

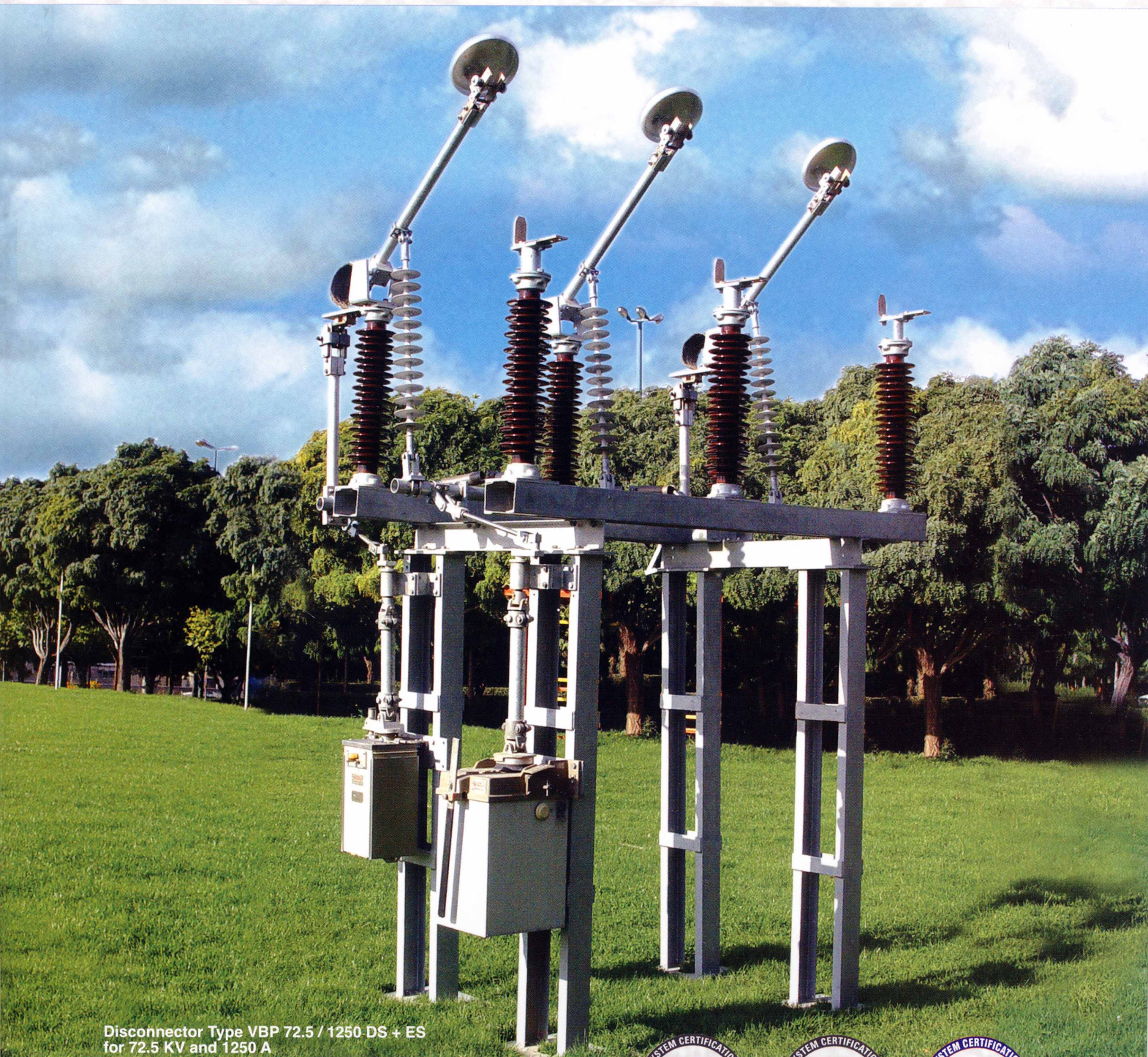


PARS SWITCH

VBP

Vertical Break Disconnectors
for outdoor installation

Rated voltages : 24 & 36 & 72.5 KV Rated currents: 630-1250 A Rated short time currents : 25-31.5 KA



