Digitized Automation for a Changing World

Delta Industrial Automation

2025 Full Range Catalogue

www.deltaww.com

DELTA

Compact Drive

Compact Multi-Drive
MX300

Bilateral Installation & Compact Size

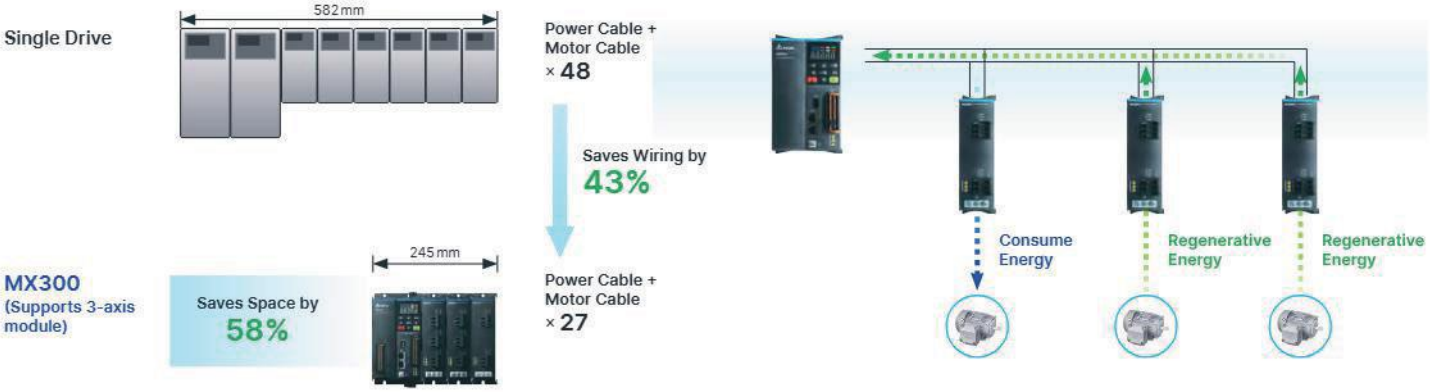
- Modular structure saves cabinet space
- Controls up to 6 inverter modules, 15 axes
- Plug-in installation for fast setup
- Supports Multiple industrial communication protocols (EtherCAT, PROFINET, EtherNet/IP, and CANopen), connects and controls up to 15 axes
- Regenerative power on a common DC bus ensures energy efficiency
- Max. 200% starting torque, 150% 60 sec. overload capacity

Saves cabinet space + wiring + accessories = cost efficiency

- Multi-drive saves cabinet space and cables
- Unifies screw hole location between modules for simple installation

Regenerative power on a common DC bus ensures energy efficiency

- Axes are in a common DC bus configuration



Note: Two 3.7 kW drives with six 0.75 kW drives as an example

Power Range	0.4 kW	0.75 kW	1.5 kW	2.2 kW	3.7 kW	5.5 kW	7.5 kW	11 kW	15 kW	18.5 kW	22 kW
MX300				230 V 1-Phase Rectifier							
	230 V 1-Axis Inverter										
	230 V 2-Axis Inverter										
							460 V 3-Phase Rectifier				
	460 V 1-Axis Inverter										
	460 V 2-Axis Inverter										
	460 V 3-Axis Inverter										

Applications

Open-loop control applications with multiple low-power axes, such as glass edging machine, woodworking machine, car wash machine, and more

High Performance Compact Drive
MH300

Transmission & Tension Control Solutions

Outstanding Drive Performance

- Supports IM and PM motors with optional PG cards for highly precise speed and position control
- Provides powerful torque output at low frequency (0.5Hz/200% without PG vector control; 0Hz/200% with PG vector control) for stable heavy duty operation at low speed and high torque

Strong System Support

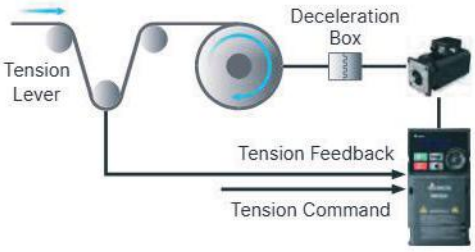
- Built-in PLC with 5k steps; system programming function saves costs
- Highly safe and reliable with Safe Torque Off (STO) SIL2/PL d
- All models can be connected through common DC bus
- Built-in Modbus and CANopen communication; optional communication card: EtherNet/IP, Modbus TCP, EtherCAT, DeviceNet, PROFIBUS DP, and PROFINET

Flexible Expansion

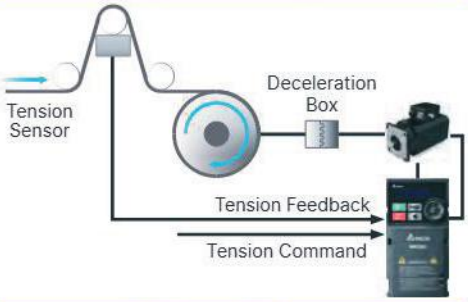
- Built-in two 33kHz high-speed pulse input terminals (MI6 & 7) and one output terminal (DFM)
- Built-in two accessory card slots for PG card, I/O expansion card, communication card, or 24V power card at the same time

Tension Control

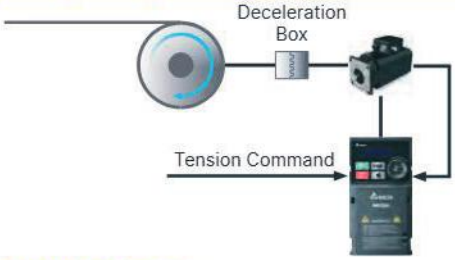
Closed-loop tension, speed control



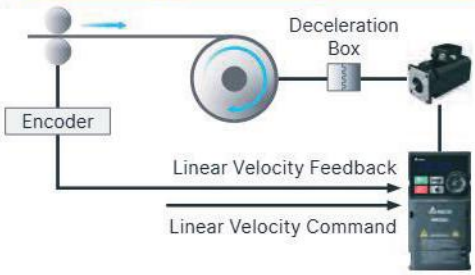
Closed-loop tension, torque control



Open-loop tension, torque control



Steady linear velocity control



Applications

Machine tools, Textile machinery, Woodworking machinery, Rubber and plastic machinery, Winding/unwinding applications

SEMI F47

Power	0.2kW	0.4kW	0.75kW	1.5kW	2.2kW	3kW	3.7/4kW	5.5kW	7.5kW	11kW	15kW	18.5kW	22kW	30kW	37kW	45kW	55kW	75kW
Range	0.25HP	0.5HP	1HP	2HP	3HP	4HP	5HP	7.5HP	10HP	15HP	20HP	25HP	30HP	40HP	50HP	60HP	75HP	100HP
MH300	115V/1-phase																	
	230V/1-phase																	
	230V/3-phase						230V/3-phase											
			460V/3-phase															

Compact Drive
MS300

Built-in PLC, Various Communication Protocols and Wide Power Range

- Overload capacity up to 150%/60 secs and 200%/3 secs for various constant torque loads
- Supports IM/IPM/SPM motors
- Supports Delta's MSI motors for an IE5 energy-efficient system (please refer to the product description of the motor series)
- High torque at low speed (up to 200% at 0.5 Hz with vector control) for stable operation of heavy-duty equipment
- Integrated PLC function (2k steps)
- Highly safe and reliable with Safe Torque Off (STO) SIL2/PL d
- Built-in EMC filter(optional)
- Pull-out keypad
- 24 V power supply card(optional) for unexpected shutdowns

- USB charging on PC is available for parameter setting and update (no need for power supply from main circuit)
- Built-in Modbus and optional communication cards: CANopen, DeviceNet, EtherNet/IP, EtherCAT, PROFIBUS DP, Modbus TCP, and PROFITNET
- High-speed model up to 1,500 Hz

Plate-Mount Design

- Customers can design their own cooling system, applicable to water/oil/air cooling and others
- It can be used for applications with large on-site flecking and easy to block cooling fans, or textile and vacuum pump equipment with independent cooling plates at the customer's site

SEMI F47* * Supports Finless Type

Power Range		0.2 kW 0.25 HP	0.4 kW 0.5 HP	0.75 kW 1 HP	1.5 kW 2 HP	2.2 kW 3 HP	3 kW 4 HP	3.7 kW 5 HP	5.5 kW 7.5 HP	7.5 kW 10 HP	11 kW 15 HP	15 kW 20 HP	18.5 kW 25 HP	22 kW 30 HP
MS300	Standard 0 ~ 599 Hz	115 V/1-phase												
		230 V/1-phase												
		230 V/3-phase												
			460 V/3-phase											
	High-speed 0 ~ 1,500 Hz				230 V/1-phase									
					230 V/3-phase									
					460 V/3-phase									
	Plate-mount 0 ~ 599 Hz			460 V/3-phase										

Applications

Machine tools, Air compressors, Textiles machines, Woodworking machines, Packaging machines, Electronics, Fans and pumps

Basic Compact Drive
ME300

Compact Design for Basic Applications

- Overload capacity up to 150%/60 secs and 200%/3 secs for various constant torque loads
- Supports IM/IPM/SPM motors
- High torque of 200% at low speed 3Hz
- Built-in braking chopper
- Pulse/PWM input as frequency command
- Built-in EMC filter(optional) and Safe Torque Off (STO) SIL2/PL d(optional)
- Built-in sleep mode, water leak inspection, and multi-pump (in parallel) alternative operation function
- PCB with 100% conformal coating; compliant with IEC 60721-3-3 Class 3C3
- Built-in Modbus protocol
- Macro function for quick parameter setting for pumps, conveyor systems, and more
- Supports pull-out operation panel(optional)

