



Jyoti Ltd.
Water • Power • Progress

'JYOTI'
36 kV Indoor Vacuum Circuit Breaker
and Metal Clad Switchboards



Successfully type tested as per
IEC 62271-100 and IEC 62271-200 standards
at PEHLA Germany



'Jyoti' Medium Voltage Indoor Switchgear Successfully type tested as per IEC 62271-100 and IEC 62271-200 Standards at PEHLA Laboratory, Germany.



Jyoti developed first indigenous 33 kV, 750 MVA Minimum Oil Circuit Breaker in 1973. This breaker was type-tested at High Power Laboratory ZSE in Czechoslovakia. Jyoti was presented with an Import Substitution Award by the Government of India for this development.

In 1981, Jyoti developed Indoor-type MOCB of 12 kV, 40 kA rating which was type-tested at KEMA, Netherland in addition to tests at CPRI, Bhopal. Jyoti was again conferred with an Import substitution Award by the Government of India.

Continuing this tradition of quality consciousness, 'Jyoti' range of Vacuum Circuit Breakers (25 kA to 40 kA) has been successfully type-tested at PEHLA Laboratory, Ratingen, Germany.

All MV Switchgear Products have to be successfully type-tested as per latest Switchgear Standards like IEC 62271-100 and IEC 62271-200.

Currently, we are exporting our products to OMAN, Behrain and other countries where type-test certificates from internationally accredited agencies only are accepted. Hence, we have tested all our Medium Voltage Indoor Switchgear panels at PEHLA Testing Laboratory at Ratingen, Geramay.

PEHLA (**Prüfung Elektrischer Hoch-Leistungs-Apparate i.e** Examination of Electrical High Power Equipment) is an internationally accredited testing agency for Certification of Medium Voltage Switchgear.

We sent our entire range 12kV 25kA and 40kA products for type testing as per latest Standards IEC 62271-100 and IEC 62271-200. All the products passed the tests in the first test-run itself.

This is reassurance of quality of Jyoti Medium Voltage Switchgear which are serving the market for more than 40 years.

With this type-testing, 'Jyoti' Medium Voltage Switchgear becomes globally acceptable.

Jyoti "VY" Vacuum Circuit Breaker & "VD" type Vacuum Circuit Breaker Panel for 36 kV range are manufactured as per Design of Toshiba Corporation Japan



RANGE

- Rated Voltage : 36 kV
- Normal Current carrying Capacity : Upto 1250 A/1500A
- Short Circuit Current : Upto 25 kA

SALIENT FEATURS

- Completely assembled in-house
- Conforms to IEC : 62271-100 & 200
- Fully type-tested as per relevant standards.
- All H.T. Compartments tested for internal power arc test as per relevant standards to ensure maximum safety.

CONSTRUCTION

A unique epoxy resin cast barrier for each phase facilitates mounting of the Vacuum Interrupter, and all the live parts inside the barrier give total encapsulation and maximum safety. This ensures that no live part of Vacuum Circuit Breaker is exposed.

The metal clad panel is fully extensible and fully compartmentalized into :

- Circuit Breaker Compartment
- Busbar Compartment
- CT & Cable Compartment

A separate LT compartment is provided on the top of the panel on the front side for fixing the necessary instrumentation, metering and protective equipment.

BREAKER COMPARTMENT

- Vacuum Circuit Breaker is mounted on draw-out truck. The breaker truck is equipped with ON/OFF indicator, spring charged / discharged



indicator operation counter, mechanical ON/OFF push buttons and inbuilt spring charging handle.

- The Vacuum Circuit Breaker has two positions, viz. 'Test' and 'Service'. It is possible to close the panel door when breaker is in 'Test' position.
- Specially designed epoxy moulded contacts provide effective segregation between phases and phase to earth.
- Separate automatic shutters for cable and busbar and provided to cover the live parts when Vacuum Circuit Breaker is not in 'Service' position.
- The padlock are provided on shutter to lock it in either condition.
- A screw-type racking arrangement is provided for easy insertion and withdrawal of the Vacuum Circuit Breaker and proper alignment of Vacuum Circuit Breaker and Panel.

BUSBAR COMPARTMENT

- In houses epoxy molded busbar of tubular cross section designed to withstand short circuit current upto 25 kA for 3 seconds and continuous current upto 1600 Amp.
- Flexible insulating shrouds cover the busbar and jumber joints ensuring that no live parts are exposed in busbar compartment.

CT & CABLE COMPARTMENT

- This is at the rear bottom of the panel. In the standard panel, 3 Nos. Current Transformers of Double or Triple Core can be mounted and 3 Nos. 3 Core or 6 Nos. Single Core cables can be terminated.
- Additional sets of cables or current transformers can be housed within modular rear extension.
- Draw-out fix type voltage transformer truck can be provided in cable compartment with modular rear extension.