Disconnector Type VBP 72.5 / 1250 DS + ES
for 72.5 KV and 1250 A

Pars switch Co. Manufacturer of Medium & High
Voltage Circuit Breakers and Disconnectors



With regards to satisfy the customers requirements for low width disconnectors, the vertical break disconnectors model VBP are designed by R&D department of pars switch. VBP is produced for 24 KV UP to 72.5 KV, the VBP 72.5 uses BCM-F (motor operated & manual) or BCH-F (manual) op.mechanisms and the VBP 24 & VBP 36 use the simple hand lever op.mechanism. If auxiliary contact is required, BCH-R op.mechanism can be added to the mentioned mechanism.

Each poles of VBP disconnector is comprised of 2 ceramic insulators, one silicon insulator for moving the current carrying parts and terminals, three phases are mounted in a frame (picture 1,2). VBP disconnector can be equipped with Earthing Switch.

The operating mechanism of earthing switch for VBP 72.5 is BCH-F (manual) or BCM-F (motorized) and for VBP 24 & VBP 36 is the simple hand lever or the simple hand lever equipped the with BCH-R mechanism.

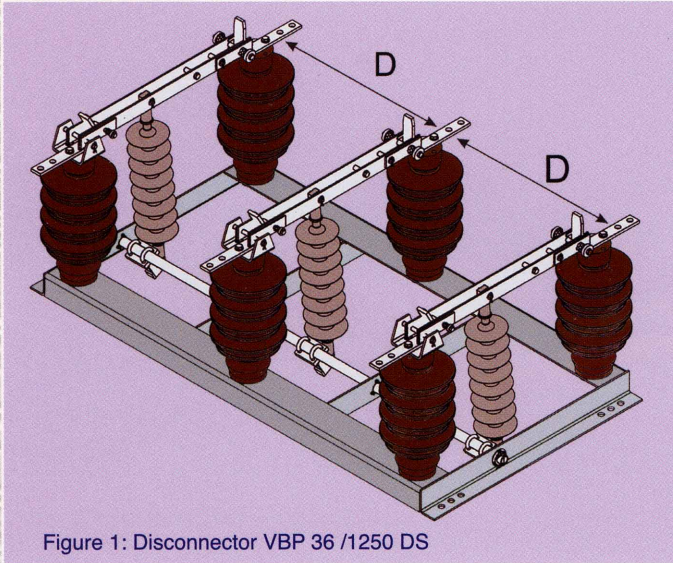


Figure 1: Disconnector VBP 36 / 1250 DS

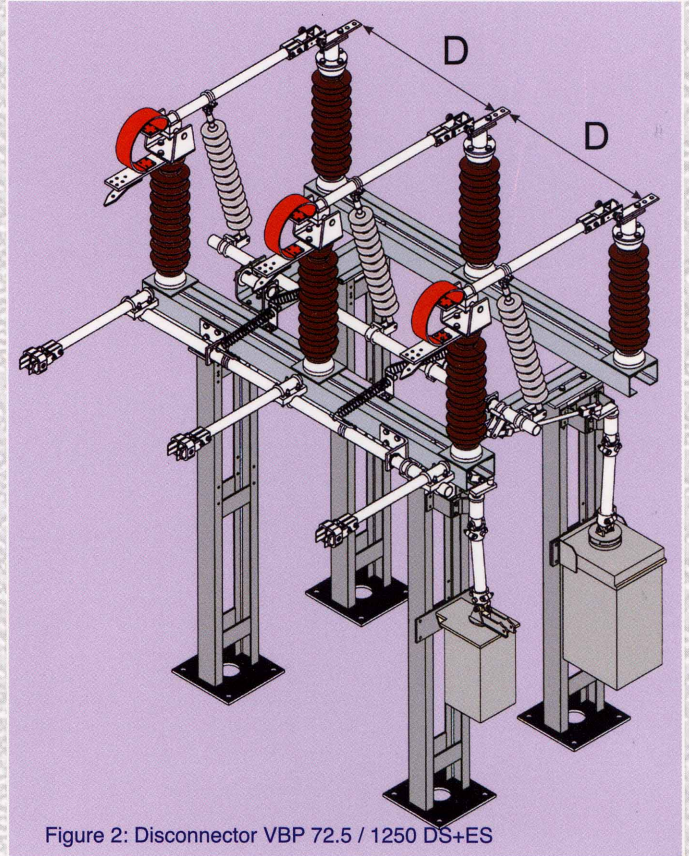


Figure 2: Disconnector VBP 72.5 / 1250 DS+ES

Main advantages of VBP disconnectors:

The VBP disconnectors designation is according to IEC 62271-102 and provides the following advantages:

- 1- Simple erection because of the simple construction
- 2- Low force for operation.
- 3- Self cleaning contacts.
