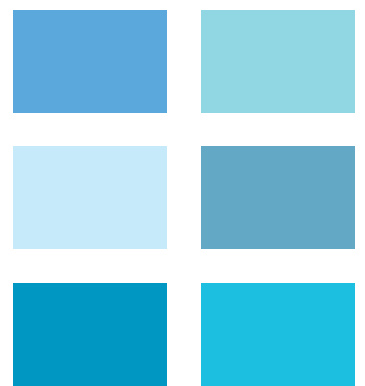




Motors
Automation
Machines
Power Transformers

WEG Solutions for Drilling in Canada

Large Machines
Generators
Automation
Low Voltage Motors



PAMENSKY



WEG Solutions for Drilling in Canada

WEG Energy has the finest solutions for oil drilling applications. WEG is there with you, providing a competitive edge through enhanced technological capability and capacity for volume production. Our comprehensive motor and generator solutions can be utilized as:

Top Drive Unit

Operates the rotating drilling apparatus at the drill site. These motors are vertically oriented working on high overloads via VFD and installed in restricted space.

Drawworks Unit

Hoisting unit that moves the traveling block up and down the tower. Usually driven by two horizontal motors in tandem and operated via VFD.

Mud Pump Unit

Mud pump has a threefold purpose: lubrication and refrigeration of the drill bit and transportation of drilling debris up from the bottom of the hole. In general these motors are the same as those used on the Drawworks unit.

Variable Frequency Drives

VFD's provide advanced motor control options for many motor applications for drilling sites including E-Houses.

Energy Supply

Generation of electrical power for the drilling station is achieved by direct coupled brushless synchronous generators.

WEG's contribution to these drilling applications:

- High torque capability
- Rugged, rigid mechanical structure
- Light weight design for helicopter duty
- Low temperature applications - arctic duty
- Tapered or spline shaft ends with tight tolerances for special coupling requirements
- Superior electrical design (VPI, Sealed Windings, Form Wound, H Class insulation)
- Forced ventilation
- Drop-in replacement frame designs
- Dimensional flexibility for drop in fitment
- Bus bar located on the terminal box
- Overload and over-speed capability
- Continuous improvement approach

What support is given to this segment?

- Quick delivery - Rig Motors stocked locally in Canada
- One stop shop (drives, LV standard motors and switchgear)
- Global presence
- Local support hotlines and available stock for emergencies
- Competitive pricing
- 24/7 Emergency stocking service



Top Drive

Scope

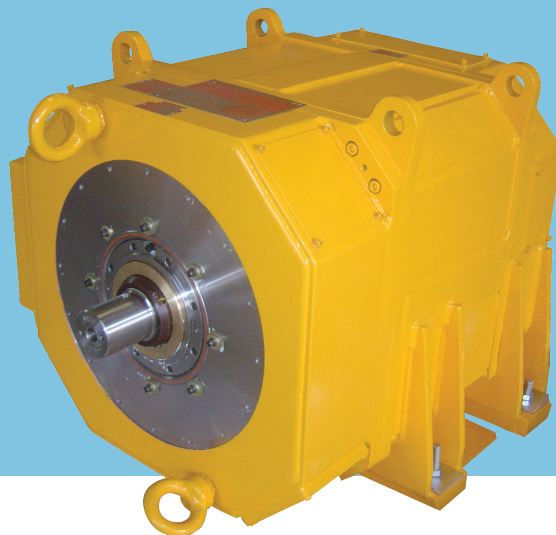
- TGA and TGV model high torque, Form-Wound traction motors.
- Output: 250 to 2000HP
- Voltage: 575/600V
- Operation on Variable Frequency Drive (VFD)
- Frequency: 40 to 60Hz
- Insulation: class H Form Wound
- Mounting: V1
- Cooling: By ducts (IC37) or blower (IC06)
- Suitable to DIVISION II, CLASS I, GROUP B/C/D, T3
- Suitable under request to EX-n* classification and Marine ABS, DNV, Lloyds, ATEX and Others
- IP44

Standard Accessories/Features

- Platinum RTD - two per phase
- Platinum RTD - one per bearing
- Form wound stator
- Fabricated copper rotor bars
- Drop-in replacement footprint
- 4140/4340 steel shafts
- Splined shaft
- Severe duty 3 coat offshore paint

