TransNet
Your Partners in Power

ISO 14001 www.intlcert.com
ISO 14064-1 www.intlcert.com
CARBON MANAGED www.intlcert.com

HV JUICE

Dec 19/Jan 20

TRANSNET'S DONE IT AGAIN!

ISO 14064-1 ACCREDITED

We're here to help you keep the power on, but there are ways to do that while also looking after our environment. Sustainability has been at the forefront of every decision we make at TransNet for a while now, and we've cemented that attitude with a commitment to maintaining our ISO 14064-1 accreditation.

It's not easy. To defend our title we have to be constantly improving, and it gets harder every year. Every journey that any of our products or people takes must be measured and compiled to find out our total greenhouse gas emissions, and we've taken steps this year such as adding five EV to our fleet and implementing a fuel monitoring program to make those journeys even more efficient.

By making incremental changes today, tomorrow, the day after, and onwards, we want to show that it's possible to minimise our impact without compromising our values. Whenever, wherever, we've got it.

100% New Zealand Owned & Operated

SINCE OUR 2018 AUDIT WE'VE ACHIEVED

13% REDUCTION IN AIR FREIGHT

51% REDUCTION IN WASTE

100% INCREASE IN SOLAR GENERATION

ZERO BUBBLE WRAP

MV Switchgear Edition

PAGE 2

www.transnet.co.nz

This Issue

TE FOR MV SWITCHGEAR CONNECTIONS

RPIT – PLUG IN TERMINATION SYSTEM FOR GAS INSULATED SWITCHGEAR 42KV

The increasing popularity of gas insulated switchgear called for more appropriate connection systems for standardised bushings in accordance with EN 50181. The Raychem Plug-In Terminations (RPIT) separable connectors range has been developed to fill this need.

The inner cone termination incorporates a high-quality contact system which ensures reliable current transmission from the cable conductor to the busbar. The electrical interfaces between the silicone stress relief cone to the cable and the bushing are kept permanently sealed using a pressure component. This element is housed in the protection cover, which is sealed with heat-shrinkable tubing.

FEATURES

- Separable inline connection for high current, gas insulated switchgear up to 42kV
- Termination mates interfaces in accordance with EN 50180 (and EN 50181 for inner cone connections)
- Contact parts are designed for stranded circular Aluminium or Copper conductors in accordance with IEC60228

Cat No.	Size	Nominal Current (A)	System Voltage (kV)	Cross Section (mm^2)	Dia. over Conductor (mm)	Dia. over Insulation (mm)
RPIT-321X	2	800	12	95–300	11.0–21.6	19.3–30.4
RPIT-521X			24	50–300	7.7–21.6	20.2–34.6
RPIT-621X			36	50–185	7.7–16.8	25.2–35.1
RPIT-331X	3	1250	12	240–630	17.8–32.5	26.4–29.6
RPIT-531X			24	150–630	13.9–32.5	26.5–45.6
RPIT-631X			36/42	95–630	11.0–32.5	28.5–49.2

MVJB – MEDIUM VOLTAGE JUNCTION BOX

TE's medium voltage junction box with set of Raychem screened separable connectors facilitates safe, easy and quick connection and disconnection of MV cables up to 24 kV. Supporting a wide application range, it represents a branching point for all cross-sections from 25 to 300mm^2. The overall dimensions are compact and designed to take up the minimum space, while full metal encapsulation gives reliable and insured service.

This MVJB allows you to connect all Raychem screened separable connectors type RSTI, Coupling Connectors RSTI-CC and Surge Arresters RSTI-CC-SA. This gives easy accessibility to the capacitive test points for determining whether the circuit is energised and the opportunity to protect equipment from overvoltages.

