



Variable frequency drives

A550 Plus

Variable frequency drives for standard and industrial operations

Information catalog



SOLUTIONS FOR INDUSTRY

Variable frequency drives **A550 Plus**



Quality management and certificates



VYBO Electric is a modern High-tech energy saving company that pays high attention to quality, environment, safety and precision and efficiency of work and energy in production. Therefore, it holds a lot of certificates and quality control systems. **Our priority is quality control.**

Basic certificates include:

ISO9001

The primary task of the ISO 9001 standard is to focus on system management and quality management in the organization. The satisfaction of the customer and the fulfillment of his requirements, which are specified in contracts, orders, or technical drawings, are in the first place. The quality management system is linked to all processes in the company. The standard focuses on the management of human and financial resources, on the stability of infrastructure, including buildings, transport, hardware, software and other communication or information technologies. An important part is also the planning of production and services, the management of the purchasing process, but also the management of non-conforming products.



ISO14001

The main priority of the ISO 14001 standard is to identify and understand the environmental aspects and activities that are related to the entire infrastructure of the company and, based on this, to regulate the environmental impact on the environment.

In its scope, the ISO 14001 standard creates the conditions for determining environmental goals and plans, the fulfillment of which is examined at regular intervals by top management and also by an independent body during internal audits.

This standard is intended for all organizations and companies that consider environmental protection as their primary goal.

The benefit of the standard for society is mainly:

- control over the environmental impact on the environment
- control over produced emissions and waste
- saving material and energy
- prevention of accidents
- compliance of the company's activities with legal requirements
- zero fines for environmental behavior
- creation of a good reputation and prestige of the company



The ISO 45001

Specification (formerly known as OHSAS 18001) is an internationally recognized standard that declares compliance with the principles of a safe enterprise, managing risks at work and protecting the health of workers during work. It does not only concern danger and accidents, but also emphasizes other aspects such as the good condition and mental well-being of the employee.

The certificate is held in Slovakia as STN ISO 45001:2019 and is under the title Management systems of safety and health protection at work. Requirements with guidance for use. It replaces the STN OHSAS 18001 standard.



ISO50001

Energy management systems Energy efficiency help organizations save money, save energy resources and also help to prevent climate change. ISO 50001 encourages organizations in all sectors to use energy more efficiently through the development of an energy management system. The international standard ISO 50001: 2011 specifies the requirements for building, maintaining and improving the energy system. It aims to enable organizations to implement a systematic approach that will help achieve lasting improvements in energy efficiency, energy use and consumption.





Variable frequency drives
A550 Plus

- ▶ MAXIMUM QUALITY
- ▶ HIGH COMPATIBILITY
- ▶ RELIABLE OPERATION



Variable frequency drives

A550 Plus

The A550 Plus frequency converter is a universal integrated device of the economy class, characterized by the simplicity and clarity of the control elements. Fully adapted to client requirements, developed on the basis of many years of experience and user input. The A550 Plus is fully pre-programmed and ready for immediate use after proper connection to the mains. Control is possible directly from the panel or externally.



Variable frequency drive

A550 Plus

FUNCTIONS

- Three-phase frequency converter power supply with a voltage of 3x400 V and a single-phase voltage of 230 V
- Range of output frequency 0 to 999 Hz
- Torque boost function of the electric motor by up to 30%
- A550 Plus is suitable for asynchronous control and synchronous motors
- Built-in brake unit for types A550-4T0040 to A550-4T0450
- MODBUS RTU physical interface serial built in
- MODBUS RTU communication interface
- EMS safety function for immediate stopping
- Function for connecting PTC protection or motor thermal contact
- Built-in port for external placement control panel using a cable
- Built-in PID, PLC, AVR, 2 timers, etc.
- 4 digital inputs, 1 analog are integrated input 0-10 V and 4-20 mA, 1 relay output, etc.



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Most often, A550 Plus is used to control fan drives, pumps, centrifuges, gearboxes, to drive machines in the textile, ceramic, food industry, etc.

