IMO

The World's Finest

AC Variable Speed Drives for Industry

0.37-710kW (0.5-950HP)

The drive for perfection

IMO Jaguar VXG
high performance drives

3Ø: 0.37-710kW (0.5-950HP)

Key Features

- User configurable 'quick-start' menu
- IP20 side-by-side mounting (IP40 option kit)
- Integrated EMC filter (EN61800-3 2004 cat C3)
- PLC logic type function
- RoHS, CE, UL/cUL compliant
- V/F, Torque Vector and closed loop control
- Loss-of-command signal detection
- 200% starting torque between 0.3-5Hz.
- Improved open-loop low-speed stability
- Safety input: digital input to enable disable the IGBT devices of the inverter output stage
- Mechanical brake control output - torque generated
- PID thermistor input
- Input and Output phase-loss protection
- Life time / service due alarm output
- Thermostatically operated long-life cooling fans (designed to operate for 10 years at 40°C)
- Optional Keypad with mini USB port.
- Standard multi-function back-lit keypad with parameter copy mode
- Encoder feedback (closed-loop) and shaft-synchronizing options
- Synchronous (Permanent Magnet) motor options
- Internal brake chopper up to 22kW (30-110kW upon request)

The Jaguar VXG is the next generation of inverter technology, taking over from the market leading VXM. It has been designed specifically to be a high performance, multifunctional inverter, that can answer the needs of today's most demanding applications.

The VXG represents a sensorless vector controlled drive and includes true closed-loop vector control when used with encoder feedback. With ratings ranging from 0.4kW to 710kW, this makes the VXG a high performance AC Drive boasting advanced EMC friendly technology suitable for the most demanding applications.

These applications range from presses, hoists, mixers and crushers to fans and pumps. Unlike other inverters currently on the market, the Jaguar series generates low electro-magnetic noise, which is associated with interference of other sensitive equipment. It has been carefully designed using soft switching techniques for both the power devices and the switch mode power supply devices, resulting in potentially troublesome emissions being greatly reduced.

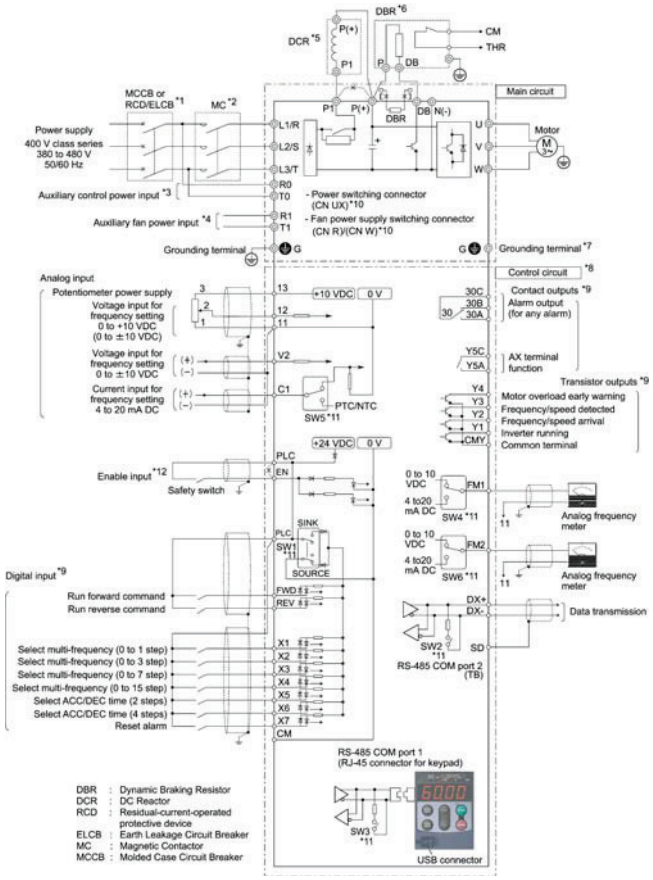
The VXG features improved performance by providing a selection of control methods including: PG vector control, sensorless vector control, dynamic torque vector control and V/F control as well as improved performance of current response and speed response (vector control).

