

## 2. Product Information

### 2.1 Products Label and Model Designation

EM15 - T 3 - 7d5  
 ①            ②   ③            ④

①	EM15 Series Frequency Inverter
②	Products Type: T: Synchronous motors use
③	Voltage range: 2: Three phase 220V 3: Three phase 380V 4: Three phase 480V
④	Adaptable motor: 7d5: 7.5KW ;011: 11KW

Diagram 2-1 Products Label and Designation rules

#### 2.1.1 Product appearance

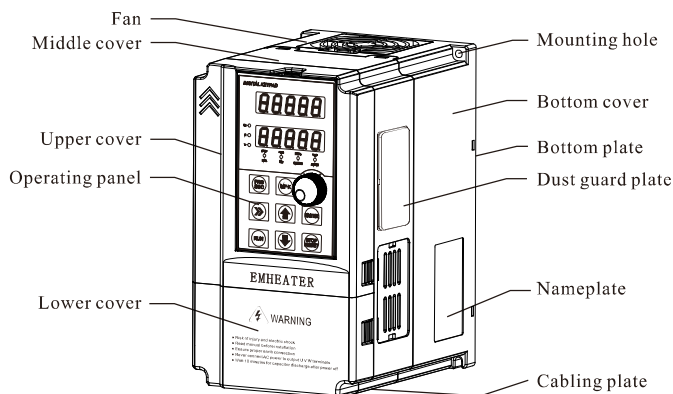


Diagram 2-2 Nameplate

The housing types of the EM15 models are listed in the following table:

	Plastic	Sheet metal
<b>3PH 220V</b>	2.2kW~11kW	15kW~250kW
<b>3PH 380V</b>	0.75kW~22kW	30kW~500kW
<b>3PH 480V</b>	0.75kW~22kW	30kW~500kW

