



Digitized Automation for a Changing World

## Delta Motor-mounted Pump Drive MPD Series



# Motor-mounted Pump Drive MPD Series

Pumps are widely used for domestic, gardening, aquaculture, catering and lodging, and even industrial environments. In the water supply and drainage systems of cities and factories, pumps also play an indispensable role. However, the traditional way of running a pump is likely to cause a waste of energy. Without a monitoring system to handle unexpected conditions such as dry-running and pipe bursts, it is possible to cause not only damage to the pumps, but also mishaps such as flooding or production delays.

Delta introduces the MPD series, bringing you the three benefits of energy efficiency, intelligent water supply, and ease of operation. With the IE5 efficiency level motors and variable frequency controls, the energy efficiency of the system reaches the highest level, IES2. The smart multi-pump function can be integrated with the Real-Time Clock function for flexible planning of water supply according to the demand in different time periods. The LCD screen with a three-color display provides a user-friendly interface. The functions of pump protection, such as dry-running protection, burst pipe protection, high/low water pressure protection, and others, greatly improve the reliability of the pump system and effectively prevent potential possible crises in the production process.



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# Highlights

**Supports Delta APP (Coming Soon)**  
Monitoring and commissioning the pumps via Bluetooth




**Multi-color LCD**  
A clear display of operation status




Standby state    In-service state    Alert state


**Protection Class**  
IP55 waterproof and dust-proof




**Delta MSI PMA Synchronous Reluctance Motor with IE5 Efficiency**



**Flange Dimensions According to IEC Standards**  
IM B5/V1  
IM B14/V18



**Built-in EMC Filter**  
The Class A (C1) filter meets the EN61800 Standards



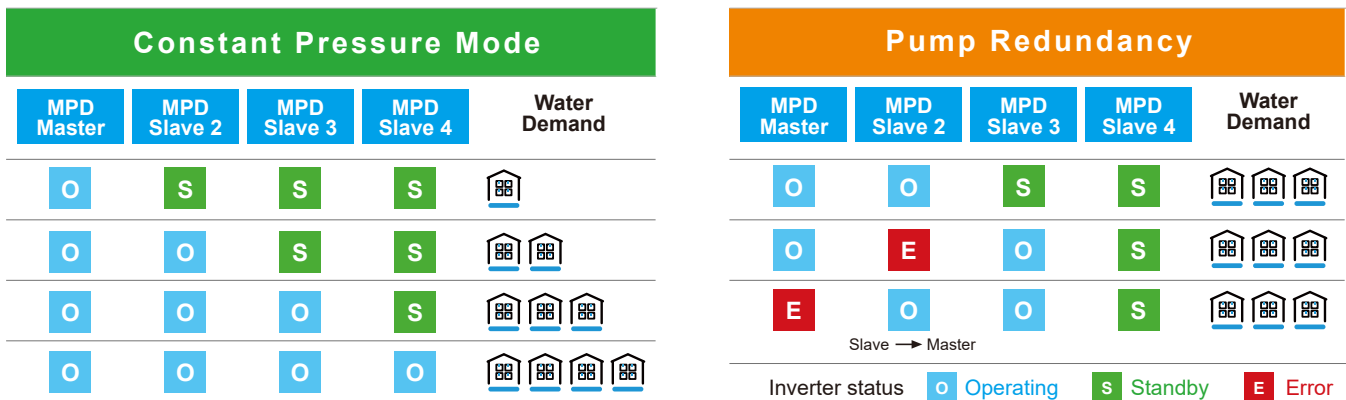

# Features

## An Energy-efficient Product for Water Pumps

- Equipped with Delta's MSI PMA synchronous reluctance motor with IE5 efficiency level
- Energy efficiency class IES2 in accordance with IEC 61800-9-2
- Built-in Delta PLC (14k Steps) for optimal scheduling and control of multiple pumps
- Supports Delta APP for monitoring and commissioning the pumps via Bluetooth (Coming Soon)

## Multi-pump Control

- Alternating operation: Multiple pumps operate alternately at regular intervals to facilitate maintenance and extend equipment life.
- Constant pressure mode: Provides consistent energy-efficient water supply by staging or destaging operating pump quantities based on real-time demands
- Pump redundancy: In case of sudden failure of the operating inverter, the backup inverter will automatically take over the operation to maintain water supply