Options & Ordering

	3 Phase
Output Frequency	0.5 - 500Hz
Overload Capacity	150% for 60 secs - 200% for 3 secs
Power Supply Voltage	3 phase, 380-480V, -15% / +10%
Starting Torque	200% / 0.3Hz
PWM Switching Frequency	0.75kHz - 16kHz
Enclosure	IP20
Communications	RS485 / Modbus RTU (Standard), Profibus, DeviceNet, CC-Link, CANopen (Option Cards)
Dynamic Braking	Inbuilt upto 22kW
EMC Cat 3	Integrated

Motor Power	C.T Rating	V.T. Rating		Dim	C.T. Rating	V.T. Rating		Dim
(kW/HP)	0.4/0.5		VXG1A5-4E	1A	55/75	75/100	VXG150AL-4E	7E
	0.75/1		VXG2A5-4E	1B	75/100	90/125	VXG176AL-4E	8E
	1.5/2.2		VXG3A7-4E	2B	90/125	110/150	VXG210AL-4E	9F
	2.2/3		VXG5.5A-4E	2B	110/150	132/200	VXG253AL-4E	9F
	4/5		VXG9A-4E	2B	132/200	160/250	VXG304AL-4E	10G
	5.5/7.5	7.5/10	VXG16A5L-4E	3C	160/250	200/300	VXG377AL-4E	10G
	7.5/10	11/15	VXG23AL-4E	3C	200/300	220/350	VXG415AL-4E	11G
	11/15	15/20	VXG30A5L-4E	3C	220/350	280/450	VXG520AL-4E	11G
	15/20	18.5/25	VXG37AL-4E	4C	280/450	315/500	VXG650L-4E	12H
	18.5/25	22/30	VXG45AL-4E	4C	315/500	355/470	VXG740AL-4E	12H
	22/30	30/40	VXG60AL-4E	4C	355/470	400/600	VXG840AL-4E	13H
	30/40	37/50	VXG75AL-4E	5D	400/600	500/700	VXG960AL-4E	13H
	37/50	45/60	VXG91AL-4E	5D	500/700	630/900	VXG1170AL-4E	14I
	45/60	55/75	VXG112AL-4E	6E	630/900	710/950	VXG1370AL-4E	14I

Power & Control connections



Dimensions

H	W	Depth	a	b	c	d	e	f	g	h	i
260	110	1	132	145							
260	150	2		145							
260	220	3			195						
400	250	4			195						
550	326	5				225					
615	361	6					270				
675	361	7					270				
740	361	8					270				
740	536	9						315			
1000	536	10							360		
1000	680	11							360		
1400	680	12								440	
1400	880	13								440	
1550	1550	14									500

Accessories

Braking Unit

Additional VXG Keypad

Turn to accessories page for the complete range.

IMO Jaguar LFT
the benchmark for lifts

3Ø: 400V/5.5-22kW (7.5-30HP)

4kW (5.5HP), 30kW (20HP), 37kW (50HP)
and 45kW (60HP) available soon

- Very high overload capability: 200% of rated current for 10 seconds
- Rated for a very heavy duty: 80% ED at 45°C ambient temperature
- Fast current response, obtaining a low torque ripple and very good rollback correction without using load cell
- Speed accuracy of ±0.01 %
- Safety input: digital input to enable / disable the IGBT devices of the inverter output stage
- Remote/Local operation can be easily switched by pressing one key
- Allows saving of complete parameter sets of three inverters
- Pole-tuning of permanent magnet synchronous motor can be performed without moving the motor
- 1 RS485 port as standard, with ModBus RTU and DCP 3 protocols
- CAN hardware is integrated which allows CAN Open communication
- Brake control function
- Main contactors control function
- 16 kHz switching frequency (non audible motor noise)
- Allows the definition of the Quick Access Menu (menu 0)
- Can be connected remotely using standard LAN cable
- Short floor operation
- 3 speed loop PI gains sets: one for zero. speed, one for low speed and one for high speed
- Very simple rescue operation (using battery / UPS)
- Powerful ramp generator (10 different linear ramps and 10 different S curves)
- Direct-to-floor operation (operation without creep speed)
- Anticipated door opening, Speed error. detection, Auto-reset function
- The cooling fan can be automatically disconnected when the inverter is cold, increasing the life of the fan and avoiding excessive acoustic noise when the inverter is not operating

The Jaguar range of LFT is aimed at giving lift applications a significant performance boost. Of particular note is the LFT's ability to be driven by battery power, thus allowing otherwise trapped lift passengers to be rescued quickly and easily in the event of mains power failure.

