MEGMEET

MEGMEET

Shenzhen SC: 002851

MV800L Series

AC Drive for Cranes

Power Solutions

☐ Telecom Power ☐ Server Power ☐ Electric Power ☐ Medical Power ☐ Display Power ☐ LED Power
☐ Laser Power ☐ OA Power ☐ Flat Panel Power ☐ Bi-directional Inverters for Portable Power
☐ Solar & BESS & EV Charging Solution

Industry Automation

☐ Servo System ☐ Control System ☐ Elevator Controller ☐ Linear Motors ☐ IOT Solution ☐ Encoder
■ Variable Frequency Drive ☐ Internal Gear Pump

New Energy Solutions

☐ Multiplexed EV Charging System(OBC & DC-DC) ☐ Power Electronic Unit(2-in-1, 3-in-1)
☐ E-Compressor ☐ TV EDU ☐ Motor Control Unit ☐ Construction Machinery Controller
☐ Intelligent Active Hydraulic Suspension (i-AHS) ☐ Railway A/C Controller ☐ Railway VFD
☐ Light Electric Vehicle Controller ☐ Thermal Mgmt. System

Home Appliance Control Solutions

☐ Residential A/C Controller ☐ Commercial A/C Controller ☐ Heat Pump Controller
☐ Vehicle A/C Controller ☐ Solar A/C Controller ☐ Mini Compressor Controller
☐ Refrigerator Controller ☐ Washer/Dryer Controller ☐ Residential Microwave
☐ Industrial Microwave ☐ Smart Bidet ☐ RF Thawing System

Precision Connection

☐ FFC ☐ FPC ☐ Coaxial Cable ☐ CCS ☐ Litz Wire ☐ Peek Wire

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Version: 202502

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Megmeet

Global Leading Solution Provider In Electrical Automation

ABOUT MEGMEET

MEGMEET is a comprehensive solution provider for hardware and software R&D, production, sales, and service in the field of electrical automation. With power electronics and automation control at its core, MEGMEET's main businesses include Power Solutions, Industrial Automation, New Energy Solutions, Intelligent Equipment, Home Appliance Control Solutions, and Precision Connection.

MEGMEET has established a robust R&D, manufacturing, marketing, and service platform, with over 7,600 employees worldwide. MEGMEET's global presence includes R&D Centers in China, Germany, and the United States; Manufacturing Centers in Thailand, India, and China; and Regional Offices across North America, Europe, and Asia.

MEGMEET is committed to creating a cleaner living environment for all human beings through more efficient energy utilization and improved manufacturing efficiency. MEGMEET aims to become the world leader in electrical automation and achieve the goal of MEGMEET EVERYWHERE.

2800+
R&D Staff

10
R&D Centers

9
R&D Manufacturing Bases

7600+
Total Employees

1990+
No. of Patents & IP Rights

P01 MV800L Series AC Drive for Cranes

R&D CAPABILITY

Sustainable R&D Investment

R&D Investment

R&D Employees
>2800

Percentage of Total Employees
36%

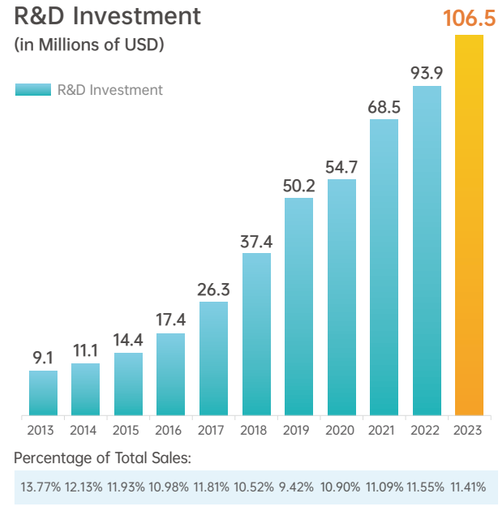
Percentage of Total Sales
>11%

Patents & Industry Standards

No. of Patents & IP Rights
1990+
150+ new in 2023

National & International standards
32
- 9 lead author

Industry Standards Drafted
38
- 28 lead author



Testing Capabilities & Management System

MEGMEET's testing capabilities and management system have been certified by CNAS, TUV, UL-WTDP, & UL-CTF. MEGMEET's test results are recognized globally.

MV800L Series
AC Drive for Cranes

MV800L is an industry-specific AC drive developed to meet the special requirements of the crane market.

Safety is paramount in the lifting industry. As a key part in the drive system, MV800L has been thoroughly designed and verified for safety in aspects such as component selection, redundancy design, logic design, and fault protection. Unlike drives that are used in factories, the drive for cranes is often exposed to harsh environments outdoors, such as power grid fluctuations, lightning strikes, extreme weather, vibration and transportation, which entails durability and reliability. Considering this, we reinforced the drive's ability to resist humidity, salt mist corrosion, power grid undervoltage, phase loss, lightning, vibration and misoperation. And also, standing in the shoes of users, Megmeet further simplifies the use and maintenance of drive, by defining clearly the logic patterns in different modes, default drive parameters and frequently-used motor parameters at the software level, and removing some functions that are hardly used in the industry.