TECHNICAL DATA

- Protection class: IP66 with integrated bottom plate (suffix -02 only), suffix -01 has no protection class
- Application: Non buried
- Box size: (LxHxW) (mm) 670x1150x435
- Material: Mild and Stainless Steel
- Cable connection: Compression or mechanical lug
- Impulse withstand voltage (kV): 125
- AC withstand voltage (kV): 57
- DC withstand voltage (kV): 76
- Short circuit current (kA/1s): 22

KEY FEATURES

- Application in grid connection and wind turbines in on shore and off shore environment
- Branching point for cross section combinations from 25 to 300 mm^2
- Kitted to meet your requirements, contact TransNet to discuss
- Capable of 2 x switchgear connection elbows and up to 1 x piggy back connection elbows per phase
- Full metal encapsulation
- Easy accessibility to the capacitive test points
- Monitoring and detection of voltage
- Tested according to CENELEC HD.629.1 S2:2006, + A1:2008 and IP66 test degree of protection with integrated bottom plate

Cat No. MVJB-501A-02-NZ01
(Excludes RSTIs or cable clamps).

STANDARDS

Tested according to the cable accessories standard CENELEC HD 629.1 S2, which includes BS, VDE and other international specifications.

With fulfilment of IP66 test degree of protection with integrated bottom plate, MVJB is completely secured against water and dust ingress.

SWITCH OVER TO A NEW WAY OF THINKING

RCAB – 11KV & 22KV BUSHING BOOTS COLD APPLIED

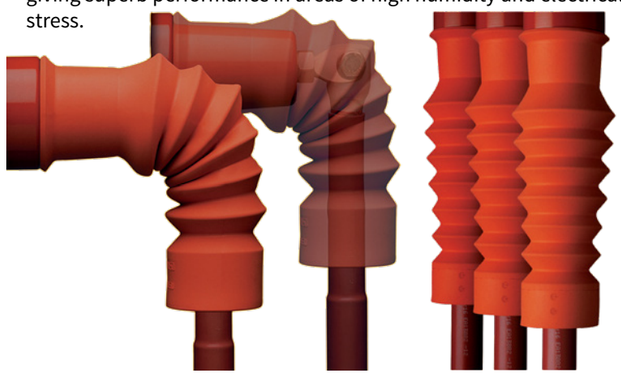
Raychem elastomeric insulating boots are moulded parts which fit over the connection between the cable lug and the inline or right-angled equipment bushing to improve phase-to-phase and phase-to-ground insulation. They are used in switchgear and transformer cable boxes where the air clearances are insufficient for normal operation, or to protect against flashover due to rodents or high humidity.

The non-tracking elastomeric housing has excellent erosion resistance, dielectric properties and environmental resistance, giving superb performance in areas of high humidity and electrical stress.

FEATURES

- Push on cold applied bushing boots
- Suits right angle or inline bushing applications
- Wide application range
- Simple & easy tool free application
- High-performance insulation material
- Excellent track and erosion resistance
- Removable and reinstallable
- Unlimited shelf life
- Connection can be energised immediately after installation
- Silicone material
- Supplied in sets of 3

RCAB-5120 - INLINE



RCAB-4120 - RIGHT ANGLE & INLINE

Cat No.	Voltage Class (kV)	Description	Accessories	Cable Size (mm^2)	Application
RCAB-4120	11	INLINE/RIGHT ANGLE	EPPA-212 (GREASE)	35–400	46–70MM BUSHING
RCAB-5120	22	INLINE		35–300	46–61MM BUSHING

RICS ELBOWS – SF_6 INSULATED SWITCHGEAR

Raychem elastomeric RICS adapters are moulded parts which fit over the connection between the cable lug and the right-angled bushing of a gas insulated switchgear, where the air clearances are insufficient for normal operation. They provide perfect sealing, electrical insulation and an electrical connection between all Raychem terminations and SF_6 insulated switchgear up to 24kV. They are designed to fit bushing profiles according to EN 50181 type C.

The non-tracking elastomeric housing has excellent erosion resistance, dielectric properties and environmental resistance, giving superb performance in areas of high humidity and electrical stress

RICS adapters are tested to CENELEC HD 629.1 S2:2006 requirements.