## 2.2 Technical Specifications

Input & Output	<ul style="list-style-type: none"> <li>● <b>Input Voltage:</b> 220V/380V/480V±15%</li> <li>● <b>Input Frequency:</b> 47~63Hz</li> <li>● <b>Input Frequency Resolution:</b> 0.01Hz (Digital setting); maximum frequency×0.025% (Analog setting)</li> <li>● <b>Output Voltage:</b> 0~Rated input voltage</li> <li>● <b>Output Frequency:</b> 0~320Hz(SFC); 0~3200Hz (V/F)</li> </ul>
Technical Performance	<ul style="list-style-type: none"> <li>● <b>Control Mode:</b> Sensor-less vector control(SVC); Closed-loop vector control (FVC); Voltage/Frequency (V/F) control</li> <li>● <b>Carrier Frequency:</b> 0.5kHz~16kHz</li> <li>● <b>Startup Torque:</b> G type: 0.5Hz/150% (FVC); 0Hz/180%(FVC); P type: 0.5Hz/100%</li> <li>● <b>Speed Range:</b> 1:100(SVC);1:1000(FVC)</li> <li>● <b>Speed Stability Accuracy:</b> ±0.5%(SVC);±0.02%(FVC)</li> <li>● <b>Torque Control Accuracy:</b> ±5%(FVC)</li> <li>● <b>Overload Capacity:</b> G type:150% rated current 60s; 180% rated current 3s; P type: 120% rated current 60s;150% rated current 3s.</li> <li>● <b>Torque Boost:</b> Auto boost; Manual boost 0.1%~30.0%</li> <li>● <b>DC braking:</b> 0.00Hz~maximum frequency (DC braking frequency); 0.0s~36.0s(Braking time); 0.0%~100.0%( Braking trigger current value)</li> </ul>
Individualized Functions	<ul style="list-style-type: none"> <li>● <b>Built-in Simple PLC / Multiple Speeds:</b> It realizes up to 16 speeds via the simple PLC function or combination of DI terminal states.</li> <li>● <b>Built-in PID:</b> It realizes closed loop control system easily.</li> <li>● <b>Auto voltage regulation (AVR):</b> It can keep constant output voltage automatically when the mains voltage fluctuation</li> <li>● <b>Overvoltage/ Overcurrent Stall Control:</b> The current and voltage are limited automatically during the running process so as to avoid frequently tripping due to overvoltage / over current.</li> <li>● <b>Rapid Current Limit:</b> To avoid frequently over current faults of the frequency inverter.</li> <li>● <b>Torque Limit and Control:</b> It can limit the torque automatically and prevent frequently over current tripping during the running process. Torque control can be implemented in the VC mode.</li> <li>● <b>High Performance:</b> Control of asynchronous motor is implemented through the high-performance current vector control technology.</li> <li>● <b>Virtual I/O:</b> Five groups of virtual DI/DO can realize simple logic control.</li> <li>● <b>Timing Control:</b> Time range: 0.0~6500.0 minutes</li> <li>● <b>Motor Overheat Protection:</b> The optional I/O extension card enables AI3 to receive the motor temperature sensor input (PT100, PT1000) so as to realize motor overheat protection.</li> <li>● <b>Multiple Encoder Types:</b> It supports differential encoder, open-collector encoder</li> <li>● <b>Protection Mode:</b> Motor short-circuit detection after power-on, input/output phase loss protection, over current and overvoltage protection, less voltage protection, overheat protection and overload protection,etc</li> </ul>
External Interface	<ul style="list-style-type: none"> <li>● <b>Running Command Giving:</b> key panel; Control terminals; Serial communication port; You can switch between these giving in various ways.</li> <li>● <b>Frequency Giving:</b> There are 10 kinds frequency giving: digital setting, analog voltage setting, analog current setting, pulse setting and serial communication port setting.</li> <li>● <b>Programmable Digital Input:</b> 6 digital input (DI) terminals, one of which supports up to 100 kHz high-speed pulse input</li> <li>● <b>Programmable Analog Input:</b> 3 analog input (AI) terminals, AI1,AI2 support 0V~10 V or 0mA~20mA input, AI3 support -10V~+10V</li> <li>● <b>Programmable Open Collector Output:</b> 1 FMP output terminal, that supports 0~100 kHz square wave signal output (Can be used as DO output)</li> <li>● <b>Programmable Analog Output:</b>2 analog output (AO) terminals, both of them supports 0mA~20mA current output and 0V~10V voltage output.</li> <li>● <b>Relay Output:</b> 2 relay output terminal (2.2KW and below only have 1 relay output terminal)</li> </ul>
Environment	<ul style="list-style-type: none"> <li>● <b>Installation Location:</b> Indoor, no direct sunlight, dust, corrosive gas, combustible gas, oil smoke, vapour, drip or salt.</li> <li>● <b>Altitude:</b> Lower than 1000m</li> <li>● <b>Ambient Temperature:</b> -10°C~ +40°C (de-rated if the ambient temperature is between 40°C and 50°C)</li> <li>● <b>Humidity:</b> Less than 95%RH, without condensing</li> <li>● <b>Vibration:</b> Less than 5.9 m/s<sup>2</sup> (0.6 g)</li> <li>● <b>Storage Temperature:</b> -20°C ~ +60°C</li> </ul>

