



VLT® | VACON®

DRIVES

Product Overview

BEE4

EMPOWERING SUPPLIER

ISO 9001	Certified
ISO 14001	Certified
ISO 45001	Certified

ABOUT US

Established in 1974 as a single bearing shop in Durban, South Africa; BMG's aggressive growth strategy has included acquisitions, supplemented by a steady organic growth discipline. BMG attracts best-of-breed talent resulting in technical expertise that differentiates BMG in the industry. Staff are truly part of the BMG family and its success.

BMG boasts an accredited in-house technical and commercial training academy which fosters a culture of staff development and career advancement; it's all about sustainability.

The net result, is a company that reliably supplies and supports 70 000 customers in 15 countries with the widest range of industrial engineered products and expert services in Africa via 105 branches.

BMG is positioned to deliver bespoke 360 degree solutions to its customers, and subsequently return on investment to its investors and shareholders. BMG plays a pivotal role in supporting the productivity and production targets of all Industrial, Manufacturing, Mining and Agricultural sectors of the economies in the countries it serves. With an enviable reputation as Africa's largest distributor, manufacturer and service provider of the highest quality engineering consumables and components; including

- Bearings & Seals
- Power Transmission Components
- Drives, Motors and Controllers
- Hydraulics, Pneumatics and Filtration
- Heavy and Light Duty Materials Handling
- Valves and Lubrication
- Fasteners, Gaskets and Tools

BMG is a level 4 BEE contributor with ISO 9001 Quality Assurance certification. Health and safety of its employees and customers is a paramount focus and the company adheres to ISO 45001. BMG is also committed to environmental care and sustainability and strictly follows the ISO 14001 charter.

As a key contributor to the Invicta Holdings stable, BMG has played a major part in Invicta's unique achievement of being rated in South Africa's Top 100 Companies for 21 consecutive years.



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OVERVIEW

United by a passion for perfection, Danfoss and Vacon have teamed up to offer you more. Together, as Danfoss Drives, they are the world's largest independent drives provider, offering full product ranges needed for any application. Contact BMG to get the best drive for your application.

Most of the drive ranges listed in this overview are available with integrated harmonic mitigation and meet EMC requirements to ensure high quality, clean power supply. Regional variations in drive availability can arise.

Communications Functionality

The communication interface and Fieldbus protocol functionality are 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



True System Independence



System Independence

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

- Meet the unique requirements of your applications;
- Operate at peak performance;
- Optimise 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, continue to emerge, extending both the full-load and part-load performance. The unique requirements of these more innovative motor technologies such as permanent magnet (PM) motors and synchronous reluctance (SynRM) motors, also demand specific motor control algorithms within the AC drive. Both VLT® and VACON® drives have the built-in capability 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 communicate efficiently over standard interfaces such as PROFINET or EtherNet/IP in industrial applications or BACnet/IP in building automation applications. Regardless of your application or preferred communication protocol, both the VLT® and VACON® drives have a remarkably wide variety of communication protocols on offer. 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.



Danfoss ecoSmart™



MyDrive® Portfolio

Everything at your Fingertips

Danfoss ecoSmart™

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.

The Danfoss ecoSmart™ uses nameplate data to perform efficiency calculations and to produce a PDF report for documentation purposes.

Danfoss ecoSmart™ app:



Danfoss ecoSmart™ online tool:

<http://ecosmart.danfoss.com>

MyDrive® Portfolio

The 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 or download the PDF's to your mobile device. You are also able to share everything you find via e-mail.

MyDrive® Portfolio App:



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 pivotal 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.

VLT® drives 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 of global resource management and factory automation.



VLT® Micro Drive FC 51

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. All the typical features of the stand and Danfoss drives are retained.

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

The Protection of Electronics

To ensure a long service life, ensure that the cooled 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

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 tough on control performance, functional safety, and flexible Fieldbus communication. Integrated functions such as a DC choke, RFI filter, 'Safe Torque Off' (STO), and a brake chopper saves you from finding space and a budget to install extra components.

