

**RAPIER DSB Disconnectors**  
and Copper and Aluminium Substation Connectors

ENGINEERING BRILLIANT SOLUTIONS

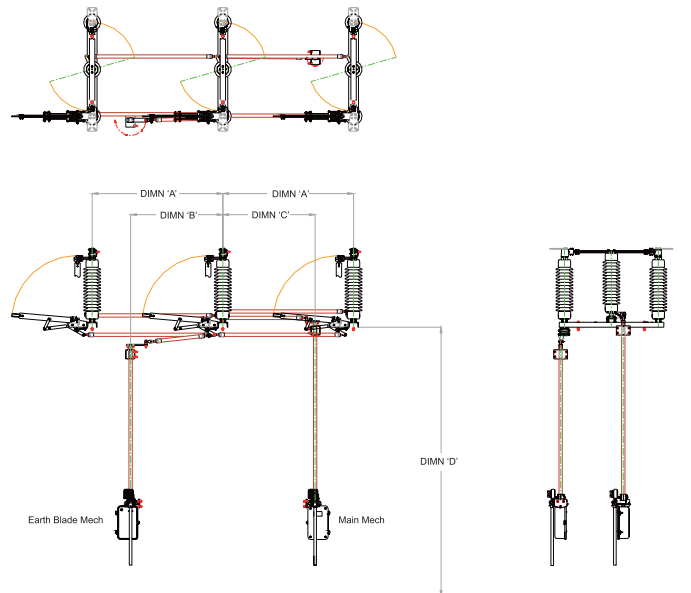


# Rapier DSB disconnecter

The Rapier Double Side Break 'DSB' range provides a powerful and cost effective solution for isolating a series of circuits and equipment in substation applications.

Based on open terminal air break technology, the Rapier DSB range combines robustness and alignment reliability.

The Rapier DSB range can be used within the Power Distribution industry in addition to use in Railway, Steel Processing and Petrochemical industries.



DSB Typical General Arrangement

## Features

- Ratings up to 145kV
- Rated currents up to 2500A
- Fault withstand current up to 40kA/3s
- Outdoor and indoor
- Rotating centre post
- Robust design
- Double side break
- Interlocks for safety
- High endurance and reliability
- Low maintenance and installation costs
- Wide range of connectors available



## Accessories

- Manual operating mechanism
- Motor operating mechanism
- Remote control capability
- Single or dual integral earth blades type 'DEB' from 12kV to 36kV or 'AEB' from 52kV to 145kV
- 400A load break heads for 33kV only
- Ice shields
- A wide range of insulators, shed profiles, creepages and materials available
- Bus transfer duty for contacts

## Delivery

The DSB range can easily be adapted for new or existing structures.

On provision of drawings, we can adapt our design and deliver all necessary clamping steelwork to accommodate your existing structure.

All our switches can be delivered flat pack for site assembly or fully built for immediate installation.

Product Designation	Mode	Description
DSB-M 36, 72.5, 145	Manual Operation	Manually operated DSB disconnecter. Mechanism type Manual Torque (MT).



AEB Earth Blade for 52kV-145kV provides an over top dead centre positioning to withstand high levels of short circuit fault current.