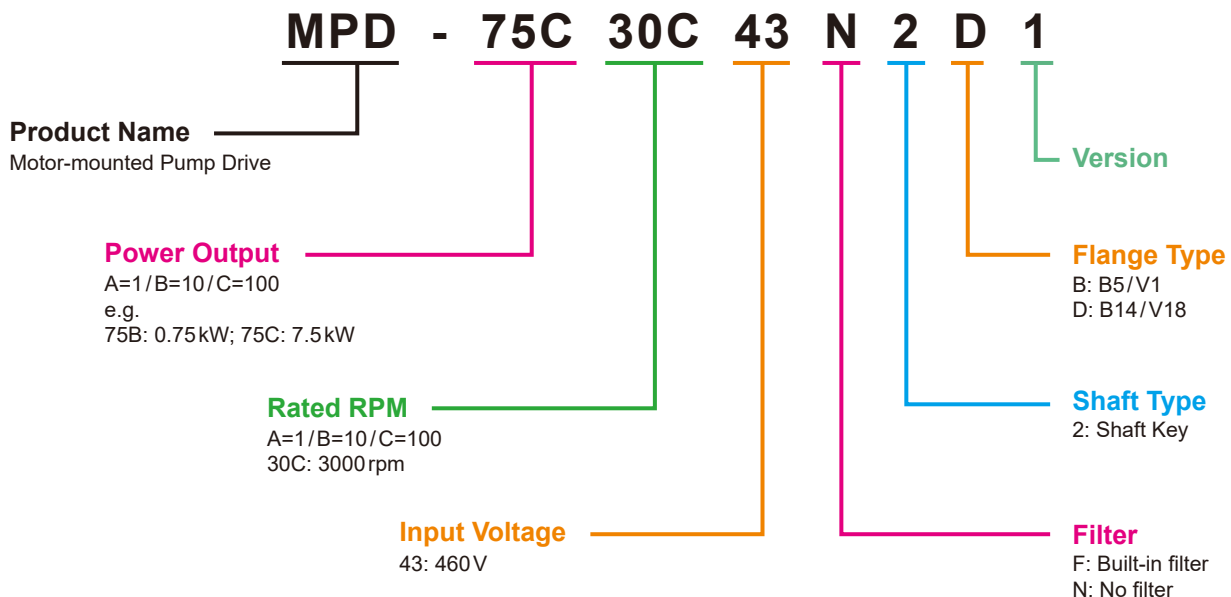
## Extensive Functions

- Sleep mode: The system can automatically enter the hibernation state when it is under constant pressure, avoiding frequent switching on and off.
- Clean function: Removes foreign objects from the pump blades, sets the pump operation cycle, and avoids long periods of no operation
- Water leakage protection: Warns and stops the machine when the pipeline is ruptured due to unexpected conditions
- Dry-running protection: When the water supply is stopped or the water source is cut off, the pump will automatically slow down and stop to avoid damage to the pump
- High/low pressure protection: Monitors the water pressure and gives warning or stops for protection
- Flow rate estimation\*: Sends the pump operation information back to the inverter, and with the pump characteristics curve, the flow rate can be estimated.
- Cavitation detection\*: The inverter can give an immediate warning when cavitation occurs

\* Please contact us for more information regarding the parameters.

# Specifications

## Model Name



## Specifications

### 460V Series\_3-phase

Model		Frame A			
MPDModel: MPD_ _ _ 30C43 □ 2B MPD_ _ _ 30C43 □ 2D		75B		15C	
		[N]	[F]	[N]	[F]
Motor Output (kW)		0.75		1.5	
Motor Output (HP)		1		2	
AC Drive Model		VFD1A6MP43JNNAA	VFD1A6MP43JFNAA	VFD3A3MP43JNNAA	VFD3A3MP43JFNAA
Motor Model		MSI75B-30CDXS2B1AP MSI75B-30CDXS2D1AP		MSI15C-30CDXS2B1AP MSI15C-30CDXS2D1AP	
Output	Rated Current of the Motor (A)	1.5		3.1	
	Rated Torque (N.m)	2.3		4.7	
	Rated Speed (rpm)	3,000			
	Inverter Carrier Frequency (kHz) *1	2~15			
Input	Rated Input Current (A)	1.9		3.8	
	Rated Voltage / Frequency	3 相 AC 380V~480V (-15%~+10%) · 50/60Hz			
	Operating Voltage Range (VAC)	323~528			
	Frequency Tolerance (Hz)	47~63			
Cooling Method		Fan Cooling			
EMC Filter		--	Built-in	--	Built-in
CE/RE Class		C1/C2			
IP Protection Level		IP55			
PDS Efficiency Level *2		IES2			

# Specifications

## 460V Series\_3-phase

Model		Frame A			
MPD Model: MPD_ _ _ 30C43_ 2B MPD_ _ _ 30C43_ 2D		22C		30C	
		[N]	[F]	[N]	[F]
Motor Output (kW)		2.2		3	
Motor Output (HP)		3		4	
AC Drive Model		VFD4A7MP43JNNAA	VFD4A7MP43JFNAA	VFD6A2MP43JNNAA	VFD6A2MP43JFNAA
Motor Model		MSI22C-30CDXS2B1AP, MSI22C-30CDXS2D1AP		MSI30C-30CDXS2B1AP, MSI30C-30CDXS2D1AP	
Output	Rated Current of the Motor (A)	4.4		5.8	
	Rated Torque (N.m)	7		9.5	
	Rated Speed (rpm)	3,000			
Inverter Carrier Frequency (kHz) *1		2~15			
Input	Rated Input Current (A)	5.4		7.2	
	Rated Voltage / Frequency	3-phase AC 380V~480V (-15%~+10%) · 50/60Hz			
	Operating Voltage Range (VAC)	323~528			
Frequency Tolerance (Hz)		47~63			
Cooling Method		Fan Cooling			
EMC Filter		--	Built-in	--	Built-in
CE / RE Class		C1/C2			
IP Protection Level		IP55			
PDS Efficiency Level *2		IES2			

