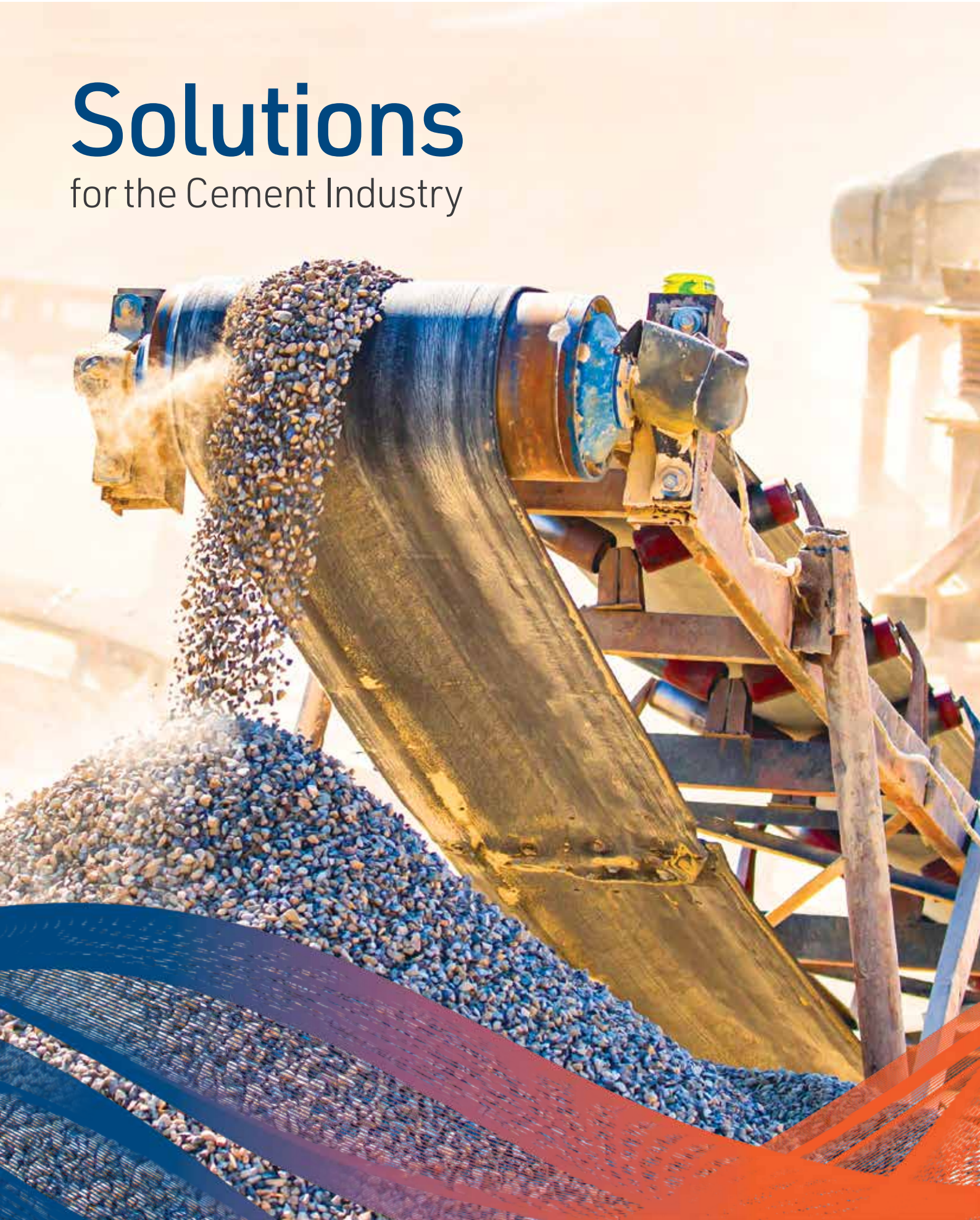
TECO

together, we empower the Future

Solutions

for the Cement Industry



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Rotating the World Sustainably and Reliably with TECO's Industrial Solutions.

GLOBAL EXPERTISE WITH LOCAL SUPPORT

Operating in over **30 countries** across all five continents.

VAST STOCK AVAILABILITY

Large stock range across Australia & New Zealand.

LOCAL IN-HOUSE WORKSHOP

Full range of mechanical and electrical modifications ensuring adherence to TECO's stringent QA procedures and relevant standards.

ISO 9001 ISO 45001

TECO is a global leader specialising in manufacturing and distribution of industrial Electric Motors and Variable Speed Drives.

Our extensive product range includes high-quality Low & Medium Voltage Motors from fractional kW to 22,000 kW for supplies up to 14,200 Volts, energy-efficient Variable Speed Drives and reliable automation equipment.

