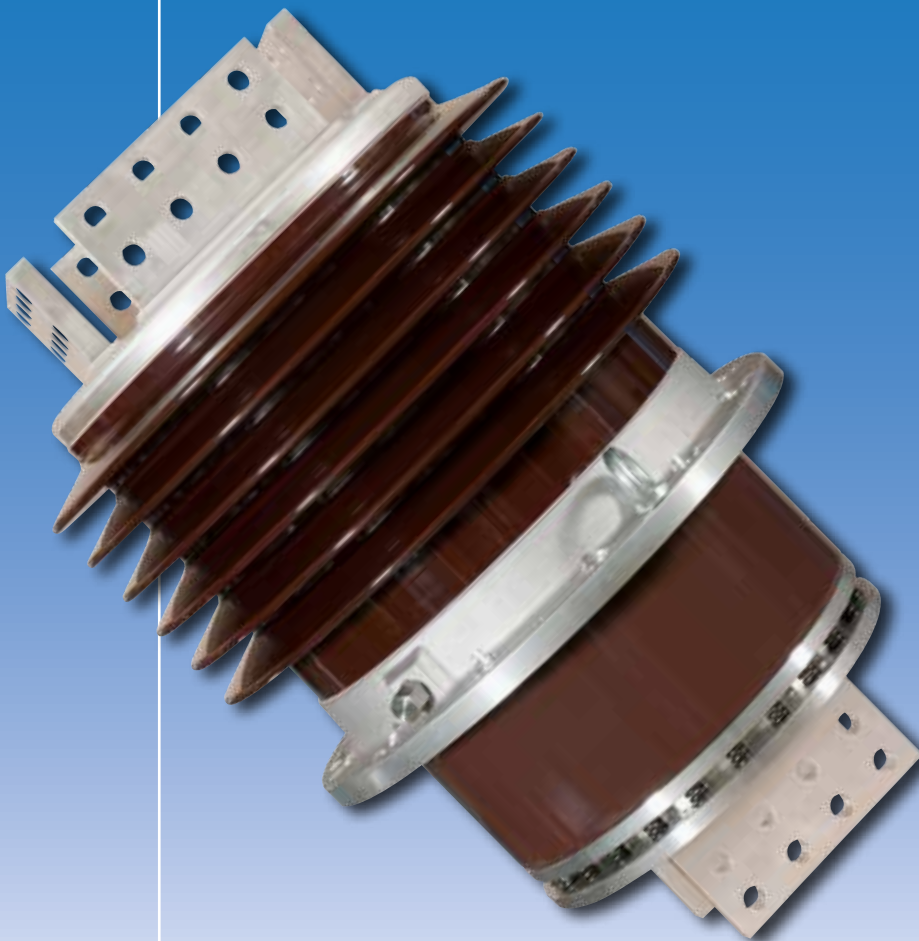


Transformer High Current Bushings
Type CFPT & CFCT
36kV
up to 31.5kA
IEC 60137-2008



High current bushings for transformer

Features

Bushing Type CFPT
version **Porcelain** Insulator



Bushing Type CFCT
version **Composite** Insulator



- Trench RIG technology for oil-free, dry type bushings

Experience:

- ❑ More than 10 000 pieces with this insulation in service for more than 30 years (Generator Bushings with I_r max. 50kA)

- Trench RIG technology (Resin Impregnated FiberGlass)

The active part consists of a solid core, made of fiber glass and inserted concentric layers for the electrical field distribution.

The active part is impregnated under vacuum with a special epoxy resin.

