FLEXIBLE END TO END SOLUTIONS

POLE TOP DISTRIBUTION SWITCHGEAR

- Air Break Switches
- Electronic Sectionalisers
- Auto Reclosers
- Circuit Breakers
- Gas Insulated Switches

SWITCHGEAR (11KV-800KV)

- Disconnectors
- Load Break Switches
- Capacitor Switches
- Circuit Breakers

INSTRUMENT TRANSFORMERS

- CT’S and VT’S

SILICON COATINGS

- Insulator Protection

OIL TESTING

- Routine & Diagnostic Testing
- Reactors

PROTECTION RELAYS
DISTRIBUTION SWITCHGEAR

Air Break & Load Break Switches

- 11kV, 22kV & 33kV 600amp ABS with flickers or Load Break Interrupters
- Adjustable phase spacing or custom design
- Top mount, side mount, vertical or horizontal
- New Zealand designed and manufactured

The new Hot Stick actuator

for the Mahanga air break switch is suitable for use on all of our 11kv, 22kv and 33kv mechanisms. Lockable in both positions via hot stick operated Stainless steel locking Pin. All other components are hot dip galvanised to last the life of the Switch. As with all Mahanga Air Break Switch products the new actuator can be modified to suit customer requirements.
Elastimold® Moulded Vacuum Reclosers

- 33% lighter than typical units today, so they’re easier and less expensive to install.
- Modular design means Smart Grid sensors can be added quickly and simply.
- Our reclosers are compatible with SEL® Controls, the best in the business. (SEL is a registered trademark of Schweitzer Engineering Laboratories, Inc.)

Elastimold® Moulded Vacuum Switches and Interrupters

- Fully submersible, melted EPDM with stainless steel hardware
- Vacuum interrupting components are maintenance free
- Deadfront construction
- Small footprint, non-position sensitive
- Electronic control for protection & source transfer
Electronic Sectionalisers
- Cure approximately 90% of temporary faults
- 15kV, 24kV and 38kV models available
- Options - Radio communication, DNP3, GSM

The Automatic Electronic Sectionaliser (AES): key element for improving service quality and operational profitability.

The AES discriminates between permanent and temporary faults (faults that are spontaneously cleared without intervention and do not require opening of the line). It has been demonstrated that more than 90% of distribution network faults are self-clearing temporary faults (typically a tree branch short-circuiting one phase to ground and disappearing after the first reclosing operation). Today, these faults lead to fuse blow-up, unnecessarily opening the line and interrupting service, which causes service quality indicators to plummet. The AES is endowed with a local intelligence capable of deciding upon the nature of the fault: it only opens the line and interrupts service when, due to a permanent nature of the fault, this action is absolutely unavoidable.

The AES offers real solutions for real problems, generating true value for the users.

CapSwitcher features
- Lower cost and greater reliability than other available devices
- Limits voltage transients to less than 20% Reduces current transients by 90%
- Single gap puffer SF6 interrupters designed specifically for capacitor switching
- Spring open-spring close mechanism
- 10 000 operations endurance life
- Available without closing resistor if transient suppression is not required
- Compact design can fit in small substation space
- Designed and tested for restrike-free performance
- Simple, quick, easy installation
**Outdoor Auto Reclosers**
- OSM Recloser 15.5kV and 27kV
- Recloser 38kV
- Circuit Breaker 38kV
- Compatible with Tavrida or SEL Control Panels

**RC/TEL-05 Control Cubicle for OSM/TEL Recloser**
- Second Generation RC Control Cubicle from Tavrida
- User-Friendly 6 line display, USB & Bluetooth PC interface
- Standard protection: OC, EF, SEF, LL, UV, UF, LS, ABR, AR
- New protection: Current & Voltage Unbalance, Bolted Fault
- All protection elements are now Directional
- Advanced digital filter of magnetizing in-rush currents
- Instantaneous Metering & Comprehensive Log files (6 types)
- Fault Parameters recorded every cycle over 200s for analysis
- SCADA Communication via DNP3, Modbus protocols

**Capacitor Switches**
Joslyn is a leader in the capacitor switching market with the VerSaVac (VSV), VarMaster (VBM) and VBU switches.