The LFT has a unique input function that uses timers to filter any difference between BRKS and BRKE signals to check that the lift brake has actually operated. A dedicated brake control signal (BRKS) means that the LFT directly controls the opening and closing of the mechanical brake without assistance from the main lift controller. The LFT also contains built-in adjustable timers to delay the BRKS signal in order to match the mechanical brakes' actual opening and closing time.

Other features include a restart time function, which avoids damage from contactor racing causing harmful regenerative currents emanating from the motor, and a contactor controller which times the opening and closing of the magnetic contactor in sequence with the inverter and motor operation. Thus, start and end delay times allow contactor operation without making or breaking motor current.

In closed loop applications the LFT does not need an external signal for zero speed command. This helps to avoid shock at starting and stopping due to car roll-back.

In open loop applications to avoid possible "jolts" the user can choose between start using a pre-programmed starting frequency held for a period of time, or start by holding on DC braking for a short time.

The LFT includes a match timer to validate speed change commands. This function is useful for lift controllers using relays for output switching that could bounce and give false signals to the inverter drive.

IMO Jaguar ECO
the pump and fan solution

3Ø: 400V/0.75-500kW (1-700HP)

- 3PH 400V 0.75kW-500kW (1-700HP)
- Multi Pump Cascade Control
- Motor Pick-up during idling
- Automatic Energy Saving operation
- Cooling fan ON/OFF control function
- Quick Setup Menu
- Sleep Function with Low Limiter
- Full PID Control Functions
- Protection of Motor with PTC thermistor
- Cumulative running time is recorded and displayed
- A Long-life cooling fan is provided
- Protective function for grounding fault
- Protective function against phase loss in input/output
- Alarm History for the last 4 alarms recorded
- Analog Input Monitor
- Standard Keypad capable of remote operation with optional extension cable

The ECO inverter has been specifically designed for fan and pump applications, with features such as the special functions for the HVAC and pump market, multi pump control, space saving, simple operation, automatic energy saving and power savings for variable torque loads.

With its Multi Pump control function the inverter can control more than one pump at a time by using the two types of control: floating inverter-driven control or fixed inverter-driven control. In the first instance, all pumps are supplied by the inverter (when the first one reaches the maximum speed it is switched to the mains supply and then the second is started with the inverter); in this case the maximum number of pumps that can be controlled is three. In the second instance only one pump is always supplied by the inverter and the others are supplied directly from the mains; in this case the maximum number of pumps is five.

By using its low output torque detection function, the ECO is able to detect an abnormal sudden change of the load torque. As an example, this function can be used to detect that the transmission belt of a fan is broken.

A new feature that is included as standard, is the automatic energy-saving function. This controls the system so as to minimize the total loss (motor loss plus inverter loss), rather than just the motor loss as in the predecessor models. This feature contributes to further saving of energy in fan and pump applications with fans and pumps.

Like the rest of the IMO Jaguar range, the ECO provides complete maintenance information: the information of the last 4 alarms is saved in the inverter memory (code of the alarm, output frequency, output voltage, output current, digital inputs and outputs status,..); also the cumulative running time of the inverter fan, cumulative running of the inverter and the actual capacity of the main DC link capacitors is stored inside the inverter. This information can be used to take preventive maintenance measures.

IMO Jaguar Accessories

Available off the shelf, IMO has all the add-ons you need to integrate Jaguar drives into complete system solutions.

