TOSHIBA

Leading Innovation

Variable Speed Drive

TOSVERT VF-AS3

Standard specifications

Item			Specification																							
Applicable motor (kW)		HD *1	0.4	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	220	280
		ND	0.75	1.5	2.2	4.0	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	220	250	280	315
Type Form	3-phase 200V Class		2004P	2007P	2015P	2022P	2037P	2055P	2075P	2110P	2150P	2185P	2220P	2300P	2370P	2450P	2550P	-	-	-	-	-	-	-	-
	3-phase 400V Class		4004PC	4007PC	4015PC	4022PC	4037PC	4055PC	4075PC	4110PC	4150PC	4185PC	4220PC	4300PC	4370PC	4450PC	4550PC	4750PC	4900PC	4110KPC	4132KPC	4160KPC	4200KPC	4220KPC	4280KPC
Rating	Output capacity (KVA) *2	200V Class HD	1.3	1.8	3.0	4.3	7.1	9.7	12.5	17.8	24.2	29.9	35.3	46.9	56.8	67.1	80.4	-	-	-	-	-	-	-	-
		200V Class ND	1.8	3.0	4.3	7.1	9.7	12.5	17.8	24.2	29.9	35.3	46.9	56.8	67.1	80.4	107	-	-	-	-	-	-	-	-
		400V Class HD	1.1	1.7	3.0	4.3	7.1	9.7	12.6	17.9	24.2	29.9	35.3	46.9	56.8	67.1	80.8	111	132	161	191	239	295	325	419
		400V Class ND	1.7	3.0	4.3	7.1	9.7	12.6	17.9	24.2	29.9	35.3	46.9	56.8	67.1	80.8	111	132	161	191	230	325	367	419	469
	Output current (A) *3	200V Class HD	3.3	4.6	8.0	11.2	18.7	25.4	32.7	46.8	63.4	78.4	92.6	123	149	176	211	-	-	-	-	-	-	-	-
		200V Class ND	4.6	8.0	11.2	18.7	25.4	32.7	46.8	63.4	78.4	92.6	123	149	176	211	282	-	-	-	-	-	-	-	-
		400V Class HD	1.5	2.2	4.0	5.6	9.3	12.7	16.5	23.5	31.7	39.2	46.3	61.5	74.5	88.0	106	145	173	211	250	314	387	427	550
		400V Class ND	2.2	4.0	5.6	9.3	12.7	16.5	23.5	31.7	39.2	46.3	61.5	74.5	88.0	106	145	173	211	250	302	427	481	550	616
Power supply	Voltage/ frequency	200V Class	3-phase 200 to 240V-50/60Hz (Voltage +10%, -15%, frequency ±5%)																							
		400V Class	3-phase 380 to 480V-50/60Hz (Voltage +10%, -15%, frequency ±5%)																						3-phase 380 to 440V-50Hz, 3-phase 380 to 480V-60Hz (Voltage +10%, -15%, frequency ±5%)	
Output voltage		200V Class	3-phase 200V to 240V (The maximum output voltage is equal to the input supply voltage)																							
		400V Class	3-phase 380V to 480V (The maximum output voltage is equal to the input supply voltage)																							
Overload current rating		HD	150%-1minute, 180%-2seconds																							
		ND	120%-1minute, 135%-2seconds																							
Output frequency range			Setting between 0.01 to 590Hz. Default max. frequency is set to 0.01 to 80Hz.Maximum frequency adjustment(30 to 590Hz)																							
Protective method (IEC60529)			IP20:200V class: 0.4 to 37kW(HD), 400V class: 0.4 to 75kW(HD), IP00: 200V class: 45 to 55kW(HD), 400V class: 90 to 280kW(HD)																							
EMC filter			Built-in: 400V class																							
DC reactor			Built-in :200V class, 400V class 0.4 to 132kW(HD), Attached : 400V class 160 to 280kW(HD)																							
UL Type1 kit			Built-in :200V class 0.4 to 37kW(HD), 400V class 0.4 to 75kW(HD), Optional : 200V class 45 to 55kW(HD), 400V class 90 to 280kW(HD)																							
Ambient temperature *4			-10 to +60°C (Remove the upper cover if 50°C or more, max60°C)																							

*1 Parameter sets the drive for Normal Duty or Heavy Duty performance (Default). *2 Capacity is calculated at 220V for the 200V class, at 440V for the 400V class. *3 Rated output current when the PWM carrier frequency (parameter F300) is 4kHz for frame size 1 to 5, 2.5kHz for frame size 6 to 8. *4 When using inverters where the ambient temperature will rise above 50°C, remove the upper cover and operation panel, and operate each inverter at a current lower than the rated one (Above 45°C for Frame Size A7 and A8 of ND).