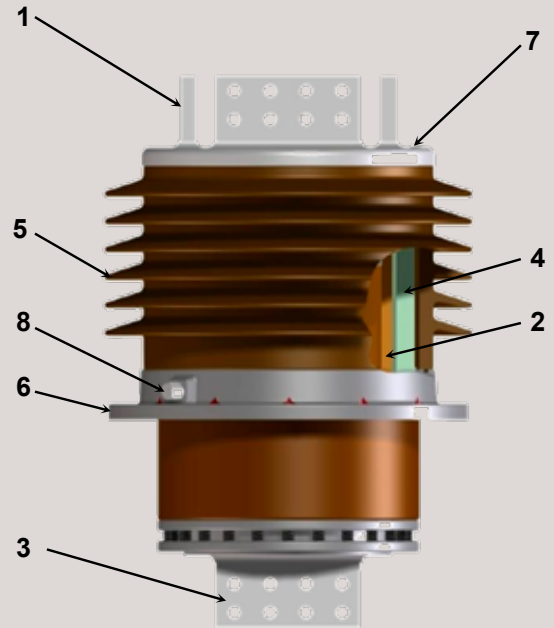
- Advantages and benefits

- ✓ Insulation (class F, 155°C) according IEC 60085
- ✓ Partial discharge <10pC at U_m
- ✓ Low dissipation factor ($\tan \delta$) <0,005
- ✓ No paper for insulation; limited sensibility to humidity
- ✓ Highest mechanical performance today
- ✓ Higher performance due to cooling system with transformer oil
 - ❖ No additional filling between porcelain and active part
- ✓ Tightness of the bushing is made by means of O-rings
- ✓ No over pressure in the bushing possible
- ✓ Easy Interchangeability with all existing designs
- ✓ Possibility to offer the whole package for GSU transformers
- ✓ Available with porcelain or composite insulator on air side with same dimensions
- ✓ Bushing can be vertically or horizontally mounted
- ✓ Standard creepage distance: 31mm/kV

High current bushings for transformer

Design

1. Top terminal in aluminum or copper (silver-plated)
2. Conductor in aluminum in standard or copper on request
3. Bottom terminal in aluminum or copper (silver-plated)
4. Active part in resin impregnated fiber glass
5. Insulator porcelain or composite
6. Flange in aluminum
7. Air escape screw
8. Test tap



Standards

- Trench RIG high current bushings are specified and tested according to the latest IEC 60137-2008 and IEEE C57.19.00-2004

Current rating

- The CFPT and CFCT bushings are designed to connect an oil filled transformer winding to a generator bus in a duct.
- The bushing current rating is guaranteed for the following environmental conditions:
 - Transformer oil temperature = 90°C
 - Maximum, hot spot, bushing conductor temperature = 135°C
 - Maximum ambient air temperature in bus duct = 70°C
- CFPT and CFCT bushings will operate properly regardless of the surrounding air temperature inside the bus duct
- Rated current can be increased when used without a bus duct.

Maintenance free

- Maintenance and inspection free
- The bushings are equipped with a test tap (see page 7 picture 5) on the flange. This enables the dielectric dissipation factor ($\tan \delta$) and the capacitance of the bushing to be measured.

Type CFPT & CFCT 36kV

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Highest voltage (Um)	Maximum phase to earth voltage	Bushing Dry Power frequency voltage withstand (AC)	Transformer Power frequency voltage withstand (AC)	Lightning Impulse withstand voltage (BIL)	Rated current (Ir)	CT Space L4	AD Arcing distance (min.)	Standard creepage distance 31mm/kV	Mass Approx.	Canilever test load (min)	L	L ₁	L ₂	L ₄	D ₁	D ₂	D ₃	D ₄	D ₅	øt	n	e	Number of upper connection pads	Number of lower connection pads	Top terminal	Bottom terminal	See connection page
kV	kV	kV	kV	kV	A	mm	mm	mm	kg	N	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
36	21	77	70	170	7800	Standard: 0, 300					855	320	535	0	220	290	335	265	390	15	12	22	4	1	2xØ18	4xØ18	page 6
					12000			1180	106	3150	855	320	535	0	300	400	450	345	490	20	12	22	6	2	2xØ18	4xØ18	page 7
					16000			1235	150	3150	855	320	535	0	400	535	590	445	590	22	16	22	10	2	2xØ18	6xØ18	page 8
					20000			1310	208	3150	855	320	535	0	525	620	680	570	730	22	16	22	14	2	2xØ18	8xØ18	page 9
					25000			1366	286	3150	855	320	535	0	625	720	780	670	830	22	16	22	16	2	2xØ18	12xØ18	page 10
					31500			1488	430	3150	1135	320	760	0	820	930	980	890	1050	22	24	25	22	2	2xØ18	16xØ18	page 11

Comments related to columns :

03: Bushings test voltage at 50Hz 60 sec.

