

2008

AC Inverter • Compact V/f

# SIEDrive ADV20



**Big Performance Small Size.**

English

**GEFRAN**

# SIEDrive ADV20 Series

## ➔ Power range

AC mains supply	Power range ADV20 kW ( Hp )				
	0.4 ( 0.5 )	0.75 ( 1.0 )	1.5 ( 2.0 )	2.2 ( 3.0 )	3.7 ( 5.0 )
115 Vac, 1 phase	Size 1	Size 2			
230 Vac, 1 phase	Size 1		Size 2		
460 Vac, 3 phase	Size 1		Size 2		

## ➔ Side-by-side installation

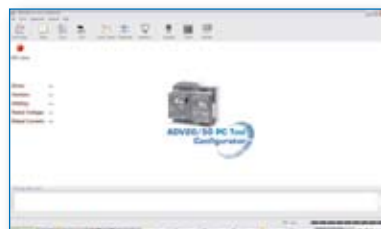
High efficiency cooling and flexible space.



40°C Tamb. max.

## ➔ ADV20 PC Tool Configurator

ADV20 can be programmed by the use of the PC, integrated functions: programming through parameter list, Integrated oscilloscope, Trend recorder, Saving/Loading and comparing parameters.



# Variable speed AC Motor Drive

## ➤ Compact design

Space saving and easy DIN rail mounting with DIN rail adapter (Built in size 2, Optional for Size 1).

## ➤ Built-in EMC filter

On 230V 1-phase and 400-460V 3-phase models. To reduce electromagnetic interference efficiently it was applied EN61800-3.

## ➤ Complete protection function

High precision current detection, full overload protection, over-voltage/over-current stall prevention, short-circuit protection, reset after fault, speed search function and motor overheat protection by PTC.



## ➤ Optional fieldbus modules

Provide connection to a variety of networks, including PROFIBUS, DeviceNet, LonWorks and CANopen.



CANopen

## ➤ Standard MODBUS protocol

Standard MODBUS Protocol via RS-485 (RJ-45).