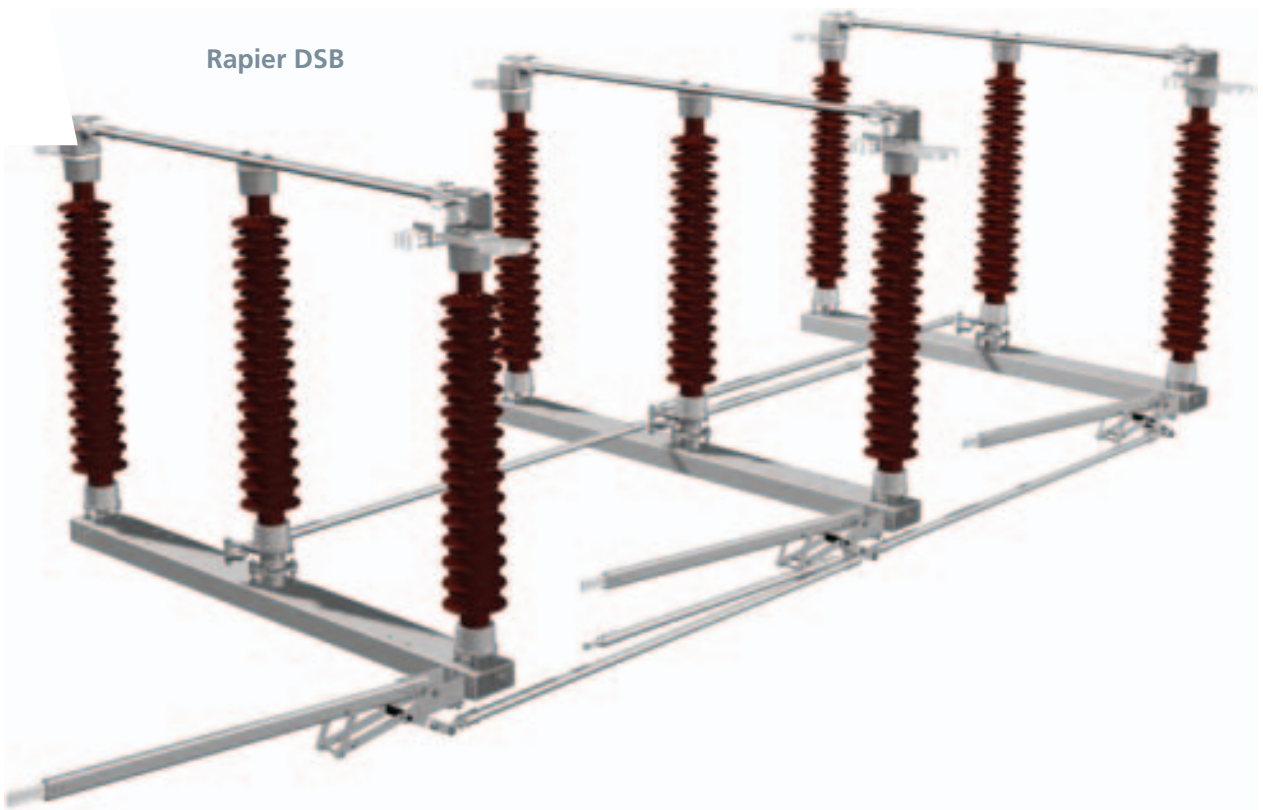
DEB Earth Blade for network Voltage up to 36kV.