Pumping Functions

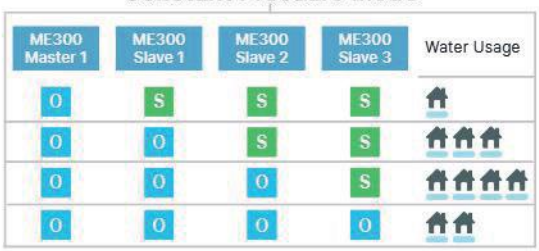
- Sleep mode and water leakage detection: Enters/Maintains sleep status at constant voltage to avoid frequent start and stop (parameter configuration required)
- Lack-of-water detection: Decelerates and stops operation for no water supply to avoid pump damage due to dry-run operation

Multi-pump Control

- Alternate operation: Multiple pumps alternately operate at regular intervals (hourly, daily, or weekly) for easy maintenance and pump lifespan extension
- Constant pressure mode: Maintains constant water output pressure and adjusts the number of pumps per requirements for water supply and energy efficiency

Alternate Operation

Constant Pressure Mode



SEMI F47

Power Range		0.1kW 0.125HP	0.2kW 0.25HP	0.4kW 0.5HP	0.75kW 1HP	1.5kW 2HP	2.2kW 3HP	3kW 4HP	3.7kW 5HP	5.5kW 7.5HP	7.5kW 10HP
ME300	Standard 0~599Hz	115V/1-phase									
		230V/1-phase									
		230V/3-phase									
				460V/3-phase							

Applications

Logistics, Food packaging machines, Woodworking machines, Fans and pumps, Electronics, Conveyance equipment

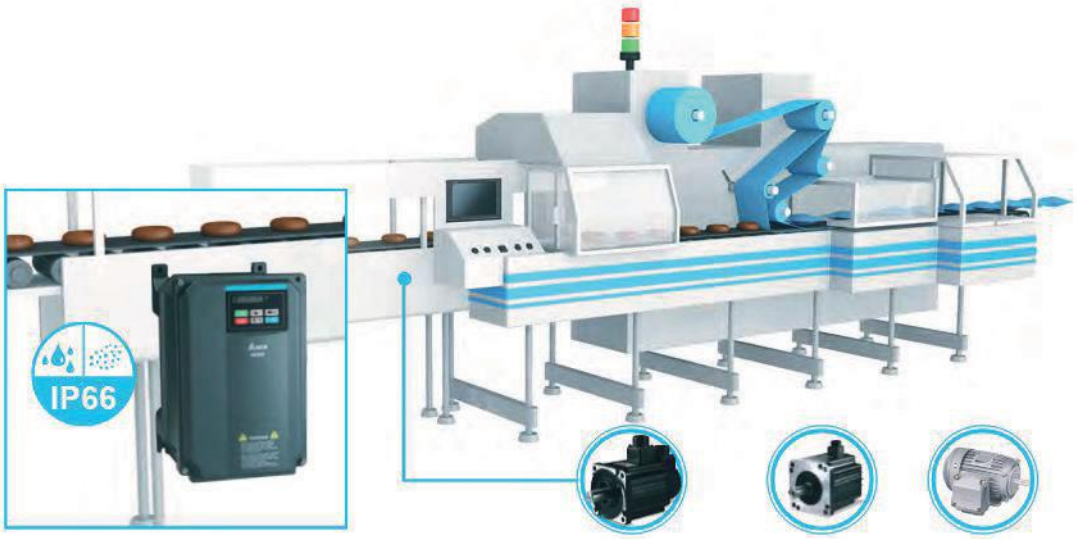
High Protection Compact Drive (IP66 Model)
MS300 IP66 / NEMA 4X

Durable Operation under Harsh Conditions

- Protection against humidity and dust in industrial environments
- Main switch(optional) for fast installation, no need for an electric control cabinet to save cost
- Built-in braking chopper
- Integrated PLC function (2k steps)
- Highly safe and reliable with Safe Torque Off (STO) SIL2 / PL d
- Built-in EMC filter(optional)
- Standard keypad
- Built-in Modbus; optional communication cards: CANopen, DeviceNet, EtherNet/IP, EtherCAT, PROFIBUS DP, Modbus TCP, and PROFINET* for multiple applications and communication needs

* Contact Delta for more details.

IP66 / NEMA 4X Rated Protection Against Water and Dust



SEMI F47

Power Range		0.4kW 0.5HP	0.75kW 1HP	1.5kW 2HP	2.2kW 3HP	3.7kW 5HP	5.5kW 7.5HP	7.5kW 10HP	11kW 15HP	15kW 20HP	18.5kW 25HP	22kW 30HP
MS300	IP66 / NEMA 4X	230V / 1-phase										
		230V / 3-phase										
		460V / 3-phase										

Applications

For humid or dusty environments in various industries such as food & beverages, pumps, and more

Sensorless Vector Control Compact Drive

VFD-E

- Built-in EMC filter for 230 V single-phase and 460 V three-phase models to effectively minimize electromagnetic interference
- Standard Modbus protocol via RS-485 and optional fieldbus cards (including PROFIBUS, DeviceNet and CANopen)
- Optional extension modules for more flexible applications, such as PG (Encoder) card, I/O card and Relay card
- Built-in PLC with 500 steps program capacity

Applications

Vacuum compressor, Conveyor and transportation, Fan / pump equipment, Paper / textile, Food processing, Woodworking, Machining tool / metal processing

Sensorless Vector Control Compact Drive

VFD-EL

- 6 sets of Digital Input,1 set of Relay, 1 set of Analog Input, 1 set of Analog Output
- Built-in EMI filter for 230 V single-phase and 460 V three-phase models to effectively minimize the electromagnetic interference
- Supports side-by-side installation and DIN-rail mounting
- Built-in constant pump pressure control and PID control

Applications

Edge banding, Logistics conveyor, Material handing

Sensorless Vector Control Economical

VFD-EL-W

- 4 sets of Digital Input, 1 set of Relay, 1 set of Analog Input, 1 set of SG+/SG-
- Supports side-by-side installation
- KC Certification (EL-W-1)

Applications

Edge banding, Logistics conveyor, Food packing, Material handling

Canopen Communication Compact Drive

VFD-EL-C

- Built-in CANopen(Ci402) & RS-485(Modbus)
- CANopen remote I/O (6DI + 4DO)
- Dual RJ45 port, CANopen no Hub required
- CE certification
- Supports IM / PM Motors

Applications

Photovoltaic production line, Food packing, Spray painting, Logistics, Woodworking

Compact Drive

Category	Item	VFD-EL	VFD-EL-W	VFD-EL-C
Terminal	Digital input	6	4	6
	Digital output			4
	Relay	1	1	
	Analog input	1	1	
	Analog output	1		
	RJ45 port	1	1	2
	SG+/SG- terminals		●	
	DC_BUS terminals	●		
Communication	Modbus RS485	●	●	●
	CANopen Ci402			●
Others	EMI filter	●		
	Installation	wall-mounted, DIN-rail	wall-mounted	wall-mounted
	Frequency control knob	●	●	

* Supports VFD-E and VFD-EL
** Only for VFD-E

Power Range	0.2kW 0.25HP	0.4kW 0.5HP	0.75kW 1HP	1.5kW 2HP	2.2kW 3HP	3.7kW 5HP	5.5kW 7.5HP	7.5kW 10HP	11kW 15HP	15kW 20HP	18.5kW 25HP	22kW 30HP
VFD-E	115V/1-phase											
	230V/1-phase											
	230V/3-phase											
		460V/3-phase										
VFD-EL	115V/1-phase											
	230V/1-phase											
	230V/3-phase											
		460V/3-phase										
VFD-EL-W	230V/1-phase											
		460V/3-phase				4.0kW						
VFD-EL-C	230V/1-phase											
		460V/3-phase				4.0kW						

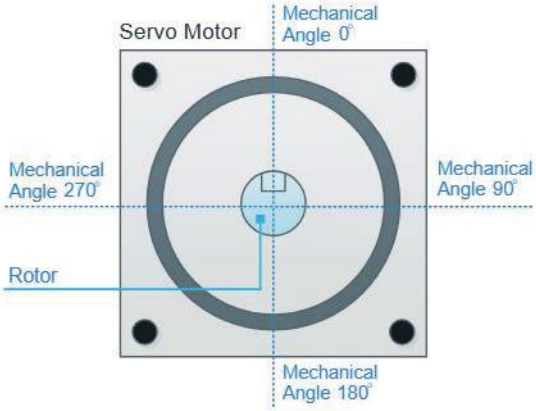
High Performance Vector Control Drive
C2000 Plus