Optional Accessories/Features

- Differential pressure switch
- Encoder 1024 ppr
- Arctic Duty



Drawworks and Mud Pump

Scope

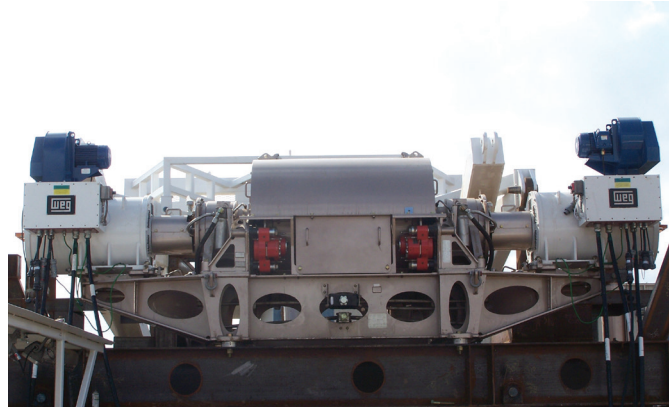
- MGV, TGA and TGV model high torque, Form-Wound motors.
- Output: 400 to 2000HP
- Voltage: 575/600V
- Operation on Variable Frequency Drive (VFD)
- Frequency: 40 to 60Hz
- Insulation: class H
- Mounting: F1/F2
- Cooling: By ducts (IC37) or blower (IC06)
- Suitable to DIMSION II, CLASS I, GROUP B/C/D, T3
- Suitable under request to EX-n* classification and
- Marine ABS, DNV, Lloyds, ATEX and Others

Standard Accessories/Features

- Platinum RTD - two per phase
- Platinum RTD - one per bearing
- Form-Wound stator VP1
- Fabricated copper rotor bars
- Drop-in replacement footprint
- 4340 steel shaft

Optional Accessories/Features

- Differential pressure switch
- Encoder 1024 ppr
- Safety lock-out button
- Arctic duty



Energy Generation

Scope

- GSA model electric synchronous generators.
- Output: 600 to 2000kVA
- Voltage: 600V
- Frequency: 60Hz
- Insulation: class H
- Mounting: F1/F2
- Cooling: Self cooled (IC01)
- Suitable under request to EX-n* classification and Marine ABS, DNV, Lloyds and Others

Standard Accessories/Features

- Provisions for voltage regulator
- AISI 4140 steel shaft
- Electrically insulated NDE bearing
- Taconite bearing seals
- Drop-in replacement footprint
- Form wound stator
- Severe duty 3 coat offshore paint



Optional Accessories/Features

- Hinged primary terminal box
- Voltage regulator
- Vertical / Horizontal jacking bolts



CFW 11 - Variable Frequency Drive

Standard Accessories/Features

- Plug and play philosophy (connect and use) enables quick and easy installation of accessories and options.
- USB for microcomputer connection for using SUPERDRIVE G2 programming and monitoring software as well as updating inverter firmware.
- Human-Machine Interface (HMI) with backlit graphic display and soft-keys, greatly facilitates inverter programming and operation.
- DC link inductors (symetrically connected to positive and negative DC link terminals) enable compliance with IEC61000-3-12 standard requirements regarding harmonics, (no need for external line reactance)
- Intelligent thermal management enables full protection of IGBTs, monitoring of heatsink and internal air temperature.
- Automatic control of the heatsink fan with speed sensor (additional protection) and easily detachable from the unit for cleaning and maintenance.
- Normal Duty and Heavy Duty ratings to adapt optimally to all kinds of loads.
- Protection with failure and alarm warnings.
- Motor overload protection in compliance with IEC 60947-4-2/UL 508 C.
- Memory card built into the standard product allows user to create functions without the need to use an external PLC (soft-PLC via IEC61131-3 programming software)
- Guided start-up simplifies initial user programming.
- Real time clock
- TRACE / SCOPE function to assist with the start-up and system diagnostics.

Optional Accessories/Features

- Interface for incremental encoder 5 to 12Vdc
- Interface for RS-485 serial communication (modbus)
- Interface for RS-232C serial communication
- CAN interface
- Profibus DP interface
- PLC functions; IEC programming
- Devicenet 4 interface
- Ethernet IP interface
- Blind cover for slot HMI
- Frame for remote HMI
- Conduit kit



