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High Current Bushings

Insulation : Oil-impregnated paper/Oil filled - Hermetically Sealed/Oil Communicating

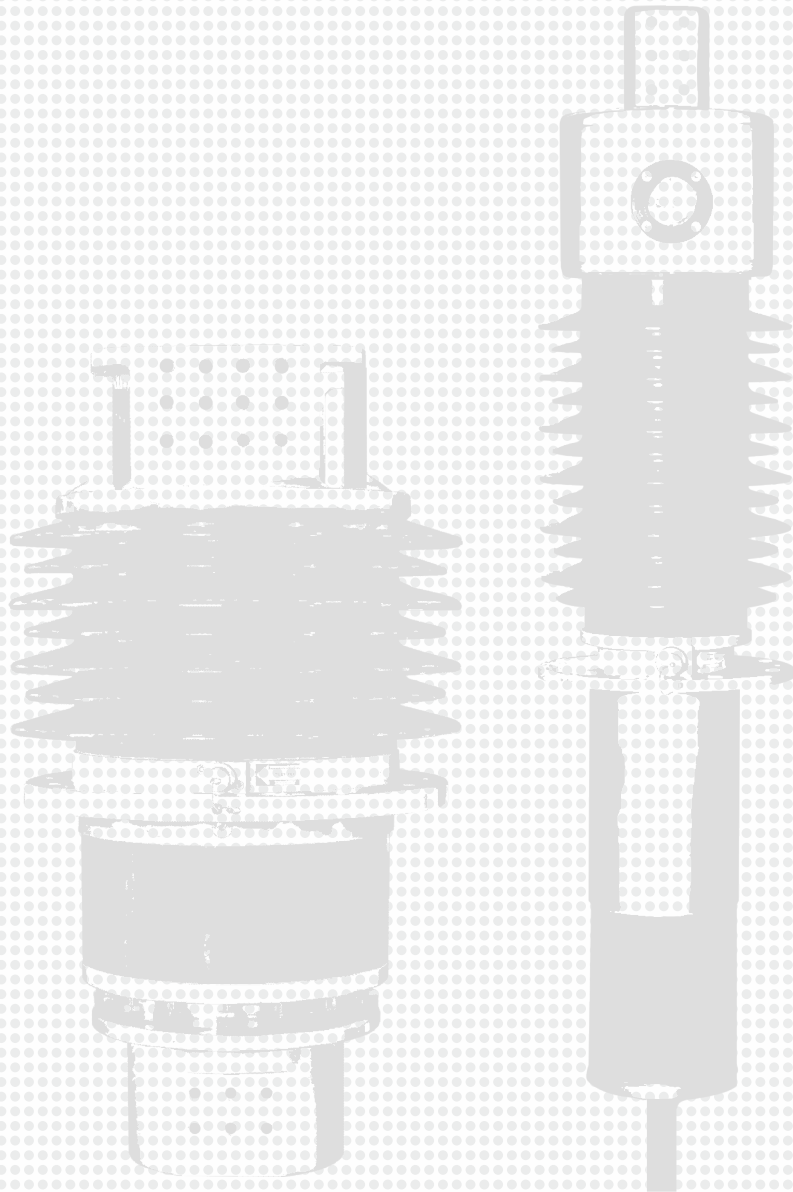
Application : Transformer - Outdoor

Type : Oil to Air

Rated Voltage : 24 kV~52 kV

Rated Current : upto 20000 A

Standard : IEC 60137:2017/IEEE



Salient Features

- Exact interchangeability with global reputed makes
 - Robust solid rod construction with oil end termination integrally milled on conductor
 - No joint on the conductor below top cap level
 - SS Helicoil inserts on oil end termination holes to enable direct bolting of transformer lead for Aluminium design bushings
 - Manufacturing and field experience of more than 4000 Bushings upto 20kA
 - Finely graded Capacitive insulation for optimum electrical field distribution
 - Partial discharge free and low dissipation factor
 - Excellent thermal performance
 - High seismic and short circuit load withstand capacity
 - Self-cleaning alternate shed profile according to IEC
 - Viton material O-rings for oil sealing
 - Provision of test tap for insulation health monitoring
 - Highly customizable design in terms of mounting and terminal connection
 - Provision for accommodating special CT pocket length requirements
 - Suitable for Bus-duct operation
 - Shortest lead time industry wide
 - High strength porcelain as per IEC 60815
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- The Bushings comply with IEC 60137 standard's performance requirements for application in GSU power transformers, station transformer, unit auxiliary transformers & others
 - The main component of Bushing for OIP Insulated Bushings is the Active part and is manufactured using insulating kraft paper wound around a solid conductor. OIP condenser core is standard from 36kV onwards but is available for lower voltage upon request
 - During paper winding, aluminium foils are embedded in paper, co-axially at pre-calculated locations to optimise the radial and axial electrical field along the bushing
 - After winding, paper core is dried under vacuum at elevated temperatures and subsequently impregnated with high quality vacuum dried and degassed Insulating mineral oil
 - For Oil Insulated Bushings, oil serves as major insulation
 - Bushing is assembled in controlled environment and filled under vacuum with vacuum dried and degassed Insulating Mineral oil
 - After oil filling, each Bushing is subjected to oil over-pressure test for verification of joint sealing
 - Appropriate cushion is incorporated post pressure test on top of oil level to allow for expansion, and the space is purged with high purity Nitrogen before sealing
 - All bushings are tested in accordance with IEC 60137



