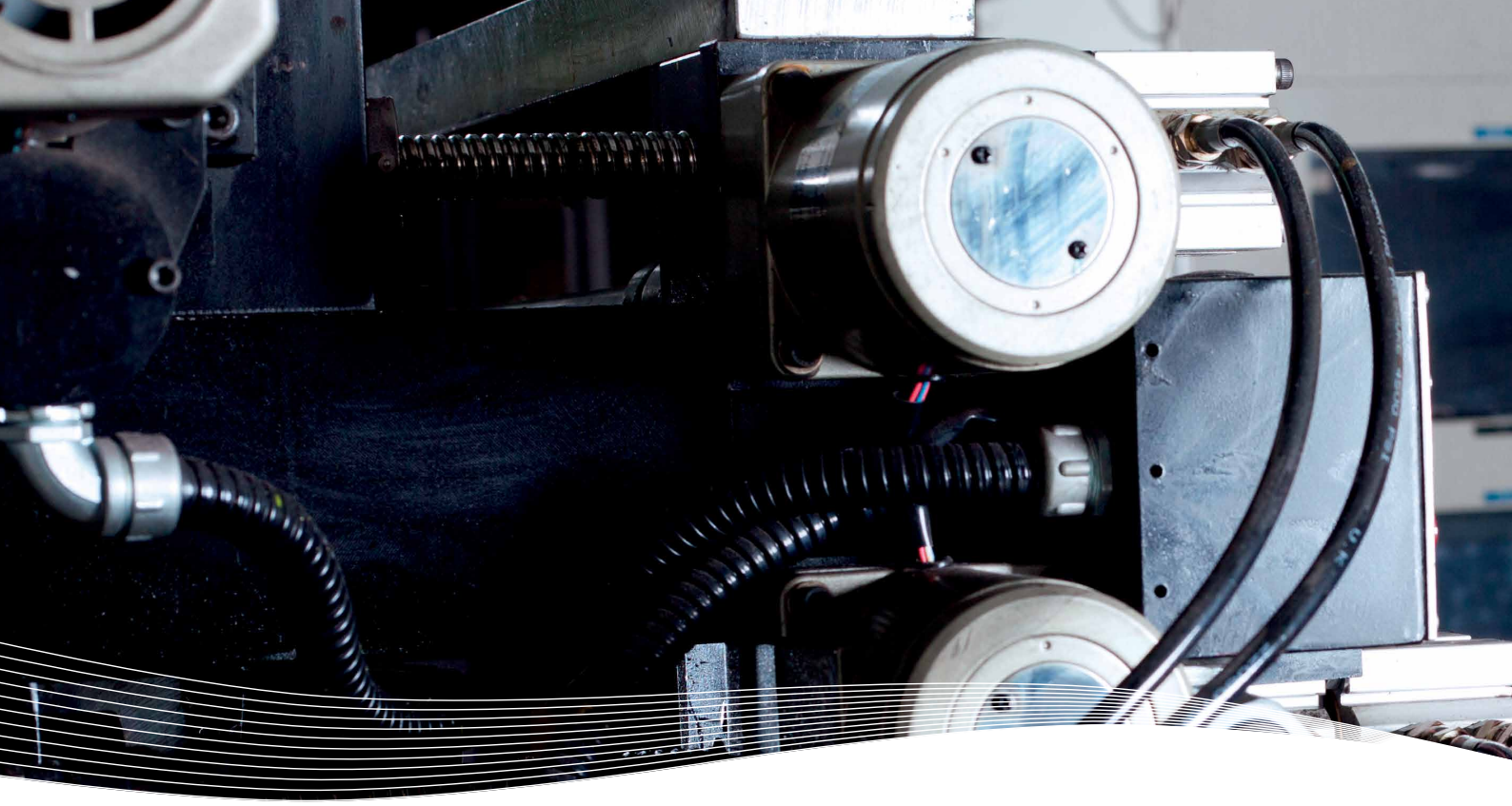
VACON®

DRIVEN BY DRIVES

VACON® 100 X & VACON® 20 X

DECENTRALIZED AC DRIVES



MAXIMUM PROTECTION WHEREVER YOU WANT

Decentralized drive solutions enable engineers and machine designers to save on costs and space. VACON® 100 X and VACON® 20 X manage to combine IP66/Type 4X Outdoor enclosure protection with a compact design, which means they can be mounted directly onto the motor, machine or wherever the most efficient location for the drive is.

DECENTRALIZED SOLUTIONS

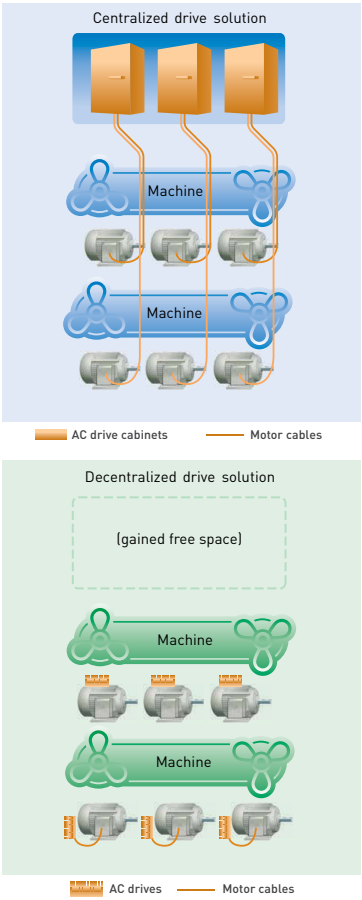
In a decentralized drive solution, the drives are located as close as possible to the motor. Significant savings can be achieved in cabling costs, space and energy when the installation does not require the drives to be mounted in a separate electrical room or enclosure.

