

SWITCHGEAR DIVISION PRODUCT PROFILES

Metal-Enclosed Load-Interrupter Switchgear

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| Description: | Three-Phase, Group-Operated Load-Interrupter Switches with Fuses in Single and Multi-Bay Assemblies | |
| Method of Operation: | Manual, Automatic Source Transfer, SCADA Control, Shunt-Trip | |
| Circuit Configurations: | Per Specification | |
| Applicable Standards: | C37.20.3, C37.20.4, C37.57, C37.58 and C57.12.28 UL® Listing at 5kV and 15kV, 600 to 1200 amperes | |
| Voltage Range: | 5kV — 35kV | |
| BIL: | 60kV — 200kV | |
| Ratings: | 600 and 1200 ampere continuous 3-phase load-break switches Fusing to 1100 amps with current-limiting fuses Fusing to 720 amps with power fuses | |
| | Switch 3-Phase | |
| | 40ka asymmetrical 3-time fault-closing | |
| | 61ka asymmetrical 1-time fault-closing | |
| | 61ka momentary at 38kV | |
| | 100 load-break operations at 600 amperes | |
| | UL® Recognized — 600A, 1200A at 5kV and 15kV | |
| | 1,000 mechanical operations | |
| Optional Features: | Key Interlocks | Stainless Steel Enclosure |
| | Copper Bus | Special Colors |
| | Metering Requirements | Monitoring Requirements |
| | Vacuum Circuit Breakers | Category A, B and C Enclosures |
| | Close-Coupled to Transformer | Stainless Steel Switches |
| Users: | Utility, Industrial, Military, Universities, Correctional, Hospitals, WWT Facilities | |



Unit Substation Primary Switchgear

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| Description: | Three-Phase, Group-Operated Load-Interrupter Switches with Fuses in Single and Multi-Bay Assemblies in Combination with Dry-Type Transformers | |
| Method of Operation: | Manual, Automatic Source Transfer, SCADA Control, Shunt-Trip | |
| Circuit Configurations: | Per Specification | |
| Applicable Standards: | C37.20.3, C37.20.4, C37.57, C37.58 and C57.12.28 UL® Listing at 5kV and 15kV, 600 to 1200 amperes, 1,000 mechanical operations | |
| Voltage Range: | 5kV — 35kV | |
| BIL: | 60kV — 200kV | |
| Transformers: | Through 10MVA at 35kV to C57.12.51 | |
| Current Ratings: | 600 and 1200 ampere continuous 3-phase load-break switches Fusing to 1100 amps with current-limiting fuses Fusing to 720 amps with power fuses | |
| | Switch 3-Phase | |
| | 40ka asymmetrical 3-time fault-closing | |
| | 61ka asymmetrical 1-time fault-closing | |
| | 61ka momentary at 38kV | |
| | 100 load-break operations at 600 amperes | |
| | UL® Recognized — 600A, 1200A, 5kV, 15kV | |
| | 1,000 mechanical operations | |
| Optional Features: | Key Interlocks | Stainless Steel Enclosures |
| | Copper Bus | Special Colors |
| | Copper Core & Coil | Stainless Steel Switches |
| | Metering Requirements | |
| | Monitoring Requirements | |
| | Vacuum Circuit Breakers | |
| | Category A, B and C Enclosures | |
| Users: | Utility, Industrial, Military, Universities, Correctional, Hospitals, WWT Facilities | |



SWITCHGEAR DIVISION PRODUCT PROFILES

Air-Insulated Live-Front Pad-Mounted Switchgear — Type PSI/II

Description: Three-Phase, Group-Operated Load-Interrupter Switches and Single-Pole, Hookstick Operated Fuses with Integral Load-Interrupters for Switching

Method of Operation: Manual, Automatic Source Transfer, SCADA Control, Shunt-Trip

Circuit Configurations: 25 one-line diagrams in 2, 4, 6 and 8 compartment designs

Applicable Standards: C37.74 and C57.12.28

Voltage Range: 15kV - 25kV (for 38kV consult factory)

Current Ratings: 600 and 1200 ampere continuous 3-phase load-break switches
200 ampere continuous 1-phase load-break with fuses
Fusing to 200 amperes with current-limiting or power fuses

Switch 3-Phase
40ka asymmetrical 3-time fault-closing
61ka asymmetrical 1-time fault-closing
100 load-break operations at 600 amperes
UL® Listed — available to 600A at 15kV and 25kV
1000 mechanical operations

Optional Features:

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|---|---------------------|
| Key Interlocks | Surge Arresters |
| Base Spacers | Ground Studs |
| Stainless Steel Enclosure | Copper Bus |
| Stainless Steel Switches | Fuse Storage |
| Cable Supports | Inner Barrier Doors |
| Special Colors | Moisture Barriers |
| Provisions for Fault Indicators | Heaters |
| Metering Transformers | 1200 Amp Switches |
| Designs Engineered to Customer Requirements | |

Users: Utility, Industrial, Military, Universities, Correctional, Hospitals, WWT Facilities



Air-Insulated Dead-Front Pad-Mounted Switchgear — Type PSE

Description: Three-Phase, Group-Operated Load-Interrupter Switches with Single-Pole, Hookstick Operated Fuses with Bushing Wells for 200-Ampere Load-Break Elbows

Method of Operation: Manual, Automatic Source Transfer, SCADA Control, Shunt-Trip

Circuit Configurations: 20 one-line diagrams in 2, 4 and 6 compartment designs

Applicable Standards: C37.74, C57.12.28 and ANSI 386

Voltage Range: 15kV — 25kV

Current Ratings: 600 ampere continuous 3-phase load-break switches
200 ampere continuous 1-phase load-break elbows
Fusing to 200 amperes with current-limiting or power fuses

Switch 3-Phase
40ka asymmetrical 3-time fault-closing
100 load-break operations at 600 amperes
UL® Listed — available to 600A at 15kV and 25kV
1000 mechanical operations

Optional Features:

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|---|----------------|
| Key Interlocks | Base Spacers |
| Stainless Steel Enclosure | Copper Bus |
| Stainless Steel Switches | Fuse Storage |
| Cable Supports | Special Colors |
| Provisions for Fault Indicators | Indicators |
| 1200 Amp Switches | |
| Metering Transformers | |
| Designs engineered to customer requirements | |

Users: Utility, Industrial, Military, Universities, Correctional, Hospitals, WWT Facilities



SWITCHGEAR DIVISION PRODUCT PROFILES

Air-Insulated Dead-Front Vacuum Interrupter Pad-Mounted Switchgear – Type PVE

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|-------------------------|---|---|
| Description: | Three-Phase, Group-Operated Vacuum Interrupter and Three-Phase Group-Operated Vacuum Fault Interrupters. |  |
| Method of Operation: | Manual, Automatic Source Transfer, Automatic Sectionalizing, Remote Operation, and SCADA Control. | |
| Circuit Configurations: | Multiple switching and protection arrangements in 2, 4 and 5 compartment designs. |  |
| Applicable Standards: | C37.74, C57.12.28, C37.60, ANSI/IEEE-386 | |
| Voltage Range: | 15kV and 25kV | |
| Current Ratings: | <p>600 amp continuous 3-phase load-break vacuum interrupters, with 1200 amp available at 15kV Three-time fault closing rating of 12,500 amps symmetrical / 20,000 amps asymmetrical. Rated for up to 10,000 load break operations at rated current.</p> <p>600 amp continuous 3-phase vacuum fault interrupters, with 1200 amps available at 15kV Interrupting and fault close rating of up to 18,000 amps symmetrical / 28,800 amps asymmetrical at 15kV Interrupting and fault close rating of 12,500 amps symmetrical / 20,000 amps asymmetrical at 25kV. Compliant with fault interrupting duty specified in C37.60.</p> | |
| Standard Features: | <p>Visible Disconnect on each Vacuum Interrupter Vacuum Interrupters – 200 amp and 600 amp Resettable Vacuum Fault Interrupters – 200 amp and 600 amp Overcurrent Protection with Self-Powered Relay or SEL 501-2 Relay, on Vacuum Fault Interrupters Three-Phase Switching and Fault Protection Two-Way and Multi-Way Configurations External Manual or Motor Operators 200 Amp Bushing Wells 600 Amp Bushings Insulated Main Bus 11 Gauge Welded Steel Enclosure</p> | |
| Optional Features: | <p>1200 amp rating available at 15kV.</p> <p>Motor operators for SCADA or automatic transfer. Provisions for Fault Indicators Stainless Steel Key Interlocks Base Spacers Copper Bus Special Colors 200 Amp Bushing Wells</p> | |
| Typical Users: | Utilities, Industrial, Military, Universities, Correctional Hospitals, Water Plants | |

