Leading Innovation, Creating Tomorrow

High Torque Performance and Precise Control

iS7

0.75~22kW 3Phase 200~230Volts
0.75~160kW 3Phase 380~480Volts

Drive Solution

LS Industrial Systems
www.lsis.biz

User-Friendly Options

Diverse communication options, expansion I/O options,
PLC options, encoder options, IP54 enclosure options

Contents

iS7 generates a more powerful performance through its superior V/F control, V/F PG, slip compensation, sensorless vector control, and PMSM (Permanent Magnetic Synchronous Motor).
The iS7 focuses on a user-friendly interface and environment-friendly features including a wide graphic LCD keypad, user & macro group support, electro-thermal functions for motor protection, and protection for input/output phase loss.

The iS7 sets the world standard for drives (VFDs) because of its features that meet all of your needs in AC drives.
The iS7 offers powerful performance, flexibility through diverse options, and a more convenient and user-friendly interface.
The iS7 offers more than you can imagine.

ISO14001, ISO9001

iS7 is dependable because it has high performance and reliability.

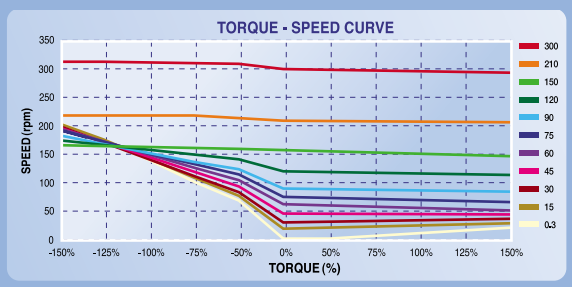
iS7 Feature | **Reliability & High Performance**

Reliability

Powerful electric current type sensorless vector control

Our iS7 technology includes a competitive and strong low-speed torque control and a speed-precision-driven vector algorithm.

- Speed control range 100:1
- Extremely low torque control capability: 0.1Hz/150% real torque
- Max. torque control capability within the restoration range

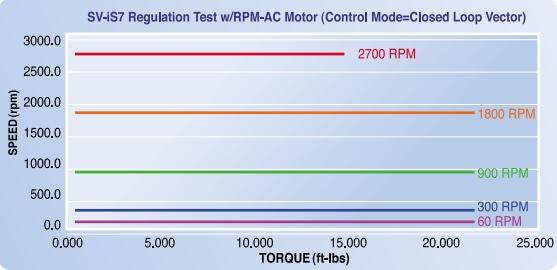


High Performance

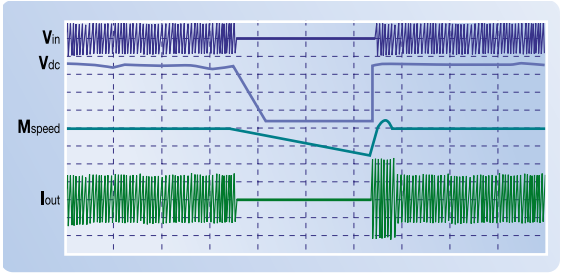
Sensored vector realizing precise speed/torque control

In the entire speed range including zero speed, powerful torque (more than 250%) performance is materialized through receiving Max. 200kHz frequency pulse via encoder-dedicated board.

- Speed control range 1000:1
- Instant Max. torque control capability 250%
- 50Hz speed control response



Ride-through (LV trip delay) for sudden power loss

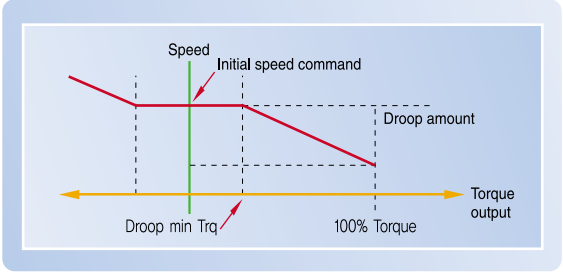


Powerful Performance

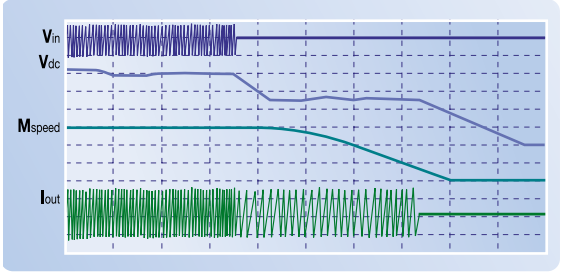
V/F control, V/F PG, slip compensation, sensorless vector control, PMSM

Automatic torque balance droop control

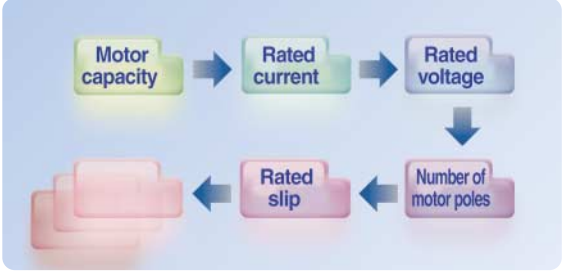
Droop control algorithm adjusts changeable torque driven by speed. This algorithm is easily applicable to open loop linking driving and load sharing driving.



Kinetic Energy Buffering (KEB) for a stable system stop in case of power loss or failure



Easy start parameter setting



Power and flux braking for maximum deceleration

iS7 is flexible because it is easily expandable.

User-Friendly Options

Diverse communication options, expansion I/O options, PLC options, encoder options, IP54 enclosure options

Flexibility

iS7 offers options with flexibility and expendability.

- Built-in Built in RS485 & Modbus-RTU communication
- Profibus-DP, DeviceNet, LonWorks options
- Expandable I/O options: Max. input 11 points, Max. output 6 points
- PLC options: Max. input 14 points, Max. output 7 points for Master-K platform
- Encoder options
- IP54 enclosure options

Expansion

PLC Card
- Master-K 120S platform
- Normal input 6 points (Sink/Source selectable), Max. input 14 points when expanded
- Normal output 4 points (N.O. Relay), Max. output 7 points when expanded
- RTC (Real Time Clock)
- KGL WIN operating system

Encoder Card
- Closed loop control
- Pulse train reference
- 5/12/15 V insulated power supply
- Line driver or open collector
- 200kHz Max. input frequency
- Signal loss detection

Profibus-DP Card
- Profibus dedicated connector
- Max. 12Mbps communication speed
- Max. 32 stations per segment
- Bus topology
- Enhanced on-line diagnosis

Modbus-TCP Card
- 100M BASE-TX, 10M BASE-T support
- Half duplex, full duplex support
- Auto negotiation
- Max. 100m (328 ft.) transmission distance
- Star topology

LonWorks
- 78kbps communication speed
- Free/bus topology
- Resistance built-in per topology
- Max. 2700m (8858 ft.) connection distance (bus topology)