## ➤ RFI-Jumper for IT mains

Removable "Y" capacitor for use on IT mains supplies

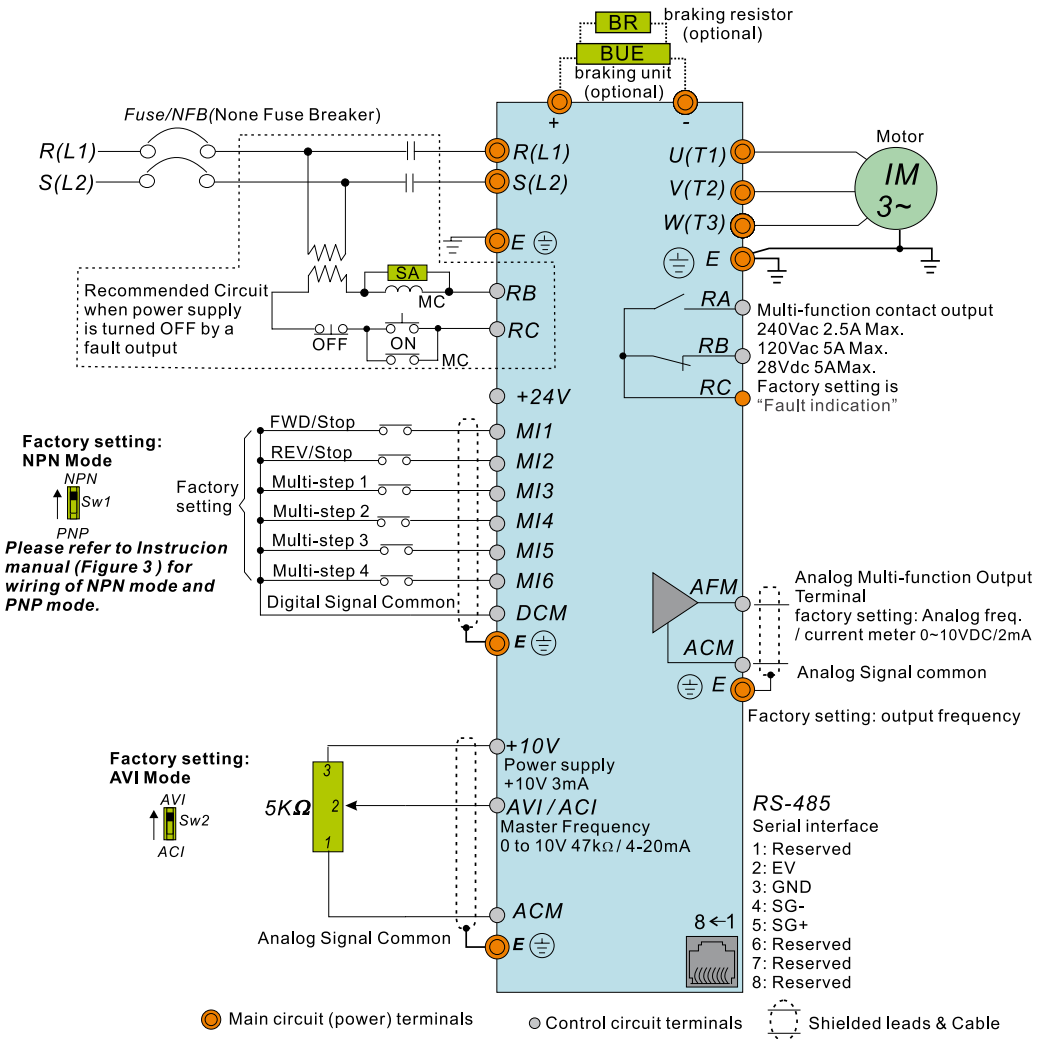
## ➤ Easy DC BUS sharing

Multiple ADV20 can be connected in parallel to share the regenerative braking energy. In this way, over-voltage is prevented and the DC-bus voltage stabilized.