MOTOR MOUNTABLE OEM SOLUTIONS

The motor mounted approach has been used in mechanical transmission applications for many years. VACON 100 X now brings this trend to a wider range of applications, such as high pumps, fans, compressors and many more. In many cases, the best location for the drive can be directly on the working machine, as close to the motor as possible.

AN INDEPENDENT DRIVES SUPPLIER

Vacon's motor mountable drives are not tied to any specific motor supplier, which gives the customer the go-ahead to choose the best available solution. Many competitors only offer decentralized drives that work with a specific motor — by selecting Vacon the customer will receive all the advantages and freedom necessary to ensure processes run at an optimal level.



THE DECENTRALIZED DRIVES APPROACH IN A NUTSHELL

- Locating the drive as close to the motor as possible
- Minimizing the use of electrical rooms
- Integrating the drive as part of the machine
- No cabinets used for the drives
- Notably shorter length of shield cables needed, reducing costs

SAVINGS BUILT-IN

SAVE ON CABINET COSTS

These are examples of how VACON® 100 X and VACON® 20 X can help save on cabinet costs:

- No cabinet needed for the drive
- Heat loss from the drives does not have to be ventilated out of the cabinet
- Weight and size of the cabinet is significantly reduced
- Installation time for the drive is shorter if mounted without an enclosure

SAVE MORE IN HIGH POWERS

With drives available in powers all the way up to 37 kW the decentralized drive technology can be utilized in new applications that have previously been limited to traditional cabinet solutions. Examples of how VACON® Decentralized AC drives save more energy when operating with high power include:

- Lower cabinet ventilation costs, if cabinet still needed, as drive heat loss is external
- Savings in cable costs increase with the size of the motor cable
- Less cooling costs for electrical rooms

SAVE ON CABLING COSTS

Compared to a traditional solution, with the AC drives located in an electrical room, a decentralized solution offers significant savings potential in cabling costs. By locating the drive at the machine the length of the motor cable will be minimized. Examples of how VACON 100 X and VACON 20 X can help save on cabling costs:

- Minimized length of more costly shielded motor cable
- Reduced cable laying costs

SINGLE PACKAGE FROM THE MACHINE BUILDER

A decentralized solution provides a more flexible solution as an OEM manufacturer can deliver its machine in one piece and there is no need to install the drives in a separate location.

- A complete package delivered in one piece
- Possibility to offer the customer a better optimized solution
- Minimized installation costs for the end-customer

Activity	Cost centralised	Cost decentralised	
Cabinet + accessories + Drive mounting	760 €	0 €	
Additional cost for shielded motor cable	50m x 6 €	1m x 6 €	
Additional cost for fieldbus cable	1m x 2 €	50m x 2 €	
Cabinet/Drive installation on site	3h x 30 €	1h x 30 €	
Total cost	**1152 €**	**136 €**	**Savings 1016 €**

Example cost for the installation of a 30 kW drive in a centralized cabinet vs. a decentralized drive solution. AC drive costs not included in calculation.

VACON® 20 X — PERFORMANCE UNDER PRESSURE

VACON 20 X sees Vacon building on its experience of producing high class enclosures drives to offer a decentralized drive solution with countless possibilities. An IP66/Type 4X Outdoor enclosure enclosure offers the best possible protection from any factors that may be encountered in harsh environments, while other great features such as large cooling ribs and an integrated mains switch make VACON 20 X the right choice when your drive needs to be integrated directly into the application.

WHEN YOU NEED A DECENTRALIZED SOLUTION

The main purpose of VACON 20 X is to offer an AC drive that can act in all kinds of decentralized applications and is still flexible and easy to use. With this in mind, it has features such as a wide array of fieldbus connections, and Safe Torque Off mode, proving that robustness doesn't have to compromise simplicity.

IP66/TYPE 4X OUTDOOR ENCLOSURE CERTIFIED PROTECTION

VACON 20 X comes with an enclosure that is compliant with IP66/Type 4X Outdoor enclosure requirements, offering the best possible protection against external issues. This protection is essential in moist or dusty conditions, where dust could otherwise build up through airflow and cause internal components to fail. The enclosure is certified 3M6, IEC 60068-2 resistant to 2g vibrations and the rubber sealing comes equipped with a protective snap-in pressure equalizer vent. This ensures the pressure inside the drive is equalized with the surrounding environment, which in turn prevents the sealing from being worn down. In addition, the drive's design is such that it is operable in temperatures of up to 40°C.