## Why choose the Rapier DSB

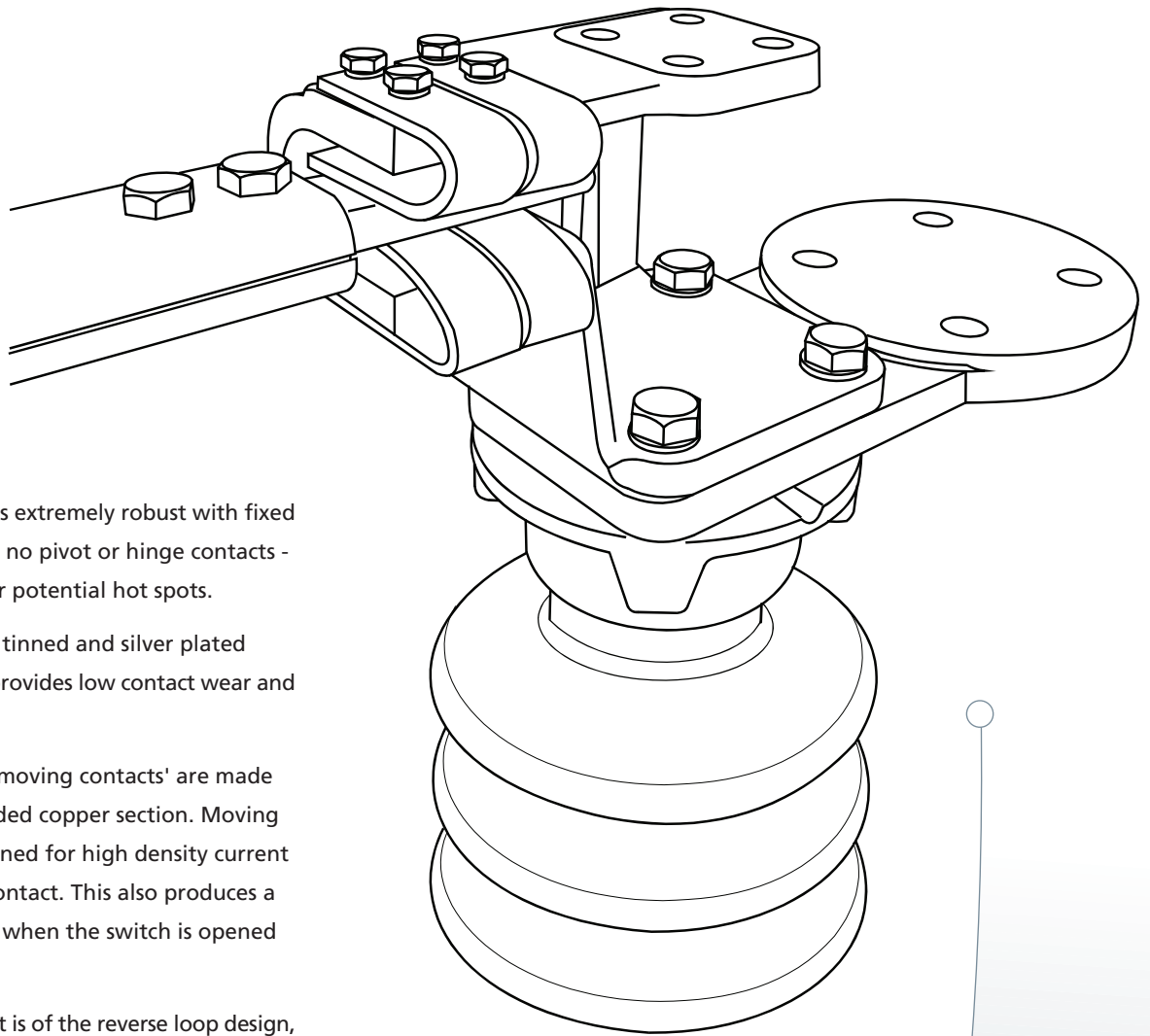
The DSB is installed for sectionalising and isolating various circuits and equipment in substation systems. The Double Break operation is electrically superior to the Single Break because two breaks in series per phase are achieved. This produces a neutral potential switch blade in the open position and permits minimum phase centre mounting.

Rapier DSB



Fully universal 'Double Break' isolator and manual operating mechanism drives are suitable for horizontal or vertical mounting. Inverted mounting can be offered for indoor and underslung applications. For the 145kV rating the mounting can only be horizontal.