Model		Frame A		Frame B	
MPD Model: MPD_ _ _ 30C43_ 2B MPD_ _ _ 30C43_ 2D		40C		55C	
		[N]	[F]	[N]	[F]
Motor Output (kW)		4.0		5.5	
Motor Output (HP)		5.5		7.5	
AC Drive Model		VFD8A5MP43JNNAA	VFD8A5MP43JFNAA	VFD11AMP43JNNAA	VFD11AMP43JFNAA
Motor Model		MSI40C-30CDXS2B1AP MSI40C-30CDXS2D1AP		MSI55C-30CDXS2B1AP MSI55C-30CDXS2D1AP	
Output	Rated Current of the Motor (A)	8		11	
	Rated Torque (N.m)	12.7		17.5	
	Rated Speed (rpm)	3,000			
Inverter Carrier Frequency (kHz) *1		2~15			
Input	Rated Input Current (A)	9.9		13.8	
	Rated Voltage / Frequency	3-phase AC 380V~480V (-15%~+10%) · 50/60Hz			
	Operating Voltage Range (VAC)	323~528			
Frequency Tolerance (Hz)		47~63			
Cooling Method		Fan Cooling			
EMC Filter		--	Built-in	--	Built-in
CE / RE Class		C1/C2			
IP Protection Level		IP55			
PDS Efficiency Level *2		IES2			

Model		Frame B	
MPD Model: MPD_ _ _ 30C43_ 2B MPD_ _ _ 30C43_ 2D		75C	
		[N]	[F]
Motor Output (kW)		7.5	
Motor Output (HP)		10	
AC Drive Model		VFD15AMP43JNNAA	VFD15AMP43JFNAA
Motor Model		MSI75C-30CDXS2B1AP, MSI75C-30CDXS2D1AP	
Output	Rated Current of the Motor (A)	14.7	
	Rated Torque (N.m)	23.8	
	Rated Speed (rpm)	3,000	
Inverter Carrier Frequency (kHz) *1		2~15	
Input	Rated Input Current (A)	18.5	
	Rated Voltage / Frequency	3-phase AC 380V~480V (-15%~+10%) · 50/60Hz	
	Operating Voltage Range (VAC)	323~528	
Frequency Tolerance (Hz)		47~63	
Cooling Method		Fan Cooling	
EMC Filter		--	Built-in
CE / RE Class		C1/C2	
IP Protection Level		IP55	
PDS Efficiency Level *2		IES2	

- \*1: The carrier frequency is the default value. To increase the carrier frequency, the current should be lowered. Please refer to the manual chapter 9-4 for more information.
- \*2: Power Drive System according to IEC 61800-9-2

## General Specifications

Control Characteristics	Motor Type	PMA synchronous reluctance motor
	Output Frequency	0.00 ~ 180 Hz
	Starting Torque*1	100 % / (1/20 of motor rated frequency)
	Speed Control Range*1	1 : 20
	Overload Tolerance	120 % of rated output current for 60 seconds; 150 % of rated output current for 3 seconds
	Frequency Setting Signal	0 ~ +10V / 4 (0) ~ 20 mA
	Main Functions	PID constant pressure control, multi-pump control, multi-master function, scheduling function, sleep function, DC preheat function, flow rate estimation function, cleaning function
	Programs	Built-in user-defined application parameter sets
Motor Characteristics	Rotation Direction	Clockwise from the shaft end
	Motor Operating Mode	Continuous running duty (type S1)
	Motor Temperature Protection	KTY84-130 / PTC-130
	Insulation Class	Class F
	Temperature Rises	Class B
Protection Characteristics	General Protection	Over-current protection, over-voltage protection, over-temperature protection, phase failure protection, stall protection
	Pump Protection	Dry-running protection, high/low pressure protection, burst pipe protection, and cavitation protection
Certifications		CE, RoHS

- \*1: Control accuracy may vary depending on the environment and application conditions, please contact us or our agent for details.

## Operating Environment

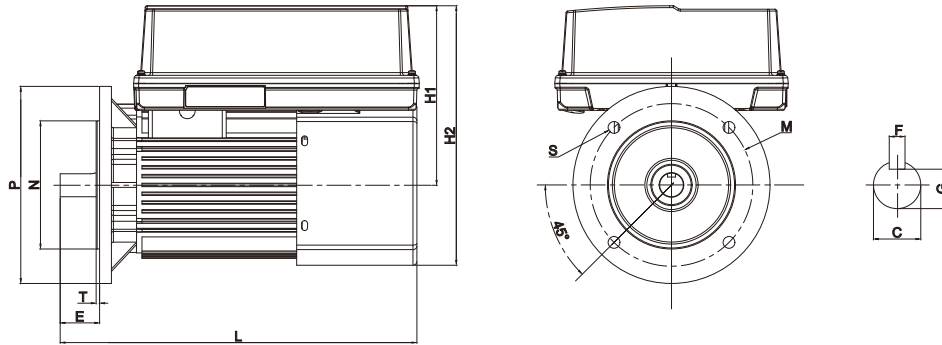
DO NOT expose the AC motor drive to harsh environments, such as dust, direct sunlight, corrosive / inflammable gasses, humidity, liquid or vibrations. The salts in the air must be less than 0.01 mg / cm<sup>2</sup> per year.

