

*TOSVERT™*

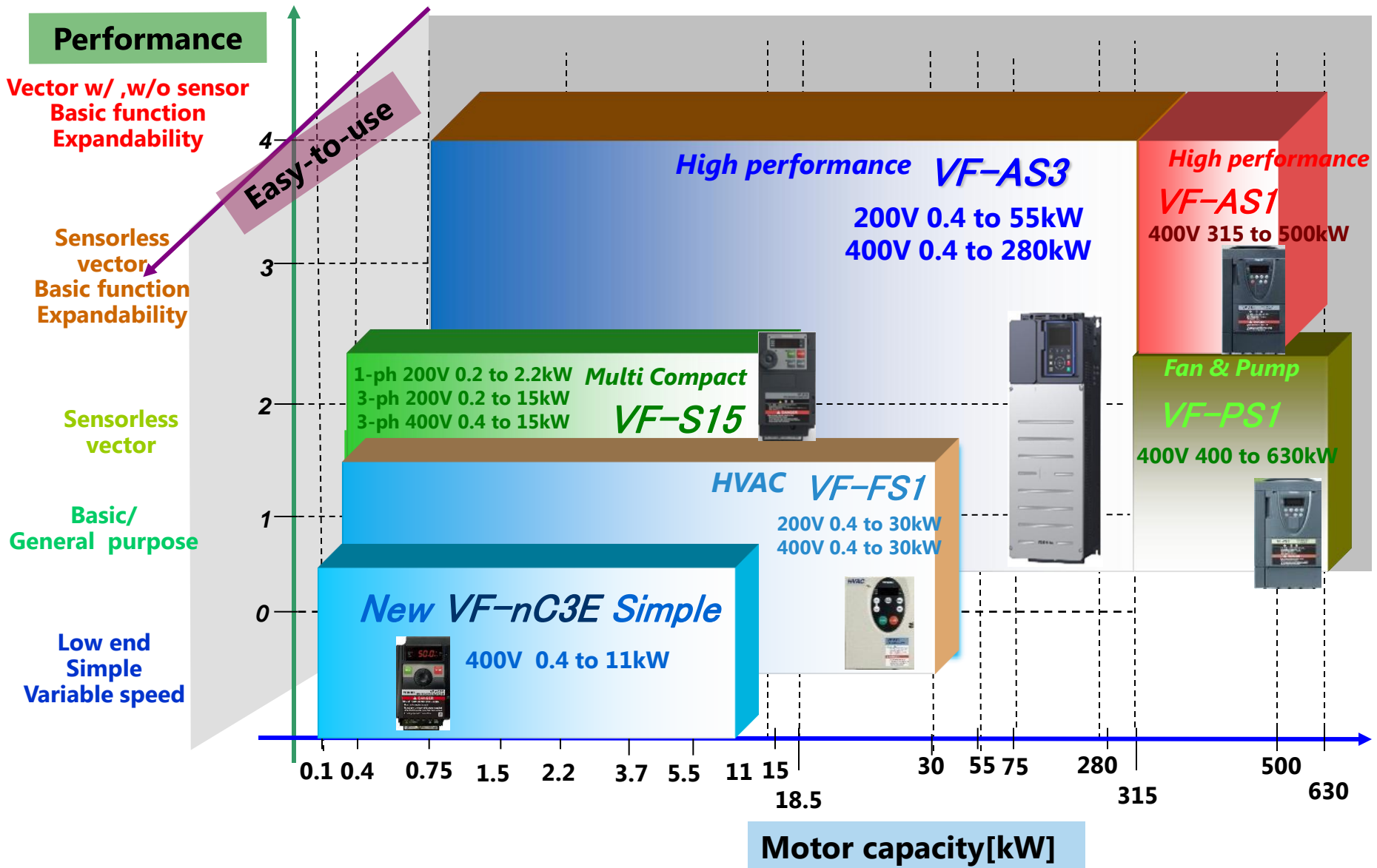
*VF-nC3E*



**TOSHIBA**

Global Sales Department,  
Motor Drive Division

# 1. Product Concept - Line-up of TOSHIBA inverter



# 1. Product Concept - Standard Specifications

Item	Specification
Voltage/ Frequency	<b>3 phase 380V-460V</b> 50/60Hz
Allowable fluctuation	Voltage +10% -15% Frequency $\pm$ 5%
Overload Current Rating	<b>150%-60seconds</b> , 200%-0.5second
Output frequency	0.1 to <b>400.0Hz</b>
Carrier Frequency	2kHz to 12kHz
Protective Method	<b>IP 20</b>
Ambient Temperature	<b>-10 to 55°C, max. 60°C</b>
Relative humidity	5 to 95% (free from condensation and vapor)
Operating Environment	<b>Altitude 3000m or less</b> (current reduction required above 1000m) Place not exposed to direct sunlight and free of corrosive and explosive gases.
Protective Function	Overcurrent, overvoltage, short circuit on the load side, ground fault on the load side, inverter overload, Input/output phase failure

Minimum structure achieves Maximum possibilities

### Simple

Simple Operation  
Simple Installation  
Simple Settings

### Strong

Designed for  
Longer Life Span  
Strong for dust &  
ambient temp

### Smart

Ideal for Various  
Applications  
-Fan & Pump  
-Conveyor  
-Food Processing

### Simple

### Simple Operation (ออกแบบมาเพื่อง่ายต่อการใช้งาน)

The large setting dial in front allows you to control local speed and set the parameters easily. For setting parameters, just turn the dial and push to select. VF-nC3E can easily be operated with the RUN and STOP keys.