Our commitment to excellence is evident in our longstanding ISO 9001 and ISO 14001 certifications. Furthermore, our recent acquisition of the EPACT Energy Efficiency Certificate solidifies our position as an exemplary player in the global marketplace.

TECO's commitment to technological advancement and sustainable practice has earned a reputation for delivering superior products and exceptional customer service.

With TECO, you can trust in industry-leading performance, reliability, and a commitment to sustainable practices.



Engineered for Cement Industry

Engineer-to-engineer approach for heavy-duty cement applications

In cement duty, loads rarely stay steady: crushers often start with material already in the chamber, mill torque demand shifts with feed and moisture, and fans follow process conditions. Dust and heat steadily reduce thermal margin, and an unplanned stop can quickly turn into hours lost to isolation, safety steps, fault-finding, parts and coordinating already busy committed crews.

That's why the foundation for electric motors engineered for heavy-duties are needed.

Thermal capacity, insulation systems designed for withstanding contamination and Variable Speed Drive duty, plus bearing arrangements built to withstand dust, heat and vibration.

Drives are then integrated to manage ramping, torque and protection coordination, preventing nuisance trips and safely handling high inertia loads.

In Australia and New Zealand equipment reliability, stock availability and responsive after-sales support, including rapid response to recoverable faults, often determine whether a disturbance remains a brief event or escalates into a production stop.



"TECO Australia and New Zealand support cement plants with an integrated engineering approach across electric motors, variable speed drives, and power distribution, including transformers and busway (TECOBAR), to strengthen uptime where distance and tight shutdown windows make recovery expensive."

Cement Applications & Engineering Response

Matching motor, drive and power distribution systems to real process conditions

Cement production places different electrical demands at every stage of the process. Each application has its own load profile, thermal exposure and starting behavior.



1. Crushers

Engineering requirement: High starting torque, thermal margin in built for repeat starts, robust mechanical integration.

Risk if underspecified: Stalled starts, overheating, drivetrain damage, repeated trips.

TECO technical response: We design electric motors to suit starting duties and inertia/load profiles, then select a starting method that limits torque shock through couplings and gearboxes. During commissioning settings are aligned to distinguish genuine jam/stall events from a normal process overload.

Recommended TECO solutions: TECO AFJE/AFJN Low Voltage Electric Motors; TECO MAXe3 Mining; TECO Soft Starters (where speed control is not required); TECO A510s Advanced Current Vector Control VSD.

Operational benefit: Repeatable starts, fewer avoidable trips, reduced mechanical stress impact, increased uptime.



2. Kiln drives

Engineering requirement: Continuous-duty reliability, stable torque delivery, resilience to heat and harsh environments, predictable service intervals.

Risk if underspecified: Thermal overload, insulation breakdown, bearing failure, high-risk downtime in critical continuous process equipment.

TECO technical response: We prioritise thermal endurance and contamination tolerance in motor selection, then integrate drives (where required) to stabilise torque delivery in line with gearbox characteristics and operating modes.

Recommended TECO solutions: TECO Totally Enclosed Air to Air Cooled/Totally Enclosed Water to Air Cooled; TECO AFZK T-HiPro; TECO AFJH/AFJP Medium Voltage Electric Motors; TECO Medium Voltage Drive MV510 (where variable speed/control is required); TECO Transformers, combined with TECOBAR® busbar engineered to manage thermal rise, maintain & protect insulation integrity and ensure stable power distribution under continuous load.

Operational benefit: Reduced unplanned downtime exposure and more predictable continuous operation.



3. Ball mills / Vertical mills

Engineering requirement: High torque capability, stability under load demand swings, predictable low-speed behaviour (where applied), protection tuned to real mill duty.

Risk if underspecified: Torque instability, overheating, vibration issues, mid-run trips, inefficient grinding and higher kWh/t.

TECO technical response: We account for load variation and thermal cycling in motor selection, and tune control to support process stability under changing feed and demand. Start/restart profiles are engineered to match high inertia behaviour and restart requirements.

Recommended TECO solutions: TECO Wound Rotor Induction Motor; TECO Totally Enclosed Air to Air Cooled/ Totally Enclosed Water to Air Cooled; TECO AFJH/AFJP Medium Voltage Electric Motors; TECO Medium Voltage Drive MV510 (with frozen charge detection to protect the mill and drive train on restart).

Operational benefit: Fewer process-disrupting trips, steadier operation, improved control of energy usage.



4. Induced Draft / Forced Draft Fans

Engineering requirement: Efficient speed control, motor thermal suitability across the speed range, network-appropriate electrical integration, stable control on high inertia systems.