Stable

- 0 to 100 Hz regulation, 0 Hz start and stop, and S-curve acceleration and deceleration
- Minimal mechanical and current shocks
- Avoidance of mechanical resonance points

Precise

- Configurable speed, acceleration/deceleration time, and curve
- Accurate jog positioning during slewing, and low-speed stop during hoisting
- Accurate jog positioning during luffing, and anti-sway algorithms

Reliable

- Clear layout of peripheral circuit, reduced occurrence of component faults, and prolonged lifespan
- Less maintenance required for brakes, steel ropes and other quick-wear parts
- Enabling the use of more accurate brakes and torque limiters under same conditions

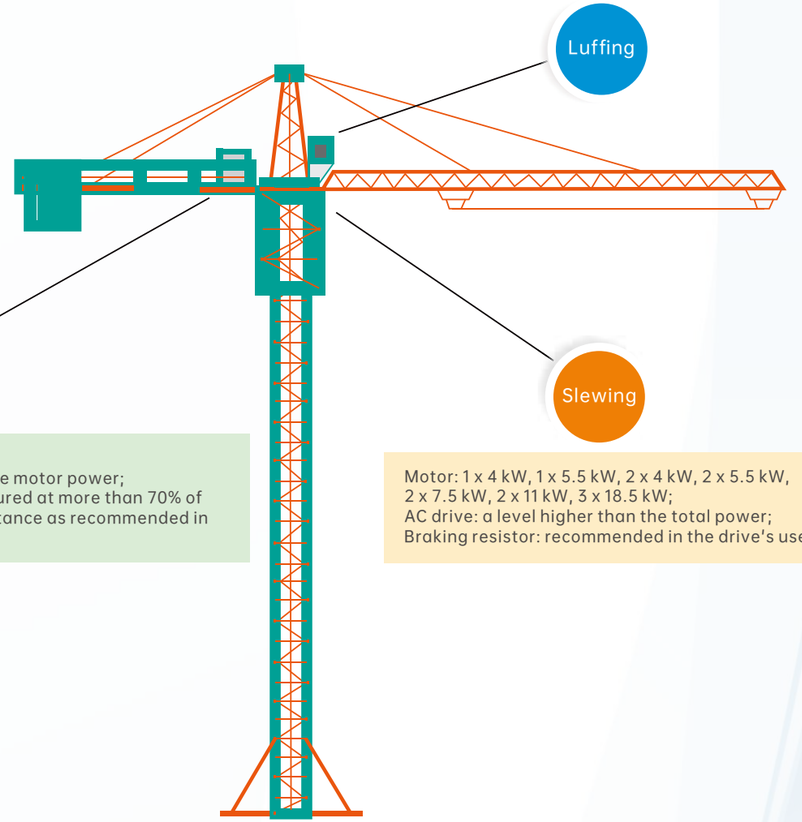
Efficient

- Speed changed based on load
- Speed changed based on voltage
- Constant power control

Drive Solution for Tower Cranes

As the main tool for transporting materials and components in building construction, the tower crane consists of three parts: metal structure, working mechanism, and electrical system. The application of frequency control technology makes tower cranes safer and more efficient, with less maintenance required. In the below example, a tower crane is illustrated that uses frequency control for all its three mechanisms: luffing, slewing, and hoisting.

Motor: 3.7 kW to 11 kW;
AC drive: the same power configuration as the motor;
Braking resistor: recommended in the drive's user manual.



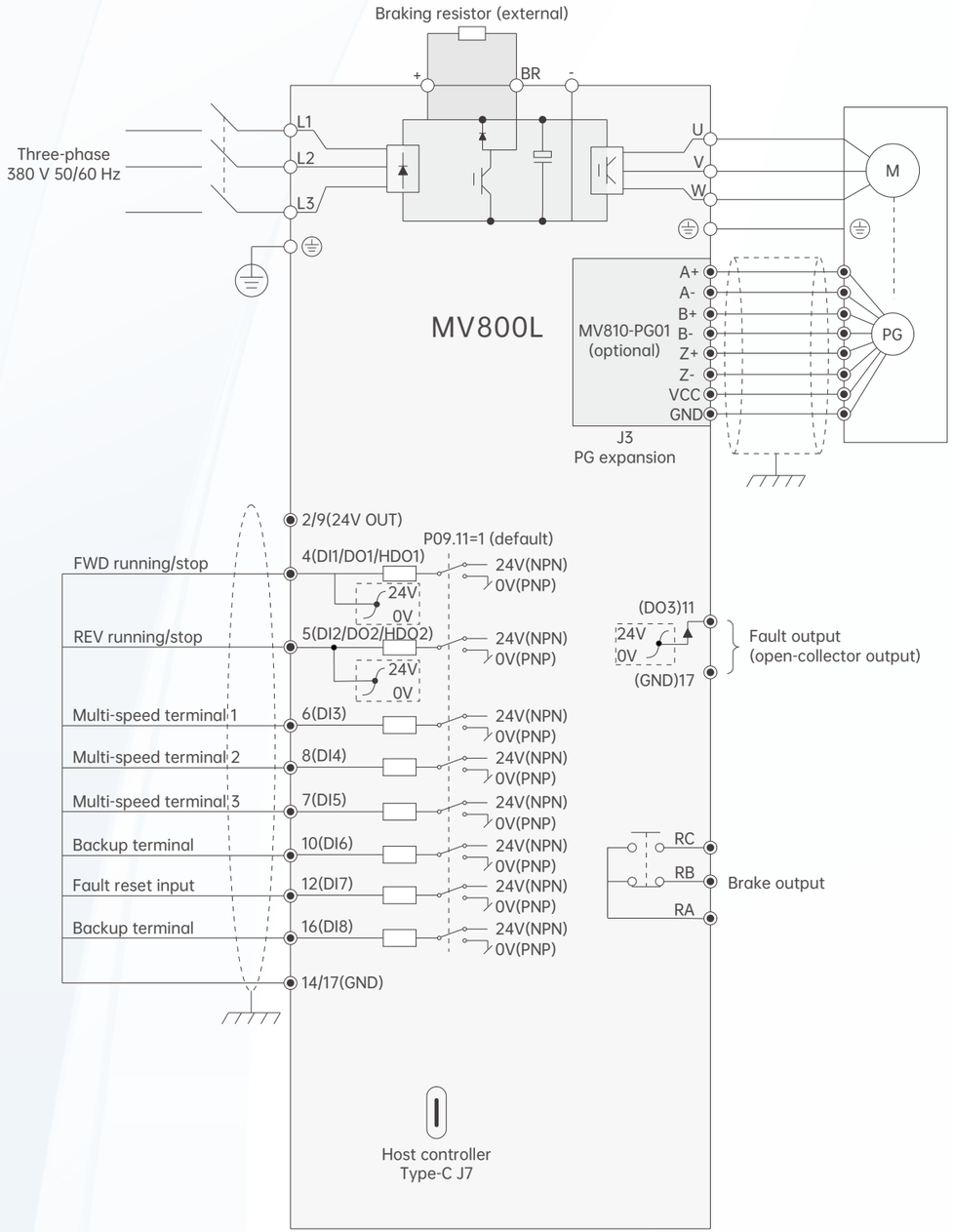
Motor: 15 kW to 160 kW;
AC drive: a level higher than the motor power;
Braking resistor: power configured at more than 70% of the motor's rated power, resistance as recommended in the drive's user manual.