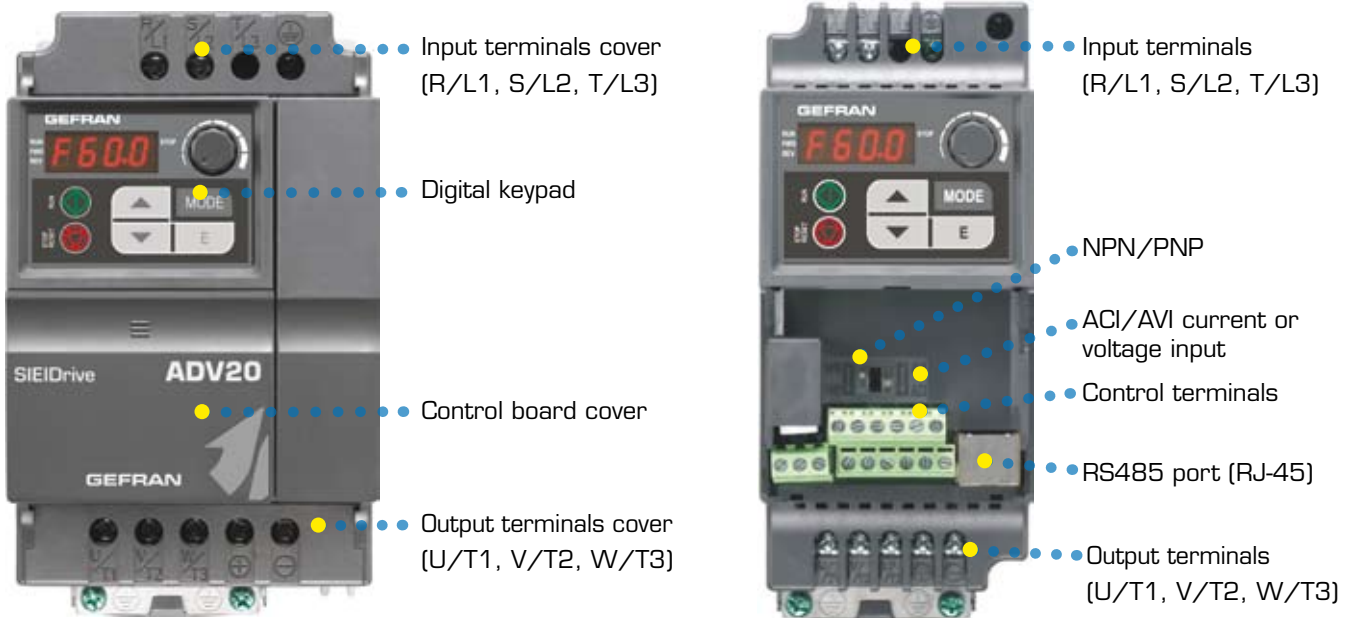


# SIEIDrive ADV20 Series

➤ Figure 1 for ADV20-...-1M/2M series



## ➤ External / Internal parts





# Variable speed AC Motor Drive



## Conveyor and Transportation Machinery

- Conveyor belt
- Automatic doors
- Roller door
- Small elevator
- Escalator
- Parking device
- X-Y axis of travelling crane



## Food Processing

- Dumpling maker
- Food stirrer
- Noodle maker



## Machine Tool/Metal Processing Machinery

- Grinder
- Drill
- Small lathe
- Milling machines
- Injection molding (clamp)



## Wood working machinery

- 4 side planer
- Woodcarver
- Wood working machine
- Simple cutting machine for wood working
- Spraying machine



## HVAC and Pump Systems

- Building air conditioner
- Wastewater processing system
- Constant pressure water treatment system
- Water treatment pump
- Agricultural pump
- Temperature control of middle/large oven
- Air compressor
- Heat exchange fans
- Building water dispenser system
- Dryer's windmill



## Paper/Textile Machine

- Round weaver
- Cross weaver
- Ribbon weaver
- Printing press
- Industrial sewing machine
- Knitting machines

## Others

- Ironing machine
- Pulverizer
- Treadmill
- Feeder
- Industrial washing machine
- Car washing machine
- Packing machine
- Centrifuge
- Liquid mixer

# SIEDrive ADV20 Series

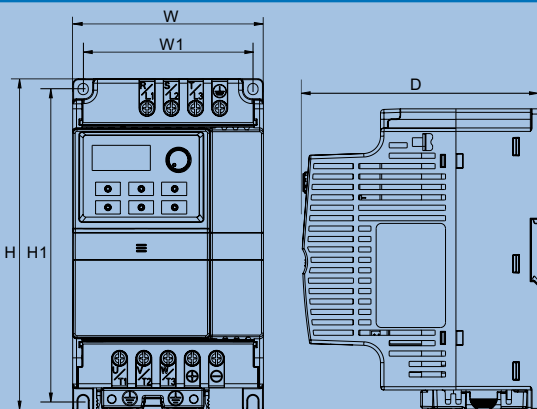
# Specifications

Voltage Class		115V Class		
Model Number ADV20-XXXX		1004	2007	
Output Rating	Max. Applicable Motor Output	kW	0.4	0.75
	Max. Applicable Motor Output	Hp	0.5	1.0
	Rated Output Capacity	kVA	1.0	1.6
	Rated Output Current	A	2.5	4.2
	Maximum Output Voltage	V	3-Phase Proportional to Twice the Input Voltage	
	Output Frequency	Hz	0.1~600 Hz	
	Carrier Frequency	kHz	2-12	
Input Rating	Rated Input Current	A	9	18
	Rated Voltage/Frequency	V / Hz	Single phase, 100-120V, 50/60Hz	
	Voltage Tolerance		± 10% (90~132 V)	
	Frequency Tolerance		± 5% (47~63Hz)	
Cooling Method		Natural Cooling		
Weight	kg	1.1	1.4	

Voltage Class		230V Class				
Model Number ADV20-XXXX		1004	1007	2015	2022	
Output Rating	Max. Applicable Motor Output	kW	0.4	0.75	1.5	2.2
	Max. Applicable Motor Output	Hp	0.5	1.0	2.0	3.0
	Rated Output Capacity	kVA	1.0	1.6	2.9	4.2
	Rated Output Current	A	2.5	4.2	7.5	11.0
	Maximum Output Voltage	V	3-Phase Proportional to Input Voltage			
	Output Frequency	Hz	0.1~600 Hz			
	Carrier Frequency	kHz	2-12			
Input Rating	Rated Input Current (1-phase)	A	6.5	9.5	15.7	24
	Rated Voltage/Frequency	V / Hz	1-phase, 200-240 V, 50/60Hz			
	Voltage Tolerance		±10%(180~264 V)			
	Frequency Tolerance		± 5% (47~63Hz)			
Cooling Method		Natural Cooling	Fan Cooling			
Weight	kg	1.2	1.2	1.7	1.7	