EMC filters

High frequency conducted emissions can disturb other sensitive equipment connected to a shared power supply. Fitting the correct filter to your drive will reduce radio frequency interference (RFI) and minimise the risk of problems.

All Jaguar drives and filters are CE marked and comply with relevant European standards when installed in accordance with instruction manuals and EC Declarations of Conformity.

Filter Part No.	Filter Type	Related Jaguar Inverter
RFI75-M	Free standing, Cat C3	All 1 PH up to 0.75kW
RFI150-MH	Free Standing, Cat C3	All 1 PH up to 1.5kW
RF5A5-4B	Footprint, Cat C1	CUB1A5-4, CUB2A5-4, CUB3A7-4, CUB5A5-4, VXR1A5-4, VXR2A5-4, VXR3A7-4, VXR5A5-4
RF5A-1B	Footprint, Cat C1	CUB3A-1, CUB5A-1, VXR3A-1, VXR5A-1
RF9A-4B	Footprint, Cat C1	CUB9A-4, VXR9A-4
RF8A-1B	Footprint, Cat C1	CUB8A-1, VXR8A-1
RF11A-1B	Footprint, Cat C1	CUB11A-1, VXR11A-1
RF18A-4B	Footprint, Cat C1	VXR13A-4, VXR18A-4
RF30A-4B	Footprint, Cat C1	VXR24A-4, VXR30A-4
RF2A5-4B	Footprint, Cat C1	VXG1A5-4E, VXG2A5-4E
RF10A-4B	Footprint, Cat C1	VXG4A-4E, VXG5A5-4E, VXG9A-4E
RF23A-4B	Footprint, Cat C1	VXG16A5L-4E, VXG23AL-4E
RF30A5-4B	Footprint, Cat C1	VXG30A5L-4E
RF60A-4B	Footprint, Cat C1	VXG37AL-4E, VXG45AL-4E, VXG60AL-4E
RF75A-4B	Free standing, Cat C2	VXG75AL-4E
RF176A-4B	Free standing, Cat C2	VXG91AL-4E, VXG112AL-4E, VXG150AL-4E, VXG175AL-4E
RF304-4B	Free standing, Cat C3	VXG210AL-4E, VXG253AL-4E, VXG304AL-4E
RF520A-4B	Free standing, Cat C3	VXG377AL-4E, VXG415AL-4E, VXG520AL-4E
RF840A-4B	Free standing, Cat C3	VXG650AL-4E, VXG740AL-4E, VXG840AL-4E
RF960A-4B	Free standing, Cat C3	VXG960AL-4E
RF1370-4B	Free standing, Cat C3	VXG960AL-4E

DC and AC reactors

Essential in electronic drive installations, DC and AC reactors reduce low order harmonic distortion in the main power supply system, improve power factor and reduce damaging fault currents in the event of a short-circuit at a drive's input terminals. If a very long motor cable has to be used, an AC reactor on the output side of a drive can limit peak voltages that could damage the motor's insulation and prevent nuisance over-current alarms due to cable charge-up.

Part No.	Motor (kW)	Amps (A)	Impedance (mH)
VXLC0.4	0.4	1.5	50
VXLC0.75	0.75	2.5	30
VXLC1.5	1.5	4	16
VXLC2.2	2.2	5.5	12
VXLC4.0	4	9	7
VXLC5.5	5.5	13	4
VXLC7.5	7.5	18	3.5
VXLC11	11	22	2.5
VXLC15	15	34	1.8
VXLC18	18.5	41	1.4
VXLC22	22	49	1.3
VXLC30	30	80	0.86
VXLC37	37	100	0,7
VXLC45	45	120	0.58
VXLC55	55	146	0.47
VXLC75	75	200	0.35
VXLC90	90	238	0.29
VXLC110	110	291	0.24
VXLC132	132	326	0.215
VXLC160	160	395	0.177
VXLC200	200	494	0.142
VXLC220	220	557	0.126
VXLC280	280	700	0.1

AC reactors are also available. Contact IMO for price and availability.

Keypad, Cables & Option Cards

A range of option cards are available for the following applications:

Synchronisation (SY) - Synchronises the speed of two identical geared motors in master/slave mode. *VXR and VXG only*.

