



Automation for a Changing World

# Delta Elevator Drive VFD-VL Series



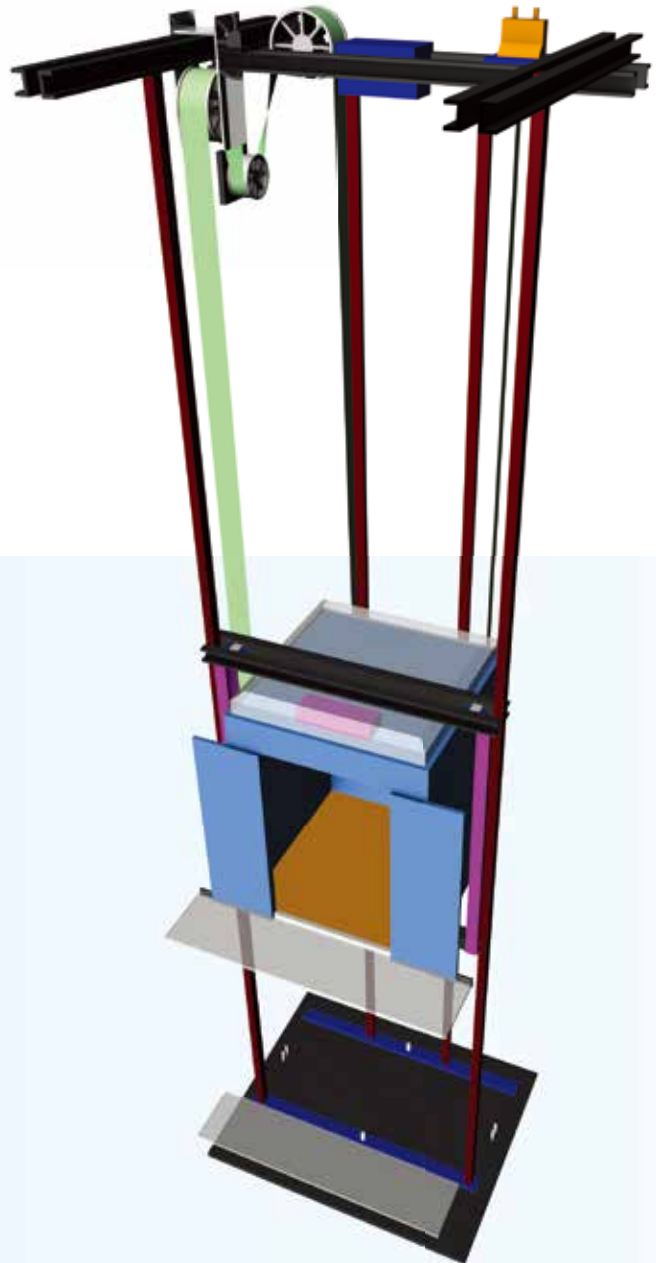
[www.deltaww.com](http://www.deltaww.com)

 **DELTA**  
Smarter. Greener. Together.



## The Advantages of the Machine Room-less Elevator

- Time-saving and space-saving for Installation: utilizes advanced host and gearless permanent magnet synchronous motor
- High Performance: performance of the permanent magnet motor is up to 95%
- Energy-efficiency: only half energy of the traditional motor and one-third energy of the hydraulic elevator
- Environmental Protection and Maintenance Costs Saving: no gear oil replacement is required
- Smooth Elevator Ride: uses the latest control technology and mechanism

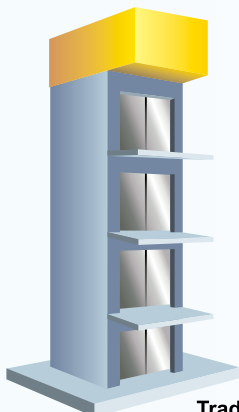


## Features

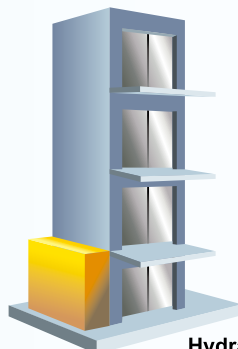
- High performance FOC (Field Oriented Control)
- Applicable for induction motor and permanent magnet synchronous motor
- Utilize the permanent magnet synchronous motor, it can auto-detect the position of magnetic pole when start-up
- With auto-tuning function for motor parameters and the angle between magnetic field and PG origin when driving the permanent magnet synchronous motor
- Built-in brake unit for models under 22kW
- Support for emergency power supply (EPS) to operate at low voltage DC48/96V
- Auto-correct start torque, load compensation and manual adjustment function for smooth ride
- Built-in output contact of elevator mechanical brake
- Built-in control procedure of elevator start/stop operation
- Slim-type modular design for easy maintenance, installation and uninstallation
- RS-485 communication interface(RJ-11) for MODBUS communication protocol
- Connect to PC to monitor elevator operation and parameters settings for smooth ride
- Complete protection function by high precision current detection