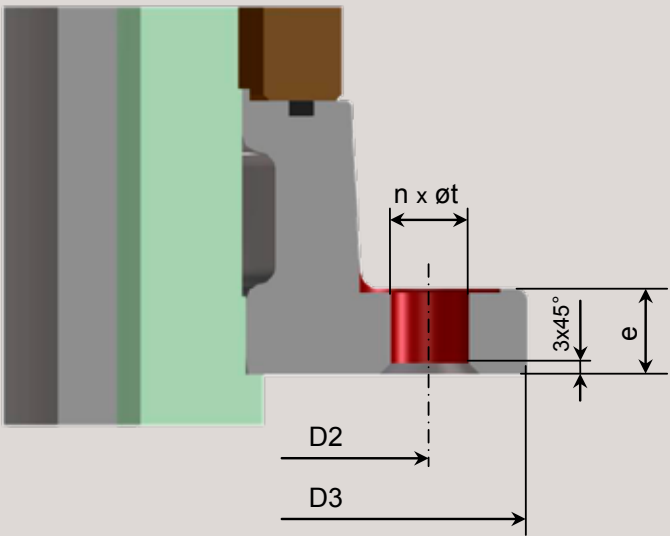
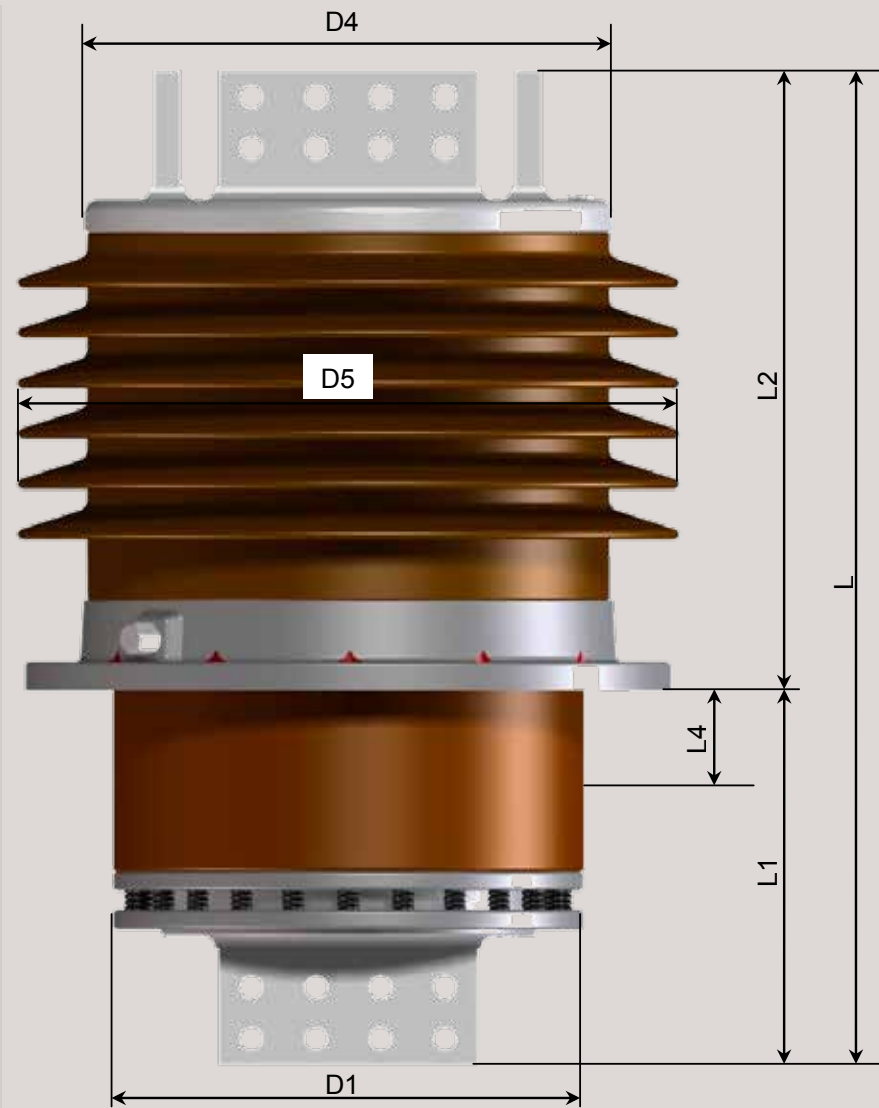
07: Other extension current transformer on request