Operating Environment	Installation Location	IEC 60364-1 / IEC 60664-1 Pollution degree 2, indoor use only	
	Ambient Temperature	Operation	-20 ~ 40 °C
		Storage	-20 ~ 50 °C (needs derating)
		Transportation	-40 ~ 85 °C
		Non-condensation, non-frozen	
	Rated Humidity	Operation	Max. 90 %
		Storage / Transportation	Max. 95 %
		No condense water	
	Air Pressure	Operation	86 ~ 106 kPa
		Storage / Transportation	70 ~ 106 kPa
Altitude	An altitude of 0 - 1000 m for normal operation (derating is required for installation at an altitude above 1000 m)		
Package Drop	Storage	ISTA procedure 1A (according to weight) IEC60068-2-31	
	Transportation		
Vibration	Operation / Non-operation	4.5 mm (0-P), range from 2 to 10 Hz; 1.8 G ~ 2.0 G, range from 10 to 55 Hz; 2.0 G, range from 55 to 512 Hz; Comply with IEC 60068-2-6	
Impact	Operation	15 G, 11 ms, Complies with IEC / EN 60068-2-27	
	Non-operation	30 G	



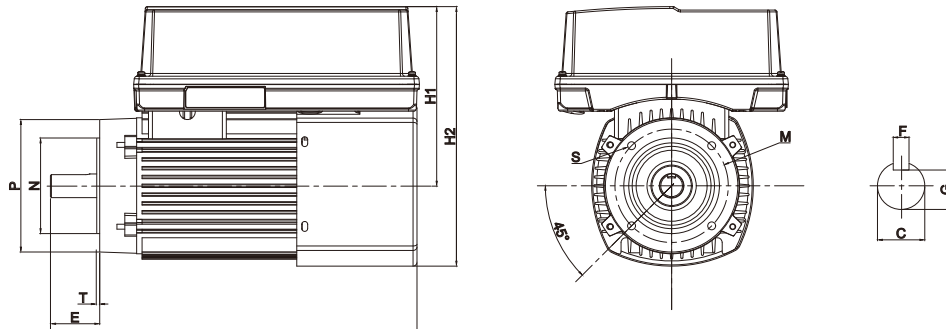
# Dimensions

## IM B5/V1



Model	Power (kW)	Frame Size	Installation Dimensions (mm)												Bearing Type			
			P	N	T	E	L	H1	H2	S	M	C	F	G	Front Bearing	Rear Bearing		
MPD75B30C43N2B MPD75B30C43F2B	0.75	80-1				40	363							19	6	15.5		
MPD15C30C43N2B MPD15C30C43F2B	1.5	80-2	200	130	3.5	50	373	182.1	263.3	12	165	24	8	20	24	6305 ZZ/C3	6204 ZZ/C3	
MPD22C30C43N2B MPD22C30C43F2B	2.2					60	396											192.9
MPD30C30C43N2B MPD30C30C43F2B	3.0	90	250	180	4	80	420	202.3	299.1	14.5	265	38	10	33	6306 ZZ/C3	6205 ZZ/C3		
MPD40C30C43N2B MPD40C30C43F2B1	4.0					80	451										202.3	299.1
MPD55C30C43N2B MPD55C30C43F2B	5.5	100-1	300	230	4	80	420	202.3	299.1	14.5	265	38	10	33	6308 ZZ/C3	6206 ZZ/C3		
MPD75C30C43N2B MPD75C30C43F2B1	7.5	100-2				80	451										202.3	299.1

