

ENG

# DRIVE & MOTION PRODUCT RANGE

# GEFRAN





## THE ACKNOWLEDGED INTERNATIONAL LEADER

Thanks to forty years of experience, Gefran is the world leader in the design and production of solutions for **measuring, controlling, and driving industrial production processes.**

We have 14 branches in 12 countries and a network of over 80 worldwide distributors.



## QUALITY AND TECHNOLOGY

Gefran components are a **concentrate of technology**, the result of constant research and of **cooperation with major research centres.**

For this reason, Gefran is synonymous with quality and expertise in the design and production of:

- > **sensors for measuring main variables such as temperature, pressure, position and force**
- > **state-of-the-art components and solutions for indication and control**, satisfying demands for optimisation of processes and intelligent management of energy consumption
- > **automation platforms** of various complexities
- > **electronic drives and electric motors** in AC and DC for all industrial automation, HVAC, water treatment, lift, and photovoltaic needs.

**Gefran's know-how and experience guarantee continuity and tangible solutions.**





**PERFORMANCE**

In addition to foreseeing the market's application needs, Gefran forms partnerships with its customers to find **the best way to optimise and boost the performance of various applications.** Gefran products communicate with one another to provide integrated solutions, and can dialogue with devices by other companies thanks to compatibility with numerous fieldbuses.



**SERVICES**

**PRE AND POST SALES**

A team of Gefran experts works with the customer to select the ideal product for its application and to help install and configure devices (technohelp@gefran.com).

**TRAINING**

Gefran offers a wide range of courses at different levels for the technical-commercial study of the Gefran product range as well as specific courses on demand.



The Gefran Drive & Motion Control Unit designs, develops and manufactures electric drives and power regeneration systems used to control motors in the main industrial sectors.

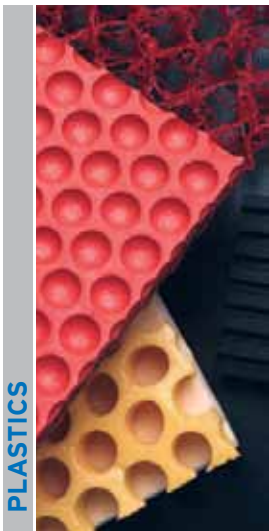


The ADV200 and AFE200, a complete range of solutions dedicated to the most advanced industrial automation systems, are the fruit of this experience. Our specialisation in the civil lift sector and collaborations with leading international lift manufacturers have also resulted in the development of dedicated ADL300 lines to cater to the widest possible range of system requirements.

ADV20 & ADV50    ADV80    ADV100    ADV200    ADV200 WA    ADV200 CABINET



	INVERTER					
Plastic processing machinery	•	•	•	•		•
Metal processing machinery				•		•
Machinery for the textile industry	•	•	•	•		•
Water treatment			•		•	•
HVAC	•	•	•		•	•
Test benches			•	•		•
Material handling	•	•	•	•		•
Conveyors	•	•	•	•		•
Material recycling machinery	•	•	•	•		•
Lifts						
Hoisting equipment	•	•	•	•		•



PLASTICS



WOOD



CHEMICAL/PHARMACEUTICAL



METAL



CIVIL LIFTING

AGL50 | ADL300

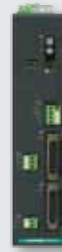
AVRy

XVy-EV

AXV300

TPD32-EV

AFE200



INVERTER LIFT	INVERTER LIFT with integrated power recovery	SERVODRIVE		DIGITAL DC DRIVE	REGENERATIVE POWER SUPPLY UNIT
		•	•	•	•
		•	•	•	•
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MARKETS

