MEDIUM VOLTAGE SWITCHGEAR
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Easun Reyrolle is a leader in the field of electrical power management and has more than 30 years of domain expertise in providing a wide spectrum of innovative ‘Power Management Solutions’ to customers across the globe. It is the parent company of the ERL group, which consists of ERL International Pte. Ltd., Singapore, ERL Marketing International FZE, Sharjah, ERL Phase Power Technologies Ltd., Canada, ERL Switchcraft Europe GmbH, Germany and ERL Electrical Distribution Solutions Pty Ltd., Australia.

ERL Medium Voltage Switchgear offers switchgear up to 40.5kV. The products include VCBs (Vacuum Circuit Breakers) up to 36kV, the iCBs (Vacuum Circuit Breakers) up to 40kA, cycloalipathic CTs and PTs and Ring Main Units up to 24kV that use ‘Embedded Pole Technology’.

Indoor/Outdoor Metal Clad Vacuum Switchgear

The product range includes the following:
TRUMP 1: Indoor Metal Clad Vacuum Switchgear (3.3kV/6.6kV/11kV)
TRUMP 1: Outdoor Metal Clad Vacuum Switchgear Kiosk (3.3kV/6.6kV/11kV)

Application

Control & Protection of Overhead lines, Under Ground Cables, Transformers, Motors and Capacitor Banks

Features

- Floor mounting, free standing & simple installation type
- Extensible on both sides
- Fully enclosed design suitable for IP4X and IP5X
- Compact design and minimal maintenance
- Integral earth switch (optional)
- Fully compartmentalized design (separate chambers for breaker, bus bar, cable & CT and instruments & relays)
- With drawable truck assembly
- Horizontal draw out & horizontal isolation design
- Easy interchangeability of breakers of same rating
- Automatic metallic independent safety shutters ensure safety for operating personnel
- Suitable for auto-reclosing duty
- Designed & type tested conforming to IS 13118 & IEC 62271-100 standards

![Diagram of Indoor/Outdoor Metal Clad Vacuum Switchgear](image)
Various Interlocks
Not possible to engage or withdraw truck unless it is in open position
VCB can be operated only in Service or Test or Isolation position. Not possible to operate VCB in intermediate position
Truck can be inserted only when control plug & socket are in position

Rated Voltage: 3.3kV / 6.6kV / 11kV
Rated Current: 400A, 630A, 800A, 1250A & 1600A
Short time current for 3 sec: up to 26.3kA at 12kV
Impulse withstand voltage: 75kVp or 95kVp (for Indoor type)
Duty Cycle: O-0.3sec – CO-3min-CO

Outdoor Porcelain Clad Vacuum Switchgear
The product range includes the following:
SPARK 1: Outdoor Porcelain Clad Vacuum Switchgear (3.3kV/6.6kV/11kV)
SPARK 3: Outdoor Porcelain Clad Vacuum Switchgear (22kV/33kV)

Application
Control & Protection of Over Head Lines, Transformers, Motors and Capacitor Banks

Features
- Suitable for installation in open hot & humid atmosphere
- Complete breaker with CT & PT are mounted on galvanized steel structures
- All the three poles are mechanically coupled to a common transmission assembly
- Hermetically sealed pole assembly to protect from moisture accumulation and free from oxidation & corrosion of elements
- All three poles are interchangeable
- Fully enclosed design suitable for IP55
- Sufficient clearance provided between poles & phases
- Minimal maintenance due to optimized design
- Suitable for Auto-Reclosing duty
- Complete package i.e VCB, Control & Relay Panel, CT & PT as ready to use equipment
- Designed & type tested conforming to IS 13118 & IEC 62271-100 standards

Technical Specification for Indoor/Outdoor Metal Clad Switchgear - Type TRUMP1
- Rated Voltage: 3.3kV / 6.6kV / 11kV
- Rated Current: 400A, 630A, 800A, 1250A & 1600A
- Short time current for 3 sec: up to 26.3kA at 12kV
- Impulse withstand voltage: 75kVp or 95kVp (for Indoor type)
- Duty Cycle: 0-0.3sec – CO-3min-CO
**Technical Specification for Outdoor Porcelain Clad VCBs, Type SPARK**

- **Rated Voltage**: 3.3kV / 6.6kV / 11kV (SPARK1)
- **Rated Voltage**: 22kV / 33kV (SPARK3)
- **Rated Current**: 400A, 630A, 800A, 1250A & 1600A
- **Short time current for 3 sec**: up to 26.3kA at 12kV
- **Impulse withstand voltage**: 75kVp (SPARK1), 170kVp (SPARK3)
- **Duty Cycle**: 0-0.3sec – CO-3min-CO