Motor: 1 x 4 kW, 1 x 5.5 kW, 2 x 4 kW, 2 x 5.5 kW, 2 x 7.5 kW, 2 x 11 kW, 3 x 18.5 kW;
AC drive: a level higher than the total power;
Braking resistor: recommended in the drive's user manual.

Chinese national high-tech enterprise certification,
joint laboratory with Texas Instruments and cooperation with Zoomlion

Hoisting Mechanism

System wiring

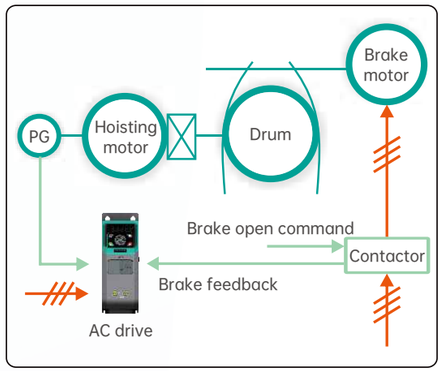


Parameter setting

Closed-loop hoisting mode		
Function code	Value	Meaning
P00.09	200	Closed-loop hoisting mode
P02.00	3	Closed-loop vector
P02.05	5	Multi-speed control
P02.13	10	Acc. time
P02.14	12	Dec. time
P02.11	100	Max. frequency
P02.09	8.00 Hz	Multi-speed 0
P13.02	8%	Multi-speed 1
P13.03	15%	Multi-speed 2
P13.04	30%	Multi-speed 3
P13.05	50%	Multi-speed 4
P13.06	100%	Multi-speed 5
P04.00	1024	PG pulses
P04.02	0	PG direction

Closed-loop hoisting mode			
Terminal	Function code	Value	Meaning
DI1	P09.03	1	FWD
DI2	P09.04	2	REV
DI3	P09.05	6	Multi-speed terminal 1
DI4	P09.06	7	Multi-speed terminal 2
DI5	P09.07	8	Multi-speed terminal 3
DI6	P09.08	0	Not defined
DI7	P09.09	22	Fault reset input
DI8	P09.10	0	Not defined
DO3	P10.02	18	Fault output
RA/RB/RC	P10.03	48	Brake output

