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# About TECO

## TECO General

TECO Group is a global industrial conglomerate, started 1956 in Taiwan as an electric motor manufacturer, now operates in 45 countries in all major industrial markets. The annual turnover in 2013 was \$1.9B USD, with approximately 20,000 employees worldwide. More than 50% of the turnover was generated by the Electric Motor business. TECO is listed in the stock exchange in Taipei, TAIWAN. Detailed financial data can be downloaded from the TECO website [http://www.teco.com.tw/en\\_version](http://www.teco.com.tw/en_version), under "Investor Relations".

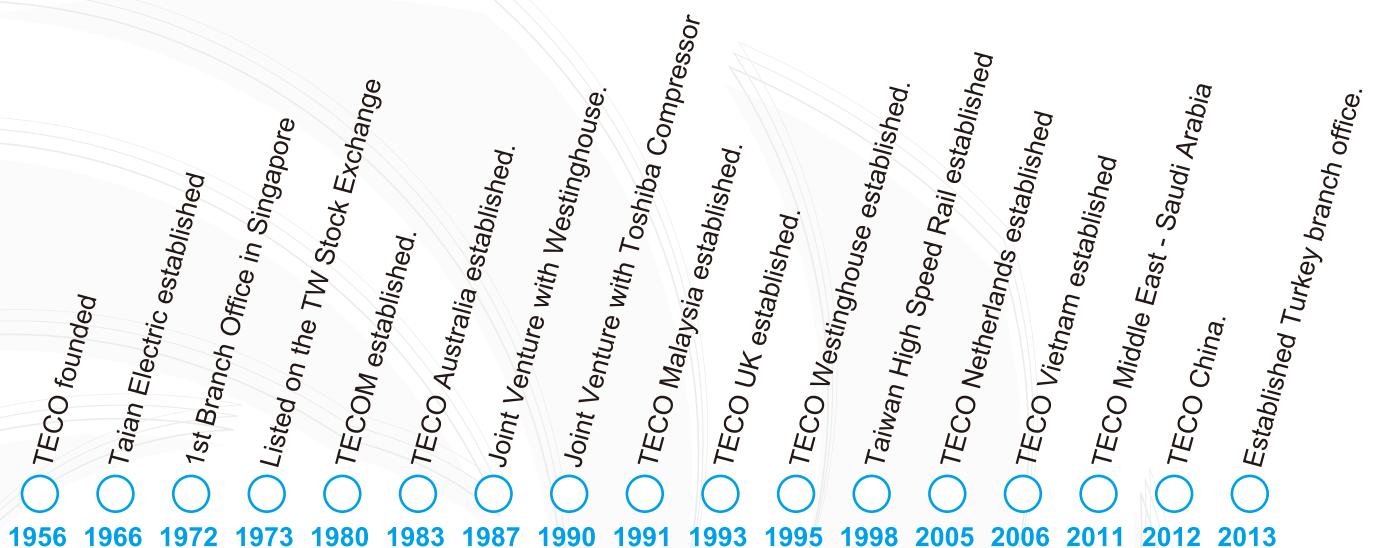
TECO is mainly focused on

- Sustainable development with new competitive advantages
- Enhancing service quality
- Development and education of experienced employees
- Creating outstanding products

TECO has

- Significant Experience in the Motor Industry
- Experienced Engineering and Manufacturing Staff
- State of the art factories in the most important manufacturing markets
- State of the art Testing Facilities for the full power and voltage range of its motors

## TECO History



## TECO Europe

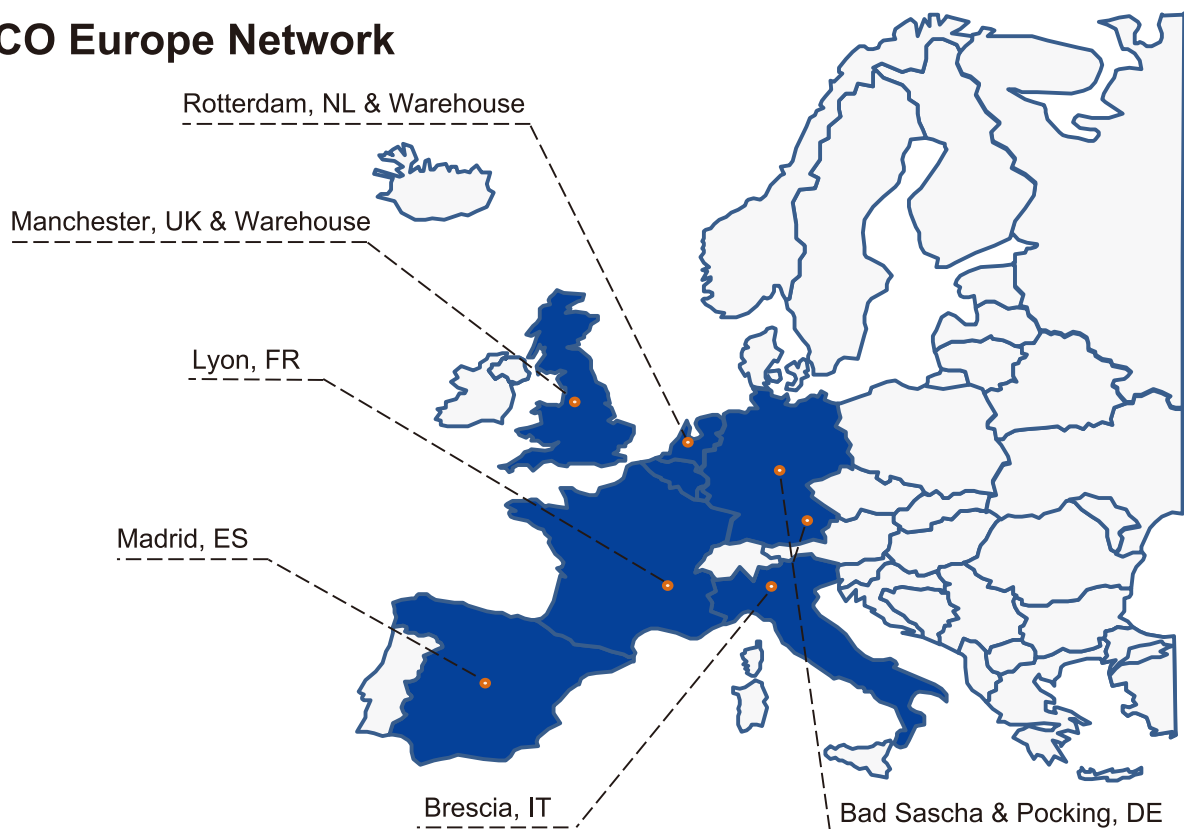
TECO Europe currently has direct local presence in Germany, UK, Netherlands, and Spain. TECO Europe also networks with competent sales and services partners in most of the markets within the European Union, to provide professional local technical and sales support. TECO Europe also has major warehouses located in the Netherlands (over 2500 square meter space) and the UK (over 12,000 square foot space) to support various logistic needs. TECO Europe is able to provide full range of Low Voltage stock motors and Variable Speed Drives to support your immediate product and logistic needs.

