

Manufacturing

There are more than fifty sets of advanced equipment such as rubber injection molding machines, vacuum automatic pressure gelatin formation machines, high-voltage testing equipment and high molecular material testing equipment, setting High-voltage testing lab, high molecular material testing lab, precise measuring room, high voltage shielded laboratory, detection testing lab, etc. All of these can provide a reliable guarantee on product research and quality.



IEEE STANDARD PRODUCTS

IEEE standard products of Wuhan Creat Company include Separable Connectors, Bushing, Surge Arresters and other cable accessory products. These products have been designed on IEEE, ANSI standards, and tested as per applicable portions of GB and other industrial standards, as:

- IEEE 386 Standard For Separable Connectors
- IEEE 592 Standard For Exposed Semiconducting Shields
- ANSI C119.4 Standard For Copper and Aluminum Conductor Connectors
- GB 12706.4 Power cables with extruded insulation and their accessories for rated voltages from 1 kV ($U_m = 1.2$ kV) up to 35 kV ($U_m = 40.5$ kV)
 - Part 4: Test requirements on accessories for cables with rated voltages from 6 kV ($U_m = 7.2$ kV) up to 35 kV ($U_m = 40.5$ kV) (eqv IEC 60502-4:1997)
- Insulated bushing for alternating voltages above 1000V (IEC 60137 Ed.6.0,MOD)
- Metal-oxide surge arresters without gaps for a.c. systems (IEC 60099-4:2006,MOD)

	15kV Class Ratings	25kV Class Ratings	35kV Class Ratings	
	8.3kV line-to-ground	15.2kV line-to-ground	21.1kV line-to-ground	26/35kV line-to-line
BIL Impulse withstand 1.2 x 50 microsecond wave	95kV	125kV	150kV	200kV
AC Five Minute	34kV	40kV	50kV	117kV
DC Fifteen Minute	53kV	78kV	103kV	104kV
CORONA EXTINCTION LEVEL	11kV, $\leq 3pC$	9kV, $\leq 3pC$	26kV, $\leq 3pC$	45kV, $\leq 10pC$
200A Series Products Continuous Current Symmetrical Momentary Current	200 AMP 10kA sym, 10 cycle duration			
600A Series Products Continuous Current Symmetrical Momentary Current	600 AMP 25kA sym, 10 cycle duration			

Data indicate that voltage and current ratings are applied to all Separable Connectors including 200 AMP Loadbreak, 200 AMP Deadbreak and 600 Series Deadbreak products

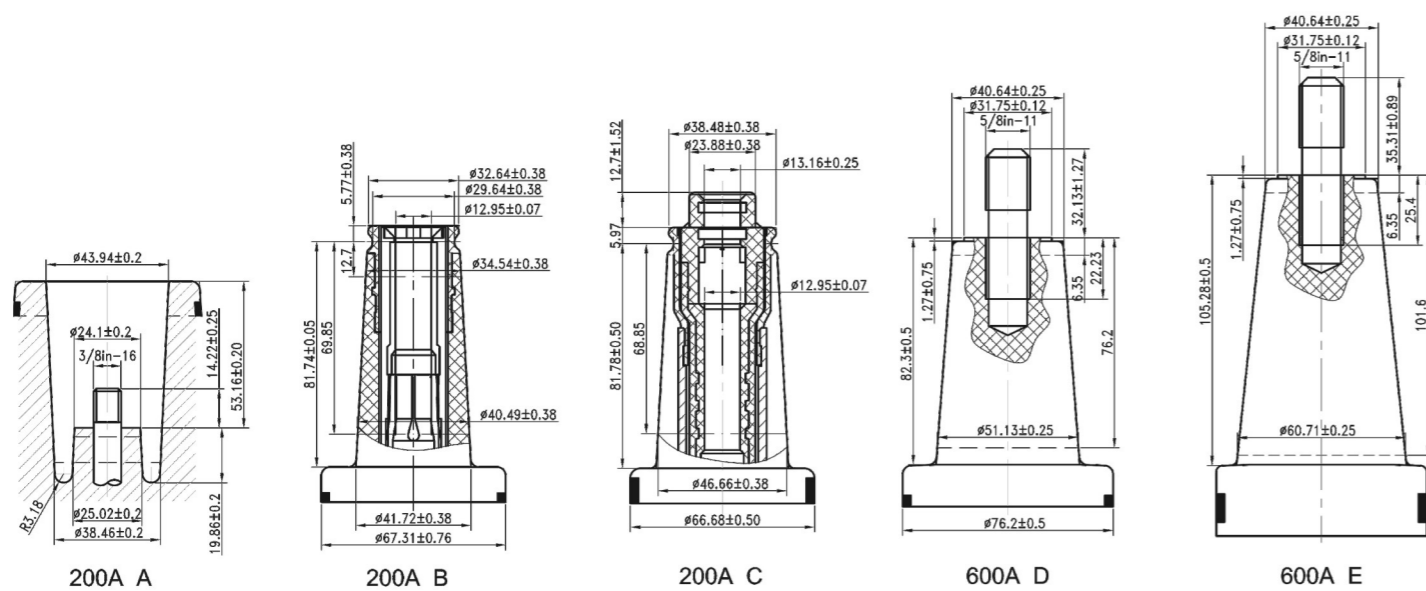
	LOADMAKE/LOADBREAK SWITCHING	FAULT CLOSE
15kV Class Ratings	<ul style="list-style-type: none"> • 1Ø and Ø3 circuits 8.3kV line to ground, 14.4kV max. across open contacts. • 10 loadmake/break operations at 200 Amps max. with 70 to 80% lagging power 	1 fault close operation at 8.3kV or 14.4kV; 10,000 Amps, rms, sym. 10 cycles (0.17 sec.) 1.3 max. asym factor applies
25kV Class Ratings	<ul style="list-style-type: none"> • 1Ø and Ø3 circuits 15.2kV line to ground, 26.3kV max. across open contacts. • 10 loadmake/break operations at 200 Amps max. with 70 to 80% lagging power 	1 fault close operation at 15.2kV or 26.3kV; 10,000 Amps, rms, sym. 10 cycles (0.17 sec.) 1.3

Data indicate that switching and fault close ratings are applied to 200 AMP Loadbreak connectors.

IEEE STANDARD INTERFACES FOR SEPARABLE CONNECTORS, COMPONENTS AND EQUIPMENT BUSHINGS

ANSI/IEEE Standard 386 defines the specific interface dimensions that 200 Amp and 600 Series elbows, inserts, junctions, equipment bushings and any mating components must conform to insure interchangeability. The table below provides information concerning the types of inter-faces supplied by Creat Company for various applications and is useful to assure proper matching of components.

Bushing Interface	Voltage Class	Interface Description	Standard No. Figure No.
200A Bushing Well	15kV,25kV	200A Bushing Well Interface 8.3kVand15.2kV	IEEE 386-2006 A Fig.3
200A Loadbreak Bushing Insert	15kV	200A Loadbreak 8.3kV/14.4kV	IEEE 386-2006 B Fig.5
200A Loadbreak Bushing Insert	25kV	200A Loadbreak Interface 15.2kV/26.3kV	IEEE 386-2006 C Fig.7
600A Series Equipment Bushing	15kV,25kV	600A Deadbreak Interface 8.3kVand15.2kV	IEEE 386-2006 D Fig.11
1250A Series Equipment Bushing	35kV	600A Deadbreak Interface 21.1kV	IEEE 386-2006 E Fig.13