DeviceNet/CANopen Card
- Communication speed: 125kbps, 250kbps, 500kbps (DeviceNet) 20kbps~1Mkbps (CANopen)
- Bus topology
- Max. 64 node connection points
- Max. 500m (1640 ft.) transmission distance (125kbps)

I/O Expansion Card
- Insulated I/O 3 points each
- Insulated I/O 3 analog voltage
- -10~10V, 0~20mA 2 points each

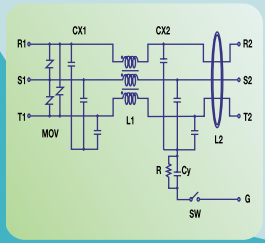
R-Net Card
- 1Mbps Communication speed
- Max. 64 node connection points
- Max. 750m transmission distance (segment each)

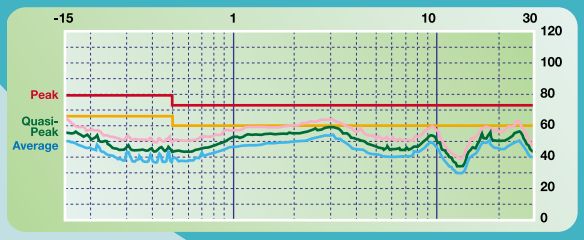
Built-in RS485 & Modbus-RTU
- Multi drop link focused RS485, Modbus built-in
- Connecting up to 16 AC drives
- Max. 1200m (3937 ft.) communication distance (valid distance: 700m (2297 ft.))
- Protection algorithm under command lost
- Real time running and monitoring with drive view software

iS7 is convenient because it has a user friendly interface.

Convenience Environment

EMC filter (in conformity with EN61800-3) built-in for protection from excessive electronic distortion

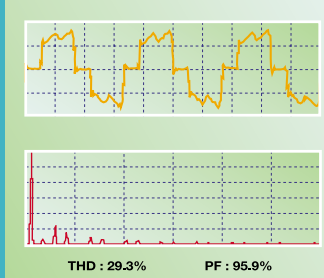




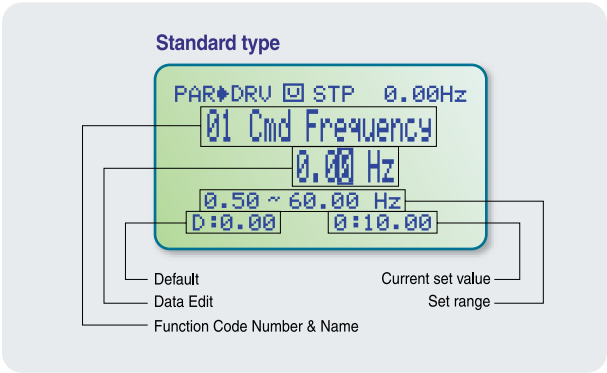
DC reactor built-in for harmonic reduction and power factor improvement

Overloading rate	110% (VT rated standard)
THD	18 ~ 37%
power factor	94 ~ 96%
IP Level	IP21
Insulation Class	155℃ (300℉)

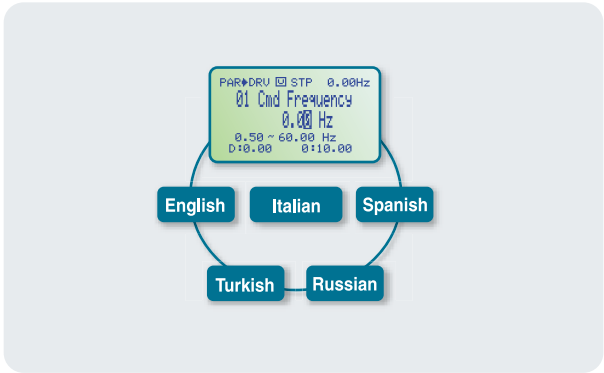
Input current and THD analysis



Widened graphic LCD keypad

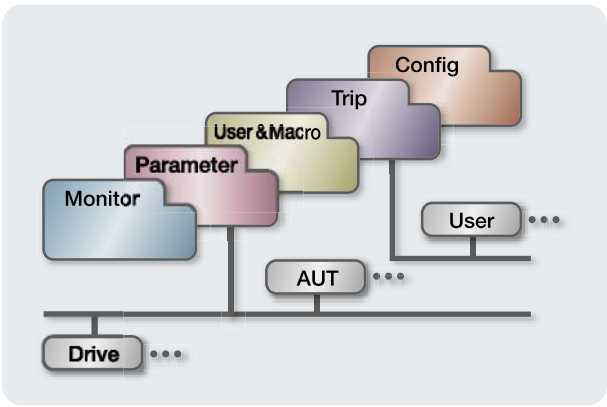


Multi-language support (5 languages)

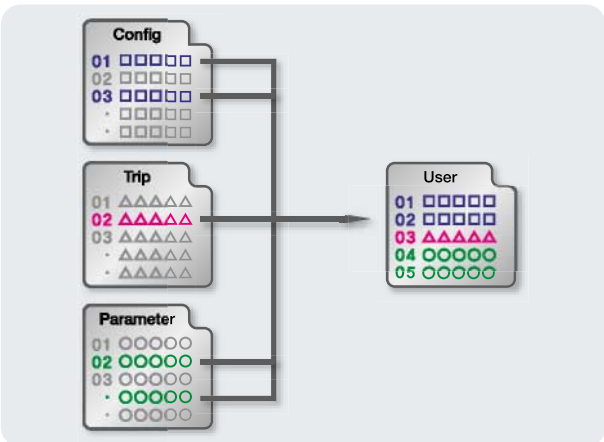


Convenience through User-friendly Interface

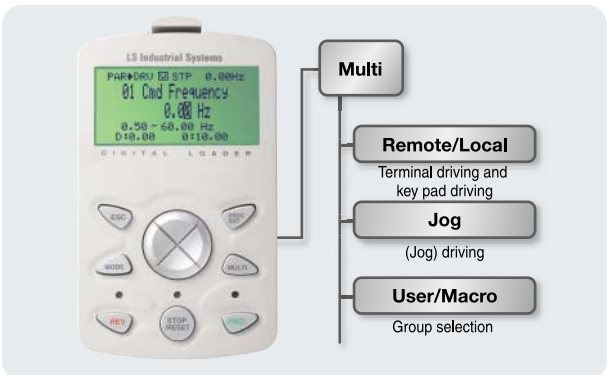
Efficient architecture of 5-mode 15-parameter groups