In Europe, along with well-known TECO-Westinghouse **Medium Voltage Motors**, TECO supplies full range **Low Voltage Stock Motors** to **IE2 & IE3** standards, with both cast iron and aluminium cases. With the recently released 510 Series, TECO offers high performance and a cost effective wide range of **Variable Speed Drives** that fit virtually all applications. So whatever your motor and drive requirement our experienced engineering team can help and advise on the correct products to suit your applications.

TECO is also capable of supplying motors to other standards (e.g. NEMA) for supporting different market needs. Depending upon the product ranges, TECO & TECO-Westinghouse brand motors rank between No. 3 to No. 5 in the global market.

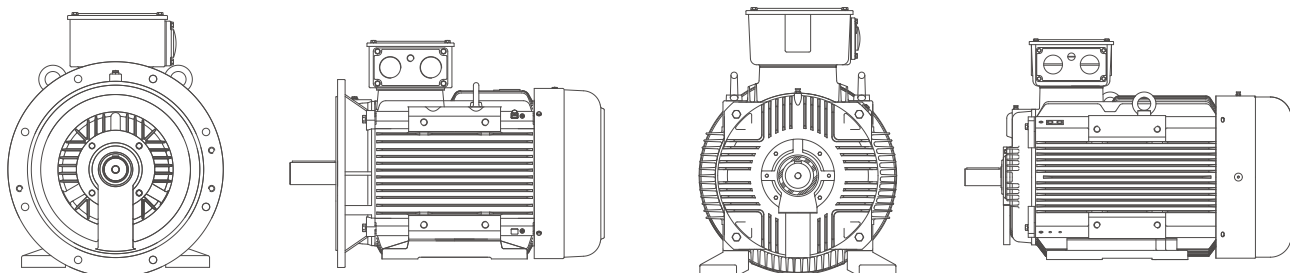
With TECO Group's global sales and service networks reach, you may rest assured to rely upon prompt and competent support to your product everywhere in the world, once there is TECO product in the package that you deliver to your customers.

## TECO Europe Network



# LVED

TECO's LVED motors are designed to meet European IE2 and IE3 Legislation.

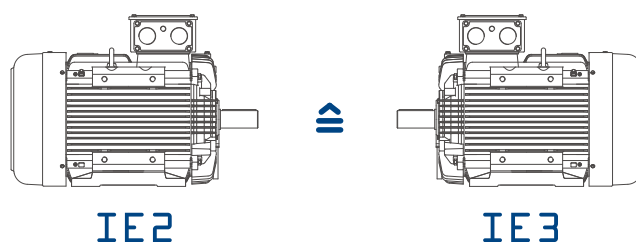


Standard SPEC	Optional SPEC
<ul style="list-style-type: none"> <li>• Squirrel-Cage Induction Motors (SCIM)</li> <li>• IEC Standard</li> <li>• Efficiency: Cast Iron motors: IE2 &amp; IE3 Aluminum motors: IE2</li> <li>• Material: Cast iron and Aluminum</li> <li>• Voltage: 230/400V &amp; 400/690V</li> <li>• Frequency: 50Hz &amp; 60Hz</li> <li>• Output: 0.18~315kW</li> <li>• RPM: 3000~800RPM (2-8 Poles)</li> <li>• Duty: Continuous S1, S.F. 1.0</li> <li>• Frame: 63M~315D</li> <li>• Protection: Totally Enclosed (IP55)</li> <li>• Cooling: Self External Fan, Surface Cooling (IC411)</li> <li>• Mounting: Feet version, flange version and combinations</li> <li>• Thermistors fitted as standard in all frames</li> <li>• Terminal Lead: 6 winding leads</li> <li>• T-Box: On Top left or right hand side</li> <li>• Cable entry: two for Power supply and one for auxiliary</li> <li>• Rotation: Bi-Directional</li> <li>• Starting: Full Voltage Direct On Line or Y-Δ</li> <li>• Bearing: DE and NDE are ball bearing</li> <li>• Insulation: Class F</li> <li>• Color: Pebble Grey (Ral 7032)</li> <li>• Spring lip seals fitted as standard</li> </ul>	<ul style="list-style-type: none"> <li>• Three Feet Fixing options NDF version: Non Detachable Feet  SDF version: Standard detachable Feet. The feet could be detached if required  ADF version: Advanced Detachable Feet. The housing is machined to be able to move the feet in 3*90° position</li> <li>• Special Windings</li> <li>• Options for Cable gland</li> <li>• B5 and B14 flanges</li> <li>• Additional auxiliary T-box from F160</li> <li>• Uni-directional fan for acoustic noise reduction</li> <li>• Forced Ventilation</li> <li>• Roller bearing available for cast iron from F180</li> <li>• Different color or paint thickness on request</li> </ul>

