

# **Marine Technical Products and Services**



# Products & Services for Oil & Gas D

## Turnkey Responsibility: Design, Manufacture, Installation, Start-up

### CUSTOM TECHNICAL PRODUCTS

M & I is firmly established as a custom switchgear and controls O.E.M., having served the marine industries since 1946. In-house capabilities include engineering, drafting, (utilizing Computer Aided Design systems), cabinet fabrication, bus-ing, painting, wiring, full system test and start-up. M & I is highly qualified for systems and apparatus which require unique design, manufacturing and implementation solutions.

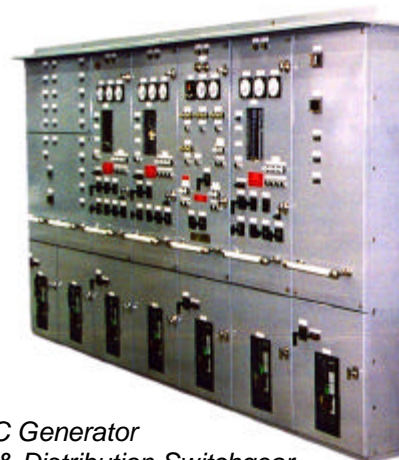
- **Fully Integrated SCR, Generator Control and Distribution Switchgear with Automatic Parallel and PLC Controls.**
- **Power Distribution Systems up to 15KV**
- **Turnkey Integrated Power and Control Buildings**
- **Specialty Control Panels and Consoles**
  - Drilling, Top Drive and Mud Pump
  - Thruster / Propulsion
  - Ballast controls
- **Motor Control Centers**
  - Variable Frequency Drives
  - Solid state soft starts
- **Top Drive Control Systems**
  - Compatible with all types of systems
- **Technical Services**
  - Short circuit, coordination and load studies utilizing Captor Dapper



*600VAC Switchgear & SCR System*



*6.6KV Generator Control & Distribution Switchgear*



*480 VAC Generator Control & Distribution Switchgear built to ABS & Mil Spec 16036K*

# Drilling, Production and Marine Industry

## Compliance:

### ABS, USCG, DNV, IEEE, SOLAS

#### ELECTRICAL SERVICES



Building on 50 years of continuous operation, M & I has provided service to the drilling, production and transportation industries, locally and worldwide. We offer full electrical design, installation, startup and maintenance services on a 24-hour basis anywhere in

the world. The Marine Service Group is comprised of experienced engineers and service technicians with extensive backgrounds in the marine industry.

- **Troubleshooting Services**
  - Worldwide availability
- **Turnkey Electrical Installations**
  - Add-ons, Upgrades
  - Lighting systems
  - Cable and tray for power, control and distribution
  - Rig control and monitoring systems
- **Cable Termination Through 15KV**



*Offshore Production Module with 5KV & 480 VAC Switchgear*

- **SCR Systems**
  - Repair and calibrate
  - Add-on full cubicles
  - Modify for new assignments and applications
  - Upgrade with digital based controls
- **Generator Controls and Distribution**
  - Circuit breaker repair and retrofits
  - Upgrade with digital controls
  - Repair and calibrate
  - Circuit breaker primary current injection testing
  - Infrared studies



*Calibration of Digital Controls for SCR Unit*



# Shop and On-Site Service 24 Hours Per Day

## TURNKEY INTEGRATED POWER & CONTROL BUILDINGS

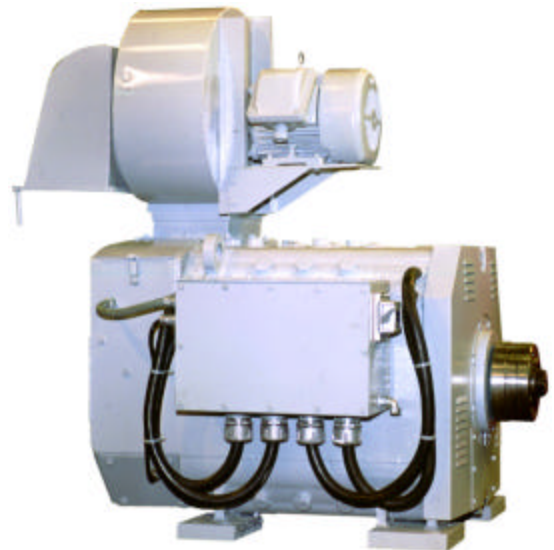
Power and Control buildings can be provided complete with switchgear, SCR units, motor controls, lighting, DC systems, transformers and air conditioning. Complete system testing can be provided with in house load banks and dynamometers.



*Powerhouse with Switchgear & SCR System*

## MOTOR & GENERATOR REPAIR & REMANUFACTURING

M & I Electric operates 20,000 square foot dedicated motor and generator remanufacturing and repair facility, capable of handling machines up to 8,000 horsepower. Repair procedures employed by our staff meet or exceed original factory specifications. With over 200 years of combined in-house experience, difficult modifications and conversions are accomplished on a routine basis.



*Remanufactured 752 Drilling Motor*

### • Other Services

- Full load testing through 1000 HP
- IRD dynamic balancing
- UL recertification for AC motors
- On-site repair
- Vibration analysis

### • Drilling motors (GE, EMD, Toshiba, Reliance)

- Remanufacturing
- Repairs
- Sales
- Service

### • Motors and Generators

- Basic overhaul
- Complete rewind



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