Brake control diagram for hoisting

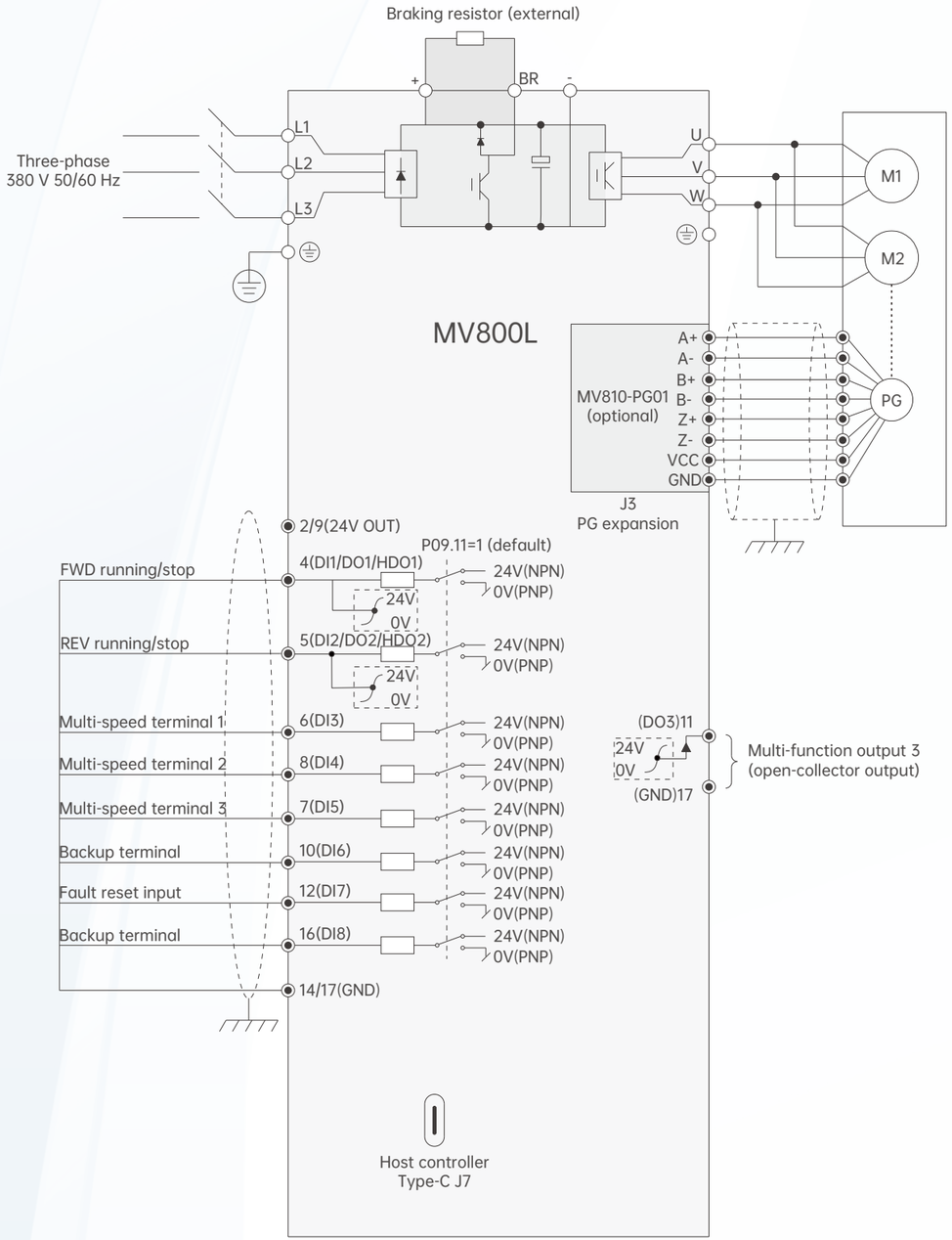


Unique features

- Automatic detection of uncontrolled hook fall and intelligent lowering of the load to the ground at a safe low speed
- Speed changed based on the load, improving motor efficiency
- Speed changed based on the voltage, allowing the input voltage to be as low as 290 VAC
- Automatic detection by the mechanical brake and electrical system, ensuring system safety
- Fully-fledged fault protection and classification mechanism, ensuring quick protection in case of severe faults and gradual deceleration to a stop in case of non-severe faults
- Load loss detection, ensuring timely protection when output issues occur
- One-key switching among open loop vector, closed loop vector, and open loop V/F, allowing for quick on-site troubleshooting
- Dynamic password protection for customer parameters

Slewing Mechanism

System wiring



Parameter setting

Slewing mode		
Function code	Value	Meaning
P00.09	0	Slewing mode
P02.00	3	Open-loop vector
P02.05	5	Multi-speed control
P02.13	3	Acc. time
P02.14	6	Dec. time
P02.11	50	Max. frequency
P02.09	8.00 Hz	Multi-speed 0
P13.02	30%	Multi-speed 1
P13.03	50%	Multi-speed 2
P13.04	70%	Multi-speed 3
P13.05	90%	Multi-speed 4

Slewing mode			
Terminal	Function code	Value	Meaning
DI1	P09.03	1	FWD
DI2	P09.04	2	REV
DI3	P09.05	6	Multi-speed terminal 1
DI4	P09.06	7	Multi-speed terminal 2
DI5	P09.07	8	Multi-speed terminal 3
DI6	P09.08	0	Not defined
DI7	P09.09	22	Fault reset input
DI8	P09.10	0	Not defined

