TOSHIBA

TOSVERT™ VF-A7

New-Generation High Performance Inverter

●Sturdy -More than 200% torque even at 0.5Hz-

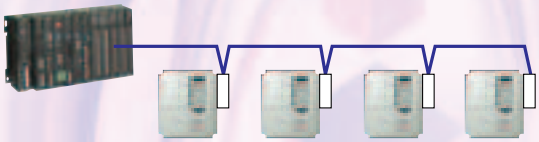
Toshiba's exclusive vector control algorithm is able to produce more than 200% torque even at extremely low speeds.

●Smart -Online automatic-tuning function-

The VF-A7 has an online automatic-tuning function to automatically correct the motor constants for sensorless vector control even during operation.

●System -The variety of options useful for a wide range of applications-

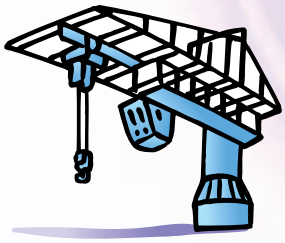
Extended panel, Parameter writer, Closed loop options (Speed feedback, Positioning control, Torque control), Control power unit, Extended terminal board, Communication
(RS232C, RS485, TOSLINE-F10M, TOSLINE-S20, DeviceNet*, ProfiBus*, LONworks*)
*Soon to be released



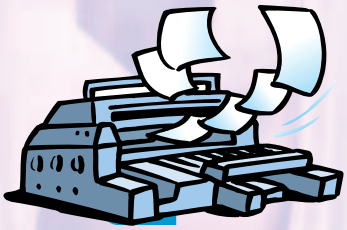
CE c UL us

●Flexible -Inverter playing three different roles-

- In sensorless vector control mode, the VF-A7 Inverter enables the TOSHIBA standard motor combined with it to produce large torque even at extremely low speeds.
- In torque control mode, the produced by the motor is controlled by means of torque command signals.
- In positioning control mode, the displacement and speed are adjusted using pulse reference. And the machine returns to its original position even if it is displaced because of external force.



Sensorless vector control mode



Torque control mode with/without a sensor

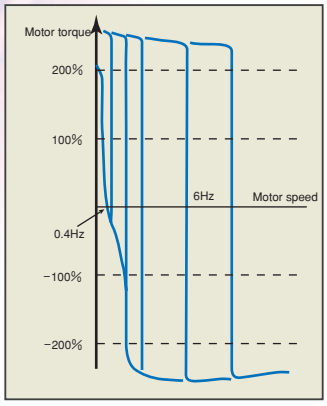
Speed/positioning control mode with a sensor

●Global -The global standard inverter-

- The VF-A7 meets major global standards:UL/cUL, CE
- The VF-A7 has a switchable control logic interface, a source logic (European type) or a sink logic(US/Japan type).

●Noise free -EMI noise filter inside-

- Both 200V class 0.4 to 7.5kW models and 400V class 0.75 to 15kW models have EMI noise filters inside.
- The VF-A7 with EMI noise filter inside can be installed in a space 14 to 30% smaller than that required for an inverter with an external noise filter.



Example torque characteristics of VFA7-2037PL with a 4P-3.7kw stardard motor.

TOSVERT™ VF-A7

New-Generation High Performance Inverter TOSVERT

■Standard specifications

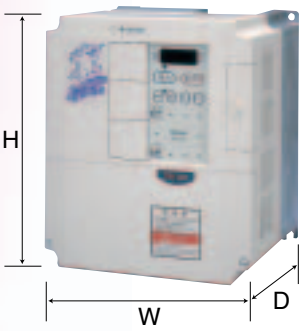
Item		Specifications																						
Applicable motor(kW)		0.4	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	220	280
Rated output current(A)	200V class	3.0	5.0	8.0	10.5	16.6	25	33	49	66	73	88	120	144	180	220	288	350	—	—	—	—	—
	400V class	—	2.5	4.0	5.0	8.5	13	17	25	33	37	44	60	72	90	110	144	210		255	310	420	540
Voltage/frequency	200V class	3-phase 200 to 230V-50/60Hz							3-phase 200 to 220V-50Hz 3-phase 200 to 230V-60Hz								3-phase 200 to 230V-50/60Hz							
	400V class	3-phase 380 to 460V-50/60Hz											3-phase 380 to 440V-50Hz 3-phase 380 to 460V-60Hz				3-phase 380 to 460V-50/60Hz						
Tolerance		Voltage +10/-15% *1 ,Frequency +/-5%																						
Overload current rating	200V class	2 minutes at 150%,0.5 seconds at 215%															1 minutes at 150%, 0.3 seconds at 180%							
	400V class	2 minutes at 150%,0.5 seconds at 215%															1 minutes at 150%,0.3 seconds at 180%							
Dynamic braking circuit		Dynamic braking circuit installed											Optional											
Dynamic braking resistor		Built in					Optional																	
Input terminal functions(programmable) *2		Forward/reverse run input signal,jog run input signal,standby signal,preset-speed operation input signal,reset input signal,etc. Switched interface logic(sink/source)																						
Output signals(programmable) *3		1c contact output, 2 open-collector outputs, 2 analog output, Pulse train outputs																						
Frequency setting signal		3kΩ potentiometer (1 to 10kΩ-potentiometer connection also possible), 0 to 10 Vdc (Input Impedance Zin:33kΩ), 0 to ±10 Vdc (Input Impedance Zin:67kΩ), 4 to 20 mAdc (Input Impedance Zin:500Ω)																						
Protective function		Stall prevention,current limit,overcurrent,overvoltage,load-side short-circuit,load-side ground fault,undervoltage,momentary power failure(15mS or longer), regeneration power ride-through control,electronic thermal overload protection,armature overcurrent during start-up, load-side overcurrent during start-up,dynamic braking resistor overload,heat sink overheat,emergency stop																						
EMI filter	200V class	Built in							External filter(optional)															
	400V class	Built in									External filter(optional)													
Ambient temperature/relative humidity		-10 to 40℃(50℃ if remove top sticker)/20 to 93%(no condensation sllowed)																						
Protective method		Sealed structure (JEM 1030) IP20											Open structure (JEM 1030) IP00											
Cooling method		Forced air cooling *4																						