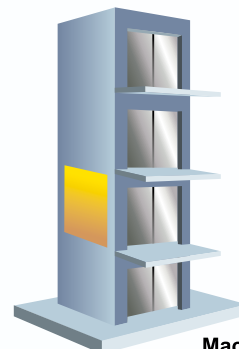
## Modular Design



Traditional Elevator

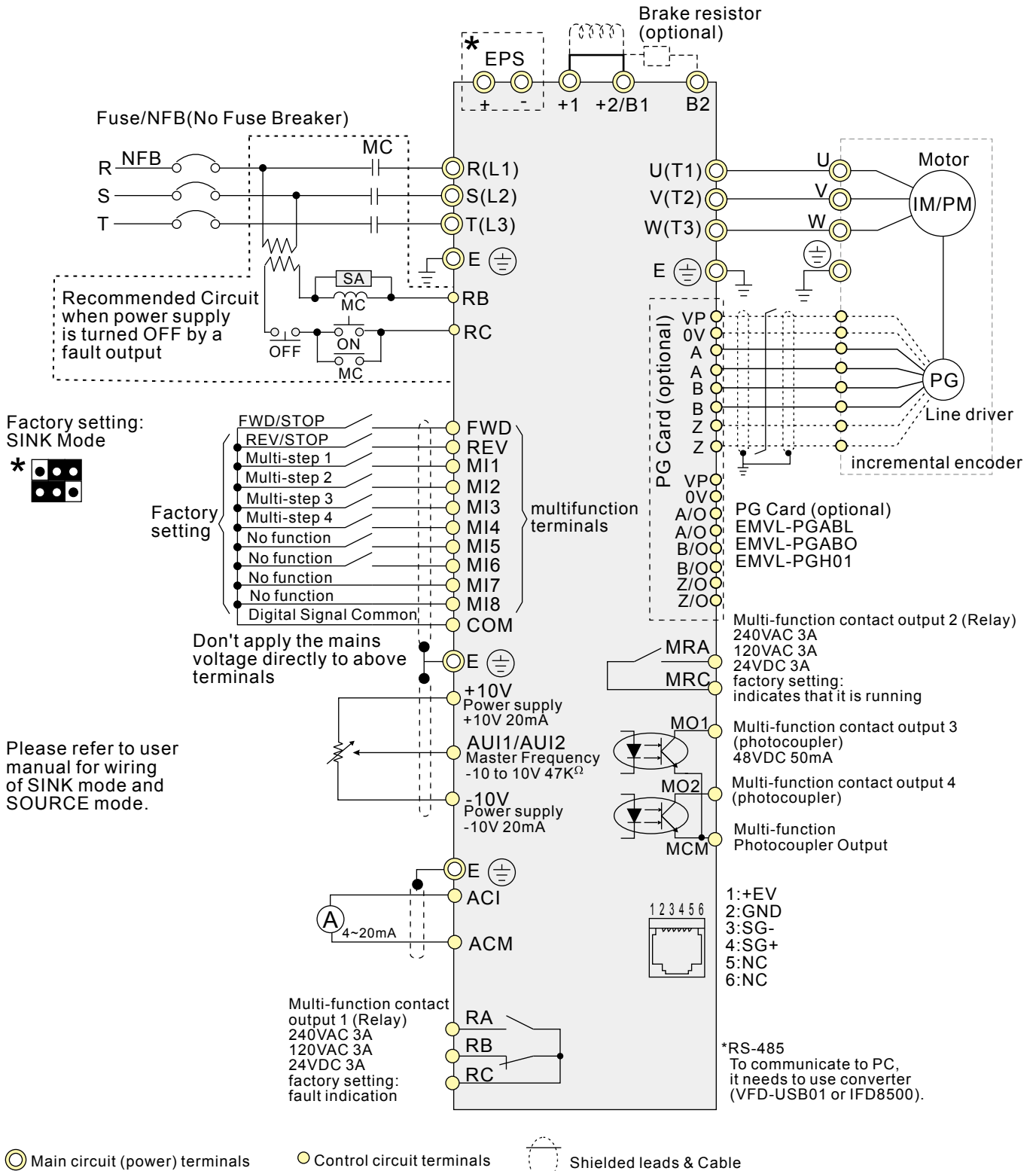


Hydraulic Elevator



Machine Room-less Elevator

# Wiring

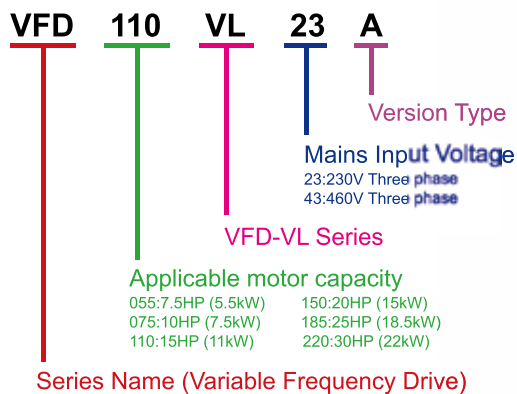


\* Terminal EPS is emergency power input terminal, refer to user manual for details.

\* For PG card, refer to user manual for details.

\* Please download user manual at [http://www.delta.com.tw/product/em/download/download\\_main.asp?act=3&pid=1&cid=1&tpid=1](http://www.delta.com.tw/product/em/download/download_main.asp?act=3&pid=1&cid=1&tpid=1)

# Model name



# Specifications



## 230V Series

Model Number VFD-__VL	055	075	110	150	185	220	300	370	
Max. Applicable Motor Output (KW)	5.5	7.5	11	15	18.5	22	30	37	
Max. Applicable Motor Output (HP)	7.5	10	15	20	25	30	40	50	
Output Rating	Rated Output Capacity (kVA)	9.5	12.5	19	25	29	34	46	55
	Rated Output Current for Constant Torque (A)	21.9	27.1	41.1	53	70.0	79	120	146
	Rated Output Current for Variable Torque (A)	25	31	47	60	80	90	150	183
	Maximum Output Voltage (V)	3-Phase Proportional to Input Voltage							
	Output Frequency (Hz)	0.00~120.00 Hz							
Input Rating	Carrier Frequency (kHz)	12kHz			9kHz			6kHz	
