Industrial Motors

Commercial &
Appliance Motors

Automation

Digital &
Systems

Energy

Transmission &
Distribution

Coatings

ADV200-HC

AC variable speed drive for **Hoist and Crane applications**

Driving efficiency and sustainability

WEG

SUMMARY
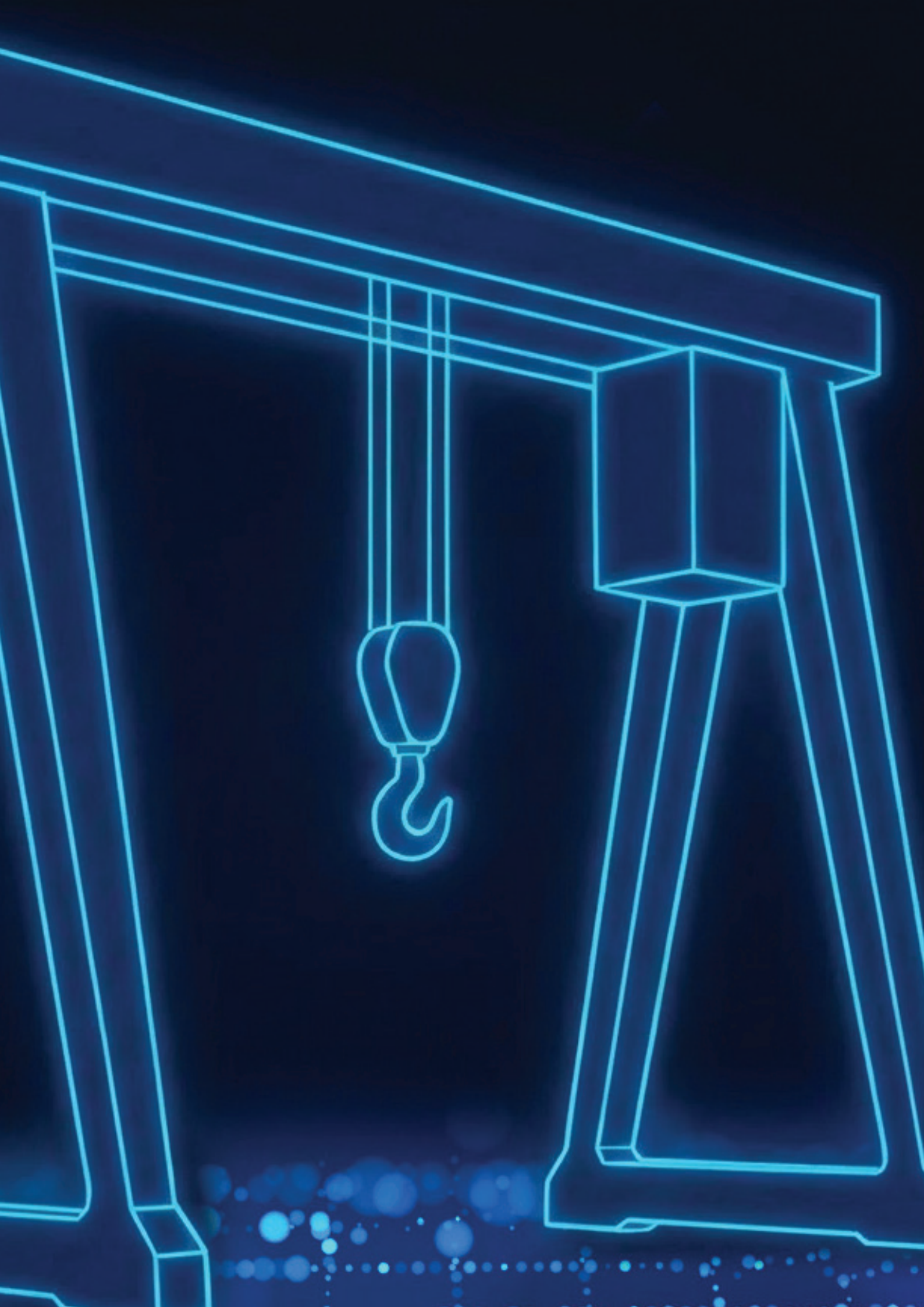
Description

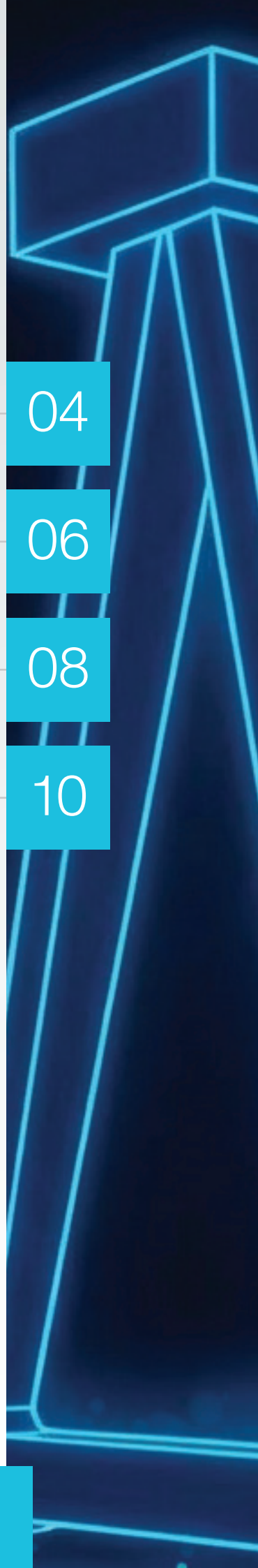The **ADV200-HC** is a dedicated solution designed specifically for hoist and crane systems.
It integrates all functions required to control every axis of the application, including:

- Hoist
- Gantry