Easy Retrofit

The VLT® Midi Drive is readily 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 the fast implementation of factory settings, including the 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® Lift Drive LD 302

VLT® Lift Drive LD 302

Suitable for both traction and hydraulic elevators, the VLT® Lift Drive operates open or closed-loop systems.

Smooth, Silent & Safe

Absolute safety is standard with all VLT® drive solutions, with comfort being our highest priority. With a high switching frequency, an optimised-controlled internal cooling fan and no motor contactors, VLT® Lift Drive ensures a quiet run with low acoustic noise and high reliability.

It is operational without motor contactors. The embedded 'Safe Stop' function matches the safety standards of the conventional two-contactor version used for elevators. This patented feature opens up further possibilities, particularly for roomless machine lifts.

Operational with any Typical Motor Type or Brand

Regardless of motor type or brand, static automatic motor adaptation (AMA) enables easy commissioning, without having to remove the ropes from the traction sheaves.

Power Range

380-400 V.....4-55 kW

Fieldbus

DCP DSP

Enclosure

IP00	IP20	IP21/Type 1
	■	■
IP54/Type 12	IP55/Type 12	
	■	



VLT® Refrigeration Drive FC 103

VLT® Refrigeration Drive FC 103

Dedicated to controlling compressors, pumps and fans for significant energy savings in refrigerating plants while prolonging the service life of the components.

Improving COP

(Coefficient of Performance) Intelligent power adjustment increases system stability and optimises 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	200-240	V.....	1.1-45	kW
3	x	380-480	V.....	1.1-710	kW
3	x	525-600	V.....	1.1-7.5	kW
3	x	525-690	V.....	75-630	kW

Fieldbus

MOD META
AKD PB PN

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' function 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.

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
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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 the master/follower operation. Extended functionality is available as 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
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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

VLT® is 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

Specifically 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 an 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
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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
■	■	■



VLT® Advanced Active Filter AAF

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 more efficient. Dimensioning to the individual harmonics spectrum requirements saves further costs.

Flexible

Active filters support central, individual or group compensation setups.

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

VLT® Advanced Harmonic Filter AHF 005 & AHF 010

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

Optimised Design

The filters offer superior cooling functions, low heat losses and a compact footprint. Switch the integrated capacitors off to reduce the reactive current on low loads.

Power Range

3x380/400/500/600/690 V.....10-460 A*

*Achieve higher ratings by connecting the drives 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[®] 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 the AC drive operation of older motors, low permitted voltages in terminal boxes or without phase insulation.

Long Motor Cables

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

Power Range

3x200-690 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

VLT[®] dU/dt Filters reduce the rate of the voltage rise on a motor terminal and protect old or weak motor insulation against breakdowns. 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.

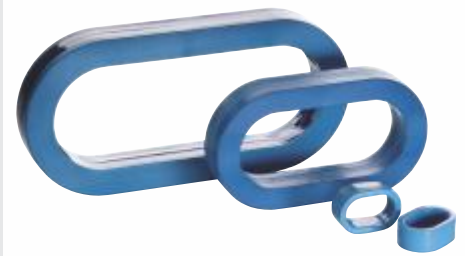
Power Range

3x200-690 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

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

3x380-690 V.....10-480 A



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

The AC Drive housing accommodates all the required modules and available options.

Minimizing Installation Costs

Fewer external components and connectors save installation, assembly and maintenance time.

Hygienic Design

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

Power Range

3X380-480 V0.37-3.0 kW

Fieldbus

MOD				
PN	EIP	PB	PL	ECAT

Enclosure

IP 00	IP20	IP21/Type 1
IP54/Type 12	IP55/Type 12	IP66/Type 4X
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VLT® DriveMotor FCP 106

For full flexibility in motor choice, system design and energy efficiency, choose your 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

3x380-480 V0.55-7.5 kW

Fieldbus

MOD	
BAC	PB

Enclosure

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



VLT® DriveMotor FCM 106

A fully-integrated motor and drive solution, available with either an IE4 PM motor or an IE2 induction motor.

Reduce Cost and Complexity

The compact design of this motor reduces both installation costs and complexity significantly. Reduce cost further by eliminating the need for cabinets, additional cooling and long motor cables.