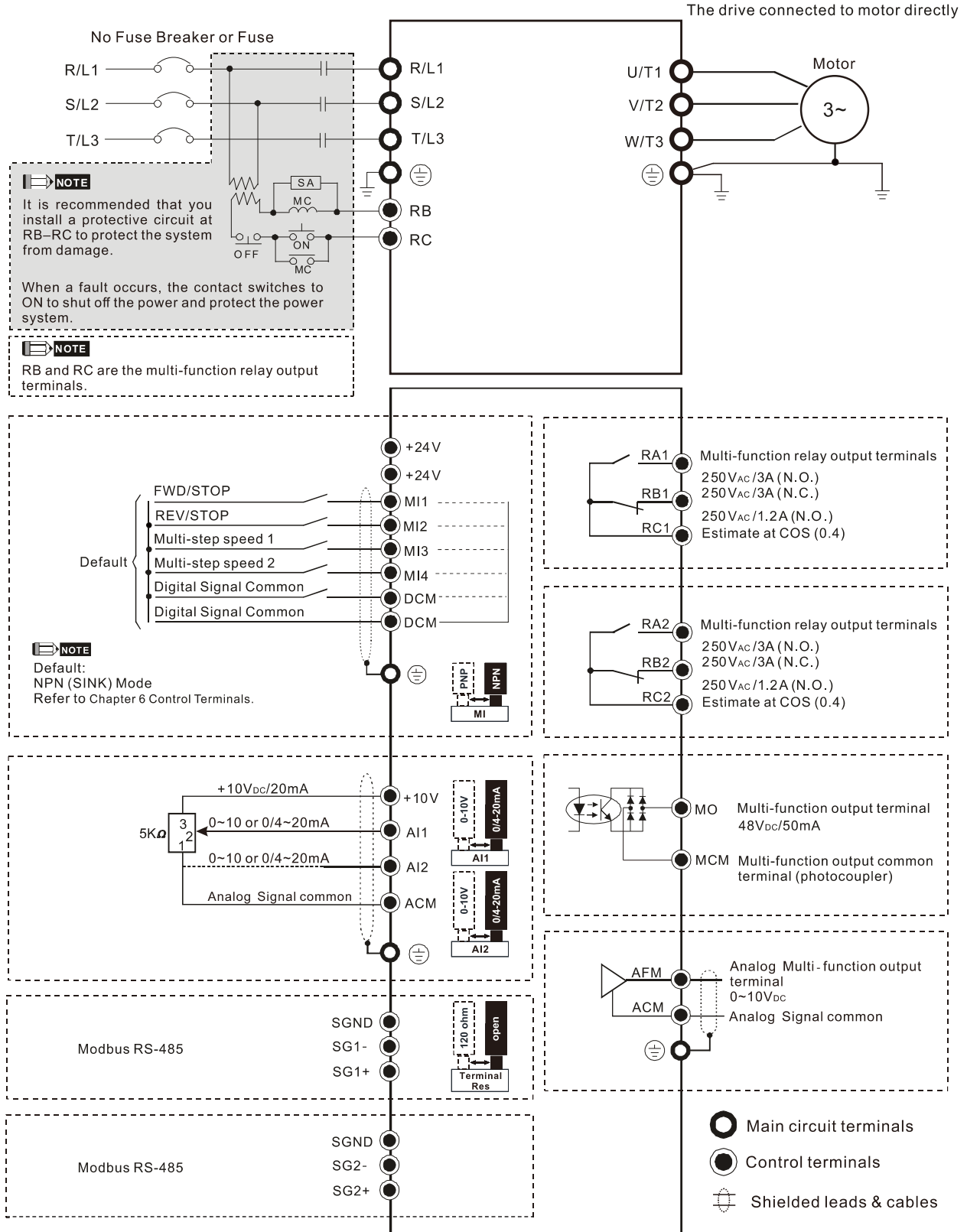
## IM B14/V18



Model	Power (kW)	Frame Size	Installation Dimensions (mm)												Bearing Type		
			P	N	T	E	L	H1	H2	S	M	C	F	G	Front Bearing	Rear Bearing	
MPD75B30C43N2D MPD75B30C43F2D	0.75	80-1	129	80		40	363				M6	100	19	6	15.5		
MPD15C30C43N2D MPD15C30C43F2D	1.5	80-2	134	95	3	50	373	182.1	263.3	12	115	24	8	20	24	6305 ZZ/C3	6204 ZZ/C3
MPD22C30C43N2D MPD22C30C43F2D	2.2					60	396										
MPD30C30C43N2D MPD30C30C43F2D1	3.0	90	148	110	3.5	80	420	202.3	299.1	M8	165	38	10	33	6306 ZZ/C3	6205 ZZ/C3	
MPD40C30C43N2D MPD40C30C43F2D	4.0					80	451										202.3
MPD55C30C43N2D MPD55C30C43F2D	5.5	100-1	184	130	4	80	420	202.3	299.1	M10	165	38	10	33	6308 ZZ/C3	6206 ZZ/C3	
MPD75C30C43N2D MPD75C30C43F2D	7.5	100-2				80	451										202.3