EVERYTHING IN ONE PLACE

Despite its highly developed enclosure, the drive remains a masterpiece in easy installation and commissioning. If you're looking for a decentralized solution, chances are that space is at a premium. VACON 20 X has all the standard features you would expect along with a wide range of options, all in one place. The option of having a built-in main switch is a great saver when it comes to installation costs – the drive provides the housing for the switch and makes the drive work in the field to full effect. No need for engine rooms or cabling systems – with VACON 20 X, all the standard functionality and a whole range of options come in a single box.

TYPICAL APPLICATIONS

- Machinery
- Pumps
- Conveyors
- Fans
- Washdown duty installations
- General purpose installations

RATINGS & DIMENSIONS

Supply voltage	AC drive type	Power		Motor Current		Frame size	Dimensions W x H x D		Weight	
		kW	HP	I_N [A]	1.5 x I_N [A]		mm	inches	kg	lb
208-240 VAC, 3-phase	VACON0020-3L-0004-2-X	0.75	1.0	3.7	5.6	MU2	169 x 295 x 154	6.65 x 11.61 x 6.06	3.4	7.50
	VACON0020-3L-0005-2-X	1.1	1.5	4.8	7.2					
	VACON0020-3L-0007-2-X	1.5	2.0	7.0	10.5					
	VACON0020-3L-0011-2-X	2.2	3.0	11.0	16.5	MU3	205 x 375 x 180	8.07 x 14.76 x 7.09	6	13.23
	VACON0020-3L-0012-2-X	3.0	4.0	12.5	18.8					
	VACON0020-3L-0017-2-X	4.0	5.0	17.5	26.3					
380-480 VAC, 3-phase	VACON0020-3L-0003-4-X	0.75	1.0	2.4	3.6	MU2	169 x 295 x 154	6.65 x 11.61 x 6.06	3.4	7.50
	VACON0020-3L-0004-4-X	1.1	1.5	3.3	5.0					
	VACON0020-3L-0005-4-X	1.5	2.0	4.3	6.5					
	VACON0020-3L-0006-4-X	2.2	3.0	5.6	8.4					
	VACON0020-3L-0008-4-X	3.0	5.0	7.6	11.4					
	VACON0020-3L-0009-4-X	4.0	6.0	9.0	13.5	MU3	205 x 375 x 180	8.07 x 14.76 x 7.09	6	13.23
	VACON0020-3L-0012-4-X	5.5	7.5	12.0	18.0					
	VACON0020-3L-0016-4-X	7.5	10.0	16.0	24.0					

TECHNICAL HIGHLIGHTS

- 2g resistance to vibrations (according to 3M6/IEC 60068-2)
- IP66/Type 4X Outdoor enclosure
- Large cooling ribs
- Option of integrated mains switch
- Safe Torque Off (STO) mode according to SIL3
- Runs induction and permanent magnet motors
- Integrated PID controller
- Wide amount of fieldbus connections
- Built-in EMC filter for category level C2.
- Brake chopper integrated

BENEFITS

- Cost savings from decentralized concept
- Can be used in almost any environment
- Can be cleaned with pressurized water
- Custom-made software solutions with built-in PLC functionality for OEMs
- Mountable in any position; fits into any available space

WHAT'S INSIDE VACON® 20 X

REMOVABLE KEYPAD AS OPTION

Vacon's removable text keypad has non-volatile memory (for copy/paste parameter settings). Mounted with a magnetic fixing, it can be removed and mounted next to the drive or used remotely during commissioning.

IP66/TYPE 4X OUTDOOR ENCLOSURE CERTIFIED PROTECTION

VACON 20 X has an enclosure that is IP66/Type 4X Outdoor enclosure approved, meaning that the drive is resistant to potential hazards such as moisture, dust, detergents and fluctuations in temperature.

MAINS SWITCH INTEGRATED AS OPTION

Using the integrated drive supply switch option, the drive's main supply can be disconnected and locked for safety during maintenance work. This also saves on investment costs and space.

PRESSURE EQUALIZER VENT

The pressure equalizer vent allows the enclosure to breathe, no matter how harsh the external conditions, acting as a barrier against condensation, dust and dirt. It equalizes the pressure inside the drive with the surrounding environment, which is vital in preventing the sealing from getting worn down.

EXPANSION SLOT FOR ADDITIONAL OPTION BOARDS

An expansion slot opens up the possibility of connecting to other fieldbuses and I/O boards.

PROGRAMMING DESIGNED FOR OEMS

Built-in PLC functionality, using IEC61131-1 programming methods, allows software logic and parameter list definitions to be modified with the optional VACON® Programming Tool.