- Trolley

The advanced Hoist & Crane software, embedded in each drive axis, ensures full and precise control of the overhead crane. It manages all key components such as the joystick, brake, and limit switches without the need for an external PLC.

The drives can communicate with each other in order to perform advanced functions like helper or electric line shaft functionalities, as well as anti-sway or functions to prevent possible damages to the load during hoisting or travelling.
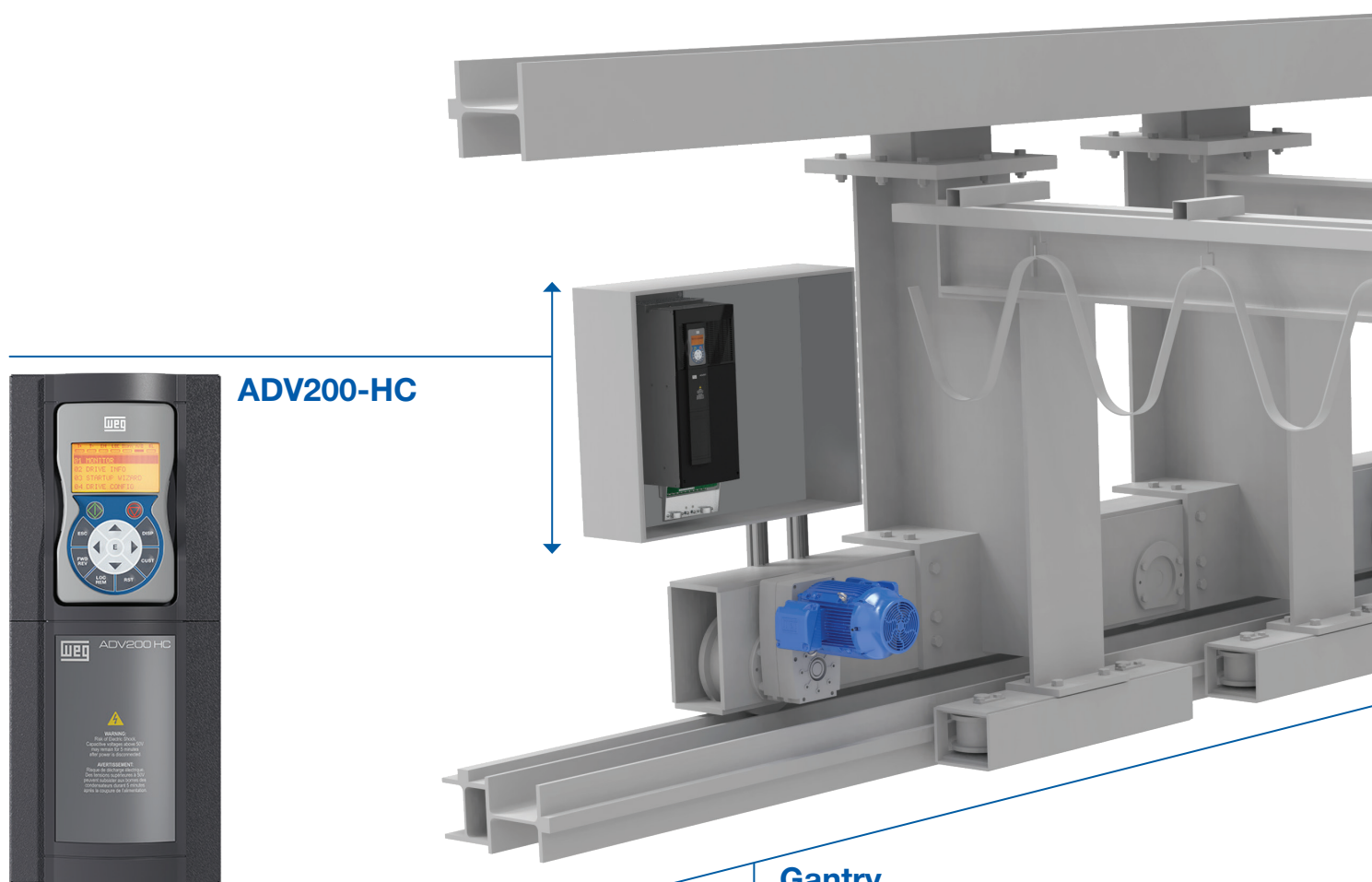
ADV200-HC