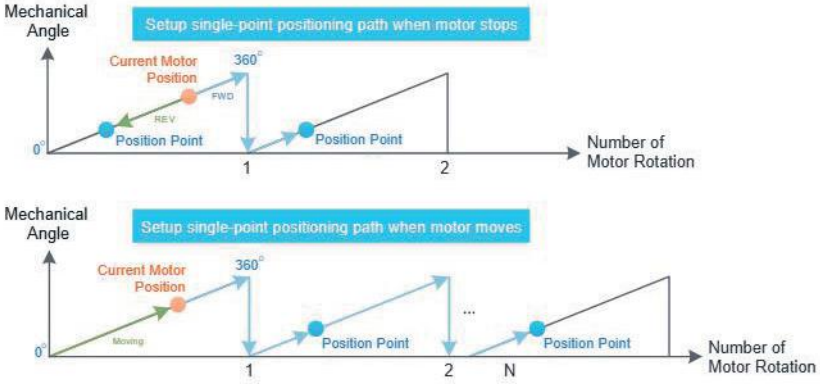
Best Choice for General Drive Controls

- Heavy duty overload capability: 150%/60 secs and 180%/3 secs, suitable for constant torque applications
- Supports induction/PM/SynRM motors
- Field-oriented vector control
- P2P control
- Wide power range (up to 560kW for 460V models)
- User-friendly Start Wizard
- Display in 9 languages: English, Spanish, Portuguese, French, Russian, Turkish, German, Italian, and Traditional/Simplified Chinese
- Built-in PLC with 10k steps program capacity
- Enhanced protections and adaptation with PCB coating, compliant with Class 3C3
- Modular design for easy maintenance and extension
- Built-in Modbus and optional communication cards: EtherCAT, PROFINET, EtherNet/IP, PROFIBUS DP, DeviceNet, Modbus TCP, and CANopen

Single-Point Positioning

Positions the motor at a specific point (within a single rotation) for precise stop upon request





SEMI F47

Power Range	0.75~3.7kW 1~5HP	5.5~18.5kW 7.5~25HP	22~37kW 30~50HP	45~90kW 60~125HP	110~185kW 150~250HP	220~560kW 300~750HP	630kW 850HP
C2000 Plus	230V/3-phase						
	460V/3-phase						
	575V/3-phase						
			690V/3-phase				

* The default of 575V & 690V models are light duty

Applications

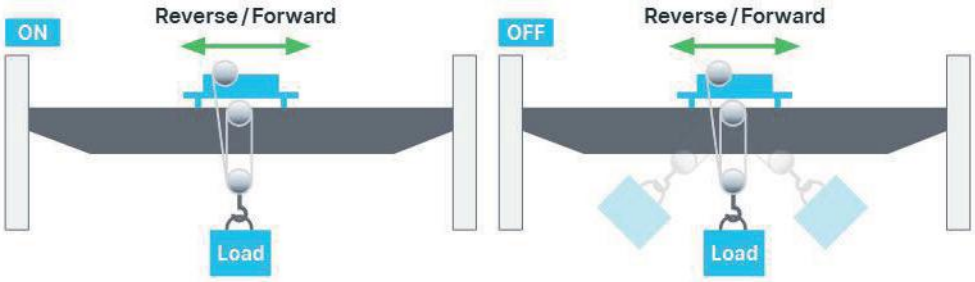
Machine tools, Extruders, Calender machines, Paper machines, Compressors, Wire drawing machines, Packaging machines

Heavy Duty Vector Control Drive
CH2000

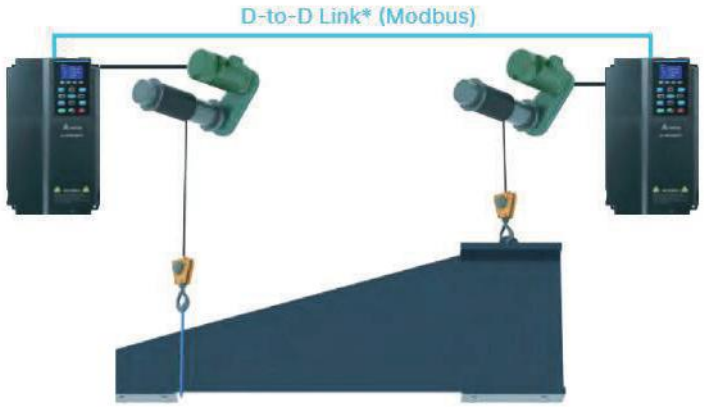
Excellent High Overload Capability for Impact Loading Applications

- Fast response to impact loads
- Super Heavy Duty (SHD) setting for high overload capability: 150%/60 secs, and 200%/3 secs
- Large starting torque: Over 200% at 0.5 Hz/200% at 0 Hz in FOC + PG mode
- Supports both induction and permanent magnet motors
- Various crane functions for high performance: Real-time anti-sway, anti-crab, torque proving, and shaft-synchro
- Modular design for easy installation and maintenance
- Built-in PLC with 10k steps program capacity
- Built-in braking unit (up to 75 kW)
- Built-in Modbus communication
- Optional communication cards: PROFIBUS DP, DeviceNet, Modbus TCP, EtherNet/IP, EtherCAT and CANopen

Real-Time Anti-Sway



Advanced Crane Functions



*Device-to-device link

SEMI F47

Power Range	0.75~3.7 kW 1~5 HP	5.5~18.5 kW 7.5~25 HP	22~37 kW 30~50 HP	45~75 kW 60~100 HP	90~220 kW 125~300 HP	280~450 kW 375~600 HP
CH2000	230 V/3-phase					
	460 V/3-phase					

Applications

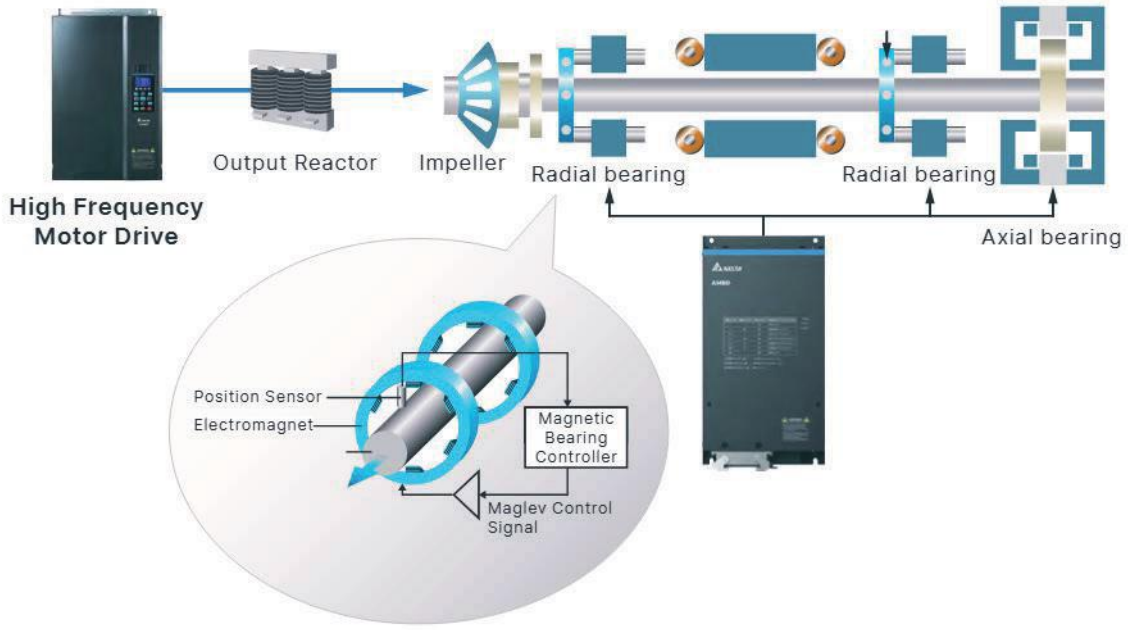
Machine tools, Punching machines, Cranes and hoists

High Frequency Motor Drive
C2000-HS

Prime Product for High-Speed Fluid Applications

- Supports all kinds of high speed motors, including IM(induction motor), SPM (surface permanent magnet motor),IPM (Interior permanent magnet motor)
- Max. operating frequency up to 1,500 Hz
- 120% of rated current: 1 minute for every 5 minutes, 160% of rated current: 3 seconds for every 30 seconds
- Direct drive mechanism: reduced system footprint, higher efficiency and lower cost
- With FOC sensorless control, the speed control precision reaches 1:100
- Maintains high motor drive efficiency of up to 98% while running at a high carrier frequency
- All series built-in DC reactor to suppress harmonics distortion and compliant with EN61000-3-12
- Certifications: GB/T12668-2, UL508c, CE

Structure



Power Range	30 kW 40 HP	37 kW 50 HP	45 kW 60 HP	55 kW 75 HP	75 kW 100 HP	90 kW 125 HP	110 kW 150 HP	160 kW 215 HP	220 kW 300 HP	355 kW 475 HP
C2000-HS	460 V/3-phase									