## Unique Feature

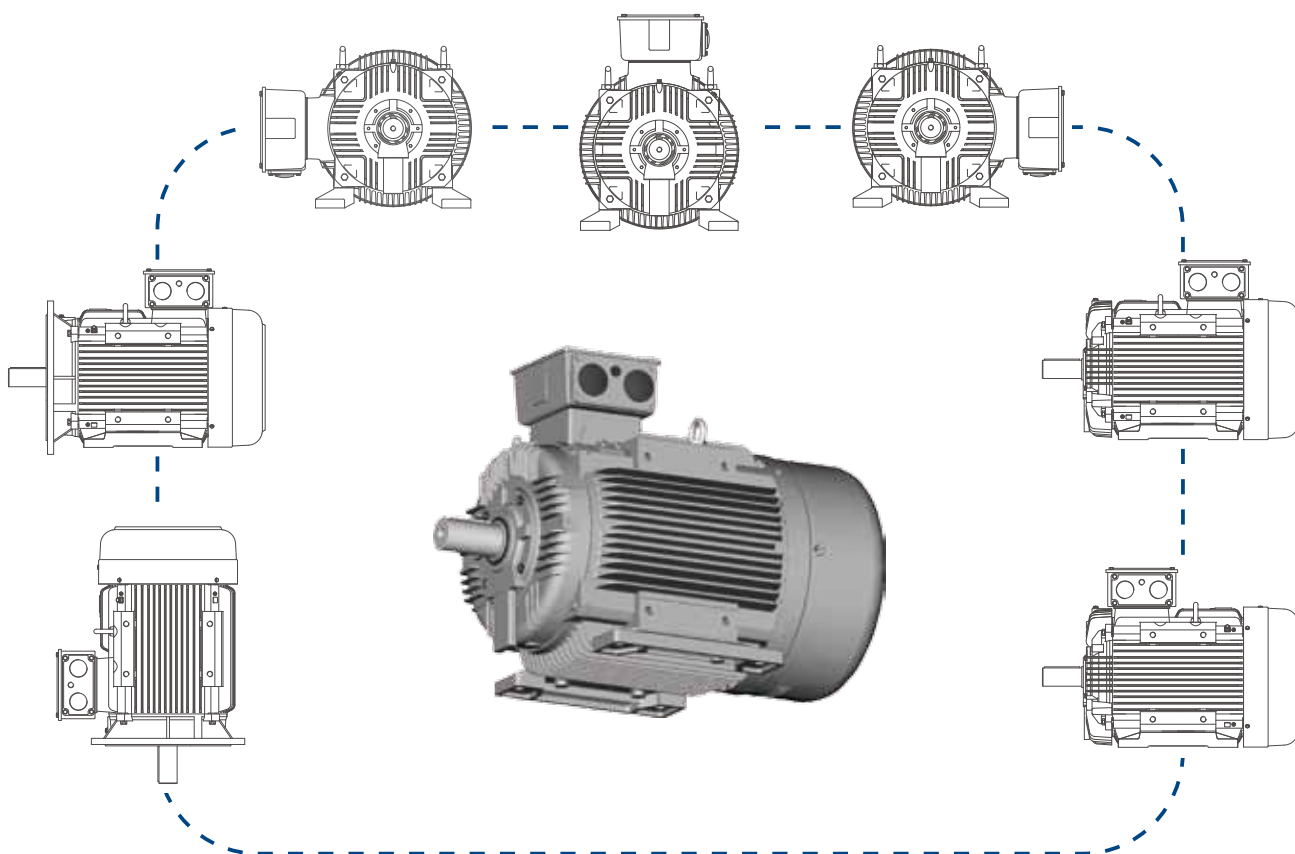
- **IE2 and IE3 in the same frame size**

All TECO LVED IE2 and IE3 motors are interchangeable allowing customers to replace old IE2 motors with the latest IE3 efficiency motors.



- **Multi-mount modular design**

TECO LVED motor housing is designed to allow for a large variety of mounting arrangements. The rotor is central in the stator allowing the terminal box position to be either at the front or to the rear of the motor. The feet can be fitted in three positions to move the terminal box position.





## IE2 Efficiency Motors — Aluminium Aluminium Motors 63 to 160 frame



### Key Features

- Multi mount  
All Feet fixings are pre-drilled and taped  
All feet are replaceable due to stator and feet being fully machined before assembly
- Metric High tensile (8.8) setscrews used (Not self tapers)
- Two external earth fixings that are moveable like the feet
- All motors have Thermistors as standard
- All thermistor connections terminated in a terminal block fixed in the terminal box
- Spring lip seals are standard on both drive end & none drive end
- B5 and B14 flanges are fitted with lip seals for use on wet gearboxes
- Moveable lifting lugs. After the motor feet have been moved the customer can move the two lifting points to match the new mounting safely
- Paint system is three coats with a total thickness of 60 Microns
- External Screws are all hexagon head high tensile 8.8 rated and Galvanised to protect against corrosion
- All Aluminum motor end shields have steel sleeves on the bearing mounting bores ensuring long reliable bearing life
- All motors have drive end bearings fixed to help improve pump efficiency
- Top Quality Bearings fitted From SKF, FAG, NSK or NTN
- IP56 modification to stock motors
- Available in 2, 4, 6 and 8 pole options with all standard flange mounting options



## IE3 Efficiency Motors — Cast Iron Cast Iron Motors 80 to 315 frame



### Key Features

- 80 to 315 frame all Multi Mount design
- All Motors fitted with Thermistors terminated in the terminal box
- Both IE2 and IE3 in same frame size and design
- All Feet fixings are pre-drilled and tapped
- All feet are replaceable due to the stator and feet being fully machined before assembly
- Re-greaseable bearings on 180 frame and above with button type grease nipple. Grease through system with exit at the bottom of the motor
- Quality bearings from SKF, FAG, NSK and NTN
- External Earth Fixings on all frames
- Two bolt clamp type earth fixings on 280 frame and larger
- Spring lip seals are standard on both drive end and none drive end
- B5 flanges are fitted with lip seals for use on wet gearboxes
- Large Terminal box with two cable entries making connection easy on site
- Motor is a symmetrical design allowing the terminal box to be moved towards the fan cowl
- Two lifting eye bolts that are moveable so are always in the best position for a safe lift even after the terminal box position has been moved
- Available in 2, 4, 6 and 8 pole options with all standard flange mounting options

# MV & HV Motor

TECO is a world leader in the design and manufacturing of large induction motors. We provide custom designed and made to order motor to cater all kind of requirement. Our supply could cover custom built DC, synchronous and Induction Motors up to 60,000 HP. Our large modern manufacturing plants are located in Chung Li (Taiwan); Round Rock (USA); Wuxi & Jiangxi (China) including advanced testing facilities for full range of motors.

For a half a century TECO motors have been recognized as industry leaders in performance and quality. The acquisition of Westinghouse motor business gave to TECO over 100 years of experience in motor design.

