



Compliance with IEEE Std 519-2022 is a key element of a successful High-Line Drilling Rig installation, as most utilities now demand strict compliance at their PME/Point of Common Coupling. This necessitates a comprehensive solution capable of managing substantial background/source voltage distortion (VTHDbg), significant systemic voltage imbalances, challenging ambient conditions and harsh environments. These factors coupled with high load power requirements (up through and including 5000HP/4000kW) has meant that no credible harmonic mitigation solution had been available until this technology was deployed.

Five Star/ Mirus International is pleased to announce the expansion of the Lineator AUHF product line to sizes up to 5000HP/4000kW. Mirus has been a major supplier for many years to the drilling and offshore sectors, specializing in high-power and demanding harmonic mitigation applications, for both AC & DC drive installations. The design of the Extreme Duty AUHF filter is explicitly tailored to the needs of the Onshore and Offshore Oil and Gas markets, where conventional Passive Filters and Active Harmonic Filters could not survive the applications and meet the required harmonic limits. The AUHF-ED can be configured for both Diode Bridge load structures and Thyristor-based DC Drive load structures, optimizing performance in various applications.

Dynamic Load Operating Profiles, Source Power Quality Challenges and Harsh Environmental Conditions Call for an Extreme Duty Solutions: Mirus AUHF-ED™ Lineator Drilling Duty Filters.

For the most challenging environments, characterized by excessive background voltage distortion (ranging from 5% to 12% VTHDbg), high ambient temperatures (up to 55°C), or high elevations (above 3000 ft), Mirus offers the Extreme Duty Lineator AUHF model.

Integrated and Free-Standing configurations are available complete with termination sections, close-couple transitions, roughneck receptacle coordination, and a host of other interconnect/systemic coordination options to assure a Standards Certified offering that will meet your deployment requirements. The skid mount option incorporates both robust channel base frame assembly and core/coil secondary bracing for superior dynamic shock and vibration withstand. The versatility of design coupled with enhanced harmonic performance engineering assures superior performance even under the most grueling applications.



Drilling Electrification
A Comprehensive Harmonic Solution for High-Line
Drilling Applications

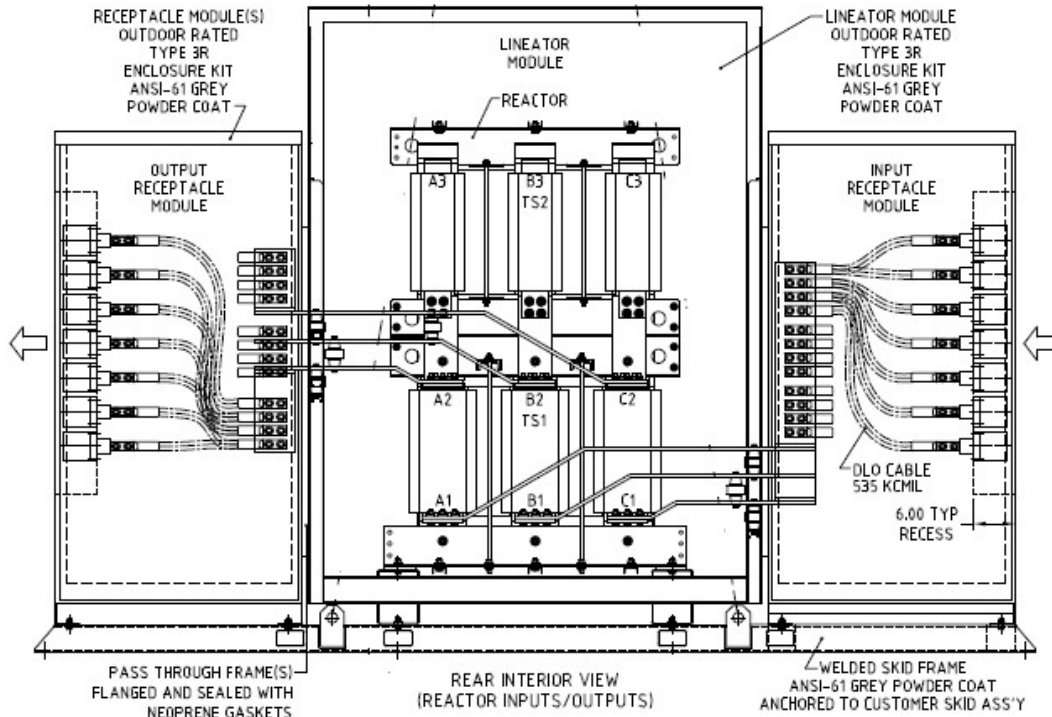
Filter Specification & Options for Extreme Duty High-line Filtration Applications	
Nominal 3 Phase Voltages:	400V, 440V, 480V, 600V, 690V
Frequencies:	50Hz or 60Hz
Power Ranges:	Designs through 5000HP (4.0MW) Nominal
Rectification Configurations:	Type D: AC Drive/Diode Bridge or Type T: DC Drive/Thyristor Bridge
Background Voltage Distortion Withstand:	12% Nominal, consult factory for applications above 12%. The AUHF-ED configuration has been successfully deployed in background voltage distortion environments as high as 18% with no ambient temperature or power derating requirement.
High Ambient Temp. Withstand:	55°C Max at full load.
Capacitance to Power Ratio:	<15% kVAR to kW
No-Load/Low Load Voltage Boost:	<3% without the need for a capacitor switching contactor. Capacitor contactor switching and control options are available upon request.
Enclosure Options & Configurations:	E1 - Indoor, NEMA 1 E1E - Enhanced Outdoor (< Nema 3R) M1 - Below Deck Corrosive Environment /Marine with Galvanneal Steel and Marine Epoxy Paint M1E - Above Deck Corrosive/Marine with Galvanneal Steel and Marine Epoxy Paint S1E - 304 Stainless Steel 316 SS and Custom IP Enclosure ratings are available - consult factory. E0, E0P, and E0M - Open Configurations available for integrators.
Certifications Available:	CSA, cULus, ABS, CE, UL recognized component
Conductor Terminations:	Busbar pads in typical NEMA configurations Custom termination layouts are available upon request. PLT - Tin plating and conformal coating for exposed terminals available for harsh environments
Termination and Entry Configurations:	Bottom Entry Gland Plates Top Entry Provisions Incoming and Outgoing Cable and Hard Bus Interconnect Sections Coordinated design Cable Tray provisions or Bus Duct Termination options. Incoming and Outgoing provisions for High Amperage Receptacles or Close-Coupling to transformer or switchgear.
Coordinated Surge Protection (CSP):	Voltage transient and Surge Protection coordinated to maximize protection to critical components and load equipment. A 5 year warranty comes standard with the CSP option.
Skid Mount Option:	The Mirus Extreme Duty Filter can be specified and built for extreme skid duty applications, featuring a heavy duty welded skid mountable frame assembly for superior rigidity and enhanced structural reinforcement and filter “core and coil” bracing to withstand dynamic shock and vibration associated with transport and installation. Our skid frame is equipped with lift provisions standard for handling and mounting of the filter.