External dimensions and weight

■ Input voltage class : 3-phase 200V

Applicable motor (kW)		Inverter type	Frame size	Dimensions (mm)			Approximate weight (kg)
HD	ND			Width	Height	Depth	
0.4	0.75	VFAS3-2004P	A1	146	350	202	4.3
0.75	1.5	VFAS3-2007P					4.3
1.5	2.2	VFAS3-2015P					4.5
2.2	4	VFAS3-2022P					4.6
4	5.5	VFAS3-2037P	A2	171	411.5	231	7.7
5.5	7.5	VFAS3-2055P	A3	211	554.5	232	13.8
7.5	11	VFAS3-2075P					13.8
11	15	VFAS3-2110P	A4	226	693	268	27.3
15	18.5	VFAS3-2150P					27.3
18.5	22	VFAS3-2185P					27.3
22	30	VFAS3-2220P	A5	291	932	323	57.6
30	37	VFAS3-2300P					57.6
37	45	VFAS3-2370P					57.6
45	55	VFAS3-2450P	A6	322	850	391	82
55	75	VFAS3-2550P					82

*1 Value in ( ) includes attached DC reactor.

■ Input voltage class : 3-phase 400V

Applicable motor (kW)		Inverter type	Frame size	Dimensions (mm)			Approximate weight (kg)
HD	ND			Width	Height	Depth	
0.4	0.75	VFAS3-4004PC	A1	146	350	202	4.5
0.75	1.5	VFAS3-4007PC					4.5
1.5	2.2	VFAS3-4015PC					4.5
2.2	4	VFAS3-4022PC					4.6
4	5.5	VFAS3-4037PC					4.7
5.5	7.5	VFAS3-4055PC	A2	171	411.5	231	7.7
7.5	11	VFAS3-4075PC					7.7
11	15	VFAS3-4110PC	A3	211	554.5	232	13.6
15	18.5	VFAS3-4150PC					14.2
18.5	22	VFAS3-4185PC					14.3
22	30	VFAS3-4220PC	A4	226	693	268	28
30	37	VFAS3-4300PC					28.2
37	45	VFAS3-4370PC					28.7
45	55	VFAS3-4450PC	A5	291	932	323	57.5
55	75	VFAS3-4550PC					59
75	90	VFAS3-4750PC					59.5
90	110	VFAS3-4900PC	A6	322	850	391	82
110	132	VFAS3-4110KPC					82
132	160	VFAS3-4232KPC					82
160	220	VFAS3-4160KPC	A7	430	950(1190) *1	377	104(166) *1
200	250	VFAS3-4200KPC	A8	585	950(1190) *1	377	134(194) *1
220	280	VFAS3-4220KPC					136(204) *1
280	315	VFAS3-4280KPC					136(204) *1

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

⚠ Precautions

* Please read the instruction manual before installing or operating the inverter unit.
* This product is intended for general purpose uses in industrial application. It cannot be used applications where may cause big impact on public uses, such as power plant and railway, and equipment which endanger human life or injury, such as nuclear power control, aviation, space flight control, traffic, safety device, amusement, or medical.
  It may be considerable whether to apply, under the special condition or an application where strict quality control may not be required. Please contact our headquarters, branch, or local offices printed on the front and back covers of this catalogue.
* When exporting Toshiba Inverter separately or combined with your equipment, please be sure to satisfy the objective conditions and inform conditions listed in the export control policies, so called Catch All restrictions, which are set by the Ministry of Economy, Trade and Industry of Japan, and the appropriate export procedures must also be taken.
* Please use our product in applications where do not cause serious accidents or damages even if product is failure, or please use in environment where safety equipment is applicable or a backup circuit device is provided outside the system.
* Please do not use our product 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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IoT / Industry 4.0 Ready

High-performance Inverter TOSVERT VF-AS3

The high performance TOSHIBA VF-AS3 achieves high speed/real time network communication with Built-in Ethernet - Modbus TCP without any optional devices, ready to meet the requirement of modern automation with IoT and Industry 4.0.
Also, VF-AS3 with TOSHIBA excellent motor control technology and electrical circuit design helps for all your applications.