Use in industry



FUNCTIONS

- pumps
- air conditioning
- textiles
- grocery store
- electric transmissions
- ceramics
- grinders
- centrifugal machines
- cutters
- diving machines
- cutting machines



Variable frequency drives

A550 Plus



General technical parameters for all types A550 Plus

Power supply	1PH input / 3PH output AC 230V 50/60Hz...type: 2S... 1PH input / 1PH output AC 230V 50/60Hz...type: 2S...S 3PH input / 3PH output AC 400V 50/60Hz...type: 4T
Input voltage range	230V: 170 V - 240 V; 400 V: 330 V - 440 V
Output voltage range	230V: 0 - 230 V; 400 V: 0 - 400V
Method of controlling	3-phase sinusoidal pulse-width PWM modulation
Indication	Operating status / Alarm definition / Interactively set frequency, actual output frequency, output current, output speed, DC bus voltage, output voltage, etc.
Output frequency range	0.10 Hz to 999.9 Hz
Set frequency resolution	Numeric input: 0.01 Hz, Analog input: 0.1% max. output frequency
Overloadability	P type: 120% for 60 seconds
Frequency setting	Analog input: 0 to 10 V, 4 to 20 mA can be selected; Digital input: Enter using the control wheel on the control panel or RS485 or with the UP / DOWN key. The possibility of combining frequency inputs X+Y;X-Y. Switching between X and Y... Note: AVI terminals can be used to select analog voltage input (0-10V) or analog current input (4 - 20mA) via switch J2.
Torque boost control	Automatic control: automatic torque increase when the drive is loaded. Manual control: allows you to manually set 0.0 - 30.0% torque increase as needed



General technical parameters for all types A550 Plus

Input terminals	Four multifunctional input terminals, implementing functions including speed control of fifteen sections, program run, four-stage acceleration / deceleration speed switch, UP / DOWN function and emergency stop and other functions
Output terminals	1 multi-function output terminal block to display of run, zero speed, counter, external abnormality, program operations and further information and notices. Programmable relay optional NO or NC logic using J4, or by changing the parameter.
Setting the acceleration / deceleration time	0 to 999.9 s.... acceleration / deceleration time can be set individually.
PID regulator	Built-in PID regulator
Additional functions	JOG (typing); Swing (jump) frequency; PLC functions
Constant pressure controll	SLP "sleep" mode; hP high pressure detection; detection of low LP pressure; forced circulation of antifreeze liquid; Flow regulation; detects running "dry" LL; PID control for constant pressure
Communication interface	MODBUS
RS 485	Standard RS485 communication function (MODBUS RTU)
V/F control	Set the V / F curve to meet load requirements.
Fixed speed	Four multi-function input terminal blocks, you can set 4 fixed speed sections