Gantry
Horizontal movement

Certain crane models are designed to move horizontally along beams, enabling precise longitudinal transport of loads to the desired position. Paired with a motorization mechanism controlled by a variable speed drive, this system ensures highly accurate load positioning with maximum safety.
The gantry, operated remotely, glides smoothly along rails integrated into the crane structure, facilitating the transport of heavy or bulky materials over long horizontal distances. This solution is widely used in shipyards, warehouses, and other industrial settings where efficient, controlled material handling is critical.

Moving heavy loads requires trust. And WEG delivers.
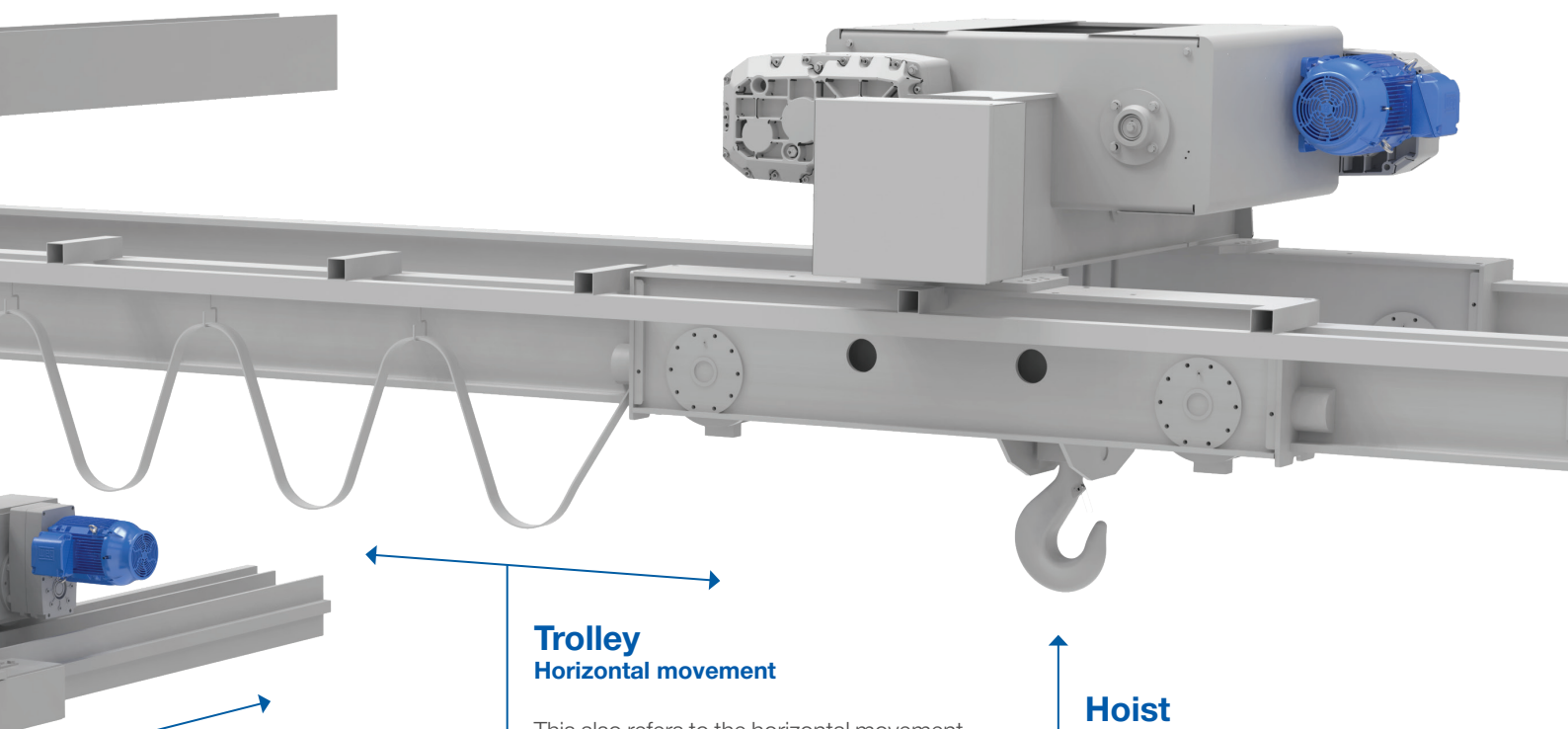
Trolley
Horizontal movement