GLASS



TEXTILE



ENERGY



HVAC



WATER TREATMENT



INDUSTRIAL PRINTING



## INVERTER



Model	ADV20 & ADV50	ADV80
<b>Control mode</b>	V/f control (ADV20) V/f & Sensorless vector (ADV50)	Torque vector
<b>Power</b>	0.4 ... 3.7kW [0.5 ... 5.0 Hp] (ADV20) 0.4 ... 11kW [0.5 ... 15 Hp] (ADV50)	0,37 ... 22kW (0.5 ... 30Hp)
<b>Voltage</b>	1 x 100...120 Vac (ADV20), 50/60Hz 1 x 200...240 Vac, 50/60Hz 3 x 200...240 Vac (ADV50), 50/60Hz 3 x 380...480 Vac, 50/60Hz	3 x 400 V -15% ... 480 V +10%
<b>Speed control (Accuracy)</b>	0.5% 0.1% with digital encoder (ADV50)	0.1%
<b>Analog inputs</b>	1 (ADV20), 2 (ADV50) (current or voltage)	2 two-pole (Voltage/Current)
<b>Analog outputs</b>	ADV20: 1 (PWM) ADV50: 1 (voltage)	2 two-pole (Voltage/Current)
<b>Digital inputs</b>	6	5
<b>Digital outputs</b>	1 (relay) - (ADV20) 2 (1 static and 1 relay) - (ADV50)	2 (1 static and 1 relay)
<b>Overload</b>	150% * In (for 1 minute)	150% * In (for 1 minute)
<b>Max output frequency</b>	600Hz	500Hz
<b>EMI filter</b>	Integrated (230 V single-phase and 400-460 V three-phase models)	Optional
<b>Choke</b>	Optional	Optional
<b>Braking unit</b>	Integrated (ADV50 only): ≥ 1.5kW (230V) ≥ 12.2kW (400V)	Integrated
<b>Options for integration onboard drive</b>	1 (ADV20) 2 (ADV50)	None
<b>PLC</b>	no (ADV20) yes (ADV50)	no
<b>Safety Card</b>	no	no
<b>Functions</b>	<ul style="list-style-type: none"> <li>• Self-tuning of motor parameters</li> <li>• Auto-torque/slip compensation</li> <li>• Automatic Voltage Regulation (AVR)</li> <li>• Multispeed selection from 0 to 15</li> <li>• 2 independent ramp times for acceleration/ deceleration</li> <li>• Jog function and motor potentiometer</li> <li>• S-shape accel./decel. curve</li> <li>• Overvoltage/overcurrent stall prevention</li> <li>• Integrated PID control</li> <li>• Energy saving function</li> <li>• Restart after temporary power loss</li> <li>• Selection of NPN/PNP inputs</li> <li>• Fan speed control</li> <li>• Configuration of 4 motors.</li> </ul>	<ul style="list-style-type: none"> <li>• Self-tuning of motor parameters</li> <li>• Predefined and programmable V/f curves</li> <li>• 4 independent programmable ramps</li> <li>• 16 programmable speeds</li> <li>• Auto-capture function</li> <li>• Mains loss detection with controlled stop</li> <li>• Programmable auto restart</li> <li>• PID application block</li> <li>• Energy saving function</li> <li>• Skipping of critical frequency bands</li> <li>• Motor thermal cutout switch</li> <li>• Integrated virtual or remote I/O management</li> <li>• Areas with programmable logic.</li> </ul>
<b>Serial communication</b>	RS-485 (RJ-45) with Modbus protocol. Optional: DeviceNet, Profibus, LonWorks, CANopen®.	RS485 <sup>(2)</sup> , Modbus RTU. -C models: DeviceNet and CANopen® integrated. External optional: Profibus DP
<b>Protection degree</b>	IP20	IP20
<b>Markings</b>	CE, UL and cUL	CE, UL and cUL

<sup>(1)</sup> for standard 4-pole motors

<sup>(2)</sup> the serial port is used for programming (PC) and control (Modbus communication standard in all drives)

<sup>(3)</sup> for ADV200-...-4 and ADV200-...-DC models. For ADV200-...-6 models see the ADV200 catalogue.