- 4- Ability to install in the vertical parallel and horizontal parallel erection.
- 5- Hot dip galvanized for all steel parts.
- 6- Low width and suitable for compact and mobile substations.
- 7- Ability for installation in high altitude levels with accessibility of op.mechanism in floor level for VBP 24 & VBP 36 .
- 8- Using silicon rubber for the insulating rods.

Breaking capacity of VBP:

The small breaking currents of VBP disconnectors are:

- Capacitor or no load cable 1 A
- No load line 2 A
- No load transformer 3 A
- Load current 5 A

VBP Disconnectors characteristics

Type	Rated voltage (KV)	Rated Normal current (A)	At the shortest permissible phase distance ("D"Figure 1,2)		Permissible tensile Force at each terminal (N)
			Peak current (KA)	Short time current KA(Sec)	
VBP 24	24	1250	63	25 (3)	1000
VBP 36	36	1250	63	25 (3)	1000
VBP72.5	72.5	1250	79	31.5 (3)	1000

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Contacts, terminals and current carrying parts of VBP disconnectors:

The current carrying parts of VBP 72.5 are manufactured from aluminium pipes and the contacts are silver plated copper. The connection between the terminal and the moving current carrying parts is silver plated flexible copper bar.

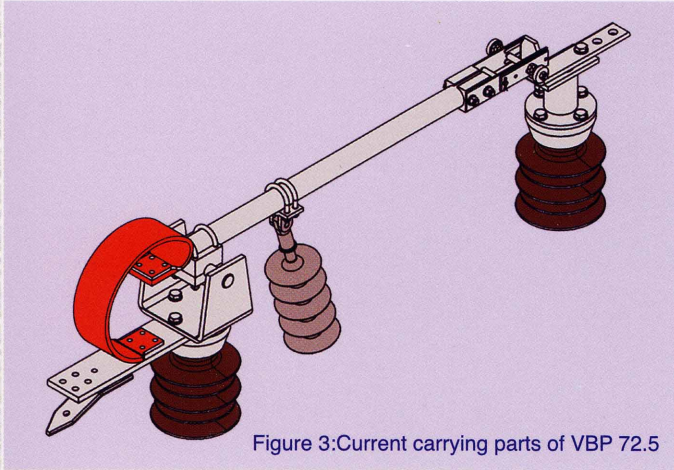


Figure 3: Current carrying parts of VBP 72.5

The current carrying parts and terminals of VBP 24 & VBP 36 are manufactured from silver plated copper bars and the connection between the moving current carrying parts and the terminal is spring loaded copper contacts. (sliding contacts)