Cat No.	Description	Bushing Type	Application Range (mm^2)
RICS3133	ELBOW 11KV RIGHT ANGLE COLD APPLIED, SET OF 3	C	70–300
RICS5133	ELBOW 22KV RIGHT ANGLE COLD APPLIED, SET OF 3	C	185–240 (11KV POLYMERIC) 95–185 (22KV POLYMERIC) 120–240 (11KV PILC)

Raychem
from TE Connectivity

TE connectivity

VIPER SERIES RECLOSERS

Providing electronic phase overcurrent protection for one or three phases rated through 38kV, 800A continuous current, 12.5kA symmetrical interrupting.

FEATURES

- **Replacable bushings for damage or increased creepage**
- **Dead Tank/Dead-Front designs available**
- **Six internal voltage sensors**
- Reliable performance, vacuum fault interrupters
- Maintenance free operation
- Ease of installation
- Internal current transformers
- Operator safety including mechanical block on trip and lockout handle
- Overhead, substation and dead-front padmount designs
- Smart Grid solutions
- "L", "C" and "Z" style options available
- Internal voltage sensors (S & ST)

VIPER-S SOLID DIELECTRIC 3 PHASE RECLOSER, UP TO 38KV

FEATURES

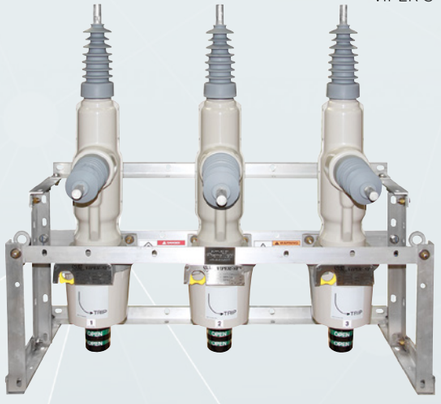
- Control flexibility including SEL-351 series, SEL-651R, GE controls and more
- Painted Stainless Steel tank
- Designed, built and tested to IEEE C37.60 and IEC 62271-111 standards latest version

VIPER-S

VIPER-ST SOLID DIELECTRIC TRIPLE OPTION RECLOSER, UP TO 38KV

FEATURES

- Works directly with SEL-651R control
- Ease of automation
- Application flexibility
- Various module configurations for circuit connection flexibility



VIPER-ST

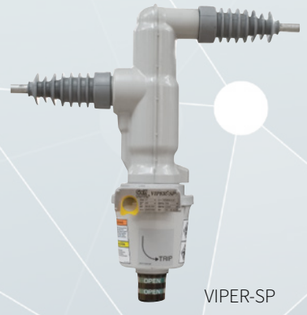
VIPER-SP SOLID DIELECTRIC SINGLE PHASE (SWER) RECLOSER, UP TO 38KV

FEATURES

- Works directly with SEL-351RS Kestrel control

OPERATION OPTIONS

- DEAD LINE – Unique design of Viper-SP magnetic actuator system provides for local & remote operation of the recloser via batteries
- MANUAL OPERATION – Operation of the hookstick operable manual trip handle trips and locks out the recloser