IE3 Alternative

European Regulation 640/2009 defines IE2 motors with AC drives as an alternative to IE3 motors.

Power Range

3x380-480 V0.55-7.5 kW

Fieldbus

MOD	
BAC	PB

Enclosure

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



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

The 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 like aseptic areas and clean room production areas.

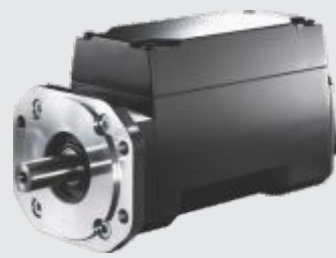
Power Range

3x380-480 V.....0.75-3.0 kW

Enclosure

*OGD-H version; **OGD-S version.

IP00	IP20	IP21/Type 1
IP54/Type 12	IP67/IP69K	IP67
	■*	■**



VLT® Integrated Servo Drive ISD 410 System

It is a decentral compact drive based on an a synchronous servomotor. It 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.

The open master system programming is based on the standard IEC 61131-3.

Power Range

300 V DCnom. 1.7-2.1 Nm
.....max. 8-11 Nm

Fieldbus

CAN	ECAT	PL
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Enclosure

*Shaft is rated IP65 with shaft seal

IP00	IP20	IP21/Type 1
IP54/Type 12	IP55/Type 12	IP67*
■		■



VLT® Integrated Servo Drive ISD 510

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

Fast & Easy

Installation is fast and easy, with pre-configured hybrid cables in a daisy-chain concept. The servo system comprises of a 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 the IEC 61131-3.

Power Range

300 V DC.....nom. 1.7-3.7 Nm
.....max. 6.2-13 N
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® Soft Start Controller MCD 100

The compact soft starter series is a cost-effective alternative to traditional contactors and can replace star/delta combinations. The ramp time, starting torque and kick start settings are adjusted via the 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 mounts. The unique contactor design allows an almost unlimited number of starts per hour, without derating.

Technical Data

Input.....3 x 208-600 V
Control Voltage....24-480 V AC or DC
Power.....0.1 kW - 11 kW (25 A)

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 versions are 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

Once the motor is started, the MCD 201 and 202 automatically connect the motor to the mains supply via the built-in bypass relay. This reduces losses during the full load operation.

Technical Data

Input.....3 x 200-575 V
Control voltage24 V AC
or DC/110-440 V AC
Power.....7.5 kW - 110 kW (200 A)

Fieldbus

PB	DN	MOD	EIP
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Enclosure

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



VLT® Soft Starter MCD 500

The VLT® Soft Starter MCD 500 is a comprehensive solution for soft starting-and-stopping three-phase asynchronous motors. The integrated current transducers measure the current and then provide important data for an optimal start-and-stop ramp. A built-in bypass to 961 A is available.

Fast Commissioning

The four-line visual display, with a selection of eight languages and the quick menu ensures an easy and reliable configuration and read-out.

Load-Oriented Start

The adaptive Acceleration Control (AAC), adjusted to the respective load, ensures the best possible start and stop ramps 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 kW (1600A) / 2400*
*Inside delta connection

Fieldbus

PB	DN	MOD	EIP
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Enclosure

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

Combine innovation and high durability for the sustainable industries of tomorrow for a long lifetime, top performance and full-throttle process throughout 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 that VACON® drives form a 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.

Reduce total operational cost and cut capital expenditure with compact size and lower airconditioning load. The exceptional VACON® range is continuously advancing, with rigorous application-optimized innovation, ready to be put to work.



VLT® Compact Starter MCD 201 & 202

VACON® 20 Series

The VACON® 20 series is very compact and comes with a programming functionality that makes it one of the most easily adaptable drives available for OEM applications.

Saves Machine Costs

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

High Fieldbus Connectivity

The VACON® 20 supports a wide variety of Fieldbus connections. It enables effective machine integration, eliminating the need for external Fieldbus gateways and parallel I/O connections.