Industries	Applications
<ul style="list-style-type: none"> <li>• Oil &amp; Gas • Mining</li> <li>• Power &amp; Energy • Cement</li> <li>• Metals • Marine</li> <li>• Pulp &amp; Paper</li> <li>• Water &amp; Wastewater</li> <li>• Other Process Industries</li> </ul>	<ul style="list-style-type: none"> <li>• Fans • Pumps</li> <li>• Compressors • Grinding</li> <li>• Mills • Metal Rolling</li> <li>• Mine Hosts</li> <li>• Refiners</li> <li>• Propulsion &amp; many others</li> </ul>

## Supply Range

**Standard:** Both IEC and NEMA Frame

**Voltage Options:** Low voltage to 750kW (<690V)

3.3kV from 75kW

6.6kV from 110kW

11kV from 250kW

13.2kV from 500kW

**Mounting:** Vertical or Horizontal with Foot and/or flange configurations

**Enclosures:** TEFC = Totally Enclosed Fan Cooled (IC411)

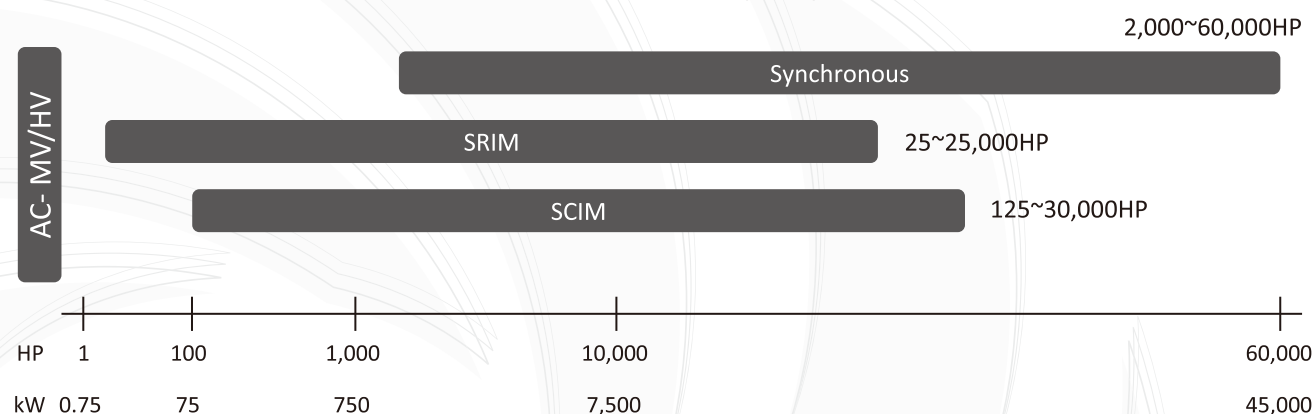
TECACA = Totally Enclosed, Closed Air Circuit, Air Cooled (IC611)

TECACW = Totally Enclosed, Closed Air Circuit, Water Cooled (IC81W)

ODP = Open Drip proof (IC01)

WPI = NEMA 1 Weather protected (IC01)

WPIL = NEMA 2 Weather protected (IC01)



## Reference Project



### Gold Mine, Australia

4000kW 30 Pole Synchronous Ball Mill motor



### Oil and Gas in Equatorial Guinea

Motors for drive propane compressors (6000HP)



### Formosa Plastic Power Plant

8/10 Pole 9373/4905kW PAM Motor



### Steel Modern DC Cold Mill

Motors (4500 HP)



### Natural Gas Processing Plant

3250, 8 Pole, 4kV WPII motors are coupled to reciprocating compressors in Monument, New Mexico

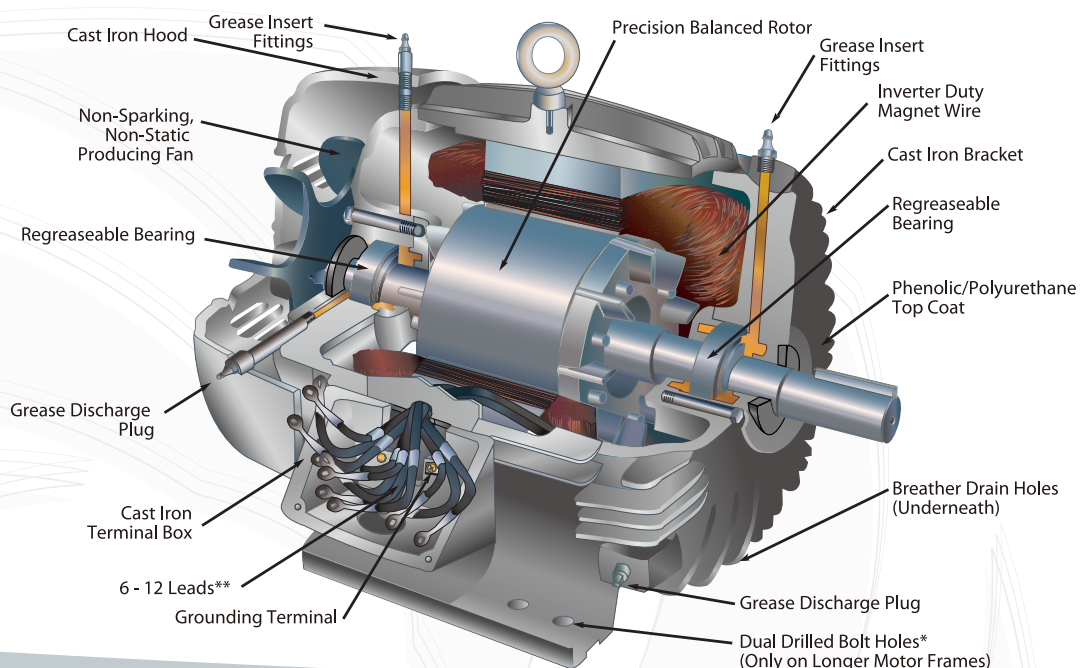
# Other Supply

## NEMA Motors MAX-E1

The TECO-Westinghouse MAX-E1 are designed, manufactured and tested to meet or exceed the latest NEMA, IEEE, and other international standards. All motors are CSA certified for Class I, Division II, Groups B, C, and D; temperature code T3C and have a non-sparking, non-static fan. These motors are suitable for severe applications in environments with excessive dirt, dust and/or moisture.