Applications

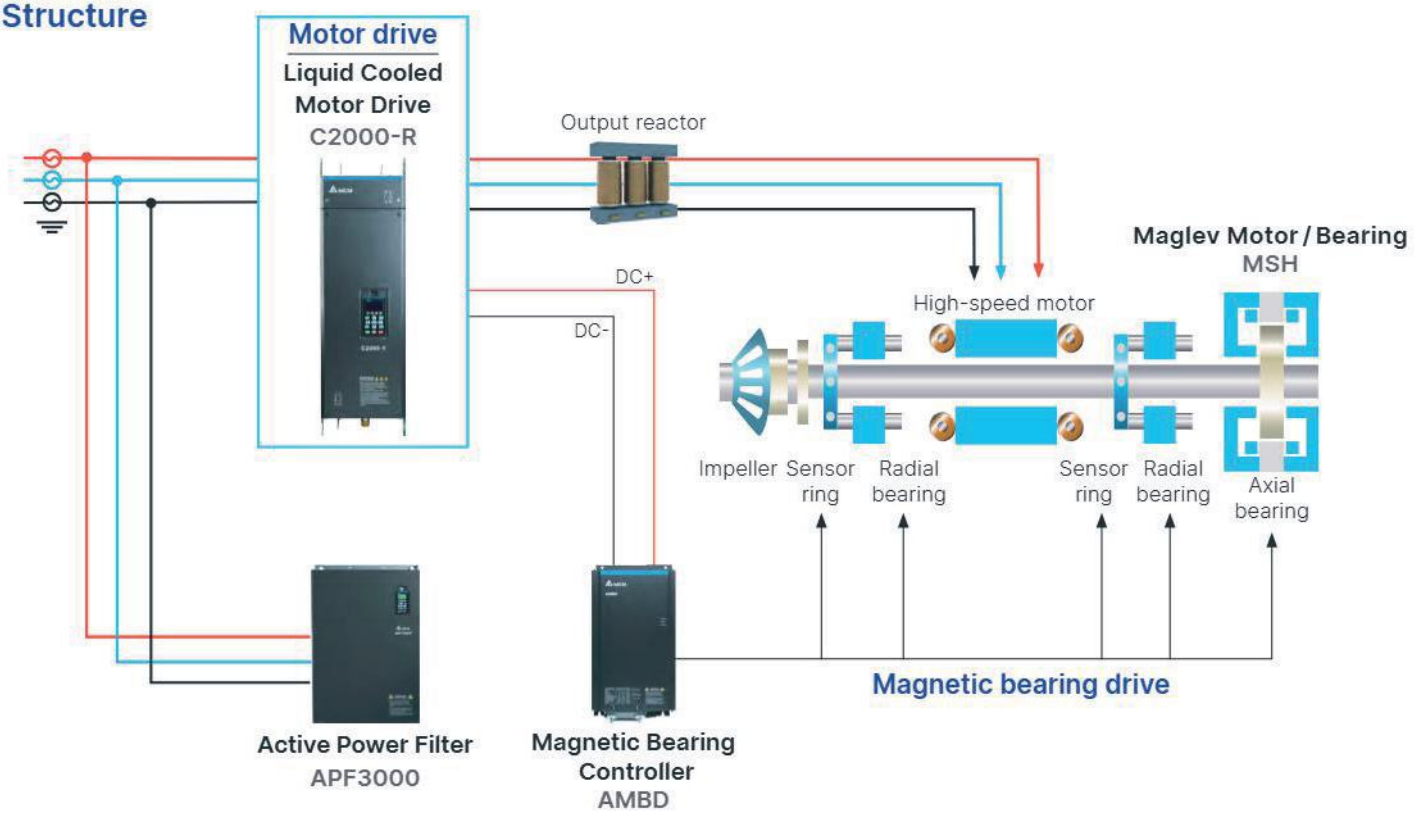
Maglev chiller, Maglev and air bearing, Air compressor and turbo blower, Micro turbine generator, Fly-wheel energy storage

High Performance Liquid Cooled Drive
C2000-R

Optimized Liquid Cooling Design, Compact Size

- Compact design saves space: Special heat dissipation design greatly reduces the volume compared with air-cooled drives
- Outstanding control technology for precise operation: Built-in motor ID parameters for sensorless control with stable output speed and optimized dynamic response; With FOC sensorless control, the speed control precision reaches 1:100
- Low harmonic distortion design reduces the impact on the power grid and peripheral equipment: All rating built-in DC reactors; Reduces harmonic distortion; Compliant with EN61000-3-12
- High EMC level, less additional accessory requirements: No external filter is required to meet C3 level requirement
- Anti-condensation function without an external controller: Built-in water temperature control function, effectively prevents condensation without an external controller

Structure



Power Range	132 kW 175 HP	160 kW 215 HP	250 kW 335 HP	185 kW 250 HP	220 kW 300 HP	280 kW 375 HP	315 kW 420 HP	355 kW 475 HP	450 kW 600 HP
C2000-R	380 V ~ 460 V / 3-phase								

Applications

Chiller units for HVAC systems, Mining crusher

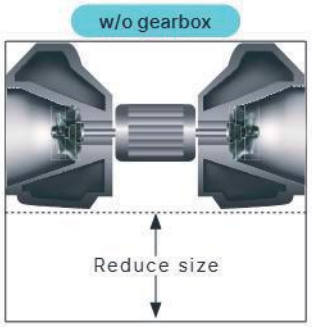
Active Magnetic Bearing Drive
AMBD

New Generation Fluid Magnetic Solution

- Wide input voltage range: Wide DC power input to apply with the current terminals of 230 / 460 V inverters
- Lower implementation costs: Leverages Delta's inverter feature of power regeneration from deceleration, no need for UPS
- Magnetic bearing 5-axis control: Independent front and rear radial bearing control to reduce vibration and enhance magnetic suspension control accuracy. Independent axial position control to detect shaft elongation and avoid collisions caused by excessive temperature
- High control accuracy: Compliant with the ISO 14839-2 Zone A standard. The bearing vibration displacement is less than 30% of the maximum vibration displacement
- Supports external temperature sensors: Available for 6 sets of motor and magnetic bearing temperature protection
- Peak power up to 3 kW: Suitable for magnetic bearing motors up to 500 kW to perform magnetic suspension control

Magnetic bearing construction avoids traditional friction loss and maintenance issues and is the best choice for high flow, pressure and efficiency in high speed fluid applications. Compared with traditional centrifugal ice machines, it can save energy by more than 30%

Ball Bearing	High-Speed Magnetic Bearing



- High-speed impossible. The limit rotation speed is about 8,000 rpm
- High speed (7,000~8,000 rpm) needs to be equipped with oil or water cooling equipment, and mechanical system needs a gearbox

- Advantage: Low friction coefficient, smaller rotor inertia, longer life than traditional bearings, high system rigidity, anti-compressor surge shock
- Disadvantage: Parameter adjustment, higher price, extra sensors installation

Peak Power Range		1.5 kW	3.0 kW
VFD-DD	Input Voltage	250 ~ 600 V_{DC}	
	Rated Output Voltage	6 Amps	10 Amps

Applications

Magnetic bearing chillers, Magnetic bearing turbo blowers, Micro gas turbines, Flywheel energy storage systems

Open-Loop Variable-Torque Standard Drive

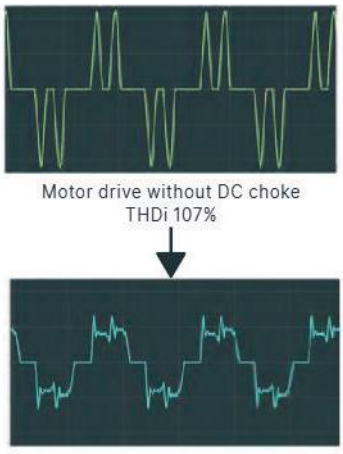
VP3000 / VP3000-E New / VP3000-EHS New

High Efficiency, Stability, and Lower Harmonics
Next-Generation Standard Drive for the Fluid Industry

- Controls various high-efficiency motors: IM, PM, and SynRM
- Effective harmonic suppression to extend system life:
  The lowest harmonics can reach THDi Min. 35%
- The volume of the slim type appearance design is 23% smaller, compared to the previous generation
- Predictive Maintenance (PdM): Monitors key components service life
- Built-in EMC filter C2, C3
- Enhances the corrosion resistance capacity: The PCB coating complies with IEC 60721-3-3 class 3C3
- Built-in PLC 20k steps, with drive and controller integrated
- Built-in multi-pump function: Alternate operation, constant pressure mode, and pump redundancy
- VP3000-E paired with APF3000 is compliant with IEEE-519 standards THDi 5%; Built-in DC bus terminals cater to DC grid trends
- VP3000-EHS supports high carrier frequency operation, delivering high performance and longer lifespan

Effective Harmonic Suppression

- Adopts lower harmonic technology to effectively suppress harmonics without an extra reactor*
- The lowest harmonics can reach THDi min. 35%, much better than EN 61000-3-12 standard (THDi < 48%)

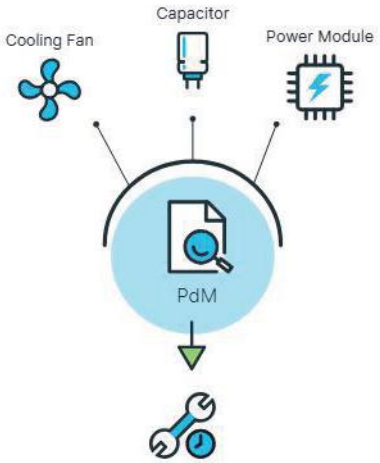


Motor drive without DC choke
THDi 107%

VP3000 with low harmonic technology
THDi 35%

Predictive Maintenance (PdM)

- Early maintenance notification for power module, capacitor, and cooling fan to allow replacement before end of service life and prevent sudden downtime



Advanced equipment or machine parts renewal

*Available in lower harmonic models. For details, please refer to Model Name Explanation.