Configure Without Mains Power

During the installation phase, parameter configuration can be copied into the VACON® 20 series without the use of mains power, saving both time and effort due to the copying module (optional).

Power Range

1x115 V	.....	0.25-1.1	kW
1x208-240 V	.....	0.25-2.2	kW
3x208-240 V	.....	0.25-11	kW
3x380-480 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



VLT® Soft Starter MCD 500

VACON® 20 Cold Plate

For flexibility in cooling, with a 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 cooling configurations such as passive heat sinks, liquid-based cooling or various other cold surfaces, onto which the AC drive can be mounted.

Goes into Sealed Enclosures

The VACON® 20 Cold Plate operates in up to $\pm 70^{\circ}\text{C}$ ambient temperatures without derating and is installable at low depths due to its flat form factor. For the user, this means the highest possible flexibility and the ability to install the drive onto sealed enclosures.

VACON 20 Benefits

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

Power Range

1x208-240 V	.....	0.75-1.5	kW
3x208-240 V	.....	0.75-4.0	kW
3x380-480 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



VACON® 100 INDUSTRIAL and VACON® 100 FLOW

VACON® 100 Industrial

The VACON® 100 Industrial is a workhorse used 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 & Enclosed Drives

All power sizes are available as drive modules. The free-standing enclosed drive version for higher power sizes contain 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 additional interface cards by using the same drive for all major protocols required.

Easy Adaptation

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

Power Range

3x208-240 V	.....	0.55-90 kW
3x380-500 V	.....	1.1-630 kW
3x525-690 V	.....	5.5-800 kW

Fieldbus

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

Enclosure

*Dependent on the 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 series, 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 & Enclosed Drives

All power sizes are available as drive modules. The free-standing enclosed drive version for higher power sizes contain 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

3x208-240 V	.....	0.55-90 kW
3x380-500 V	.....	1.1-630 kW
3x525-690 V	.....	5.5-800 kW

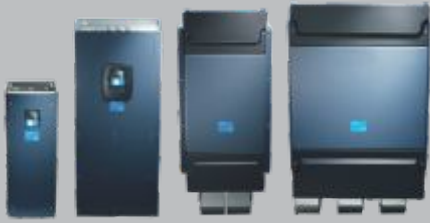
Fieldbus

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

Enclosure

*Dependent on the enclosure size

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



VACON® NXP Air Cooled

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

The control flexibility of the VACON® NXP 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 needed. Fast optical drive-to-drive communication gives you the flexibility of load sharing and paralleling of the power units.

Extremely Flexible

Adapt the drive to several diverse usage requirements by loading the VACON® application software that best suits your needs. A built-in PLC functionality, according to IEC61131-1, enables you to create custom functionality in the drive to obtain cost savings and extensive machine integrations.

Power Range

3x208-240 V.....0.55-90 kW
 3x380-500 V.....1.5-1200 kW
 3x525-690 V.....2.0-2000 kW

Fieldbus

PB	DN	CAN	BAC	LON
TCP	EIP	PN	MOD	META
ECAT				

Enclosure

*Dependent upon the enclosure size

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



VACON® NXC Air Cooled Enclosed Drives

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 & factory tested to ensure reliable & 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 of the enclosed drive. It is also internally protected against accidental touch to increase user safety.

Easy to Configure

Choose between a wide range of cabinet-installation options, both 6- and 12-pulse versions are available.

Power Range

3x380-500 V.....132-1200 kW
 3x525-690 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

VACON® NXP Liquid-Cooled Drive

This dedicated liquid-cooled drive is well-suited for 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 that you achieve a higher power density in your installation and virtually silent operation.

Uptime & Cost Savings

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

3x380-500 V.....132-4100 kW
 3x525-690 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 Liquid-Cooled Enclosed Drive

VACON® NXP Liquid-Cooled Enclosed Drive

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

Predesigned is Easy

Predesigned and engineered, these drives are ready to work as soon as you receive them. Connect the drive to the cooling system, the power and motor supplies.

Active Front End for a Clean Supply

Drives with an active front end minimise 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 save time and money in service and maintenance situations.