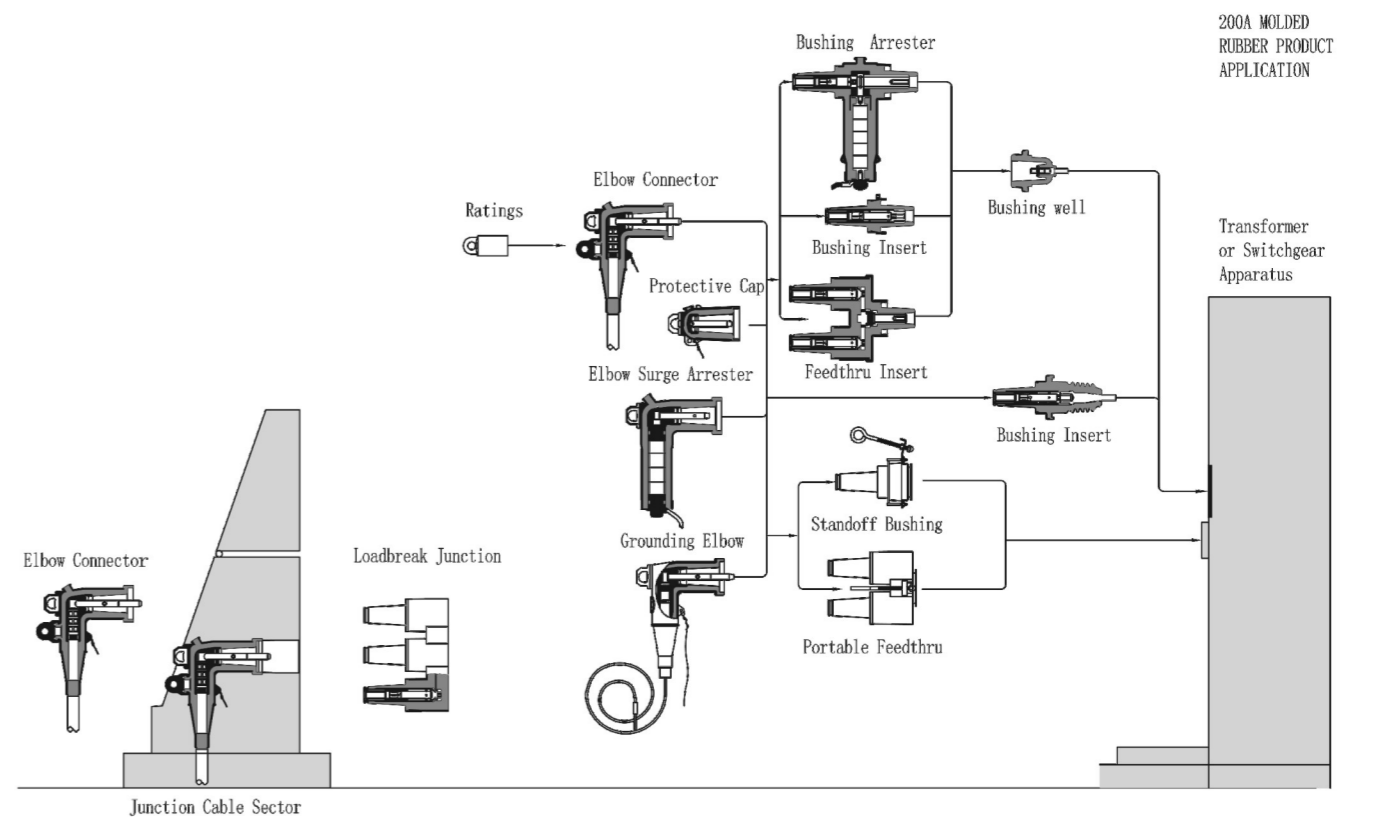


200A SERIES LOADBREAK CABLE ACCESSORIES



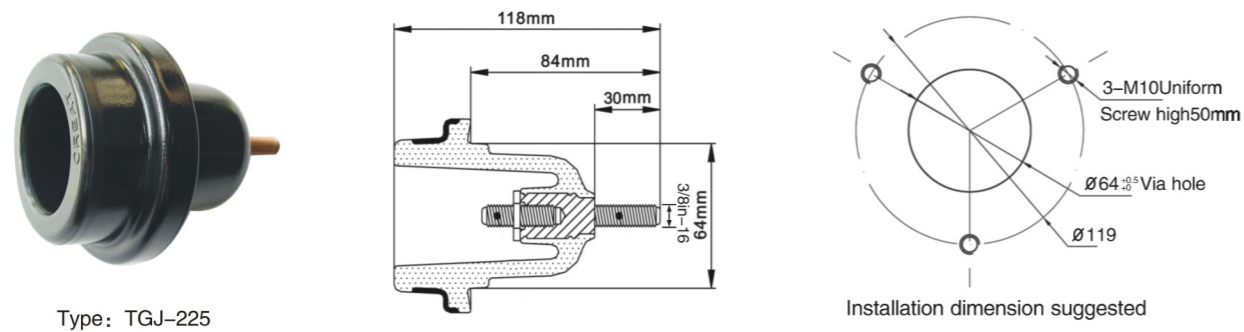
200A loadbreak connectors and accessories provide a convenient method to connect/disconnect cable and equipment on power distribution systems. Loadbreak elbows include provisions for energized operation using standard hotstick tools, allowing load-make/break operation and a visible disconnect. Components can be isolated with insulated caps, plugs and parking bushings. Optional accessories allow system grounding, testing, bypass, lightning surge protection and current

limiting fusing. Additional connecting points and taps can be provided by use of junctions or feed-thrus. Separable connectors are molded using high quality peroxide-cured EPDM rubber and some bushing and bushing well are molded of epoxy resin using APG technique. Each product is tested according the requirement standard to leaving the factory.



200A 15/25kV Bushing Well

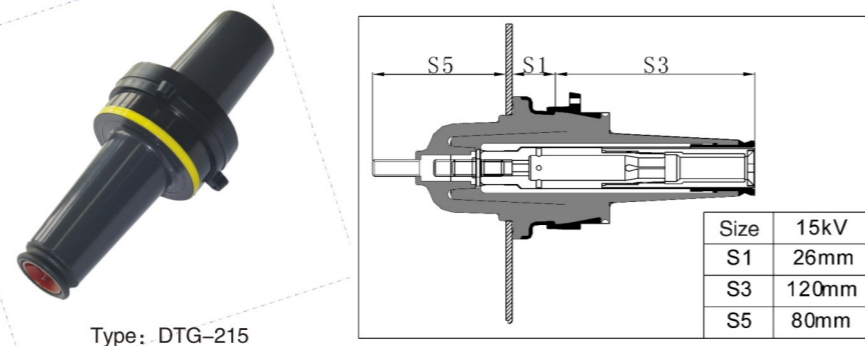
200A 15/25kV bushing well is externally clamped for sidewall mounting transformers filled with transformer oil. The knurled copper stud with rolled threads provides excellent conductivity. The removable stud option offers easy field replacement of the bushing stud.



Type: TGJ-225

200A 15kV Bushing Inserts

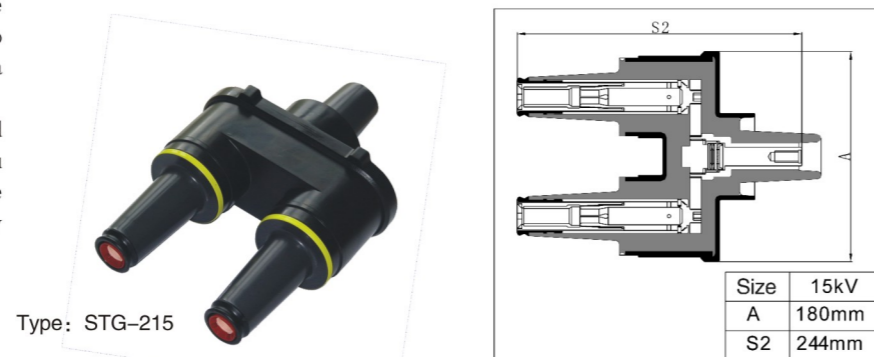
200A 15kV bushing inserts is used with elbow connectors and comprise the essential components of all loadbreak connections. When mated with a comparably rated component, the bushing insert provides a fully shielded and submersible connection for



Type: DTG-215

200A 15kV Rotatable Feedthru Insert

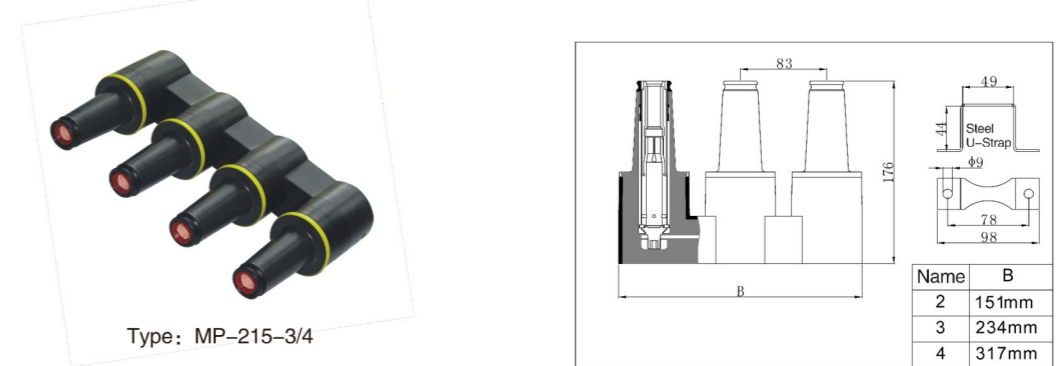
200A 15kV class Rotatable Feedthru Insert is used to provide dual bushings from a single apparatus bushing well. It makes converting radial-feed transformers to feedthru transformers and adding-line arrester protection both easy



Type: STG-215

200 A 15 kV Loadbreak Junctions

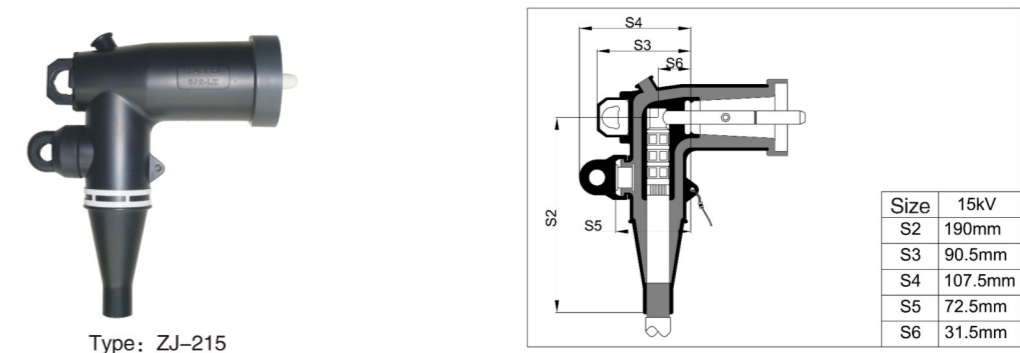
200 A 15 kV Class Loadbreak junctions are used in pad-mounted apparatus, under-ground vaults, and other apparatus to sectionalize, establish loops, taps, or splices, and to facilitate apparatus changeouts.