SWITCHGEAR DIVISION PRODUCT PROFILES

Air-Insulated Live-Front / Dead-Front Pad-Mounted Switchgear — Type PLD

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|-------------------------|---|
| Description: | Three-Phase, Group-Operated Load-Interrupter Switches and Single-Pole, Hookstick Operated Fuses with Bushing Wells for 200-Ampere Load-Break Elbows |
| Method of Operation: | Manual, Automatic Source Transfer, SCADA Control, Shunt-Trip |
| Circuit Configurations: | A variety of one-line diagrams |
| Applicable Standards: | C37.74, C57.12.28 and ANSI 386 |
| Voltage Range: | 15kV |
| Current Ratings: | 600A and 1200A continuous 3-phase load-break switches 200 ampere continuous 1-phase load-break elbows Fusing to 200 amperes with current-limiting or power fuses |
| | Switch 3-Phase 40ka asymmetrical 3-time fault closing 61ka asymmetrical 1-time fault closing 100 load-break operations at 600 amperes UL® Recognized — 600A and 1200A 15kV switches 1000 mechanical operations |
| Optional Features: | Key Interlocks Stainless Steel Enclosure Stainless Steel Switches Special Colors Copper Bus Fuse Storage Base Spacers Cable Supports Provisions for Fault Indicators Designs engineered to customer requirements |
| Users: | Utility, Industrial, Military, Universities, Correctional |



Pad-Mounted Capacitor Banks

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|-------------------------|--|
| Description: | Three-phase capacitor bank with or without controller Single-Pole vacuum interrupters for switching current limiting fuses for fault protection |
| Method of Operation: | Manual or with Controller for Automatic Operation |
| Applicable Standards: | C57.12.28, ANSI 386, Capacitors Switches to C37.66 |
| Circuit Configurations: | Per customer specification |
| Voltage Range: | 15kV and 25kV |
| Current Ratings: | 200 ampere continuous; 12,000 amperes rms symmetrical fault interrupting |
| BIL: | 95, V and 125kV |
| Capacitors: | Size to 3600kvar as specified by customer Voltage as specified by customer |
| Switching Components: | Vacuum Capacitor Switch |
| Protection Components: | Current-Limiting Fuses selected by customer Reactors for in-rush restraint |
| Control Power: | Voltage transformer |
| Optional Features: | Remote Control Kit Stainless Steel Enclosure Surge Arresters Integral Load Interrupters with Emergency Switching to 800 kvar Designs engineered to customer requirements |
| Users: | Industrial, Government, Utility |



SWITCHGEAR DIVISION PRODUCT PROFILES

Fused Tap Dead-Front Pad-Mounted Switchgear — Type FTDF

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| Description: | Single-Phase and Three-Phase Fused Taps with and without Integral Single-Pole Load-Interrupters Combined with 200-Ampere Bushing Wells |
| Method of Operation: | Manual, Single-Pole |
| Circuit Configurations: | 8 Standard one-line diagrams and 8 designs |
| Applicable Standards: | C37.74, C57.12.28 and ANSI 386 |
| Voltage Range: | 15kV — 25kV |
| Current Ratings: | 200 and 600 ampere continuous with 200-ampere, Single-phase integral load-break interrupters for switching with fuses 200 ampere continuous 1-phase load-break elbows Fusing to 200 amperes with current-limiting or power fuses |
| Optional Features: | Key Interlocks Stainless Steel Enclosure Special Colors Copper Bus Mimic Bus Dead-front access to fuses |
| Users: | Utility, Military, Universities, Correctional |



A single-phase FTDF model is pictured above.



A typical three-phase FTDF Model is pictured above.

SWITCHGEAR DIVISION PRODUCT PROFILES

Primary Metering — Type PMDF Dead-Front and Type PMLF Live-Front

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| Description: | Three-Phase Primary Metering Compartments |
| Method of Operation: | Type PMDF Accommodates Single-Pole Switching with Elbows Type PMLF Accommodates Conventional, Stress-Cone Terminators |
| Circuit Configurations: | Per Specifications |
| Applicable Standards: | C37.74, C57.12.28 and ANSI 386 |
| Voltage Range: | 15kV — 25kV |
| Current Ratings: | 200 ampere continuous 1-phase load-break elbows |
| Optional Features: | Stainless Steel Enclosure Copper Bus Special Colors 200 Ampere Bushing Wells 600 Ampere Bushings Mimic Bus Indoor and Outdoor Metering Transformers Designs engineered to customer requirements |
| Users: | Utility, Military, Universities, Correctional |



Wall-Mounted Fuses

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|-------------------------|---|
| Description: | Single-Phase and Three-Phase Fused Taps with and without Integral Single-Pole Load-Interrupters in a Wall-Mounted Enclosure |
| Method of Operation: | Manual, Single-Pole |
| Circuit Configurations: | Two Standard One-Line Diagrams and Custom Designs |
| Applicable Standards: | C37.74, C57.12.28 and ANSI 386 |
| Voltage Range: | 15kV — 25kV |
| Current Ratings: | 200 ampere continuous 1-phase load-break elbows Fusing to 200 amperes with current-limiting or power fuses |
| Optional Features: | Stainless Steel Enclosure 200 Ampere Bushing Wells Special Colors Knockouts for conduit |
| Users: | Utility, Military, Universities, Correctional |