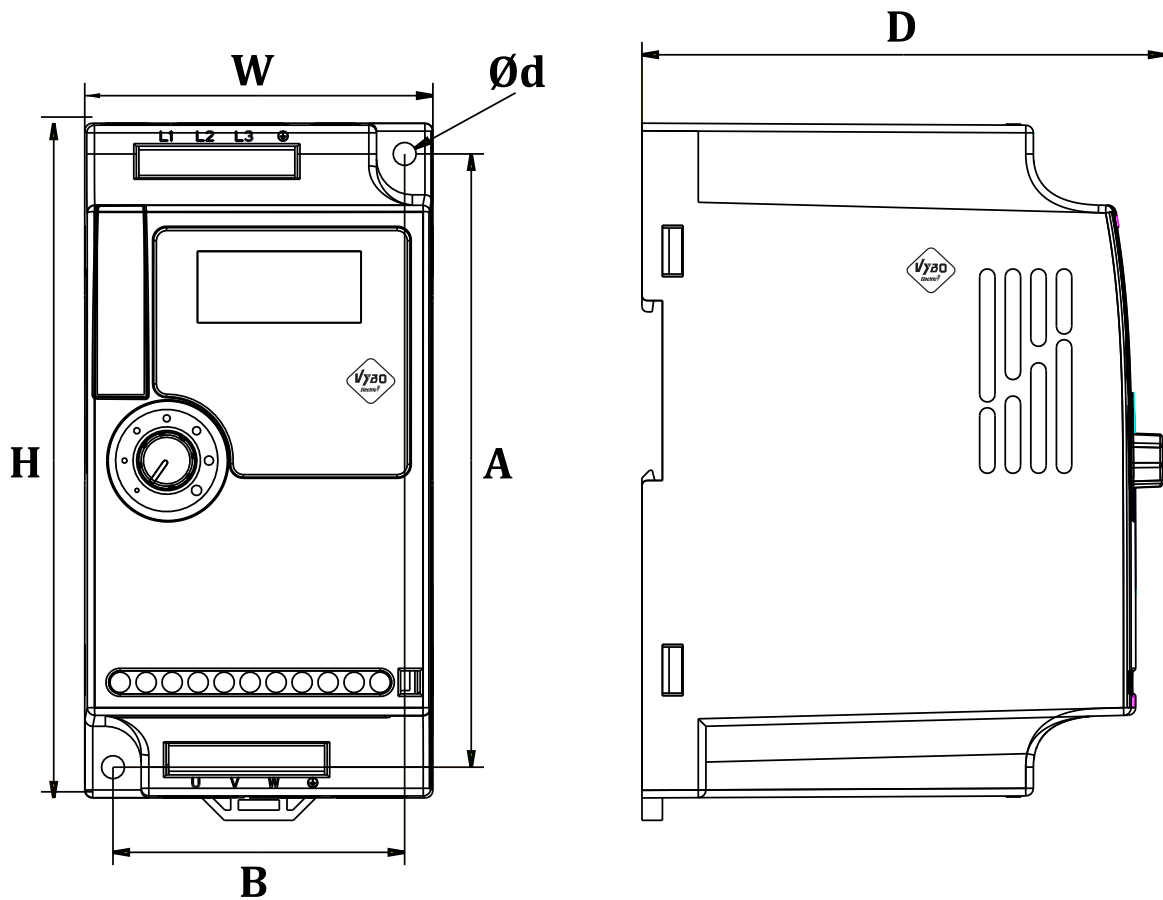


General technical parameters for all types A550 Plus

EMS STOP security feature	The emergency stop system stops the drive immediately in an emergency, after activating EMS STOP.
Aut. voltage regulation	Automatic voltage regulation can be selected
Counter	Built-in 2 groups of counters
Output frequency accuracy	0,01 Hz
Overvoltage	Overvoltage protection can be set
Undervoltage	Undervoltage protection can be set
Other protections	Output short circuit, overcurrent, parameter blocking, etc.
EMC compatibility	IEC 61000-4-6; IEC61000-4-4; IEC61000-4-11; IEC61000-4-5
Standards	EN/IEC 61800-3: 2017; C2, which is suitable for 1. environment EN 61800-3:2004+A1:2012; EN 618-5-1:2007+A1:2017
Ambient temperature	-10°C to 40°C (no icing)
Ambient humidity	Max. 95% (non-condensing) IEC 60068-2-3
Altitude	Below 1000 meters above sea level
Vibration	Max. 0.5g ; IEC 60068-2-6
Cooling mode	Forced air cooling
Degree of coverage	IP20; complies with EN/IEC 61800-5-1
Mounting method	On the wall or on a 35mm DIN rail



Dimensions



Model	W	H	D	A	B	Ø d
A550 Plus-2S0004 to A550 Plus-2S0015	68	132	102	120	57	4,5
A550 Plus-2S0022	72	142	112,2	130	61	4,5
A550 Plus-4T0007 to A550 Plus-4T0022						
A550 Plus-4T0040 and A550 Plus-4T0055	85	180	116	167	72	5,5
A550 Plus-4T0075 and A550 Plus-4T0110	106	240	153	230	96	5,5
A550 Plus-4T0150 and A550 Plus-4T0220	151	332	165,5	318	137	7
A550 Plus-4T0300 and A550 Plus-4T0370	217	400	201	385	202	7
A550 Plus-4T0450 and A550 Plus-4T0550	300	455	240	440	200	4,5
A550 Plus-4T0750 and A550 Plus-4T1100	275	630	310	612	200	4,5
A550 Plus-4T1320 and A550 Plus-4T1600	400	715	310	695	320	11
A550 Plus-4T1850 and A550 Plus-4T2200	400	830	320	810	320	5,5



