maintenance & Additional Services

Thermal Imaging Surveys

Overheating of drives within panels is potentially fatal to drives and yet problematical in its diagnosis. The main semi-conductor devices are temperature critical and must be maintained within specified parameters otherwise degradation occurs with the consequence of reduced drive life expectancy. Similarly, a poor electrical connection could lead to devastating damage of a control cabinet.

Our engineers will visit your site and carry out a comprehensive thermal survey using the most up-to-date infrared thermography instrumentation.

This is entirely non-intrusive and can, indeed must be carried out during plant operation representative of the conditions under which the drives are expected to operate.

Harmonic Analysis

Finds potential network disturbances and problems before they find you, avoiding unnecessary downtime.

Environmental Disposal

Danfoss offer controlled environmental disposal of your redundant drives in line with local requirements

DrivePro® Services - Drive Site Audit

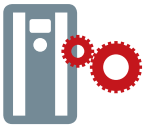
The first step to your greater productivity

DrivePro® Site Audit. The first step to understand the installed base of drives on your site, be them Danfoss or drives from other manufacturers. The Audit will classify the drives into their risk category. The report determines critical assets, understanding of the cost of downtime, the environmental conditions. The age of a product, its obsolescence status, if spares are available and the ability to upgrade to encompass market developments such as communication networks, and machine safety requirements.

The 'Smart STEP' Lifecycle Management - path forward proposal then agrees on a timeline of maintenance, repairs, upgrades and replacements to ensure maximum site productivity and asset availability.

Lifecycle
Value Creation
with **DrivePro®**
Products

You're covered
with DrivePro® Life Cycle service products



DrivePro® Spare Parts
In critical situations, you want no delays. With DrivePro® Spare Parts you always have the right parts on hand, on time. Keep your drives running at top efficiency, and optimize system performance.

DrivePro® Extended Warranty
Get the longest coverage available in the industry, for peace of mind, a strong business case and a stable, reliable budget. You know the annual cost of maintaining your drives, up to six years in advance.

DrivePro® Start-up
Save on installation and commissioning time and cost. Get help from professional drives experts during start-up, to optimize drives safety, availability and performance.

DrivePro® Remote Expert Support
You can always access expert help through a computer connected to your drive. Our experts are never far away, always ready to help you maintain high performance in your operations.

DrivePro® Exchange
You obtain the fastest, most cost-efficient alternative to repair, when time is critical. You prevent excessive downtime, thanks to quick and correct replacement of the drive.

DrivePro® Retrofit
Manage the end of product lifecycle efficiently, with professional help to replace your legacy drives.
The DrivePro® Retrofit service ensures optimal uptime and productivity during the smooth replacement process.

DrivePro® Preventive Maintenance
You receive a maintenance plan and budget, based on an audit of the installation. Then our experts perform the maintenance tasks for you, according to the defined plan.

DrivePro® Upgrade
Use an expert to replace parts or software in a running unit, so your drive is always up-to-date. You receive an on-site evaluation, an upgrade plan and recommendations for future improvements.

ENGINEERING
TOMORROW

Danfoss Drives New Zealand

The Team Dedicated to Servicing & Supporting Your Variable Speed Drives and Soft Starters

Danfoss NZ Ltd
www.danfoss.co.nz
Unit 2, 24 Bishop Dunn Place, East Tamaki, Auckland
PO Box 12422, Penrose, Auckland, New Zealand

iDrives
INTELLIGENT DRIVE SOLUTIONS

www.idrives.net

Bjarke Byllemos
National Sales Manager

Email bjarke.byllemos@idrives.net
Mobile +64 (0)21 928 574

Aslam Raza
Regional Sales Manager (South Island)

Email aslam.raza@idrives.net
Mobile +64 (0)21 033 9561

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