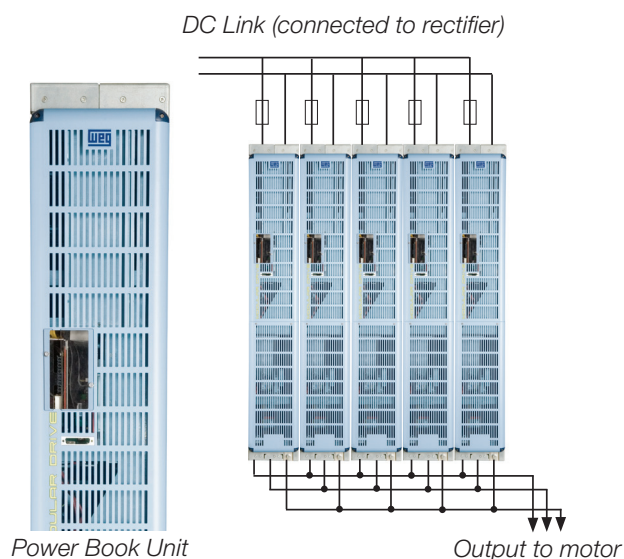
CFW 11M - Modular Variable Frequency Drive

The CFW-11M (modular drive) is the new generation of WEG Variable Frequency Drives for elevated powers. It is available in powers up to 10,000HP and voltages from 480 to 690 V, with 6 and 12 pulse input rectifier. The CFW-11M can be supplied in modules, panel or full E-House format

Power Units

Compact modular inverter units that can be configured to the applicable motor power.

- Easy servicing.
- Configurable up to 5 power units.
- DC supplied by an input rectifier.
- Compact book format (width much smaller than the depth).
- Configurable Up to 5 Power Units
- Common DC bus



SSW 06 - Soft Starter

Standard Accessories/Features

- 220 - 575V, 50/60Hz input power supply (-15/+10%)
- Built-in run rated (AC1) bypass contactor
- Duty cycle: 300% full load amps for 30 seconds, 10 starts per hour
- Voltage ramp or current limit start modes
- Detachable keypad with dual display (LCD and LED) and copy function
- 90 - 250Vac auxiliary control voltage
- Single 32 bit RISC processor based control board
- IP00 protected chassis enclosure
- Six isolated 24Vdc programmable digital inputs
- Three programmable relay outputs (2 Amp - 250V)
- One 0 - 10Vdc programmable analog output
- One 4 - 20mA programmable analog output
- Motor PTC thermistor input
- RS-232 serial interface
- Adjustable acceleration and deceleration ramps (1 - 299 seconds)
- Adjustable pedestal voltage (25 - 90% of line voltage)
- Current limitation from 150-500% torque control
- Diagnostic features: Motor overload, over current and phase loss, motor immediate over and under current, SCR over temperature and fault, line phase loss and phase sequence, line over and under voltage
- Display readings: Motor current, voltage, kW and power factor, line voltage and frequency, four last fault trips, run and power-up timers
- Ambient: 32°F (0°C) to 131°F (55°C), 3300 ft (1000m) altitude, 90% non-condensing humidity
- Braking capabilities: Reverse Braking, Optimal Braking, DC Braking
- ModBUS (Built-in)

Optional Accessories/Features

- RS-485 serial interface
- Remote keypad cables and mounting frame
- PC programming software
- Profibus Expansion Board
- DeviceNet Expansion Board



Low Voltage Severe Duty Motors

W22 NEMA Premium Efficiency Motors

The WEG W22 series of electric motors offers many advantages including:

- Higher efficiency
- Lower noise
- Lower vibration
- Solid feet
- Greater mechanical stiffness
- VFD operation in hazardous locations
- Lower Maintenance requirements