Performance parameters of A550 PLUS

Type of VFD A550 Plus	Rated output power (kW)	Maximal input current (A)	Rated output current (A)	Recommended motor power (kW)
A550 Plus -2S0004 a S2...S*	0,4	5,4	2,4	0,4
A550 Plus -2S0007 a S2...S*	0,75	7,2	4,5	0,75
A550 Plus -2S0015 a S2...S*	1,5	10	7	1,5
A550 Plus -2S0022 a S2...S*	2,2	16	10	2,2
A550 Plus -2S0030 a S2...S*	3	23	16	3
3PH / 3PH AC 400 V \pm 15%				
A550 Plus -4T0007	0,75	3,8	2,5	0,75
A550 Plus -4T0015	1,5	5	3,7	1,5
A550 Plus -4T0022	2,2	5,8	5	2,2
A550 Plus -4T0040	4	10	9	4
A550 Plus -4T0055	5,5	15	13	5,5
A550 Plus -4T0075	7,5	14	17,5	7,5
A550 Plus -4T0110	11	26	25	11
A550 Plus -4T0150	15	35	32	15
A550 Plus -4T0220	22	46	45	22
A550 Plus -4T0300	30	62	60	30
A550 Plus -4T0370	37	76	75	37



Type of VFD A550 Plus	Input voltage (V) 50/60Hz	Power (kW)	Cross section of the voltage cable (mm ²)	Recommended circuit breaker (A)	Recommended input contactor (A)
A550 Plus -2S0004 a S2....S*	1 phase 1x230 V	0,4	2,5	10	10
A550 Plus -2S0007 a S2....S*		0,75	2,5	16	10
A550 Plus -2S0015 a S2....S*		1,5	4	16	16
A550 Plus -2S0022 a S2....S*		2,2	4	25	25
A550 Plus -2S0030 a S2....S*		3	6	32	32
A550 Plus -4T0004	3 phase 3x400 V	0,4	2,5	6	6
A550 Plus -4T0007		0,75	2,5	6	6
A550 Plus -4T0015		1,5	2,5	10	10
A550 Plus -4T0022		2,2	2,5	10	10
A550 Plus -4T0040		4	4	16	16
A550 Plus -4T0055		5,5	4	20	16
A550 Plus -4T0075		7,5	4	32	25
A550 Plus -4T0110		11	6	32	25
A550 Plus -4T0150		15	6	40	32
A550 Plus -4T0185		18,5	10	50	40
A550 Plus -4T0220		22	10	63	50
A550 Plus -4T0300		30	16	100	65
A550 Plus -4T0370		37	25	100	80
A550 Plus -4T0450		45	35	125	95
A550 Plus -4T0550 - A550 Plus-4T1600		-	-	-	-



Table of suitable braking resistors A550 Plus

Type of VFD	Braking resistance		Braking unit	Recommended power (kW)
	Resistor power (kW)	Resistance value (Ω) (\geq)		
A550 Plus-2S0004	-	-	-	0,4
A550 Plus-2S0007	-	-	-	0,75
A550 Plus-2S0015	-	-	-	1,5
A550 Plus-2S0022	-	-	-	2,2
A550 Plus-2S0030	0,25	65	Built-in	3
A550 Plus-4T0004	-	-	-	0,4
A550 Plus-4T0007	-	-	-	0,75
A550 Plus-4T0015	-	-	-	1,5
A550 Plus-4T0022	-	-	-	2,2
A550 Plus-4T0040	0,3	130	Built-in	4
A550 Plus-4T0055	0,4	90	Built-in	5,5
A550 Plus-4T0075	0,5	65	Built-in	7,5
A550 Plus-4T0110	0,8	43	Built-in	11
A550 Plus-4T0150	1	32	Built-in	15
A550 Plus-4T0185	1,3	25	Built-in	18,5
A550 Plus-4T0220	1,5	22	Built-in	22
A550 Plus-4T0300	2,5	16	Built-in	30
A550 Plus-4T0370	3,7	12,6	Built-in	37
A550 Plus-4T0450	4,5	9,4	Built-in	45
A550 Plus-4T0550	-	-	Without braking unit	55
A550 Plus-4T0750	-	-	Without braking unit	75
A550 Plus-4T0900	-	-	Without braking unit	90
A550 Plus-4T1100	-	-	Without braking unit	110