ADV100	ADV200	ADV200 WA
Field Oriented Control	Field Oriented Control	Field Oriented Control
4 ... 90kW (5 ... 125Hp)	0.75kW...1.2MW [1...1600Hp] (-4 models) 75kW...1.65MW [100...2213Hp] (-6 models) 18.5kW...1.65MW [25...2213Hp] (-DC models)	1.5kW...1.2MW [2...1600Hp] (-4 models) 75kW...1.2MW (-6 models) 22kW...1.2MW [30...1600Hp] (-DC models)
3 x 230...500Vac, 50/60Hz	3 x 380...500Vac, 50/60Hz (-4 models ) 3 x 690Vac, 50/60Hz (-6 models ) 450...750Vdc (-DC-4 models) 600...1120Vdc (-DC-6 models)	3 x 380...500Vac, 50/60Hz (-4 models) 3 x 690Vac, 50/60Hz (-6 models) 450...750Vdc (-DC-4 models) 600...1120Vdc (-DC-6 models)
± 0,01% Motor rated speed <sup>(1)</sup>	± 0,01% Motor rated speed <sup>(1)</sup>	± 30% motor slip rating (V/f control)
2 two-pole (Voltage/Current)	2 two-pole (Voltage/Current)	2 two-pole (Voltage/Current)
2 two-pole (1 voltage or current, 1 voltage)	2 two-pole (1 voltage or current, 1 voltage)	2 two-pole (1 voltage or current, 1 voltage)
6 (+ 1 Enable)	6 (PNP / NPN)	6 (PNP / NPN)
2 (relay)	4 (PNP / NPN) , (static and 2 relay)	4 (PNP / NPN) , (static and 2 relay)
150% * In (1' every 5') 180% * In (0.5 " every 5')	Heavy: Async.=150% * In (1' every 5'); 180% * In (for 0.5 sec), Sync.=160% * In (1' every 5'); 200% * In (for 3") Light: Async. and Sync.=110% * In (1' every 5') <sup>(3)</sup>	Light: 110% * In (1' every 5') <sup>(3)</sup> Heavy: 150% * In (1' every 5'); 180% * In (0.5" every 5')
500Hz	500Hz (depending on drive size)	500Hz (depending on drive size)
Integrated (sizes ≥ 30kW)	Integrated	Integrated
Integrated DC side (sizes ≥ 30kW)	Integrated DC side (up to 132 kW)	Integrated DC side (up to 160 kW)
Integrated (up to 55kW) External optional (≥75kW)	Integrated (up to 55kW) External optional (≥75kW)	Integrated (up to 75kW) External optional (≥90kW)
2	3	3
Optional (Motion Drive Programmable Logic Controller, standard IEC61131-3, 5 languages)	yes (Motion Drive Programmable Logic Controller, standard IEC61131-3, 5 languages)	yes (Motion Drive Programmable Logic Controller, standard IEC61131-3, 5 languages)
no	yes (models ADV200-...-SI)	yes (models ADV200-WA-...-SI)
<ul style="list-style-type: none"> <li>• Self-tuning of speed-current-flux regulators and identification of motor data with motor idle or rotating</li> <li>• Torque control</li> <li>• Quick startup menu</li> <li>• Instant overload up to 180%</li> <li>• I<sup>2</sup>T thermal protection for motor</li> <li>• Energy saving</li> <li>• PID control</li> <li>• 16 multispeeds and 4 multiramp settings (linear, jerk, independent and S-shape)</li> <li>• Dedicated energy saving function</li> <li>• PID with value settings in engineering units</li> <li>• Control of electromechanical parking brake mounted on motor</li> <li>• SD card kit (ADV100-...-C models)</li> <li>• Programming menu in 5 languages.</li> </ul>	<sup>(3)</sup> <ul style="list-style-type: none"> <li>• Self-tuning of speed-current-flux regulators and identification of motor data with motor idle or rotating</li> <li>• Torque control</li> <li>• Quick startup menu</li> <li>• Instant overload up to 180%</li> <li>• Double overload</li> <li>• I<sup>2</sup>T thermal protection for motor, drive and braking resistor</li> <li>• 16 programmable multispeeds and 4 multiramp settings (linear, jerk, independent and S-shape)</li> <li>• Motor potentiometer function</li> <li>• Motor auto-capture function</li> <li>• Droop function</li> <li>• Dual motor management</li> <li>• PID function block (application pre-loaded)</li> <li>• Mains loss detection with: controlled stop and/or power optimisation</li> <li>• Variable switching frequency</li> </ul>	<ul style="list-style-type: none"> <li>• Startup wizard</li> <li>• Application Macro for HVAC and Pump management</li> <li>• Energy optimization</li> <li>• Motor Thermal contact (PTC, PT100 and KTY84)</li> <li>• Direct acquisition by PT100, PT1000, NI1000 temperature sensors (with EXP-IO-SEN-100-ADV and EXP-IO-SEN-1000-ADV cards)</li> <li>• Cascade control of up to 4 pumps, plus the master device (with EXP-IO-D5R8-ADV card)</li> <li>• 4 integrated timers with calendar and Real Time Clock</li> <li>• Fire and Bypass Mode</li> <li>• Two independent PID controllers with autotuning</li> <li>• Variable and constant torque operation</li> <li>• Integrated EMC filters on all sizes</li> <li>• Integrated DC chokes (up to 160 kW)</li> <li>• Compact size</li> <li>• Energy Saving Tool calculator software for pumps and fans</li> <li>• Tropicalised cards for maximum protection</li> <li>• Engineering Units programming</li> </ul>
RS232 <sup>(2)</sup> , Modbus RTU. Optional: DeviceNet, CANopen®	RS485 <sup>(2)</sup> , Modbus RTU. Optional: DeviceNet, Profibus DP, CANopen®, GDNNet, Ethercat, Ethernet IP, PROFINET	RS485 <sup>(2)</sup> , Modbus RTU. Optional: DeviceNet, LonWORKS®, BACNet, Profibus DP, CANopen®, GDNNet, Ethercat, Ethernet IP
IP20	IP20 (IP00 size 7 and parallel)	IP20; IP00 size 7 and parallel (-4 and DC), size 10 and parallel (-6)
CE, UL and cUL	CE, UL and cUL	CE, UL and cUL

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## INVERTER



Model	ADV200 Cabinet
<b>Control mode</b>	Field Oriented Control
<b>Power</b>	90kW...1.2MW (125...1600Hp)
<b>Configuration</b>	Ready to use Basic
<b>Voltage</b>	3 x 380...500Vac, 50/60Hz (-4 models) 3 x 690Vac, 50/60Hz (-6 models)
<b>Speed control (Accuracy)</b>	± 0.01% Motor rated speed <sup>(1)</sup>
<b>Analog inputs</b>	2 two-pole (Voltage/Current)
<b>Analog outputs</b>	2 two-pole (1 voltage or current, 1 voltage)
<b>Digital inputs</b>	6 (PNP / NPN)
<b>Digital outputs</b>	4 (PNP / NPN), (2 static and 2 relay)
<b>Overload</b>	Heavy: Async.=150% * In (1' every 5'); 180% * In (for 0.5''), Sync.=160% * In (1' every 5'); 200% * In (for 3'') Light: Async. and Sync.=110% * In (1' every 5') <sup>(3)</sup>
<b>Max output frequency</b>	500Hz (depending on drive size)
<b>EMI filter</b>	yes
<b>Choke</b>	Up to 132 kW: Integrated DC side ≥ 132 kW: Integrated mains choke
<b>Braking unit</b>	Optional
<b>Options for integration onboard drive</b>	3
<b>PLC</b>	yes (Motion Drive Programmable Logic Controller, standard IEC61131-3, 5 languages)
<b>Safety Card</b>	yes (ADV-...-S, AFE-...-S models)
<b>Functions</b>	<ul style="list-style-type: none"> <li>• Constant torque and variable torque mode (skip size function)</li> <li>• MDPLC advanced development environment (according to IEC 61131-3)</li> <li>• Programming keypad with 5 complete sets of drive parameters saved</li> <li>• Programming menu in 10 languages.</li> </ul>
<b>Serial communication</b>	RS485 <sup>(2)</sup> , Modbus RTU. Optional: DeviceNet, Profibus DP, CANopen®, GDNNet, Ethercat, Ethernet IP, PROFINET
<b>Protection degree</b>	IP23 or IP54/IP55
<b>Markings</b>	CE