VIPER-SP

For build options and site-ready designs, please contact TransNet

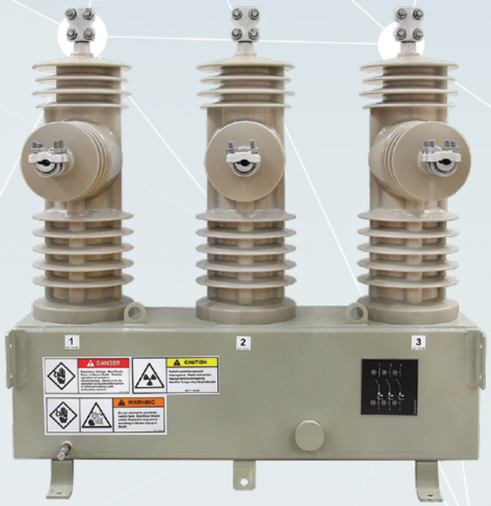
DIAMONDBACK OVERHEAD SOLID DIELECTRIC 3PH LOAD BREAK SWITCH, UP TO 25.8KV

FEATURES & BENEFITS

- Solid dielectric insulation, uses no oil or SF6 greenhouse gas – environmentally friendly, maintenance free system means lower life cycle costs
- Easy to automate with the optional FTU-P200 control – Smart Grid ready and can be used as a sectionaliser, tie switch, automatic transfer or in loop schemes
- Six integrated voltage sensors – Less equipment & weight on pole reduces future maintenance & improves reliability. Enables full line metering capability for Smart Grid applications
- Compact size and lightweight construction – Allows for installation in tight areas and eases handling during installation
- Reversible side mount frame – Frame is reversible and provides installation flexibility in switch orientation. Other mounting options are available

OTHER CONTROL OPTIONS

- New - Now paired with SEL651RA
- NZ RCO2 and Abbey controls can be paired with the Diamondback switch for fundamental functionality



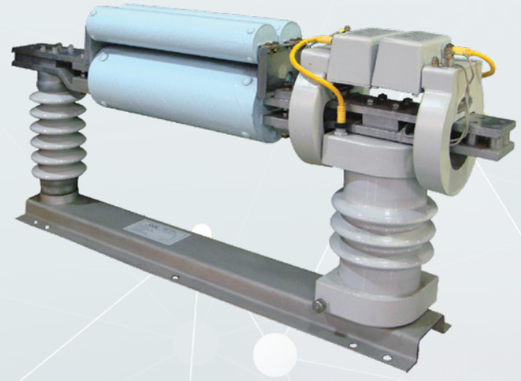
CLiP® CURRENT LIMITING PROTECTOR FOR SYSTEMS RATED 2.8-38KV & CONTINUOUS CURRENTS THROUGH 5000A, INTERRUPTING CAPABILITY UP TO 120KA

The CLiP is an electronically sensed and triggered, commutating form of current limiter. The CLiP works like a breaker and a fuse combined.

It consists of two parallel paths - a copper bus bar path that carries the continuous current, and a parallel mounted fuse which interrupts the fault when the main path is opened due to overcurrent.

FEATURES & BENEFITS

- At the most basic level - the CLiP is a tool to get rid of fault current. Most other devices are used to manage current, the CLiP eliminates it.
- In addition – the CLiP interrupts higher fault currents than any other equipment at distribution voltage. Therefore:
  - CLiP reduces Arc flash and Arc blast
  - CLiP protects old, over-dutied equipment
  - CLiP allows existing under-rated equipment to meet ever-increasing fault ratings without unnecessary upgrades
  - CLiP allows for a new generation to be tied-in without unnecessary upgrades (e.g. great for renewables)
  - CLiP reduces additional design costs
- Easy to install (indoor/outdoor; it only requires current coordination) and is maintenance-free
- Cost-effective. Reducing the fault current level will reduce the cost of switchgear, transformers, cables, motor starters, and system losses (no need for reactors) (e.g. potential capital expenditure savings (not including labour) of 5-10%)
- Improved system stability and power quality



G&W Engineered to order. Built to last.