## Main Contact



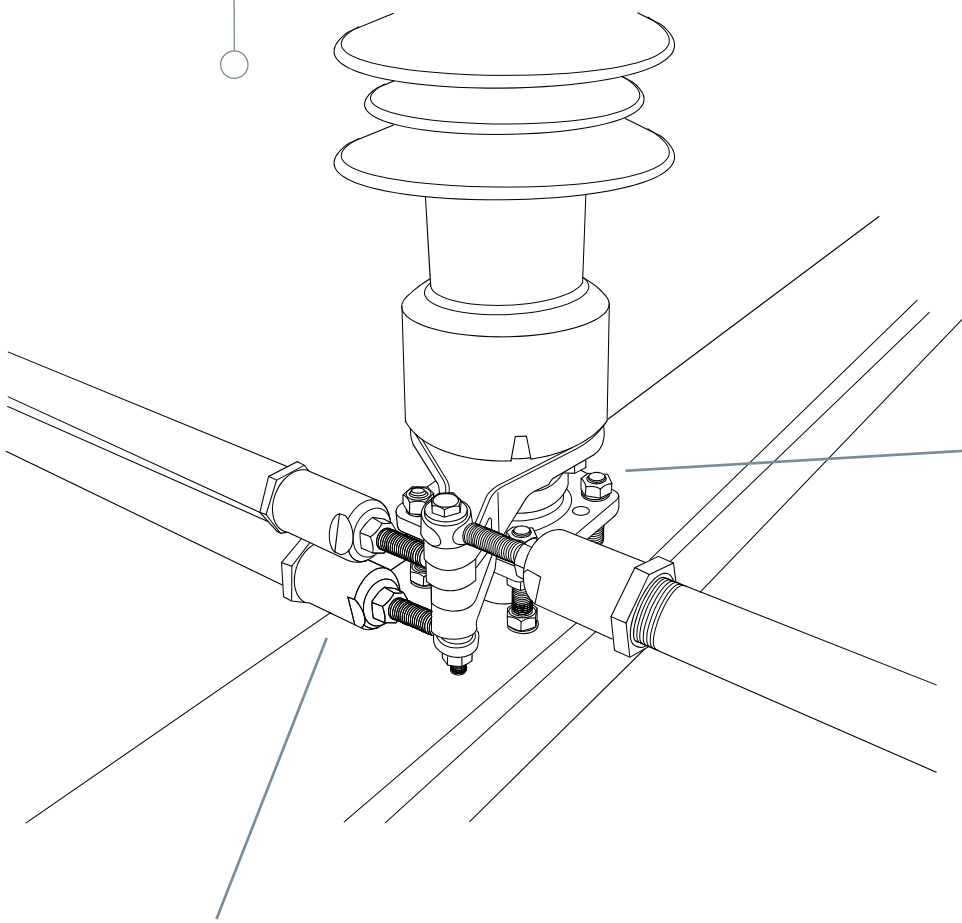
The contact path is extremely robust with fixed contact paths and no pivot or hinge contacts - this leads to fewer potential hot spots.

The design of the tinned and silver plated primary contacts provides low contact wear and high conductivity.

Interchangeable 'moving contacts' are made from HDHC extruded copper section. Moving contacts are designed for high density current and multi point contact. This also produces a wipe clean action when the switch is opened and closed.

The female contact is of the reverse loop design, and can withstand up to 40kA for 3 seconds under fault conditions.