<sup>(1)</sup> for standard 4-pole motors

<sup>(2)</sup> the serial port is used for programming (PC) and control  
(Modbus communication standard in all drives)

## INVERTER LIFT



Model	AGL50
<b>Control mode</b>	Space Vector
<b>Power</b>	4 - 5,5 - 7,5 kW (5 - 7,5 - 10Hp)
<b>Voltage</b>	3 x 400Vac ... 480Vac, 50/60Hz
<b>Motor type</b>	Asynchronous
<b>Speed control (Accuracy)</b>	0.5 ... 1%
<b>Analog inputs</b>	1
<b>Analog outputs</b>	1
<b>Digital inputs</b>	6
<b>Digital outputs</b>	3 (1 static and 2 relay)
<b>Overload</b>	up to 170% * In
<b>Max output frequency</b>	500Hz
<b>EMI filter</b>	Optional
<b>Choke</b>	Optional
<b>Braking unit</b>	Integrated with external resistor
<b>Port for SD card</b>	no
<b>Dimensions for roomless applications</b>	yes
<b>Emergency operation</b>	Optional (with UPS)
<b>Max system speed</b>	1.0 m/s
<b>Type of lift</b>	Geared
<b>Installations</b>	New installation & Retrofitting
<b>Functions</b>	<ul style="list-style-type: none"> <li>• 16 multispeeds</li> <li>• 4 multiramps (linear, S-shaped with independent jerk settings)</li> <li>• Self-tuning of motor parameters</li> <li>• Integrated lift sequences</li> <li>• Speed expressed in m/s</li> <li>• Management of space calculated by the drive, even offline</li> <li>• Management of short floors</li> <li>• Motor contactor control</li> <li>• Integrated brake control</li> <li>• Temperature control for motor and drive.</li> </ul>
<b>Serial communication</b>	RS485 <sup>(2)</sup> , Modbus RTU
<b>Protection degree</b>	IP20
<b>Markings</b>	CE, UL and cUL