## 2.3 Model and Technical data

Model	Power Capacity (KVA)	Input Current (A)	Output Current (A)	Adaptable Motor	
				KW	HP
<b>Three phase 220V 50/60Hz</b>					
EM15-T2-2d2	5.9	10.5	9	2.2	3
EM15-T2-004	8.9	14.6	17	3.7	5
EM15-T2-5d5	17	26	25	5.5	7.5
EM15-T2-7d5	21	35	32	7.5	10
EM15-T2-011	30	46.5	45	11	15
EM15-T2-015	40	62	60	15	20
EM15-T2-018	57	76	75	18.5	25
EM15-T2-022	69	92	91	22	30
EM15-T2-030	85	113	112	30	40
EM15-T2-037	114	157	150	37	50
EM15-T2-045	134	180	176	45	60
EM15-T2-055	160	214	210	55	75
EM15-T2-075	231	307	304	75	100
<b>Three phase 380V 50/60Hz</b>					
EM15-G3-004/P3-5d5	8.9/11	14.6/20.5	9/13	3.7/5.5	5/7.5
EM15-G3-5d5/P3-7d5	11/17	20.5/26	13/17	5.5/7.5	7.5/10
EM15-G3-7d5/P3-011	17/21	26/35	17/25	7.5/11	10/15
EM15-G3-011/P3-015	21/24	35/38.5	25/32	11/15	15/20
EM15-G3-015/P3-018	24/30	38.5/46.5	32/37	15/18.5	20/25
EM15-G3-018/P3-022	30/40	46.5/62	37/45	18.5/22	25/30
EM15-G3-022/P3-030	40/57	62/76	45/60	22/30	30/40
EM15-G3-030/P3-037	57/69	76/92	60/75	30/37	40/50
EM15-G3-037/P3-045	69/85	92/113	75/91	37/45	50/60
EM15-G3-045/P3-055	85/114	113/128	91/112	45/55	60/75
EM15-G3-055/P3-075	114/134	128/157	112/150	55/75	75/100
EM15-G3-075/P3-090	134/160	157/180	150/176	75/90	100/125
EM15-G3-090/P3-110	160/192	180/214	176/210	90/110	125/150
EM15-G3-110/P3-132	192/231	214/256	210/253	110/132	150/200
EM15-G3-132/P3-160	231/250	256/307	253/304	132/160	200/250
EM15-G3-160/P3-200	250/280	307/385	304/377	160/200	250/280
EM15-G3-200/P3-220	280/355	385/430	377/426	200/220	280/300
EM15-G3-220/P3-250	355/396	430/468	426/465	220/250	300/370
EM15-G3-250/P3-280	396/445	468/525	465/520	250/280	370/400
EM15-G3-280/P3-315	445/500	525/590	520/585	280/315	400/420
EM15-G3-315/P3-355	500/560	590/665	585/650	315/355	420/500
EM15-G3-355	560	665	650	355	500
EM15-G3-400	630	785	725	400	530
EM15-G3-450	800	883	820	450	600
<b>Three phase 480V 50/60Hz</b>					
EM15-T4-004	8.9/11	14.6/20.5	9/13	3.7/5.5	5/7.5

Model	Power Capacity (KVA)	Input Current (A)	Output Current (A)	Adaptable Motor	
				KW	HP
EM15-T4-5d5	11/17	20.5/26	13/17	5.5/7.5	7.5/10
EM15-T4-7d5	17/21	26/35	17/25	7.5/11	10/15
EM15-T4-011	21/24	35/38.5	25/32	11/15	15/20
EM15-T4-015	24/30	38.5/46.5	32/37	15/18.5	20/25
EM15-T4-018	30/40	46.5/62	37/45	18.5/22	25/30
EM15-T4-022	40/57	62/76	45/60	22/30	30/40
EM15-T4-030	57/69	76/92	60/75	30/37	40/50
EM15-T4-037	69/85	92/113	75/91	37/45	50/60
EM15-T4-045	85/114	113/128	91/112	45/55	60/75
EM15-T4-055	114/134	128/157	112/150	55/75	75/100
EM15-T4-075	134/160	157/180	150/176	75/90	100/125
EM15-T4-090	160/192	180/214	176/210	90/110	125/150
EM15-T4-110	192/231	214/256	210/253	110/132	150/200
EM15-T4-132	231/250	256/307	253/304	132/160	200/250
EM15-T4-160	250/280	307/385	304/377	160/200	250/280
EM15-T4-200	280/355	385/430	377/426	200/220	280/300
EM15-T4-220	355/396	430/468	426/465	220/250	300/370
EM15-T4-250	396/445	468/525	465/520	250/280	370/400
EM15-T4-280	445/500	525/590	520/585	280/315	400/420
EM15-T4-315	500/560	590/665	585/650	315/355	420/500
EM15-T4-355	560	665	650	355	500
EM15-T4-400	630	785	725	400	530
EM15-T4-450	800	883	820	450	600