# Wiring

## Input: 3-phase power



# Ordering Information

## 460V 3-Phase

Rated			Model	Inverter	Motor	Flange Type	Built-in EMC Filter
Power		Speed					
[HP]	[kW]	rpm					
1	0.75	3,000	MPD75B30C43N2B	VFD1A6MP43JNNA	MSI75B-30CDXS2B1AP	B5/V1	
1	0.75	3,000	MPD75B30C43N2D	VFD1A6MP43JNNA	MSI75B-30CDXS2D1AP	B14/V18	
1	0.75	3,000	MPD75B30C43F2B	VFD1A6MP43JFNA	MSI75B-30CDXS2B1AP	B5/V1	✓
1	0.75	3,000	MPD75B30C43F2D	VFD1A6MP43JFNA	MSI75B-30CDXS2D1AP	B14/V18	✓
2	1.5	3,000	MPD15C30C43N2B	VFD3A3MP43JNNA	MSI15C-30CDXS2B1AP	B5/V1	
2	1.5	3,000	MPD15C30C43N2D	VFD3A3MP43JNNA	MSI15C-30CDXS2D1AP	B14/V18	
2	1.5	3,000	MPD15C30C43F2B	VFD3A3MP43JFNA	MSI15C-30CDXS2B1AP	B5/V1	✓
2	1.5	3,000	MPD15C30C43F2D	VFD3A3MP43JFNA	MSI15C-30CDXS2D1AP	B14/V18	✓
3	2.2	3,000	MPD22C30C43N2B	VFD4A7MP43JNNA	MSI22C-30CDXS2B1AP	B5/V1	
3	2.2	3,000	MPD22C30C43N2D	VFD4A7MP43JNNA	MSI22C-30CDXS2D1AP	B14/V18	
3	2.2	3,000	MPD22C30C43F2B	VFD4A7MP43JFNA	MSI22C-30CDXS2B1AP	B5/V1	✓
3	2.2	3,000	MPD22C30C43F2D	VFD4A7MP43JFNA	MSI22C-30CDXS2D1AP	B14/V18	✓
4	3.0	3,000	MPD30C30C43N2B	VFD6A2MP43JNNA	MSI30C-30CDXS2B1AP	B5/V1	
4	3.0	3,000	MPD30C30C43N2D	VFD6A2MP43JNNA	MSI30C-30CDXS2D1AP	B14/V18	
4	3.0	3,000	MPD30C30C43F2B	VFD6A2MP43JFNA	MSI30C-30CDXS2B1AP	B5/V1	✓
4	3.0	3,000	MPD30C30C43F2D1	VFD6A2MP43JFNA	MSI30C-30CDXS2D1AP	B14/V18	✓
5	4.0	3,000	MPD40C30C43N2B	VFD8A5MP43JNNA	MSI40C-30CDXS2B1AP	B5/V1	
5	4.0	3,000	MPD40C30C43N2D	VFD8A5MP43JNNA	MSI40C-30CDXS2D1AP	B14/V18	
5	4.0	3,000	MPD40C30C43F2B1	VFD8A5MP43JFNA	MSI40C-30CDXS2B1AP	B5/V1	✓
5	4.0	3,000	MPD40C30C43F2D	VFD8A5MP43JFNA	MSI40C-30CDXS2D1AP	B14/V18	✓
7.5	5.5	3,000	MPD55C30C43N2B	VFD11AMP43JNNA	MSI55C-30CDXS2B1AP	B5/V1	
7.5	5.5	3,000	MPD55C30C43N2D	VFD11AMP43JNNA	MSI55C-30CDXS2D1AP	B14/V18	
7.5	5.5	3,000	MPD55C30C43F2B	VFD11AMP43JFNA	MSI55C-30CDXS2B1AP	B5/V1	✓
7.5	5.5	3,000	MPD55C30C43F2D	VFD11AMP43JFNA	MSI55C-30CDXS2D1AP	B14/V18	✓
10	7.5	3,000	MPD75C30C43N2B	VFD15AMP43JNNA	MSI75C-30CDXS2B1AP	B5/V1	
10	7.5	3,000	MPD75C30C43N2D	VFD15AMP43JNNA	MSI75C-30CDXS2D1AP	B14/V18	
10	7.5	3,000	MPD75C30C43F2B1	VFD15AMP43JFNA	MSI75C-30CDXS2B1AP	B5/V1	✓
10	7.5	3,000	MPD75C30C43F2D	VFD15AMP43JFNA	MSI75C-30CDXS2D1AP	B14/V18	✓

Note : MPD30C30C43F2D1, MPD40C30C43F2B1, MPD75C30C43F2B1 In order to comply with the customs policy, only the model name is adjusted

# Accessories

## Communication Interface Cards

### Bluetooth Option Card

CMMP-BT01



#### Features

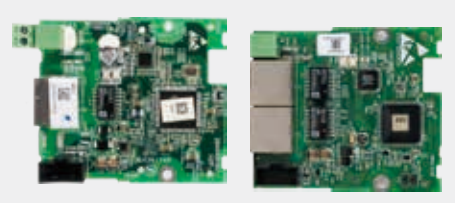
- ▶ Supports communication with handheld devices via Bluetooth
- ▶ Communication and power supply are fully isolated, with strong anti-noise capability

#### Network Interface

Interface	Bluetooth	Transmission protocol	GATT
Transmission speed	1 Mbps/2Mbps	Transmission distance	50m (No obstacle and no interference environment)

### EtherNet/IP Option Card

CMM-EIP02/CMM-EIP03



#### Features

- ▶ Supports max. 32 words input and 32 words output for I/O connection
- ▶ IP Filter, basic firewall function
- ▶ User-defined parameter mapping
- ▶ Supports DLR ring node

#### Network Interface

Network protocol	DHCP, BOOTP, EtherNet/IP, Modbus TCP	Transmission distance	100m, extension is allowed via switch
		Interface	RJ-45
Transmission speed	10 / 100Mbps	Number of ports	1 (CMM-EIP02)/2 (CMM-EIP03)
Transmission method	I/O connection/Explicit message	Transmission cable	Category 5e shielding

### DeviceNet Option Card

CMM-DN02



#### Features

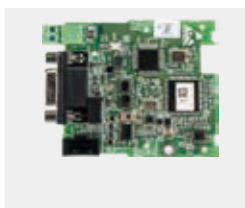
- ▶ Supports Group 2 only connection method and cyclic I/O data exchange
- ▶ Provides EDS file to identify DeviceNet equipment information
- ▶ Supports max. 32 words input and 32 words output of parameter mapping and remote I/O function
- ▶ Node address and Baud rate can be set in the AC motor drive

#### Network Interface

Network protocol	DeviceNet	Transmission distance	25m/1Mbps
Transmission speed	500k/250k/125k/100k/50kbps and extended baud rate mode of 1M	Interface	Terminal block
		Number of ports	1
Transmission method	Explicit message/Implicit message	Transmission cable	Delta standard