Engineering & Design Assistance is available from Five Star Electric at every stage of Project Development & Deployment, including Start-up Testing and Performance Verification.

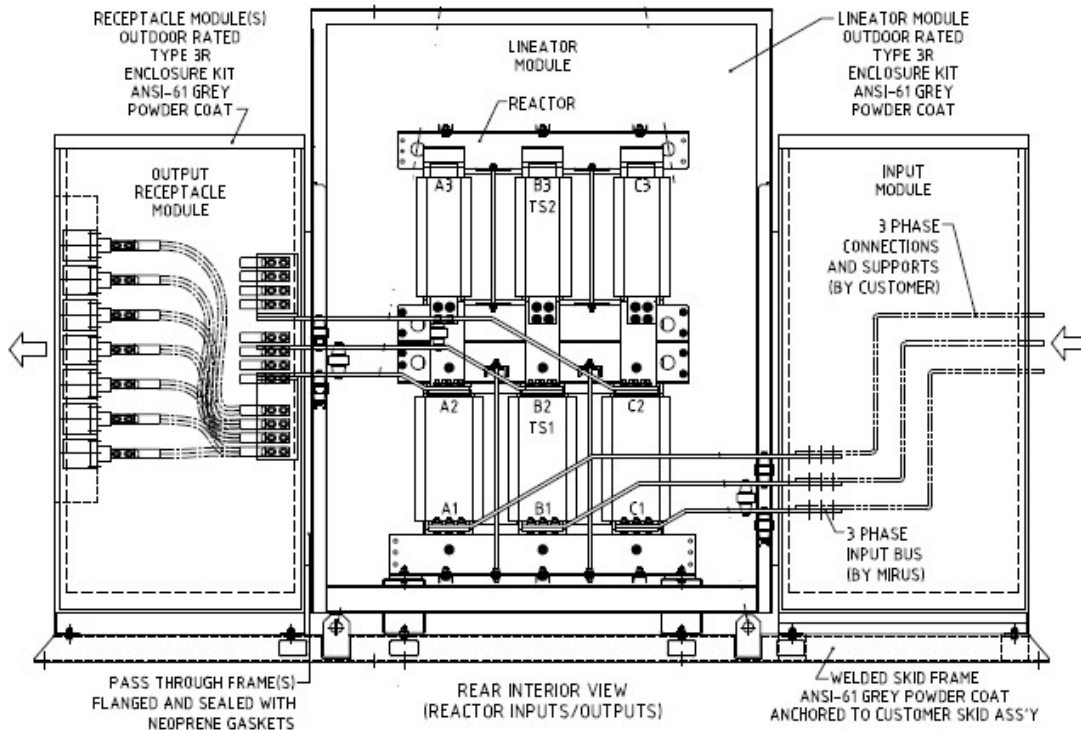


FIVE STAR ELECTRIC
POWERED BY INNOVATION

Drilling Electrification A Comprehensive Harmonic Solution for High-Line Drilling Applications



Example: 4000 HP, 600V with Incoming and Outgoing High Amperage Receptacles



Example: 4000 HP, 600V with Incoming Transformer Hard Bus Transition and Outgoing High Amperage Receptacles



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For more information and assistance in harmonic modeling, system design, and proposals, contact:

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