Risk if underspecified: Excess energy usage (cost), drive overheating, spurious faults, resonance risks, unstable draft control.

TECO technical response: We specify motors suitable for VSD duty across the operating envelope and engineer speed/torque response to maintain stable draft control through process swings. Integration considers cabling, installation environment and plant network behaviour so performance remains stable under site conditions.

Recommended TECO solutions: TECO Medium Voltage Drive MV510 (MV fans/critical draft); TECO A510s Advanced Current Vector Control VSD; TECO Totally Enclosed Air to Air Cooled/Totally Enclosed Water to Air Cooled; TECO MAXeV4 IE4 Electric Motors or TECO AFJE/AFJN Low Voltage Electric Motors; TECO Transformers + TECOBAR® Busway (where distribution reliability is critical).

Operational benefit: Stable draft control, fewer avoidable trips, reduced energy waste versus fixed-speed throttling.

5. Conveyors

Engineering requirement: Reliable starts under load, resilience to frequent cycling, dust-tolerant sealing/cooling, practical fault detection.

Risk if underspecified: Overheating, repeated trips, accelerated bearing wear, unpredictable stoppages that disrupt plant flow.

TECO technical response: We align motor selection to the start frequency, duty cycle and exposure conditions, and apply controlled starting where it reduces belt/gearbox stress and start-related thermal rise. Settings are tuned during commissioning to detect genuine overload/stall/jam conditions without creating maintenance-draining false trips.

Recommended TECO solutions: TECO AFJE/AFJN Low Voltage Electric Motors; TECO MAXeV4 IE4 Electric Motors (high run-hour auxiliaries); TECO A510s Advanced Current Vector Control VSD; TECO Soft Starters (long/high-inertia starts without speed control); TECO MAXe3 Mining.

Operational benefit: More predictable material flow, fewer interruptions, reduced reactive maintenance pressure, ongoing flexibility to allow process changes.

6. Screening & materials handling (vibrating equipment)

Engineering requirement: Stable vibration force delivery, correct mounting suitability, dust-ready selection where required.

Risk if underspecified: Rapid bearing wear, mounting fatigue, unstable screening performance and flow disruption.

TECO technical response: We match the vibrator duty to the screening task and installation constraints, including dust exposure and compliance requirements where applicable, so screening remains stable and recoverable.

Recommended TECO solutions: TECO Invicta BLz.

Operational benefit: More stable screening performance and reduced interruptions across upstream/downstream material flow.

TECO AFJE / AFJN Electric Motors

Low Voltage squirrel cage cast iron electric motors for crusher drives and high-duty conveyors

TECO AFJE/AFJN are heavy-duty LV electric motors suited to cement plants. The IP66 protection and insulation thermal reserve help maintain performance as cooling paths fill up with process dust and ambient temperatures climb.

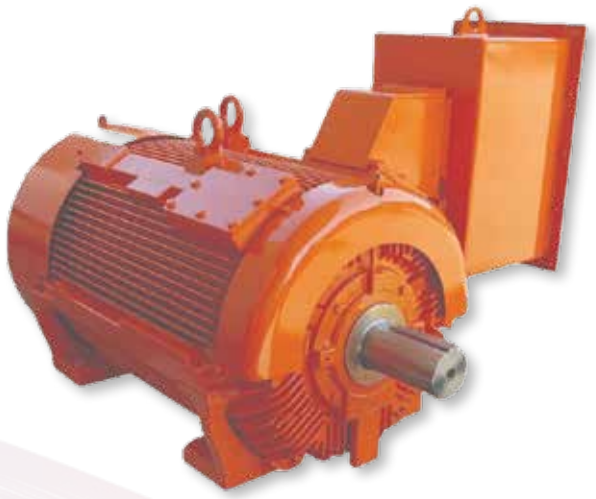
The range meets or exceeds the IEC60034 Minimum High Efficiency Performance Standard and is stocked locally across Australia and New Zealand. The motors are Totally Enclosed Fan Cooled (IC411) with a heavy-duty cast-iron frame, providing resistance to dust and water ingress in harsh plant environments. Electrical supply is 380–415 V, 3-phase, 50 Hz (other voltages are available on request).

Insulation and duty are specified for cement reality: Class H (180°C) insulation materials, continuous operation (S1), and low temperature rise to deliver substantial thermal reserve—important where ambient heat, dust accumulation and starting demands drive winding temperatures beyond ideal conditions.

For installation and maintenance practicality, these motors include an oversized fabricated steel terminal box (side/top mounted) and the designs are engineered to minimise noise emissions. The stocked range is 150kW to 450kW (larger sizes on request). A special 315LL frame option is available and stocked (250kW, 280kW and 315kW) with Class B temperature rise.