Voltage Class		460V Class					
Model Number ADV20-XXXX		1004	1007	1015	2022	2037	
Output Rating	Max. Applicable Motor Output	kW	0.4	0.75	1.5	2.2	3.7
	Max. Applicable Motor Output	Hp	0.5	1.0	2.0	3.0	5.0
	Rated Output Capacity	kVA	1.2	2.0	3.3	4.4	6.8
	Rated Output Current	A	1.5	2.5	4.2	5.5	8.2
	Maximum Output Voltage	V	3-Phase Proportional to Input Voltage				
	Output Frequency	Hz	0.1~600 Hz				
	Carrier Frequency	kHz	2-12				
Input Rating	Rated Input Current	A	1.8	3.2	4.3	7.1	9.0
	Rated Voltage/Frequency	V / Hz	3-phase, 380-480V, 50/60Hz				
	Voltage Tolerance		±10% (342~528V)				
	Frequency Tolerance		± 5% (47~63Hz)				
Cooling Method		Natural Cooling		Fan Cooling			
Weight	kg	1.2	1.2	1.2	1.7	1.7	

## Dimensions - mm [inches]



Size	W	W1	H	H1	D	Ø	Ø D
1	72.0 [2.83]	59.0 [2.32]	174.0 [6.86]	151.6 [5.97]	136.0 [5.36]	5.4 [0.21]	2.7 [0.11]
2	100.0 [3.94]	89.0 [3.50]	174.0 [6.86]	162.9 [6.42]	136.0 [5.36]	5.4 [0.21]	2.7 [0.11]

# Variable speed AC Motor Drive

General Specifications			
Control Characteristics	Control System	SPWM (Sinusoidal Pulse Width Modulation) control (V/f control)	
	Frequency Setting Resolution	0.01Hz	
	Output Frequency Resolution	0.01Hz	
	Torque Characteristics	Including the auto-torque/auto-slip compensation; starting torque can be 150% at 5.0Hz	
	Overload Endurance	150% of rated current for 1 minute	
	Skip Frequency	Three zones, setting range 0.1-600Hz	
	Accel/Decel Time	0.1 to 600 seconds (2 Independent settings for Accel/Decel time)	
	Stall Prevention Level	Setting 20 to 250% of rated current	
	DC Braking	Operation frequency 0.1-600.0Hz, output 0-100% rated current Start time 0-60 seconds, stop time 0-60 seconds	
	Regenerated Braking Torque	Approx. 20% (up to 125% possible with optional brake resistor or externally mounted brake unit)	
	V/f Pattern	Adjustable V/f pattern	
Operating Characteristics	Frequency Setting	Keypad	Setting by ▲ ▼
		External Signal	Potentiometer-5kΩ/0.5W, 0 to +10VDC, 4 to 20mA, RS-485 interface; Multi-function Inputs 3 to 6 (15 steps, Jog, motopotentiometer)
	Operation Setting Signal	Keypad	Set by RUN and STOP
		External Signal	2 wires/3 wires (MI1, MI2, MI3), JOG operation, RS-485 serial interface (MODBUS), programmable logic controller
	Multi-function Input Signal	Multistep selection 0 to 15, Jog, accel/decel inhibit, 2 accel/decel switches, counter, external Base Block, ACI/AVI selections, driver reset, UP/DOWN key settings, NPN/PNP input selection	
	Multi-function Output Indication	AC drive operating, frequency attained, non-zero frequency, zero speed, Base Block, fault indication, local/remote indication, drive is ready, overheat alarm, emergency stop and status selections of input terminals	
Analog Output Signal	Output frequency/current		
Alarm Output Contact	Contact will be On when drive malfunctions (1 Form C/change-over contact)		
Operation Functions	AVR, accel/decel S-Curve, over-voltage/over-current stall prevention, 5 fault records, reverse inhibition, momentary power loss restart, DC braking, auto torque/slip compensation, auto tuning, adjustable carrier frequency, output frequency limits, parameter lock/reset, PID control, external counter, MODBUS communication, abnormal reset, abnormal re-start, power-saving, fan control, sleep/wake frequency, 1st/2nd frequency source selections, 1st/2nd frequency source combination, NPN/PNP selection		
Protection Functions	Over voltage, over current, under voltage, external fault, overload, ground fault, overheating, electronic thermal, IGBT short circuit, PTC		
Display Keypad	6-key, 7-segment LED with 4-digit, 4 status LEDs, master frequency, output frequency, output current, custom units, parameter values for setup and lock, faults, RUN, STOP, RESET, FWD/REV		
Built-in EMC Filter (EN61800-3:2004)	<ul style="list-style-type: none"> <li>• 230V, 1phase models: 2<sup>nd</sup> Environment, Category 1, carrier frequency ≤8kHz, motor cable lengths ≤1m and Category 2, carrier frequency ≤8kHz, motor cable lengths ≤5m</li> <li>• 400-460V, 3phase models: 2<sup>nd</sup> Environment, Category 3, carrier frequency ≤8kHz, motor cable lengths ≤15m</li> </ul>		
Environmental Conditions	Enclosure Rating	IP20	
	Pollution Degree	2	
	Installation Location	Altitude 1,000 m or lower, keep from corrosive gasses, liquid and dust	
	Ambient Temperature	-10°C to 50°C (40°C for side-by-side mounting), non-condensing and not frozen	
	Storage/ Transportation Temperature	-20 °C to 60 °C	
	Ambient Humidity	Below 90% RH (non-condensing)	
Vibration	9.80665m/s <sup>2</sup> (1G) less than 20Hz, 5.88m/s <sup>2</sup> (0.6G) at 20 to 50Hz		
Approvals	  		