08,09: Brown glazed porcelain, Gray color on request

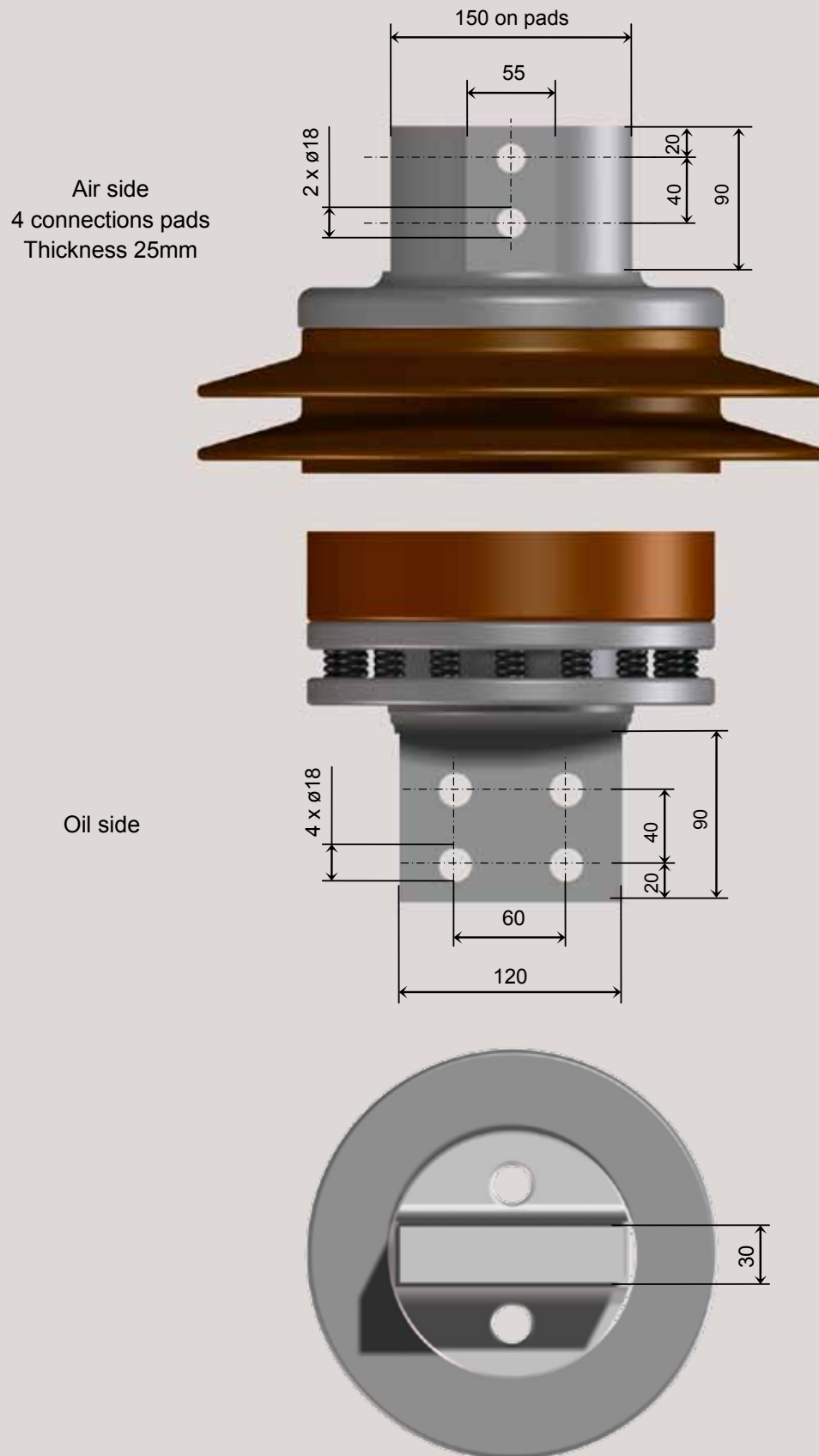
09: 31mm/kV in standard

12,13: L₁ depends on L₄. The values in the table are valid for L₄= 0mm. If L₄>0mm add L₄ to L₁ and L₂.