**HV Power Switching**
- VerSaVacs, VBM
- Substation Disconnects
- Power Factor Switching
At power stations, transformer substations and manufacturing plants, lighting strikes and other sudden power surges through transmission lines can cause serious accidents and power failures. Circuit breakers are able to immediately detect abnormal power conditions and safely interrupt the flow of electric current before such situations occur. Currently, gas circuit breakers (GCB) are the primary type of circuit breaker for 72kV and higher applications. GCBs typically use greenhouse gas SF6 as an insulator and interrupter medium. The Ecotank VCB uses as its core component a vacuum interrupter developed by Meidensha, one of the world's leaders in the field of circuit breaker technology. **The VCB eliminates the need for SF6 because it uses dry air as the insulator**

**72/84kV Ecotank Vacuum Circuit Breaker**
POWER QUALITY

HV 11-33kV Pole Top Capacitor Banks
- 11kV - 33kV Systems
- Switched or Unswitched
- Arrestors
- Bird Caps
- Galvanized Frame

HV Power Factor Kiosk
- 11kV - 33kV Systems
- Joslyn VSV Switching
- GE Capacitors
- Inrush Reactors
- Galvanized Base
- Powder Coated Aluminium Panels

Capacitors
- High Voltage Capacitors 3.3kV - 220kV
- Low Voltage Capacitors
- Capacitor Switches, Reactors
- Zero-Voltage-Closing Controls
- Automatic Power Factor Correction Equipment
New Supplier

In 1946, Aurelio de Arteche founded ARTECHE in Mungia, Spain. In 2005 Arteche entered into the North American power quality market by acquiring INELAP, a major manufacturer of reactive compensation and harmonic mitigation products and in 2007 opened Arteche PQ, Inc. in New Berlin Wisconsin. Today, Arteche offers over 60 years of experience providing customer solutions for electrical measurement, protection, power quality, communications and control.

POWER QUALITY

Arteche PQ offers medium voltage circuit breaker solutions and equipment as well as reactive power compensation and harmonic filtering for low and high voltage electrical systems.

Thanks to their broad experience in development and implementation in quality, control, and energy efficiency, Arteche PQ services and products combine to cover our customer’s needs in the most suitable manner.

Our service policy is to maintain close contact with electrical energy users in order to attend to their specific needs and offer flexibility in the development of comprehensive solutions.

LV, MV, and HV capacitors banks

LV, MV, and HV harmonic filtering

Automation, control, and protection of substations, hydro-electric plants, and wind farms.

Capacitors banks

Fixed Capacitor Bank

Automatic Capacitor Bank

HWT-type three-phase cells

Banks of capacitors in substation-type structures
**Harmonics filters**

- Low Pass Harmonic Filters
- Active Harmonic Filters
- Tuned Harmonic Filters
- Automatic (Switched) Harmonic Filters
- Dynamic Response (Thyristor Switched) Harmonic Filters

**Power Factor**

Arteche offers a complete range of solutions for improving power factor and reducing electrical energy costs. Choose from either fixed capacity or automatic switching systems. Their automatic systems are offered with transient-free thyristor switching or traditional contactor switches. Harmonic protected (detuned) capacitor banks are available to assure long life whenever the capacitors will be connected to an electrical system with harmonic producing loads.

- Fixed capacitor bank
- Automatic capacitor bank
- smARTvarR dynamic capacitor bank

**smARTvar® DYNAMIC CAPACITOR BANK 208 - 690 VOLTS, 50/60HZ**

smARTvar® Automatic Capacitor Systems utilize power electronic technology to achieve extremely fast switching of power factor capacitors. Not only is this an automatic power factor system, but it can switch capacitors on-line in less than one cycle so target power factor can be maintained under extreme load conditions. It can respond to the most dynamic of loads including arc furnaces, amusement rides, wind turbines, etc.
**We Have a Solution for You**

Elspec is a leading global technology provider of electrical power quality analyzers, real time power factor correction systems, and energy saving solutions. Elspec's innovative approach to R&D, coupled with dedicated customer service and support, has ranked Elspec as a global leader in the power quality market. The company's ongoing efforts include successful implementation of innovative and comprehensive electrical energy enhancement technologies and Power Quality Solutions across the industrial, commercial, and utility sectors worldwide.