SEMI F47

Power Range	0.75~3.7kW 1~5HP	5.5~18.5kW 7.5~25HP	22~37kW 30~50HP	45~90kW 60~125HP	110~185kW 150~250HP	220~450kW 300~600HP	560~630kW 715~850HP
VP3000	460V/3-phase						
VP3000-E				460V/3-phase			
VP3000-EHS				460V/3-phase			

Applications

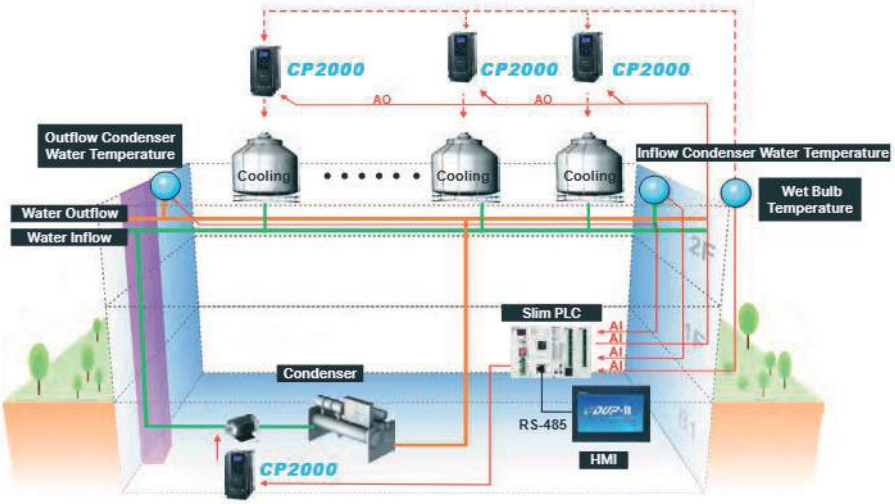
HVAC, Chiller, Air compressors, Tunnel ventilation, Water supply and treatment

Fan / Pump Vector Control Drive
CP2000

Excellent for Large Power Fans and Pumps Applications

- Supports IM / PM / SynRM motors
- Built-in Modbus and BACnet MS/TP communication
- Enhanced PCB (Printed Circuit Board) conformal coating improves drive durability; compliant with Class 3C3
- Fire mode and Bypass mode: Continuous pressure output to extract smoke when a fire accident or other emergency occurs
- Fast and easy installation with quick settings for self-defined parameter groups and parameter duplication
- Various modes for fans / pumps applications:
  PID control, sleep/wake up functions, flying start and frequency-hopping functions
- Supports Delta's MSI motors for an IE5 energy-efficient system (please refer to p.17)
- Built-in LCD keypad for easy operation, and the TPEditor software allows user-defined home page editing
- Synchronous multi-pump control of up to 8 motors, and fixed amount / fixed time circulation control (optional relay expansion cards available)
- Built-in PLC with 10k steps program capacity and real-time clock (RTC)
- Optional communication cards: PROFIBUS DP, DeviceNet, Modbus TCP, EtherNet/IP, CANopen, PROFINET and BACnet IP

Structure



SEMI F47

Power Range	0.75~3.7kW 1~5HP	5.5~18.5kW 7.5~25HP	22~37kW 30~50HP	45~90kW 60~125HP	110~185kW 150~250HP	220~450kW 300~600HP	560~630kW 715~850HP
CP2000	230V/3-phase						
	460V/3-phase						
	575V/3-phase						
			690V/3-phase				

Applications

Factory automation, HVAC, Fans and pumps

IP55 Fan / Pump Drive
CFP2000

For HVAC and Fans / Pumps Applications

- Supports induction / PM / SynRM motors
- IP55 and IP41 protections
- Built-in main switch for the IP55 models(optional)
- Built-in Safe Torque Off (STO) SIL2
- Built-in EMC filter; compliant with IEC 61800-3 C2 / C1
- Built-in DC reactor effectively reduces harmonic distortion; compliant with IEC 61000-3-12
- Enhanced PCB (Printed Circuit Board) conformal coating improves drive durability; compliant with Class 3C3
- 2 sets of PID controllers
- Built-in PLC with 10k steps program capacity and real-time clock (RTC)
- Built-in Modbus and BACnet MS/TP communication
- Optional communication cards:
  PROFIBUS DP, DeviceNet, Modbus TCP, EtherNet/IP, CANopen, PROFINET and BACnet IP
- Built-in Quick Start and industry recipes to simplify installation and setup

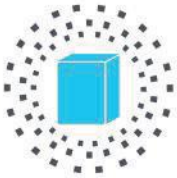
Built-in EMC Filter

- EN61800-3 C2 & C1

Built-in DC Choke

- Suppress harmonics, THDi < 48%
- EN61000-3-12

Protection Class



- IP41 Dust Resistant Type (standard)

- IP55 Waterproof Type(optional)

SEMI F47

Power Range	0.75 ~ 5.5 kW 1 ~ 7.5 HP	11 ~ 22 kW 15 ~ 30 HP	30 ~ 37 kW 40 ~ 50 HP	45 ~ 55 kW 60 ~ 75 HP	75 ~ 90 kW 100 ~ 125 HP
CFP2000	220 V / 3-phase				
	380 to 480 V / 3-phase				
		600 V / 3-phase			

Applications

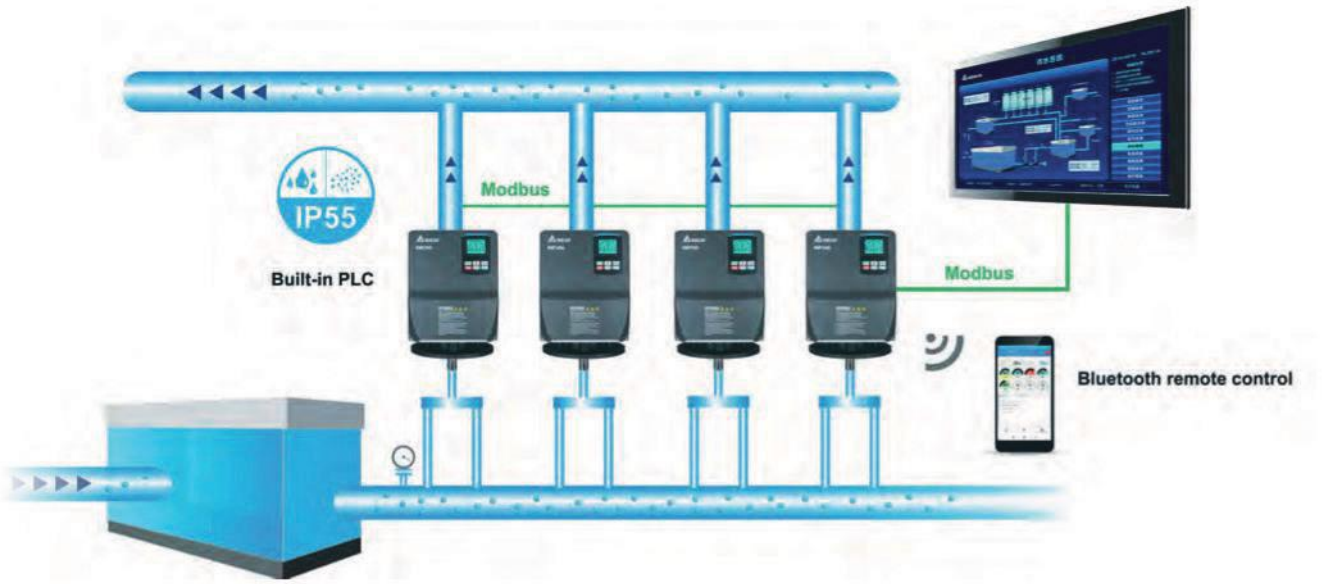
HVAC, Fans and pumps, Water supply and treatment

Motor-Mounted Pump Drive
MPD / MP300

Highly Efficient Pumping Solution

- Adopts an efficient IE5 motor for energy efficiency, compliant with EN61800-9-2 IES2
- IP55-rated protection level
- Built-in PLC with 14k steps program capacity and RTC for flexible operation
- Suitable for water pumps requiring constant pressure and variable frequency; built-in multi-pump control of up to 8 pumps
- Smart pumping: Multi-pump redundancy, flow estimation, cavitation protection
- Pumping protection: Dry pump, high / low water pressure
- Optional EMI for EN61800-3 C1/C2 compliance
- Delta's optional dedicated pumping application with bluetooth connection for monitoring and adjustment

Structure



CE

Power Range	0.75 ~ 7.5 kW 1 ~ 10 HP	11 ~ 22 kW 15 ~ 30 HP
MPD	460 V / 3-phase	
MP300	460 V / 3-phase	

Applications

Industrial / commercial water supply systems, Water supply systems in residential areas, Water pumps for pressurization and transportation

DELTA

PMa Synchronous Reluctance Motor
MSI

High Power Density and High Efficiency

- Built with the latest materials and magnetic reluctance technology
- Ultra-high efficiency: Rated load / partial load
- High efficiency IE4 without rare earth elements (NdFeB)
- Lightweight design, small size, and high power density
- Low noise and vibration
- Easy replacement for a corresponding motor frame size
- IP55 protection
- Flexible installation: Flange mounting / foot mounting

High Efficiency and Energy-Saving Systems:

- **Quick Settings:** Enter MSI motor codes for Delta's motor drive to automatically identify and load the motor parameters
- **Space-saving:** 1 ~ 2 frames smaller than induction motors with the same power range

Fan and Pump Applications

Standard Compact Drive MS300

* Refer to page 3 for MS300.

PMa Synchronous Reluctance Motor (Standard) MSI

- Overload capacity up to 120% / 60 secs

IE5 IE4

Compressor Applications

Fan / Pump Vector Control Drive CP2000

* Refer to page 15 for CP2000.