## 2.4 Product appearance and installation dimension

### 2.4.1 Appearance and Installation Hole Dimension (mm)

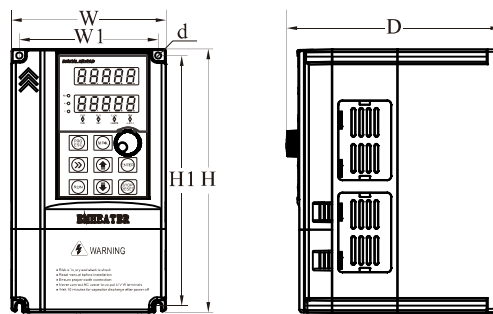


Diagram 2-3 Three phase 4~22kW Wall-mounted installation dimensions

Matching inverter		Appearance and installing dimension (Unit: mm)					
Voltege	Power Range	W	W1	H	H1	D	d
3PH 380V	4~5.5kW	120	108	205	195	166	Φ4.5
3PH 480V	4~5.5kW						
3PH 220V	4~5.5kW	162	148	250	238	191	Φ5.5
3PH 380V	7.5~11kW						
3PH 480V	7.5~11kW						

Matching inverter		Appearance and installing dimension (Unit: mm)					
Voltege	Power Range	W	W1	H	H1	D	d
3PH 220V	7.5~11kW	223	207	323	307	207	Φ5.5
3PH 380V	15~22kW						
3PH 480V	15~22kW						

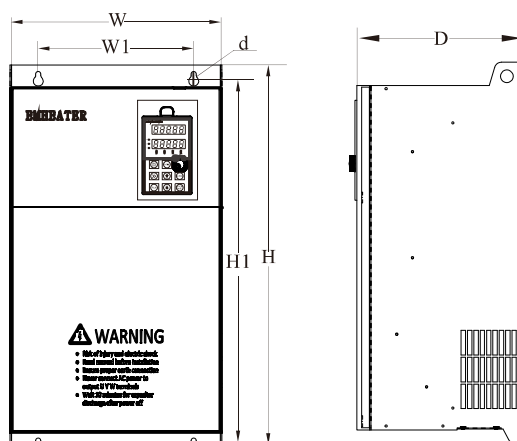


Diagram 2-4 Three phase 30~500kW Wall-mounted installation dimensions

Matching inverter		Appearance and installing dimension (Unit: mm)					
Voltege	Power Range	W	W1	H	H1	D	d
3PH 220V	15~18.5kW	300	220	540	500	240	Φ7
3PH 380V	30~37kW						
3PH 480V	30~37kW						
3PH 220V	22~30kW	340	260	580	540	270	Φ10
3PH 380V	45~55kW						
3PH 480V	45~55kW						
3PH 220V	37~45kW	410	260	610	575	280	Φ12
3PH 380V	75~90kW						
3PH 480V	75~90kW						
3PH 220V	55kW	460	320	710	690	335	Φ12
3PH 380V	110~132kW						
3PH 480V	110~132kW						
3PH 220V	75kW	535	360	885	830	370	Φ12
3PH 380V	160~220kW						
3PH 480V	160~220kW						
3PH 380V	250~315kW	650	360	1040	985	415	Φ12
3PH 480V	250~315kW						
3PH 380V	355~500kW	815	600	1350	1250	445	Φ12
3PH 480V	355~500kW						