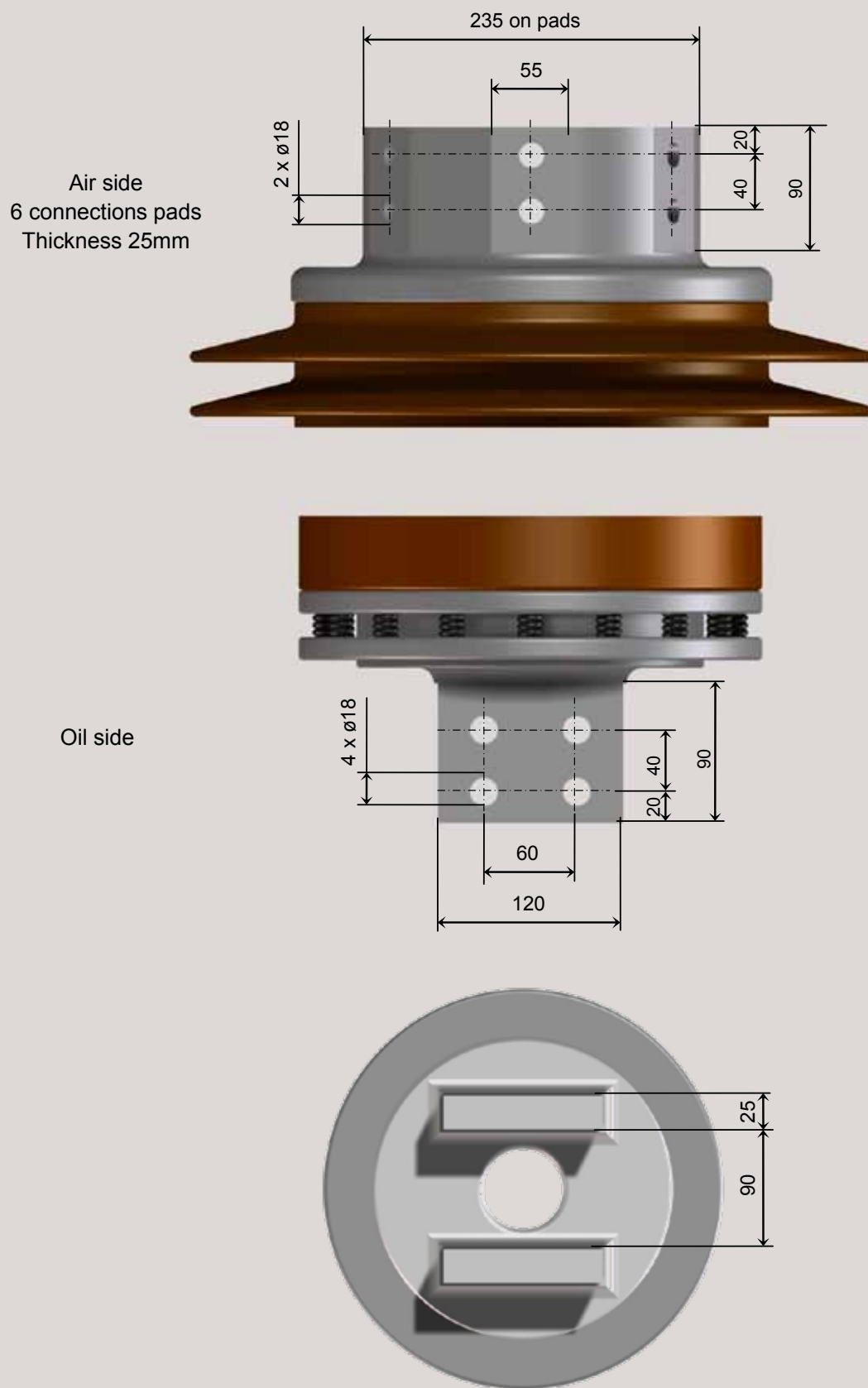
Dimensional Drawing



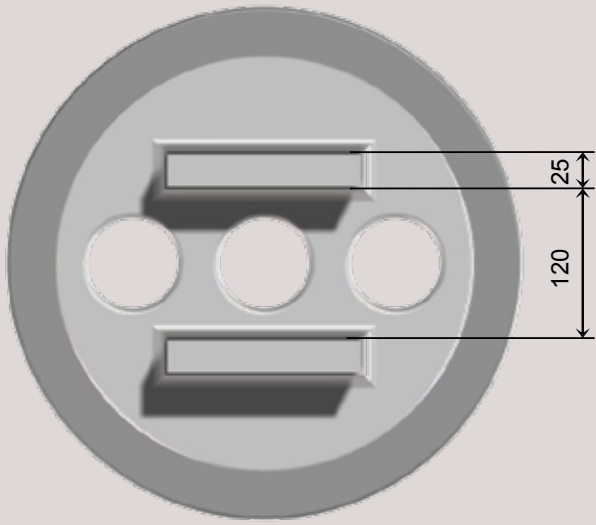