Best fit in cement: conveyors, pumps, fans and general auxiliaries in dusty/high-ambient areas where IP66 ingress protection and thermal reserve reduce trip risk and insulation ageing.

- Efficiency Performance Standard, table B3
- MAXe3 Mining motor type AFJE/AFJN, has a metric frame that meets or exceeds IEC60034 Minimum High
- Stock Holding 150kW to 450kW, Larger sizes available upon request
- Totally Enclosed Fan Cooled (IC411)
- 380~415 Volts 3 Phase 50 Hz (other voltages on request)
- Highest quality insulation system utilizing Class H materials (180°C)
- Low temperature rise for substantial thermal reserve
- Continuous rated, duty type S1
- Low noise level
- Cast Iron Construction with side/top mounted fabricated steel terminal box
- IP66 protection rating
- Special 315LL Frame available in 250kW, 280kW and 315kW sizes with Class B temperature rise.



TECO MAXe3 Mining Motors

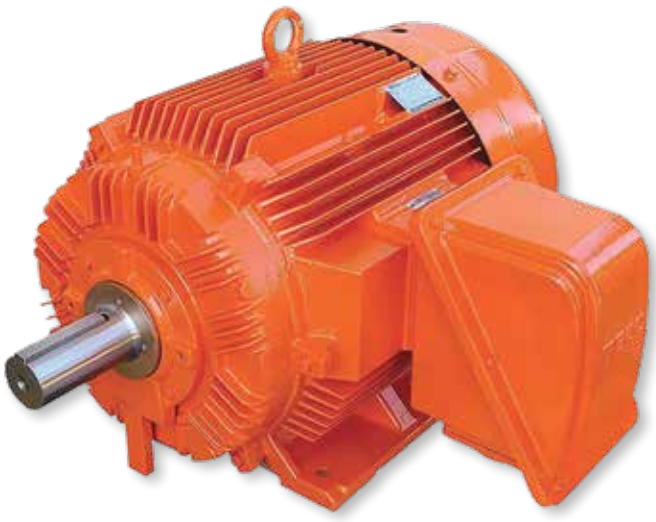
Premium Efficiency Electric Motors for high-exposure cement zones

TECO MAXe3 Mining is a 3-phase squirrel cage electric motor range covering 0.18kW to 450kW, designed for harsh duty where dust, moisture and high ambient temperatures degrade cooling performance and bearing life over time.

The motors are TEFC with IP66 protection and precision cast iron construction for heavy industrial service.

The insulation system is Class H which is rated at 180°C, supporting endurance under sustained thermal stress. Design features include sintered bronze porous drain plugs, cast iron cooling fans from D160 frame and above, TECO's grease relief purging system, and two sets of thermistors on D160 frame and larger for temperature monitoring protection.

Best fit in cement: quarry and transfer points, outdoor conveyors, washdown or moisture-cycling zones, and high dust exposure areas where ingress control and thermal monitoring support predictable lifecycle performance.



- Precision and Rugged Cast Iron Construction
- Class H insulation systems rated up to 180°C
- Typical temperature rise less than Class E which is limited to 75°C
- Up to 1.2 service factor @ 40°C ambient
- Suitable for 60°C ambient at full rated output with no de-rating necessary
- IP66 Protection with sintered bronze porous drain plugs
- Cast Iron Cooling Fans D160 and above
- TECO renowned grease relief purging system
- Two sets of thermistors D160 frame and larger
- IECEX Certified Ex e, Ex nA, Ex tD/tb ready to order
- TECO Mining Specification as standard
- X15 Orange paint finish.



TECO AFJH / AFJP Medium Voltage Electric Motors

MV/HV squirrel cage motors with drop-in replacement focus

With an astounding improvement of up to 35% in power density, TECO AFJH/AFJP deliver a substantial increase in power within a remarkably compact size.

This breakthrough allows for optimal space utilisation and streamlines installation processes. Through meticulous material optimisation, we have achieved a remarkable 20% weight reduction, all while maintaining impeccable structural integrity. This breakthrough not only enhances efficiency but also drives operational performance to new heights.

By reducing energy waste and optimising power utilisation, TECO AFJH/AFJP Electric Motors significantly lower operational costs, leading to substantial savings for customer production. Additionally, our motors feature a carefully optimised thermal system, enabling a reduction in frame size without compromising performance.