# INVERTER LIFT



ADL300-2T	ADL300-2M	ADL300-4
Field Oriented Control	Field Oriented Control	Field Oriented Control
5,5 ... 37kW (7,5 ... 50Hp)	1,1 ... 5,5kW (1,5 ... 7,5Hp)	4 ... 75kW (5 ... 100Hp)
3 x 230Vac, 3 x 400Vac, 3 x 480Vac; 50/60Hz	1 x 230Vac; 50/60Hz	3 x 230Vac, 3 x 400Vac, 3 x 480Vac; 50/60Hz
Asynchronous / Synchronous	Asynchronous / Synchronous	Asynchronous / Synchronous
± 0.01% Motor rated speed <sup>(1)</sup>	± 0.01% Motor rated speed <sup>(1)</sup>	± 0.01% Motor rated speed <sup>(1)</sup>
ADL300B: 0; ADL300A: upon reqes (*)	ADL300B: 0; ADL300A: upon reqes (*)	ADL300B: 0; ADL300A: upon reqes (*)
ADL300B: 0; ADL300A: upon reqes (*)	ADL300B: 0; ADL300A: upon reqes (*)	ADL300B: 0; ADL300A: upon reqes (*)
ADL300B: 8 + 1 enable ADL300A: upon request	ADL300B: 8 + 1 enable ADL300A: upon request	ADL300B: 8 + 1 enable ADL300A: upon request
ADL300B: 4 (relay) ADL300A: upon reqes (*)	ADL300B: 4 (relay) ADL300A: upon reqes (*)	ADL300B: 4 (relay) ADL300A: upon reqes (*)
up to 200% In * 10" (up to 11kW) up to 180% In * 10" (≥ 15kW)	up to 200% In * 3"	up to 200% In * 10" (up to 22kW) up to 180% In * 10" (≥ 30kW)
300Hz	300Hz	300Hz
Integrated (ADL300-F models) (EN 12015, EN 61800-3)	Optional external (EN 12015, EN 61800-3)	Integrated (EN 12015, EN 61800-3)
DC side choke: integrated (≥ 30kW), external optional on lower sizes AC side choke: external optional	no	DC side choke: integrated (≥ 30kW), external optional on lower sizes AC side choke: external optional
Integrated up to 30kW with external resistor	Integrated with external resistor	Integrated up to 55kW with external resistor
yes	yes	yes
yes	yes	yes
Optional (UPS or buffer battery with EMS module)	Optional (UPS or buffer battery with EMS module)	Optional (UPS or buffer battery with EMS module)
4.0 m/s	1.0 m/s	4.0 m/s
Geared / Gearless	Geared / Gearless	Geared / Gearless
New installation & Retrofitting	New installation & Retrofitting	New installation & Retrofitting
<p>The ADL300 is available in two configurations:</p> <ul style="list-style-type: none"> <li>• (*) <b>ADL300A</b> (Advanced): to guarantee maximum programmability, the ADL300A is supplied as standard with no I/O or feedback cards, leaving the customer free to perform the appropriate configuration, choosing from an extensive range of options;</li> <li>• <b>ADL300B</b> (Basic) features the following as standard: <ul style="list-style-type: none"> <li>- 8 (Prog. DI) + 1 DI (Enable) + 4 (RO);</li> <li>- channels A+ A-, B+ B-, Z+ Z-, differential line drivers, optoisolated; management of loss of encoder signals; encoder signal repetition; TTL electrical interface;</li> <li>- input for absolute SinCos or Endat / SSI encoder.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The ADL300 is certified for the use of a single output contactor, in accordance with UNI EN 81-1:1998 + A3:2009, article 9.11.3</li> <li>• Safety Certification for a CONTACTORLESS operations: ADL300 is CERTIFIED as EN81-1:1998 + A3</li> <li>• STO according to EN61800-5-2:2007 - SIL3</li> <li>• Integrated LED keypad</li> <li>• Speed control</li> <li>• Position control with direct landing at floor (EPC Elevator Positioning Control)</li> <li>• Automatic calculation of deceleration point</li> <li>• Short floor management</li> <li>• Off-floor stop detection</li> <li>• Lift sequence management</li> <li>• Ramp generation</li> <li>• Management of up to 8 Multispeeds</li> </ul>	<ul style="list-style-type: none"> <li>• Load compensation</li> <li>• DCP3/DCP4 protocol communication</li> <li>• CANopen communication</li> <li>• CANopen -Lift (Cia@ 417) communication</li> <li>• Configuration via keypad with LEDs</li> <li>• Configuration via optional keypad (5 languages)</li> <li>• Configuration via PC (GF-eXpress)</li> <li>• Wizard for commissioning</li> <li>• Menu for setting electrical and mechanical parameters</li> <li>• Programming with linear engineering units</li> <li>• DC power supply or emergency single-phase power supply to return to floor with optimized consumption</li> <li>• External +24VDC power supply</li> <li>• Regenerative configuration with AFE200 external modules</li> </ul>
RS232 <sup>(2)</sup> , Modbus RTU, DCP3, DCP4, CANopen and CANopen Lift DS 417 (ADL300B-...-C models).		
IP20		
CE, UL and cUL Elevator Accessory E365347 certified also evaluated in accordance with ASME A17.5 and CSA B44.		

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## INVERTER LIFT



Model	AVRy
<b>Control mode</b>	Field Oriented Control
<b>Power</b>	11kW, 20kW and 27kW (with high voltage motors) or 7.5kW, 14kW and 17kW (with standard motors)
<b>Voltage</b>	3 x 400Vac, 3 x 460Vac, 50/60Hz
<b>Motor type</b>	Synchronous (PM gearless)
<b>Speed control (Accuracy)</b>	± 0,01% Motor rated speed <sup>(1)</sup>
<b>Analog inputs</b>	2
<b>Analog outputs</b>	2
<b>Digital inputs</b>	6
<b>Digital outputs</b>	4 (2 static and 2 relay)
<b>Overload</b>	183% In * 10"
<b>Max output frequency</b>	300Hz
<b>EMI filter</b>	Integrated (EN 12015)
<b>Choke</b>	Integrated (EN 12016)
<b>Braking unit</b>	no (Regeneration)
<b>Port for SD card</b>	no
<b>Dimensions for roomless applications</b>	yes
<b>Emergency operation</b>	Optional (UPS or buffer battery with EMS module)
<b>Max system speed</b>	3.0 m/s
<b>Type of lift</b>	Gearless
<b>Installations</b>	New installation & Retrofitting
<b>Functions</b>	<ul style="list-style-type: none"> <li>• Integrated AFE regenerative technology</li> <li>• Speed control (EFC Elevator Floor Control function)</li> <li>• Lift sequence</li> <li>• Parameters in linear units</li> <li>• Lift mechanical parameters</li> <li>• Ramp generation.</li> </ul>
<b>Serial communication</b>	RS485 <sup>(2)</sup> , Modbus RTU Optional: DeviceNet, Profibus DP, CANopen®
<b>Protection degree</b>	IP20
<b>Markings</b>	CE

<sup>(1)</sup> for standard 4-pole motors

<sup>(2)</sup> the serial port is used for programming (PC) and control (Modbus communication standard in all drives)