Wall-Mounted Switches

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|-------------------------|--|
| Description: | Three-Phase, Group-Operated Load-Interrupter Switches in a Wall-Mounted Enclosure |
| Method of Operation: | Manual, Automatic Source Transfer, SCADA Control, Shunt-Trip |
| Circuit Configurations: | One Standard One-Line Diagram and Custom Designs |
| Applicable Standards: | C37.74, C57.12.28 and ANSI 386 |
| Voltage Range: | 5kV — 25kV |
| Current Ratings: | 600 Amperes Accommodates 600 Ampere Elbows 200 Amperes Accommodates 200 Ampere Load-break Elbows Switch 3-Phase 40ka asymmetrical 3-time fault-closing 61ka asymmetrical 1-time fault closing 100 load-break operations at 600 amperes UL® Recognized — 600A, 1200A, 5kV, 15kV 1000 mechanical operations |
| Optional Features: | Key Interlocks Special Colors Stainless Steel Enclosure Stainless Steel Switches Remote Control 600 Ampere Bushings 200 Ampere Bushing Wells Copper Bus Motor Operators |
| Users: | Utility, Military, Universities, Correctional |



SWITCHGEAR DIVISION PRODUCT PROFILES

Substations

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|-------------------------|---|---|
| Description: | Three-phase portable substations for temporary, permanent or emergency power distribution application requirements integrating high-voltage, transformer and low-voltage sections | |
| Method of Operation: | Manual, Automatic Source Transfer, SCADA Control, Shunt-Trip | |
| Circuit Configurations: | Engineered to customer requirements as a turn-key design | |
| Applicable Standards: | C37.74, C37.20.3, C37.20.4, C37.57 and C37.58 | |
| Voltage Range: | 4.16kV through 138kV high-voltage sections 120v, 240, 480, 600v secondary sections | |
| Current Ratings: | 600 amperes and 1200 amperes | |
| BIL: | Based on system voltage requirements | |
| Transformers: | Dry-type through 10MVA at 38kV, Liquid-filled as customer specified | |
| Switching Components: | Load-break Switches, Vacuum Circuit Breakers | |
| Protection Components: | Fuses, Vacuum Circuit Breakers | |
| Optional Features: | Skid Mounted Trailer Mounted Caterpillar Treads Rail Wheels | Metering Requirements Monitoring Requirements Relaying Requirements Customer Specific Requirements |
| Users: | Utility, Industrial, Military, Correctional Facilities, WWT Facilities, Universities | |



Reclosing Vacuum Fault Interrupter

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|-------------------------|--|--|
| Description: | Three-phase vacuum reclosers for automatic reclosing on circuits to establish that fault is not permanent | |
| Method of Operation: | Automatic tripping of vacuum circuit breakers | |
| Circuit Configurations: | Per customer specification | |
| Applicable Standards: | C37.60 | |
| Voltage Range: | 15kV — 25kV | |
| Current Ratings: | 600 and 1200 amperes continuous; 12,000 amperes rms symmetrical fault interrupting. Also available: 15kV 1000A Continuous 20kA Interrupting 27kV 800A Continuous 16kA Interrupting | |
| BIL: | 95kV to 125kV | |
| Transformers: | Voltage Transformer for Control Power | |
| Switching Components: | Vacuum Circuit Breakers | |
| Protection Components: | Vacuum Circuit Breakers | |
| Optional Features: | Various Trip Settings Pad-Mounted Substation Mounting Visible Disconnect | Remote Control Kit Stainless Steel Enclosure Surge Arresters |
| Users: | Industrial, Government, Utility | |



SWITCHGEAR DIVISION PRODUCT PROFILES

Switchgear Components

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|-------------------------|---|
| Description: | Load-break interrupter switches; Fuse mountings; Insulators; Bushings and bushing wells; Micro-processor controls; Motor operators, Vacuum circuit breakers, etc. |
| Method of Operation: | Manual, Automatic Source Transfer, SCADA Control |
| Circuit Configurations: | Customer Specified |
| Applicable Standards: | C37.57, C37.58, C37.20.3; ANSI 386 |
| Voltage Range: | 4.16kV — 38kV |
| Current Ratings: | 200, 600 and 1200 amperes |
| BIL: | 60kV through 200kV |
| Switching Components: | Auto-jet® II Load-Interrupter Switches, Vacuum Load-Break Switches, Vacuum Circuit Breakers |
| Protection Components: | Vacuum Circuit Breakers, Current-Limiting Fuses, Power Fuses |
| Optional Features: | Per specification requirements |
| Users: | Original Equipment Manufacturers |