GENERAL

Communication	RS485	Standard: Modbus RTU
	HMI	RS422 based for PC tools or Keypad interface
Software features	Control characteristics	Induction and PMSM motor control Switching frequency up to 16 kHz (factory default 6 kHz) Frequency control U/f and Open loop sensorless vector control Motor tuning identification and flying start mode
Motor connection	Output voltage	0...Uin
	Output current	Continuous rated current In at rated ambient temperature Overload 1.5 x In max 1 min / 10 min
	Starting current / torque	Current 2 x In for 2 secs every 20 sec period
	Output frequency	0...320 Hz - resolution 0.01 Hz
Ambient conditions	Ambient operating temperature Vibration Altitude Enclosure class	-10 °C...+40 °C without derating (max. temperature 50°C with derating) 2g resistance to vibrations (according to 3M6/IEC 60068-2) 100% load capacity (no derating) up to 1000 m; 1% derating every 100 m up to 3000 m IP66 / Type 4X Outdoor enclosure
EMC	Immunity Emissions	Complies with EN 61800-3, level C2
Functional safety	Safe Torque Off (STO)	SIL 3 according to IEC61800-5-2 PL e / Cat 4 according to ISO13849-1

I/O CONNECTIONS

Standard I/O		
Terminal		**Signal**
A	RS485	Differential receiver/transmitter
B	RS485	Differential receiver/transmitter
1	+10V$_{ref}$	Reference output
2	AI1+	Analog input 1, voltage or current
3	AI1- /GND	Analog input 1 common
4	AI2+	Analog input 2, voltage or current
5	AI2- / GND	Analog input 2 common
6	24V$_{out}$	24 V aux. voltage
7	GND / DIC	I/O ground
8	DI1	Digital input 1
9	DI2	Digital input 2
10	DI3	Digital input 3
13	GND	I/O ground
14	DI4	Digital input 4
15	DI5	Digital input 5
16	DI6	Digital input 6
18	AO1+	Analog output signal (+output), voltage
20	DO1	Digital output (open collector)

Relays			**STO connections**	
Terminal			**Terminal**	
22	RO1/2 CM	Relay output 1	**S1**	Isolated digital output 1
23	RO1/3 NO		**G1**	
24	RO2/1 NC	Relay output 2	**S2**	Isolated digital output 2
25	RO2/2 CM		**G2**	
26	RO2/3 NO		**F+**	STO feedback
			F-	

OPTIONS

Keypad	
VACON-PAN-HMTX-MC06X	Magnetic Handheld keypad

OPTION BOARDS

Option boards	
OPT-B1-V	6 x DI/DO, each digital input can be individually programmed to also act as digital output
OPT-B2-V	2 x Relay output + Thermistor
OPT-B4-V	1 x AI, 2 x AO (isolated)
OPT-B5-V	3 x Relay output
OPT-B9-V	1 x RO, 5 x DI (42-240 VAC)
OPT-BF-V	1 x AO, 1 x DO, 1 x RO
OPT-E3-V	Profibus DPV1, (screw connector)
OPT-E5-V	Profibus DPV1, (D9 connector)
OPT-E6-V	CANopen
OPT-E7-V	DeviceNet

TYPE CODE KEY

VACON0020 - 3L - 0006 - 4 - X + OPTION CODES

0020 — **Product range**
VACON 20

3L — **Input/Function**
3L = Three-phase input

0006 — **Drive rating in Ampere**
eg. 0006 =6 A

4 — **Supply voltage**
2 = 208-240 V
4 = 380-480 V

X — **IP66/Type 4X Outdoor enclosure drive**

+
EMC level C2
STO integrated
Brake chopper integrated

OPTION CODES
+HMTX = Text keypad
+ QDSS = Mains switch

VACON® 100 X — A DECENTRALIZED DRIVE LIKE NO OTHER

The VACON 100 X sets a new benchmark for decentralized drive solutions. It has a power range up to 37 kW (unmatched by competitors), comes with IP66/Type 4X Outdoor enclosure protection and has highly advanced control capability which guarantees processes run exactly how you want them to. On top of all this, it has built-in harmonic filtering chokes, making it suitable for public networks.

TOP CLASS PROTECTION

IP66/Type 4X Outdoor enclosure approval means that VACON 100 X comes with all the armour it needs in order to stand up to the challenges that demanding applications can throw at it. The robust, die-cast metal frame is strong enough to withstand 3g vibrations, and its cooling capabilities are second to none. The enclosure is powder coated for protection against corrosion and is designed to be fully operational in outdoor environments. A snap-in pressure equalizer vent is designed to prevent external factors such as dust or moisture reaching inside the drive, while offering "in/out" pressure equalization, preventing the sealing from being worn down.