Encoder feed back (EFC) - Maintains constant shaft speed of an induction motor via high accuracy speed control and fast response to step loading, and can also enable a motor to develop full torque at zero speed. *VXR and VXG only.*

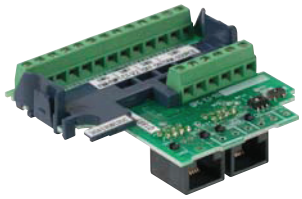
Analog(AIO), Digital(DIO) & Relay(RY) - Expand standard input and output functions etc, and convert transistor outputs to relay outputs. *VXR and VXG only.*

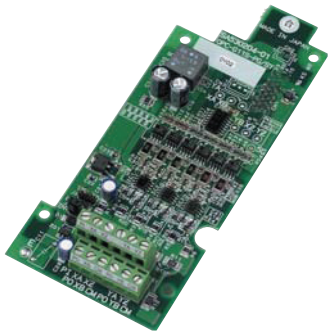
Remote operator panel / copy unit - For remote operation and display. *CUB, VXR and VXG.*

RS485 - A miniature interface board for serial communications. *CUB only.*

Fieldbus - Plug-in Profibus DP and DeviceNet modules are amongst the many high-speed factory automation protocols available for *VXR and VXG only*. Contact IMO for more details.

Part No.	CUB	VXR	VXG
RS485 / Modbus RTU	CUBRS485	Standard	Standard
Relay Output Card	-	-	OPC-G1-RY
Digital Output Card	-	-	OPC-G1-DO
Digital input Card	-	-	OPC-G1-DI
Digital I/O Card	-	VXR-DIO	-
Analogue I/O Card	-	-	OPC-G1-AIO
PG Card	-	VXR-EFC	OPC-G1-PG
Sync Card	-	VXR-SY	-
Device Net	-	VXR-DEV	OPC-G1-DEV
Profibus DP	-	VXR-PROF	OPC-G1-PDP
Canopen	-	-	OPC-G1-COP
T-Link	-	-	OPC-G1-TL
CC-Link	-	-	OPC-G1-CCL
SX-Bus Card	-	-	OPC-G1-SX
Multi Function Keypad	CUB-KEYPAD	OP-KP-LCD	OP-KP-LCD
USB Keypad	-	OP-KP-USB	OP-KP-USB
1 Mtr Connection Cable	JAGLEAD1M	JAGLEAD1M	JAGLEAD1M
2 Mtr Connection Cable	JAGLEAD2M	JAGLEAD2M	JAGLEAD2M
3 Mtr Connection Cable	JAGLEAD3M	JAGLEAD3M	JAGLEAD3M





Dynamic braking resistors

High-speed, solid-state switches are used, to aid the stopping or slowing of high inertia loads from high speed or to prevent a load over-hauling a motor. Regenerated energy must be dissipated into a specified resistor(s) to prevent the drive tripping on over-voltage. For advice on the required braking resistors for your application please contact IMO.

Part No.	Type	Resistance (ohms)	Power (W)
DBR100R400W	Extruded/IP55	100	400
DBR110R500W	Extruded/IP55	110	500
DBR160R400W	Extruded/IP55	160	400

(Braking modules integral as standard up to 22kW, please contact IMO for larger sets)

Ancillaries

The IMO Jaguar range also offers a wide selection of ancillaries that include, Keypad extension cables, potentiometers, relays, rpm readouts and many more. For full listing please contact IMO.

IMO Jaguar Loader
free software

- Control test
- Monitor
- Print
- Trend
- Commission
- Fault-find
- Transfer
- Program
- Save

Free on CD or downloadable from our web site, Windows™-compatible (XP or later) Loader lets you upload, download, and verify data between inverters by copy facility save data for multi-drive installations; create real-time trend graphs of frequency, current, torque, voltage, etc. and control and monitor the alarm status of an operating motor.

An RS232/485 converter (available from IMO) is needed to connect a PC to Jaguar VXG, VXR or CUB (with RS485 interface option).