## ▪ PROFIBUS DP Option Card

CMM-PD02



### Features

- ▶ Supports PZD cyclic data exchange
- ▶ Supports user diagnosis function
- ▶ Supports PKW read/ write to AC motor drive parameters
- ▶ Auto-detects baud rates; supports Max. 12 Mbps
- ▶ Supports remote I/O function

### Network Interface

Network protocol	PROFIBUS DP	Interface	DB9
Transmission speed	9.6 Kbps / 19.2 Kbps / 93.75 Kbps / 187.5 Kbps / 500 Kbps / 1.5 Mbps / 3 Mbps / 6 Mbps / 12 Mbps	Number of ports	1
Transmission method	Cyclic / non-cyclic data exchange	Transmission cable	Delta standard
Transmission distance	100 m / 12 Mbps		

## ▪ Delta Standard Fieldbus cables

Delta Cables	Part Number	Description	Length
DeviceNet Cable	UC-DN01Z-01A	DeviceNet cable	305 m
	UC-DN01Z-02A		
Ethernet/EtherCAT Cable	UC-EMC003-02A	Ethernet/EtherCAT cable · Shielding	0.3 m
	UC-EMC005-02A		0.5 m
	UC-EMC010-02A		1 m
	UC-EMC020-02A		2 m
	UC-EMC050-02A		5 m
	UC-EMC100-02A		10 m
	UC-EMC200-02A		20 m
PROFIBUS Cable	UC-PF01Z-01A	PROFIBUS DP cable	305 m

## ▪ Waterproof Connector

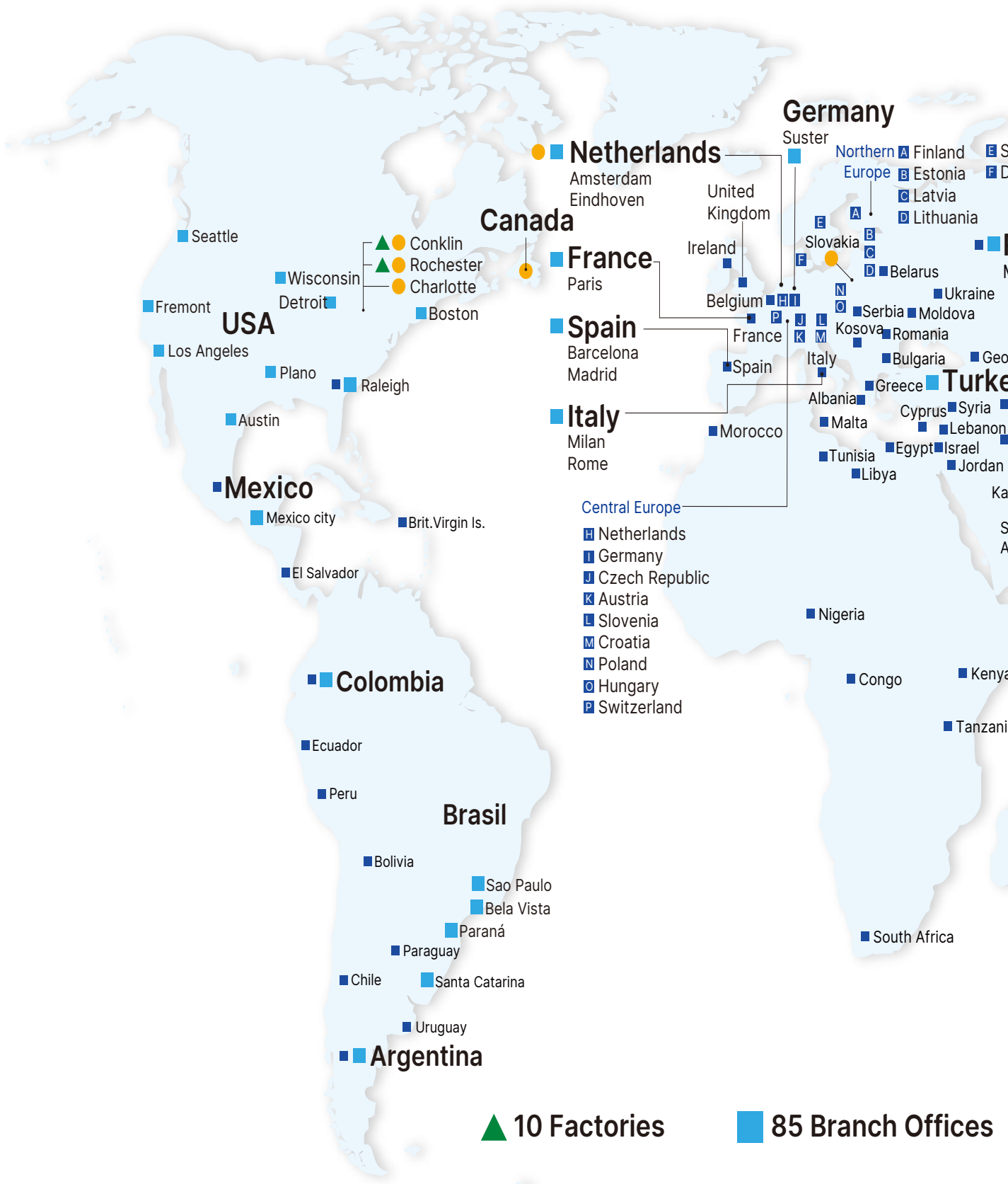
Model	Screw Thread	Applicable Wire Diameter mm [inch]		Size mm [inch]	
		1	2	a	b
MKMP-CG20	M20	5.5 [0.22]-9.0 [0.35]	9.0 [0.35]-14.4 [0.57]	30.5 [1.20]	49.3 [1.94]
MKMP-CG25	M25	10.5 [0.41]-14.1 [0.56]	14.1 [0.56]-18.8 [0.74]	37.0 [1.46]	55.0 [2.17]