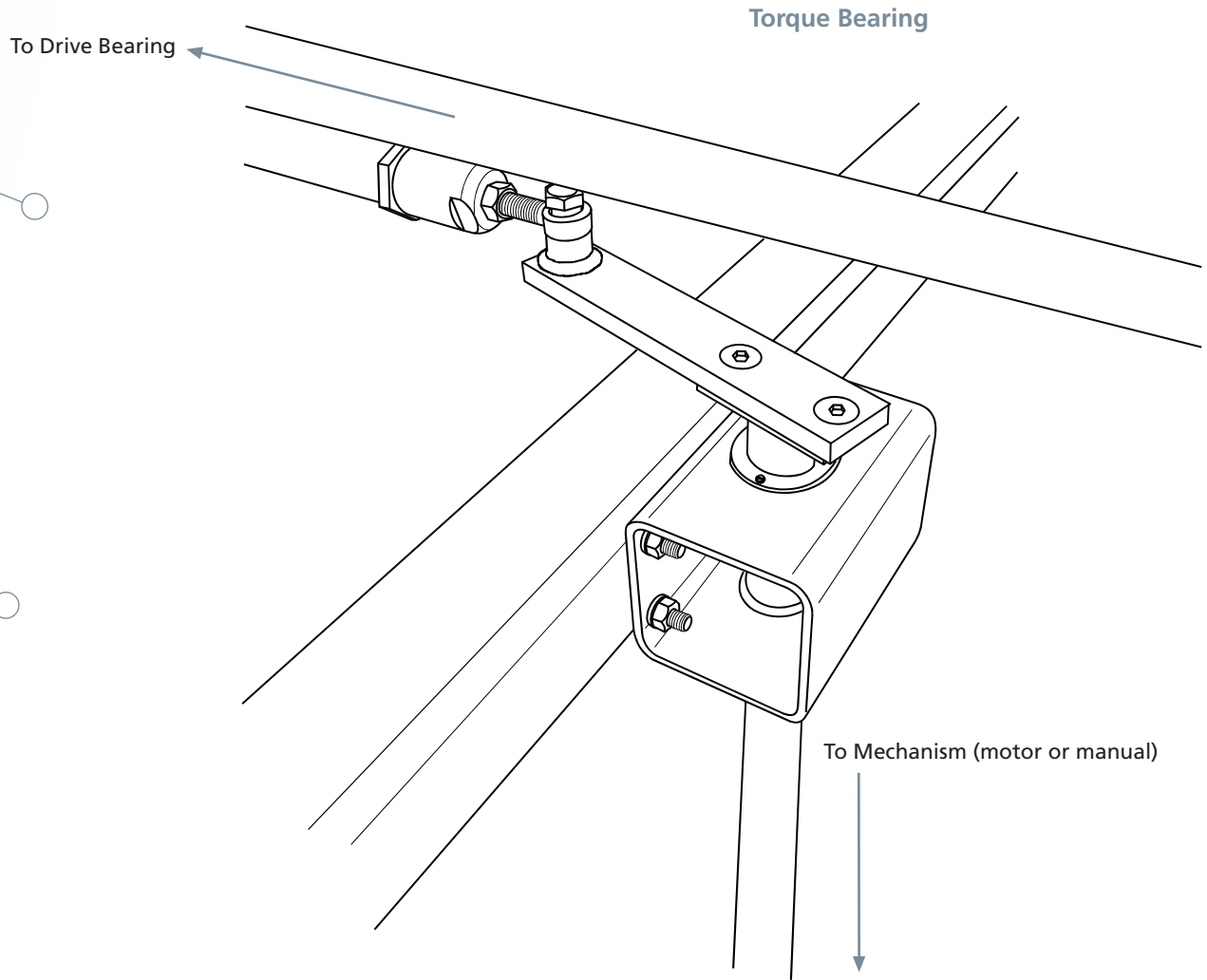
### Drive Bearing



The rotating post main bearing assembly incorporates well spaced double taper roller bearings which are pre-loaded to compensate for heavy high voltage insulators. The housing is packed with grease on assembly and sealed for life.

Installation and switch set-up is simplified by use of jacking screws on the insulators to ensure the correct vertical alignment.

Adjustable drive rods and phase coupling using left and right-hand threads allow for wide tolerance on dimensions of the mounting structure. This also facilitates alignment for synchronised gang operation of all three phase units.



The simple and sturdy design of the galvanised steel torque bearing facilitates the transfer of drive from the mechanism (vertical drive) to the drive bearing (horizontal drive). The bearing is a low friction design, requiring virtually no maintenance and is highly resistive to corrosion. The design provides for high operating forces and distributes force evenly.



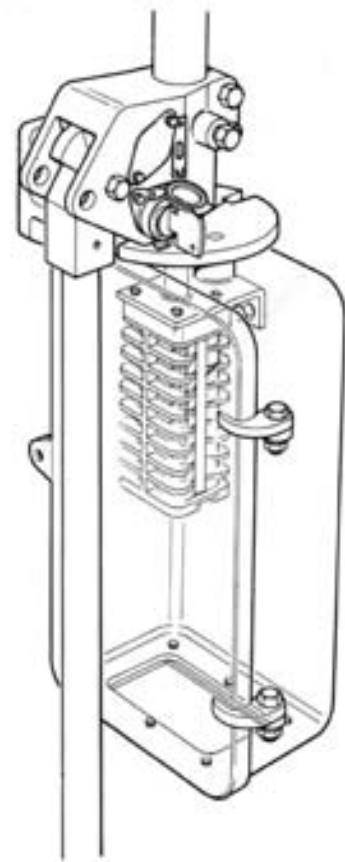
## Manual Torque Operating Mechanism

### Torque Mechanism

The torque operating mechanism is designed for manual gang operation of all rotating post isolators. The operating handle is of the 'lift up-walk round' type, with a 180° angle of operation.