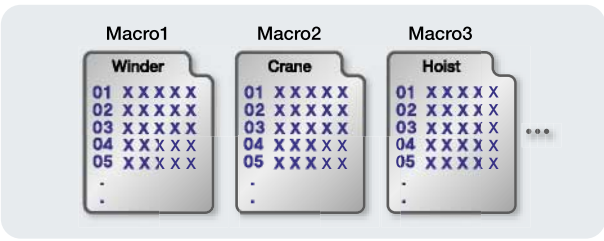


User & macro group support



Multi-function key





Protective functions dedicated motor control

Model and Type

Applied motors	220V class	400V class
0.75kW	SV0008 iS7-2NOFD	SV0008 iS7-4NOFD
1.5kW	SV0015 iS7-2NOFD	SV0015 iS7-4NOFD
2.2kW	SV0022 iS7-2NOFD	SV0022 iS7-4NOFD
3.7kW	SV0037 iS7-2NOFD	SV0037 iS7-4NOFD
5.5kW	SV0055 iS7-2NOFD	SV0055 iS7-4NOFD
7.5kW	SV0075 iS7-2NOFD	SV0075 iS7-4NOFD
11kW	SV0110 iS7-2NOFD	SV0110 iS7-4NOFD
15kW	SV0150 iS7-2NOFD	SV0150 iS7-4NOFD
18.5kW	SV0185 iS7-2NOFD	SV0185 iS7-4NOFD
22kW	SV0220 iS7-2NOFD	SV0220 iS7-4NOFD
30kW		SV0300 iS7-4NOD
37kW		SV0370 iS7-4NOD
45kW		SV0450 iS7-4NOD
55kW		SV0550 iS7-4NOD
75kW		SV0750 iS7-4NOD
90kW		SV0900 iS7-4SOD
110kW		SV1100 iS7-4SOD
132kW		SV1320 iS7-4SOD
160kW		SV1600 iS7-4SOD

SV	008	iS7	-	2	N	O	F	D

SV — LS Inverter Starvert Series

008 — Capacity of Applied Motor

0008	0.75 [kW]
0015	1.5 [kW]
0022	2.2 [kW]
0037	3.7 [kW]
0055	5.5 [kW]
0075	7.5 [kW]
0110	11 [kW]
0150	15 [kW]
0185	18.5 [kW]
0220	22 [kW]
0300	30 [kW]
0370	37 [kW]
0450	45 [kW]
0550	55 [kW]
0750	75 [kW]
0900	90[kW]
1100	110[kW]
1320	132[kW]
1600	160[kW]

iS7 — Series Name: Wide-Use Inverter

2 — Input Voltage

2	3-Phase 200~230[V]
4	3-Phase 380~480[V]

N — Keypad

N	NON
S	GLCD (Graphic Loader)

O — UL

O	Open
E	Enclosed UL Type1
P	Enclosed UL Type12

F — Filter

Blank	NON
F	EMC Filter

D — DCR

Blank	NON
D	DCR

Specification

■ Rated Input and Output: Input voltage of 200V class (0.75~22kW)

Type: SV□□□ iS7-2□			0008	0015	0022	0037	0055	0075	0110	0150	0185	0220
Motor Applied *1)		[HP]	1	2	3	5	7.5	10	15	20	25	30
		[kW]	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22
Rated Output	Rated Capacity [kVA] *2)		1.9	3.0	4.5	6.1	9.1	12.2	17.5	22.9	28.2	33.5
	Rated Current [A] *3)	CT	5	8	12	16	24	32	46	60	74	88
		VT	8	12	16	24	32	46	60	74	88	124
	Output Frequency [Hz]		0 ~ 400 [Hz] *4)									
	Output Voltage [V]		3-phase 200 ~ 230V *5)									
Rated Input	Available Voltage [V]		3-phase 200 ~ 230 VAC (-15% ~ +10%)									
	Frequency [Hz]		50 ~ 60 [Hz] (±5%)									
	Rated Current [A]	CT	8.3	12.9	18.6	24	32.9	41.4	58	69	88	96
		VT	7	10.6	14.8	21.5	28	42	52	60	75	107

■ Rated Input and Output: Input voltage of 400V class (0.75~22kW)

Type: SV□□□ iS7-2□			0008	0015	0022	0037	0055	0075	0110	0150	0185	0220
Motor Applied *1)		[HP]	1	2	3	5	7.5	10	15	20	25	30
		[kW]	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5	22
Rated Output	Rated Capacity [kVA] *2)		1.9	3.0	4.5	6.1	9.1	12.2	18.3	22.9	29.7	34.3
	Rated Current [A] *3)	CT	2.5	4	6	8	12	16	24	30	39	45
		VT	4	6	8	12	16	24	30	39	45	61
	Output Frequency [Hz]		0 ~ 400 [Hz] *4)									
	Output Voltage [V]		3-phase 380 ~ 480V *5)									
Rated Input	Available Voltage [V]		3-phase 380 ~ 480 VAC (-15% ~ +10%)									
	Frequency [Hz]		50 ~ 60 [Hz] (±5%)									
	Rated Current [A]	CT	4.3	7.2	10.6	15.4	21	25.8	38.7	43.85	56.9	57.4
		VT	3.5	5.3	7.3	10.8	13.8	22.5	26.1	33.2	40	52.2

*1) Motor Applied indicates the maximum capacity of a standard 4 pole OTIS-LG motor.

*2) Rated Capacity: the input capacity of a 200V class is based on 220V and that of a 400V class is based on 440V. The current rating is based on CT current.

*3) The output of rated current is limited according to the setting of the carrier frequency (CON-04).

*4) You can set the frequency at up to 300Hz by selecting 3, 4 Sensorless-1, Sensorless-2 as the control mode (DRV-09 Control Mode).

*5) The maximum output voltage does not go over the supplied power voltage. You can select the output voltage as you want below the supplied power voltage.

Specifications

■ Rated Input and Output: Input voltage of 400V class (30~160kW)

Type: SV□□□ iS7-4□			0300	0370	0450	0550	0750	0900	1100	1320	1600	-
Motor Applied *1)		[HP]	40	50	60	75	100	120	150	180	225	-
		[kW]	30	37	45	55	75	90	110	132	160	-
Rated Output	Rated Capacity [kVA] *2)		46	57	69	84	116	139	170	201	248	-
	Rated Current [A] *3)	CT	61	75	91	110	152	183	223	264	325	-
		VT	75	91	110	152	183	223	264	325	370	-
	Output Frequency [Hz]		0 ~ 400 [Hz] (Sensorless-1: 0 ~ 300Hz, Sensorless-2, Vector: 0 ~ 120Hz) *4)									
	Output Voltage [V]		3-phase 380 ~ 480V *5)									
Rated Input	Available Voltage [V]		3-phase 380 ~ 480 VAC (-15% ~ +10%)									
	Frequency [Hz]		50 ~ 60 [Hz] (±5%)									
	Rated Current [A]	CT	57	69	83	113	154	195	239	286	362	-
		VT	90	109	123	162	195	237	282	350	403	-

*1) Motor Applied indicates the maximum capacity of a standard 4 pole OTIS-LG motor.

*2) Rated Capacity: the input capacity of a 200V class is based on 220V and that of a 400V class is based on 440V. The current rating is based on CT current.

*3) The output of rated current is limited according to the setting of the carrier frequency (CON-04).

*4) You can set the frequency at up to 300Hz by selecting 3, 4 Sensorless-1, Sensorless-2 as the control mode (DRV-09 Control Mode).

*5) The maximum output voltage does not go over the supplied power voltage. You can select the output voltage as you want below the supplied power voltage.