Type: MP-215-3/4

200A 15kV Loadbreak Elbow Connector

200A 15kV class Loadbreak Elbow Connector is a fully-shielded, insulated plug-in termination. An optional capacitive test point is available for use with fault indicators. Standard features include a coppertop connector, tin-plated copper loadbreak probe with an ablative arc-follower tip, and stainless steel reinforced



Type: ZJ-215

200A 25kV Loadbreak Elbow Connector

200A 25kV class Loadbreak Elbow Connector is a fully-shielded, insulated plug-in termination. An optional capacitive test point is available for use with fault indicators.

Standard features include a coppertop connector, tin-plated copper loadbreak probe with an ablative arc-follower tip, and stainless steel reinforced pulling-eye.



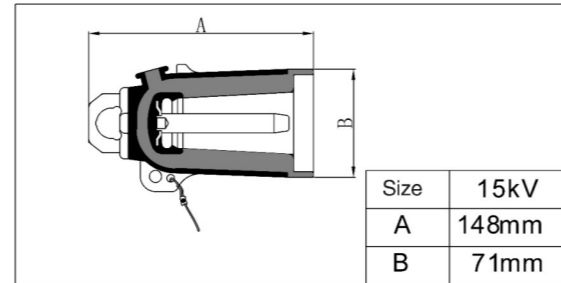
Type: ZJ-225

200A 15kV Insulated Protective Cap

200A 15kV class Insulated Protective Cap is designed to electrically insulate and mechanically seal loadbreak bushing interfaces. It can be used for permanent or temporary installation on bushings,



Type: JYM-215



15 kV Grounding Elbow Connector

15 kV Class Grounding Elbow at each end of a cable will isolate and ground the cable and keep bushings free from moisture and contamination during the grounding operation. The grounding elbow is molded with high quality orange



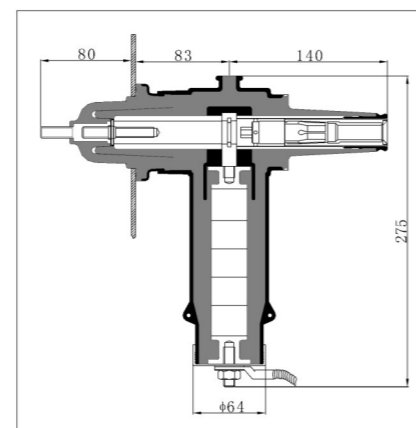
Type: JDT-200

Bushing Surge Arrester

Bushing arrester is designed for use with bushing well interface to restrain over voltages within an acceptable level, protects equipment and extends cable life. The 200A loadbreak interface provides a convenient location for loadbreak elbow connector.



Type: DTB-17

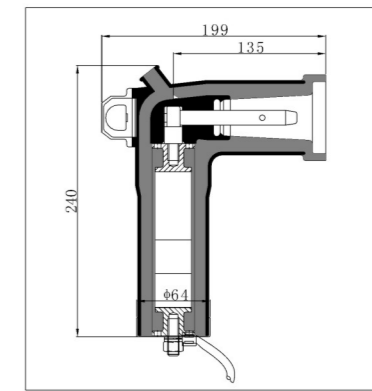


Elbow Surge Arrester

Elbow Surge Arrester is designed for use with 200A 18.3/14.4kV loadbreak interface restrain over voltages within an acceptable level, protects equipment and extends cable life. Choose the appropriate type of arrester according to local voltage system.



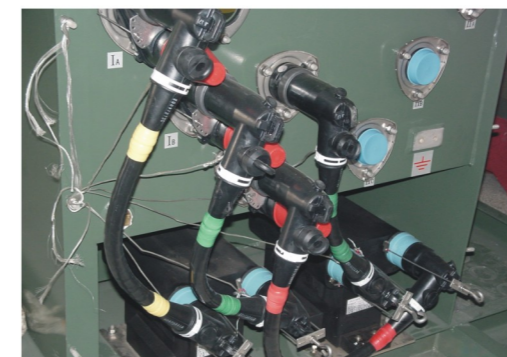
Type: ZB-17



Surge Arrester Protective Characteristics:

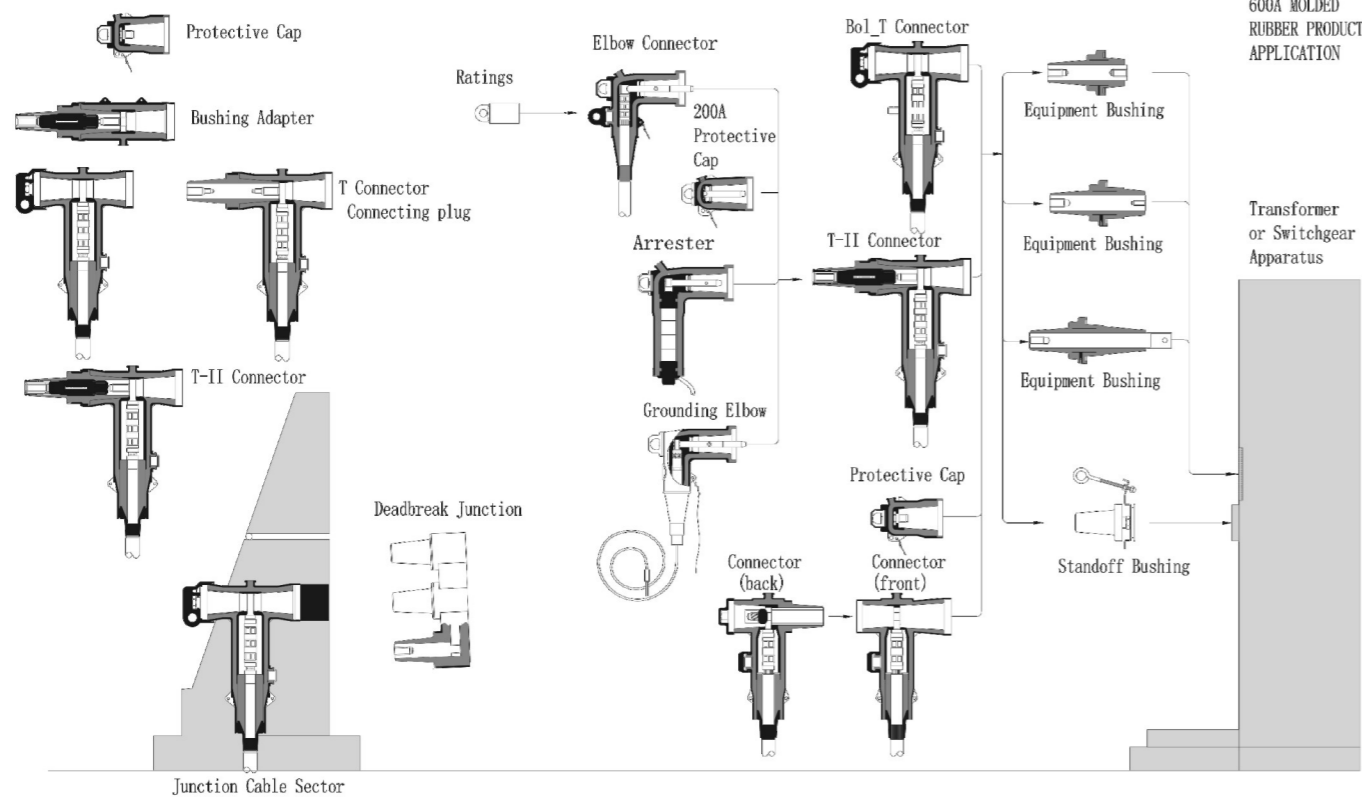
Surge Arrester Type	Nominal discharge current In (kA)	Rated voltage Ur (kV)	Continuous operating voltage Uc (kV)	Max Steep current residual voltage@5kA [1/20 μ s] (kV)	Max Lightning current residual voltage@5kA [8/20 μ s] (kV)	High current withstand (kA)	2ms square wave current (A)	Min reference voltage at 1mA direct current (V)
10/30	5kA	10	8.0	34.6	30.0	65	150A	15.0
12/36	5kA	12	9.6	41.2	35.8	65	150A	18.0
17/45	5kA	17	13.6	51.8	45.0	65	150A	24.0
17/50	5kA	50	13.6	57.5	50.0	65	150A	25.0
26/66	5kA	66	20.8	76.0	66.0	65	250A	37.0
34/90	5kA	90	27.2	100.0	90.0	65	250A	48.0
51/134	5kA	134	40.8	154.0	134.0	100	400A	73.0