Standard Accessories/Features

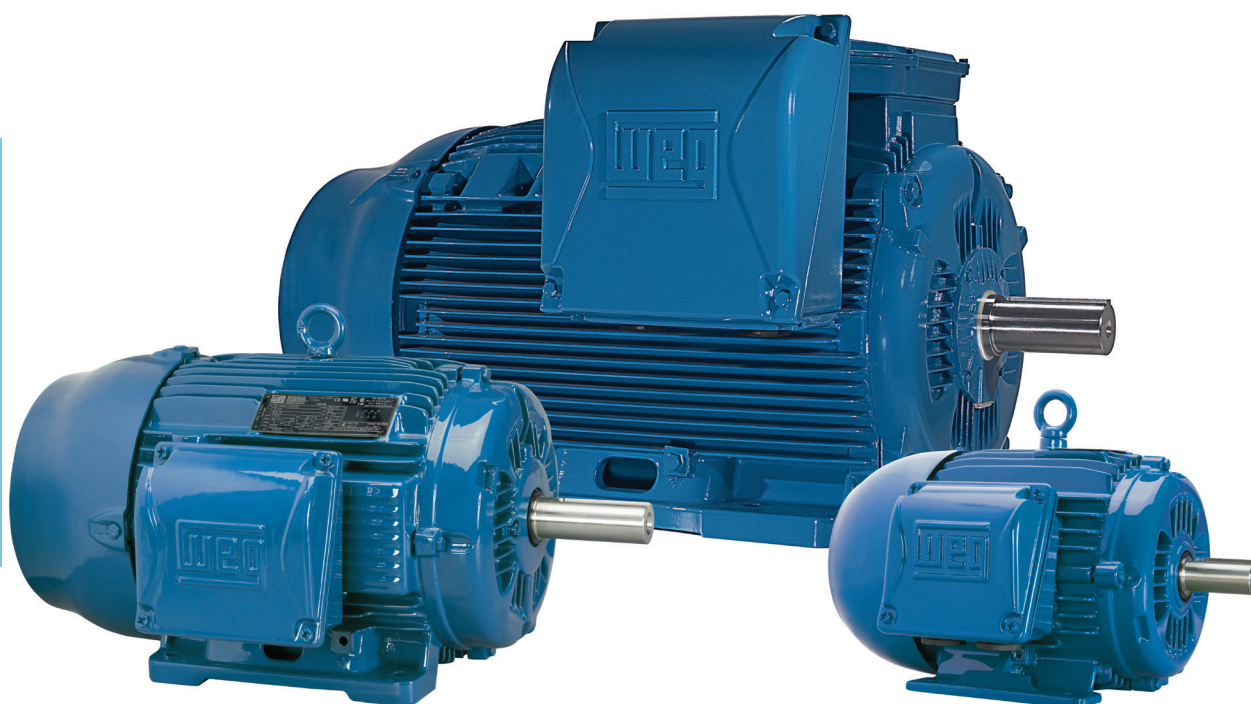
- Output: 1 to 750HP
- Voltage: 208-230/460V & 575V
- Operation on Variable Frequency Drive (VFD)
- Frequency: 50 or 60Hz
- Insulation: class H
- Totally Enclosed Fan Cooled (TEFC)
- Suitable to DIVISION II, CLASS I, GROUP A/B/C/D & DIVISION II, CLASS II, GROUP F/G
- WSeal® sealing on both endshields from frame 364T/5T up to 504/5T (586/7 frame fitted with Taconite Labyrinth as standard)
- Service Factor:
 - 1.25 up to 100HP
 - 1.15 from 125HP and up
- 1045 steel shaft up to frame 364/5T
- 4140 steel shaft for frame 404/5T and up in 4.6 and 8

W22X Explosion Proof Motors

- Based on new W22 design motors
- New design
- Reduced noise level
- Lower vibration level
- Lower bearing temperature
- Excellent thermal distribution
- Solid feet
- Reduced windage losses
- Higher structural stiffness
- Improved IP protection
- Larger terminal box

Standard Accessories/Features

- Available 143T-587 frame NEMA
- Ambient from -55C to +80C available
- Protection – IP55 (standard) to IP66
- Efficiency – NEMA Premium to Super Premium
- Paint System – Epoxy standard (250Hr ASTM 117B) Custom Available
- Altitude to 5000 M.A.S.L.
- Impact resistance IK10 (IEC EN 62262)
- VFD Service to 575V



Custom Panels

EDP Enclosed Drive Panels

The Enclosed Drive Panel is an industrial general purpose AC motor control and protection package. It is designed for simple and quick installation and start-up, requiring only input power and output motor connections. The Enclosed Drive Panel is built to complement the ruggedness and reliability of WEG electric motors, providing a complete, simple, and cost effective AC motor control, monitor and protection solution.

The standard EDP package includes the WEG variable frequency drive, door mounted keypad, through door disconnect, control power transformer in a NEMA 12 ventilated enclosure. Optional features available are line reactor, load reactor, and a panel control option that includes start/stop pushbuttons, run/stop/fault pilot lights and a local/remote selector switch.

GPH Combination Soft Starters

The GPH Series of WEG Combination Soft Starters is an industrial general purpose AC motor Soft Starter package designed for simple and quick installation and start-up, requiring only input power and output motor connections. The NEMA 4/12 enclosure is ideal for dusty or wet environments. The GPH starters are built to complement the ruggedness and reliability of WEG motors, providing a complete and cost effective AC motor starting and protection solution.

The standard panel includes the WEG soft starter, door mounted keypad, through door disconnect, control power transformer in a NEMA 4/12 enclosure.

Panels for E-Houses

WEG and V.J. Pamensky Canada Inc. offers several varieties of panels for E-Houses. Low and Medium Voltage Variable Frequency Drives and Soft Starters as well as various other motor control options. WEG panels are well suited for use in E-Houses.