■ Control

Control Method	V/F control, V/F PG, slip compensation, sensorless vector control, vector control
Frequency Setting Resolution	Digital command: 0.01Hz Analog command: 0.06Hz (maximum frequency: 60Hz)
Frequency Tolerance	Digital command operation: 0.01% of the maximum frequency Analog command operation: 0.1% of the maximum frequency
V/F Pattern	Linear, double reduction, user V/F
Overload Capacity	CT current rating :150% for 1 minute, 200% for 22 seconds, VT current rating :110% for 1 minute
Torque Boost	Manual torque boost, automatic torque boost

Specifications

■ Specifications

Operating Method		Selectable among keypad/terminal block/communication operation	
Frequency Setting		Analog: 0 ~ 10[V], -10 ~ 10[V], 0 ~ 20[mA] Digital: keypad	
Operating Function		PID control, up-down operation, 3-wire operation, DC brake, frequency limit, frequency jump, second function, slip compensation, reverse rotation prevention, auto restart, inverter by-pass, auto tune flying start, energy buffering, power braking, flux braking, leakage current reduction, MMC, easy start	
Input	Multi-function terminal (8 points) P1 ~ P81 *1)	NPN / PNP selectable	
		Function: forward operation; reverse operation; reset; external trip; emergency stop; jog operation; sequential frequency-high; medium and low; multi-level acceleration and deceleration-high; medium and low; D.C. control during stop; selection of a second motor; frequency increase; frequency decrease; 3-wire operation; change to general operation during PID operation; main body operation during option operation; analog command frequency fixation; acceleration and deceleration stop selectable	
Output	Multi-function open collector terminal	Inverter fault output	Below DC 24V 50mA
	Multi-function relay terminal		Below (N.O., N.C.) AC250V 1A, Below DC 30V 1A
	Analog output	0 ~ 10 Vdc (below 10mA): selectable from frequency, current, voltage, direct current voltage	

*1) The Functions for Multi-function terminal available according to IN-65~72 parameter setting of IN Group.

■ Protective Functions

Trip	Over voltage, low voltage, over current, over current detection, inverter overheat, motor thermal protection, phase loss protection, overload protection, communication error, frequency command loss, hardware failure, cooling fan failure, pre-PID failure, no motor trip, external brake trip. etc
Alarm	Stall prevention, overload, diminished load, encoder error, fan failure, keypad command loss, speed command loss.
Instantaneous Interruption *2)	Below CT class 15 msec (VT class 8 msec): operation continues (within rated input voltage, rated output) Over CT class 15 msec (VT class 8 msec): automatic restart

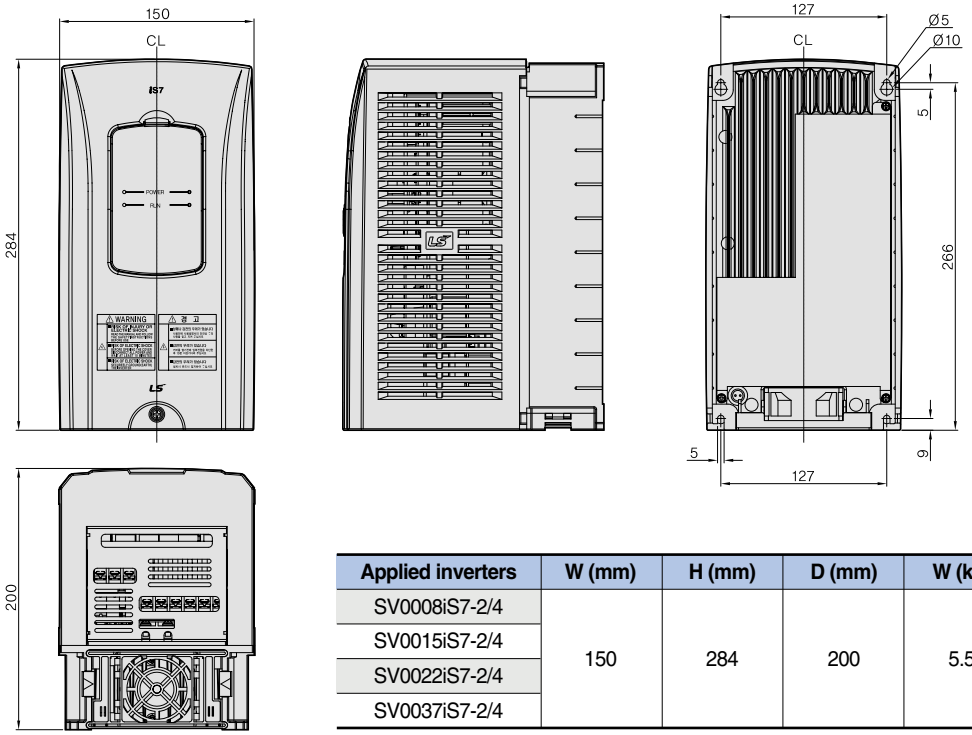
*2) Operation at the CT (Heavy Duty) current rating

■ Structure and Use Environment

Cooling Method	Forced air blast cooling: 0.75 ~ 15kW (200/400V class), 22kW (400V class) Inhalation cooling: 22kW (200V class), 30 ~ 160kW (400V class)
Protection Structure	Below 75kW: Open Type(IP21), UL Enclosed Type 1(Option) Over 90kW: Open Type(IP20), UL Enclosed Type 1(Option)
Surrounding Temperature	CT (Heavy Duty) load: -10 ~ 50°C (14 ~ 122°F) with no ice or frost VT (Normal Duty) load: -10~ 40°C (14 ~ 122°F) with no ice or frost (It is recommended that you use less than 80% load when you use VT load at 50°C (122°F))
Preservation Temperature	-20 ~ 65°C (-4 ~ 149°F)
Surrounding Humidity	Below 90% RH of relative humidity (with no dew formation)
Altitude, Vibration	Below 1,000m (3280 ft), below 5.9m/sec 2 (19.36 ft/sec 2, 0.6G)
Environment	There should be no corrosive gas, flammable gas, oil mist or dust.