Standard SPEC	Optional SPEC
<ul style="list-style-type: none"> <li>• Squirrel-Cage Induction Motors (SCIM)</li> <li>• Totally Enclosed Fan Cooled</li> <li>• Standard: NEMA MG-1, MG-13</li> <li>• Efficiency: NEMA Premium efficiency level</li> <li>• Material: Cast iron</li> <li>• Voltage: 230/460V or 575V</li> <li>• Frequency: 60Hz</li> <li>• Output: 0.75~800hp</li> <li>• Duty: Continuous S1, S.F. 1.15 (60Hz)</li> <li>• RPM: 3600~900RPM (2-8 Poles)</li> <li>• Frame: 143T ~ 6808</li> <li>• Ambient Temp: -20°C ~ 40°C</li> <li>• Insulation: Class F</li> <li>• Altitude: up to 9,900feet (3,000meters)</li> <li>• Paint: Phenolic Rust Proof Base Plus Polyurethane Top Coat</li> </ul>	<ul style="list-style-type: none"> <li>• Class F and H Insulation</li> <li>• Space Heaters</li> <li>• Thermal Protection Windings Bearings</li> <li>• Special Paint Finish</li> <li>• Double End Shaft or Special Shaft Dimensions</li> <li>• 50 Hz Operation</li> <li>• Shaft Grounding</li> <li>• Insulated Bearings</li> <li>• Blower Kits for VFD Service</li> <li>• Encoders</li> <li>• Mounting Flange Options: C or D Design</li> <li>• Terminal Box Position: F1 or F2</li> </ul>



## Smoke Spill LV motor

TECO's High Temperature motors are designed & tested to operate at extremes of temperature in the event of fires. These motors are for use with fans to extract smoke & heat from buildings giving sufficient time for evacuation.



### Standard SPEC

- Efficiency: CEMEP/EC Efficiency class EFF2
- 380-415V 50Hz or 440V at 60Hz
- Totally enclosed A.O.M. air over motor for fan use in air stream. IP55
- Frame Size: F80 to F315
- Voltage and Hz: 380-415V 50Hz or 440V at 60Hz
- Insulation: Class "H" insulation
- Material: All Cast Iron frame
- Foot Mount and Pad Mount
- Ratings and Standard: The motors are rated S1 (S.F. 1.0) continuous with follow-up emergency rating to S2
- Ambient: -15°C to 40°C (Normal operation)
- Bearing System Lubrication: D80-D160 frame high temperature grease shielded roller bearings (ZZ). D180 upwards pressure grease relief system
- Direction: Bi-directional
- Nameplate: Nameplates are made from stainless steel
- Loose Leads: motors fitted with 1m of high temperature cable
- Paint Finish: Phenolic rust proof base plus lacquer, surface finished painting in RED Munsell 7.5R/20 or RAL-3002

FEATURES	Temperature Class		
	Category	Temperature °C	Duration
<ul style="list-style-type: none"> <li>• Available in foot and pad mount</li> <li>• No fan, cowl or terminal box for <b>A.O.M</b> (air over motor) (IC45)</li> <li>• For high velocity air applications, higher outputs may be achieved</li> </ul>	F200	200	2 hours
	F300	300	1 hours
	F400	400	2 hours

# L510

## Simple, Compact, Cost Effective, Multi-purpose V/Hz Drive

Typical applications: fans & pumps, conveyors, packaging machines and automatic door control.



### Key Features

- 110V and 230V single phase
- 200V / 400V three phase
- 0.37 – 2.2kW (up to 11 kW under development)
- V/F (SLV under development)
- No cooling fan on frame 1
- Integrated EMC filter, C2 (C1 option)
- EMC filter earth link disconnecter
- 32 bit CPU
- Modbus / RS485 integrated, Profibus, DeviceNet, CANopen and Ethernet (TCP/IP) options
- Multi pre-set speeds with individual Acc/Dec times
- RJ45 Interface
- Multifunction I/O
- PID control with 4 modes
- PC programming software
- Remote keypad / Copy unit option
- 650Hz output frequency

Power Rating	0.2kW 0.25HP	0.4kW 0.5HP	0.75kW 1HP	1.5kW 2HP	2.2kW 3HP
L510	100V 1-phase				
	200V 1-phase				
	200V 3-phase				
			400V 3-phase		



## Specifications

Model : L510-□□□-H1-N (A) L510-□□□-H1F-P (A)	2P2	2P5	201	202	203
Horse power (HP)	0.25	0.5	1	2	3
Suitable motor capacity (KW)	0.2	0.4	0.75	1.5	2.2
Rated output current (A)	1.8	2.6	4.3	7.5	10.5
Rated capacity (KVA)	0.68	1	1.65	2.9	4
Input voltage range(V)	Single Phase : 200~240V,50/60HZ				
Allowable voltage fluctuation	-15% ~ +10%				
Output voltage range(V)	Three phase 0~240V				
Input current (A)	4.9	7.2	11	15.5	21
Allowable momentary power loss time (S)	1	1	1	2	2
Enclosure	IP20				

Model : L510-□□□-H3-N A L510-□□□-H3F-P (A)	401	402	403
Horse power (HP)	1	2	3
Suitable motor capacity (KW)	0.75	1.5	2.2
Rated output current (A)	2.3	3.8	5.2
Rated capacity (KVA)	1.7	2.9	4
Input voltage range(V)	Three Phase : 380~480V,50/60HZ		
Allowable voltage fluctuation	-15% ~ +10%		
Output voltage range(V)	Three phase 0~480V		
Input current (A)	4.2	5.6	7.3
Allowable momentary power loss time (S)	2	2	2
Enclosure	IP20		



# E510

## High performance, OEMs Sensorless Vector Drive

Suitable for a variety of industrial applications including textile, woodworking, food processing, packaging as well as fan & pump.