	Rated Input Current (A)	25	31	47	60	80	90	106	126
	Rated Voltage / Frequency	3-Phase, 200~240V, 50/60Hz							
	Voltage Tolerance	±10% (180~264 V)							
	Frequency Tolerance	±5% (47~63 Hz)							
Cooling Method	Fan Cooling								
Weight (kg)	8	10	10	13	13	13	36	36	

## 460V Series

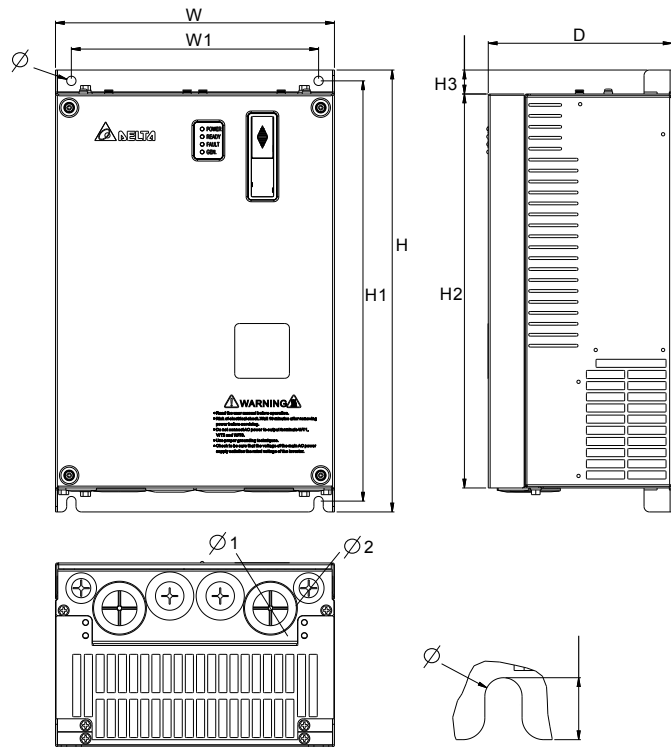
Model Number VFD-__VL	055	075	110	150	185	220	300	370	450	550	750	
Max. Applicable Motor Output (KW)	5.5	7.5	11	15	18.5	22	30	37	45	55	75	
Max. Applicable Motor Output (HP)	7.5	10	15	20	25	30	40	50	60	75	100	
Output Rating	Rated Output Capacity (kVA)	9.9	13.7	18	24	29	34	46	56	69	100	
	Rated Output Current for Constant Torque (A)	12.3	15.8	21	27	34	41	60	73	91	150	
	Rated Output Current for Variable Torque (A)	14	18	24	31	39	47	75	91	113	188	
	Maximum Output Voltage (V)	3-Phase Proportional to Input Voltage										
	Output Frequency (Hz)	0.00~120.00 Hz										
Input Rating	Carrier Frequency (kHz)	15kHz			9kHz			6kHz				
	Rated Input Current (A)	14	18	24	31	39	47	56	67	87	101	122
	Rated Voltage / Frequency	3-Phase, 380~480V, 50/60Hz										
	Voltage Tolerance	±10% (342~528 V)										
	Frequency Tolerance	±5% (47~63 Hz)										
Cooling Method	Fan Cooling											
Weight (kg)	8	10	10	13	13	13	36	36	36	50	50	