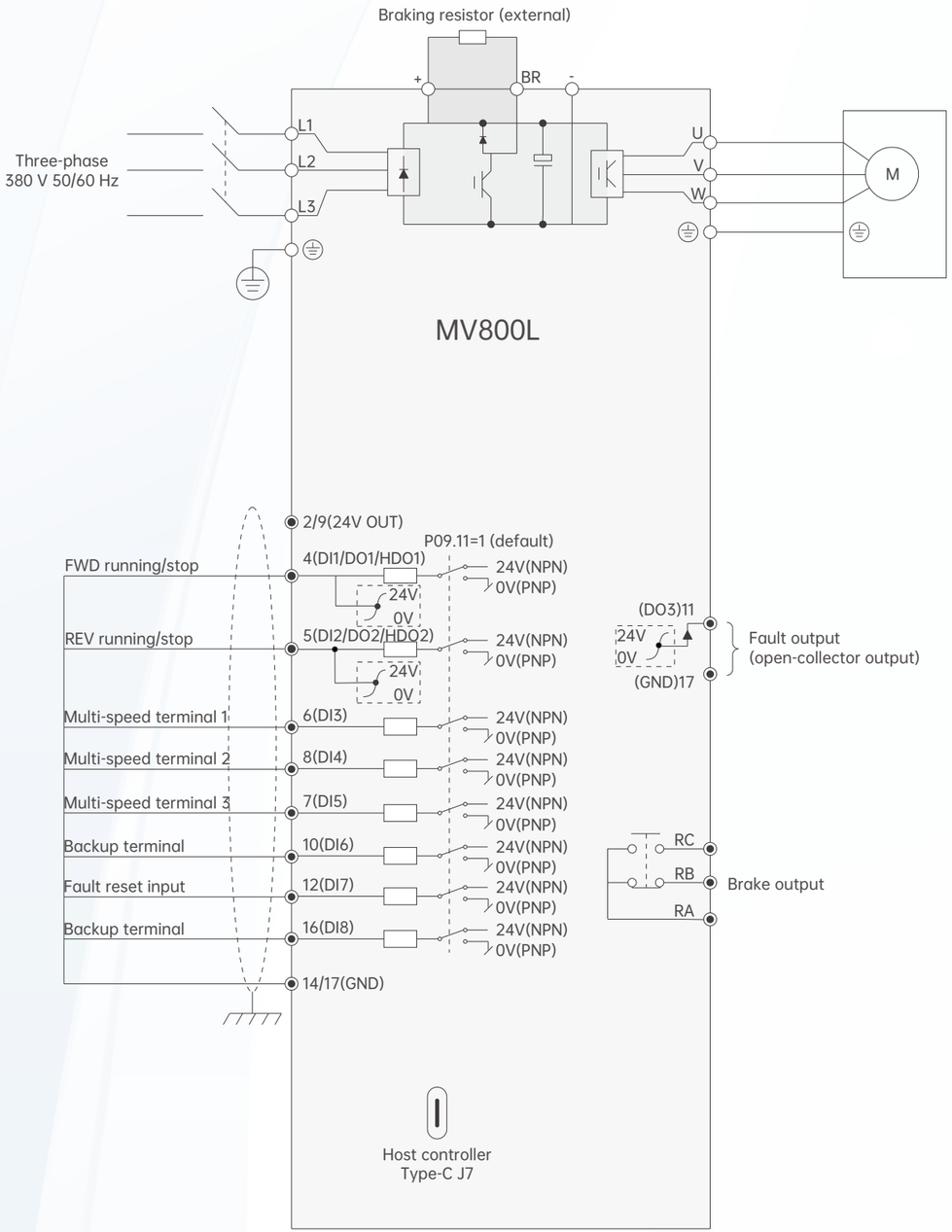
Eddy current control diagram for slewing

Unique features

- Multiple flexible vector algorithms integrated in one drive, ensuring low-frequency high torque and stable control of large inertia
- Innovative eddy current control technology
- Speed changed based on the voltage, allowing the input voltage to be as low as 290 VAC
- Speed changed based on the load, improving motor efficiency
- Cutting-edge non-eddy current large inertia control technology
- Built-in “foolproof” parameters and redundant calculations within the AC drive, allowing for operation without the need to set many parameters
- Dynamic password protection for customer parameters

Luffing Mechanism

System wiring

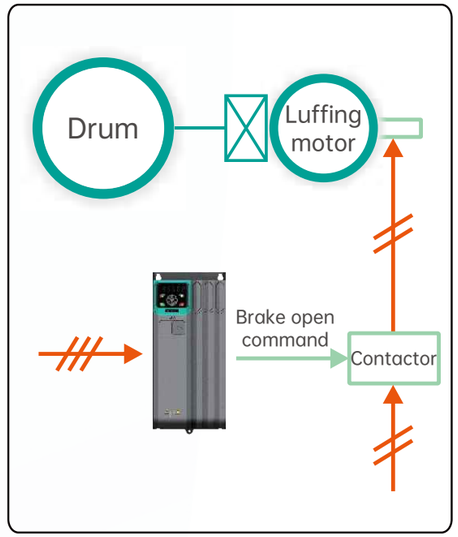


Parameter setting

Luffing mode		
Function code	Value	Meaning
P00.09	100	Luffing mode
P02.00	2	V/F
P02.05	5	Multi-speed control
P02.13	5	Acc. time
P02.14	5	Dec. time
P02.11	50	Max. frequency
P02.09	8.00 Hz	Multi-speed 0
P13.02	30%	Multi-speed 1
P13.03	50%	Multi-speed 2
P13.04	70%	Multi-speed 3
P13.05	100%	Multi-speed 4

Luffing mode			
Terminal	Function code	Value	Meaning
DI1	P09.03	1	FWD
DI2	P09.04	2	REV
DI3	P09.05	6	Multi-speed terminal 1
DI4	P09.06	7	Multi-speed terminal 2
DI5	P09.07	8	Multi-speed terminal 3
DI6	P09.08	0	Not defined
DI7	P09.09	22	Fault reset input
DI8	P09.10	0	Not defined
DO3	P10.02	18	Fault output
RA/RB/RC	P10.03	48	Brake output

Brake control diagram for luffing



Unique features

- Anti-sway algorithms for the trolley travelling mechanism
- Speed changed based on the voltage, allowing the input voltage to be as low as 290 VAC
- Speed changed based on the load, improving motor efficiency
- Fully-fledged fault protection and classification mechanism, ensuring quick protection in case of severe faults and gradual deceleration to a stop in case of non-severe faults
- One-key switching between open loop vector and open loop V/F, allowing for quick on-site troubleshooting
- Dynamic password protection for customer parameters