## SERVODRIVE



Model	XVy-EV	XVyA-EV
<b>Control mode</b>	Servo	
<b>Power</b>	4...315kW (2 ... 450Hp)	4...630kW (1 ... 850Hp)
<b>Voltage</b>	4...132kW: 3 x 230...480Vac. 50/60Hz ≥ 160kW: 3 x 400...480Vac 50/60Hz	4...132kW: 3 x 230...480Vac. 50/60Hz ≥ 160kW: 3 x 400...480Vac 50/60Hz
<b>Motor type</b>	Synchronous	Asynchronous
<b>Analog inputs</b>	2 two-pole (Voltage/Current)	
<b>Analog outputs</b>	2 two-pole (Voltage/Current)	
<b>Digital inputs</b>	8	
<b>Digital outputs</b>	7 (6 static and 1 relay)	
<b>Encoder input</b>	1 encoder / resolver + 1 auxiliary input / repetition	
<b>Overload</b>	150% * In (60" every 5')	150% * In (60" every 5')
<b>Max output frequency</b>	450Hz	
<b>EMI filter</b>	External (optional)	
<b>Choke</b>	External (optional)	
<b>Braking unit</b>	Integrated (up to 55kW) External optional (> 55kW)	
<b>Options for integration onboard drive</b>	2	
<b>PLC</b>	yes (Motion Drive Programmable Logic Controller, standard IEC61131-3)	
<b>Safety Card</b>	yes (models XVy-EV...+SI)	
<b>Functions</b>	<ul style="list-style-type: none"> <li>• Torque control</li> <li>• Speed control</li> <li>• Position control</li> <li>• Sequential position control (multi-position controller)</li> <li>• Electric shaft</li> <li>• Asynchronous or brushless motor control</li> <li>• Fast Link</li> <li>• Multiramp function (4)</li> <li>• Multispeed function (8)</li> <li>• Double overload IxT and I<sup>2</sup>T</li> <li>• Coast through function (power failure)</li> <li>• Brake control</li> <li>• Flux reduction</li> <li>• Motor potentiometer</li> <li>• Power loss detection</li> <li>• Linear motor control (XVy-EV)</li> <li>• Softscope SW oscilloscope</li> </ul>	
<b>Serial communication</b>	RS485 <sup>(2)</sup> , CANopen®, Modbus RTU Optional: DeviceNet, Profibus DP, FastLink, GDNNet, Ethercat	
<b>Special version</b>	Water-cooled version, Ambient temperature 60°C (XVy-EV...-EWH/EWHR models).	-
<b>Protection degree</b>	IP20 (-C and -CP models available with IP00)	
<b>Markings</b>	CE, UL and cUL	

<sup>(2)</sup> the serial port is used for programming (PC) and control (Modbus communication standard in all drives)

SERVODRIVE



Model	AXV300 multi-drive rack system	Module	Power Supply Module AXV300-SM	Regenerative Power Supply Module AXV300-SR...
<b>Overload I<sup>2</sup>t</b>	slow : 150% In for 60 sec fast: 200% In for 0,5 sec	<b>Rated input voltage</b>	3-phase 400Vac ±10%, 50/60Hz	3-phase 400Vac ±10%, 50/60Hz
		<b>Rated output voltage</b>	from 20 to 80A	from 4.5 to 200A
<b>Overload IxT</b>	200% In for 10 sec	<b>Output peak current</b>	from 40 to 140A	from 13.5 to 320A
<b>Functions</b>	MDPlc programming in IEC 61131-3 (on the AXV300-CU module): the MDPlc environment is a tool for developing high-level application architectures.	<b>Rated power</b>	from 11 to 44kW	from 2.7 to 120kW
<b>Operating temperature</b>	0 ... +40°C; +40°C...+50°C with derating	<b>Peak power</b>	from 22 to 80kW	-
<b>Protection degree</b>	IP21	<b>Switching frequency</b>	-	-
<b>Installation position</b>	Pollution degree 2 or lower	<b>External power supply (aux.)</b>	24 Vdc	24 Vdc
<b>Altitude</b>	Max 200 metres above sea level; up to 1000 m with no reduction in current	<b>Performance</b>	-	-
		<b>Vdc bus voltage</b>	565 Vdc	625 Vdc
<b>Atmospheric pressure</b>	[kPa] 86 to 106 (class 3K3 according to EN50178)	<b>Standard I/O</b>	-	-
		<b>I/O expansion</b>	-	-
<b>Climate</b>	IEC 68-2 Part 2 and 3	<b>Encoder expansion</b>	-	-
<b>Isolation distance</b>	EN 50178, UL508C			
<b>Vibration</b>	IEC68-2 Part 6			
<b>Interference immunity</b>	IEC801 Part 2, 3 and 4			
<b>EMC compatibility</b>	EN61800-3			
<b>Safety</b>	STO EN61800-5-2			
<b>Certification</b>	CE			

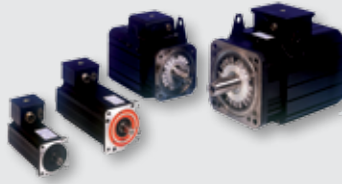
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## SERVODRIVE