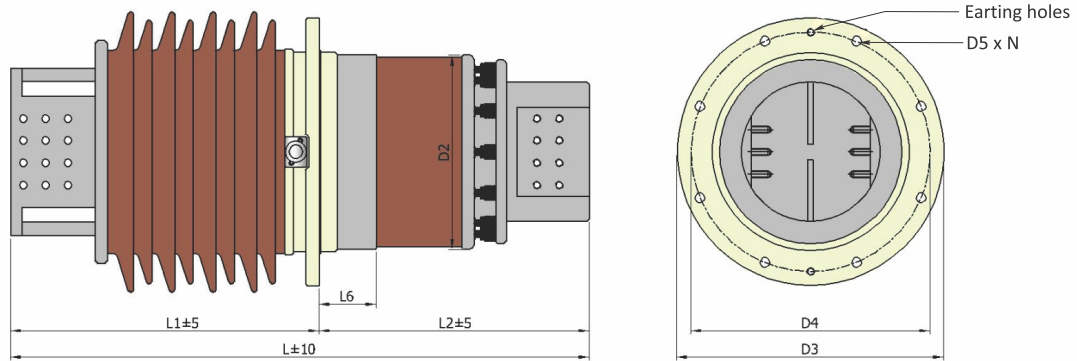
▣ **Fully type tested product range at accredited Laboratories**

▣ **Multiple satisfactory performance credentials from customers & end users**



Table - 1 - Standard dimensions of High Current bushings rated 24kV ~ 52kV, current 5000A upto 20000A
(All dimensions are in mm)

Model	Conductor and Terminal material	Insulation	HSV, kV	BIL, kVp	AC test load, kV	Rated current, Amp (I _r)	Creepage distance, mm	Camtlever load, N	L1- Air end length	L2- Oil end length for 0 mm BCT(*)	L- Total length	L6- BCT Space	D2- Oil side max. diameter	D3- Outer diameter of flange	D4- PCD of flange	D5 x N- Mounting holes
HOA.2405	Aluminium	Oil-filled	24	125	55	5000	25	3150	430	330*	760	Standard: 0 Other CT space upon request upto 600	200	324	286	8 x 18
HOA.2405HC	Aluminium	"	24	"	"	5000	31	3150	510	330*	840		200	324	286	8 x 18
HOA.2408	Aluminium	"	24	"	"	8000	25	3150	435	415*	850		276	400	350	8 x 20
HOA.2408HC	Aluminium	"	24	"	"	8000	31	3150	480	415*	895		276	400	350	8 x 20
HOA.2410	Aluminium	"	24	"	"	10000	31	3150	500	415*	915		276	400	350	8 x 20
HOA.2413	Aluminium	"	24	"	"	12500	31	3150	500	415*	915		335	480	430	8 x 20
HOA.2416	Aluminium	"	24	"	"	16000	31	3150	500	415*	915		364	480	430	8 x 20
HCA.3605	Aluminium	OIP	36	170	77	5000	25	3150	510	330*	840		200	324	286	8 x 18
HCA.3605HC	Aluminium	OIP	36	"	"	5000	31	3150	630	330*	960		200	324	286	8 x 18
HCA.3608	Aluminium	OIP	36	"	"	8000	25	3150	500	415*	915		276	400	350	8 x 20
HCA.3608HC	Aluminium	OIP	36	"	"	8000	31	3150	555	415*	970		276	400	350	8 x 20
HCA.3610	Aluminium	OIP	36	"	"	10000	25	3150	500	415*	915		276	400	350	8 x 20
HCA.3610HC	Aluminium	OIP	36	"	"	10000	31	3150	555	415*	970		276	400	350	8 x 20
HCA.3613	Aluminium	OIP	36	"	"	12500	25	3150	500	415*	915		335	480	430	8 x 20
HCA.3613HC	Aluminium	OIP	36	"	"	12500	31	3150	555	415*	970		335	480	430	8 x 20
HCA.3616	Aluminium	OIP	36	"	"	16000	25	3150	500	415*	915		364	480	430	8 x 20
HCA.3616HC	Aluminium	OIP	36	"	"	16000	31	3150	555	415*	970		364	480	430	8 x 20
HOC.2406	Copper	Oil-filled	24	125	55	6300	31	3150	495	340*	835		200	324	286	8 x 18
HOC.2410	Copper	"	24	"	"	10000	31	3150	495	385*	880		276	400	350	8 x 20
HOC.241	Copper	"	24	"	"	12500	31	3150	610	385*	995		276	480	434	12 x 14
HOC.2416	Copper	"	24	"	"	16000	31	3150	600	415*	1015		276	430	400	12 x 15
HOC.2420	Copper	"	24	"	"	20000	31	3150	505	410*	915		335	480	430	8 x 20
HCC.3606	Copper	OIP	36	170	77	6300	25	3150	495	340*	835		200	324	286	8 x 18
HCC.3613	Copper	OIP	36	"	"	12500	25	3150	555	385*	940		276	450	400	12 x 16
HCC.3613HC	Copper	OIP	36	"	"	12500	31	3150	610	385*	995		276	450	400	12 x 16
HCC.3616	Copper	OIP	36	"	"	16000	25	3150	545	415*	960		276	430	400	12 x 15
HCC.3616HC	Copper	OIP	36	"	"	16000	31	3150	600	415*	1015		276	430	400	12 x 15
HCC.3620	Copper	OIP	36	"	"	20000	25	3150	505	410*	915		335	480	430	8 x 20
HCC.3620HC	Copper	OIP	36	"	"	20000	31	3150	560	410*	970		335	480	430	8 x 20
HCC.5206	Copper	OIP	52	250	105	6300	25	3150	850	355*	1205		200	335	290	8 x 22



