

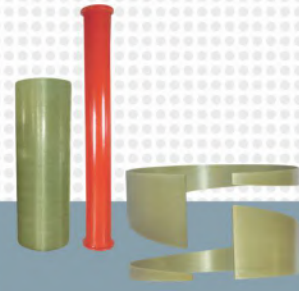

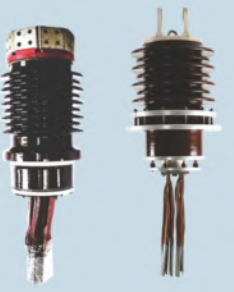


Product Range

| | | | |
|---|---|---|---|
|  <p>OIP CONDENSER BUSHINGS</p> <p>Rated Voltage 24 kV ~ 170 kV</p> <p>Rated Current Upto 4000 A</p> <p>Standards IEC-60137:2017/ ANSI/IEEE</p> <p>Connection Draw lead/Draw Rod/Stem type</p> <p>Housing Porcelain/ Composite</p> |  <p>RIP/RIS CONDENSER BUSHINGS</p> <p>Rated Voltage 24 kV ~ 245 kV</p> <p>Rated Current Upto 3150 A*</p> <p>Standard IEC-60137:2017</p> <p>Connection Draw lead/Draw Rod/Stem type</p> <p>Housing Composite/Polymeric/ Silicone</p> <p>* 6300 and other special current ratings also available on request</p> |  <p>FIBER GLASS CYLINDERS & END RINGS</p> <p>For power transformer winding formers</p> <p>Range ~ 1800mm Diameter ~ 2800mm Height</p> <p>Material Filament wound cylinders in epoxy/polyester resin</p> <p>Application</p> <ul style="list-style-type: none">• Power/Dry type transformers• EHV test transformers• Test equipment• Tap changers |  <p>RETROFIT SOLUTIONS</p> <p>Inter-changeable solutions with global reputed makes</p>  |
|---|---|---|---|

This document has been drawn up with the utmost care. We can not, however, guarantee that it is entirely complete, correct or up-to-date.
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Tiger

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High Current Bushings

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

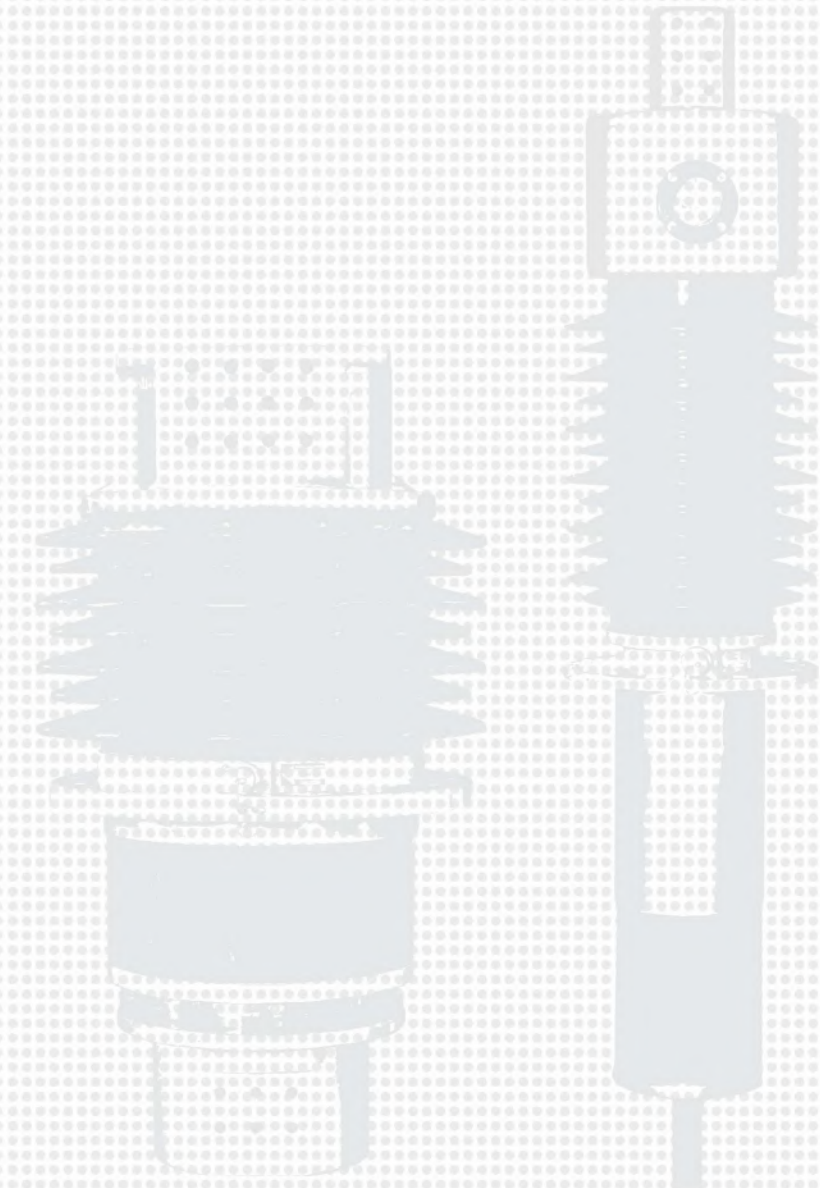
Application : Transformer - Outdoor

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

- 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

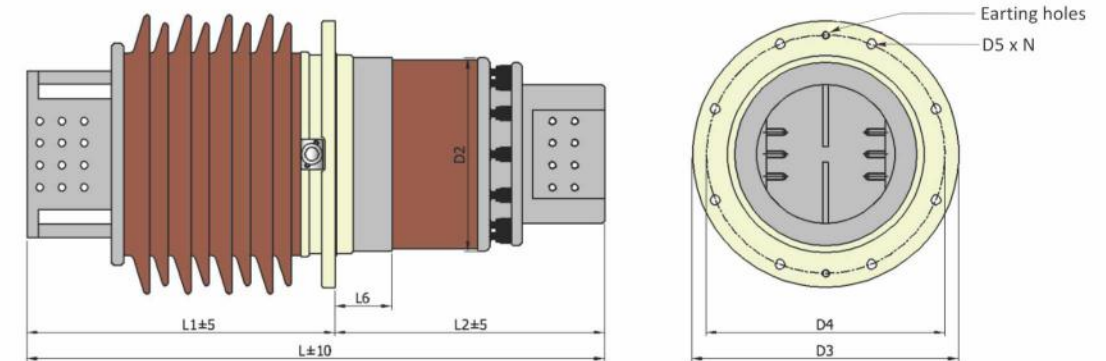
Multiple satisfactory performance credentials from customers & end users



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) | Creepage distance, mm | Cantilever load, N | L1- Air end length | L2- Oil end length for 0 mm BCT(*) | L- Total length | L6- CT 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 | | 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 |
| BOC.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 |

Standard: 0
Other CT space upon request upto 600



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/3616"HC/100
The same model, for L6 (BCT) = 300 mm would be "HCA/3616"HC/300
If same model is required with L6 (BCT) = 0 mm, it would be "HCA/3616"HC/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.