



Power Coil 270 VDC

270 VDC Converter with Integrated Powered Cable Reel



Power Coil 270 VDC

THE ADVANTAGES

The Power Coil is a compact light weight adaptable design allowing flexible installation options. It can be floor mounted, overhead mounted or mounted on a trailer or castors.

- NFPA 70 Article 500 Class 1 Div. 2 compliant with 18" Floor Stand
- Overhead mounting of the Power Coil eliminates occupation of valuable floor space required by traditional cabinet style power supplies and cable rack/reel installations.
- Trailer mounted units are compliant with SAE AS8090 Type 1 Class 2 requirements.

AN ALL-IN-ONE APPROACH FOR PROVIDING GROUND POWER

Traditionally, a ground power system consisted of several separate elements; the Power Supply, a Cable Storage Rack or Reel, Interconnection Cables and Aircraft Cable, all supplied by different manufacturers. These elements would then have to be integrated, installed, and tested on-site as a complete system.

The 270Vdc Power Coil provides a complete fully integrated and tested system which is ready to install as delivered.

SYSTEM DESIGN

The 270Vdc Power Coil is a solid-state Power Supply and electro-mechanical chain driven cable drum integrated into a single cabinet. The Power Coil's fully integrated design eliminates the need for expensive unreliable slip rings, providing better performance and requiring less maintenance than traditional cable reels. The system includes a 66 ft. (20 m) aircraft cable and a Remote Control Station to operate the cable drum and the 270Vdc output. The motorized cable drum extends and retracts the aircraft cable eliminating the physical burden usually associated with wrestling aircraft power cables. The frequency drive control provides smooth rpm ramping, less mechanical stress, scuffing, and damage to the aircraft cable.

ITW MILITARY GSE

ITW Military GSE is an Illinois Tool Works (ITW) company. ITW is a diverse Fortune 200 company with over 850 operating divisions in 49 countries worldwide. ITW Military GSE is a world-class engineering-based company headquartered in Palmetto, Florida. We specialize in the design, manufacture, and world wide service of Military Aircraft Ground Support Equipment providing GSE to U.S. and foreign military programs since 1972.

PERFORMANCE FEATURES

Proven design:

- Meets and Exceeds MIL-STD-704F requirements
- Output Voltage Regulation $\pm 3Vdc$
- Total harmonic content $< 0.015\%$
- Optional 12 Pulse front end
- Soft Start feature eliminates in-rush current

Easy to Operate:

- Remote Control Station with Pushbutton Controls, On/Off, Cable In/Out
- Motorized Cable Drum eliminates "cable wrestling"
- Easy to read Digital Information Display
- Modular Design allows for ease of Maintenance
- BIT: Digital Diagnostics aid troubleshooting

Model	Input Power	Output Power	Length	Width	Height	Weight
270 VDC Power Coil	400/480 VAC, 50/60 Hz	270 VDC, 72 kW	63.35" (1660 mm)	34.50" (875 mm)	28" (710 mm)	1,598 lbs (725 kg)

FROM DESIGN TO DEPLOYMENT

Power Coil 270 VDC Unit Specifications

OUTPUT

- 270Vdc @ 269Adc - 72kW
- 28Vdc @ 10Adc - Interlock
- Voltage regulation: ± 3 Vdc
- Transient performance exceeds MIL-STD-704F
- Recovery from 95% Step Load in 40ms to 704F requirements and 80ms to recover to DC regulation
- Meets F-35 JSF power quality requirements for Pulse Loads.
- Overload Rating:
 - Limits total current between 460 - 490Adc for 2s
 - 125% for 6 seconds
 - 150% for 3 seconds
- Harmonic distortion less than 0.015

EFFICIENCY

- 12 pulse Front End
- Overall efficiency:
 - >0,93 at 35-90 kVA load
 - >0,90 at 25 kVA load
- No load loss: <2 kW

PROTECTION

- Over/under voltage: Input and Output
- Overload
- Short circuit
- High temperature
- Internal system error

ENVIRONMENTAL

- Operating temperature: -40°C to +55°C
- Relative humidity 0-95%
- Airborne Noise <65 dba @1m - typically 60 dba

MISCELLANEOUS

- MTBF (Proven): 100,000 hours
- MTTR: max. 20 minutes
- Rated current: 94Aac $\pm 15\%$

CABLE/CONNECTOR

- Highly flexible cable harness for power transfer from Power Supply to Aircraft Cable
- 66' (20 m) 270Vdc aircraft cable

MOTORIZED CABLE DRUM SYSTEM

- Aluminum cable drum w/spiral cable race
- VFD Drum Motor Speed Control (reduces drum speed for final 12')
- Stainless steel cable roller guide
- Fully Extends and Retracts Cable in 1 min. 10 sec.
- Drum Motor Overload Protected

STANDARDS

- MIL-STD-704F Aircraft electric power characteristics
- MIL-STD-1399-300 Interface Standard for Shipboard Systems
- MIL-STD-1472F Human Engineering
- UFGS-26 35 43 Unified Guide Specification
- DFS 400 Specification for 400hz Aircraft Power
- BS 2G 219 General Requirements for Ground Support Equipment
- UL & CE Listed

SPECIFICATIONS

MIL-STD-704E Aircraft Power Characteristics
UL-1012 Standard for Safety, Power Supplies
UL-508 Industrial Control Equipment

NEMA ST20 1992 Transformer Applications
NEMA 250 Enclosures for Electrical Equipment
IEEE C62.41 Surge Suppression of AC Power
NFPA 70 Article 500

EMI

MIL-STD-461E:
CE102 Conducted Emissions, Power Leads, 10 kHz to 10 MHz
CS101 Conducted Susceptibility, Power Leads, 30 Hz to 150 kHz
CS114 Conducted Susceptibility, Bulk Current Injection, 10 kHz to 200 MHz
CS115 Conducted Susceptibility, Bulk Cable Injection, Impulse Excitation
CS116 Conducted Susceptibility, Damped Sinusoidal Transients, Cables and Power Leads, 10 kHz to 100 MHz, 10A max for all configurations
RE102 Radiated Emissions, Electrical Field, 10 kHz to 1 GHz
RS103 Radiated Susceptibility, Electric Field, 2 MHz to 18 GHz

OPTIONS

- 270Vdc @ 30Adc - 8.1kW FTI
- External Emergency Stop
- Remote Control Box
- 6 pulse Front End
- 94 kW Output
- 18" Floor Stand
- Trailer per SAE AS8090
- Auxiliary Power Outlets, 60hz
- Door/Panel Interlock
- Loss of Neutral Detection
- Portable Service Lamp
- 415Vac 50hz Input

Specifications subject to change without notice.

The Power Coil 270 VDC is compatible with these aircraft:



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