Application



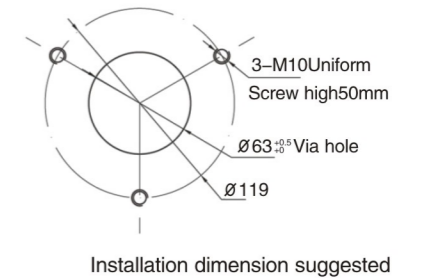
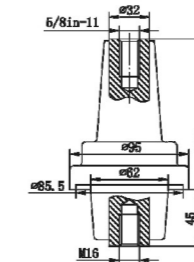
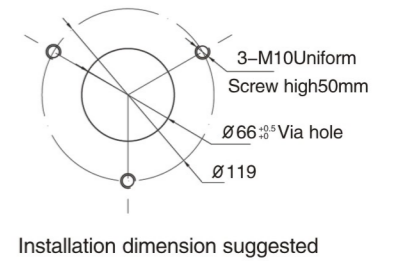
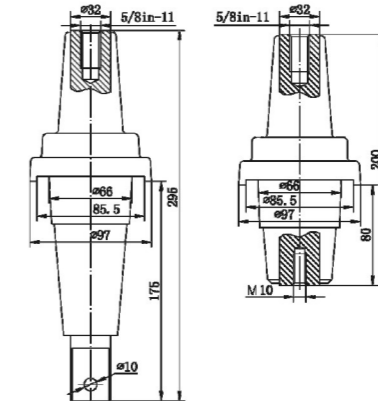
600A SERIES DEADBREAK CABLE ACCESSORIES

600A Series deadbreak elbows, straight receptacles, junctions, vault stretchers and accessories are used to connect equipment and cable on primary feeder and network circuits. Designs accommodate large conductors and feature bolted connections and deadfront modular construction for maximum reliability, performance and versatility. DE-ENERGIZED connectors can be quickly and easily connected and disconnected using standard hand tools and equipment in accordance with accepted operating practices. Optional accessories allow visible external separation, by-pass, isolation, dead-ending, grounding, and testing as well as adding taps, surge arresters and circuit protection. Separable connectors are molded using high quality peroxide-cured EPDM rubber or silicone rubber and some bushing and bushing well are molded of epoxy resin using APG technique. All the products should be tested according to the required standard before leaving the factory.



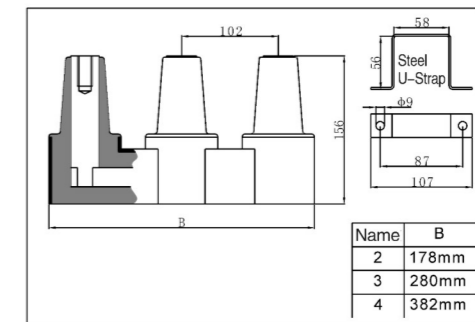
600A 15/25kV Bushing

600A 15/25kV Class Bushing meets the full requirements of IEEE Std 386 standard. They are designed for sidewall mounting in transformers, switches and other apparatus filled with transformer oil or SF6 gas.



600 A, 15/25 kV Deadbreak Junctions

600 A, 15/25 kV Class Deadbreak Junctions are used in pad-mounted apparatus, underground vaults, and other installation to establish loops, taps and splices, and facilitates apparatus change-outs.

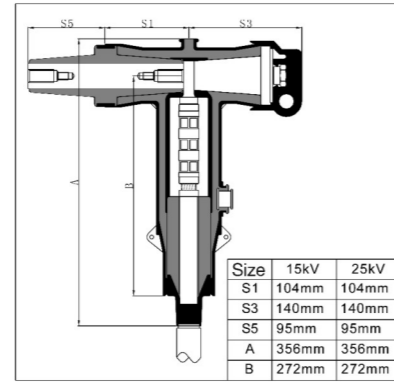


600A 15/25kV Deadbreak Tee Connector

600A 15/25kV Class Deadbreak Tee Connector is used to terminate high voltage underground cable on deadfront apparatus such as transformers, switches and switchgear. Provides a fully screened and fully submersible separable connection. Built-in capacitive test point to determine the circuit status or install a fault



Type: TJ-625

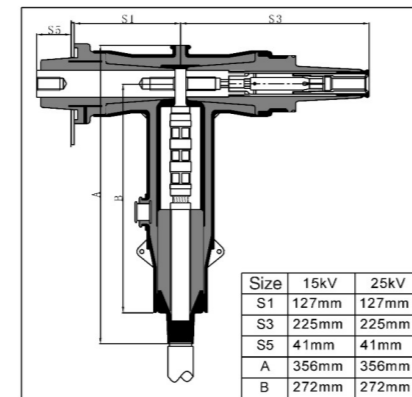


600A, 15kV T-II Deadbreak Connector

600A, 15kV Class T-II Deadbreak Connector is used to terminate high-voltage underground cable to transformers, switches, switchgear. The 200 A three-phase rated loadbreak interface provides a means for obtaining a live test, visible ground and visible break using a hotstick. It also provides a convenient location for arrester



Type: TIJ-625



15/25kV 600A Deadbreak Connector Plug

15/25kV 600A Deadbreak Connector Plug is used to connect two or more 600A deadbreak terminators. Deadbreak connector plugs are typically used in a separable splice, or with a bushing extender, to increase the distance from the



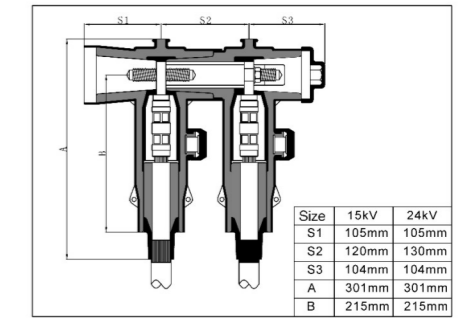
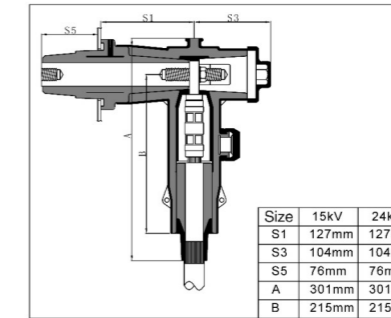
Type: ZLT-625

600A, 15 kV IEEE Front Connector

600A, 15 kV class IEEE Front Connector is designed to connect insulated cable to transformers, switchgear etc. The connector meets 600A, 15.2kV deadbreak interface described in IEEE386. System voltage up to 25 kV. Continuous current 600 A. Front connector is molded using high quality silicone rubber. Built-in capacitive



Type: MQJ-615

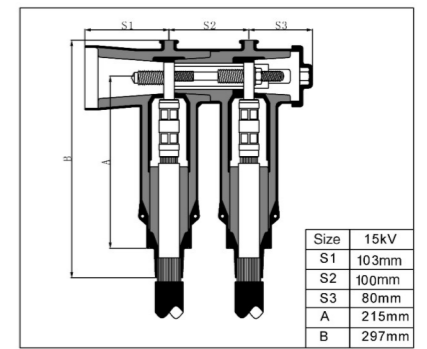
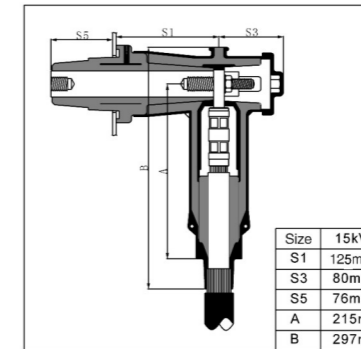


2nd 600A 15/25kV IEEE Front Connector

2nd 600A 15/25kV class IEEE Front connector (second) meets 600A, 15.2kV deadbreak interface described in IEEE386. System voltage up to 15 kV. Continuous current 600 A. Front connector is molded using high quality silicone



Type: II MQJ-615

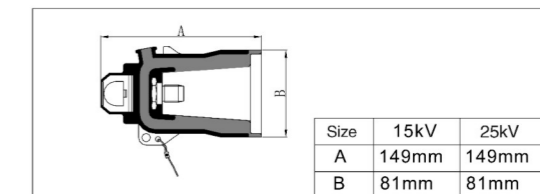


600A 15/25kV Insulated Protective Cap

600A 15/25kV class Insulated Protective Cap is used for permanent or temporary installation on bushings, junctions devices. The Insulated Protective Cap provides a fully shielded, submersible insulating cover for



Type: JYM-625



IEC STANDARD PRODUCTS

IEC standard products of Wuhan Creat include Separable Connectors, bushing, Surge Arresters and other cable accessory products. These products have been designed of IEC, CENELEC standards, and tested per applicable portions of GB and other industry including:

- CENELEC EN 50181 Plug-in type bushings above 1 kV up to 52 kV and from 250 A to 1250 kA for equipment other than liquid filled transformers
- IEC 60502-4.1997 Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1.2 kV) up to 30 kV (Um = 36 kV) -Part 4: Test requirements on accessories for cables with rated voltages from 6 kV (Um = 7.2 kV) up to 30 kV (Um = 36 kV)
- GB 12706.4 Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1.2 kV) up to 35 kV (Um = 40.5 kV) - Part 4: Test requirements on accessories for cables with rated voltages from 6 kV (Um = 7.2 kV) up to 35 kV (Um = 40.5 kV) (eqv IEC 60502-4.1997)
- GB/T 18889 Electric cables test methods for accessories for power cables with rated voltages from 6kV (Um=7.2kV) up to 35kV (Um=40.5kV) (IEC 61442,MOD)
- GB/T 4109 Insulated bushing for alternating voltages above 1000V (IEC 60137 Ed.6.0,MOD)
- GB 11032-2010 Metal-oxide surge arresters without gaps for a.c. systems (IEC 60099-4:2006,MOD)