### Key Features

- 230V single phase
- 200V and 400V three phase
- 0.37 – 18.5kW
- Advanced sensorless vector control
- IP20 and IP66
- Temperature controlled fan cooling
- Integrated EMC filter C2 (C1 option)
- EMC filter earth link disconnecter
- 32 bit CPU
- Modbus / RS485 integrated, Profibus, DeviceNet, CANopen and Ethernet (TCP/IP) options
- Multi pre-set speeds with individual Acc / Dec times
- PLC functions (By ladder program)
- Integrated Dynamic Braking module
- PC programming software
- Remote keypad / copy unit option
- 650Hz output frequency (1000Hz option)

## IP 66 / NEMA4X



### Applications

Food Processing: Against washdown environment  
 Textiles: Against high heat and humid environment, like dyeing process  
 Petrochemical industry: Against corrosive environment  
 Livestock industry: Against washdown environment  
 Woodworking manufacturing: Against dusty environment

E510	2	P5		H	1	F	N4S
	Input Voltage	Horse Power		Type	Power Supply	Noise Filter	Appearance
E510 series	2: 200V class 4: 400V class	P5: 0.5 HP 01: 1 HP 02: 2 HP 03: 3 HP 05: 5 HP	08: 7.5 HP 10: 10 HP 15: 15 HP 20: 20 HP 25: 25 HP	H: Standard	1: Single-phase 3: Three-phase Blank: Single-/Three-phase	Blank: None F: Built-in	N4S: IP66,built-in power switch and VR N4: IP66,without built-in power switch or VR N4R: IP66,built-inVR, without power switch Blank: IP20

Power Rating	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
E510	200V 1-phase (with Filter)									
	200V 1-/3-phase									
			200V		200V 3-phase					
	400V 3-phase									

## Specifications

Model : E510-□□□-H1-(F)(N4)(S)	2P5	201	202	203
Horse power (HP)	0.5	1	2	3
Suitable motor capacity (KW)	0.4	0.75	1.5	2.2
Rated output current (A)	3.1	4.5	7.5	10.5
Rated capacity (KVA)	1.2	1.7	2.9	4
Input voltage range(V)	Single Phase: 200~240V, 50/60HZ			
Allowable voltage fluctuation	-15% ~ +10%			
Output voltage range(V)	Three phase: 0~240V			
Input current (A)	8.5	12	16	23.9
Inverter net weight (KG)	1.65	1.65	2.5	2.5
Allowable momentary power loss time (S)	2	2	2	2
Enclosure	IP20/NEMA1&IP66/NEMA4X			

Model : E510-□□□-H3-(F)(N4)(S)	401	402	403	405	408	410	415	420	425
Horse power (HP)	1	2	3	5	7.5	10	15	20	25
Suitable motor capacity (KW)	0.75	1.5	2.2	3.7	5.5	7.5	11	15	18.5
Rated output current (A)	2.3	3.8	5.2	8.8	13	17.5	24	32	40
Rated capacity (KVA)	1.7	2.9	4	6.7	9.9	13.3	19.1	27.4	34
Input voltage range(V)	Three phase: 380~480V, 50/60HZ								
Allowable voltage fluctuation	-15% ~ +10%								
Output voltage range(V)	Three phase: 0~480V								
Input current (A)	4.2	5.6	7.3	11.6	17	23	31	38	48
Inverter net weight (KG)	1.7	1.7	2.5	2.5	6.7	6.7	6.7	13.7	13.7
Allowable momentary power loss time (S)	2	2	2	2	2	2	2	2	2
Enclosure	IP20/NEMA1&IP66/NEMA4X								

# A510

## Advanced, Top performing, Full Vector Drive

A510 drive is an advanced current vector drive for high torque demanding applications such as hoists, cranes, elevators where accurate and dynamic torque/speed response is required.

It offers advanced auto tune functions as well as PM (permanent Magnet) motor control.



### Key Features

- 3ph 200V or 400V from 0.75kW till 315kW
- Five motor control modes – V/F, V/F with feedback, Current Vector control with & without feedback, PM Vector Control with Feedback
- Dual core processor, 100mhz RISC processor and ASIC
- Removable LED Keypad; LCD as option
- Integrated EMC filter
- 0-400Hz output frequency (1200Hz via special Parameter)
- 150% & 120% (HD & ND) with 200% torque at 0Hz
- Speed/Torque Control
- Built-in PLC function (By Ladder Program)
- Braking Transistor built-in up to 22kW
- Built-in DCL (above 55kW)
- Built-in Modbus (RS485) RJ45 Connector
- Profibus, DeviceNet, TCP/IP, CANopen options
- Expansion port for Encoder option boards
- 690V under development
- UL/CE/Gost certification

### Dual Core Processors



**ASIC** \* Above frame2 models  
Prevents inrush current damage to IGBT module.  
Enhances the reliability and life expectancy of motor drive

**32Bit MCU**  
Mass computing capability for advanced current vector control technology.  
Minimizes the internal loop time for higher control response.

**Enhanced Performance & Reliability!**

### High Efficiency PM Motor Driving

- Simple parameter settings for easy switching between induction and permanent magnet motors
- High performance current vector control for induction and permanent magnet motors.



**Induction Motor (IM)**

- Cost Effective
- Mechanical Robust



**Surface Permanent Magnet Motor (SPM)**

- Highly Efficient
- Compact Size
- Low Cogging Torque



**Interior Permanent Magnet Motor (IPM)**

- Highly Efficient
- Compact Size
- With Reluctance Torque

## Specifications

Inverter capacity (HP)			1	2	3	5	7.5	10	15	20	25	30
Output Rated	Heavy Duty type	Rated output Capacity (KVA)	2.6	3.2	4.2	7	11.3	13.7	18.3	23.6	29.7	34.3
	H.D.	Rated output current (A)	3.4	4.2	5.5	9.2	14.8	18	24	31	39	45
	(150%/1min, 200%/2sec)	Maximum applicable motor HP (KW)	1 (0.75)	2 (1.5)	3 (2.2)	5 (4)	7.5 (5.5)	10 (7.5)	15 (11)	20 (15)	25 (18.5)	30 (22)
	Normal Duty type	Rated output Capacity (KVA)	3.1	4.1	5.3	8.5	13.3	17.5	23.6	29.0	33.5	44.2
	N.D.	Rated output current (A)	4.1	5.4	6.9	11.1	17.5	23	31	38	44	58
	(120%/1min)	Maximum applicable motor HP (KW)	2 (1.5)	3 (2.2)	4 (3)	7.5 (5.5)	10 (7.5)	15 (11)	20 (15)	25 (18.5)	30 (22)	40 (30)
Power	The maximum output voltage (V)		3-phase 380V~ 480V									
	The maximum output frequency (Hz)		Based on parameter setting 0.1~400.0 (1200.0) Hz									
	Rated voltage, frequency		3-phase 380V ~ 480V, 50/60Hz									
	Allowable voltage fluctuation		-15% ~ +10%									
	Allowable frequency fluctuation		±5%									