Power Range

3x525-690 V.....800-1550 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 System Drive

VACON® NXP System Drive

By combining standard DC bus components, the VACON® NXP System Drive provides you with a drive configured and assembled to meet your requirements, regardless of whether you need to control one or multiple motors.

Simplicity in Projects

To enable a short engineering and configuration time for any drive system, use pre-designed enclosed drive sections for all the main system parts. Every project design is fully documented for a 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 drive modules in service situations. Safety is a priority with internal touch protection and high power busbar sections in separate compartments.

Current Ratings (Main Busbars)

3x380-500 V.....630-5000 A
3x525-690 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



VACON® NXP Common DC Bus

VACON® NXP Common DC Bus

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

Comprehensive Range

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

Maximum Uptime

Designed for simple and reliable operation. The average DC bus range supports full availability with minimal operational interruptions.

Minimal Installation Width

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

Power Range

3 x 380-500 V.....1.5-1850 kW
3 x 25-690 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

VACON® NXP Liquid-Cooled Common DC Bus

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

For Demanding Systems

Liquid-cooling proves to be beneficial in applications where cooling air supply or quality is limited, enabling the creation of solutions that work, even in demanding situations.

Minimum Amount of Spare Parts

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

Reliable & Cost-Saving

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

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

VACON® NXP Grid Converter

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

Reliable Grid

VACON® NXP Grid Converters ensure a reliable grid in applications for energy storage and energy management.

Save on Fuel & 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



VACON® 20 X

VACON® 20 X

The VACON® 20 X decentral drive offers all the benefits of decentralised solutions up to 7.5 kW.

Robust & Resistant

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

Easy to Integrate

The one-plug I/O connection and access to all main Fieldbus protocols ensure an effortless integration for machine builders. Built-in IEC61131-1 programmability allows for customised software modification to meet the requirements of various applications.

Power Range

1x208-240 V.....	0.75-1.5 kW
3x208-240 V.....	0.75-4.0 kW
3x380-480 V.....	0.75-7.5 kW

Fieldbus

MOD				
PB	DN	CAN	LON	TCP
EIP	PN	ECAT	ASI	

Enclosure

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



VACON® 100 X

VACON® 100 X

The VACON® 100X provides robust enclosures and high functionality 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 will give you the freedom of indoor and outdoor use.

Drive Heater

An optional space heater is available for cold environments.

Wide Power Range

With a power range extending up to 37 kW, this drive makes the benefits of decentralised solutions available for a wide range of applications.

Power Range

3x208-240 V.....	1.1-15 kW
3x380-500 V.....	1.1-37 kW

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
		■

Danfoss ecoSmart™

Danfoss ecoSmart™ uses nameplate data to perform efficiency calculations and produces a pdf report for reporting purposes.

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

Danfoss HCS

The Danfoss HCS is a web-based harmonics simulation tool. It provides a harmonic analysis of systems using VLT® and VACON® products by using a scientific simulation platform. It uses more system parameters than other harmonic simulation tools on offer and therefore delivers more accurate results. Danfoss HCS presents the results of the simulation in a table or graphical form.

VLT® Motion Control Tool MCT 10

The VLT® Motion Control Tool MCT 10 is a windows-based engineering tool, with a 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 into the VLT® Motion Control Tool MCT 10. This reduces the risk of an incorrect configuration while offering fast access to troubleshooting.

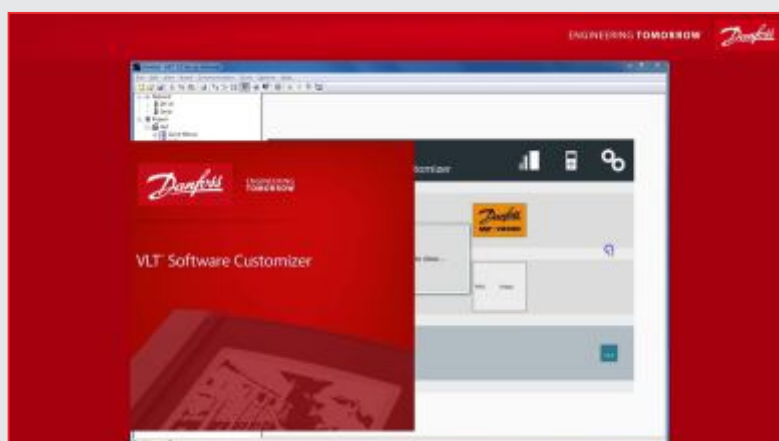
VLT® Energy Box

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

Using the VLT® Energy Box, it is easy to evaluate and document the savings achieved by using a VLT® HVAC Drive in comparison to 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 is 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® Live