ALUMA-FORM HOOKSTICK DISCONNECT SWITCHES

DESIGNED & TESTED IN THE USA

ASK THE EXPERTS

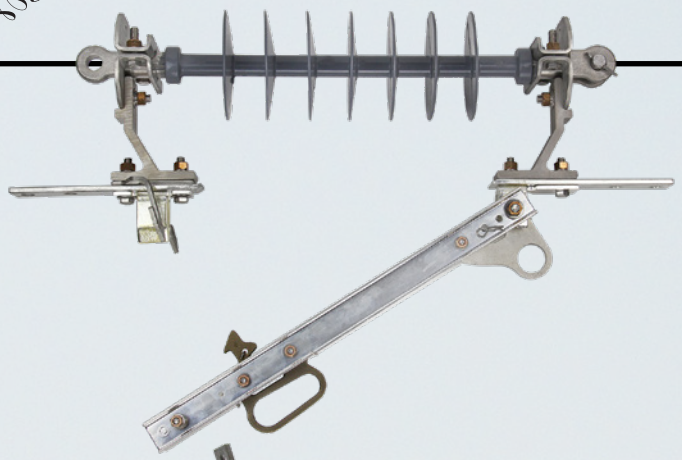
WORLD LEADERS

IN THE SUPPLY OF

Hookstick Disconnect Switches

ALUMA-FORM®

INLINE DISCONNECT SWITCH



Inline Disconnect Switch, 11, 22, & 33kV, 900A, 200kV BIL silicone insulator, marine grade. (316SS hardware and brackets. All Aluminium components nickel plated, all hex nuts silicone bronze.)

*Kitset also available

KEY FEATURES

- 900A, 11, 22, & 33kV
- Polymer Insulator
- Silver plated copper blades, brass contact & hinge
- Aluminium and HDG Steel Bases
- Integral 90° blade stop
- Tin plated copper terminals
- Pull to Open / Pull to Close operation
- All stainless steel option

SINGLE INSULATED DISCONNECT SWITCH

This Single Insulated Disconnect Switch is available in porcelain or silicone and has NEMA bracket options. 11 & 22kV, 600 & 900A.

KEY FEATURES

- 600 or 900A, 11 & 22kV
- Porcelain or Silicone Insulator
- Available with NEMA or Extended NEMA bracket

ISOLATING DISCONNECT SWITCH

The Aluma-Form “HDS” switches are a best in class design that is simple and reliable. Our hookstick operated disconnects feature the following:

KEY FEATURES

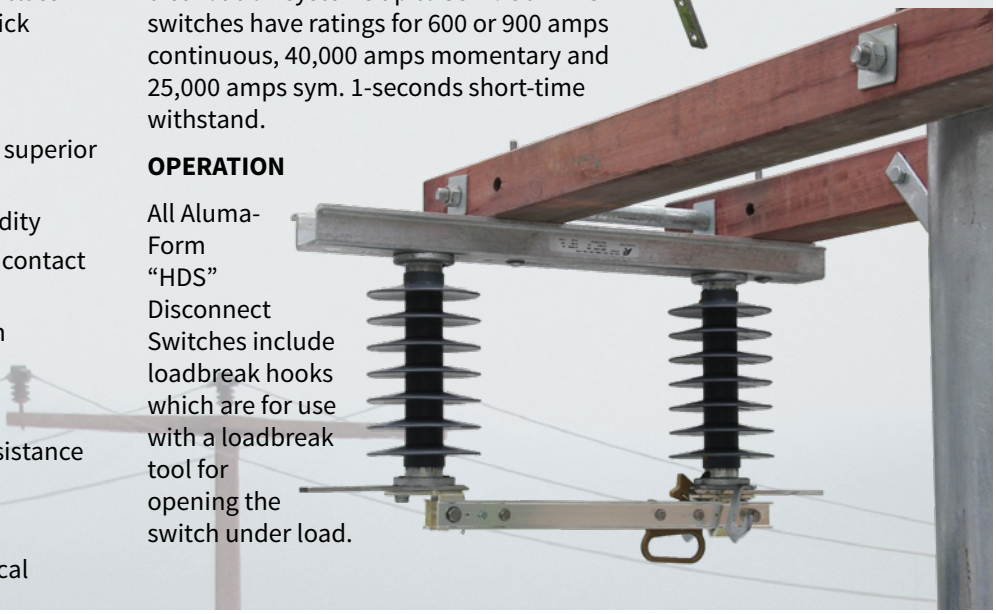
- Silver plated blade assembly that provides superior electrical conductivity
- Blade design that provides mechanical rigidity
- Silver plated contact designed to maintain contact pressure
- Positive latch, effective pry-out mechanism
- Integral 90° blade stop
- RUS Approved
- Precision formed hinge terminal for low resistance connection

APPLICATION

Manual switching of overhead lines on electrical distribution systems up to 38kV. Our HDS switches have ratings for 600 or 900 amps continuous, 40,000 amps momentary and 25,000 amps sym. 1-seconds short-time withstand.