Dimensions

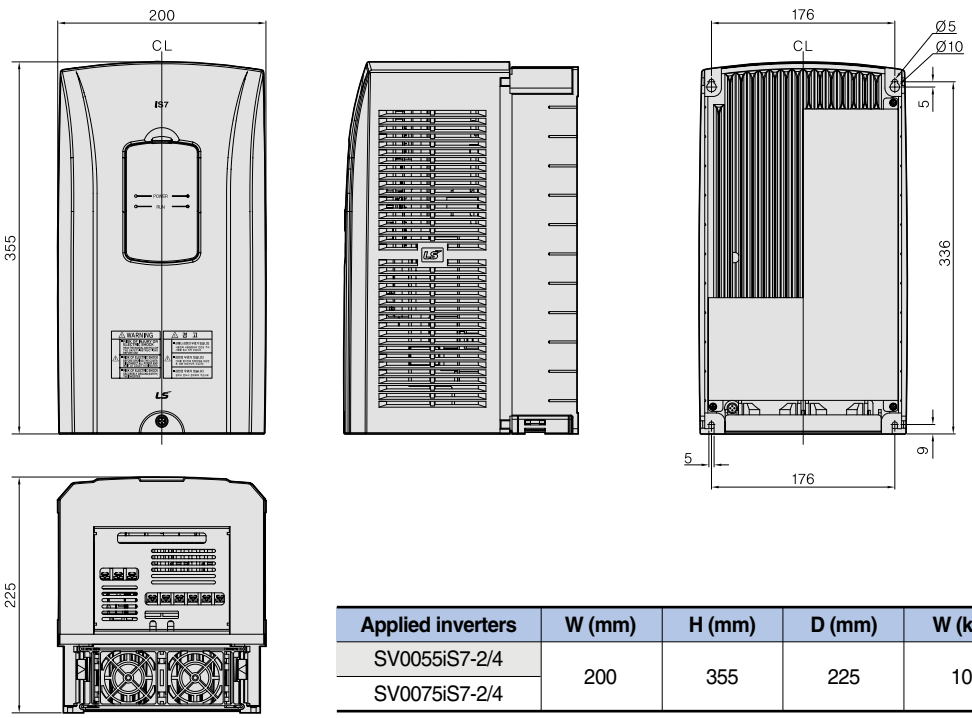
■ SV0008 ~ 0037iS7 (200V/400V)



Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0008iS7-2/4	150	284	200	5.5
SV0015iS7-2/4				
SV0022iS7-2/4				
SV0037iS7-2/4				

* The weight above represents the total weight including EMC filter and DCL.

■ SV0055 ~ 0075iS7 (200V/400V)

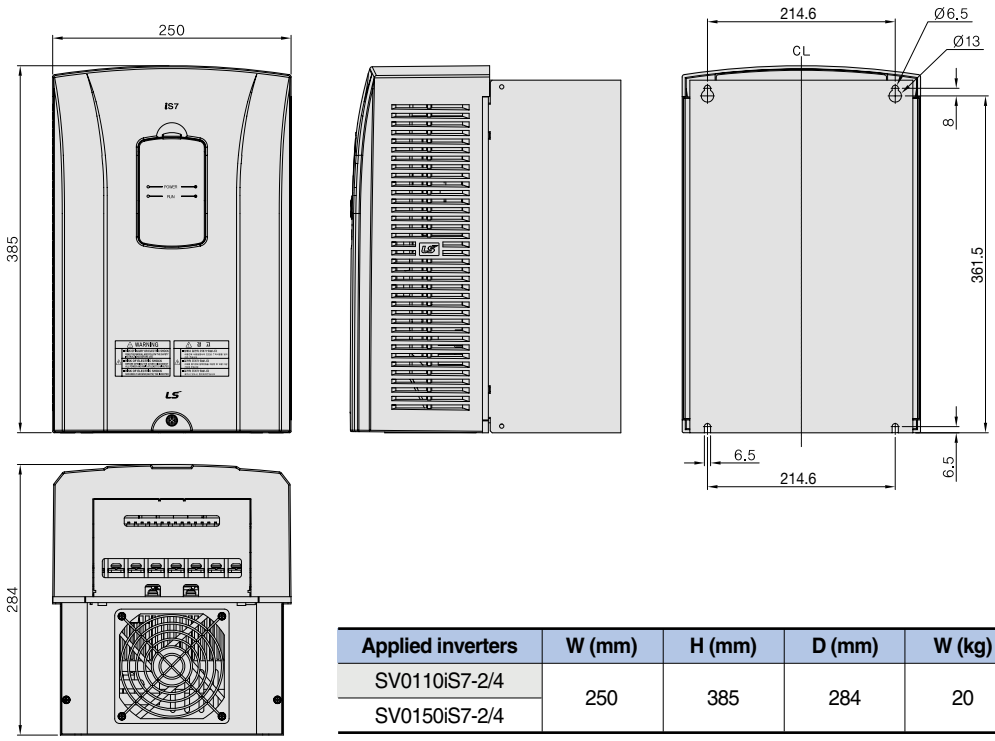


Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0055iS7-2/4	200	355	225	10
SV0075iS7-2/4				

* The weight above represents the total weight including EMC filter and DCL.

Dimensions

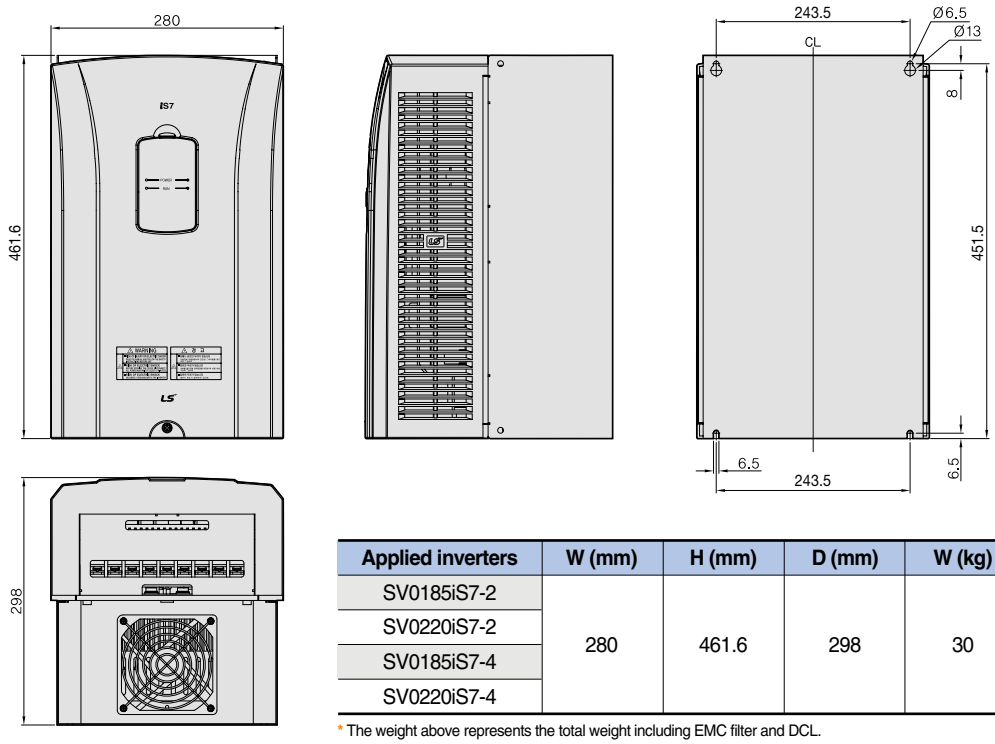
■ SV0110 ~ 0150iS7 (200V/400V)



Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0110iS7-2/4	250	385	284	20
SV0150iS7-2/4				

* The weight above represents the total weight including EMC filter and DCL.