*1 : +/-10% when the inverter is used continuosly
*2 : The 16 contact-input terminals (8 are optional) are programmable. For each of them, a signal can be selected from among 136 functions.
*3 : For each programmable ON/OFF output terminal, a signal can be selected from among 119 functions. For each programmable analog output terminal, a signal can be selected from among 32 signals.
*4 : Self cooling : 200 V class - 0.4, 0.75kw

■External dimensions and weight

Voltage class	Motor capacity(kW)	Inverter type	Dimensions(mm) W	H	D	Weight (kg)
200V	0.4	VFA7-2004PL	185	215	155	3.5
	0.75	VFA7-2007PL				3.5
	1.5	VFA7-2015PL				3.6
	2.2	VFA7-2022PL				4.0
	3.7	VFA7-2037PL				4.1
	5.5	VFA7-2055PL	210	300	173	6.6
	7.5	VFA7-2075PL				7.0
	11	VFA7-2110P	245	390	190	11
	15	VFA7-2150P				11
	18.5	VFA7-2185P			207	15.4
	22	VFA7-2220P				15.4
	30	VFA7-2300P	300	555	197	22.5
	37	VFA7-2370P1	370	630	290	44
	45	VFA7-2450P1				46
	55	VFA7-2550P1				46
	75	VFA7-2750P1	480	680	330	72
	90	VFA7-2900P1	660	950	370	148

Voltage class	Motor capacity(kW)	Inverter type	Dimensions(mm) W	H	D	Weight (kg)
400V	0.75	VFA7-4007PL	185	215	155	3.5
	1.5	VFA7-4015PL				3.6
	2.2	VFA7-4022PL				3.9
	3.7	VFA7-4037PL				4.1
	5.5	VFA7-4055PL	210	300	173	7.0
	7.5	VFA7-4075PL				7.1
	11	VFA7-4110PL	245	390	190	11
	15	VFA7-4150PL				11
	18.5	VFA7-4185P			207	15.4
	22	VFA7-4220P				15.4
	30	VFA7-4300P	300	555	197	24
	37	VFA7-4370P1	370	630	290	47
	45	VFA7-4450P1				48
	55	VFA7-4550P1				48
	75	VFA7-4750P1				49
	90/110	VFA7-4110KP1	480	680	330	75
	132	VFA7-4132KP1				77
	160	VFA7-4160KP1	660	950	370	159
	220	VFA7-4220KP1				166
	280	VFA7-4280KP1				168



To users of our inverters: Our inverters are designed to control the speeds of three-phase induction motors for general industry.

⚠SAFETY PRECAUTIONS

- Read the instruction manual before installing or operating the inverter unit and store it in a safe place for reference.
- When using our inverters for equipment such as nuclear power control equipment, aviation and space flight control equipment, traffic equipment, and safety equipment, and there is a risk that any failure or malfunction of the inverter could directly endanger human life or cause injury, please contact our headquarters, branch, or office printed on the front and back covers of this catalogue. Such applications must be studied carefully.
- When using our inverters for critical equipment, even though the inverters are manufactured under strict quality control always fit your equipment with safety devices to prevent serious accident or loss should the inverter fail (such as failure to issue an inverter trouble signal).
- Do not use our inverters for any load other than three-phase induction motors.
- None of Toshiba, its subsidiaries, affiliates or agents, shall be liable for any physical damages, including, without limitation,malfunction, anomaly, breakdown or any other problem that may occur to any apparatus in which the Toshiba inverter is incorporated or to any equipment that is used in combination with the Toshiba inverter. Nor shall Toshiba, its subsidiaries, affiliates or agents be liable for any compensatory damages resulting from such utilization, including compensation for special,indirect, incidental, consequential, punitive or exemplary damages, or for loss of profit, income or data, even if the user has been advised or apprised of the likelihood of the occurrence of such loss or damages.

For further information, please contact your nearest Toshiba Representative or International Operations-Producer Goods.
The Information in this brochure is subject to change without notice.

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Printed in Japan