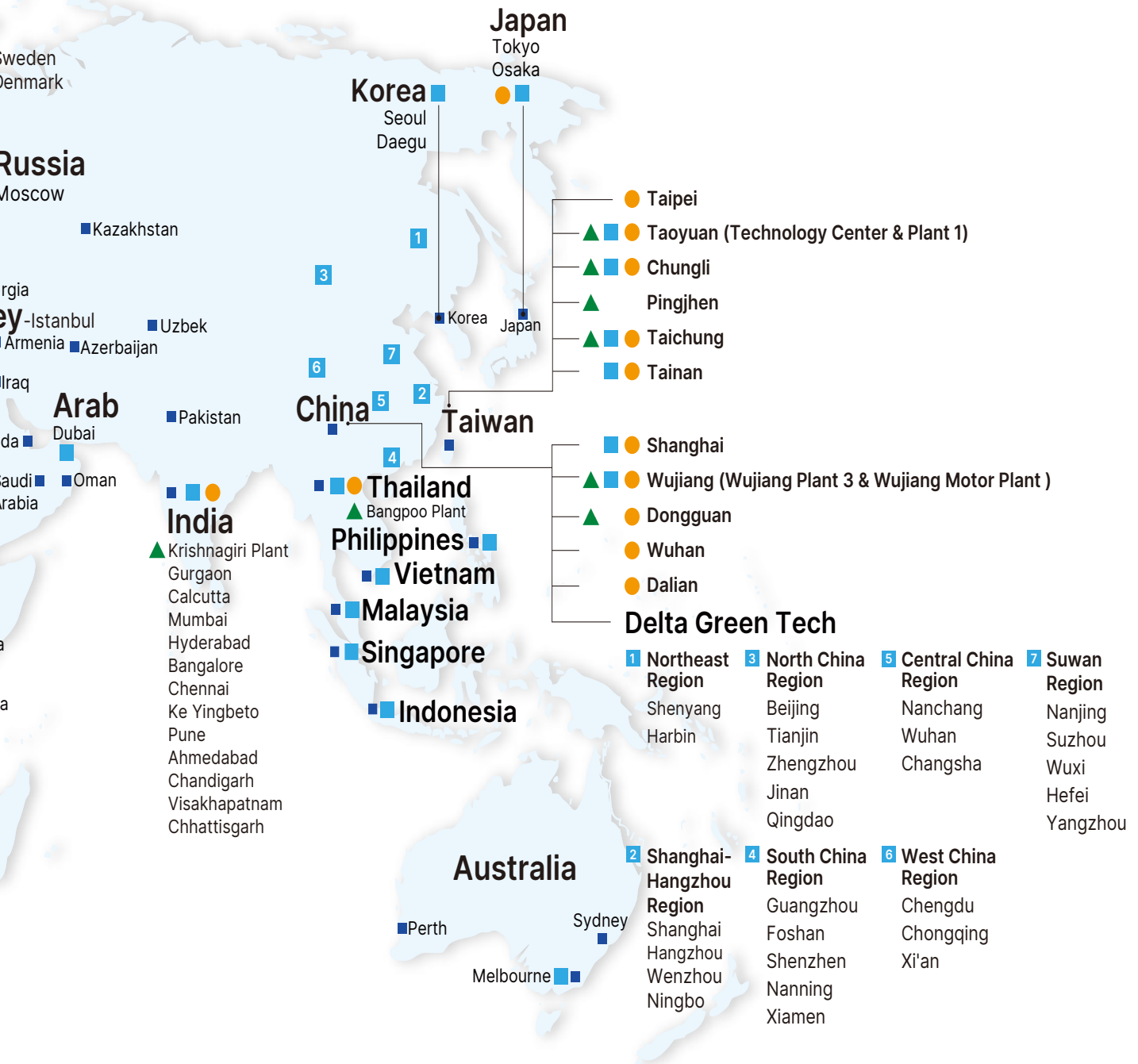
## ▪ EMC Plate

Optional EMC iron plate is available to fix the shielding cables, please refer to Chapter 7 of the manual for more information.

Model	Applicable Inverter Frame
MKMP-EPB	A · B

# Global Operations





● 19 R&D Centers

■ 980 Distributors



Smarter. Greener. Together.

## Industrial Automation Headquarters

### Taiwan: Delta Electronics, Inc.

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Customer Service: 400-820-9595

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