### Simple

**Simple Installation**(ประหยัดค่าใช้จ่ายตู้และพื้นที่การติดตั้ง ด้วยการติดตั้งแบบ **Side-by-side**)

Multiple drives are mountable side-by-side, saving space when installation. The removable cover for the main circuit ensures safety.

Saving space



### Simple

**Simple Settings** (ออกแบบให้ใช้งานง่ายด้วยปุ่ม **EASY** ที่สามารถ **Memory Parameter** ที่ใช้ประจำได้ถึง **24ค่า**)

The EASY Key provides quick access up to 24 frequently-used parameters (Easy Mode). The EASY key allows to switch between Easy Mode and Standard Mode that shows all the parameters.



### Strong

## Designed for Longer Life Span

(ถูกออกแบบอุปกรณ์หลักให้ใช้งานได้นาน**10ปี**)

- The life span of main parts: up to **10 years** (capacitor, cooling fan).

\*Condition : Input voltage: 380V, Ambient temperature: 40°C (24 hours, 365 days), Output current: 80% of the rated current.

- Longer life, energy saving by automatic ON/OFF control of cooling fan by temperature.



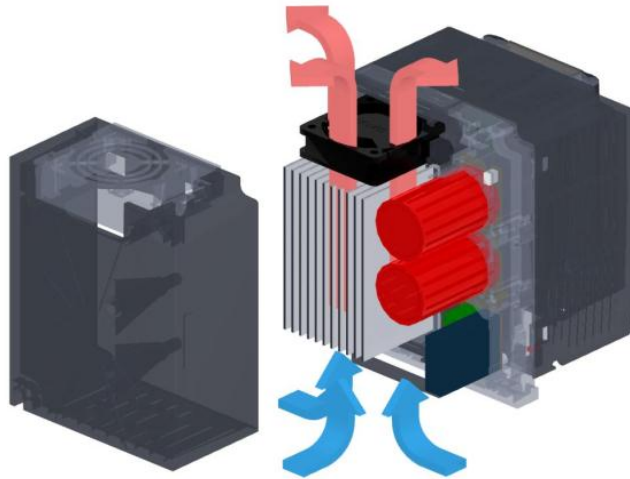


**Strong**

### Strong against dust

(ได้ทำการเคลือบบอร์ดเพื่อป้องกันความชื้นและฝุ่น รวมถึงการระบายความร้อนที่ดี ซึ่งจะทำให้ใช้งานได้ยาวนานขึ้น)

Strengthened coating circuit board and the new cooling systems.



The fan is at the top and the wind is pulled up, so dust is hard to get in.  
(1.5, 2.2, 7.5, 11kW)

**Strong**

**Ambient temperature: max 60 °C**

(ถูกออกแบบให้ใช้งานในภาวะแวดล้อมอุณหภูมิสูงถึง 60 °C)

Can resist in harsh ambient temperature from -10 °C to 60 °C.

Above 50 °C : Remove the protective seal from the top of the inverter.

Above 55 °C : Remove the seal from the top of the inverter and use the inverter with the output current reduced.