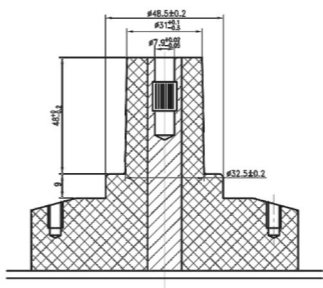
	12kV Class Ratings		24kV Class Ratings	36kV Class Rating:	
	6/10kV	8.7/15kV	12/20kV	18/30kV	
BIL Impulse withstand 1.2 x 50 microsecond wave	75kV	95kV	125kV	170kV	200kV
AC Five Minute	27kV	39kV	54kV	81kV	117kV
DC Fifteen Minute	24kV	35kV	48kV	72kV	
CORONA EXTINGUISH LEVEL@ 10pC Sensitivity	10kV	15kV	20kV	30kV	45kV
250A Series Products Continuous Current	250 AMP				
630A Series Products Continuous Current	630 AMP				
1250 Series Products Continuous Current					1250 A

Data indicate that voltage and current ratings are applied to all separable connectors, including 250 AMP Deadbreak and 630 Series Deadbreak products

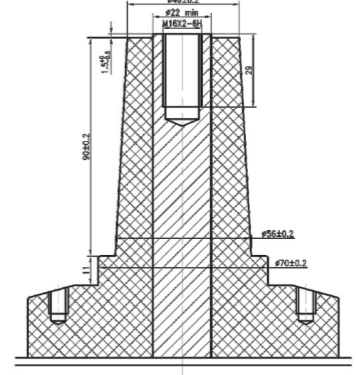
IEC STANDARD INTERFACES FOR SEPARABLE CONNECTORS, COMPONENTS AND EQUIPMENT BUSHINGS

Cenelec Standard 50181 and IEC 60502-4 defines the specific interface dimensions that 250 Amp, 630 and 1250A Series elbows, junctions, equipment bushings and any mating components must conform to insure interchangeability. The table below provides information concerning the types of interfaces supplied by Creat company for various applications and is useful to assure proper matching of components.

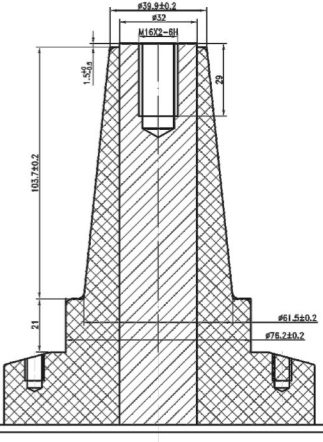
Bushing Interface	Voltage Class	Interface Description	Standard No. Figure No.
250A Series Equipment Bushing	12kV,24kV	250A Sliding Interface 6/10kV,12/20kV	CENELEC En 50180-2009 Fig.8 Table14 Interface type A
630A Series Equipment Bushing	12kV,24kV,36kV	630A-1250A Bolted Interface 6/10kV,12/20kV	CENELEC En 50180-2009 Fig.8 Table14 Interface type C
1250A Series Equipment Bushing	36kV	630A-1250A Bolted Interface 18/30kV	CENELEC En 50180-2009 Fig.8 Table14 Interface type E



250A A



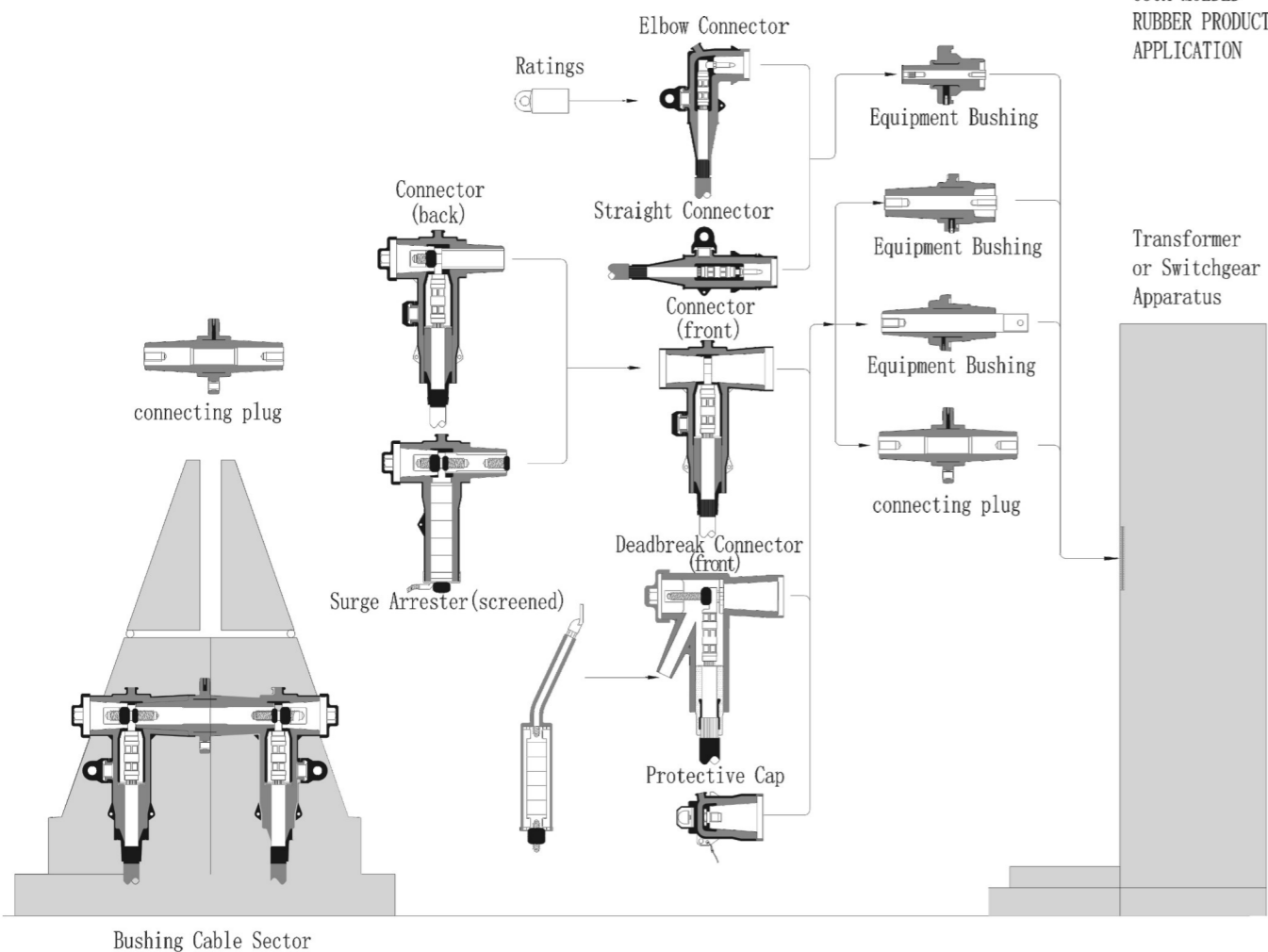
630A C



1250A E

250A AND 630A SEPARABLE CONNECTORS AND ACCESSORIES

250A and 630A separable connectors and accessories are used to connect equipment and cable on primary feeder and network circuits. DE-ENERGIZED connectors can be quickly and easily connected and disconnected with standard hand tools and equipment in accordance with accepted operating practices. Optional accessories allow visible external separation, by-pass, isolation, dead-ending, grounding, and testing as well as adding taps, surge arresters and circuit protection. Separable connectors are molded using high quality peroxide-cured EPDM rubber or silicone rubber and some bushing and bushing well are molded of epoxy resin using APG technique. Each product is tested according to the requirement standard before it leaves the factory.

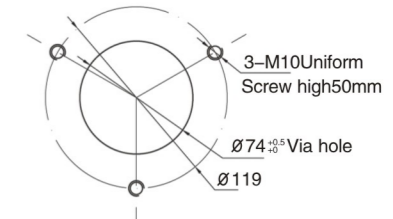
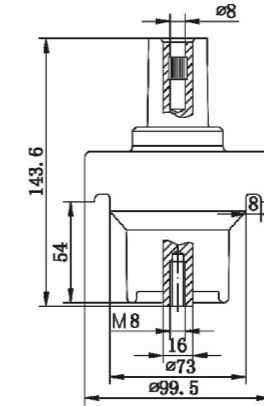


250A 24kV Class Epoxy Bushings

250A 24kV class epoxy bushings are designed for sidewall mounting in transformers, switches and other apparatus filled with transformer oil or SF6 gas. The bushing meets the requirements of interface type A, System voltage up to 24 kV. Continuous current 250 A.



Type: OHGA-224



Installation dimension suggested

250A 24kV Class Elbow Connector And Straight Connector Oure

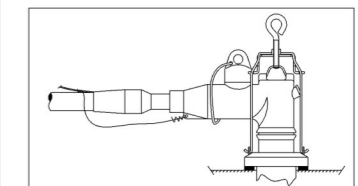
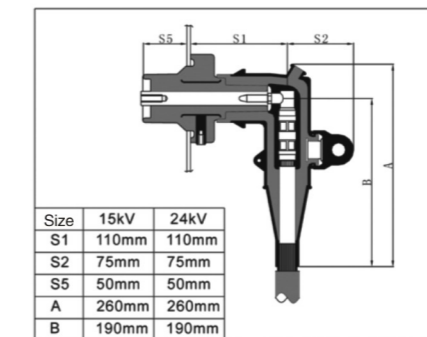
250A 24kV class Elbow Connector and Straight Connector are designed to connect cable to transformers, switchgear, motors etc. Elbow connector meets type-A 250A interface, system voltage up to 24 kV and continuous current 250 A.