Table of main functions

Overloading in ND mode - Normal load (N. Duty)	120% / 60 s
Overloading in HD mode - Heavy load (H. Duty)	✗
Control mode V/F scalar control	✓
Open-loop vector SFVC control mode	✗
Closed-loop vector CLVC control mode	✗
Analog inputs	1
Digital inputs	4
Analog outputs	✗
Relay outputs	1
Open collector outputs	✗
Brake transistor	✗
EMC filter	✓
+10 V output	✓
+24 V output	✗
Input for PTC	✓
Safe Torque Off (STO)	✗
Emergency STOP (EMS)	✓
Integrated Ethernet	✗
Integrated MODBUS RTU	✓
PROFIBUS	✗
PG card for encoder	✗
PID + dry run detection LL + sleep mode SLP + high/low pressure detection HP/LP	✓
PLC intelligent function	✓
External panel connection (normally up to 30 m)	✓
Degree of protection IP 20	✓
Degree of protection IP 65	✗
Change of direction of rotation via external input	✓
Change of direction of rotation from the panel	✗



Comparison of the main functions of VFDs

	A200	A550	V800	V800 ET	V810	V900	X550
Overloading in ND mode - Normal load (N. Duty)	150%/60 s	120%/60 s	120%/60 s	120%/60 s	120%/60 s	120%/60 s	150%/60 s
Overloading in HD mode - Heavy load (H. Duty)	✗	✗	150%/60 s	150%/60 s	150%/60 s	150%/60 s	✗
Control mode V/F scalar control	✓	✓	✓	✓	✓	✓	✓
Open-loop vector SFVC control mode	✗	✗	✓	✓	✓	✓	✗
Closed-loop vector CLVC control mode	✗	✗	✗	✗	✓	✓	✗
Analog inputs	1	1	2	✗	2	2	1
Digital inputs	5	4	6	2	8	6	6/4
Analog outputs	✗	✗	1	✗	1	2	✗
Relay outputs	✗	1	1	✗	2	2	2/1
Open collector outputs	1	✗	1	✗	1	1	✗
Brake transistor	✓	✓	✓	✓	✓	✓	✓
EMC filter	✓	✓	✓	✓	✓	✓	✓
+10 V output	✗	✓	✓	✗	✓	✓	✓
+24 V output	✗	✗	✗	✗	✓	✓	✓
Input for PTC	✗	✓	✓	✗	✓	✓	✓
Safe Torque Off (STO)	✗	✗	✗	✗	✗	✗	✗
Emergency STOP (EMS)	✓	✓	✓	✓	✓	✓	✓
Integrated Ethernet	✗	✗	✗	✓	✗	✗	✗
Integrated MODBUS RTU	✓	✓	✓	✓	✓	✓	✓
PROFINET	✗	✗	✗	✗	✗	✓	✗
PROFIBUS	✗	✗	✗	✗	✓	✗	✗
PG card for encoder	✗	✗	✗	✗	✓	✓	✗
PID + dry run detection LL+sleep mode +high/low pressure detection HP/LP	✓	✓	✓	✓	✓	✓	✓
PLC intelligent function	✗	✓	✓	✓	✓	✓	✓
External panel connection (normally up to 30m)	✓	✓	✓	✗	✓	✓	✓
Degree of protection IP20	✓	✓	✓	✓	✓	✓	✗
Degree of protection IP 65	✗	✗	✗	✗	✗	✗	✓
Change of direction of rotation via external input	✓	✓	✓	✓	✓	✓	✓
Change of direction of rotation from the panel	✓	✗	✗	✗	✓	✓	✗



Accessories and modular constructions

AC input choke

The AC input choke should be installed at the input terminal of the inverter and serves to prevent the transmission of harmonic interference generated by the inverter to the power grid, reduce the transmission of harmonic interference to other components from the grid, improve the quality of the power grid, increase power factors, and prevent abnormal voltage fluctuations in the power grid (if the imbalance is greater than 3%); inrush current in the electrical network, stabilization of the waveform and reduction of the influence on the converter.

Input filter

The external EMC input filter between the inverter and the power source not only limits the interference of the inverter caused by the surrounding electromagnetic noise, but also prevents the interference of the surrounding devices by the inverter itself.

DC choke

The DC choke is mainly used on the inverter and rectifier to increase the power factor and filter the interference of pulses, voltage, current and reduce the harmonic interference of the inverter.

Filter on the output side

The task of this filter is to reduce interference generated by high switching frequencies, which are created by IGBT switching and are transmitted by wires. An EMI filter can be selected to limit the noise generated on the output side of the converter and the ground wire.