# Specifications

Control Characteristics	Control System	1: V/F, 2: VF+PG, 3: SVC, 4: FOC+PG, 5: TQR+PG, 6: FOC+PG (PM)
	Start Torque	Starting torque is 150% at 0.5Hz and 0Hz with FOC + PG control mode
	Speed Control Range	1:100 Sensorless vector (up to 1:1000 when using PG card)
	Speed Control Resolution	±0.5% Sensorless vector (up to ±0.02% when using PG card)
	Speed Response Ability	5Hz (up to 30Hz for vector control)
	Max. Output Frequency	0.00 to 120.00Hz
	Output Frequency Accuracy	Digital command ±0.005%, analog command ±0.5%
	Frequency Setting Resolution	Digital command ±0.01Hz, analog command: 1/4096 (12-bit) of the max. output frequency
	Torque Limit	Max. is 200% torque current
	Torque Accuracy	±5%
	Accel/Decel Time	0.00 to 600.00/0.0 to 6000.0 seconds
	V/f Curve	Adjustable V/f curve using 4 independent points and square curve
Frequency Setting Signal	0-10V, ±10V, 4~20mA	
Brake Torque	About 20%	
Protection Characteristics	Motor Protection	Electronic thermal relay protection
	Over-current Protection	The current forces 220% of the over-current protection and 300% of the rated current
	Ground Leakage Current Protection	50% rated current
	Overload Ability	Constant torque: 150% for 60 seconds, variable torque: 200% for 3 seconds
	Over-voltage Protection	Over-voltage level: Vdc > 400/800V; low-voltage level: Vdc < 200/400V
	Over-voltage Protection for the Input Power	Varistor (MOV)
Environment	Over-temperature Protection	Built-in temperature sensor
	Protection Level	NEMA 1/IP20
	Operation Temperature	-10°C to 45°C
	Storage Temperature	-20°C to 60°C
	Ambient Humidity	Below 90% RH (non-condensing)
	Vibration	9.80665m/s <sup>2</sup> (1G) less than 20Hz, 5.88m/s <sup>2</sup> (0.6G) at 20 to 50Hz
	Cooling Method	Force cooling
Installation Location	Altitude 1,000 m or lower, keep from corrosive gasses, liquid and dust	
Approvals	 	



# Dimensions



Frame	W	H	D	W1	H1	H2	H3	Ø	Ø1	Ø2	Ø3	
C	mm	235	350	136	240	337	320	-	6.5	-	34	22
D	mm	255.0	403.8	168.0	226.0	384.0	360.0	21.9	8.5	44	34	22

Frame	W	H	D	W1	H1	H2	D1	D2	S1	S2	S3	
E1	mm	370.0	-	260.0	335.0	589.0	560.0	132.5	18.0	13.0	13.0	18.0
E2	mm	370.0	595.0	260.0	335.0	589.0	560.0	132.5	18.0	13.0	13.0	18.0

# Optional Accessories

## Digital Keypad

KPVL-CC01



## I/O Extension Card

EMVL-IODA01: I/O and D/A card



EMVL-SAF01: Safety relay board



## Speed Feedback PG Card

EMVL-PGABL:  
for ABZ/UVW line drive



EMVL-PGABO:  
for ABZ open collector



EMVL-PGH01: for HEIDENHAIN  
Absolute incremental Encoder





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\*We reserve the right to change the information in this catalogue without prior notice.