**Power Factor & Power Quality Solutions**

- Equalizer, Activar power factor units
- Power Quality Analysis G4400
- Portable Quality Analysis Meters PPQ:306
- Analysis Software PQSCAPA
OIL & SF6 ANALYSIS

MHL are the sole representative of TJ|H2b Analytical Services Pty Ltd in New Zealand.

TJ|H2b are the industry leaders in the development and application of condition-based maintenance programs for electric utilities, industrial high-voltage power users and service companies. We can provide all lab tests and also stringent diagnostic testing on:

- Transformers, tap-changers, circuit breakers
- Ring main units
- Oil & SF6 sampling services
- Live Tank Oil Sampling (LTOS)

Testing Services

- Dissolved Gas Analysis (DGA)
- Acidity
- Interfacial Tension
- Moisture
- Dielectric Breakdown Voltage
- Colour & Visual Examination
- Dielectric Dissipation Factor (DDF)
- Resistivity
- Furfurals (Furan)
- Degree of Polymerization
- Particle Count
- PCB
- Corrosive Sulphur

Value-Added Products & Services

- Each Report contains a Condition code (1-4 *)
- Laboratory Recommended Procedure
- Recommended Retest Period
- Turbulent Flush Sampling System TFSS™
- Gas Sample Collection Unit (GSCU) for SF6

Equipment specific diagnostic packages

- Transformer Condition Assessment TCA™
- Breaker Oil Analysis BOA™
- Tapchanger Activity Signature Analysis TASA™
- Breaker Gas Analysis BGA™
- Live Tank Oil Sampling (LTOS™) for Ring Main Units
MAHANGA HOLDINGS LIMITED

Power Consultants Ltd

ENGINEERING SOFTWARE

**CYME Software engineering Suite:**

CymDIST
Distribution Analysis Software Suite including:
- Load Flow Analysis
- Load Balancing
- Load Allocation/Estimation
- Optimal Capacitor Placement

CymCAP
Dedicated package for performing:
- Ampacity
- Temperature Rise Calculations

Consultancy and Training services are provided, with support from CYME expertise.

**DataShare**

Software engineering packages:

**LV Drop**
Evaluation Tool for LV/MV Networks

**PowSys32**
Load Flow Analysis Software for Distribution & Transmission Networks

**Relcord32**
Integrated Protection Co-ordination and Fault Calculation Software

**ViewNet**
Single Line Drawing Interface for Analysis Software

**Fault32**
Analysis of Current and Voltage under Fault Conditions

**ProtectionDB**
Flexible, User-customisable Protection Database
Key features of EMTP-RV:

- Reference in transients simulation
- Solution for large networks
- Provide detailed modeling of the network component including control, linear and non-linear elements
- Open architecture coding that allows users customization and implementation of sophisticated models
- Steady-state solution with harmonics
- Three-phase load-flow
- Automatic initialization from steady-state solution
- Capability for solving detailed semiconductor models
- Simultaneous switching options for power electronics applications

ANCILLARY EQUIPMENT

Si-COAT 570 HVIC

- Prevent & eliminate the expense of insulator flashovers
- Can be applied by Airless Spray, Dip or Brush
**Instrument Transformers**

- CT’s, VT’s and Combined Metering Units
- Voltage Regulators

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**Fault Indicators**

Fisher Pierce® Faulted Circuit Indicators (FCIs) for both overhead and underground applications are cost-effective tools to more quickly locate faults thereby reducing outage duration and customer complaints.

- Overhead lines and underground cable units Visual and radio indication Adaptive Logic: Fisher Pierce FCIs use adaptive trip reset logic to eliminate the need for replacement as the load changes.
- Find Temporary Faults: A Fisher Pierce option is temporary fault detection to eliminate pesky, time-consuming intermittent failures.
- Highly Visible: Fisher Pierce options include highly visible strobe, LED and fluorescent orange flag indicators so you won't miss a problem.
- SCADA ready for remote communication
PROTECTION RELAYS

Protection Relays
- Feeder Protection, Line Protection, Transformer Differential Protection
- Overcurrent Protection Relays, Mains Decoupling Relays, Motor Protection Relays, Generator Protection Relays, Differential Protection Relays