Module	Axis Modules AXV300-...	Module	Control Unit Module AXV300-CU
<b>Rated input voltage</b>	3-phase 400Vac ±10%, 50/60Hz	<b>Rated input voltage</b>	24 Vdc
<b>Rated output voltage</b>	from 4.5 to 200Arms	<b>Rated output voltage</b>	-
<b>Output peak current</b>	from 13.5 to 320Arms	<b>Output peak current</b>	-
<b>Rated power</b>	from 2.7 to 120kW	<b>Rated power</b>	-
<b>Peak power</b>	from 8.1 to 192kW	<b>Peak power</b>	-
<b>Switching frequency</b>	400Hz (PWM 4kHz) / 450Hz (PWM 8kHz)	<b>Switching frequency</b>	-
<b>External power supply (aux.)</b>	24 Vdc	<b>External power supply (aux.)</b>	-
<b>Vdc bus voltage</b>	600 Vdc ±10%	<b>Vdc bus voltage</b>	-
<b>Performance</b>	<ul style="list-style-type: none"> <li>• motor control loop (brushless or asynchronous)</li> <li>• current loop closing: 16 KHz (62.5 μsec)</li> <li>• speed loop closing: 4 KHz (250 μsec)</li> <li>• overload I<sup>2</sup>T: slow (150% In x 60 sec) and fast (200% In x 0.5 sec)</li> <li>• management of local encoder for closing current/speed loops</li> <li>• alarm management</li> <li>• management of GStar communication from/to the AXV300-CU control module.</li> </ul>	<b>Standard I/O</b>	<ul style="list-style-type: none"> <li>• 2 non-opto-isolated analog inputs -10V...+10V</li> <li>• 1 non-opto-isolated analog output -10V...+10V@5mA</li> <li>• 4 opto-isolated digital inputs HTL 0...30V</li> <li>• 2 opto-isolated digital outputs 30V@40mA</li> <li>• 1 opto-isolated digital output 30V@500mA</li> </ul>
		<b>Real Time Ethernet (EXP-AXV300-RTE card)</b>	<ul style="list-style-type: none"> <li>• GNet real time</li> <li>• Ethercat</li> <li>• Modbus TCP-IP</li> <li>• ...</li> </ul>
		<b>I/O expansion (external), max</b>	<ul style="list-style-type: none"> <li>• 64 digital inputs</li> <li>• 64 digital outputs</li> <li>• 8 analog inputs 16 Bit</li> <li>• 8 analog outputs 16 Bit</li> </ul>
		<b>Encoder expansion</b>	<ul style="list-style-type: none"> <li>• HTL-TTL encoder input (+5V...+24V) and HTL-TTL encoder repetition (+5V...+24V)</li> <li>• Number of SW-selectable input and output impulses</li> <li>• Integrated encoder power supply unit (+24Vdc...+5Vdc)</li> </ul>
		<b>Performance</b>	GStar optical fibre communication with max 8 axes (2 lines x 4 axes) 250μSec cycle

## SERVOMOTORS



Model	SBM
<b>Type</b>	Standard Brushless motor
<b>Stall torque</b>	from 2 to 442 Nm
<b>Number of poles</b>	8 poles (SBM series)
<b>Rated power supply voltage</b>	3 x 230Vac, 3 x 400Vac, 3 x 460Vac
<b>Speed</b>	3000 rpm, 4000 rpm, 4500 rpm, 6000 rpm, 8000 rpm,
<b>Type of construction</b>	B5 (Standard) Upon request: B3&B5; F75, F115
<b>Shaft diameter</b>	19 mm (SBM 5) 24 mm (SBM 7) 42 mm (SBM 8) 48 mm (SBM 9) Special sizes upon request.
<b>Type of shaft</b>	Shaft with key (standard); Upon request: shaft without key
<b>Connections</b>	Power and signal connectors (SBM 5-7); Box with power terminal strip and signal connectors (SBM 8-9).
<b>Protection degree</b>	IP54 (Standard) Upon request: IP65
<b>Feedback devices</b>	2-pole resolver (standard). Upon request: Digital encoder + Hall probe; Absolute encoder with SSI protocol; 5-track SinCos encoder; Encoder with EN-DAT 2.2 protocol
<b>Brake</b>	Optional Upon request: motor with safety brake; motor with brake and fan
<b>Fan</b>	Standard in -F models Upon request: motor with fan; motor with brake and fan
<b>Oil seal</b>	Standard in SBM 8 and SBM 9 models Other models: upon request
<b>General Characteristics</b>	<ul style="list-style-type: none"> <li>• Class F motor isolation</li> <li>• Class H windings</li> <li>• Klixon thermal overload at 130°C</li> <li>• Balancing: with key</li> <li>• Shaft with key</li> <li>• Any service position</li> <li>• Protection degree IP54</li> <li>• Connections: power and signal connector (SBM 5-7), connection box with power terminal strip and signal connector (SBM 8-9)</li> <li>• Bearings permanently lubricated</li> </ul>
<b>Markings</b>	CE