Inverter capacity (HP)			40	50	60	75	100	125	150
Output Rated	Heavy Duty type	Rated output Capacity (KVA)	45.7	57.2	69.3	89.9	114	137	165
	H.D.	Rated output current (A)	60	75	91	118	150	180	216
	(150%/1min, 200%/2sec)	Maximum applicable motor HP (KW)	40 (30)	50 (37)	60 (45)	75 (55)	100 (75)	125 (90)	150 (110)
	Normal Duty type	Rated output Capacity (KVA)	54.9	67.1	78.5	111	126	159	191
	N.D.	Rated output current (A)	72	88	103	145	165	208	250
	(120%/1min)	Maximum applicable motor HP (KW)	50 (37)	60 (45)	75 (55)	100 (75)	125 (90)	150 (110)	175 (132)
Power	The maximum output voltage (V)		3-phase 380V~480V						
	The maximum output frequency (Hz)		Based on parameter setting 0.1~400.0 (1200.0) Hz						
	Rated voltage, frequency		3-phase 380V ~ 480V, 50/60Hz						
	Allowable voltage fluctuation		-15% ~ +10%						
	Allowable frequency fluctuation		±5%						

Inverter capacity (HP)			175	215	250	300	375	425
Output Rated	Heavy Duty type	Rated output Capacity (KVA)	198	225	282	343	400	461
	H.D.	Rated output current (A)	260	295	370	450	523	585
	(150%/1min, 200%/2sec)	Maximum applicable motor HP (KW)	175 (132)	215 (160)	250 (185)	300 (220)	375 (280)	425 (315)
	Normal Duty type	Rated output Capacity (KVA)	226	250	332	393	446	446
	N.D.	Rated output current (A)	296	328	435	515	585	585
	(120%/1min)	Maximum applicable motor HP (KW)	215 (160)	250 (185)	270 (200)	335 (250)	425 (315)	425 (315)
Power	The maximum output voltage (V)		3-phase 380V~480V					
	The maximum output frequency (Hz)		Based on parameter setting 0.1~ 400.0 Hz					
	Rated voltage, frequency		3-phase 380V ~ 480V , 50/60Hz					
	Allowable voltage fluctuation		-15% ~ +10%					
	Allowable frequency fluctuation		±5%					

# F510

## Building Automation and HVAC Applications Drive

The robust and easy to use F510 inverter offers energy efficiency and cost savings in Fan & pump applications.

Integrated PID & Sleep function as well as fire mode and RTC provide all the necessary features for building automation. AES (Auto Energy Saving) function and the possibility to drive permanent magnet motors without feedback provide cost savings.



### Key Features

- IP20 up to 55kW
- IP55 up to 45kW with Filter
- IP00 Above 55kW is convertible to IP20 with an option kit
- Six motor control modes – V/F, V/F with feedback, Current Vector control with & without feedback, PM Vector Control with & without Feedback
- Integrated EMC filter
- PTC input as standard
- LCD Keypad (IP55); LED Keypad (IP20)
- Energy saving function
- Sleep mode
- Pump switching function
- Pump Cascade mode
- Built-in Modbus, BACnet, Metasys
- Profibus, DeviceNet, TCP/IP (option)
- Fan Belt Monitoring
- Water leakage detection function
- Dry run protection
- Fire override mode

## IP55 / NEMA12



### Key Features

- Sensorless Permanent-Magnet Motor control
- PTC Input
- Pump switching function
- Pump cascade control
- Fan belt monitoring
- Sleep mode, Water leakage detection function and Dry run protection
- Fire override mode

## Specifications

Inverter capacity (HP)		5	7.5	10	15	20	25	30	40	50	60	75	100
Output	Rated Output Capacity (KVA)	7.0	8.4	13.3	17.5	23.6	28.9	33.5	41.1	54.8	67	78.4	110
	Rated Output Current (A)	9.2	12.1	17.5	23	31	38	44	54	73	88	103	145
	Maximum Applicable Motor HP (KW)	5 (3.7)	7.5 (5.5)	10 (7.5)	15 (11)	20 (15)	25 (18.5)	30 (22)	40 (30)	50 (37)	60 (45)	75 (55)	100 (75)
	Maximum Output Voltage (V)	3-phase 380V~480V											
	Maximum Output Frequency (Hz)	Based on parameter setting 0.1~400.0 Hz											
Input	Rated Voltage, Frequency	3-phase 380V ~ 480V, 50/60Hz											
	Allowable Voltage Fluctuation	-15% ~ +10%											
	Allowable Frequency Fluctuation	±5%											

Inverter capacity (HP)		125	150	175	215	250	300	375	425	535	670	800
Output	Rated Output Capacity (KVA)	125	158	190	225	250	331	392	445	525	640	731
	Rated Output Current (A)	168	208	250	296	328	435	515	585	700	875	960
	Maximum Applicable Motor HP (KW)	125 (90)	150 (110)	175 (132)	215 (160)	250 (185)	300 (220)	375 (280)	425 (315)	535 (400)	670 (500)	800 (600)
	Maximum Output Voltage (V)	3-phase 380V~480V										
	Maximum Output Frequency (Hz)	Based on parameter setting 0.1~400.0 Hz										
Input	Rated Voltage, Frequency	3-phase 380V ~ 480V, 50/60Hz										
	Allowable Voltage Fluctuation	-15% ~ +10%										
	Allowable Frequency Fluctuation	±5%										



# Servo System

## JSDA<sup>+</sup> Servo Drive

Advanced AC Servo drive, which offers high-performance, high-response, high-stability for general purpose applications. JSDA<sup>+</sup> is robust and versatile with torque, speed and position modes, incremental or absolute encoder input, 32 steps internal position command, standard Modbus port.