AC output choke

The AC output choke is mounted on the output terminal of the inverter and serves to limit the discharge current of the connection cable between the inverter and the motor, the degree of accumulation of the PWM wave voltage of the passive inverter, increase the power factor and quality of the electrical network, and stabilize the waveform. When the line from the frequency converter to the motor is a long line (over 20 m), the choke will limit radio frequency interference and leakage current. The choke also reduces motor vibrations caused by inverter switching pulses. At the same time, the choke reduces the effect of wave reflection on the electrical line, especially with longer cable lengths.

Suppression toroid (ferrite core)

This suppression element helps reduce the interference that is radiated from the conductors. It can be used both at the input and at the output of the frequency converter. It is most effective to wind at least three turns of the conductor around the ferrite core. To improve the effect, it is possible to use more toroids in one circuit.

Braking resistance - Dynamic braking

The purpose of dynamic braking using braking resistors is to stop the spinning rotor of an electric motor with a load in a set (mostly very short) time. Connecting a braking resistor also improves the braking capabilities of the frequency converter to prevent overvoltage during deceleration.



Comfortable and compact layout control of the drive in the switchboard

VYBO Electric KINESYSTEM 1 - typical cabinet designs



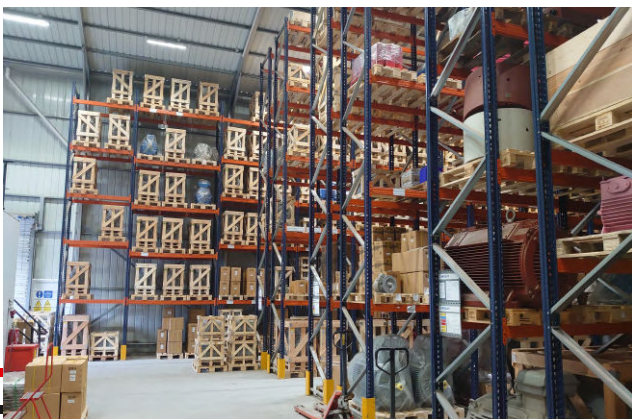
Component interface to the switchboard

- chokes
- surge protection
- main contactor
- circuit breakers
- motor protection switch
- clamps



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Warehouse stock



We solve

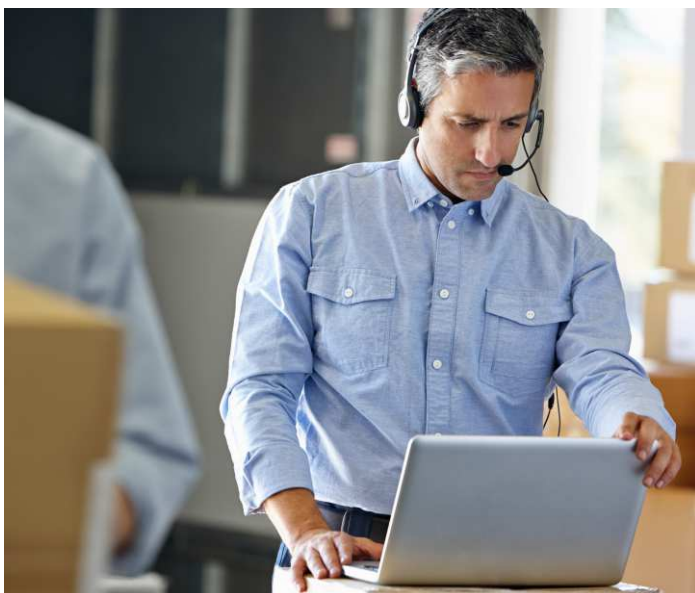
- unit supply
- complete plant supply
- bulk supply for production
- any customer requirements included in our industry
- an online worker specializing in your company
- complete warranty and post-warranty service of LV and HV frequency converters VYBO Electric KineDrive
- call our line 24 hours a day, 365 days a year
- we provide all available documentation for our frequency converters and industrial drives





Care of inverters, care of your business

If the inverter is part of the product you sell or is included in your production process, the priority is its problem-free and reliable operation. A wide range of lifetime services, it has been designed to meet all your expectations for every application.



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Installation and commissioning
The driver can be customized according to the exact requirements that follow from specific applications.



Company

VYBO Electric is a hi-tech manufacturing plant and supplier of industrial electric motors. It is also dedicated to the research and development of frequency converters of its brand and further covers a wide range of products and products. The company is located in the European Union in the Slovak Republic in Spišská Nová Ves in the center of the eastern part of the country. We have extensive experience in the production of electric motors and in the design of electric drives, as well as many years of experience in the aforementioned research and development of frequency converters.