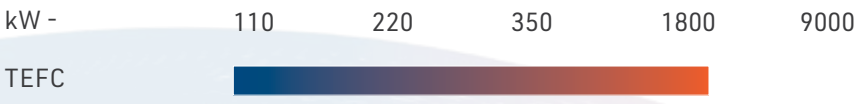
- Vertical and horizontal configuration
- Cast iron frame
- Oversized anti-friction or sleeve bearings
- Large oversized steel fabricated terminal box relocatable to the opposite site
- Bespoke design & drop-in replacement replacements are available
- Safe area & Hazardous area applications
- Voltages up to 11,000V.

This compact design ensures efficient space utilisation and allows for seamless integration into various applications.

- Totally enclosed fan cooled (TEFC) design ensures optimal protection from external elements, enhancing motor longevity and reliability.
- Versatile vertical and horizontal configuration options provide flexibility for various installation requirements.
- The robust cast iron frame guarantees durability and strength, ensuring reliable performance even in demanding environments.
- Choose between anti-friction or sleeve bearings, allowing customisation based on specific application needs.
- The oversized steel fabricated terminal box provides a sturdy and secure enclosure for electrical connections, ensuring safety and convenience.
- Our motors are designed to be bespoke and drop-in replacements, offering seamless integration into existing systems with minimal modifications required.
- Suitable for both safe and hazardous areas, TECO AFJH/AFJP Electric Motors meet stringent safety standards and provide peace of mind in any operating environment.

Best fit in cement: large Induced Draft / Forced Draft Fans, major auxiliaries, and legacy replacement programs with meeting reverse engineered dimensions for maintaining existing envelopes and interfaces which in turn reduces shutdown duration.





Medium and High Voltage Squirrel Cage Induction Motors

Available with TEAAC or TEWAC cooling configurations

Large squirrel cage electric motors with engineered cooling options.

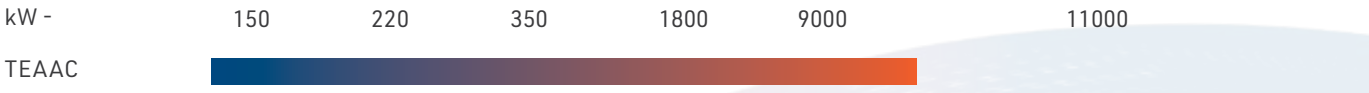
TECO Squirrel Cage Electric Motor - TEAAC will revolutionise industrial operations. With its features and advanced technology, TECO Squirrel Cage Electric Motor - TEAAC sets new standard in power, efficiency, and durability.

Its robust construction ensures optimal performance and extended lifespan, protecting internal components from dust, dirt, and moisture even in the harshest operating conditions. No matter how harsh the operating conditions, our electric motor design guarantees uninterrupted operation, minimising downtime and maintenance costs.

TECO Squirrel Cage Electric Motor - TEAAC is rigorously tested to meet stringent safety standards, making it suitable for both safe and hazardous areas. With advanced protective measures, reliable insulation, and robust enclosures, our motor ensures the well-being of your workforce while complying with industry regulations.



- **Vertical and horizontal configuration options**
  Providing versatile adaptability to suit specific installation requirements. Our motor integrates seamlessly into your current industrial setup, ensuring a hassle-free installation process.
- **Heavy Duty Steel Fabricated Frame**
  Guarantees exceptional durability and structural integrity. This robust construction ensures reliable performance even under demanding conditions, providing a motor that can withstand the rigors of industrial applications.
- **Oversized Anti- friction or Sleeve Bearings**
  Allowing for enhanced efficiency and reliability. These bearings are designed to handle heavy loads and minimise friction losses, resulting in smoother operation and reduced energy consumption.
- **Bespoke Design & Drop-In Replacements**
  Tailor the motor's dimensions, voltage, and other specifications to meet specific requirements. Additionally, our motor is designed as a drop-in replacement for existing installations, minimising downtime and installation costs.
- **Air Cooled/Water Cooled with option for forced ventilation**
  Allowing customers to choose the optimal temperature control method for their application. With efficient cooling mechanisms in place, our motor ensures that internal components operate within their designated temperature range, maximising performance and reliability.







TECO A510s Variable Speed Drives

Low Voltage Variable Speed Drives for feeders, conveyors and auxiliary crusher-house duties

The A510s is a premium advanced current vector control drive provided with Normal Duty and Heavy Duty ratings, providing 12 digital I/O and 4 analogue I/O for plant control integration – useful where loaded starts and controlled acceleration are required to protect the mechanical and electrical system.

Control capability includes seven motor control modes (including open and closed loop vector control), 200% / 0.5 Hz starting torque, and overload capability of HD: 150% / 60 sec, 200% / 2 sec; ND: 120% / 60 sec. The drive includes internal and external braking options and built-in STO functions. Communications include built-in Modbus with optional Profibus DP, TCP-IP, DeviceNet, CANopen, Ethernet/IP and EtherCAT. A built-in RTC and simple PLC functionality are also included.