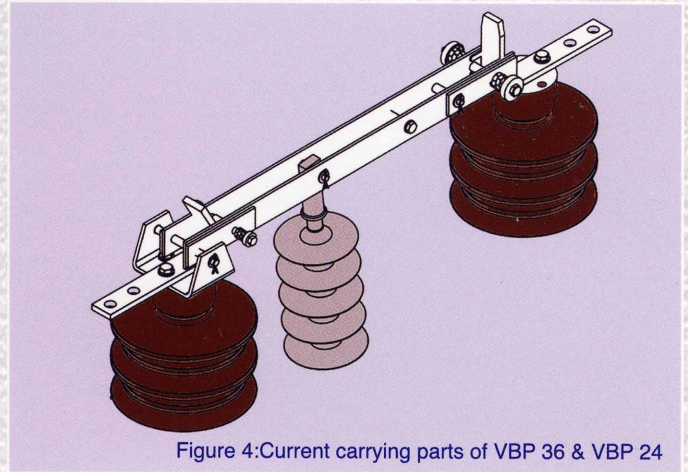


Figure 4: Current carrying parts of VBP 36 & VBP 24

Creepage distance and insulating withstand of VBP disconnectors

Type	Rated voltage	Minimum permissible phase to phase distance	Impulse test voltage 1.2/50 μ s		Power frequency withstand voltage		Creepage distance	
			To earth and between poles	across open pole	To earth and between poles	across open pole	Insulators with	
			KV (peak)	KV (peak)	KV rms	KV rms	Normal creepage (mm)	Long creepage (mm)
VBP 24	24	560	125	145	50	60	600	744
VBP 36	36	560	170	195	70	80	900	1116
VBP 72.5	72.5	840	325	375	140	160	1850	2250

High voltage assembly line of Pars Switch Co.



BCH-F hand op.mechanism:

BCH-F operating mechanism consists of lever,auxiliary contacts,heater,selector switches and terminals which are inside a stainless steel cover.It is used for the disconnector or earthing switch of VBP 72.5.



Figure 5:BCH-F operating mechanism

Simple hand lever:

VBP 24 & VBP 36 is delivered with the simple hand lever without any electrical equipment,the simple hand lever is lockable and easy to operate.



Figure 6:Simple hand lever op. mechanism

BCH-R operating mechanism

BCH-R op.mechanism can be installed on VBP 24 and VBP 36,and with an operating shaft is connected to the simple hand lever.It has normally 3NO+3NC auxiliary contacts and can be delivered with electrical interlock, heater and extra auxiliary contacts.

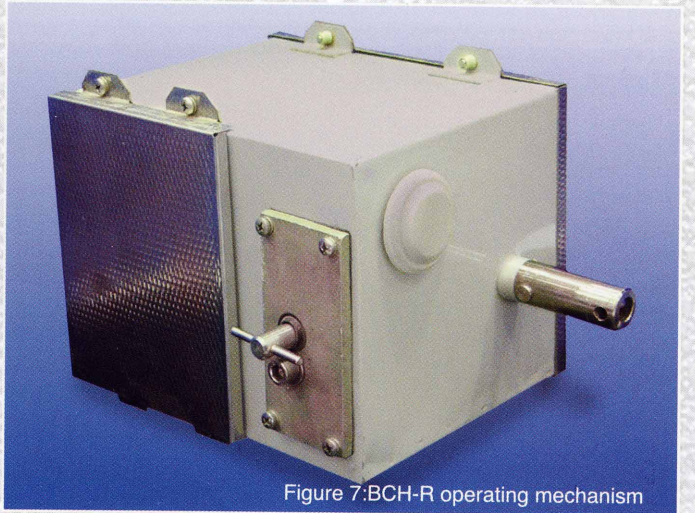


Figure 7:BCH-R operating mechanism

Wiring workshop of BCM-F,BCH-F and BCH-R



BCM-F Operating mechanism

BCM-F is motorized/ manual operating mechanism and can be installed on the disconnect or earthing switch of VBP 72.5. The frame of BCM-F is of aluminium and its cover is aluminium or stainless steel. BCM-F operating mechanism characterized by a special robust, simple, and thereby functionally reliable design and application. BCM-F comprises the following parts (as figures 8 & 9):