This also refers to the horizontal movement of the load, but along the transverse axis, along the hoist's support. It allows the hoist to be positioned anywhere within the crane's coverage area.

Hoist
Vertical movement

This is the vertical movement of the crane, where the hook or the lifting mechanism raises and lowers loads to their final position.
Hoisting is one of the most critical and essential functions of a crane. Precise motor torque control down to 0 Hz, combined with advanced brake management, is essential for safe and efficient handling of heavy materials.

Hoist and Crane functions

The **Control Functions** are designed to:

- improve the crane performance
- prevent possible damages to the load during hoisting or travelling
- ensure smooth and fast movement
- reduce the wear
- reduce the operator effort and improve his working condition

H HOIST

T TROLLEY

G GANTRY

Brake control

Precise brake opening and closing with independent adjustments, paired with torque verification to ensure the motor generates sufficient force to hold the load securely.
The brake feedback function further enhances operational reliability.

H

Multi-speed, Multi-ramp, Joystick management

H
T
G

The VSD supports different predefined speed references and acceleration times for both forward and reverse directions. It is also possible to define an "S" shape acceleration and deceleration profle. Digital inputs can increase or decrease the speed reference using the digital potentiometer function.

Overload

It protects the hoist system by detecting loads exceeding its capacity. The system measures motor current or motor torque to determine if the load is excessive, protecting the equipment integrity.

H

Zero crossing

H

When activated, the Zero Crossing function ensures a complete stop sequence upon receiving a reverse command during motor operation. The brake remains closed for an adjustable period before opening with a full start sequence to move the load in the opposite direction.

Speed up

When the load to be lifted is lower than an adjustable threshold, the Speed Up function allows the motor to overcome its rated speed reducing the cycle time. The maximum achievable speed depends on the actual load respect to the rated load.
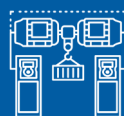
H

Master/Follower (Helper)

H
T
G

Two motors connected to a single gearbox can operate together with load sharing via two variable speed drives, for high-power or redundant applications. If one motor fails, the other (master or slave) can continue operating independently.

Overtravel and low-speed zone

It prevents hoists, gantries, or trolleys from exceeding allowed areas and avoids collisions. Limit sensors connected to the VSD inputs enable movement only in the opposite direction when triggered. Combined with the Low-Speed Zone function, ensures smooth operation near limit switches.

H
T
G

Anti-sway

T
G

The Anti-Sway function controls the load oscillation by appropriately adjusting the Gantry and Trolley speed reference profile.
The Hoist drive calculates the rope length and send this information to the Gantry and Trolley drives which perform the movement control.