- 380-480V 3Ph - 0.75-45kW (IP20) 55-315kW (IP00 / IP20 Optional)
- Dual ratings for Normal & Heavy-Duty Applications
- 12 Digital I/O & 4 Analog I/O
- 7 Motor Control Modes incl. Open & Closed Loop Vector Control
- 200% / 0.5 Hz Starting Torque
- Overloads HD: 150% /1 min, 200% / 2sec & ND: 120% / 1min
- Braking Options Available (Internal & External)
- Built-in Comms – Modbus - Optional: Profibus DP, TCP-IP, DeviceNet, CANopen, Ethernet / IP, EtherCAT
- STO Functions Built-in
- Built-in RTC & Simple PLC Functionality
- High Speed Dual Core Processor – 4 Quadrant Control suited to Elevator & Crane Control
- Comprehensive range of Options & Accessories.



TECO MV510 Medium Voltage Drives

Low-speed torque stability and a serviceable modular architecture reduce trip risk and recovery time on high inertia fans and large auxiliaries

TECO MV510 is a medium voltage drive range suited to cement duties where harmonic performance, low-speed torque stability and recoverability drive lifecycle outcomes are required.

The drive uses low-voltage (690 V) power cells, enabling individual power cell replacement without high-voltage clearances or specialised handling procedures. TECO MV510 provides near-sinusoidal output voltage and current, reducing motor harmonics and torque pulsation even at low speeds. The range supports ultra-low line-side harmonics, operation with no external harmonic filters required, and performance exceeding IEEE-519 harmonic limits, with virtually no restriction on motor cable length.

TECO MV510 can control multiple motors. Starting multiple motors and transferring them synchronously to utility lines and back via a bypass cabinet using a single drive. For integration, the TECO MV510 supports Modbus, Profinet and Ethernet for SCADA/DCS connectivity. Spares strategy is supported via universal interchangeable power cells and components across all voltage and power ratings, enabling consolidated inventory across different sites.

Best fit in cement: Induced Draft / Forced Draft Fans, large auxiliaries and MV variable speed duties where harmonic performance, low-speed behaviour and service recoverability reduce trip risk and downtime exposure.



TECO Soft Starters

Controlled motor start and stop for crushers and high-inertia conveyors

Where speed control is not required, a soft starter is often the fastest reliability gain by controlling inrush current and starting torque to reduce drivetrain shock and repeat-start heating.

TECO Soft Starters control the starting and stopping of squirrel cage induction motors (SCIMs) for low voltage and medium voltage industrial applications, with managed acceleration/deceleration for non-VSD duties.

Voltage coverage includes 200V–575V, 380V–690V, 960V–1320V, and 2.3kV–13.8kV, with 18A–1700 A standard. Control voltage options include 110VAC–120 VAC, 220VAC–240VAC, or 24V AC/DC, with 2-phase and 3-phase control designs available. Installation and control options include in-line and inside-delta connections (model dependent), digital and analogue I/O standard, and fieldbus/Ethernet options including communication cards with ground fault detection built in.





Commissioning is supported via a local or remote Human-Machine Interface with smart parameters and built-in diagnostics with logs and live data feedback. Start/stop control includes current limit, adjustable acceleration/deceleration, kickstart, and a complete range of adjustable motor protection features. Built-in or external bypass reduces heat losses and electrical interference, and soft stop for pumps and long conveyors reduces mechanical stresses.

Best fit in cement: crushers and long conveyors where speed control is not required, and controlled starting reduces inrush, drivetrain shock and start-related downtime.

TECO Soft-starters - Suitable for nearly every Non-VSD Application

- 200 -575 V / 380-690 V / 960-1320 V / 2.3-13.8kV / 18-1700A Std incl. 202-1092A at 1000V
- Control Voltages: 110-120 VAC & 220-240 VAC or 24 V AC/DC
- 2 / 3 Phase Control Designs to suit both Budget & Application Requirements
- Flexible connection: in-line and inside-delta (model dependent)
- Digital & Analog I/O standard; Fieldbus/Ethernet options incl. Comms Cards with Ground Fault Detection built in
- Vast Range of Accessories for Safety & Control
- Fast commissioning via local or remote HMI with intuitive smart parameters
- Built-in diagnostics with logs and live data feedback
- Controlled Start / Stop with current limit, adjustable Acceleration / Deceleration Characteristics and kickstart, along with a Complete Range of Adjustable Motor Protection Features
- Designs with built-in or external bypass to Reduced Heat Losses and Electrical Interference
- Soft Stop for pumps & long conveyors, which reduces mechanical stresses
- Other Sizes & Custom Designs Available on Request with fast turn-around times.