- 1- Frame with gear and moment-limiter between the motor and the operating shaft .
- 2- Cable entrance, FL21 .
- 3- Removable, lockable and drained cover .
- 4- Lockable hand-operating lever .
- 5- Vents for percolation .
- 6- Support for the hand-operating lever .
- 7- Earthing clamp .
- 8- Cavity for interlocking-cassette .
- 9- Limit switches (BG1 and BG3) .
- 10- Auxiliary switches (BG2) three types (6+6, 12+12 or 18+18 are available) .
- 11- Direct-on-line motor starter (with thermal overcurrent protection and instantaneous release) .
- 12- Contactors for operation (Q1 and Q3) .
- 13- Under-voltage relay (K1) .
- 14- Heater (constantly connected) (E1) .
- 15- Reversible universal-motor for 110-125V or 220-250V, 50-60 Hz or DC (M) .
- 16- Interlocking contact for disconnecting the motor during hand-operation (S5) .
- 17- Rotary switch for operation (opening-closing) (S1) .
- 18- Rotary switch for re-connection (remote-local-disconnect) (S4) .
- 19- Terminal blocks :
 Motor circuits :
 Through terminal (6mm²) .
 Signal circuits:
 Through terminal (4mm³) .
- 20- Internal cables, PVC-insulated :
 Motor circuits: 2.5 mm²
 Signal circuits: 1.5 mm²

