EUROATLAS

Static Inverter for Naval Applications

The fully solid-state 60 Hz and 400 Hz Inverter is built according to most advanced technology. Unique design with modular configuration covers versatile applications with shipborne operation.

The Inverter is built-up by the following main assemblies:

- EMC unit for input and output leads
- Input unit (contactors/filter)
- Power bridges
- Control electronic with monitoring
- Output transformer with filter

The Inverter is controlled by central electronic with synthetic sine wave generation and monitoring device, feeding several power bridges acc. to required power rating. The DC-voltage is separated into phase-shifted PWM-signals by power transistor switches, while each power transistor is switched by multi-pulse-train which contains the synthetic sine. With this multi-pulse technique a very fast response to any load step or input voltage step is achieved within one half cycle.

Further smoothing of switched sine curve is achieved by small L/C filter network. Voltage matching and galvanic separation is achieved by special low noise output transformer. For suppression of radiated and conducted emission the equipment is fitted with specially designed EMC devices. The Built-In Test Equipment (BITE) is realized by integrated fault detection and location system.

Thanks to its outstanding features the Inverter offers a great power conversion solution for any critical load.

The inverter fulfills all applicable NATO and MIL-STDs and is fully qualified for extreme load and network requirements.

For Submarine Type 209

Standard Features

- High efficiency
- Low noise
- High reliability
- Modular design

Application

- U 209 rotating inverter replacement

Support Service

- Complete Integrated Logistic Support (ILS)

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Electrical Specifications

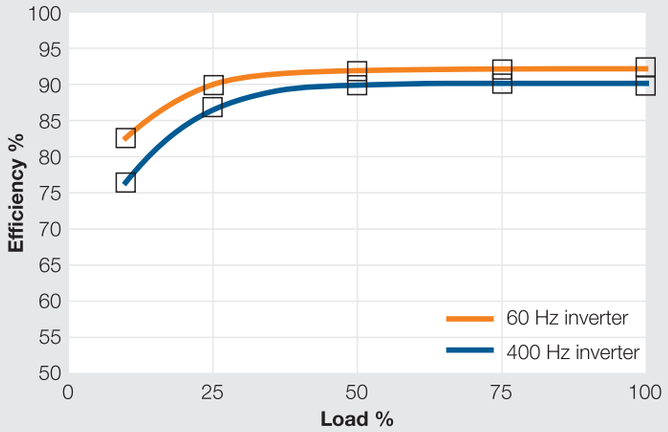
Input

Voltage ..... 160 V to 330 VDC

Output

Power ..... 20 kVA/kW
Overload ..... 30% for 2 min.
Power factor ..... 0.8 to 1
Voltage ..... 115 V, 3-phase,delta
Static tolerance ..... + 0.5 %
Max. voltage
Unbalance ..... + 2 % at up to 100 % unbalanced load
Voltage modulation ..... 0.5 %
Voltage transient ..... ≤ 5 % at 50-100-50 % loadstep
≤ 16 % at 0-100-0 % loadstep
Recovery time ..... max. 100 ms (60Hz)
max. 20 ms (400Hz)
THD ..... ≤ 3 %
Frequency ..... 60 and 400 Hz
Frequency tolerance ..... ± 0.01 %
Efficiency ..... see diagram
Short circuit current ..... 2 x Inom.

Static Inverter 20 kVA efficiency



Environmental Specifications

Temperature Range ..... 0° C to 65° C
Storage Temperature ..... -20° C to +70° C
Humidity ..... up to 95 %
Shock ..... Acc. to BV 043
RFI/EMI ..... MIL-STD 461 E
RE 102, CE 101, CE 102
Noise ..... < 55 dB(A)
Insulation Class ..... acc. to VDE 0160
Protection ..... IP 23 acc. to DIN 40050

Physical Characteristics

Dimensions ..... Depth 730 mm
Width 630 mm
Height 420 mm
Weight ..... 304 kg (60 Hz)
260 kg (400 Hz)

Design Characteristics

Design ..... Modular
MTBF ..... > 25,000 h
Components ..... US MIL-STD, German Federal Navy Standard, as far as available
Cooling ..... Air-cooling by fans up to 55°C
Water-cooling at > 55°C
Self-control system ..... FDL-System
(Fault Detection and Location)

External Monitoring

- Voltmeter/Ammeter with phase selector
- Time Counter
- Stand-by mode
- Inverter ON-LINE
- Overtemperature
- Input voltage
- Input temperature
- Cooling air control
- Fault detection and location display

Control

- ON/OFF
- Emergency

Indication

- Present input voltage
- Inverter ON-LINE
- Inverter fault
- Overtemperature
- General fault

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