■ SV0185 ~ 0220iS7 (200V/400V)

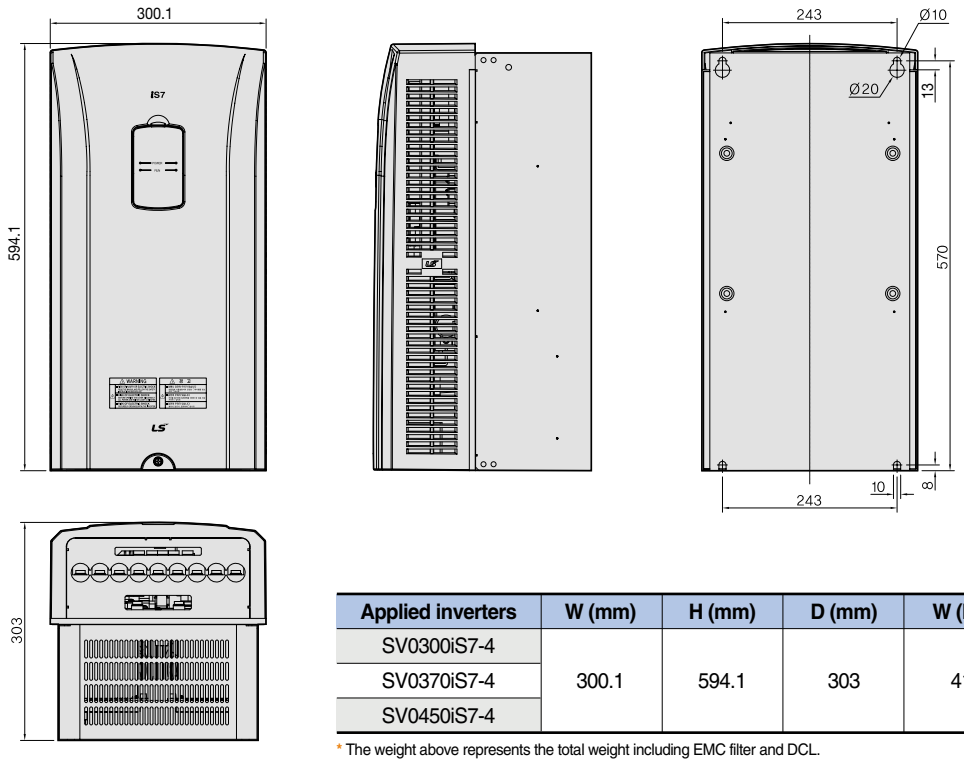


Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0185iS7-2	280	461.6	298	30
SV0220iS7-2				
SV0185iS7-4				
SV0220iS7-4				

* The weight above represents the total weight including EMC filter and DCL.

Dimensions

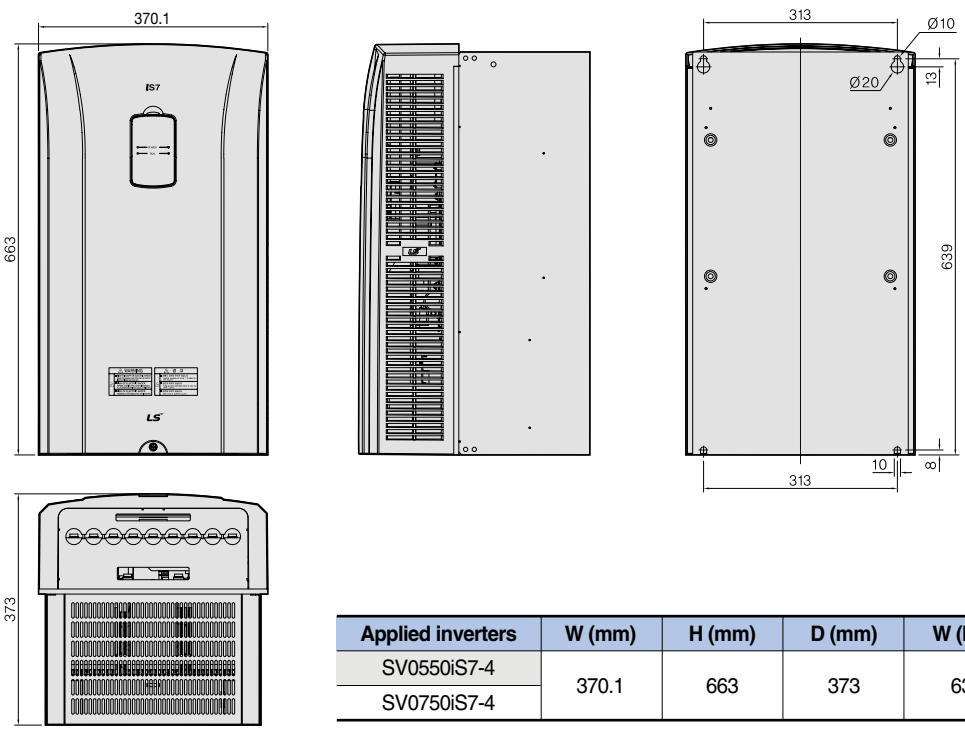
■ SV0300 ~ 0450iS7 (400V)



Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0300iS7-4	300.1	594.1	303	41
SV0370iS7-4				
SV0450iS7-4				

* The weight above represents the total weight including EMC filter and DCL.

■ SV0550 ~ 0750iS7 (400V)

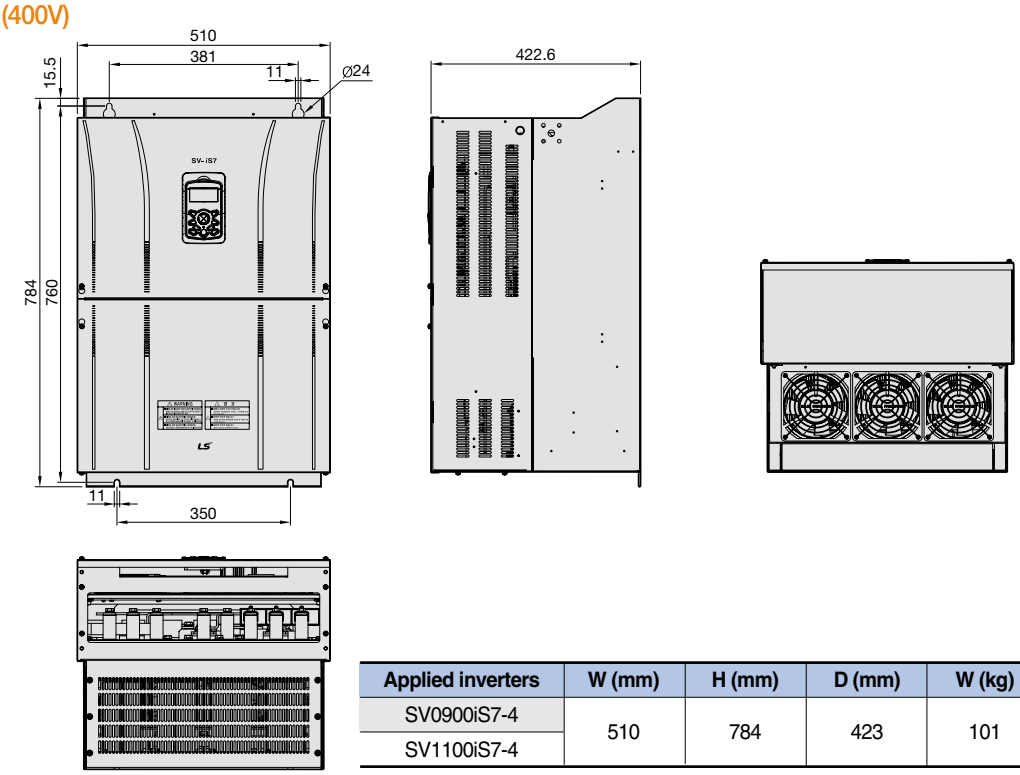


Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0550iS7-4	370.1	663	373	63
SV0750iS7-4				

* The weight above represents the total weight including EMC filter and DCL.