Naming Rule

MV800 L - 4 T 5.5 - XX AX

1 2 3 4 5 6 7

1 **Product series**
MV800: MV800 series

2 **Industry**
L: Lifting

3 **Input voltage class**
4: 380 V

4 **Input voltage phase**
T: Three-phase

5 **Rated capacity**
5.5: 5.5 kW

6 **Non-standard hardware (00-99)**
XX: Non-standard hardware

7 **Non-standard software**
AX: Non-standard software

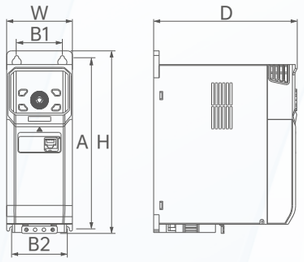
Enclosure	Product model	Rated input current (A)	Rated output current (A)	Rated output power (kW)	Fan's air volume (m^3/min)
B	MV800L-4T2.2B	5.8	5.6	2.2	0.48
	MV800L-4T3.7B	10.5	9.4	3.7	0.48
C	MV800L-4T5.5B	14.5	13.0	5.5	0.80
	MV800L-4T7.5B	20.5	17.0	7.5	0.80
D	MV800L-4T11B	26.0	25.0	11.0	1.8
	MV800L-4T15B	35.0	32.0	15.0	1.8
E	MV800L-4T18.5B	49.0	37.0	18.5	4.0
	MV800L-4T22B	58.0	45.0	22.0	4.0
F	MV800L-4T30B	62.0	60.0	30.0	5.8
	MV800L-4T37B	76.0	75.0	37.0	5.8
G	MV800L-4T45B	92.0	90.0	45.0	14.42
	MV800L-4T55B	113.0	110.0	55.0	14.42
	MV800L-4T75B	157.0	152.0	75.0	14.42
H	MV800L-4T90B	180.0	176.0	90.0	14.42
	MV800L-4T110B	214.0	210.0	110.0	14.42
I	MV800L-4T132	256.0	253.0	132.0	21.48
	MV800L-4T160	307.0	304.0	160.0	21.48
J	MV800L-4T185	330.0	340.0	185.0	21.48
	MV800L-4T200	368.0	380.0	200.0	21.48
	MV800L-4T220	410.0	426.0	220.0	21.48

Technical Specifications

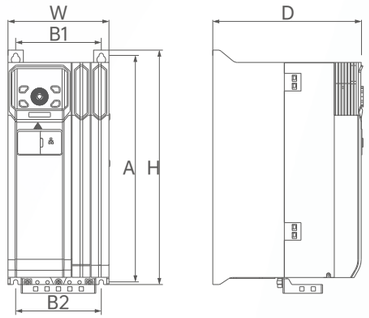
Input and output	
Rated voltage (V)	Three-phase: 380 V to 480 V; voltage continuous fluctuation ±10%, transient fluctuation -15% to +10%, that is, 323 V to 528 V; voltage unbalance rate < 3%, distortion rate compliant with IEC 61800-2
Rated frequency (Hz)	50 Hz / 60 Hz, fluctuation range ±5%
Rated voltage (V)	Three-phase output under rated input conditions, 0 to rated input voltage, deviation less than ±3%
Output frequency (Hz)	0 to 650 Hz, unit: 0.01 Hz
Overload capacity	1 min for 150% rated current, 0.5 s for 200% rated current
Running control	
Control mode	Flux vector control without PG, flux vector control with PG, V/F, V/F with PG
Speed regulation range	1:200 (flux vector control without PG); 1:1000 (flux vector control with PG)
Speed control accuracy	±0.2% (flux vector control without PG); ±0.02% (flux vector control with PG)
Speed fluctuation	±0.3% (flux vector control without PG); ±0.1% (flux vector control with PG)
Torque response	< 5 ms (flux vector control without PG); < 10 ms (flux vector control with PG)
Torque control	Torque control accuracy 7.5% for flux vector without PG; 5% for flux vector with PG
Startup control	0 Hz 150% (flux vector control without PG); 0 Hz 200% (flux vector control with PG)
Major functions	Brake logic control, speed changed based on the load or the voltage, load loss detection, overspeed detection, brake reliability detection, torque limit, overtorque/undertorque detection, multi-speed running, multiple acceleration/deceleration time switching, auto-tuning, S-curve acceleration/deceleration, slip compensation, fan speed control, jump frequency, three-location switching, Modbus communication, droop control, torque control, torque and speed mode switching, DC braking, dynamic braking, and so on
Industry-specific features	
Major functions	Slewing mode: multi-motor flexible vector control; built-in eddy current control signal Luffing mode: built-in brake release/close logic; speed changed based on the load Closed-loop hoisting mode: built-in brake release/close logic; speed changed based on the load Open-loop hoisting mode: built-in brake release/close logic; speed changed based on the load
Motor parameter	Typical motor parameters are already written into the function code P00.05
One-key restoration	All changed function codes can be saved, and can be restored by one key
Protection functions	
Drive protection	Overcurrent, overvoltage, short circuit, AC drive/motor overload, input/output phase loss, overheat, encoder failure, etc.
Brake mechanism fault	Er.bCF, Er.bSF, Er.FbL, Er.Fbr
Safety protection	Speed deviation protection, overspeed protection, load loss protection
Environment	
Cooling method	Forced cooling
Operating site	Indoors, away from direct sunlight, free from dust, corrosive gas, combustible gas, oil mist, water vapor, water dripping or salt, etc.
Altitude	Normal use below 1000 m; derating required above 1000 m, and derated by 1% for every increase of 100 m
Ambient temperature	-10℃ to +40℃ (derating required when ambient temperature is 40℃ to 50℃)
Humidity	5% to 95% RH, non-condensing
Vibration	Less than 5.9 m/s^2 (0.6 g)
Storage temperature	-40℃ to +70℃
Efficiency	⩾ 93% for 7.5 kW and below; ⩾ 93% for 45 kW and below; ⩾ 98% for 55 kW and above
Installation method	Wall-mounted