Electrical shaft

It allows the synchronized position control of multiple axes. Double hoist cranes are used for lifting and transporting long loads of varying lengths.
The hooks must move synchronously during both elevation and horizontal displacement.

H
T
G

Anti-impact

T
G
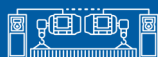
It avoids load damage in case of impacts within the crane permitted movement area. In cases where impact is unavoidable, this feature mitigates the damage.

General characteristics

Power range

Model	Power range (kW)																															
	0.75	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	250	315	355	400	500	630	710	900	1,000	1,350	1,650
ADV200-HC	Size 1					Size 2			Size 3			Size 4			Size 5			Size 6		Size 7					Parallel config size 7[1]							
	Pre-configured ADV200-HC drives																			Standard ADV200 drives The HC application can be downloaded by the user												

NOTES

[1] Inverters of over 400 kW comprise one MASTER unit and one or more SLAVE units

The **ADV200-HC** version (up to 132 kW) comes from the factory with the ADV200 firmware and the Hoist & Crane application pre-installed. The drives are delivered with an integrated braking unit (up to 55 kW), EMC filter, and DC choke.
The **-SI** versions include the Safe Torque Off (STO) function.
The **ADV200-HC** application firmware is also available as a free package for the entire ADV200 drive power range. In this case, the user must download the application into the drive.

Specifications

Power supply	3 x 380 ... 480 Vac, 50/60 Hz (-4 models) 3 x 500 ... 690 Vac, 50/60 Hz (-6 models) 450 ... 750 Vdc (-DC -4 models) 600 ... 1,120 Vdc (-DC -6 models)
Power ratings	0.75 kW…1,65 kW (HD)
Maximum output frequency	500 Hz (depending on drive size)
Braking unit	Integrated (up to 55 kW) Optional external (≥75 kW)
Overload	Heavy duty: 150% x In (1' every 5'), 180% x In (for 0,5") Light duty: 110% x In (1' every 5')
Control mode	Open-loop and closed-loop vector control; open loop V/f
Dedicated functions	Brake management, Joystick input, Multi-speed & Multi-ramp, Overtravel, Hoist speed up, Low speed zone, Anti-sway, Anti-impact, Electrical Line Shaft, Helper
Optional cards	Integration of up to 3 options on-board
	"Safety STO" card compliant with SIL3 machine safety directive (for model ADV200-...+SI)
Energy-efficiency option	By using the Regenerative Active Front End power supply AFE200
Multi-language programming SW	WEG_eXpress (5 languages)
PLC	PLC with advanced IEC 61131-3 programming environment
Rated protection	IP20-rated protection (IP00 size 7 and parallel)
Fieldbus management	Modbus RTU. Optional: Ethernet/IP, PROFINET, Devicenet, Profibus DP, CANopen, Modbus RTU to Modbus TCP gateway
Marks	CE UL cULus EAC UKCA

Dimensions

Dimensions - mm			
Mechanical size	W	H [H1]	D
1	118	322 [348]	235
2	150	392 [440]	250
3	180	517 [557]	250
4	268	616 [682]	270
5	311	767 [853]	325
6	422	878	360
7	417	1407	485
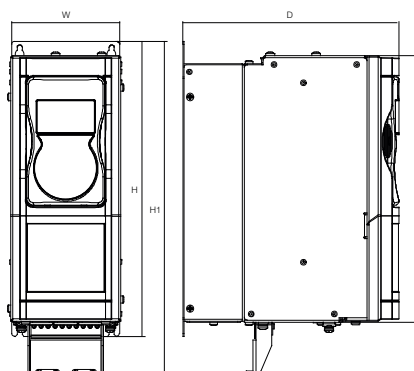
Options