Dimensions

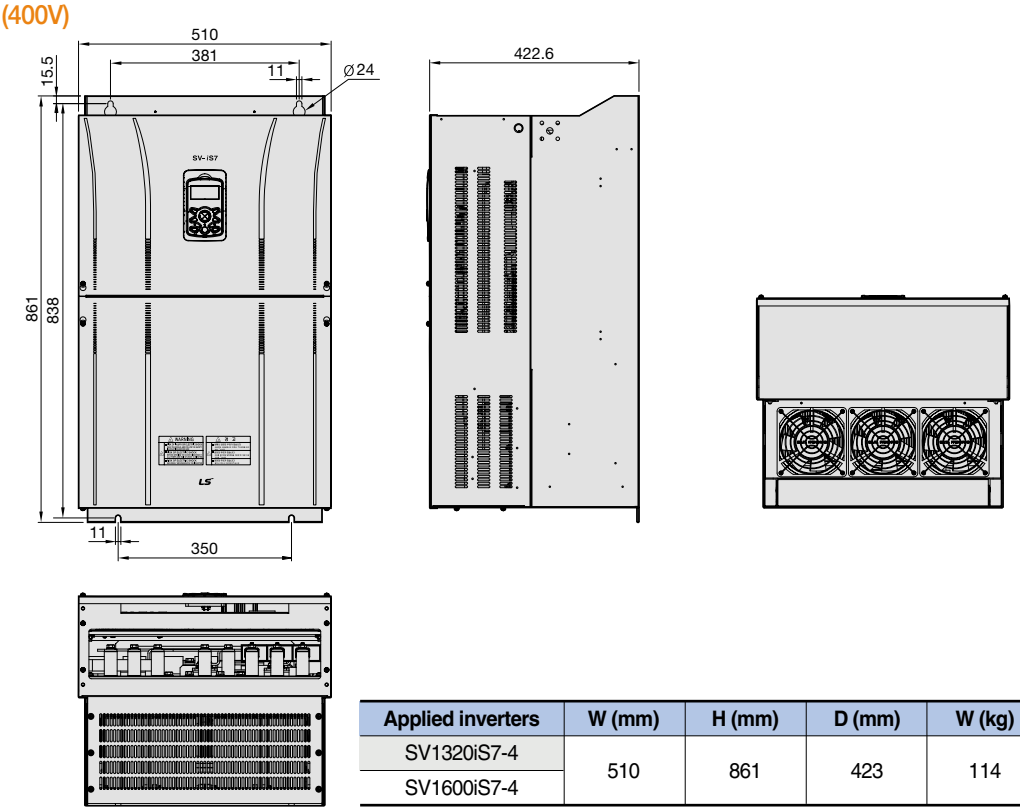
■ SV0900 ~ 1100iS7 (400V)



Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0900iS7-4	510	784	423	101
SV1100iS7-4				

* The weight above represents the total weight including EMC filter and DCL.

■ SV1320 ~ 1600iS7 (400V)

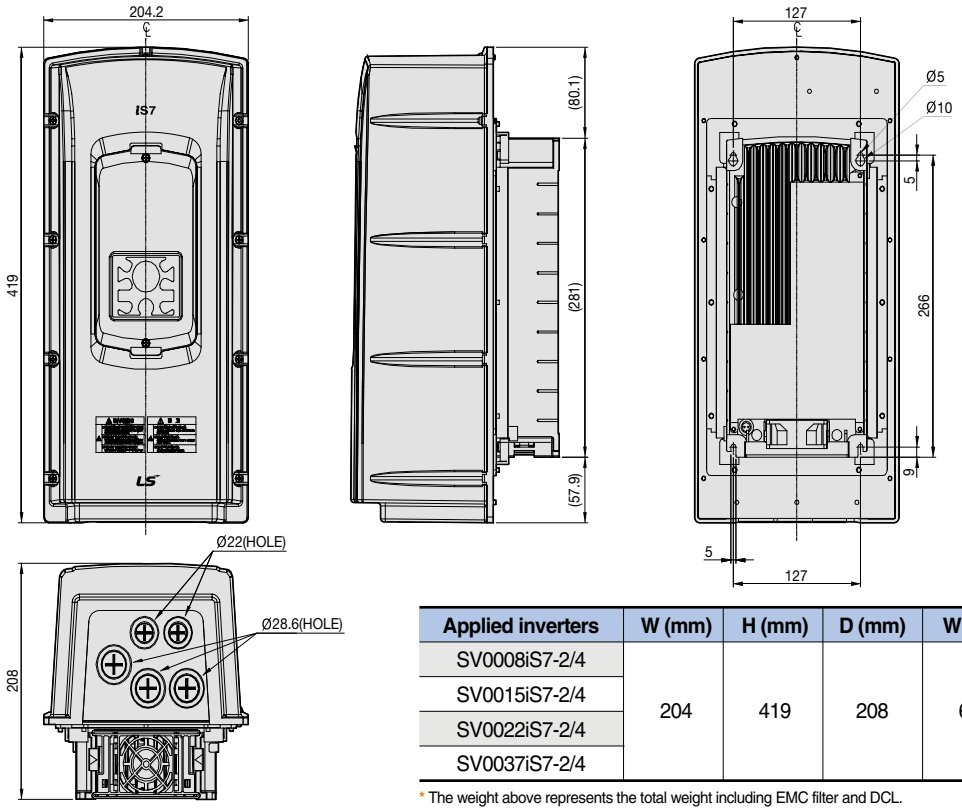


Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV1320iS7-4	510	861	423	114
SV1600iS7-4				

* The weight above represents the total weight including EMC filter and DCL.