# SIEDrive ADV20 Series

## ➔ Model explanation

ADV20 1007 - KXX - 4 F		
Drive ADV20 series		EMI Filter: F = included = not incl.
Mechanical drive sizes: 1 = size 1 (frame A) 2 = size 2 (frame B)		Rated voltage: 1M=115Vac, 1ph 2M=230Vac, 1ph 4=400-460 Vac, 3ph
Drive powers, in kW: 004 = 0.4 kW 007 = 0.75 kW 015 = 1.5 kW 022 = 2.2 kW 037 = 3.7kW		Software : X = standard
		Braking unit : X = not included B = included
		Keypad: X = not included K = included



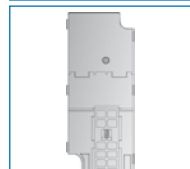
## ➔ Drive models & codes

Models	Code	Description
115V Class - Single phase		
ADV20-1004-KXX-1M	S6D01	Size 1 - 0.4 kW - With keypad
ADV20-2007-KXX-1M	S6D02	Size 2 - 0.75 kW - With keypad
230V Class - Single phase		
ADV20-1004-KXX-2MF	S6D03	Size 1 - 0.4 kW - With keypad - EMC Filter included
ADV20-1007-KXX-2MF	S6D04	Size 1 - 0.75 kW - With keypad - EMC Filter included
ADV20-1015-KXX-2MF	S6D05	Size 2 - 1.5 kW - With keypad - EMC Filter included
ADV20-2022-KXX-2MF	S6D06	Size 2 - 2.2 kW - With keypad - EMC Filter included
400-460V Class - Three phase		
ADV20-1004-KXX-4F	S6D10	Size 1 - 0.4 kW - With keypad - EMC Filter included
ADV20-1007-KXX-4F	S6D11	Size 1 - 0.75 kW - With keypad - EMC Filter included
ADV20-1015-KXX-4F	S6D12	Size 1 - 1.5 kW - With keypad - EMC Filter included
ADV20-2022-KXX-4F	S6D13	Size 2 - 2.2 kW - With keypad - EMC Filter included
ADV20-2037-KXX-4F	S6D14	Size 2 - 3.7 kW - With keypad - EMC Filter included