Product Dimensions

Enclosure B

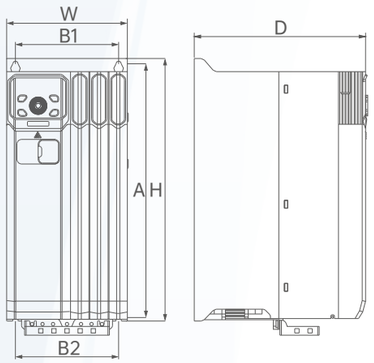


Enclosure C

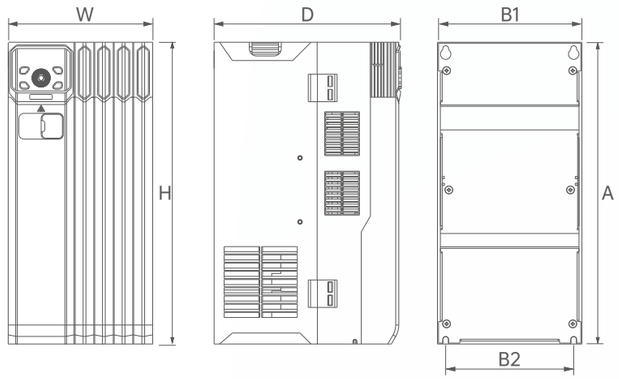


Enclosure	Drive model	A (mm)	B1 (mm)	B2 (mm)	H (mm)	W (mm)	D (mm)	Mounting hole diameter (mm)
B	MV800L-4T2.2B MV800L-4T3.7B	187.5	50	61	200	72	158.5	4.5
C	MV800L-4T5.5B MV800L-4T7.5B	259	97.5	97.5	267	115	171	5

Enclosure D

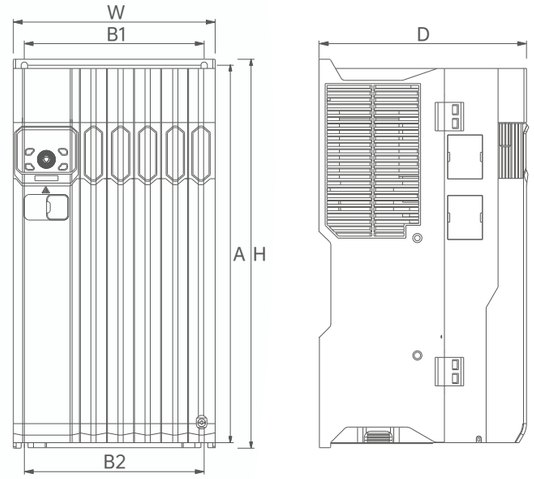


Enclosure E



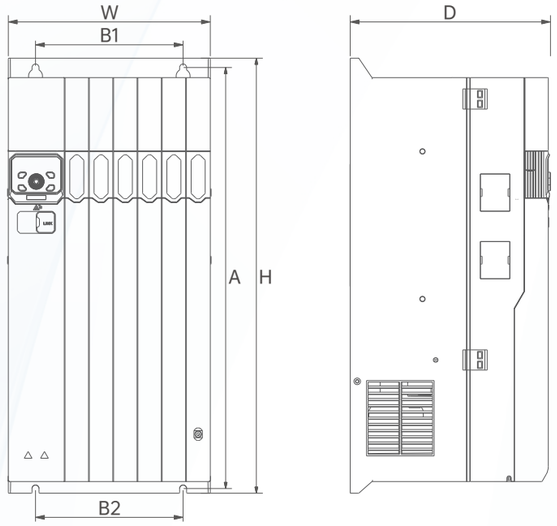
Enclosure	Drive model	A (mm)	B1 (mm)	B2 (mm)	H (mm)	W (mm)	D (mm)	Mounting hole diameter (mm)
D	MV800L-4T11B MV800L-4T15B	290	118	118	300	138	195.92	6
E	MV800L-4T18.5B MV800L-4T22B	318	140	140	330	158	204.8	6

Enclosure F



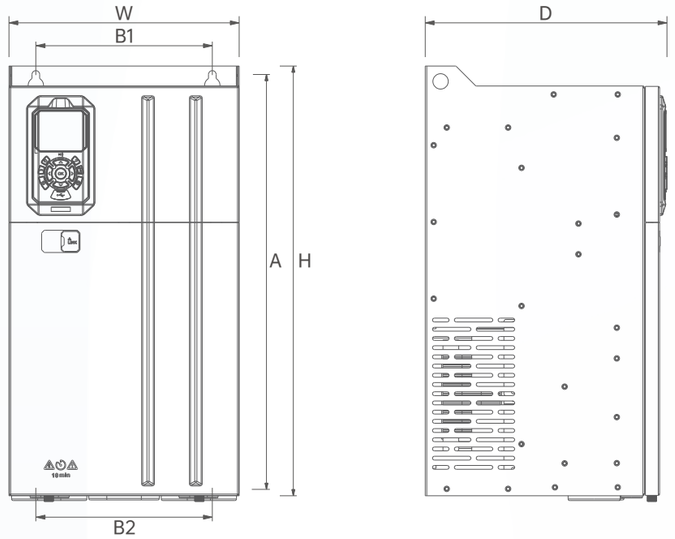
Enclosure	Drive model	A (mm)	B1 (mm)	B2 (mm)	H (mm)	W (mm)	D (mm)	Mounting hole diameter (mm)
F	MV800L-4T30B MV800L-4T37B	412	196	196	424	220	229	7