Dimensions

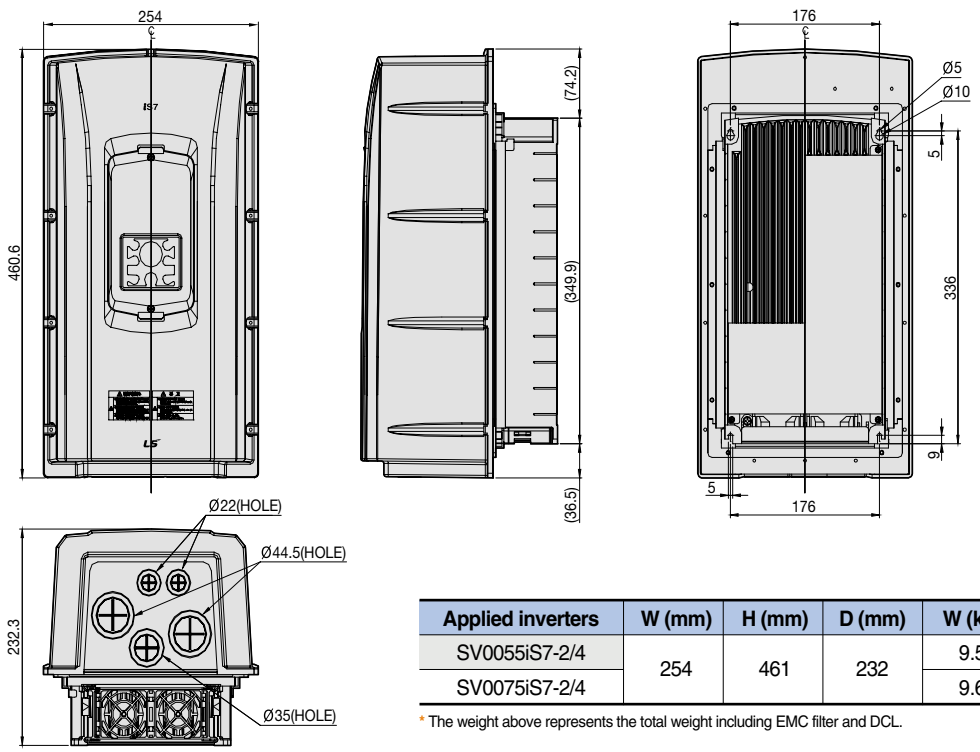
■ SV0008 ~ 0037iS7 (200V/400V)



Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0008iS7-2/4	204	419	208	6.7
SV0015iS7-2/4				
SV0022iS7-2/4				
SV0037iS7-2/4				

* The weight above represents the total weight including EMC filter and DCL.

■ SV0055 ~ 0075iS7 (200V/400V)

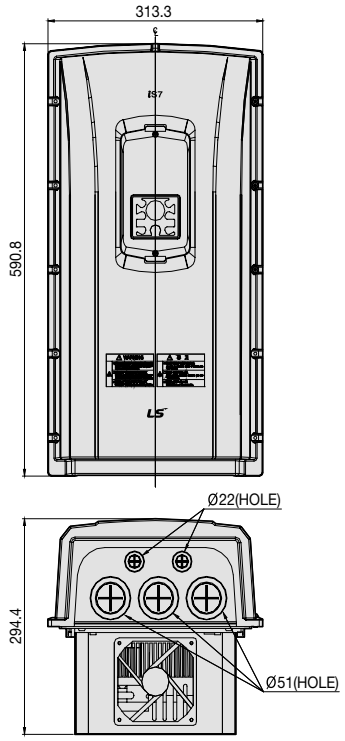


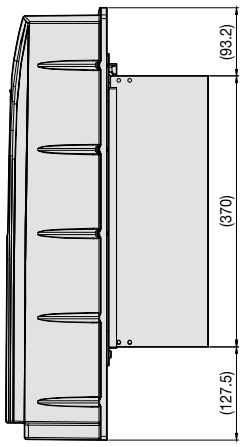
Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0055iS7-2/4	254	461	232	9.5
SV0075iS7-2/4				9.6

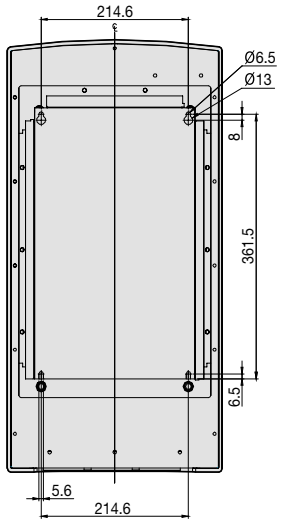
* The weight above represents the total weight including EMC filter and DCL.

Dimensions

■ SV0110 ~ 0150iS7 (200V/400V)



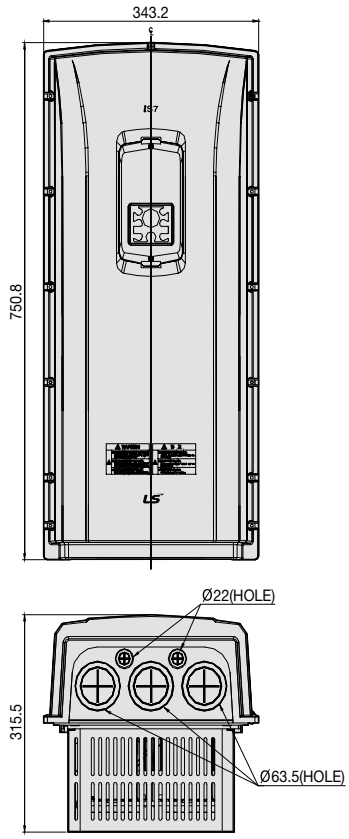


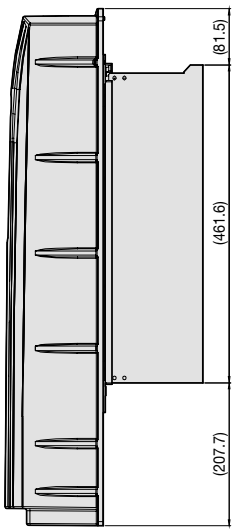


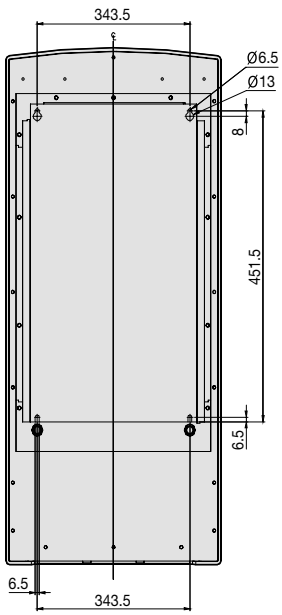
Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0110iS7-2/4	313	591	294	19.6
SV0150iS7-2/4				19.9

* The weight above represents the total weight including EMC filter and DCL.

■ SV0185 ~ 0220iS7 (200V/400V)







Applied inverters	W (mm)	H (mm)	D (mm)	W (kg)
SV0185iS7-2	343	571	316	29.9
SV0220iS7-2				
SV0185iS7-4				27.1
SV0220iS7-4				

* The weight above represents the total weight including EMC filter and DCL.

Leading Innovation, Creating Tomorrow

Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technicians when you need maintenance.
  Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

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Specifications in this catalog are subject to change without notice due to continuous product development and improvement.

Global Network

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