INVICTA BLz

Base-mounted electric vibrator motors

Stable screening and feeder vibration supports consistent flow where fines handling and product segregation drive throughput.

In cement plants, vibrating equipment is a throughput multiplier: when a screen or feeder becomes unstable, throughput drops fast and material flow becomes inconsistent. Invicta BLz are heavy-duty, base-mounted electric vibrators supplied with thrust roller bearings for vertical and horizontal mounting, making them suitable for feeders, screens, conveyors, chutes, silos and compaction duties.

For sites with combustible dust risk, the BLz range is TECO's main stocked model in Australia and New Zealand and is certified for Dust Ignition Protection Ex tb Db IP66, with ATEX approval for Zone 21 and Zone 22 environments. This is relevant to cement handling areas where fine dust management and compliance requirements shape equipment selection.

For non-hazardous applications, the BLz range provides defined performance characteristics and typical electrical data at 400V / 50Hz and 460V / 60Hz, including adjustable centrifugal force, working moment, full load current and starting current.

Other Invicta drive options are available for installation constraints and non-electric requirements: flange-mounted electric vibrators (SWL/SFL series) with single or twin-flange configurations, and a pneumatic vibrator line for environments where electrical drives are not feasible.

Best fit in cement: raw material screening, clinker handling screens, feeders, chutes and flow-assist duties where controllable vibration force and retrofit practicality reduce process interruptions.



BLz



SWL/SFL Series



Pneumatic Vibrators





TECO MAXeV4 Super Premium IE4 Energy Efficiency Electric Motors

Best applied on high run-hour auxiliaries where IE4 efficiency reduces lifecycle energy consumption without compromising durability in dusty zones

TECO MAXeV4 is an IE4 Super Premium Efficiency Electric Motor range covering 0.75kW to 315kW, positioned for energy-intensive industrial operations in Australia and New Zealand.

In cement plants, the strongest value case sits in high run-hour auxiliaries—fans, pumps, conveyors and compressors—where energy cost and reliability exposure compound over the asset lifecycle.

From a durability standpoint, TECO MAXeV4 is engineered around IP66 protection (dust-tight and protected against high-pressure water jets) and Class H insulation (180°C) for harsh environments and stable performance when operating with VSDs, soft starters or direct on line (DOL) starting.

The motor construction is with a cast iron housing and IC411 cooling (TEFC enclosure) for stable thermal performance, and a S1 continuous duty.

For retrofit programs, TECO MAXeV4 is designed as a drop-in retrofit solution that conforms to IEC 60072-1 mounting dimensions, matching legacy IE2 and IE3 frames and shaft dimensions to enable interchangeability without mechanical modification.

The motor is a standard squirrel-cage design intended to be serviceable by qualified local motor repairers using standard tools, avoiding specialist-only servicing constraints related to other premium high efficiency designed motors.

Key technical configuration details include: frame sizes 80 to 355L, 2/4/6-Pole options, a top-mounted terminal box with 4 × 90° rotation for flexible cable entry, and PTC 150°C thermistors for frames 160 and above to support thermal protection and VSD integration.

Optional features listed for site-specific cement requirements include 1000V motors, IC418 airstream rating, anti-condensation heaters, auxiliary terminal boxes for sensor terminations, forced cooling IC416, encoders/tacho, insulated bearings, RTDs (winding and/or bearings), rotor grounding, special paint systems, vibration sensors/studs, stainless fasteners, and additional options on request.

Best fit in cement: high run-hour auxiliaries (fans, pumps, compressors, conveyors) where IE4 efficiency, IP66 environmental protection and retrofit practicality support lifecycle cost reduction and predictable maintenance.



TECOBAR® Busway Systems

Low and medium voltage distribution for cement sites

Cement plants need electrical power distribution systems that are maintenance-free and protected against dust ingress, maintaining performance under vibration and constrained access conditions.

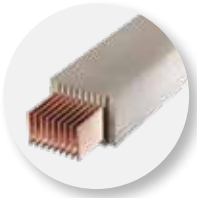
TECOBAR® busway systems provide a compact alternative to traditional cabling for LV and MV power distribution, designed to minimise intervention and simplify upgrades and tie-ins.

Key specifications across the TECOBAR range include IP68 ingress protection, IK10 mechanical impact rating, and fire testing to IEC 60331 and BS 6387. LV configurations are available up to 1000 V and MV configurations up to 24kV.

Best fit in cement: switchrooms, major drive feeders and plant expansions where sealed distribution and simpler maintenance reduce outage exposure.