ADV200 manages up to 3 option cards:
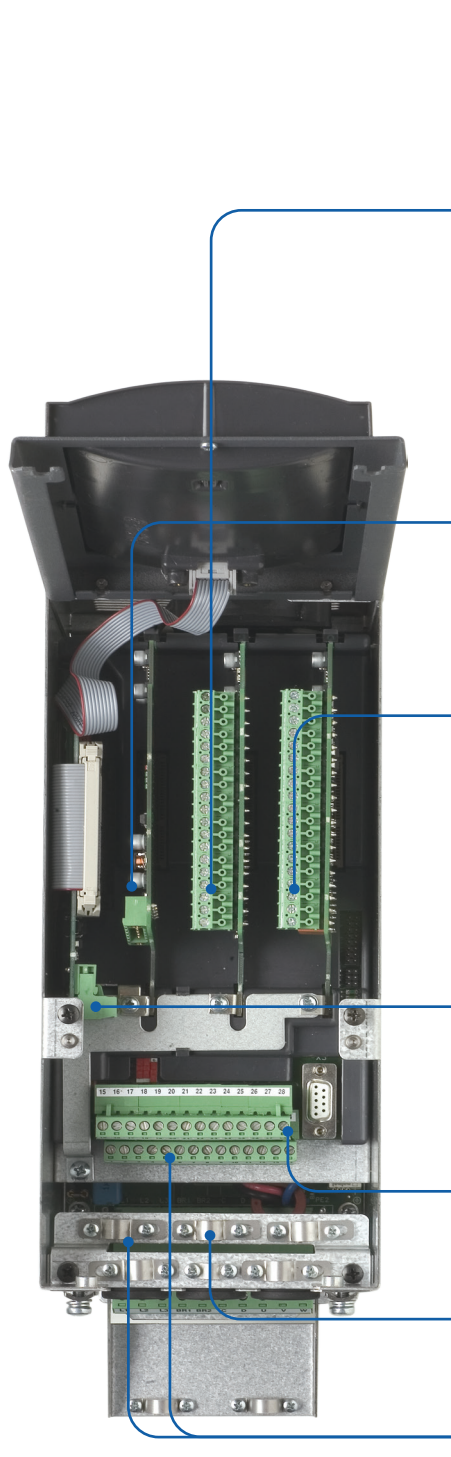
Option	Code	Description
EXP-DE-I1R1F2-ADV	**S5L30**	TTL/HTL digital increm. encoder expansion card 1 enc. input, 1 enc. output, 2 freeze channels
EXP-DE-I2R1F2-ADV	**S5L35**	TTL/HTL digital increm. encoder expansion card 2 enc. inputs, 1 enc. output, 2 freeze channels
EXP-SE-I1R1F2-ADV	**S5L31**	Sinusoidal incremental encoder expansion card 1 enc. input, 1 enc.output, 2 freeze channels
EXP-SESC-I1R1F2-ADV	**S5L32**	Sincos increm. encoder expansion card 1 enc. input, 1 enc. output, 2 freeze channels
EXP-EN/SSI-I1R1F2-ADV	**S5L33**	Absolute EnDat/SSI encoder expansion card 1 enc. input, 1 encoder output, 2 freeze channels
EXP-HIP-I1R1F2-ADV	**S5L34**	Absolute hiperface encoder expansion card 1 enc. input, 1 encoder output, 2 freeze channels
EXP-ASC-I1-ADV	**S5L42**	Absolute SinCos expansion card 1 encoder input
EXP-RES-I1R1-ADV	**S5L43**	Resolver expansion card 1 Resolver input - 1 Resolver repetition output

Encoder interface

Option	Code	Description
EXP-CAN-ADV	**S527L**	Expansion card for CANopen and DeviceNet interface
EXP-PDP-ADV	**S530L**	Expansion card for Profibus-DP interface
EXP-ETH2-IP-ADV200	**S5L92**	Industrial EtherNet/IP interface expansion card
EXP-ETH2-PN-ADV	**S5L93**	PROFINET interface expansion card

Fieldbus interface

Option	Code	Description
EXP-IO-D5R8-ADV	**S5L38**	4 digital inputs/1 digital output/8 relay output
EXP-IO-D6A4R1-ADV	**S526L**	4 digital inputs/2 digital outputs/2 analog inputs/2 analog outputs/2 double contact relays
EXP-FL-XCAN-ADV	**S5L41**	Master CAN I/O controller and fast link interface
EXP-IO-SENS-100-ADV	**S5L40**	To acquire signals from Pt-100 (Pt-1000), (NI1000), 0-10 V, 0/4...20 mA, KTY84, PTC
EXP-IO-SENS-1000-ADV	**S5L37**	

I/O expansions

Safety card

Integrated on board the drive as the 4th option, the **EXP- SFTy card** allows the motor to be disabled without the use of a safety contactor on the drive output. It guarantees compliance with the machine safety directive and meets the following standards:

- PL=e under EN ISO 13849-1
- SIL 3 under IEC 61508
- EN 954-1 Cat. 3

Backup Supply

The ADV200-HC can be powered through an external +24 Vdc supply to remain active in the event of mains power loss, ensuring continued operation of all monitoring functions, programming, and any connected fieldbus network.