# Variable speed AC Motor Drive

## ➤ Accessories & Options



Models	Code	Description
EXP-DN-ADV20/50	S6D50	DeviceNet module
EXP-PDP-ADV20/50	S6D52	Profibus module
EXP-CAN-ADV20/50	S6D53	CANopen module
KIT DIN ADV20-SA	S6D55	DIN-rail adapter for ADV20 size 1
KIT EMC ADV20/50	S6D54	Earthing plate
USB-485-ADV20/50	S6D65	USB-RS485 RJ45 Converter
BU-2-ADV20/50	S6D70	Braking Unit 1.5kW 230V series
BU-4-ADV20/50	S6D71	Braking Unit 1.5kW 400V series

## ➤ Other options (on request only)

EXP-LWK-ADV20/50	S6D51	LonWorks module
BU-2A-ADV20/50	S6D72	Braking Unit 3.7kW 230V series
BU-4A-ADV20/50	S6D73	Braking Unit 3.7kW 400V series
RF-OUT-ADV20/50	S6D67	Zero Phase Reactor
Memory KB-ADV20/50	S6D66	Digital Keypad for parameters copy

## ➔ Braking Resistors

The table shows the combinations of braking resistors to be used exclusively with the relative external braking units. Values for standard resistors refer to a braking duty cycle of 10%.

Models	Brake Unit	Brake Resistors Model			Brake Res. Dimensions.
	Model (No. Units)	Model	Code	(No. Units)	Width x Height x Depth (Weight)
<b>115V Class</b>					
ADV20-1004-KXX-1M	BU-2-ADV20/50 (1)	RF220T 250R	S8T0CP	(1)	300 x 27 x 36 mm (500 g)
ADV20-2007-KXX-1M	BU-2-ADV20/50 (1)	RF220T 150R	S8T0CQ	(1)	300 x 27 x 36 mm (500 g)
<b>230V Class</b>					
ADV20-1004-KXX-2MF	BU-2-ADV20/50 (1)	RF220T 250R	S8T0CP	(1)	300 x 27 x 36 mm (500 g)
ADV20-1007-KXX-2MF	BU-2-ADV20/50 (1)	RF220T 150R	S8T0CQ	(1)	300 x 27 x 36 mm (500 g)
ADV20-2015-KXX-2MF	BU-2-ADV20/50 (1)	RF300DT 100R	S8T0CB	(1)	260 x 47 x 106 mm (1400 g)
ADV20-2022-KXX-2MF	BU-2A-ADV20/50 (1)	RF300DT 68R	S8T0CS	(1)	260 x 47 x 106 mm (1400 g)
<b>460V Class</b>					
ADV20-1004-KXX-4F	BU-4-ADV20/50 (1)	RF300DT 400R	S8T0CR	(1)	260 x 47 x 106 mm (1400 g)
ADV20-1007-KXX-4F	BU-4-ADV20/50 (1)	RF300DT 400R	S8T0CR	(1)	260 x 47 x 106 mm (1400 g)
ADV20-1015-KXX-4F	BU-4-ADV20/50 (1)	RF300DT 200R	S8T1DB	(1)	260 x 47 x 106 mm (1400 g)
ADV20-2022-KXX-4F	BU-4A-ADV20/50 (1)	RF300DT 150R	S8T0CT	(1)	260 x 47 x 106 mm (1400 g)
ADV20-2037-KXX-4F	BU-4A-ADV20/50 (1)	RFPD750DT 100R	S8SY4	(1)	200 x 70 x 106 mm (1700 g)

## ➔ Fuses

Following table shows the suggested fuses matching. Those fuses are not available in Gefran.