The vertical rod position is fully adjustable by the clamping screw feature on mechanism output coupling. Padlock facilities for both fully open and fully closed positions are incorporated and up to six key interlocks can be fitted to allow any sequence of interlocked operation. The key interlocks can be easily retrofitted at any stage if required.

In addition an integral mounted auxiliary switch assembly is available with 16 normally open/normally closed circuits arranged as required. The IP 54 rated enclosure is padlockable and supplied with a blank gland plate.



## Rapier DSB-RC

By combining our experience in air break technology and system automation, we can now provide our customers with a remote controlled air break switch disconnecter.

**The Rapier DSB-RC is a fully integrated product, comprising key features such as:**

- The disconnecter can be operated either locally or remotely
- Power supply unit 85-264 Volts AC or 120-370 Volts DC
- Up to 15 NO and 15 NC auxiliary switches
- The IP 54 rated motor mechanism case incorporates a galvanised steel mounting frame for rigidity
- Safety electrical and mechanical interlocks to prevent incorrect operation
- Manual operation facility
- Padlocking facility for maximum safety
- Up to six key interlocks can be fitted
- Motor mechanism has full ENA compliance

Product Designation	Mode	Description
DSB-RC 36, 72.5, 145	Motorised Operation	Motorised DSB disconnecter for local or remote operation.



## Substation Connectors up to 145kV

Lucy Switchgear has in depth knowledge in providing substation connectors up to 145kV and accessories.

Designed for any terminal including circuit breakers, disconnectors, voltage transformers and sealing ends, our connectors are ideal for new build and refurbishment projects.

### Features

- Connections up to 145kV
- Copper connections to ENA TS 41-16
- Aluminium Connections to ENA TS 41-11



Rigid to Palm Connector for Copper Busbar

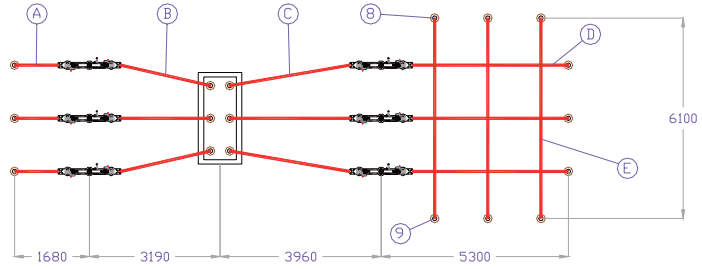


Expansion to Palm Connector for Busbar

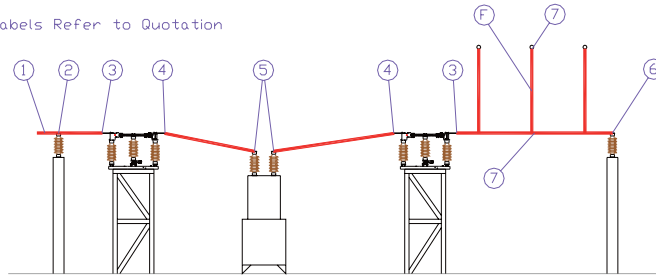


Tee Connector to Palm for Copper Busbar

**Diagram showing connector designs for substation layouts**



Labels Refer to Quotation



**Design**

We offer a complete design package that identifies the right connectors, busbars and insulators for your specific requirements. We specialise in providing bespoke solutions for individual requirements.

The design solution includes the provision of connector designs from substation layouts.

Once the layout of the substation has been determined, we will do the work for you in terms of deciding on the location and component requirements. See example above.