Optimization of internal structure allows operation **without current reduction up to 55 °C.**

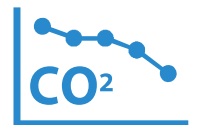
### Smart

## Fan & Pump (ประหยัดพลังงานด้วยโหมด *Energy Saving*)

1. Save energy with Energy-saving mode by passing optimal current in accordance with the load.

### Energy-saving mode

[Pt: V/F control mode selection]="4: Energy-saving"  
Set motor parameters to calculate internally.



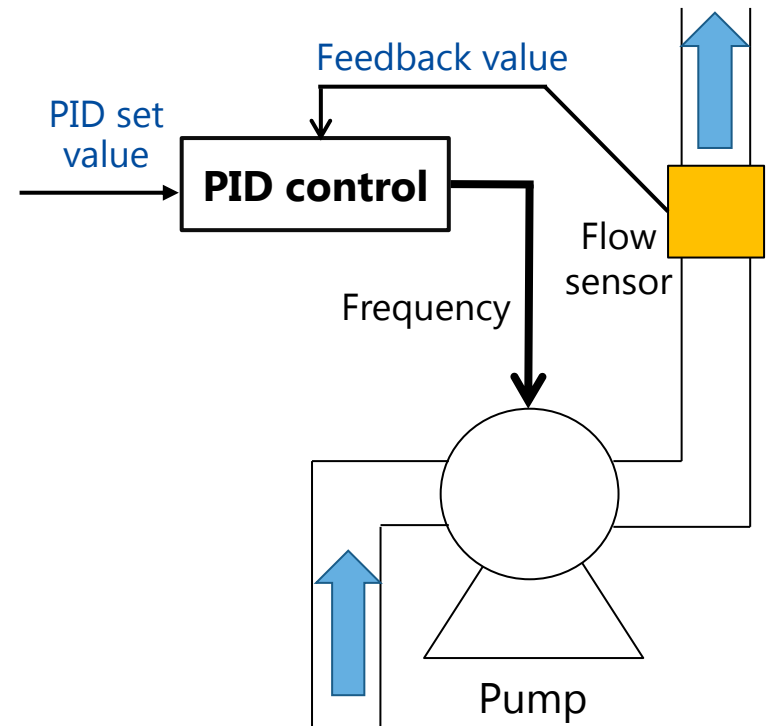
### Smart

## Fan & Pump (มี PID Controller เป็นมาตรฐาน)

2. Control temperatures, pressures and flow rates with automatic process control by simplified system.

### PID control [F359] to [F380]

Process control including keeping airflow, pressure, and the amount of flow constant, can be exercised using feedback signals (4 to 20mA, 0 to 10V) from a detector.



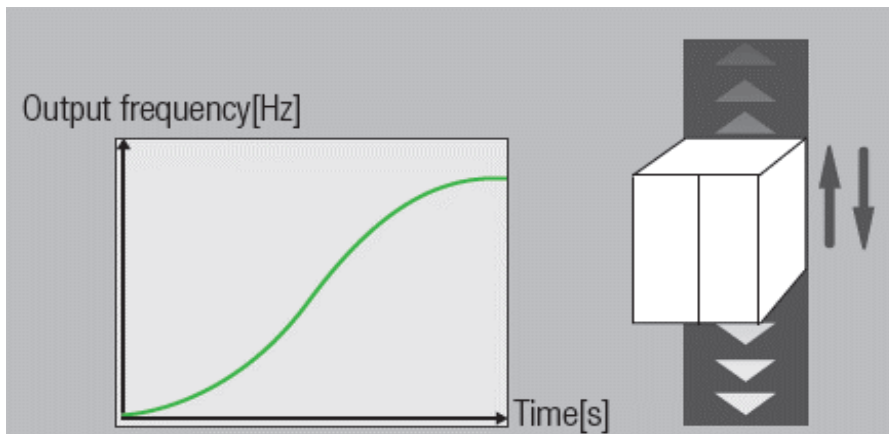
### Smart

### Conveyor (ออกตัวแบบนุ่มนวล ด้วย S-Pattern)

1. Prevent cargo collapse by mitigating shocks with acceleration / deceleration

#### S-pattern acceleration / deceleration [F502], [F503]

Used when necessary to accelerate or decelerate in a short period of time up to a high-speed area over 60Hz, and to moderate shock at acceleration.