OPERATION

All Aluma-Form “HDS” Disconnect Switches include loadbreak hooks which are for use with a loadbreak tool for opening the switch under load.



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ALLIED INSULATORS AIR BREAK SWITCH

Why You Need THIS Switch!

- **330 mm open contact clearance distance on 11 kV ABS** as per MAD clearance outlined in EEA SM-EI Part 3 Rules for work on equipment. Section 7.703
- Modular Design offers multiple configurations & mounting
- Unassembled kits for remote access areas with 30 minute build time
- Pre-assembled kits boast installation time of less than 15mins
- Customise creepage distance for individual network requirements (porcelain only)
- Hook stick operating handle can be positioned at the height of your choice for easier operation and safety in high wind situations

Allied**Insulators**

Self-aligning Spring Loaded Contact Blades & Arcing Horn Blades, for efficient and precise contact operation

Interlock Bolt & Padlockable Handle Make switch operation safe and intentional, and ensure field staff remain safe

Wide Clearance 330mm open contact clearance distance on 11kV ABS

Designed. Manufactured. Tested. Proven. In the UK for more than 40 years...

Product Details & Functionality

Range can be supplied with the following options:

- Silicon Rubber Insulators as standard or Porcelain Insulators if preferred
- High Creepage Insulators for desert / coastal conditions
- Available for 11kV, 22kV and 33kV applications
- Plain Break Arcing Horns
- Load Break Interrupter Heads for increased rating
- Independent Manual closing mechanisms improve capacity
- High Level Hook Stick operation as standard, ground operated handle request
- Two or Three Stage Interlock operations are available to meet the customer's operational safety rules
- Manufactured and tested in accordance with IEC 30265-1, IEC 60694, IEC 62271, BS EN 60129 and ENATS 41-36 at Allied Insulators' ISO 9001 approved UK factory. All products are available in voltages from 11 kV to 36 kV and ratings up to 630 A.

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Pioneers of extensible GIS switchgear technology for the electrical network industry, Ormazabal design, manufacture, & supply prefabricated transformer and switching substations in more than 110 countries worldwide.

CGMCOSMOS

MEDIUM VOLTAGE SECONDARY DISTRIBUTION SWITCHGEAR

- Fully INSULATED SF6 SEALED FOR LIFE.
- MODULAR and compact RMU, extensible both sides.
- EASY FRONT ACCESS to install and test medium voltage cables and fuses.
- End-of-life and recycling management, use of highly-recyclable materials
- Self-powered protection units.
- Cable faults preventive diagnosis.
- Partial discharge (PD) detection for network diagnosis.
- VACUUM TECHNOLOGY. Class E2, M2.
- INTERNAL ARC withstand 1 second. Class IAC as per IEC 62271-200:
  - AFL 25 kA 1s / AFLR 20 kA 1s.
- Factory ROUTINE TESTS on 100% of the units.

Rating

- Busbar current up to 630A.
- Rated voltage up to 24kV.
- Short withstand current up to 25 kA – 1 sec.

ORMAZABAL

MERRY CHRISTMAS!

We'd like to thank all of our loyal TransNet customers for your support throughout 2019. It's been another busy year for us and we look forward to even more of the same in 2020.

As always we never close – there won't be anyone in the office on the stats, but if you need us just call 0800 442 182 for assistance. Please note that courier companies reduce their runs over the holiday period so order early to ensure you don't miss out.

Have a happy and safe festive season and enjoy the summer sun with your families and friends, and we'll see you back next year!

The team at TransNet