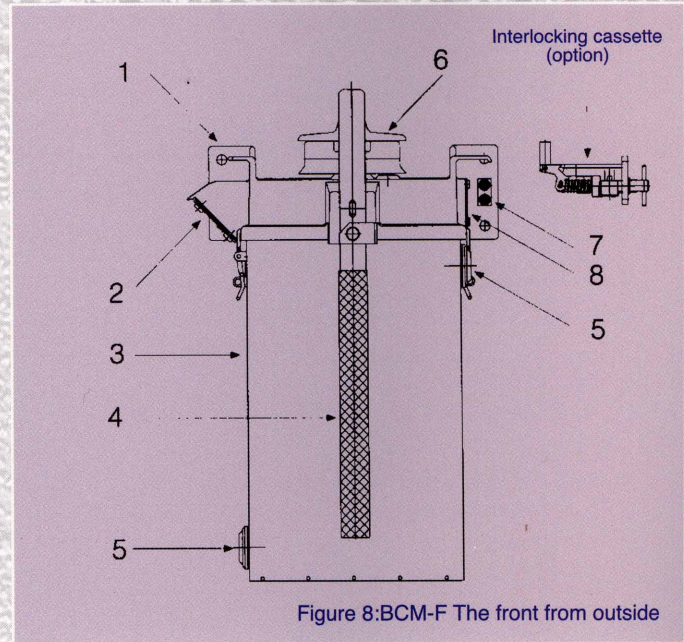


Figure 8: BCM-F The front from outside

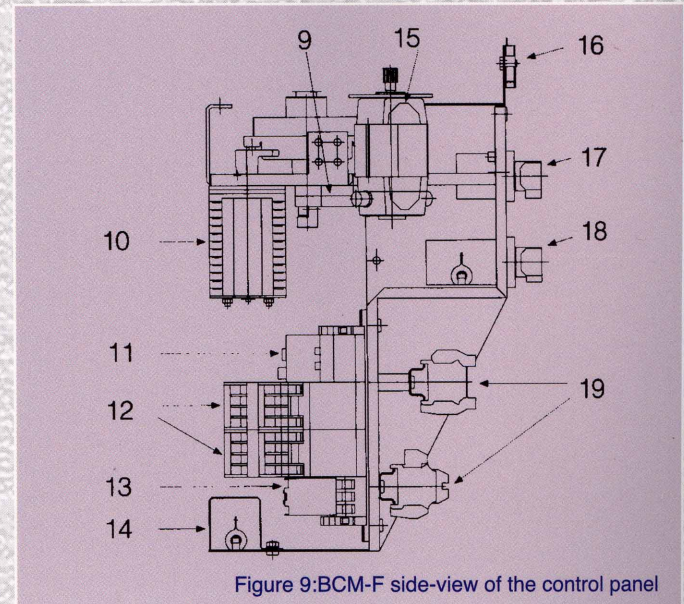


Figure 9: BCM-F side-view of the control panel

Technical data of BCM-F Motor operated mechanism

Rotary movements of the operating shaft		190 degrees
Connecting device for the vertical operating shaft		60 mm (2 ")
Output shaft moment (adjustable)		500-800 Nm
Operating time		3-5 Seconds
Motor current consumption at max.load:	110 V DC	220 V DC
500 Nm	4,7 A	2,6 A
800 Nm	5.8 A	3.0 A
Starting current (depending on the network) approx,	12-16 A	6-10 A
Auxiliary contacts : Breaking current	5 A	2.5 A
Rated load current	25 A	25 A
Operation coil, power consumption	approx.	10 w (opening - closing)
	approx.	2 w (under voltage relay)
	approx.	7 w (interlocking magnet)
Heater power consumption	approx.	50 w



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Optional standard accessories of BCM-F & BCH-F:

- Electrical interlock
- 6NO+6NC or 12NO+12NC auxiliary contacts
- 6EM+6LB or 9EM+9LB auxiliary contacts on request
- other number and types of auxiliary contacts on request
- MCB on motor circuit

Delivery test on VBP :

Prior to delivery, the disconnectors are assembled (without insulators) and the following test according to IEC 62271-102 are made:

- 1- Resistance test
- 2- Voltage test on:
 - a. Auxiliary contacts
 - b. Electrical parts of op.mechanism
- 3- Functional test on:
 - a. Operating mechanism
 - b. Main circuit and moveable mechanical part
 - c. Earthing switches
 - d. Accessories

Packing:

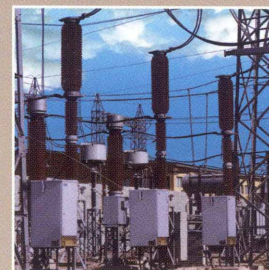
The disconnectors can be delivered in the internal or external packing

PARS SWITCH Co's high voltage products:

- 1- EDF SF6 gas type C.B 72.5 KV, 2500 A, 31.5 KA
- 2- LTB SF6 gas type C.B 145 & 170 & 245 & 420 KV, 3150-4000 A, 40-50 KA
- 3- HPL SF6 gas type C.B 245-420 KV, 2500-4000 A, 40-50 KA
- 4- NSA disconnector switch 36-420 KV, 1250-3150 A
- 5- VBP vertical break disconnector switch 72.5 KV, 1250 A
- 6- Compact Bay 145 KV
- 7- Urban substation 63 KV



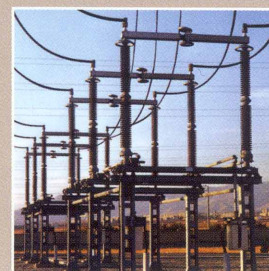
VBP



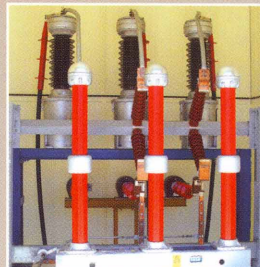
HPL



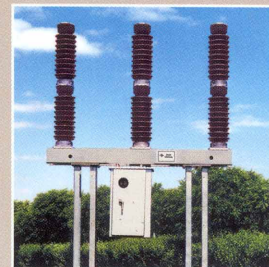
LTB



NSA



Urban substation



EDF

مَبسان

(مهندسی بازرگانی سیستم‌های انتقال نیرو)

تامین و فروش تجهیزات 20Kv (دژنکتور، تابلو، کابل، ترانس) و ...

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