**Benefits**

- Comprehensive solution for substation requirements
- In-house design expertise for quick, accurate service delivery
- Efficient end-to-end service

**Accessories**

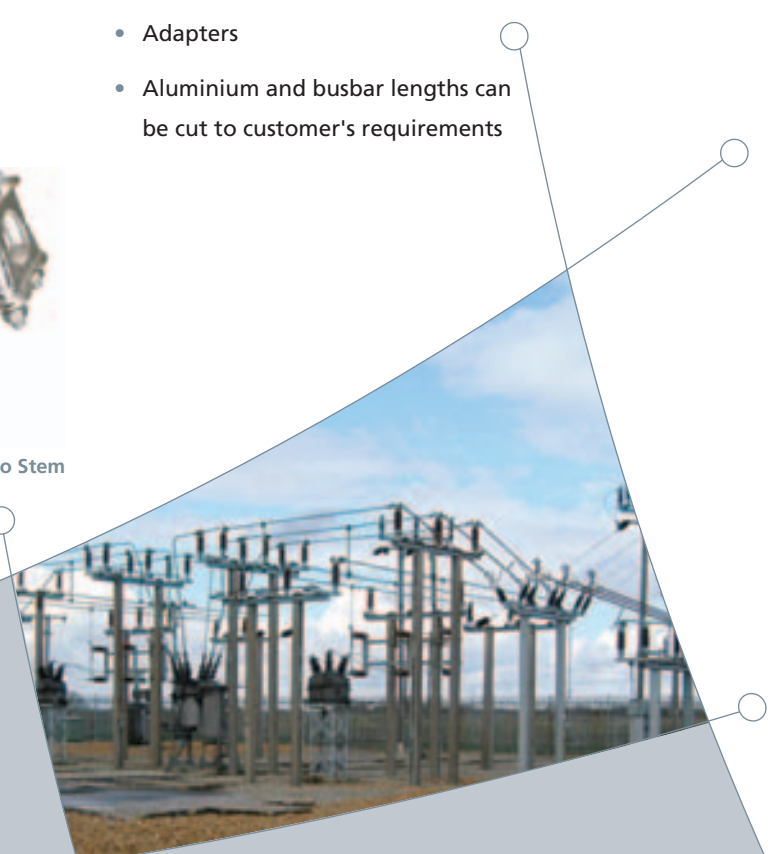
- Aluminium and Copper Busbars
- Busbar End Caps
- Adapters
- Aluminium and busbar lengths can be cut to customer's requirements



Universal Expansion Connector for Aluminium Busbar



Expansion Connector to Stem



## RAPIER DSB Electrical Performance

Product Range	Rapier DSB		
Rated Voltage	36kV	72.5kV	145kV
Rated Current (A)	800 to 2000	800 to 2000	800 to 2500
Rated STC (kA/s)	Up to 40/3	Up to 40/3	Up to 40/3
Lightning Impulse - to Earth (kV pk)	250	325	650
Lightning Impulse - across Isolating Distance (kV pk)	287	375	750
Power Frequency Withstand - to Earth (kV pk)	150	210	275
Power Frequency Withstand - across Isolating Distance (kV pk)	172	245	315
Breaking Capacity - Transformer Off Load (A)	2	2	2
Breaking Capacity - Line Charging (A)	2	2	2
Options			
EB Earth Blades	•	•	•
LBH Load Break Heads	•		
BTD Bus Transfer Duty			•
Environmental			
Ambient Temperature	-20°C + 50°C		
Humidity	0 – 100%		
Altitude	Up to 1000mm		
Standards			
	IEC 60129		
	ENA and NGC approved		
	IEC 1129 Class A Earth Blades for 145kV only		
	IEC 1128 Bus Transfer Duty Contacts		

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## A global network

In association with industrial partners and contractors, Lucy Switchgear has established a global network operating in over 50 countries. Currently its 50 agents, joint venture associates and trading partners represent Lucy Switchgear products all over the world from Europe, the Middle East, the Far East, Africa, Australasia, Central America, the Caribbean to South America thus strengthening the Lucy presence globally.

With headquarters in Oxfordshire, UK, and a main regional office in Dubai, servicing the Middle East, the Lucy group is constantly looking to develop further partnerships.