LT CHAMBER

- LT Chamber of suitable height can be provided on top of the breaker chamber on the front side to house the protective relay, meters and remote control equipments.
- It is fully segregated from all H. T. Compartments.
- LT chamber has a hinged door which facilitates easy access to connection for testing.

CABLE & BUSBAR EARTHING

- A separate cable & busbar earth trolley with audio, visual alarm can be supplied.

INTERLOCKS & SAFETY DEVICES

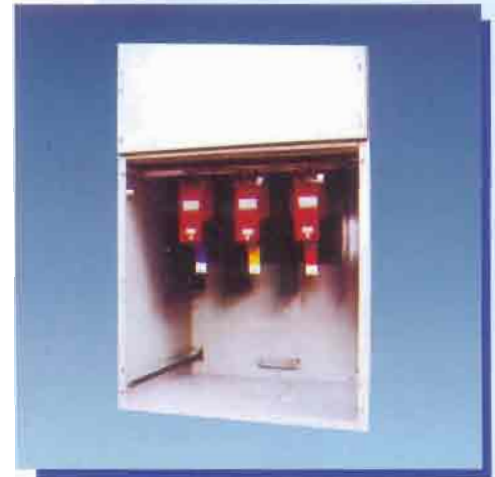
The following interlocks are provided :

- The Vacuum Circuit Breaker cannot be moved from the either 'Test' to 'Service' position or vice versa, when the Circuit Breaker is 'ON'.
- The Circuit Breaker cannot be switched 'ON', when the truck is in any position between 'Test' and 'Service'.
- The multi-pin plug can not be disconnected in any position except 'Test' position.
- The truck cannot be moved inside the panel, when the multi-pin plug and socket are disconnected.

SAFETY DEVICES

To ensure safety of operating personnel, following safety devices are provided :

- Individual pressure discharge flaps are provided for breaker, cable and busbar compartment on the top of the panel to let out the gases under pressure generated during unlikely event of the fault inside the panel.
- Circuit Breaker and Sheet metal enclosure are fully earthed.
- Individually operated automatic shutters are provided which protect live parts when the Vacuum Circuit Breaker is in 'Test' position.



SPECIFICATIONS

Vacuum Circuit Breaker (36 kV - Indoor)

Type	VY	
	30 M 25	30 P 25
Operating Method	Manual / Motor Spring	
Rated Voltage (kV)	36	36
Interrupting Current (kA)	25	
Rated Normal Current (A)	1250	1600
Rated Frequency (Hz)	50	
Making Current (kAp)	63	
Short Time Current (kA) Rating for 3 Sec.	25	
Max. Interrupting Time (Cycles)	3.5	
Max. Opening Time (Cycles)	2.5	
Max. Closing Time (Cycles)	2.5	
Insulation Level		
Impulse kVp	170	
Power Frequency withstand (kVrms / 1 Min)	70	
Normal operating duty	0-3' - CO - 3' CO	
Rapid Reclosing duty	0-0.3Sec. - CO-3'-CO	
Closing Coil Voltage (DC)	24/30/48/110/220	
Wattage (W) (Approx.)	450	
Trip Coil Voltage (DC)	24/30/48/110/220	
Wattage (W) (Approx.)	300	
Charging Motor Voltage (DC)	48/110/220	
Wattage (W) (Approx.)	350	
Weight (kg) (Approx.)	350	400

Cubicle

Type	VD
Rated Voltage (kV)	36
Rated Circuit Breaker Current (A)	630 to 1600 A
Rated Busbar Current (A)	Upto 1600 A
Rated Short time Current (3 Sec.) (kA)	Upto 25
Rated Dynamic Current (kAp)	Upto 63
Rated Insulation Level	
Impulse (kVp)	170
Power frequency Withstand voltage (kVrms/1 Min.)	70
Dimensions (mm)	
	Width 1200
	Depth 2200*
	Height
	A) Basic Cubicle 2000
	B) With Instrument Box 2565/2315/2815
Weight Including VCB (kg) (Approx.)	2000
Floor loading including Line Load (kg/Sq.m.)	1200

* Increased depth available for accommodating additional set of cables & CTs.

Accessories

Sr.	Item	Application	Remarks
1	Driving Handle	For drawing out/Inserting Circuit Breaker	
2	Rectifier Unit	Used when employing AC power source for the operating circuit. The rectifier converts AC to DC for the spring charging motor.	Input 110/220 V AC Output 6A 110/220 V DC
3	Power Pack Unit	Used when employing an AC power source for tripping	Input 110V/240V AC Output 110V DC 20 Wattseconds.
4	Earthing Truck	For effective earthing of either cable side or busbar side. Separate earthing truck, of the same dimension as vacuum Circuit Breaker is supplied as an option.	Fast closing and opening. Voltage indicating device and alarm annunciation system optional.



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VADODARA (INDIA)

FOR FURTHER ENQUIRIES
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