### Smart

### Conveyor (ให้แรงบิดสูงเพื่อการขับเคลื่อนที่สมบูรณ์)

2. High output torque provides smooth start up by vector control and auto torque boost control achieving strong and stable start for motor. Auto-tuning can setup motor constant easily.

### Vector control, Auto torque boost

[Pt: V/F control mode selection]=

"2: Automatic torque boost control"

"3: Vector control"

Set motor parameters to calculate internally.

[F400: Auto-tuning]

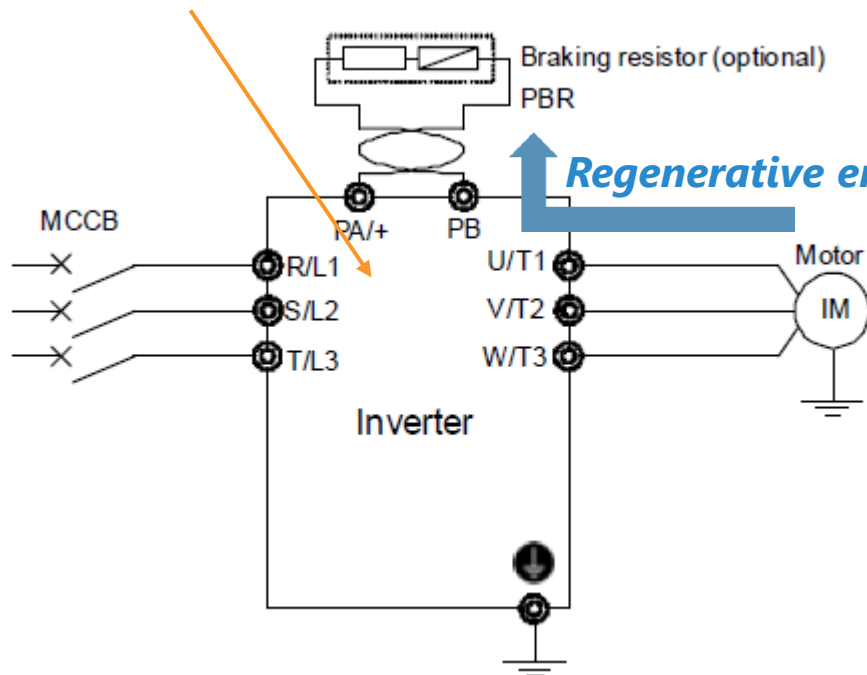


### Smart

**Conveyor** (สามารถต่อ **Braking Resistor** ได้)\*ตั้งแต่1.5Kwเป็นต้นไป)

3. Improved braking performance without causing overvoltage trip with motors.

**Built-in dynamic braking circuit** \*for 1.5kW or above [F304]



- When an abrupt deceleration is necessary
- When an overvoltage "OP" trip occurs at a deceleration stop
- When the continuous regenerative state
- When the regenerative state is entered by load fluctuation during constant speed run of a press machine, etc.

### Smart

**Food processing machinery**  
(สามารถสื่อสารRS485 ได้)

1. Control machines with multiple inverters, through RS485 communication without overlapping.





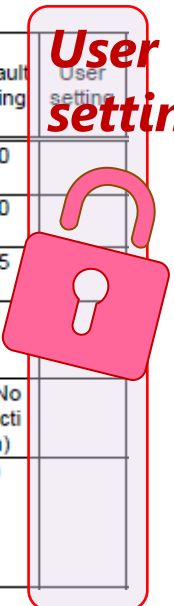
## Smart

### Food processing machinery

(สามารถตั้งรหัสป้องกันผู้ไม่เกี่ยวข้องใช้งานผิดพลาด)

2. Protect parameters from being altered with a password lock.

Password lock [F738] Set password number.