INTO THE HEAT OF THE ACTION

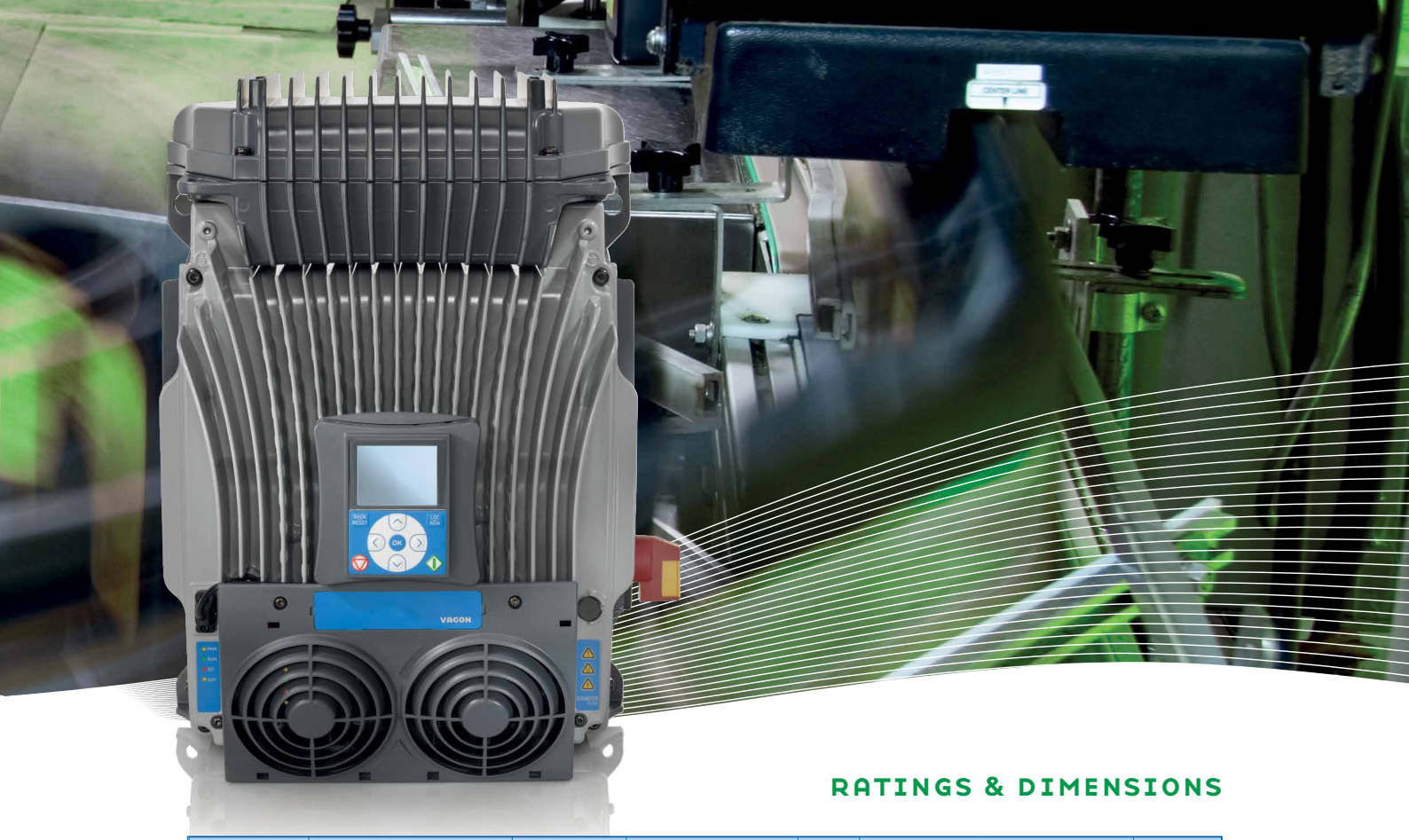
The enclosure's heatsink is easy to clean and the large, open cooling ribs allow the drive to perform in temperatures up to 60°C (with derating). The cooling system is such that it is not dependent on motor airflow like most motor mounted drives, and the fan is speed-controlled and pluggable, and therefore easy to replace.

PROGRAMMING DESIGNED FOR OEMS

Built-in PLC functionality, using IEC61131-1 programming methods, allows software logic and parameter list definitions to be modified with the optional VACON® Programming Tool. This means that users can customize the drive around their requirements, making it an attractive option for OEM customers.

TYPICAL APPLICATIONS

- Machinery
- Conveyors
- Pumps
- Fans
- Decentralized solutions in a high variety of applications
- Outdoor applications
- Applications exposed to vibrations



RATINGS & DIMENSIONS

Supply voltage	AC drive type	Power		Motor Current		Frame size	Dimensions W x H x D		Weight	
		kW	HP	I_N [A]	1.5 x I_N [A]		mm	inches	kg	lb
208-240 VAC, 3-phase	VACON0100-3L-0006-2-X	1.1	1.5	6.6	9.9	MM4	191 x 314 x 187	7.52 x 12.36 x 7.36	8.8	19.4
	VACON0100-3L-0008-2-X	1.5	2.0	8.0	12.0					
	VACON0100-3L-0011-2-X	2.2	3.0	11.0	16.5					
	VACON0100-3L-0012-2-X	3.0	4.0	12.5	18.8					
	VACON0100-3L-0018-2-X	4.0	5.0	18.0	27.0	MM5	233 x 366 x 205	9.17 x 14.41 x 8.07	14.9	32.9
	VACON0100-3L-0024-2-X	5.5	7.5	24.2	36.3					
	VACON0100-3L-0031-2-X	7.5	10.0	31.0	46.5					
	VACON0100-3L-0048-2-X	11.0	15.0	48.0	72.0	MM6	350 x 500 x 235	13.78 x 19.69 x 9.25	31.5	69.5
	VACON0100-3L-0062-2-X	15.0	20.0	62.0	93.0					
380-480 VAC, 3-phase	VACON0100-3L-0003-4-X	1.1	1.5	3.4	5.1	MM4	191 x 314 x 187	7.52 x 12.36 x 7.36	8.8	19.4
	VACON0100-3L-0004-4-X	1.5	2.0	4.8	7.2					
	VACON0100-3L-0005-4-X	2.2	3.0	5.6	8.4					
	VACON0100-3L-0008-4-X	3.0	5.0	8.0	12.0					
	VACON0100-3L-0009-4-X	4.0	5.0	9.6	14.4					
	VACON0100-3L-0012-4-X	5.5	7.5	12.0	18.0					
	VACON0100-3L-0016-4-X	7.5	10.0	16.0	24.0	MM5	233 x 366 x 205	9.17 x 14.41 x 8.07	14.9	32.9
	VACON0100-3L-0023-4-X	11.0	15.0	23.0	34.5					
	VACON0100-3L-0031-4-X	15.0	20.0	31.0	46.5					
	VACON0100-3L-0038-4-X	18.5	25.0	38.0	57.0	MM6	350 x 500 x 235	13.78 x 19.69 x 9.25	31.5	69.5
	VACON0100-3L-0046-4-X	22.0	30.0	46.0	69.0					
	VACON0100-3L-0061-4-X	30.0	40.0	61.0	91.5					
	VACON0100-3L-0072-4-X	37.0*	50.0*	72.0*	80.0*					