Models	Europe	America
	Fuse current (A) - Suggested type	Bussmann P/N (UL 508C)
<b>115V Class</b>		
ADV20-1004-KXX-1M	10 A, gR type	JJN-15
ADV20-2007-KXX-1M	32 A, gR type	JJN-30
<b>230V Class</b>		
ADV20-1004-KXX-2MF	10 A, gR type	JJN-15
ADV20-1007-KXX-2MF	16 A, gR type	JJN-20
ADV20-2015-KXX-2MF	25 A, gR type	JJN-30
ADV20-2022-KXX-2MF	40 A, gR type	JJN-50
<b>460V Class</b>		
ADV20-1004-KXX-4F	6 A, gR type	JJS-6
ADV20-1007-KXX-4F	6 A, gR type	JJS-6
ADV20-1015-KXX-4F	8 A, gR type	JJS-10
ADV20-2022-KXX-4F	12 A, gR type	JJS-15
ADV20-2037-KXX-4F	16 A, gR type	JJS-20

# Drive & Motion Control Unit




## ➤ Inverters

				
<b>ADV20</b> <ul style="list-style-type: none"> <li>V/f</li> <li>0.4... 3.7 kW</li> <li>110...120 Vac, 1ph</li> <li>200...240 Vac, 1ph</li> <li>380...480 Vac, 3ph</li> </ul>	<b>ADV50</b> <ul style="list-style-type: none"> <li>V/f &amp; Sensorless Vector</li> <li>0.4... 11 kW</li> <li>200...240 Vac, 1ph</li> <li>200...240 Vac, 3ph</li> <li>380...480 Vac, 3ph</li> </ul>	<b>ADV200</b> <ul style="list-style-type: none"> <li>Vector Field Oriented</li> <li>0.75... 45 kW</li> <li>400 ... 480 Vac, 3ph</li> </ul>	<b>AGy-EV</b> <ul style="list-style-type: none"> <li>Torque Vector</li> <li>0.75 ... 200 kW</li> <li>230 ... 575 Vac, 3ph</li> </ul>	<b>AVy</b> <ul style="list-style-type: none"> <li>Flux Vector</li> <li>0.75 ... 630 kW</li> <li>230 ... 690 Vac, 3ph</li> </ul>


## ➤ Inverters LIFT

				
<b>AVMs</b> <ul style="list-style-type: none"> <li>Roomless applications</li> <li>Speed range up to 3m/s</li> <li>Geared and gearless</li> <li>From 5.5kW (7.5Hp) to 18.5kW (25Hp)</li> </ul>	<b>AVRy</b> <ul style="list-style-type: none"> <li>Built-in power recovery</li> <li>Speed range up to 5m/s and beyond</li> <li>Gearless</li> <li>From 5.5 (7.5Hp) to 15kW (20Hp)</li> </ul>	<b>Lift Drive System</b> System complete with: <ul style="list-style-type: none"> <li>AVyL or AGyL drive</li> <li>Internal EMC filter</li> <li>Internal DC choke</li> <li>Internal Output contactors</li> <li>Emergency supply battery</li> </ul>	<b>AGy LIFT</b> <ul style="list-style-type: none"> <li>Sensorless Vector</li> <li>Speed range up to 1.5m/s with closed loop</li> <li>New installation and Retrofitting</li> <li>0.75 ... 160 kW</li> </ul>	<b>AVy LIFT</b> <ul style="list-style-type: none"> <li>Flux Vector</li> <li>Speed range up to 5m/s and beyond</li> <li>New installation and Retrofitting</li> <li>0.75 ... 160 kW</li> </ul>

## ➤ Brushless

			
<b>XVy-EV Servodrive</b> <ul style="list-style-type: none"> <li>Brushless and Asynchronous</li> <li>1.5 ... 315 kW (2 ... 450 Hp)</li> <li>230 ... 480 Vac, 3ph</li> </ul>	<b>SHJ Servomotors</b> <ul style="list-style-type: none"> <li>230Vac and 400Vac</li> <li>3000, 4000, 4500, 6000, 8000 rpm</li> <li>from 0.33 to 3.8Nm</li> </ul>	<b>SBM Servomotors</b> <ul style="list-style-type: none"> <li>400Vac</li> <li>1500, 2000, 3000 and 4000 rpm</li> <li>from 2 to 442Nm</li> </ul>	

## ➤ Digital DC


<b>TPD32</b> <ul style="list-style-type: none"> <li>20 A ... 4800 A (2 and 4 quadrants)</li> <li>230 ... 690 Vac, 3ph</li> </ul>

Download brochures or see more details at [www.gefran.com](http://www.gefran.com)

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