Parameters								User setting
Title	Code	Communication No.	Function	Unit	Minimum setting unit Panel/Communication	Adjustment range	Default setting	User setting
F100	F100	0100	Low-speed signal output frequency	Hz	0.1/0.01	0.0-FH	0.0	
F101	F101	0101	Speed reach setting frequency	Hz	0.1/0.01	0.0-FH	0.0	
F102	F102	0102	Speed reach detection band	Hz	0.1/0.01	0.0-FH	2.5	
F105	F105	0105	Priority selection (Both F and R are ON)	-	-	0: Reverse 1: Slowdown Stop	1	
F108	F108	0108	Always active function selection 1	-	-	0-153	0 (No function)	
F109	F109	0109	Analog/logic input Selection (VI terminal)	-	-	0: Voltage signal input (0-10V) 1: Current signal input (4-20mA) 2: Logic input 3: Voltage signal input (0-5V)	0	

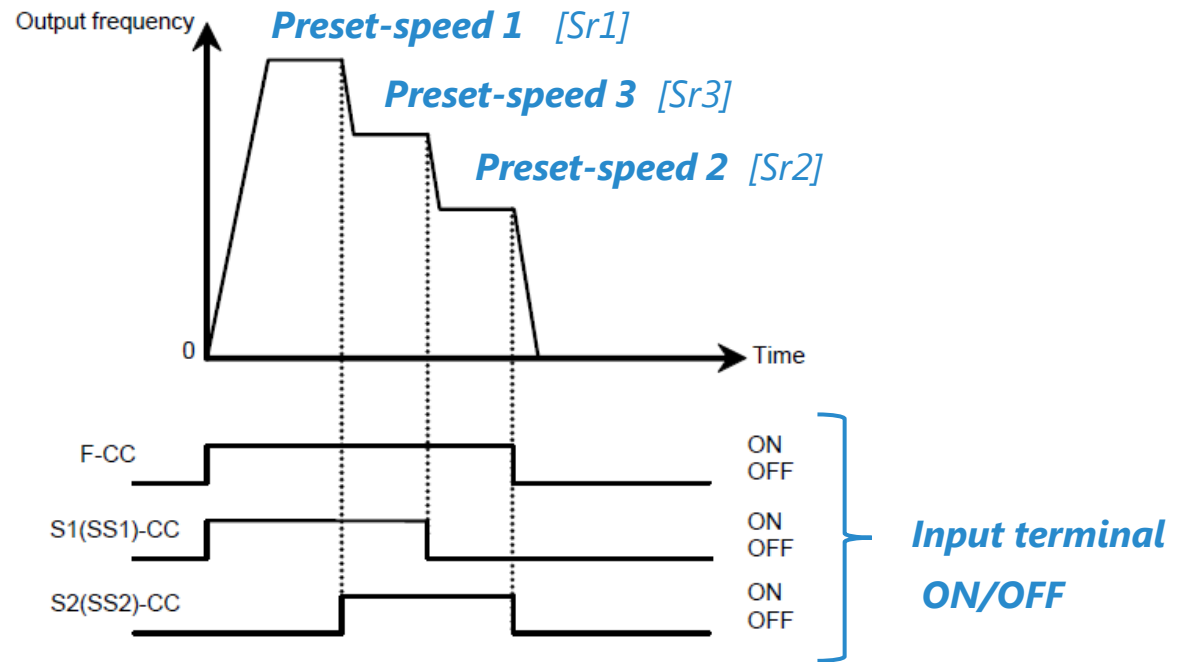
### Smart

**Food processing machinery**  
(สามารถตั้งค่าใช้งานแบบหลากหลายความเร็วได้ถึง 15ความเร็ว)

3. The frequency is selectable up to 15 steps through external contact inputs.

### Preset speed

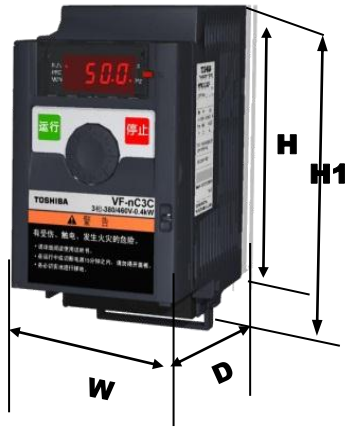
[Sr1] to [Sr7],  
[F287] to [F294]



Example of 3-speed operation

# 3. Dimension.

## Dimension A



## Dimension B



## Dimension C



## Dimension D



Motor (kW)	VF-nC3E			
	W	H	H1	D
0.4	72	130	143	130
0.75	72	130	143	140
1.5	105	130	143	151
2.2	105	130	143	151
3.7	140	171	184	151
5.5	140	171	184	151
7.5	150	220	232	171
11	150	220	232	171

# TOSHIBA

Thank you