Sandwich Busway



Low Voltage Cast Resin Busway



Medium voltage Cast Resin Busway

TECO Transformers

Engineered transformer options and project delivery scope

For cement upgrades and expansions, transformer selection and delivery scope directly affect outage duration and commissioning risk.

TECO's Energy Solutions portfolio covers dry type transformers up to 10MVA / 33kV, oil type FM-rated transformers up to 10MVA / 36kV, and distribution transformers up to 20MVA / 33kV.

Where required, TECO supports projects through technical coordination across motors, drives and transformers, helping reduce interface risk across the system.

Best fit in cement: substation upgrades, new feeders for large motors/drives, and plant expansions where coordinated delivery supports faster, lower-risk commissioning



Dry Type
Up To 10MVA 33kV



Oil Type Fm Rated (Fire)
Up To 10MVA 36kV



Distribution Type
Up to 20MVA 33KV

How to Specify Motors for Cement Duty

Specifying a motor for cement service in Australia and New Zealand starts with one assumption: the motor will spend a meaningful part of its life away from the "ideal"

Load swings, heavy starts, dust build-up, heat, vibration, and maintenance access constraints are normal.

A cement-duty motor specification should therefore be written to protect thermal life, bearing life, and insulation integrity under real operating conditions.

1. Duty definition (process-first)

- Start method: DOL / Soft Starter / VSD
- Starts/hour + start duration + starts under load (Y/N)
- Inertia / load profile (steady vs cycling)
- Overload events: level + duration
- Run hours (annual) + criticality (A/B/C asset)

2. Thermal margin (non-negotiable)

- Site ambient + enclosure/airflow restrictions (dust-loaded cooling)
- Temperature rise / thermal reserve requirement
- If VSD: thermal suitability across speed range (incl. low-speed cooling / forced ventilation if needed)

3. Environment (dust/moisture as inputs)

- Exposure zone: quarry / transfer / plant / kiln area
- Ingress/sealing requirement aligned to dust + washdown
- Cooling path clogging risk and how it will be managed between shutdowns
- Moisture cycling note (dust can become conductive when wet)

4. Insulation (environment + VSD stress)

- VSD-duty insulation if VSD is possible at any point in the asset life
- Electrical environment assumptions (switching stress, cable runs, voltage variations)
- Specify for long-life stability (avoid minimum compliance in harsh duty)

5. Bearings & Maintainability

- Bearing arrangement suited to load + vibration + misalignment risk
- Sealing + lubrication approach aligned to dust exposure
- Access constraints and realistic service intervals (shutdown-window driven)

6. Protection & Commissioning intent

- Start limits + restart philosophy
- Define "normal overload" vs stall/jam fault (trip intent)
- Protection co-ordination to prevent nuisance trips
- Commissioning acceptance: repeatable starts + stable operation under load swings

How to Specify Variable Speed Drives for Cement Duty

In cement plants, drives are selected to stabilise the process under variable load, manage high inertia safely, reduce mechanical shock and coordinate protection so the plant only trips for real faults

In ANZ, the drive specification also needs to reflect site supply conditions, remote recovery realities, and the practical limits of commissioning time during shutdowns.

1. Control Intent (application-first)

- Define what areas must be controlled: speed, torque, ramp behaviour, stopping behaviour
- Identify high-risk duties: crushers (torque transients), mills/fans (high inertia), process-critical loops (speed stability)
- State whether fixed speed is acceptable or variable speed is required

2. Ramping & Torque management (mechanical protection)

- Specify ramp profiles and torque limits to protect couplings, gearboxes, belts and fans
- Define start under load expectations and inertia constraints
- Specify stopping philosophy for high inertia (coast vs controlled stop where required)

3. Thermal & Installation reality (cabinet conditions)

- Define cabinet environment assumptions: ambient temperature, dust exposure, ventilation constraints
- Require stable operation across the speed range without overheating
- Define derating assumptions if the enclosure/room conditions are limiting

4. Protection Co-ordination (trip philosophy)

- Define what must trip vs what must ride through
- Clarify "normal process overload" vs stall/jam fault
- Specify restart philosophy and fault handling aligned to plant safety and operations
- Require settings that minimise nuisance trips without masking genuine faults

5. Commissioning Outcomes (acceptance criteria)

- Require stable ramps and correct torque response under realistic load
- Verify protection settings against actual duty behaviour where possible
- Define success as predictable operation for operators (not "commissioning completed")

6. Motor–drive Integration (engineered as a package)

- Specify VSD-duty suitability where applicable (insulation stress, cable considerations)
- Address low-speed cooling behaviour (and forced ventilation requirements if needed)
- Ensure compatibility with mixed motor populations and future motor changes

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Solutions
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INDUSTRY CATALOGUE JUNE 2026

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