More than 120 years of electrical industry in our region ...

The region has been known for its developed electrotechnical industry and also for the production of electric motors and electrotechnical equipment for more than 120 years. The Slovak Republic is still one of the leading producers of electrical and technical equipment.

Maximum quality, maximum flexibility and super-fast delivery times...





Address

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052 01 Spišská Nová Ves
Slovenská republika

www.vyboelectric.com



SOLUTIONS FOR INDUSTRY

BUREAU VERITAS
Certification



VYBO Electric a.s.
Radlinského 18, 052 01 Spišská Nová Ves
Slovak Republic

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 14001: 2015

Scope of certification

MANUFACTURE AND SALE OF ELECTRIC MOTORS, SALES AND DEVELOPMENT OF VARIABLE FREQUENCY DRIVES.

Original cycle start date: 18.05.2022
Expiry date of previous cycle: N/A
Certification Audit date: 31.03.2022
Certification cycle start date: 18.05.2022

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 17.05.2025

Certificate No. SK-U22 055E Version: 1 Issue date: 18.05.2022

Certification body address: 5th Floor, 86 Prescott Street, London E1 8HQ, United Kingdom
Local office: Plynárska 7/B, BRATISLAVA 821 09, Slovak Republic



Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation. To check this certificate validity please call: +421 2 2341 4165

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Bureau Veritas Certification

Certificate

Awarded to

VYBO Electric a.s.
Radlinského 18, 052 01 Spišská Nová Ves
Slovak Republic

BUREAU VERITAS CERTIFICATION (Z) s.r.o. certifies that the Management System of the above organisation has been assessed and found to be in accordance with the requirements of the management system standard detailed below

Standard

ISO 45001:2018

Scope of supply

MANUFACTURE AND SALE OF ELECTRIC MOTORS, SALES AND DEVELOPMENT OF VARIABLE FREQUENCY DRIVES.

Original Approval Date: 18-05-2022
Expiry date of previous cycle: N/A
Certification Cycle Start Date: 18-05-2022
Certification Cycle End Date: 17-05-2025
Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until: 17-05-2025

To check this certificate validity please call: +420 210 090 215

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.

Version 1 Issue Date: 18-05-2022
Certificate Number: CZF - 2206117

ISSUING OFFICE ADDRESS: BUREAU VERITAS CERTIFICATION CZ, s.r.o., Obchodní 1, 143 02 Praha 4, Czech Republic

1/1

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ CERTIFICADO ◆ CERTIFICAT



CERTIFICATE

TÜV SÜD Slovakia s.r.o.
Certification Body for Management Systems
Accredited by SNAS
Certificate on accreditation No. Q-011
certifies that



VYBO Electric a.s.
Radlinského 18
SK – 052 01 Spišská Nová Ves
ICO: 45 537 143

has established and applies
a Quality Management System for

**Manufacture and sale of electric motors.
Sales and development of variable frequency drives.**

An audit was performed, Report No. 2264/40/22/Q/AS/C
Proof has been furnished that the requirements
according to

STN EN ISO 9001:2016

are fulfilled. The certificate is valid from 2022-04-14 until 2025-04-13
Certificate Registration No. Q 2264-1

Bratislava, 2022-04-14

TÜV SÜD Slovakia s.r.o.
Certification Body for Management Systems
Member of Group TÜV SÜD
Jaskóva 6, 821 03 Bratislava

F-Q-019/26

Certificate SK22/3701

The management system of

VYBO Electric a.s.
Radlinského 18
052 01 Spišská Nová Ves, Slovakia

has been assessed and certified as meeting the requirements of

EN ISO 50001:2018

For the following activities

**Production & sales of electric motors.
Sales & development of variable frequency drives.**

Further clarifications regarding the scope of this certificate and the applicability of EN ISO 50001:2018 requirements may be obtained by consulting the organisation.

This certificate is valid from 7 April 2022 until 6 April 2025
and remains valid subject to satisfactory surveillance audits.
Recertification audit due a minimum of 60 days
before the expiration date.
Issue 1. Certified with SGS since 7 April 2022

Authorised by

Ing. Róbert Bodnár
Director
SGS Slovakia spol. s r. o.
Kýzucká 14, 040 11 Košice, Slovakia
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