* Low Overload (110%)

TECHNICAL HIGHLIGHTS

- IP66/Type 4X Outdoor enclosure enclosure
- 3g resistance to vibrations (according to 3M7/IEC 60068-2)
- Supports both induction and permanent magnet motors
- Option of ability to operate in temperatures ranging from -40°C to 60°C
- Integrated with RS485 Modbus and Ethernet communication
- Safe Torque Off (STO) mode according to SIL3
- Built-in EMC filter for EN61800-3 category C2 (C1 as option)
- DC choke and film capacitor meets EN61000-3-12 requirements
- Integrated brake chopper
- PTC input as standard

BENEFITS

- Able to withstand rough conditions such as heat, dirt and vibrations
- Easy to keep clean
- Approval for public networks makes it flexible for installation
- Vacon Programming enables top class integration for countless OEM applications
- High efficiency and simulated air flow ensure long lifetime
- Mountable in any position; fits into any available space

WHAT'S INSIDE VACON® 100 X

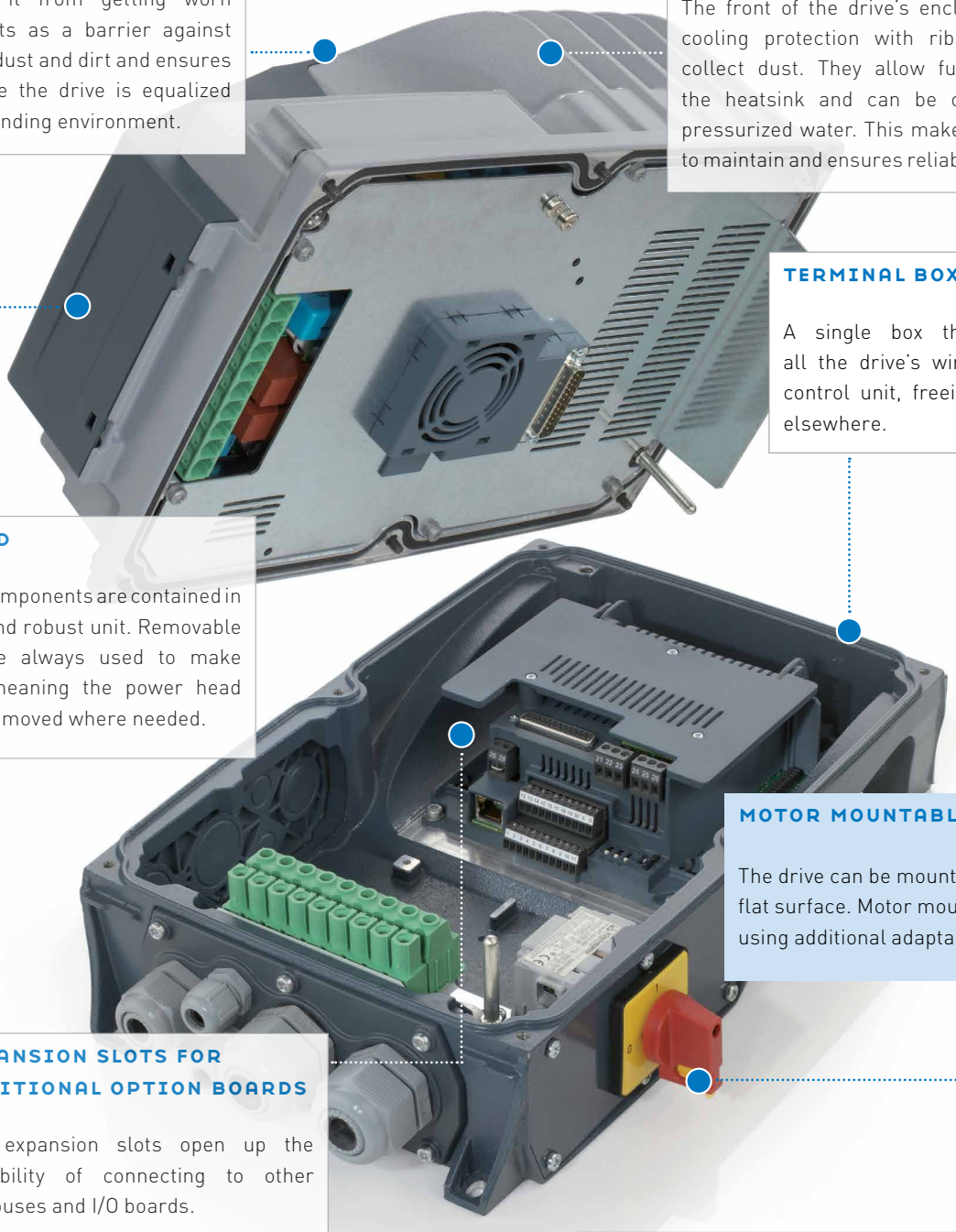
PRESSURE EQUALIZER VENT

Just like VACON 20® X, VACON 100 X comes with a pressure equalizer vent which allows the enclosure to breathe, however harsh the external conditions, and prevents it from getting worn down. This acts as a barrier against condensation, dust and dirt and ensures pressure inside the drive is equalized with the surrounding environment.

TÜV/SÜD CERTIFIED SOLUTION

LARGE COOLING RIBS

The front of the drive's enclosure offers cooling protection with ribs that don't collect dust. They allow full access to the heatsink and can be cleaned with pressurized water. This makes them easy to maintain and ensures reliable operation.



TERMINAL BOX

A single box that contains all the drive's wiring and the control unit, freeing up space elsewhere.

POWER HEAD

All the power components are contained in one compact and robust unit. Removable connectors are always used to make connections, meaning the power head can be easily removed where needed.

MOTOR MOUNTABLE

The drive can be mounted onto any flat surface. Motor mounting is done using additional adaptable parts.

EXPANSION SLOTS FOR ADDITIONAL OPTION BOARDS

Two expansion slots open up the possibility of connecting to other fieldbuses and I/O boards.

MOUNTABLE IN FOUR ORIENTATIONS

Both the drive and the keypad can be mountable in four positions. This means that however you set up the VACON 100 X, the keypad will remain easily operable. Since there are no electrical cable connections to worry about, it can even be rotated in the field.