Used for commissioning, maintenance, parameterisation and the monitoring of multiple drives. Supported drives: VACON® 10, VACON® 20, VACON® 20 X, VACON® 100 X and VACON® 100 family.

VACON® Loader

Used for updating AC drive firmware and installing application software. Supported drives: VACON® 10, VACON® 20, VACON® 20 X, VACON® 100 X and VACON® 100 family.

VACON® NCDrive

Used for commissioning, maintenance, parameterisation and the monitoring of drives. Supported drives: VACON® NXP, VACON® NXS and VACON® NXL.

VACON® NCLoad

Used for updating AC drive firmware and installing application software. Supported drives: VACON® NXL, VACON® NXS and VACON® NXP.

VACON® Customizer

Used to freely customise the operation of an AC drive. Supported drives: VACON® 100 INDUSTRIAL, VACON® 100 FLOW and VACON® 100 X.

VACON® Programming

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

VACON® Key

Used to manage and handle VACON® NXP Grid Converter licenses. Supported drive: VACON® NXP Grid Converter.

VACON® Layout

Used to configure and obtain documentation. Supported drive: VACON® NXP System Drive.

VACON® Documentation Wizard

Used for diagrams and drawings Supported drive: VACON® NXC.
















VACON® Harmonics

Used to 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 and VACON® 100 family.

VACON® Save

Used to calculate energy savings when using an AC drive with pumps, fans and compressors.

APPLICATION FOCUS TO BOOST YOUR BUSINESS

Applications														
Positioning, Synchronization	Power Conversion Generation, Smart Grids	Vertical & Horizontal Movement	Winches	Propulsion, Thrusters	Drilling	Winding, Unwinding	Mills, Drums, Kilns	Process, Material Treatment	Conveyors	Compressors	Fans	Pumps		
										■	■	■		HVAC
■		■						■	■	■	■	■		Food & Beverage, Packaging
		■						■		■	■	■		Water & Wastewater
										■	■	■		Refrigeration
	■	■	■	■					■	■	■	■		Marine & Offshore
		■			■		■	■	■	■	■	■		Mining & Minerals
■		■				■	■	■	■	■	■	■		Metals
■		■						■	■	■	■	■		Chemical
	■	■												Cranes & Hoists
	■	■						■	■	■	■	■		Energy
	■	■												Elevators & Escalators
■									■		■			Materials Handling
		■			■			■		■	■	■		Oil & Gas
■		■				■	■	■		■	■	■		Pulp & Paper
■		■				■		■			■	■		Textile

INDUSTRIES

BRINGING THE WORLD'S BEST BRANDS TO YOU

In the bid to procure cutting-edge components at competitive prices, BMG is able to capitalise on long-standing relationships with leading manufacturers dedicated to excellence in design and production.