Model selection:

HOA - High current bushing with Aluminium conductor, with main insulation as electrical insulating transformer oil

HCA - High current bushing with Aluminium conductor, with main insulation as OIP capacitive insulation, and also transformer oil

HOC - High current bushing with Copper conductor, with main insulation as electrical insulating transformer oil

HCC - High current bushing with Copper conductor, with main insulation as OIP capacitive insulation, in addition to electrical insulating transformer oil

Customer may select and indicate the desired model number from table 1 as follows:

Specify "Model No. / BCT". For example, to select a bushing with :

Conductor/Terminal material- Aluminium

Highest System Voltage (HSV) = 36kV

Rated Current - 16,000A

Creepage 31mm/kV

L6 (BCT) = 100 mm

the appropriate model would be "HCA/3616HC/100"

The same model, for L6 (BCT) = 300 mm would be "HCA/3616HC/300"

If same model is required with L6 (BCT) = 0 mm, it would be "HCA/3616HC/0"

* L2 depends on L6. L2 values in above table are valid for L6 = 0 mm.

If L6 > 0 mm is required, the additional L6 will be added to the L2 shown in table 1, to receive new L2.

Special creepage distances are available upon request. For Air end and Oil end terminal dimensions refer to the detailed bushing drawing.

For any non-standard, special dimensions different than above, please feel free to approach us to check for customized solutions.

For detailed dimensions for terminal connections, terminal holes diameters, terminal hole pitch please approach us for detailed GA drawing.

Product Range



OIP CONDENSER BUSHINGS

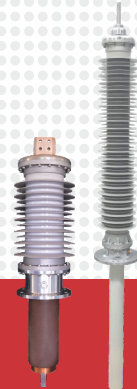
Rated Voltage
24 kV ~ 170 kV

Rated Current
Upto 4000 A

Standards
**IEC-60137:2017/
ANSI/IEEE**

Connection
**Draw lead/Draw
Rod/Stem type**

Housing
**Porcelain/
Composite**



RIP/RIS CONDENSER BUSHINGS

Rated Voltage
24 kV ~ 245 kV

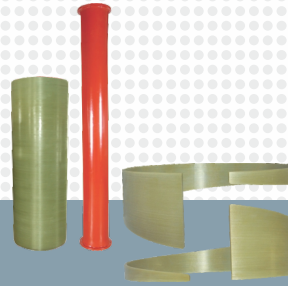
Rated Current
Upto 3150 A*

Standard
IEC-60137:2017

Connection
**Draw lead/Draw
Rod/Stem type**

Housing
**Composite/Polymeric/Si
licone**

* 6300 and other special
current ratings also
available on request



FIBER GLASS CYLINDERS & END RINGS

For power transformer
winding formers

Range
**~ 1800mm Diameter
~ 2800mm Height**

Material
**Filament wound cylinders
in epoxy/polyester resin**

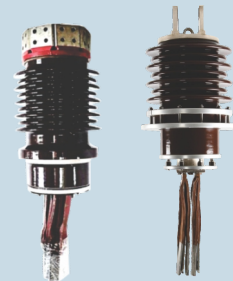
Application

- Power/Dry type transformers
- EHV test transformers
- Test equipment
- Tap changers



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