Power Range (kW)	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110
1,500 rpm Standard MSI + MS300 Series	380 V / 3-phase																		
3,000 rpm Standard MSI + MS300 Series	380 V / 3-phase																		

*** Applicable system voltage is 380 V.**

Applications

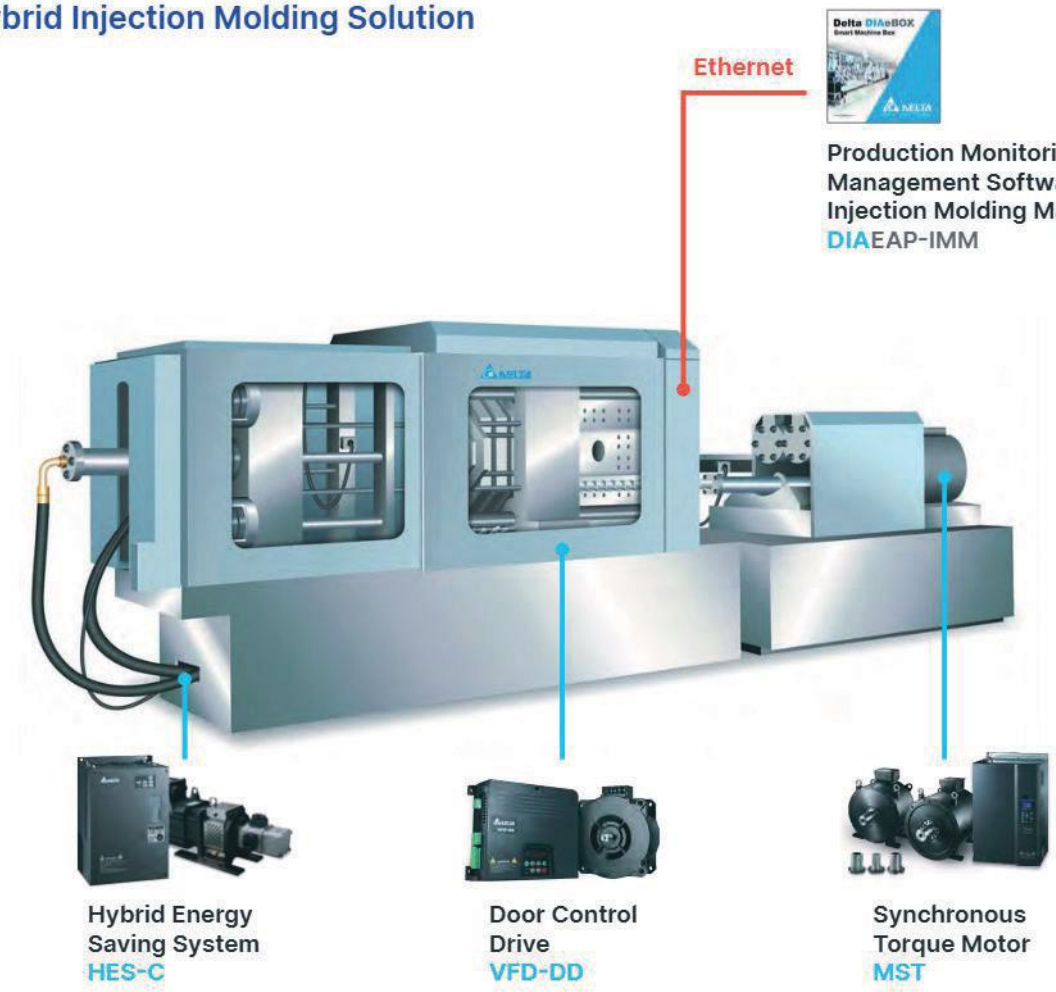
Fans and pumps, Compressors, Industrial machinery

Hybrid Injection Molding Solution

High Energy Efficiency, Precise Control and User-friendly Design for Optimized Injection Molding Processes

- Perfect combination of industrial know-how and advanced key components for high performance and energy-saving injection molding solutions:
  - **Hybrid Energy Saving System HES-C:**
    Precise pressure and flow control for each process to ensure highly accurate injection for stable and consistent products and quality
  - **Synchronous Torque Motor MST:**
    Replaces hydraulic motors or gearboxes; simultaneously performs mold opening and material feeding to shorten production cycle and increase productivity
  - **Hybrid Servo Drive VFD-VJ:**
    Built-in pressure control algorithm
- Compatible with production monitoring and management software (**DIA**EAP-IMM) for real-time production data collection, handling and monitoring

Delta Hybrid Injection Molding Solution



Injection Molding Solution

Hybrid Energy Saving System
HES-C

- Significant energy efficiency
- High overload capability
- Three sets of PID pressure control
- S-Curve for pressure/smooth flow control
- Field-weakening motor control
- Easy commissioning
- Multiple protections
- Multi-pump control for confluence/flow diversion
- User-friendly software for machine commissioning
- Diagnoses of component health

CE

Flow Range (L/min)	63	80	100	125	160	200	250	320
HES-C	230V							
	460V							

Synchronous Torque Motor
MST

- High torque at low speed and stable operation: Precise control of feeding position
- Direct drive, no energy loss during transmission
- Fast acceleration/deceleration response and zero-speed holding function to avoid screw rotation during injection
- High efficiency, low noise
- Long service life, easy maintenance (No oil lines, belts, or gearboxes)
- Direct oil cooling in oil tanks, no need to install additional water tanks
- Shortens molding cycle and improves production efficiency

CE

Power Range (kW)	15	22	30	55	75	132	160	220	280
MST	460V								

Hybrid Servo Drive
VFD-VJ

- Built-in pressure control algorithm
- Multi-pump convergent flow control
- PG card and communication card on control board
- Supports CANopen communication
- Built-in brake unit
- Protection of insufficient pump oil
- Supports IPM motor parameter auto-tuning
- 4k~10kHz adjustable carrier frequency

CE

Power Range (kW)	11	15	18.5	22	30	37	45	55	75
VFD-VJ	230V								
	460V								

Full Electric / Hybrid Injection Molding Solution IAS

Flexible Deployment, Full Electric Controller, High Speed and Precision, Energy Saving

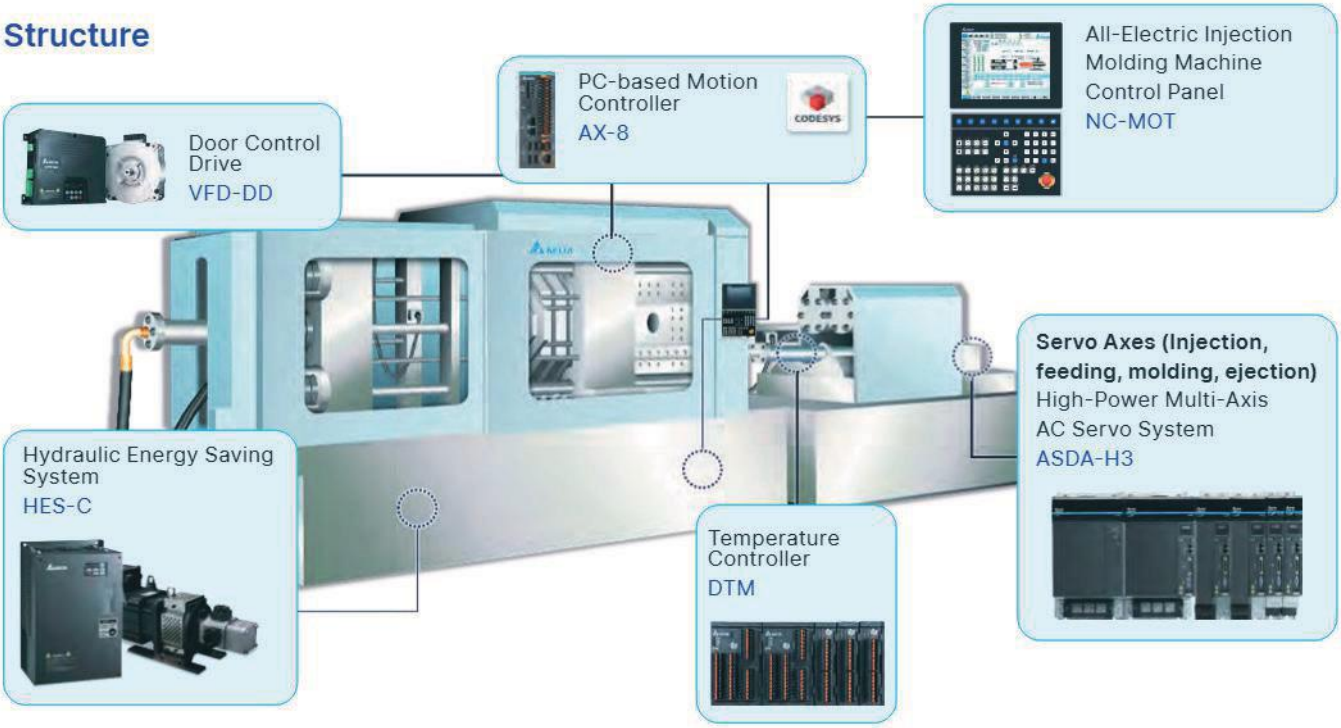
An integrated system platform with Delta automation control solutions

- Supports various types of injection molding machines, such as single-color, multi-color, horizontal, vertical, and two-plate machines
- High-speed IPC controller with high response, precise control
- Supports different machine types, such as electric, oil and hybrid
- Barrel synchronous temperature rise function
- User-defined function to change machine operating flow quickly
- Hydraulic Energy Saving System HES-C provides precise pressure and flow control for each process to ensure accurate injection, enhancing stability and quality
- ASDA-H3 high power modular multi-axis servo drive provides common DC bus design to improve energy efficiency and reduce space