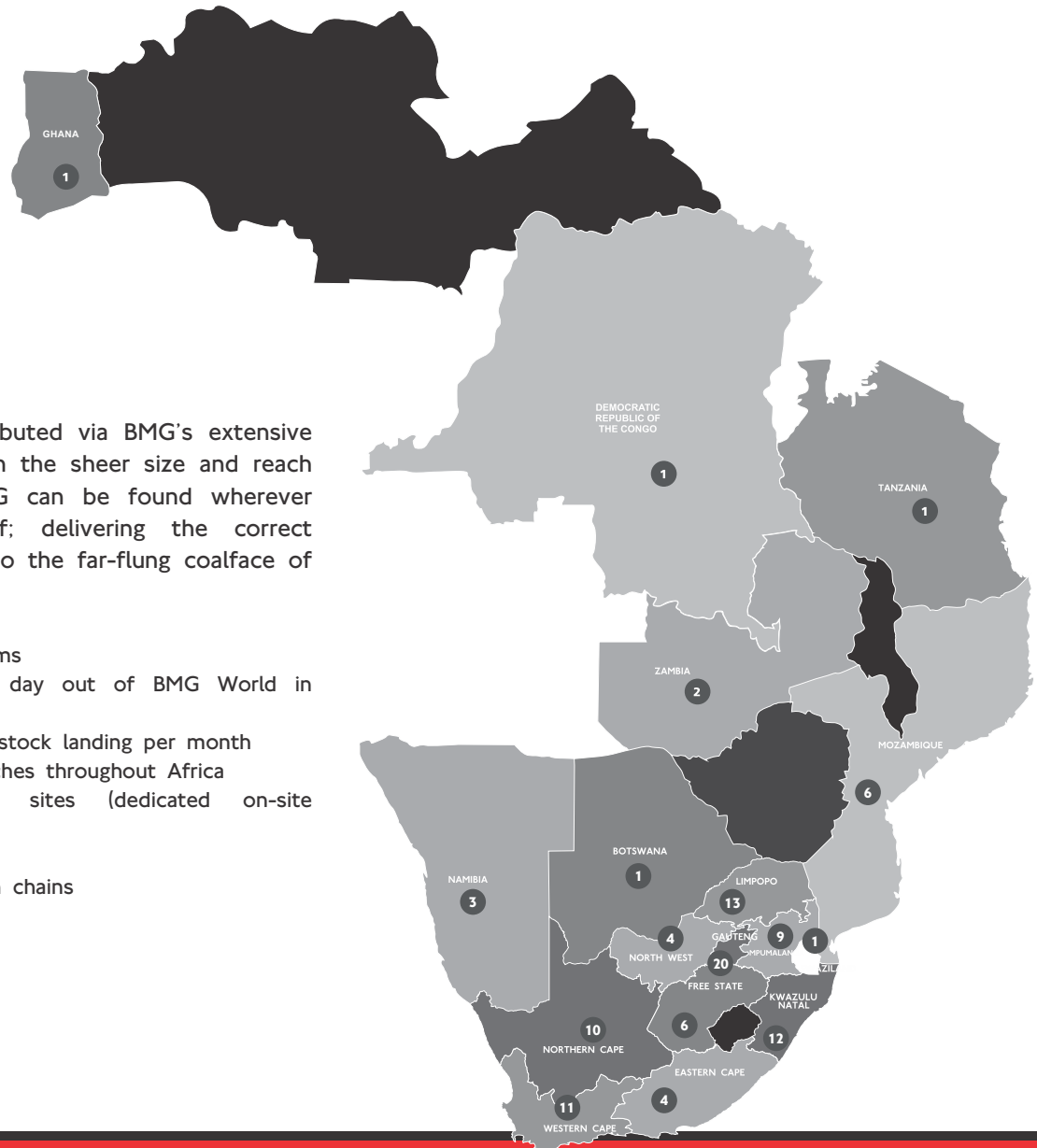
Products are imported from around the globe and brought to BMG's strategically located distribution facilities and regional service centres via the main distribution hub in Johannesburg - BMG World. A world-class facility boasting 308 000m³ of fully stocked warehouse space, an accredited training facility and unlimited engineering capabilities.

Preferred Brands:



Our Extensive Coverage Throughout Africa

105
BRANCHES



Products and services are distributed via BMG's extensive distribution network. It's through the sheer size and reach of our infrastructure, that BMG can be found wherever industry has established itself; delivering the correct components at the right time, to the far-flung coalface of our customers' operations.

- Over 300 000 product line items
- Around 4 500 transfers per day out of BMG World in Johannesburg
- Over 1 000 tons of imported stock landing per month
- 105 strategically situated branches throughout Africa
- Vendor Managed Inventory sites (dedicated on-site stockholding)
- International exports
- Locally empowered distribution chains

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