Cable shielding

OMEGA clamp ensures 360° grounding of shielded cables.

Smart connections

Dedicated accessories and fully removable terminals, ensure simple and fast installation and startup in compliance with the **EMC** regulations.

Programming Tools

Programming keypad

A powerful platform that combines ease of use with quick understanding, thanks to an optimized menu and parameter structure, further enhanced by the keypad and display functionality. Intuitive navigation and easy start-up are supported by the "Wizard" tool.

The **ADV200-HC** standard keypad offers programming in 10 languages: English, Italian, French, German, Spanish, Polish, Romanian, Russian, Turkish, and Portuguese.

Key features:

- 4-line display with 21 characters per line
- Clear alphanumeric text
- Full information for all parameters
- Fast navigation keys
- Key to display the last 10 parameters that were changed
- DISP key for rapid viewing of operating parameters
- Upload, download, and storage of 5 complete sets of drive parameters
- Remote operation up to 10 meters

WEG_eXpress programming software

WEG_eXpress is the software used to configure the parameters of the ADV200 drives in the **WEG catalogue.**

The procedures for selecting and configuring parameters are easy and intuitive, thanks to the graphical interface, with devices grouped according to product type and function.
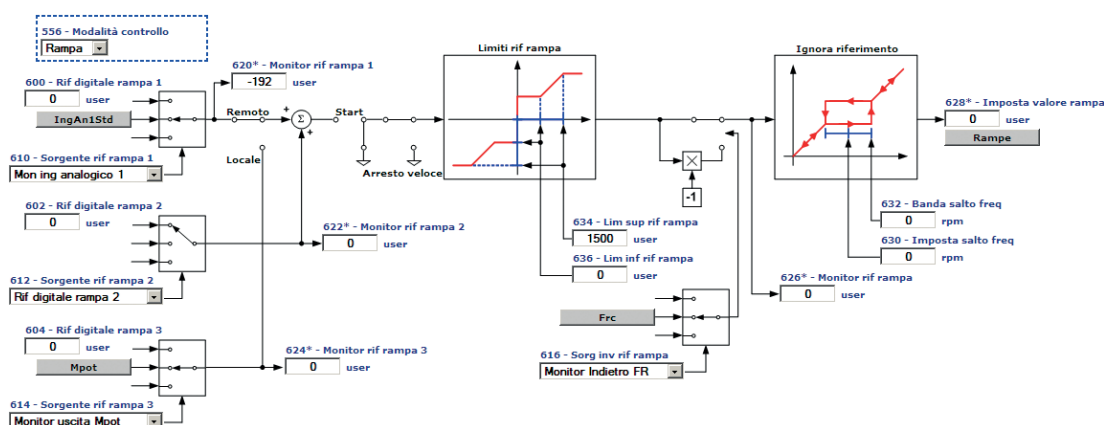

All configuration details for each device are stored in XML format, facilitating catalogue expansion and parameter management.

Applications

- Parameter configuration for the ADV200 drive family
- Tuning of control parameters with online testing and trend analysis
- Management of parameter archives for multiple configurations

Features

- Guided product selection
- Multiple languages
- Creation and storage of recipes
- Oscilliscope
- Simplified settings
- Parameter printout
- Network auto-scan
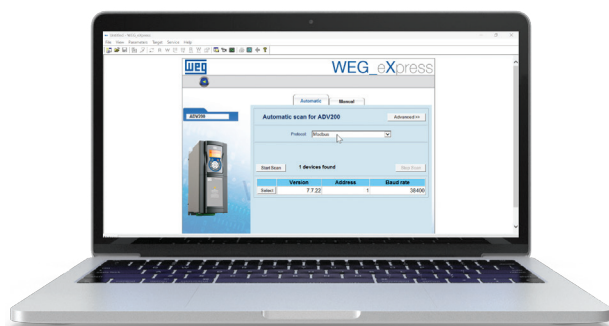
SoftScope

Using the **SoftScope** software, the user can quickly and easily display specific variables, such as commissioning parameters, performance test variables, or control loop tuning data.