Occasionally braking load---- 5%

Other machine generally-----10%

Table 2-5 EM15 Inverter braking components selection table

Inverter Power	Recommend power of braking resistor	Recommend resistance value of braking resistor	Braking unit	Remarks
<b>Three phase 220V</b>				
EM15-T2-2d2	300W	$\geq 65\Omega$	Built-in as standard	No special instructions
EM15-T2-004	400W	$\geq 45\Omega$		
EM15-T2-5d5	800W	$\geq 22\Omega$		
EM15-T2-7d5	1000W	$\geq 16\Omega$		
EM15-T2-011	1500W	$\geq 11\Omega$		
EM15-T2-015	2500W	$\geq 8\Omega$	External	No special instructions
EM15-T2-018	3.7 kW	$\geq 8.0\Omega$		
EM15-T2-022	4.5 kW	$\geq 8\Omega$		
EM15-T2-030	5.5 kW	$\geq 4\Omega$		
EM15-T2-037	7.5 kW	$\geq 4\Omega$		
EM15-T2-045	4.5 kW×2	$\geq 4\Omega\times 2$		
EM15-T2-055	5.5 kW×2	$\geq 4\Omega\times 2$		
EM15-T2-075	16kW	$\geq 1.2\Omega$		
<b>Three phase 380V/480V</b>				
EM15-T3-004	150W	$\geq 300\Omega$	Built-in as standard	No special instructions
EM15-T3-5d5	150W	$\geq 220\Omega$		
EM15-T3-7d5	250W	$\geq 200\Omega$		
EM15-T3-011	300W	$\geq 130\Omega$		
EM15-T3-015	400W	$\geq 90\Omega$		
EM15-T3-018	500W	$\geq 65\Omega$		
EM15-T3-022	800W	$\geq 43\Omega$		
EM15-T3-030	1000W	$\geq 32\Omega$		
EM15-T3-037	1300W	$\geq 25\Omega$		
EM15-T3-045	1500W	$\geq 22\Omega$		
EM15-T3-055	2500W	$\geq 16\Omega$	External	No special instructions
EM15-T3-075	3.7 kW	$\geq 16.0\Omega$		
EM15-T3-090	4.5 kW	$\geq 16\Omega$		
EM15-T3-110	5.5 kW	$\geq 8\Omega$		
EM15-T3-132	7.5 kW	$\geq 8\Omega$		
EM15-T3-160	4.5 kW×2	$\geq 8\Omega\times 2$		
EM15-T3-200	5.5 kW×2	$\geq 8\Omega\times 2$		
EM15-T3-220	6.5 kW×2	$\geq 8\Omega\times 2$		
EM15-T3-250	16kW	$\geq 2.5\Omega$		
EM15-T3-280	20 kW	$\geq 2.5\Omega$		
EM15-T3-315	22 kW	$\geq 2.5\Omega$		
EM15-T3-355	12.5 kW×2	$\geq 2.5\Omega\times 2$		
EM15-T3-400	14kW×2	$\geq 2.5\Omega\times 2$		

Inverter Power	Recommend power of braking resistor	Recommend resistance value of braking resistor	Braking unit	Remarks
EM15-T3-450	16kW×2	$\geq 2.5\Omega \times 2$		
EM15-T3-004	17kW×2	$\geq 2.5\Omega \times 2$		
EM15-T3-5d5	14 kW×3	$\geq 2.5\Omega \times 3$		
EM15-T3-7d5	16 kW×3	$\geq 2.3\Omega \times 3$		

### 2.6.3 Braking resistor connection description

The braking resistor connection of EM15 series frequency inverter is showed as below:

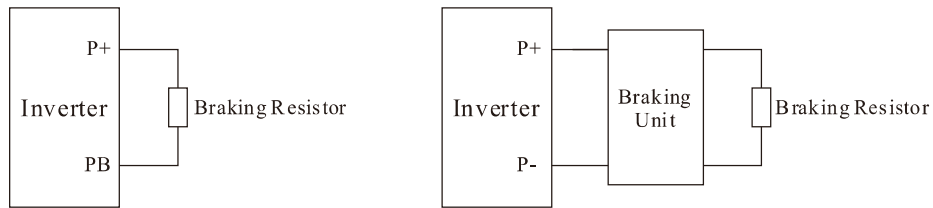


Diagram 2-6 Braking resistor connection scheme