Enclosure G



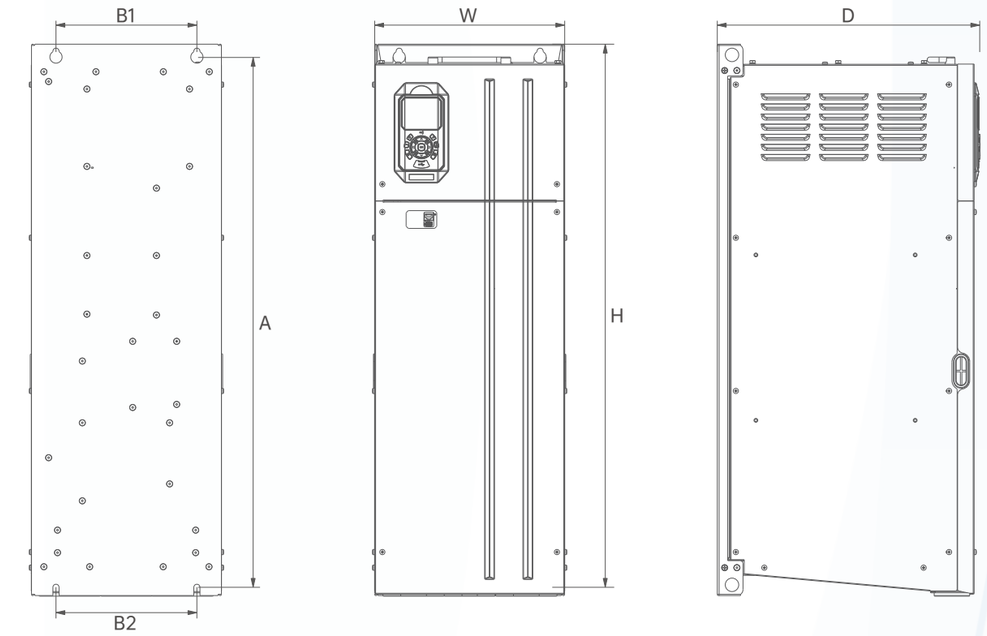
Enclosure	Drive model	A (mm)	B1 (mm)	B2 (mm)	H (mm)	W (mm)	D (mm)	Mounting hole diameter (mm)
G	MV800L-4T45B MV800L-4T55B MV800L-4T75B	542	190	190	560	260	255	9

Enclosure H



Enclosure	Drive model	A (mm)	B1 (mm)	B2 (mm)	H (mm)	W (mm)	D (mm)	Mounting hole diameter (mm)
H	MV800L-4T90B MV800L-4T110B	539	230	230	560	300	315	10

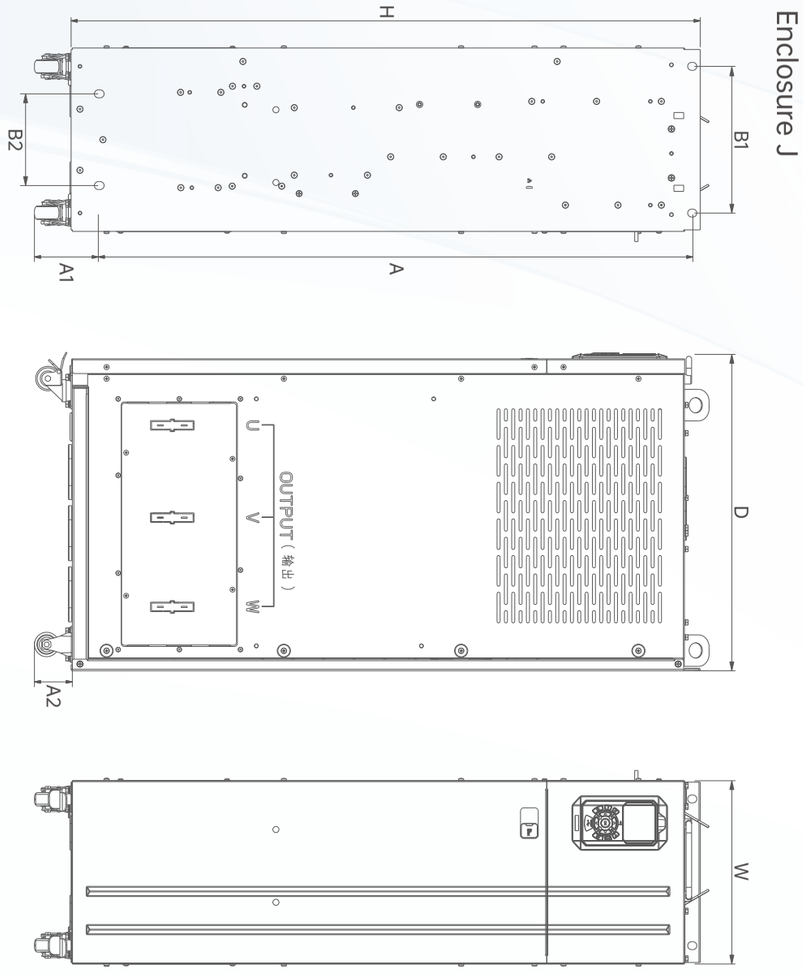
Enclosure I



Enclosure	Drive model	A (mm)	B1 (mm)	B2 (mm)	H (mm)	W (mm)	D (mm)	Mounting hole diameter (mm)
I	MV800L-4T132 MV800L-4T160	875	230	230	898	310	429	10

Enclosure J

Enclosure	Drive model	A (mm)	A1 (mm)	A2 (mm)	B1 (mm)	B2 (mm)	H (mm)	W (mm)	D (mm)
J	MV800L-4T185 MV800L-4T200 MV800L-4T220	970	106	62	240	150	1029	300	520



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