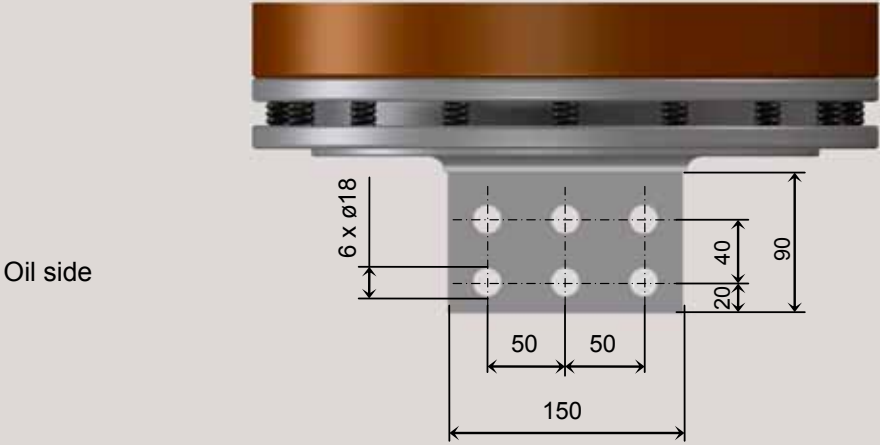
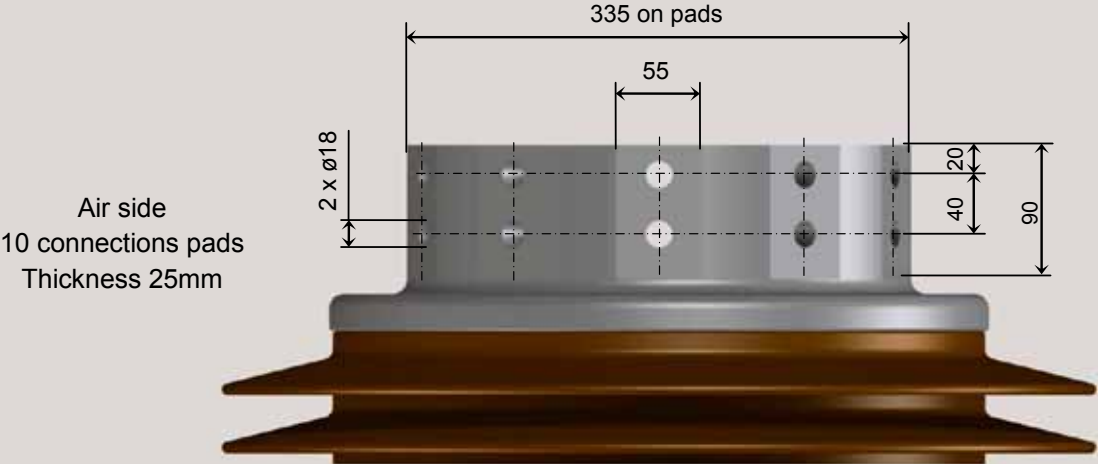
Standard Aluminum Connection 7800A