Built-in Ethernet

VF-AS3 has two ports I/F of Ethernet as standard. Data of operating conditions and Dedicated data source can be stored to Big data and Cloud storage by Ethernet.

Real Time Clock

Calendar / Time Stamp function

Built-in Real time clock, Calendar and Event time stamp functions help operating data collection with actual time.

Web Server

VF-AS3 has a built-in Web Server function, and it can be easily accessed and manage the operating condition remotely from your PC or Smart Phone/tablet devices.

QR Code®

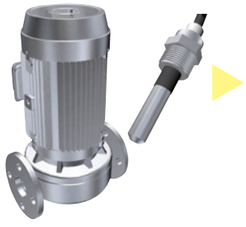
For the advanced information and the event of drive fault, VF-AS3 displays the QR codes, which will provide immediate access to a dedicated web link for support and maintenance.

Video Guidance

For the installation, setup and maintenance, the video guidance is available with web support.

Remote Sensor Monitoring

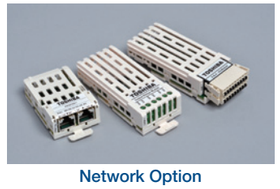
The sensor which is equipped in the machine and equipment, can be connected with VF-AS3 and the status can be monitored by VFD network communication.



USB Port

Removable Terminal

Advanced Keypad



Network Option

- The Advanced Key Pad is detachable, and USB port can be connected with PC for parameter download and monitoring by using maintenance communication software (PCM).
- Optional PROFINET, EtherCAT®, PROFIBUS-DP, DeviceNet™, CAN open® are available.

Voltage class		Applied motor capacity(kW) : Dual rating																						
	HD	0.4	0.75	1.5	2.2	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	220	280
	ND	0.75	1.5	2.2	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	220	250	280	315
3ph-200V class (IP20/IP00)																								
3ph-400V class (IP20/IP00)																								
3ph-400V class (IP55)																								

Applications

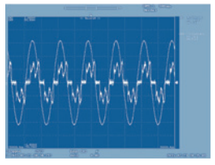
- Oil&Gas : Jack pumps/Compressor
- Mining : Conveyor/Crushers/Compressor
- Material handling : Conveyor/Cranes/Hoist
- Chemical : Pump/ Mixers/Centrifuges/ Fan
- WWW : Pump/Centrifuges/Fan

Compatible with the World's Main Standards (EC Directive(CE marking), UL, CSA)

Totally enclosed box type for IP55

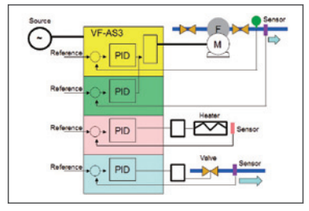
Environment free design

- VF-AS3 can meet IEC61000-3-12 without external reactor (THD<=48%) and EMC directive of IEC61800-3 Category C2/ C3 (400V Class only).
- Environmental protection is improved for IEC60721-3-3 dust 3S3 and chemical 3C3 (Size A6 or less).



Four Built-in PID functions

- Two PID functions for motor drive and two independent PID functions are available for the combination of valve and sensor control.



Safety design meets IEC standard

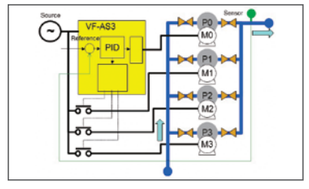
- The safety standards with STO (Safe Torque Off) function, it will be highly reliable to cut-off in the emergency conditions.
- In addition, the safety functions of SS1, SOS, SS2, SBC, SLS and SDI also available as options.
- Include with the terminal box for UL Type1 (Size A5 below).

SS1, SOS, SS2
SBC, SLS, SDI

Built-in Pump control

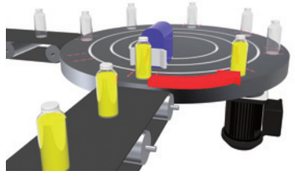
Maximum Ten pumps

- The VF-AS3 can drive multiple pump motors with VFD control and three commercial power (Maximum one VFD drive with nine commercial power motor combinations).



Built-in Position control

- VF-AS3 has sensor / sensor-less position control with Point to point, Pulse input and Orientation, which is suitable for the application such as processing machine for high precision control.



PM motor drive (w/, w/o sensor)

- VF-AS3 can drive not only 3-phase induction motors but also Interior Permanent Magnetic Motor (IPM) and Surface Permanent Magnetic Motor (SPM) with / without feedback sensor.