MAINS SWITCH INTEGRATED AS OPTION

Using the integrated drive supply switch option, the drive's main supply can be disconnected and locked during maintenance work. This helps save on investment costs and space and provides safety during the job.

GENERAL

Communication	RS485	Standard: Modbus RTU, BACnet, N2
	Ethernet	Standard: Modbus TCP
	HMI	RS422 based for PC tools or Keypad interface
Software features	Control characteristics	Induction and PMSM motor control Switching frequency up to 16 kHz (factory default 6 kHz) Frequency control U/f and Open loop sensorless vector control Motor tuning identification and flying start mode
Motor connection	Output voltage	0...Uin
	Output current	Continuous rated current In at rated ambient temperature
		Overload 1.5 x In max 1 min / 10 min
	Starting current / torque	Current 2 x In for 2 secs every 20 sec period
	Output frequency	0...320 Hz - resolution 0.01 Hz
Ambient conditions	Ambient operating temperature Vibration Altitude Enclosure class	-10 °C...+40 °C without derating (max. temperature 60°C with derating); Arctic mode as option with temperature down to -40°C 3g resistance to vibrations (according to 3M7/IEC 60068-2) 100% load capacity (no derating) up to 1000 m; 1% derating every 100 m up to 3000 m IP66 / Type 4X Outdoor enclosure
EMC	Immunity Emissions	Complies with EN 61800-3, level C2 (C1 as option)
Functional safety	Safe Torque Off (STO)	SIL 3 according to IEC61800-5-2 PL e / Cat 4 according to ISO13849-1

I/O CONNECTIONS

Standard I/O		
Terminal		**Signal**
A	RS485	Differential receiver / transmitter
B	RS485	Differential receiver / transmitter
1	+10V$_{ref}$	Reference output
2	AI1+	Analog input 1, voltage or current
3	AI1- / GND	Analog input 1 common
4	AI2+	Analog input 2, voltage or current
5	AI2- / GND	Analog input 2 common
6	24V$_{out}$	24 V aux. voltage
7	GND	I/O ground
8	DI1	Digital input 1
9	DI2	Digital input 2
10	DI3	Digital input 3
11	DICOM A	Common for DI1 - DI3
12	24V$_{out}$	24 V aux. voltage
13	GND	I/O ground
14	DI4	Digital input 4
15	DI5	Digital input 5
16	DI6	Digital input 6
17	DICOM B	Common for DI4 - DI6
18	AO1+	Analog output (+output), voltage current
19	AO1- / GND	Analog output signal common (-output)
30	24 V	24 V aux. input voltage

Relays			**STO connections**	
Terminal			**Terminal**	
21	RO1/1 NC	Relay output 1	**S1**	Isolated digital output 1
22	RO1/2 CM			
23	RO1/3 NO		**G1**	
24	RO2/1 NC	Relay output 2	**S2**	Isolated digital output 2
25	RO2/2 CM		**G2**	
26	RO2/3 NO		**F+**	STO feedback
			F-	
28	Thermistor input			
29				

