



Horlick Company, Inc.

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50PF Model Motor-Generator Set 60-50 Hz Frequency Converter



Features

*Precise 50 Hz output frequency
Reliable and durable
Easy to operate
Exceptional MTBF
Minimal maintenance required*

Description

Horlick 50PF Model motor-generator sets utilize a 4-pole, 1800 RPM, synchronous motor to drive a 4-pole, 1500 RPM, synchronous generator through a timing belt drive system. The output frequency is precisely 50 Hz from no-load to full-load. 50PF Model motor-generator sets are rated for continuous duty and they provide manufacturers a clean source of 50 Hz power isolated from switching transients, voltage fluctuations and power line noise. They are most commonly utilized to test electrical equipment designed for the foreign export market. Alternatively, these motor-generator sets can also be utilized in American manufacturing facilities to power 50 Hz equipment imported from overseas. 50PF Model motor-generator sets are ideal for installations where a precise 50 Hz output is required.

Horlick 50PF Model motor-generator sets are designed to be installed inside where an 85-95 dBA noise level is acceptable. As an option, 50PF Model motor-generator sets can be mounted in a weather-resistant enclosure, a sound-reduced enclosure, a cargo container or a trailer. Each 50PF Model motor-generator set is equipped with a standard control system that can be unit-mounted, wall-mounted or free standing. The components in the control system perform the functions necessary to operate, monitor and protect the system.



Specifications

Motor

- Brushless synchronous, 1800 RPM, 4-pole
- Continuous duty, Class F insulation, open drip-proof
- Selection of 60 Hz, 3-phase input voltages to include: 208V, 230V or 460V

Generator

- Brushless synchronous, 1500 RPM, 4-pole
- Continuous duty, Class F insulation, open drip-proof
- Selection of 50 Hz output voltages to include: 120/240V, 1-phase or 120/208V, 220/380V or 277/480V, 3-phase
- Rated at 0.8 power factor to insure proper handling of inductive loads

Mechanical Construction

- Motor and generator mounted on rigid steel base
- Timing belt drive system
- Complete OSHA belt guard
- Forklift or pallet jack provisions

Standard Control Systems

Each motor-generator set is equipped with a separate wall-mounted or floor-standing control panel. The standard package includes the following components:

Motor Controls

- Motor starter with adjustable overloads
- Start-Stop push-buttons with terminal strip for remote start/stop
- Control power transformer with fusing
- Variable transformer for power factor control, with protective relay for motor out-of-step and field failure protection
- Analog meter package to include ammeter and run time meter
- Pilot lights to indicate "Motor Run" and "60 Hz Line Energized"

Generator Controls

- Analog meter package to include voltmeter, ammeter and frequency meter
- Voltmeter and ammeter phase selector switches (3-phase systems)
- Voltage regulator, $\pm 1\%$ regulation accuracy, with automatic buildup and rheostat for control of regulated voltage
- Output circuit breaker, molded case, to protect generator against short circuit or prolonged overload
- Pilot light to indicate "50 Hz Load On"

Performance Characteristics

- **Voltage regulation:** $\pm 1\%$ from no-load to full-load at rated power factor
- **Voltage steady state stability:** $\pm 0.5\%$ from no-load to full-load at rated power factor
- **Voltage adjustment range:** $\pm 10\%$ in stepless increments of nominal output voltage
- **Frequency regulation:** Precise 50 Hz output from no-load to full-load
- **Voltage transient:** When a full-load at rated power factor is applied or released, the resultant instantaneous droop or overshoot will not exceed 30% of preset value
- **Voltage recovery time:** After a full-load is applied or released, the output voltage will return to the regulation band within 500 milliseconds
- **Harmonic distortion:** Less than 3% max. total distortion factor and less than 2.5% max. single-phase when measured line-to-line
- **Ambient operating conditions:** Temperature at 40°C, relative humidity at 95%
- **Duty cycle:** Motor-generator set and controls are rated for continuous duty

Motor-Generator Options

- Sound-reduced enclosure
- Weather-resistant, NEMA 3R enclosure
- Casters for portability
- Oversized generator to support motor-starting transients
- Thermal bearing and winding protection
- Unit mounted control system
- Input disconnect or circuit breaker
- Input phase protection relay
- Generator reconnection switch to allow selection of multiple output voltages
- Generator over/under voltage protection
- Digital meter package
- Remote meter package with start/stop controls

50PF Model Three Phase Output Ratings						
Model	Generator Rating at 0.8 PF		Output Current at 120/208V	Output Current at 220/380V	Motor Rating	Motor Starting Method
50PF-53	6.25 KVA	5 KW	17 A	10 A	10 HP	Across the line
50PF-73	9.3 KVA	7.5 KW	26 A	14 A	15 HP	Across the line
50PF-103	12.5 KVA	10 KW	35 A	19 A	20 HP	Across the line
50PF-153	18.8 KVA	15 KW	52 A	29 A	25 HP	Across the line
50PF-203	25 KVA	20 KW	69 A	38 A	30 HP	Wye-delta
50PF-253	31.3 KVA	25 KW	87 A	48 A	40 HP	Wye-delta
50PF-303	37.5 KVA	30 KW	104 A	57 A	50 HP	Wye-delta
50PF-403	50 KVA	40 KW	139 A	76 A	60 HP	Wye-delta
50PF-503	62.5 KVA	50 KW	174 A	95 A	75 HP	Wye-delta
50PF-603	75 KVA	60 KW	208 A	114 A	100 HP	Wye-delta
50PF-803	100 KVA	80 KW	278 A	152 A	125 HP	Wye-delta
50PF-1003	125 KVA	100 KW	347 A	190 A	150 HP	Wye-delta
50PF-1253	156 KVA	125 KW	434 A	238 A	200 HP	Wye-delta

50PF Model Single Phase Output Ratings						
Model	Generator Rating at 0.8 PF		Output Current at 120/240V		Motor Rating	Motor Starting Method
50PF-51	6.25 KVA	5 KW	26 A		10 HP	Across the line
50PF-71	9.3 KVA	7.5 KW	39 A		15 HP	Across the line
50PF-101	12.5 KVA	10 KW	52 A		20 HP	Across the line
50PF-151	18.8 KVA	15 KW	78 A		25 HP	Across the line
50PF-201	25 KVA	20 KW	104 A		30 HP	Wye-delta
50PF-251	31.3 KVA	25 KW	130 A		40 HP	Wye-delta
50PF-301	37.5 KVA	30 KW	156 A		50 HP	Wye-delta
50PF-401	50 KVA	40 KW	208 A		60 HP	Wye-delta
50PF-501	62.5 KVA	50 KW	260 A		75 HP	Wye-delta
50PF-601	75 KVA	60 KW	313 A		100 HP	Wye-delta
50PF-801	100 KVA	80 KW	417 A		125 HP	Wye-delta
50PF-1001	125 KVA	100 KW	521 A		150 HP	Wye-delta