Type: RZJ-224



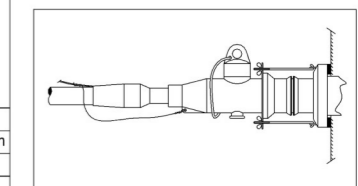
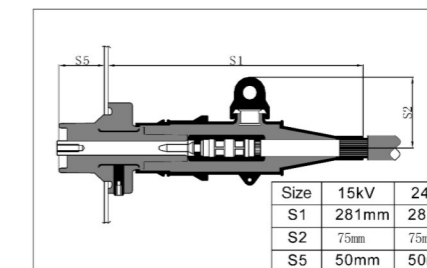
Type: RZJ-224F



Type: RZTJ-224

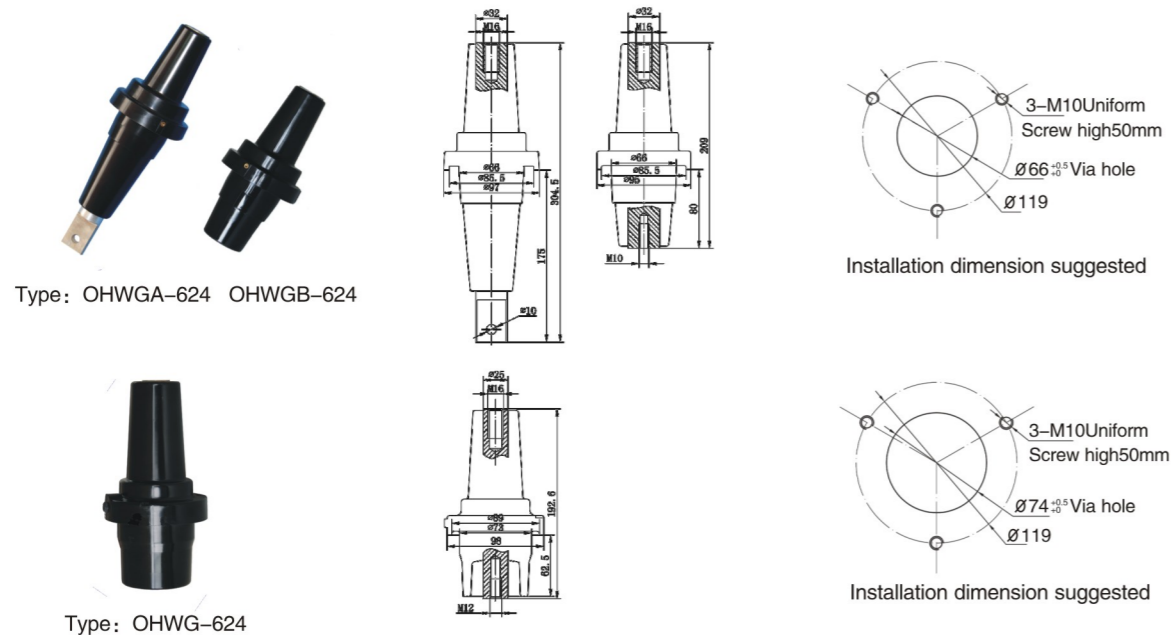


Type: RZTJ-224F



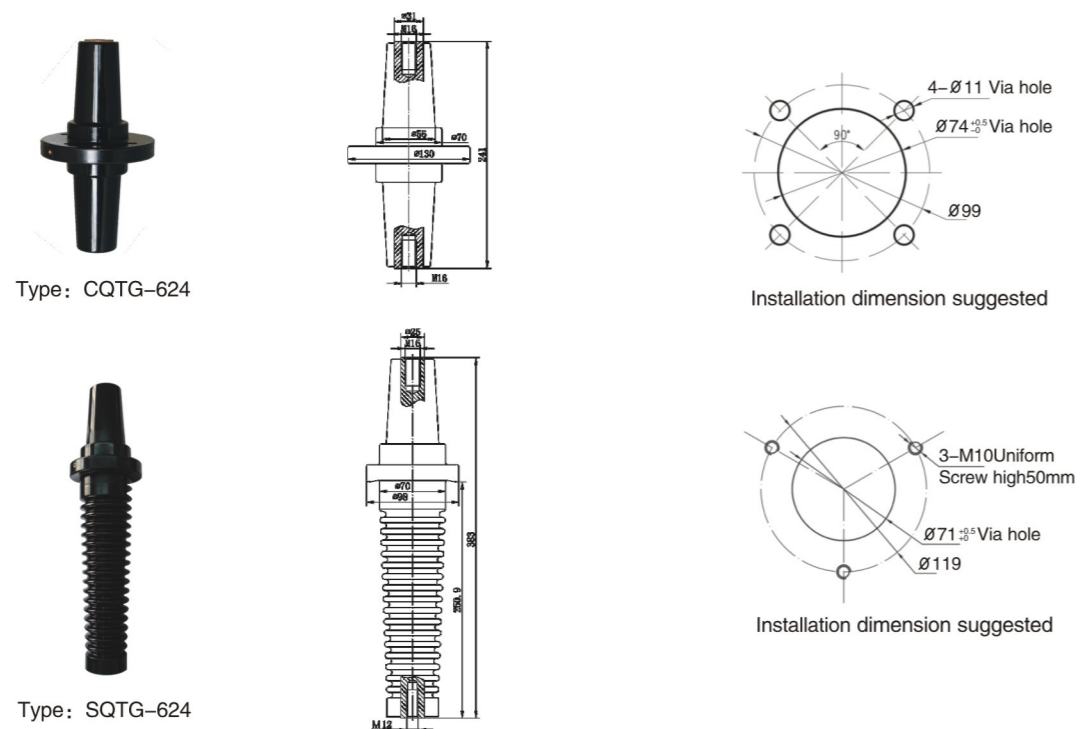
630A 24kV Class Epoxy Bushings

630A 24kV class epoxy Bushings are designed for sidewall mounting in transformers, switches etc with transformer oil or SF6 gas or an approved equivalent. Different shape bushing is chose according insulation material in equipment.



630A 24kV Wall Bushing And Skirt Bushing

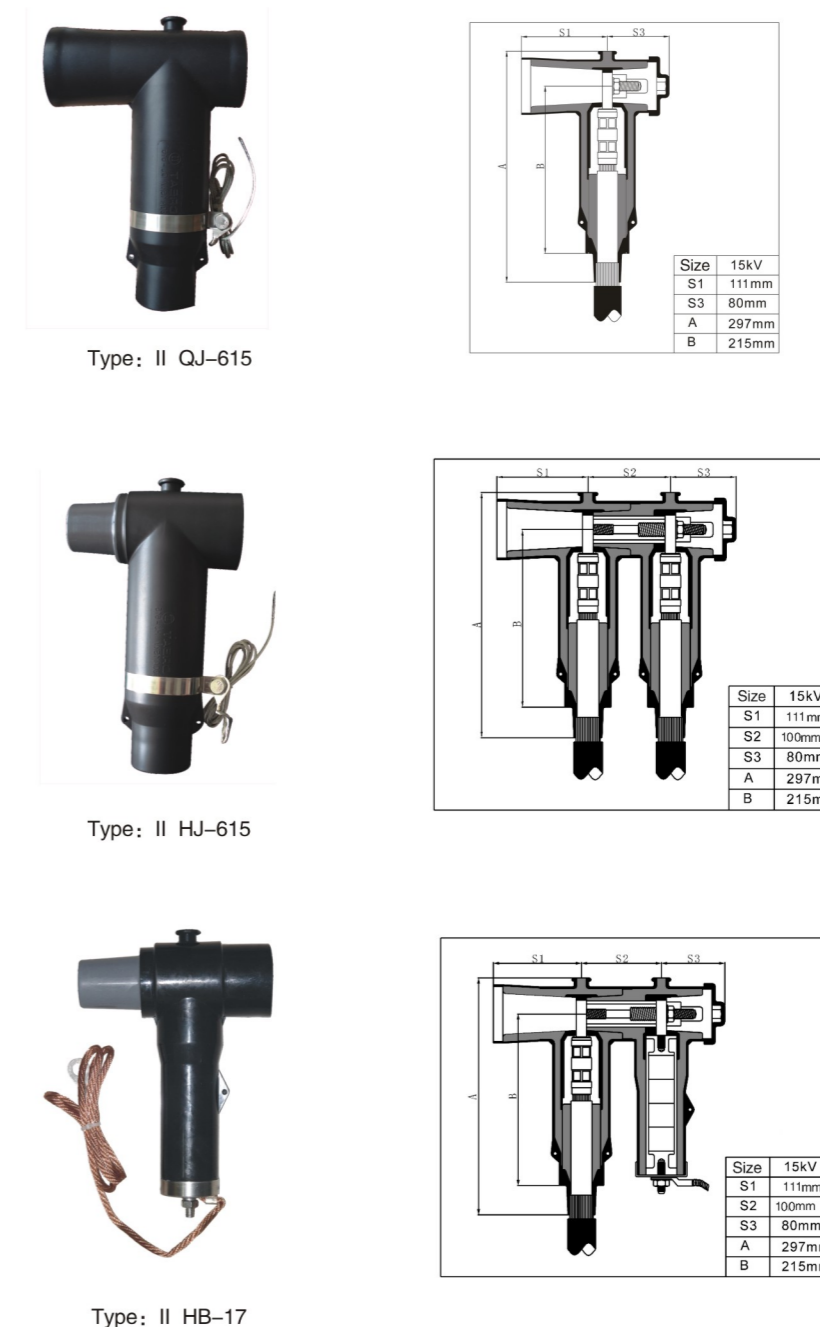
630A 24kV class wall Bushing is designed for sidewall mounting in cable branch box.
630A 24kV class Skirt Bushing is designed for the equipment with air as insulation material The bushings meet the requirements of interface type C, System voltage up to 36 kV. Continuous current 630A.