Secondary development platform DIAStudio

- Provides users an interface and process control integrated development environment
- Provides complete examples and source code for easy secondary development
- Reserves the flexibility for customized development
- Online debugging, editing, and monitoring tool

Structure



Injection Molding Solution

Intelligent Injection Molding Monitoring Solution
DIAEAP-IMM

The Best IIoT Solution for Machine Tools

- Injection controller data collection
- Real-time production monitoring:
  Manufacturing information visualization, Data digitization, Mobile device interface, Remote production management
- Efficient e-Forms: Daily quality daily report, OEE report, Production history, Trend charts, and more
- Optimizes production efficiency: Big data analytics Parameter optimization, Reduce inefficiency
- Integration of systems:
  Integrates different brands of injection molding machines and ERP/MES

DIAEAP-IMM

- Web server base structure
- User interface for injection molding machine industry
- Tags monitoring and work order status notification

Equipment manager

Parameter Wizard

- Machine hour overview
- Product information
- Mold lifespan
- Parameters monitoring
- Production record

Quality manager

Injection Molding Wizard

- Quality overview
- Fault analysis
- Virtual inspection

Production manager

Reporting

- OEE, Activation, Production, Working hours analysis
- Production history
- Mobile device interface
- Remote production management
- Production trend report

Optimizes Manufacturing Efficiency

- Production experience can be recorded and accumulated, improving equipment parameters and manufacturing processes
- Edge computing and real-time analysis of injection molding machine, ensuring quick response, higher installation efficiency

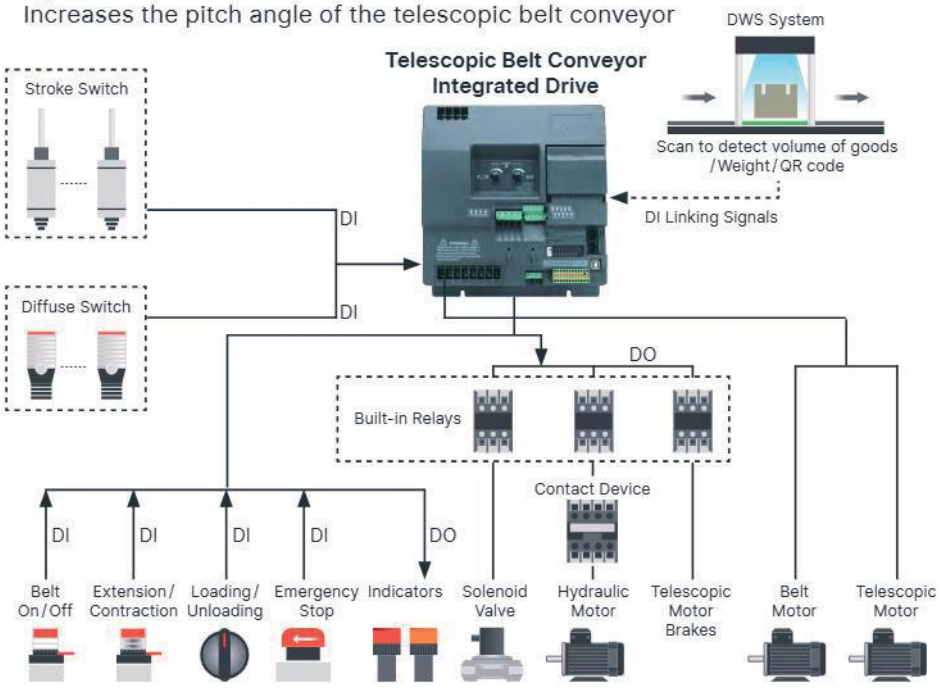
Telescopic Belt Conveyor Intergrated Drive
LTC

Integrated Double VFDs, PLC and 24 V_{DC} Power Supply

- Built-in PLC 14k steps logic controller to achieve integrated drive control
- Integrated 35 W 24 V_{DC} power supply
- 21 DI (17 user-defined DI & 4 internal defined DI), support NPN/PNP mode switching
- 13 DO (8 User-defined DO & 5 Internal defined DO), high reliability relays support 220 V_{AC} and 24 V_{DC}, with 1 DO supporting 380 V_{AC} load)
- Large capacitance and common bus design: No need for optional brake and resistor, reduces installation costs
- Regenerative energy, intelligent soft brake

Solution Architecture

- DWS System:
  Dimension Weight Scanning System
- Oil solenoid valve:
  Reduces the pitch angle of the telescopic belt conveyor
- Hydraulic motor:
  Increases the pitch angle of the telescopic belt conveyor



Compact Size
Reduces control cabinet size by 60%

Integrated Drive
Integrates motor drives and PLC

Easy Installation
Simple wiring for installation

Fast Tuning
Simple parameters setting

Easy Maintenance
Quick replacement

Optimal Costs
Reduces the number of parts in the control cabinet

Power Range

380 ~ 480V_{AC}/3-phase

Model	VFD2207LTC43A		VFD4015LTC43A	
Inverter Unit	VFD1	VFD2	VFD1	VFD2
Applicable Motor Power (kW)	2.2	0.75	4.0	1.5
Applicable Motor Power (HP)	3.0	1.0	5.5	2.0
Frame Size	A			

Distributed Electric Control Cabinet Drive
VFD-EL-D

Highly Integrated Peripheral Electrical Components, Energy and Cost Effective

- EL-DL/EL-DS models: 5DI/3DO, EL-DA models, 10DI/6DO
- Supports Modbus/CANopen
- Supports IM/IPM/SPM motor
- High overload capacity: 200% for 3 seconds, 180% for 10 seconds, and 150% for 60 seconds
- EL-DL/EL-DS: one channel of 24 V/250 mA power supply;
  EL-DA: two channels of 24 V/250 mA independent power supply
- Sufficient I/Os to reduce external switching power supplies and intermediate relays
- The PUD1 keypad can be pulled out to serve as a replacement for conventional buttons and indicator lights
- One-button parameter copy via keypad PUD1
- Ultra-high air volume DC fan

DA Series

DS Series

DL Series

DC Series

Power Range	2.2 kW 3 HP	4.0 kW 5 HP	5.5 kW 7.5 HP
VFD-EL-D	460 V/3-phase		

Applications

Matrix line belt conveyor

Turning belt conveyor

DWS front-end belt conveyor

Climbing belt conveyor

Applications

- Electric distribution panel
- Industrial control situations requiring more digital input/output terminals and complex system wiring

Integrated Elevator Drive
IED-S

Space-Efficient Integrated Drive and Control

Versatile I/O Terminals

- 25 digital input ports
- 8 relay output ports
- 5 high-voltage input ports

Encoders

- Incremental
- Sin/Cos
- SICK HIPERFACE
- HEIDENHAIN EnDat 2.1

Control

- Highly efficient group control of up to 8 elevators without additional control cards
- Various operation modes: Demo, attendant service, and time-Based
- Single/double-door elevator applications
- Max. 63 floors

Efficiency

- Direct stop: Multi-speed control to provide a comfortable ride with higher efficiency
- Peak hours operation: Improves peak hours operation efficiency
- Full-load bypass operation: Arrives at designated floor without stopping

Auto-Adjustment

- Auto-learning hoistway and auto floor height detection
- Auto-tuning motor parameters without load disconnection
- PC software monitors motor operation status

Energy Saving

- Lighting and air circulation scheduling for elevator cars
- Standby mode to save energy

Certifications Compliant

- CE, UL certifications
- Supports Safe Torque Off (STO) SIL2
- Safety circuit certificate for electronic components
- Certificate for self-monitoring subsystem
- Compliance with CN elevator verification, meets EN81-20/50

Power Range

Power Range	5.5kW 7.5HP	7.5kW 10HP	11kW 15HP	15kW 20HP	18.5kW 25HP	22kW 30HP	30kW 40HP	37kW 50HP	45kW 60HP	55kW 75HP	75kW 100HP
IED-S	230V/3-phase										
	460V/3-phase										

Applications

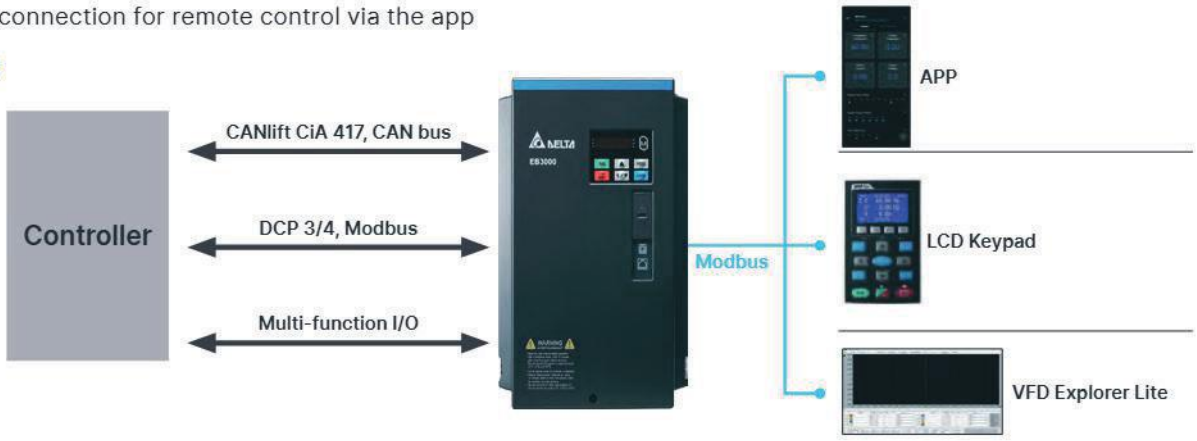
Commercial and residential buildings, Freight elevators, MR and MRL elevators

