**ISO-14001 Certification Acquired**

**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, nuclear and space flight control, traffic, and safety, 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. Special precautions must be taken and 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 accidents or loss should the inverter fail (such as issuing an inverter failure signal).
- Do not use our inverters for any load other than three-phase induction motors.

- 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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**Standard specifications**

**Standard connection diagram**

- Sink logic (common: P24)

**External dimensions and weight**

**Standard connection diagram**

- Source logic (common: P24)

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**VF-FS1**

3-phase 200V class (IP20/IP00): 0.4kW to 30kW
3-phase 400V class (IP20/IP00): 0.4kW to 75kW
3-phase 400V class (IP54): 0.75kW to 75kW

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**TOSVERT™ inverter dedicated to fan and pump for HVAC**

**Totally enclosed box type for IP54**
DREAM INVERTER dedicated to fan and pump for HVAC

SPACE SAVING, ECO-FRIENDLY, NOISE-LESS and LONG LIFE

The VF-FS1 provides these features as standard.

POINT 1

- 15 years life designed main capacitors (Note 1)
- An alarm warns when the main circuit capacitors, circuit boards capacitors, or cooling fan needs to be replaced.
- Cooling fan’s On/Off control extend its life.
- Easy replacement cooling fan by one touch (Note 2)
- The inverter unit can be replaced by removable terminal block without disconnecting cables.

Note1) Ambient temperature: 35°C, annual average 20°C, output current 80% of rated current, 24-hour operation 365 days per year.
Note2) 18.5kW or less are possible to replacement by one touch, 22kW or more are screw type.

POINT 2

Reactor-less harmonic suppress technologies and built-in filter (Note 1) reduce 50% of installation space, save time and cost of wiring.

Note 1) 400V class models, EMI noise filter built-in as standard model (European EMC Directive, IEC61800-3, 1st Environment, C2 or IEC/EN61800-3, 2nd Environment, C3)
Note 2) IP20/IP00 models

POINT 3

Long life and easy maintenance

- Toshiba unique technologies suppress harmonics, particularly 5th and 7th harmonic current that affect power sources.
- And the power factor in all models has been improved.
- Motor power is improved in all models.
- Motor efficiency is improved in all models.

POINT 4

Special softwares for fan and pump application are built-in

Ideal functions are built-in for fan and pump application.
- The local or remote operation can be selected by one touch
- Bumpless function realizes seamless operation between local and remote
- Fire control enables forced operation in emergency
- Speed reference can manage on/off operation (Sleep function)
- Low current detection can notice a broken belt or low load for pump application
- PTC thermistor input
- Include RS485 (TOSHIBA/Modbus protocol) communication as standard

POINT 5

More energy saving and easier operation

The advanced energy-saving mode optimizes fan and pump efficiency even at normally inefficient in low speeds.

The effect can be monitored by operation panel or through serial communication data.
A wizard function enable set the 10 most often used parameter quickly.

Applications:
- AHUs
- Ventilation fans
- Chillers
- Water pumps etc.