630A 15kV IEC 2nd Tee (Front) Connector And 2nd Coupling (back) Connector

IEC 2nd Tee (Front) Connector and 2nd Coupling (back) Connector is designed to connect insulated cable to transformers, switchgear, motors etc. They provide a fully screened and fully submersible separable connection. 2nd Tee (front) connector can meet the requirement of Type-C 630A interface. System voltage is up to 15 kV. Continuous current is 630 A.

2nd 15kV Coupling back Arrester is installed behind 2nd Tee (Front) connector or 2nd coupling (back) connector to



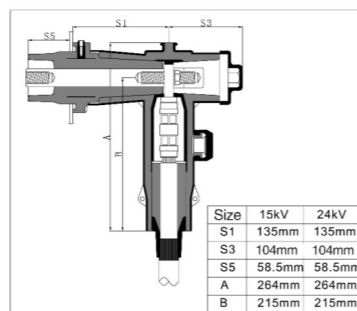
**630A 15kV Class IEC Tee (Front) Connector And Coupling (back) Connector
630A 24kV Class IEC Tee (Front) Connector And Coupling (back) Connector**

630A 15kV, 24kV class IEC Tee (Front) Connector and Coupling (back) Connector is designed to connect insulated cable to transformers, switchgear, motors etc. They provide a fully screened and fully submersible separable connection.

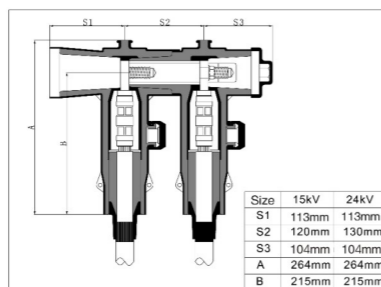
Tee (front) connector can meet the requirement of Type-C 630A interface. System voltage is up to 15 kV and 24kV. Continuous current is 630 A. 15kV and 24kV coupling arresters are installed behind Tee (front) connector



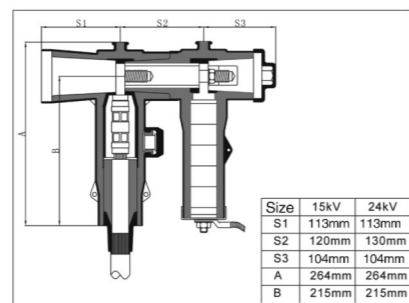
Type: SQJ-615
SQJ-624



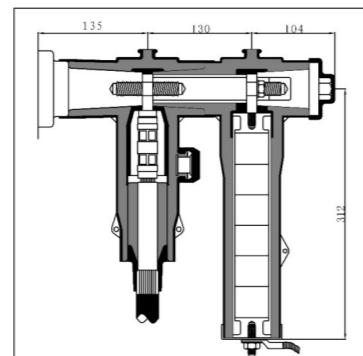
Type: SHJ-615
SHJ-624



Type: HB-17



Type: HJB-26/66
HJB-34/90



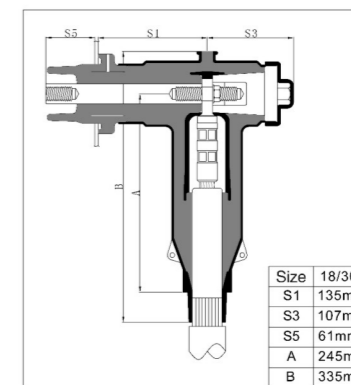
630A 30kV Class IEC Tee (Front) Connector And Coupling (back) Connector

630A 30kV class IEC tee (front) connector and coupling (back) connector is designed to connect insulated cable to transformers, switchgear, motors etc. They provide a fully screened and fully submersible separable connection.

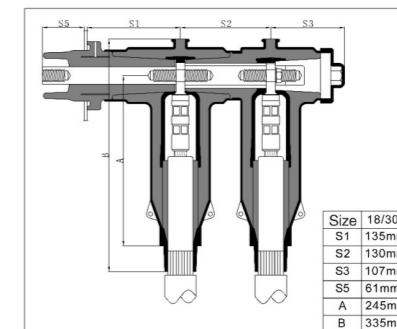
Tee (front) connector can meet the requirement of Type-C 630A interface. System voltage is up to 36 kV