Advanced Elevator Drive
EB3000

Safe, Smart and Comfortable

- Built-in STO (SIL3), complies with EN81-20/50
- Optional models with built-in filter, complies with EN12015, EN12016
- Built-in brake transistor
- Built-in CANlift CiA 417 and DCP 3/4
- Flexible UPS configuration
- Supports various encoders: Endat2.2, SSI, BiSS-C, and more
- Direct docking mode to decrease creeping and travel time
- Data logger with 6 trigger modes
- Bluetooth connection for remote control via the app

Structure



Machine Room
Drive on the Rooftop

Machine Room-less
Drive Inside the Hoistway Hall

Machine Room-less
Drive Inside the Hoistway

Power Range	2.2~3.7kW 3~5HP	4~18.5kW 5~25HP
EB3000	230V/1-phase	460V/3-phase

(STO SIL 3) (EN81-20, EN81-50)

Applications

MR and MRL elevators, New installation or replacement cases

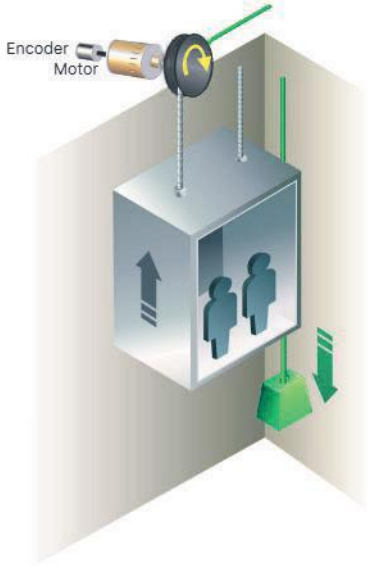
Elevator Drive
VFD-ED

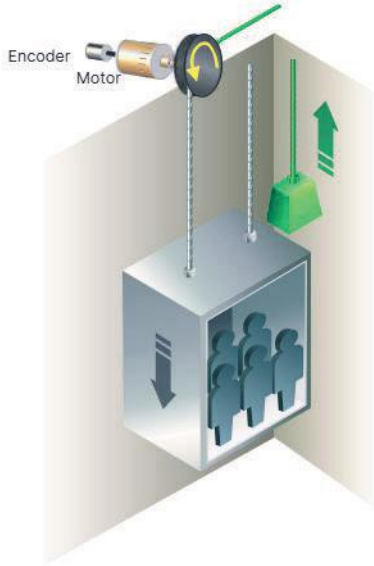
Excellent Time Sequence Control for Smooth Rides

- Supports induction and permanent magnet motors
- Precise control of S curve performs smooth start and stop for a comfortable ride
- Optional PG feedback cards (Incremental / SinCos / SICK HIPERFACE / HEIDENHAIN)
- Highly precise field-oriented vector control
- Automatic torque compensation function to prevent elevators from slipping or vibrating
- Emergency operation enabled with UPS or battery when a power outage occurs
- Wall-mount or embedded installation
- Built-in LED digital keypad
- Built-in plentiful IO terminals for various elevator applications
- 1 CANopen and 2 RS-485 (Modbus)

Emergency Operation

- Supports single phase 230 V_{AC} uninterrupted power system (UPS)
- Automatically determines the light load operation direction when a power outage occurs





(EN81-1+A3, EN81-20)

Power Range	2.2 kW 3 HP	3.7 kW 5 HP	4 kW * 5 HP	5.5 kW 7.5 HP	7.5 kW 10 HP	11 kW 15 HP	15 kW 20 HP	18.5 kW 25 HP	22 kW 30 HP	30 kW 40 HP	37 kW 50 HP	45 kW 60 HP	55 kW 75 HP	75 kW 100 HP
ED	230 V / 1-phase													
			230 V / 3-phase											
			460 V / 3-phase											

*Min. power range of the 460 V model: 4 kW

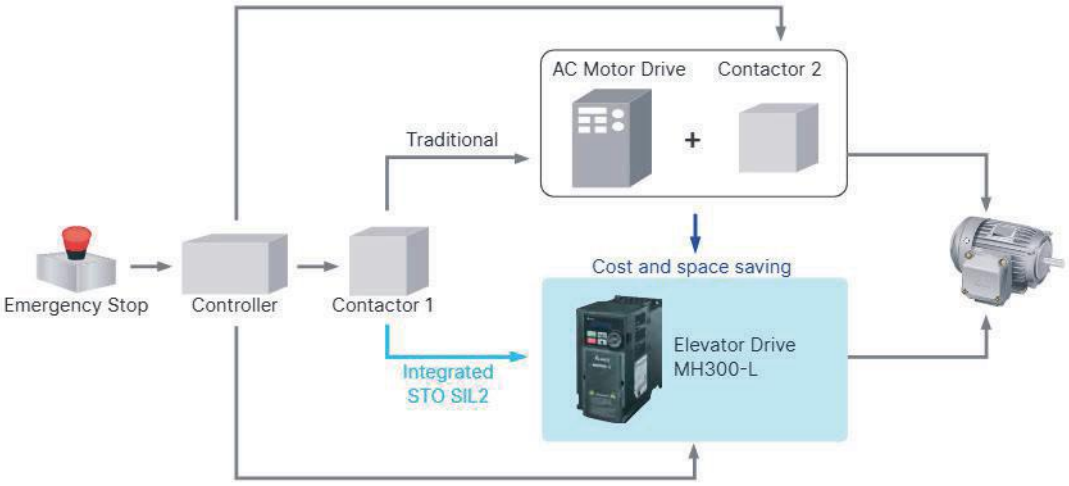
Applications

Commercial and residential buildings, Freight elevators, MR and MRL elevators

Compact Elevator Drive
MH300-L

Compact Design with Open-Loop Control for Precise Time Sequence

- Supports asynchronous motors with open-loop control
- Precise control of S curve performs smooth start and stop for a comfortable ride
- Compact design and user-friendly operation
- Emergency Power Supply (EPS) / Automatic Rescue Device (ARD) and sequence control functions for elevator applications
- Built-in 5-digit 16-segment LCD digital keypad
- Built-in EMC filter(optional) complies with EN 12015 / EN 12016 standards for lift applications
- Built-in brake chopper to enhance braking capability
- 7 digital inputs (extension up to 10) and 1 relay output (extension up to 3)
- Integrated Safe Torque Off (STO) SIL2



Power Range	2.2 kW 3 HP	3.7 kW 5 HP	5.5 kW 7.5 HP	7.5 kW 10 HP	11 kW 15 HP	15 kW 20 HP
MH300-L	230V / 3-phase					
		460V / 3-phase				

Applications

Low floor residential buildings, IM open-loop elevators of villas

Textile Vector Control Drive
CT2000

Plate Mount, Flange Mount, Wall Mount

- Deceleration Energy Backup (DEB) function for smooth motor deceleration control
- Supports both asynchronous and synchronous motors
- Common DC BUS design
- Built-in 10K steps PLC programming capability and RS-485 with Modbus communication
- Optional communication cards are available upon request
- SEMI F47, CE, UL Certifications (*1)

*1: Finless Drive does not have SEMI F47 or UL certification

Plate-Mounting Type

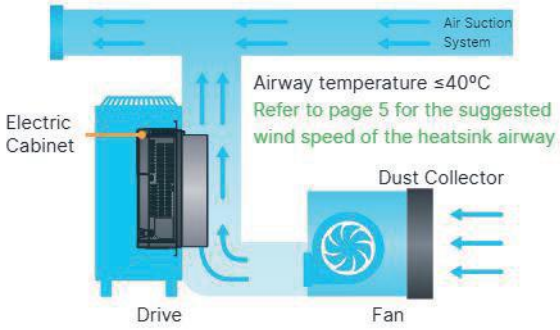
In response to different textile environments, liquid cooling is sometimes used to reduce the impact of harsh environments on air-cooled heat dissipation. Plate-mount design can be applied to the liquid cooling plate for heat dissipation, suitable for customer's requirements.

*Available for models with names ending in A

Flange-Mounting Type

Flange-mount installation for the fanless model prevents the overheating problem caused by fiber or dust clogging the fan or entering the drive. Suitable for spaces with cooling ducts.

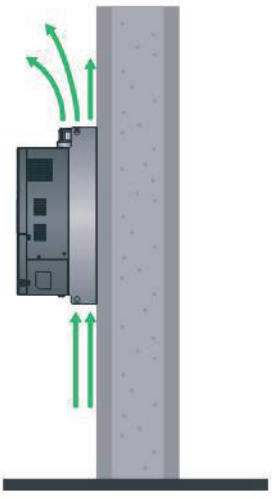
*Available for models with names ending in B



Wall-Mounting Type

Large fan design for wall-mount installation, fulfills general textile applications.

*Available for models with names ending in C



SEMI F47* * Available for Flange-mounting and Wall- mounting types

460V (kW)	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90
460V (HP)	7.5	10	15	20	25	30	40	50	60	75	100	125
Plate-Mounting Type	A			B			C			D		
Flange-Mounting Type				B			C		D			
Wall-Mounting Type				B			C		D			

Applications

For applications requiring flange mount, wall mount and finless installation, such as textile machines. The flange-mount heat dissipation duct design must meet CT2000 specifications