Custom Panel Solutions

V.J. Pamensky Canada Inc. also offers custom panel solutions for its customers. Solutions and functionalities on offer include across the line starters, combination starters, panels with PLC functions, custom control panels and panels with HMI and touchscreen HMI.



Industrial Control Products

Contactors

The CWC Series miniature contactor features more horsepower for its size than any other miniature contactor on the market. The CWC's compact dimensions for its current rating, up to 25A, AC-3 utilization category, allows it to take up less space inside electrical enclosures while still running motors up to 10HP @ 575V. The dimensions remain the same whether the coil voltage is AC or DC making panel design and assembly easier. DC models feature low consumption coils allowing the CWC to be operated directly from a PLC without interface relays.



The CWM general-purpose contactor line has been designed taking into consideration industrial duty and reliability. Rated for inductive loads up to 800A or 440kW @380/400V, WEG can offer the suitable contactor for your application. CWM contactors allow total panel space optimization, with only a few compact frame sizes from 4 to 440kW @ 400/415V. Reducing inventory is a "snap" with CWM's common accessories. For example, side-mounted auxiliary contact blocks are the same from 9 to 300A (AC-3) @ 440V.

Designed for extended mechanical and electrical life, dependable switching in even the most heavy-duty applications can be achieved. No matter how demanding the application, all WEG contactors are tested and approved to be used under Type 1 and Type 2 short circuit coordination. Ensuring global acceptance, all components conform to UL508 (USA and Canada), IEC60947 and CE.

Thermal Overload Relays

RW overload relays are important equipment within the WEG Controls range of products. As usual for WEG products, an extended operational service life is one of the main features you can find in RW overload relays. WEG's RW Class 10 Thermal Overload Relays are designed to be used with, and as perfect complement to WEG's mini contactors and contactors. Effectively, RW overload relays can be mounted directly to WEG mini contactors and contactors, assuring electrical and mechanical operation as an open across-the-line starter. Accessories are also available for separate mounting.



RW overload relays are fitted with fixed bimetallic parts, which eliminate any need for heater elements for field installation or future upgrading to a more efficient motor. All sizes provide complete motor protection by offering ambient temperature compensation and phase failure sensitivity protection.

Motor Protective Circuit Breaker

With the latest technology and design, MPW series provide saving panel space and suitable to be used in most applications in motor control. It combines short-circuit and motor overload protections in just one component. These devices include a three-position rotary ON-TRIP-OFF handle, which can be padlocked in the OFF position. Designed for DIN rail mounting, while lugs for direct panel mounting are also available as accessory.



MPW Motor Protective Circuit Breakers are available in four models; MPW16/MPW25 (45mm), MPW65 (54mm) and MPW100 (70mm) and designed for use according to international standards, making them suitable for applications all over the world.

Enclosed Motor Starters

WEG offers non-reversing and non-combination NEMA-4X magnetic starter up to 75HP at 460V.

Featuring components that meet IEC design standards and UL horsepower ratings, including WEG contactors and overload relays, the PESW magnetic starters are ideal to help protect motors and ensure smooth operation year-after-year.



These components are assembled together in a NEMA 4X enclosure with two options off the shelf; Start/Stop Pushbutton and RESET or just the RESET button on the cover for quick and easy operation. WEG PESW starters are recommended for all single and three phase applications where across-the-line starters can be applied.

Pushbuttons and Pilot Lights

WEG has used its leading-edge technology & development capability to design CSW series line of pushbuttons, pilot lights, selector switches and accessories. These user friendly and durable Ø22mm pilot devices allow their use in several industrial applications and environments. Besides the high luminosity, the BIDL blocks have many other interesting characteristics, including long life expectancy, great performance on shock and vibration applications, extremely low power consumption and thermal dissipation.



WEG Solutions for Drilling - Examples of Rig Motor Portfolio Summary

Model	TGV250	TGV315	TGV315 TGA355	MGV	TGV	TGV	MGV	MGV
Application	Top Drive	Top Drive	Top Drive	Top Drive	Drawworks Mud Pump	Drawworks Mud Pump	Drawworks Mud Pump	Drawworks Mud Pump
HP Continuous	250	400	600	1350	600	800	1150	1500
Base RPM	1200	1200	1200	1200	1200	1200	1200	1200
Mounting	Vertical	Vertical	Vertical	Vertical	Horizontal	Horizontal	Horizontal	Horizontal
Voltage	575	575	575	575	575	575	575	575

All Motors are Rig Duty, copper bar rotor, H Class VP1 Form Wound, Overload High Torque, Severe Duty.



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