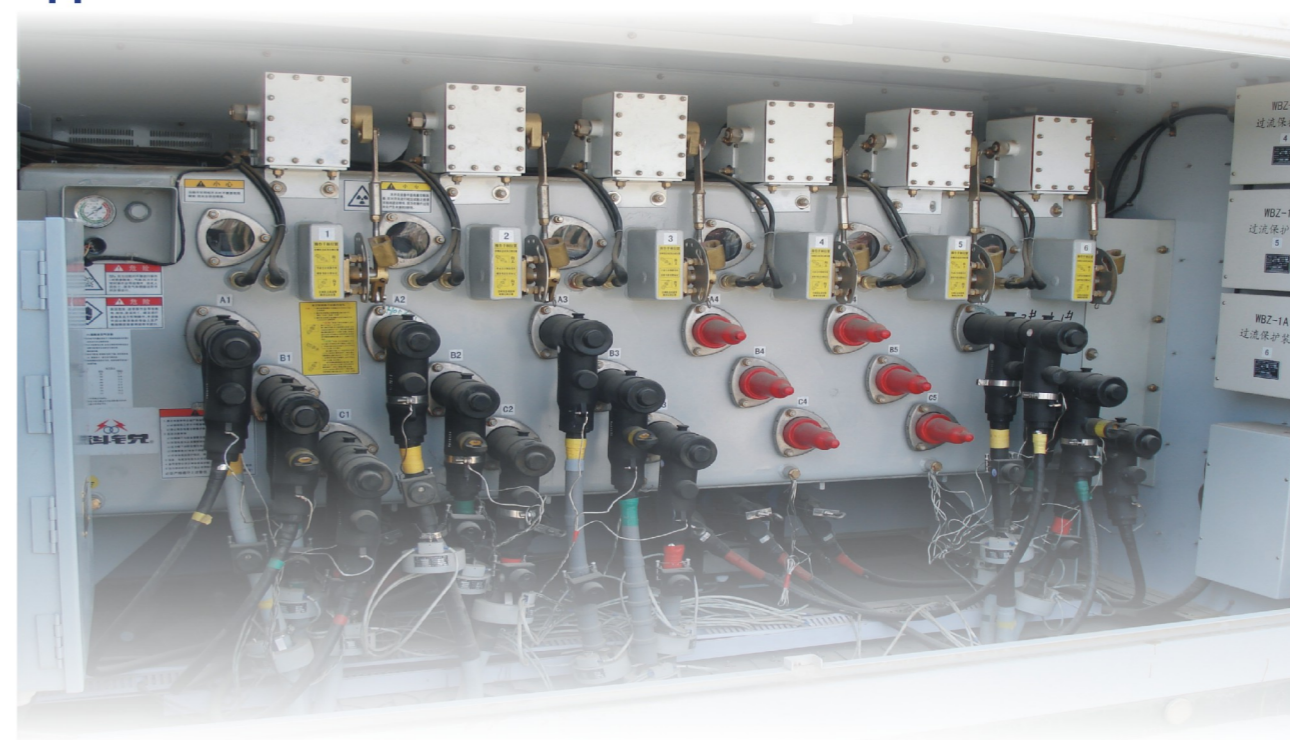
Type: QJ-630



Type: HJ-630



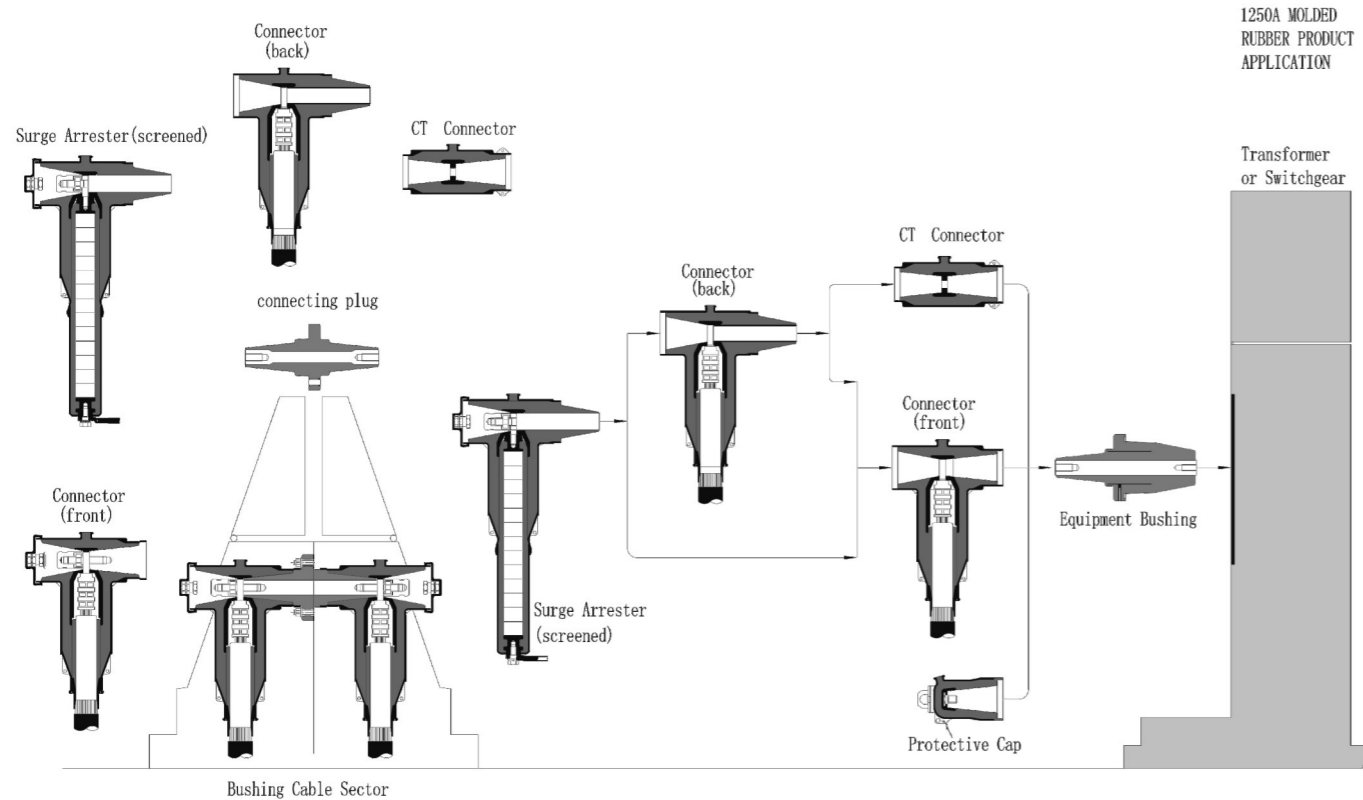
Application



1250A 35KV SERIES CABLE ACCESSORIES

1250A 35kV Series separable connectors are used to connect equipment and cable on primary feeder and network circuits. Designs accommodate large conductors and feature bolted connections and deadfront modular construction for maximum reliability, performance and versatility. They can be quickly and easily connected and disconnected using standard hand tools and equipment in accordance with accepted operating practices.

Optional accessories allow visible external separation, by-pass, isolation, dead-endering, grounding, and testing as well as adding taps, surge arresters and circuit protection. Separable connectors are molded using high quality peroxide-cured Silicone rubber and some bushing and bushing well are molded of epoxy resin using APG technique. Each product is tested according the requirement standard to leaving the factory.

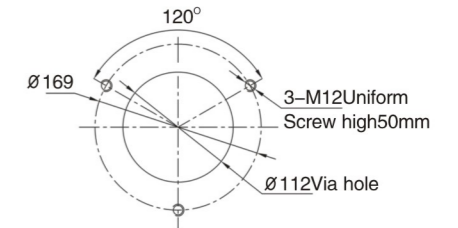
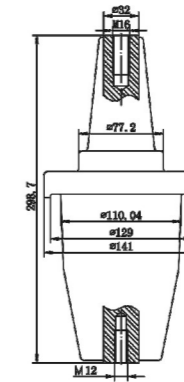


1250A 35kV Bushing

1250A 35kV Class Bushing meets the full requirements of IEEE Std386 standard. The epoxy bushings are designed for sidewall mounting in transformers, switches and other apparatus filled with transformer oil or SF6 gas.



Type: OTG-1235

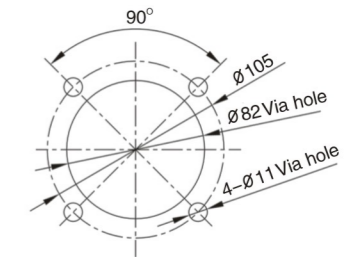
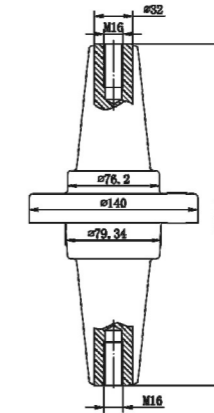


1250A 35kV Wall Bushing

1250A 35kV Class Wall Bushing is designed for sidewall mounting in cable branch box. the bushing is used in power system voltage up to 35 kV, continuous current 1250A.



Type: CQTG-1235

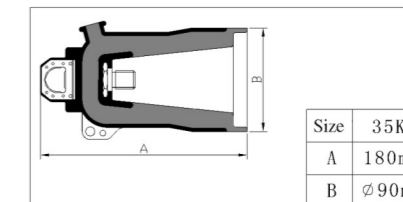


35kV Class Insulated Protective Cap

35kV class Insulated Protective Cap is used for permanent or temporary installation on bushings, Protective Cap provides a fully shielded, submersible insulating cover for energized bushings.



Type: JYM-1235

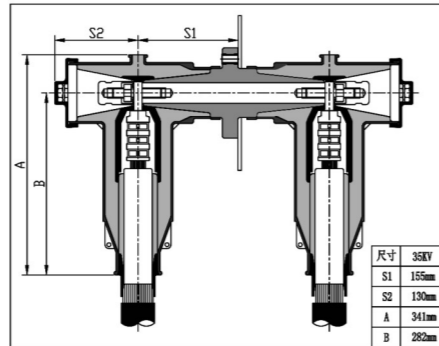


1250A 35kV Class Tee (Front) Connector And Coupling (back) Connector

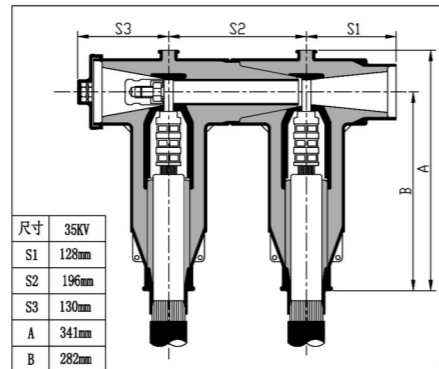
1250A 35kV class Tee (Front) Connector and coupling (back) connector is designed to connect insulated cable to transformers, switchgear, motors etc. They provide a fully screened and fully submersible separable connection. Tee (front) connector can meet the requirement of 21.1kV deadbreak interface. System voltage is up to 35 kV and continuous current is 1250 A.



Type: QJ-1235



Type: HJ-1235

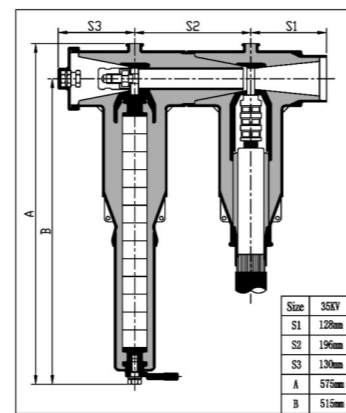


35kV Coupling Surge Arrester

35kV Coupling Arrester are designed for use with Tee (Front) connector expansion interface to limit over voltages to acceptable levels, protect equipment and extend cable life. Choose the appropriate type arrester according local voltage



Type: HJB-51/134



CROSS CONNECTOR AND BUS-BAR CONNECTOR

Cross connector and bus-bar connector is made of silicone rubber, mainly applied for the connection of RMU and cable branch system to fit the loaded switch socket with sealing and insulation function. Such special designed connector can be also made screened or unscreened, the RMU can be made more compact and reliable with such special designed connector to balance performance and cost at the same time.

Assembled with 1250A Europe style cross type connector and bus bar connector, the bar system can be realized with multi-connection to the series of switch gears to optimize the connection solution.

The length and the shape of the connector for both IEC and IEEE style can be tailor made according to your special requirements.

1250A 24kV IEC-Style Cross Connector And Bus-bar Connector

1250A 24kV IEC style cross connector and bus-bar connector are suitable for 8.7/15kV and 12/20kV voltage system and suitable for the connection to the bushing of interface type-C.

Assembled with cross type connector and bus bar connector, the bar system is complete insulation, sealing, screened and touchable.

1250A 35kV IEC-Style Cross Connector And Bus-bar Connector

1250A 35kV IEC style cross connector and bus-bar connector are suitable for 26/35kV voltage system and suitable for the connection to the bushing of interface type-E.

Assembled with cross type connector and bus bar connector, the bar system is complete insulation, sealing, screened and touchable.



Type: DZJ-624
DZJ-1235



Type: MX-624

Type: MX-1235



Type: SZJ-624
SZJ-1235