## DIGITAL DC DRIVE



Model	TPD32 EV
<b>Current rating</b>	from 20A to 4800A
<b>Rated AC voltage input</b>	3 x 230 ... 690 Vac, 50/60Hz
<b>Rated DC voltage output</b>	470 Vdc (@ 400 Vac - 2B) 420 Vdc (@ 400 Vac - 4B) 600 Vdc (@ 500 Vac - 2B) 520 Vdc (@ 500 Vac - 4B) 810 Vdc (@ 690 Vac - 2B) 720 Vdc (@ 690 Vac - 4B) 680 Vdc (@ 575 Vac - 2B) 600 Vdc (@ 575 Vac - 4B)
<b>Operating quadrants</b>	2B models = two quadrants; 4B models = four quadrants
<b>Field circuit supply (U1/V1) - 1ph</b>	230 Vac ±10%, 50/60Hz ±5% 400 Vac ±10%, 50/60Hz ±5% 460 Vac ±10%, 50/60Hz ±5%
<b>Regulation supply (U2/V2) - 1ph</b>	115 Vac ±15%, 50/60Hz ±5% 230 Vac ±15%, 50/60Hz ±5%
<b>Analog inputs</b>	3 differential (12 programmable bits, selectable for ±10 VDC, 0 - 20 mA, 0 - 10 VDC, 4 - 20 mA)
<b>Analog outputs</b>	2 (±10Vdc)
<b>Digital inputs</b>	8 (4 fixed + 4 programmable)
<b>Digital outputs</b>	5 (4 static and 1 relay)
<b>Encoder input</b>	2: 1 sinusoidal (5 V power supply) and 1 digital (24 V power supply)
<b>Tachogenerator input</b>	1
<b>Motor thermistor input</b>	1
<b>Overload</b>	I <sup>2</sup> t algorithm programmable up to 200%
<b>EMI filter</b>	External optional
<b>Input choke</b>	External optional
<b>Options for integration onboard drive</b>	3 (I/O, fieldbus, APC200d)
<b>Functions</b>	<ul style="list-style-type: none"> <li>• Self-tuning of current and speed loop</li> <li>• 5 independent and programmable ramps</li> <li>• Programmable linear and S-shaped ramp</li> <li>• 7 programmable multispeeds</li> <li>• Min/Max speed limits with independent adjustment for each speed direction</li> <li>• Current limitation according to speed</li> <li>• Speed regulator adaptive gains</li> <li>• Independent control of integral gain at zero speed</li> <li>• Programmable overload control</li> <li>• Jog function</li> <li>• Controlled stop and automatic motor restart</li> <li>• Motor potentiometer function</li> <li>• I<sup>2</sup>T motor thermal cutout switch</li> <li>• PID function</li> <li>• Servo diameter control function</li> <li>• Speed Draw function</li> <li>• Auto-capture function</li> <li>• Droop function</li> </ul>
<b>Serial communication</b>	RS485 <sup>(2)</sup> , Modbus RTU Optional: DeviceNet, Profibus DP, CANopen®
<b>Protection degree</b>	IP20 up to 1000 A (...2B) and 1050 A (...4B) IP20/IP00 for larger sizes
<b>Markings</b>	CE, UL and cUL (TPD32 EV-...-NA series)

<sup>(2)</sup> the serial port is used for programming (PC) and control (Modbus communication standard in all drives)

## REGENERATIVE POWER SUPPLY UNIT



Model	AFE200
<b>Control mode</b>	Active Front End technology
<b>Power</b>	AFE200-4/4A models: 22kW ... 1.2MW (30 ... 1600Hp) AFE200-6/6A models: 160kW ... 1.65MW (200 ... 2200Hp)
<b>Voltage</b>	3 x 380Vac -15% ... 500Vac +5%, 50/60Hz (-4 and -4A models) 3 x 500Vac -10% ... 690Vac +10%, 50/60Hz (-6 and -6A models)
<b>Power factor</b>	≥ 0.99
<b>THD</b>	≤ 3% (Considering a network with voltage THD of less than 2%).
<b>Analog inputs</b>	2 two-pole (Voltage/Current)
<b>Analog outputs</b>	2 two-pole (1 voltage or current, 1 voltage)
<b>Digital inputs</b>	6 (PNP / NPN)
<b>Digital outputs</b>	4 (PNP / NPN), (2 static and 2 relay)
<b>Overload</b>	150% * In (1" every 5') 180% * In (0.5 " every 5')
<b>EMI and LCL filters</b>	External mandatory
<b>Options for integration onboard drive</b>	2
<b>Pre-charge kit</b>	External mandatory External management of the intermediate circuit pre-load is a feature of the entire range. The dedicated AFE PRE-CHARGE KITS are supplied complete with pre-wired fuses, resistors and contactors.
<b>Functions</b>	<ul style="list-style-type: none"> <li>• "Clean Power" thanks to the unit power factor and reduced harmonic distortion (&lt;3%)</li> <li>• Enhanced system dynamics during drive and regeneration</li> <li>• Considerable energy savings during regeneration transients</li> <li>• Improved stability of the DC Bus circuit under load changes</li> <li>• Significant cost-effectiveness with the single power supply system</li> <li>• Elimination of uneconomical conventional braking systems and braking resistors.</li> </ul>
<b>Serial communication</b>	RS485 (2), Modbus RTU Optional: DeviceNet, Profibus DP, CANopen®, GDNNet, Ethercat, Ethernet IP
<b>Protection degree</b>	IP20 (IP00 size 7 and parallel)
<b>Marchi</b>	CE, UL and cUL (-4 / -4A models)



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