OPTION BOARDS

Option boards	
OPT-B1-V	6 x DI/DO, each digital input can be individually programmed to also act as digital output
OPT-B2-V	2 x Relay output + Thermistor
OPT-B4-V	1 x AI, 2 x AO (isolated)
OPT-B5-V	3 x Relay output
OPT-B9-V	1 x RO, 5 x DI (42-240 VAC)
OPT-BF-V	1 x AO, 1 x DO, 1 x RO
OPT-E3-V	Profibus DPV1, (screw connector)
OPT-E5-V	Profibus DPV1, (D9 connector)
OPT-E6-V	CANopen
OPT-E7-V	DeviceNet

OPTIONS

VACON-PAN-HMGR-MC05	Magnetic Handheld keypad
POW-QDSS-MM4	Integrated Mains switch MM4
POW-QDSS-MM5	Integrated Mains switch MM5
POW-QDSS-MM6	Integrated Mains switch MM6
ENC-QAFH-MM04	Artic mode heater
ENC-QAFH-MM05	Artic mode heater
ENC-QAFH-MM06	Artic mode heater
QFLG-ALL-MM4	Motor mounting flange adapter
QFLG-ALL-MM5	Motor mounting flange adapter
QFLG-ALL-MM6	Motor mounting flange adapter

TYPE CODE KEY

VACON0100 - 3L - 0006 - 4 - X + OPTION CODES

0100 — **Product range**
VACON 100

3L — **Input/Function**
3L = Three-phase input

0006 — **Drive rating in Ampere**
eg. 0006 =6 A

4 — **Supply voltage**
2 = 208-240 V
4 = 380-480 V

X — **IP66/Type 4X Outdoor enclosure**
EMC level C2

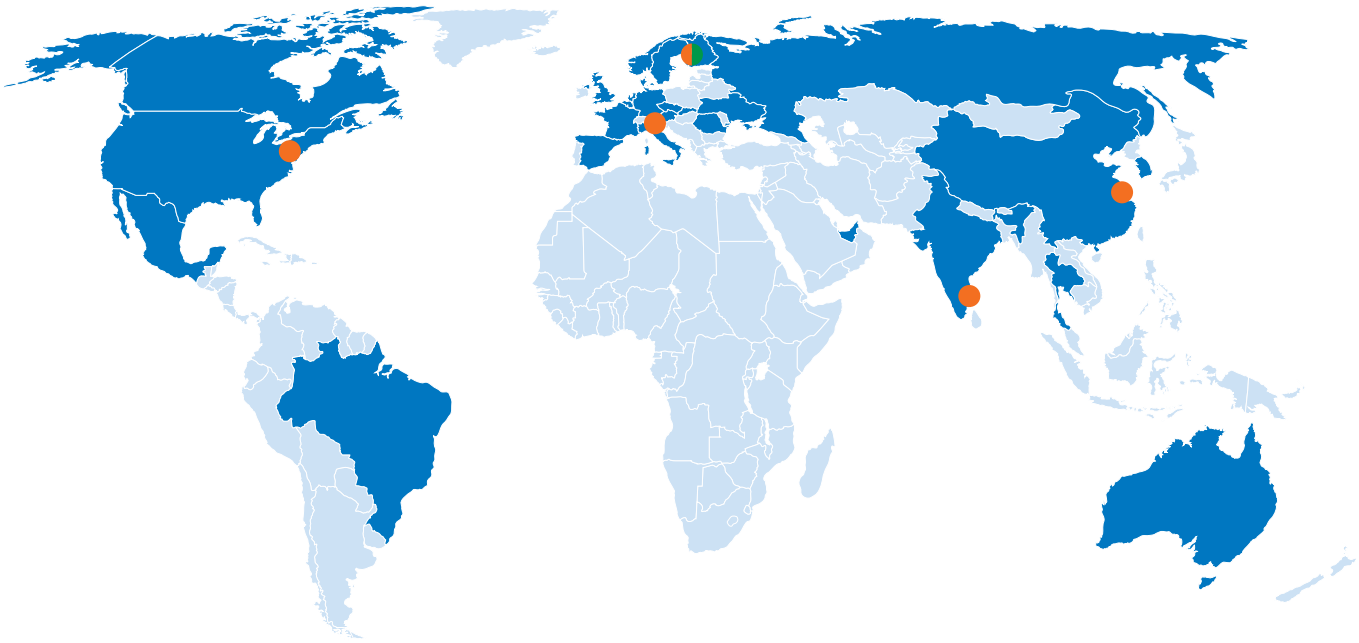
+ — STO integrated
Brake chopper integrated

OPTION CODES — +HMGR = Graphical keypad

VACON AT YOUR SERVICE

Vacon is driven by a passion to develop, manufacture and sell the best AC drives and inverters in the world - and to provide customers with efficient product life-cycle services. Our AC drives offer optimum process control and energy efficiency for electric motors. Vacon inverters play a key role when energy is produced from renewable sources. Vacon has production and R&D facilities in Europe, Asia and North America, and sales and service operations in nearly 90 countries.

VACON — TRULY GLOBAL



● Production and R&D ● Vacon PLC ■ Vacon own sales offices ■ Served by Vacon partner

MANUFACTURING
and R&D on 3 continents

VACON SALES & SERVICE
in nearly 30 countries

SALES & SERVICE PARTNERS
in 90 countries

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