**Technical Data For Gas Filled Ring Main Units**

<table>
<thead>
<tr>
<th>General Data</th>
<th>3.6</th>
<th>7.2</th>
<th>12</th>
<th>17.5</th>
<th>24</th>
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<tbody>
<tr>
<td>Rated Voltage (kV)</td>
<td></td>
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<tr>
<td>Rated impulse withstand voltage</td>
<td>75/85</td>
<td>75/85</td>
<td>75/85</td>
<td>95/110</td>
<td>125/145</td>
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<td>Rated power frequency withstand</td>
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<td>Rated frequency (Hz)</td>
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<td>Rated current (A)</td>
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<td>Rated short circuit withstand, 1s</td>
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<td>Rated short circuit withstand, 3s</td>
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<tr>
<td>Rated peak withstand current</td>
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<td>Internal arc qualification</td>
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<td>Protection degrees gas tank/Switchgear</td>
<td>IP</td>
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<tr>
<td>Dimensions (B X D X H)</td>
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<tr>
<td>K, V, P, PC, PD, C, T, B</td>
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<td>800 X 800 X 1378</td>
<td>700 X 800 X 1378</td>
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<tr>
<td>M</td>
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<td>BVD (mm)</td>
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| Circuit Breaker Data             |       |       |     |     |     |
| Rated short circuit switch-off current | kA  | 20   | 20  | 20  | 16  |
| Rated short circuit switch-on current | kA  | 50   | 50  | 40  | 40  |
| Mechanical endurance class        | M2   |      |     |     |     |
| Electrical endurance class        | E2   |      |     |     |     |
| Circuit breaker class             | C2, S2 |      |     |     |     |
| Load break switch                 |       |       |     |     |     |
| Rated short circuit switch-off current | A  | 630  |     |     |     |
| Rated short circuit switch-on current | kA  | 63  |     |     |     |
| Mechanical endurance class        | M2   |      |     |     |     |
| Electrical endurance class (Earthing switch) | E2 |      |     |     |     |
| Electrical endurance class (Load break switch) | E3 |      |     |     |     |

**RING MAIN UNIT (iGIS – SF6 Gas Insulated Switchgear)**

**Description:**

The iGIS Ring Main Unit (RMU) demonstrates a highly innovative and modern design that complements the latest production technology from Germany. iGIS guarantees highest accuracies and realizes almost 100% gas tightness. Manufactured with the latest filling and testing techniques, iGIS undoubtedly has a superior performance in the market of SF6 gas insulated ring main units.

iGIS is a state of the art medium voltage switchgear that not only guarantees high operational safety, but also has a reliable indication of switching positions. The panels are type tested as per IEC standard 62271-200.

**Application**

- MV network up to 24 kV
- Power stations and industries

**Features**

- Modular Technology
- Indoor and Outdoor versions
- Top & bottom cable entry
- Innovative Design, Safe & Reliable operation
- Designed for Intelligent Networks
- Compact and Easy to use
- Manual & Remote Control
- Maintenance Free
- Environment Friendly
- Assured gas tightness across product life
- Fully Extensible
Major Technical Highlights of RMU:

The RMU’s tested at Short circuit current of 21.5kA-3s & 25kA-1s, to have better strength against short circuit forces. Microprocessor based LASER welding is used for stainless steel gas tank, which is superior to Robotic/Manual TIG welding.

This ensures complete leak-tight gas tank for the entire product life of 20 years, ensuring a leakage rate of 0.02% per Annam only & being lowest in the market.

A state of the art Design, which ensures Insulation agility worth a partial discharge value less than 4 pf.

International standards for gas filled RMU

- **IEC 60376**: Specification of technical grade sulfur hexafluoride (SF6) for use in electrical equipment.
- **IEC 62271-102**: High-Voltage switchgear - Alternating current disconnectors and earthing switches.
- **IEC 62271-200**: High-Voltage switchgear - AC metal-enclosed switchgear for rated voltages above 1kV and up to and including 52kV
- **IEC 60265-1**: High-voltage switches - Switches for rated voltages above 1kV and less than 52kV
- **IEC 62271-105**: High-voltage switchgear - Alternating current switch-fuse combustions
- **IEC 60694**: Common specifications for high-voltage switchgear standards
- **IEC 60282-1**: High-voltage fuses - Current-limiting fuses
- **IEC 60056**: General requirement for circuit breakers for voltages above 1000V

Vacuum Circuit Breaker with Embedded Poles (iCB)

**Description:**

The iCB series comprises embedded pole type vacuum circuit breakers for medium voltage and indoor use. They are suitable for three phase AC operations for 12kV, 17.5kV and 24kV are used for the protection of the electrical equipment in various industries, mining, and especially for medium voltage distribution sub stations, together with suitable air-insulated cubicles.

The iCB used German Technology and is available in complete series for medium voltage and for all commonly used rated currents, from 630A to 4000A, and for rated breaking current up to 40kA.

**Application**

- Suitable for 3-phase AC operations for 12kV, 17.5kV and 24kV
- Medium voltage distribution sub stations

**Features**

- Embedded pole technology protects the circuit breaker from shock and mechanical stress, pollution and condensation
- The epoxy resin embedding creates a full insulation for the internal electrical circuits
- Lifetime of over 30,000 mechanical operations
- Functions as a recloser
The policy of Easun Reyrolle is continuous improvement and development. The company therefore reserves the right to supply equipment which may differ slightly from that described and illustrated in this publication.