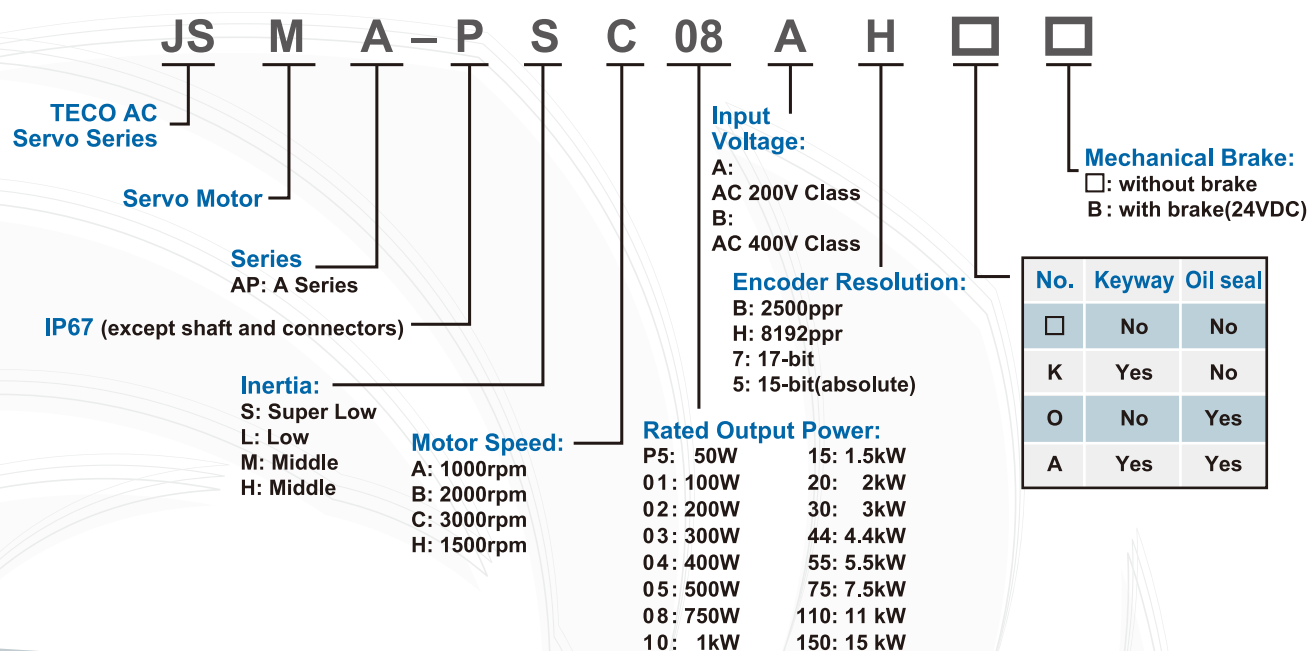
Frame	1				2			3		4	
200V	10A	15A	20A	30A	50A3	75A3	100A3	150A3	-	200A3	300A3
400V	-	-	-	-	25B	35B	50B	75B	-	-	-
Max. Capacity	100W	400W	750W	1kW	2kW	3kW	4.4kW	5.5kW	7.5kW	7.5kW	15kW



## JSMA Servo Motor

### Key Features

- Rated power output: 50W-15kW
- Frame size: 42/60/76/80/86/130/180/220mm
- Encoder resolution: 2500ppr/8192ppr/17-bit (Incremental) 15-bit (Absolute)
- Rated speed range: 1000/1500/2000/3000rpm
- Torque Range: 0.48N-m ~ 204N-m
- Excellent performance, smooth operation, high quality and stability
- A full range of performance with outstanding high torque output
- Low noise, low vibration, elegant appearance and easy installation
- Enclosure: IP67





## SG2 Programmable Logic Relay

**Micro PLC with:** 100/240Vac, 24Vdc & 12Vdc supply options, 10/12/20 point exp. modules, max 44 digital I/O + 8 Analogue 16x4 seven languages LCD display.

Programmable in Ladder 300 lines and FBD 260 blocks.

RTC functionality. Two 1KHz, high speed counter, two PWM and one Pulse output., 31 multi-function Timers, Counters, RTC & Analogue comparators, 15 PI Loops.

**Communication features:** Modbus built-in. Computer link: PC control of 255 SG2. Data Link: one SG2 master / 8 slaves. Remote I/O : Master / one Slave (max 60 I/O).

Profibus DP, DeviceNet, Ethernet TCP/IP option.



## TP03 Programmable Logic Controller

**Main units:** 14/20/26/30/36/40/60 I/O's expandable to 256 digital I/O's and 60/10 (12 bit) analog I/O's. 2 high speed pulse output (Max 200KHz) can control servo drives.

Built-in high speed counter (Max 100KHz) can interface encoders. Memory size: 4 to 16k. Program is stored in flash memory (M type) and EEPROM (H type).

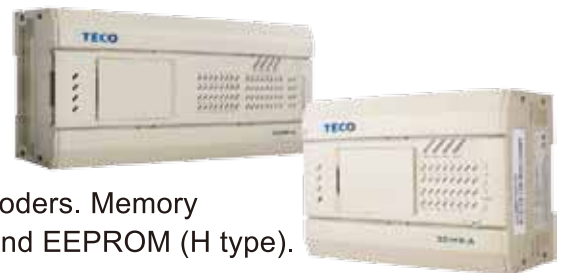
**Programming languages:** Ladder, IL (Instruction List), SFC and FBD. Full instructions set.

3 communication ports on the CPU can build up Networks (max. distance 1.2 Km) as follows:

Computer link: PC controls up to 255 TP03 as slaves, Data Link: One TP03 master can control

up to 15 TP03s, Remote I/O: One TP03 master can control up to 4 units of TP03 slaves, with

max 36/24 I/O's each. Profibus, DeviceNet and Ethernet (TCP/IP) connection thru optional cards.



## OP10 Basic Operator Interface

The OP10 monochrome HMI offers a simple but powerful user interface for Teco PLC and Inverters. It monitors data registers in real time, changes parameters, performs switching functions, lists alarms, and transfers data between PLCs and Inverters.



## H610 Human Machine Interface

H610 offers high resolutions touch screen HMI from 4.3" to 15", WinCE 6.0R system as standard and supports Ethernet, Modbus and many optional networks. All the HMIs come with 2 RS ports, 1 Ethernet (2 in 10" & 15"), 1 USB port, PLC and Inverters communication Drivers.

Besides, H610 provides fully configurable, Tag-based software with Remote Viewer and Historical Viewer, which helps user to easily build graphics on screen and manage applications variables...



# Memo



# Memo





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