SoftScope allows the definition of the following parameters:

- Trigger conditions (e.g. climbing leading edge of a specific signal)
- Recording quality (a multiple of the basic clock at 1 ms)
- Recording duration period
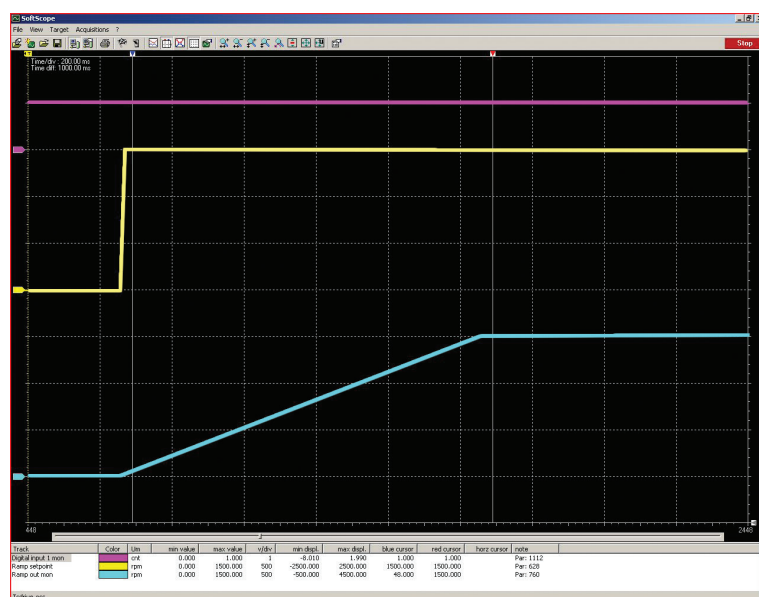- System sizes to be recorded

Example:
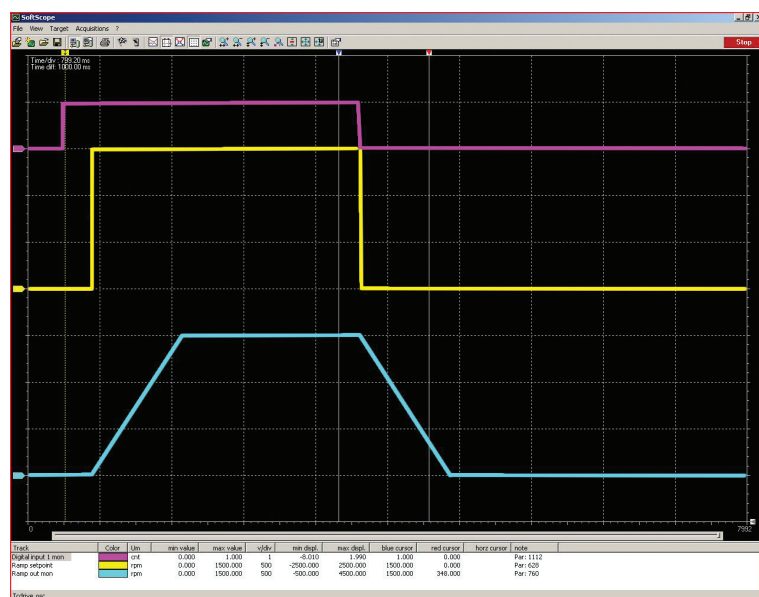
Speed Cycle
Start, ramp reference 1,500 rpm, ramp output reaches 1,500 rpm, Stop, ramp reference 0 rpm, ramp output reaches 0 rpm.

- 1) start command
- 2) ramp input speed reference
- 3) ramp output

Zoom
Ramp output phase from 0 rpm to 1,500 rpm of the previous cycle.

- 1) start command
- 2) ramp input speed reference
- 3) ramp output

The scope of WEG Group solutions
is not limited to products and solutions
presented in this catalogue.
To see our portfolio, contact us.

For WEG's worldwide
operations visit our website

www.weg.net

WEG

📞 +39 02 967601

✉ info.motion@weg.net

📍 Gerenzano (VA) Italy