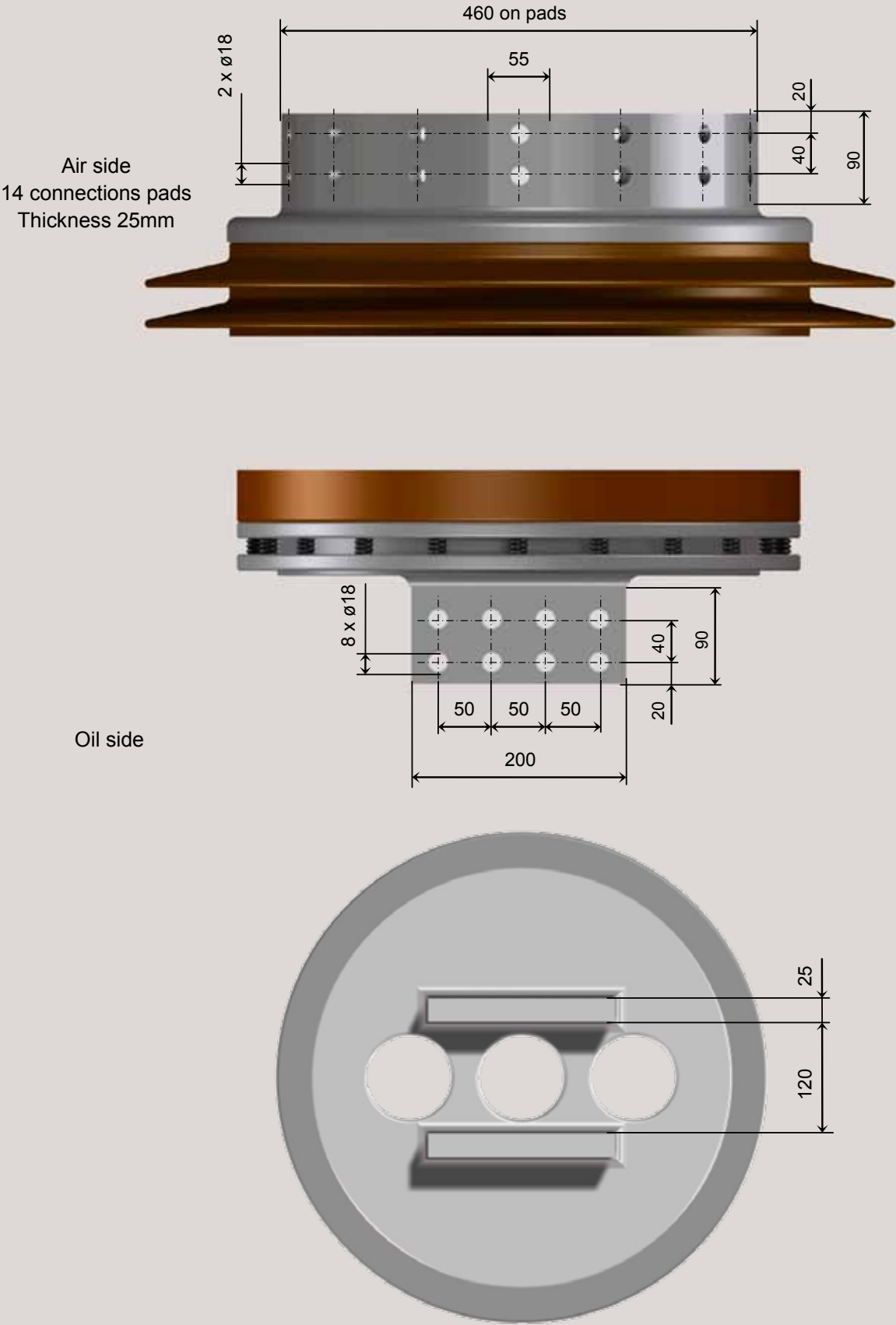
Standard Aluminum Connection 12000A



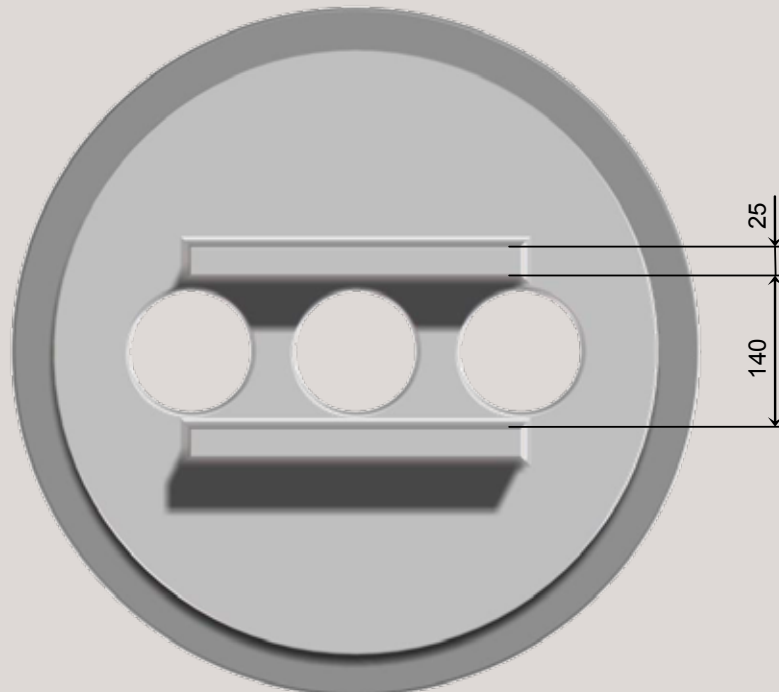
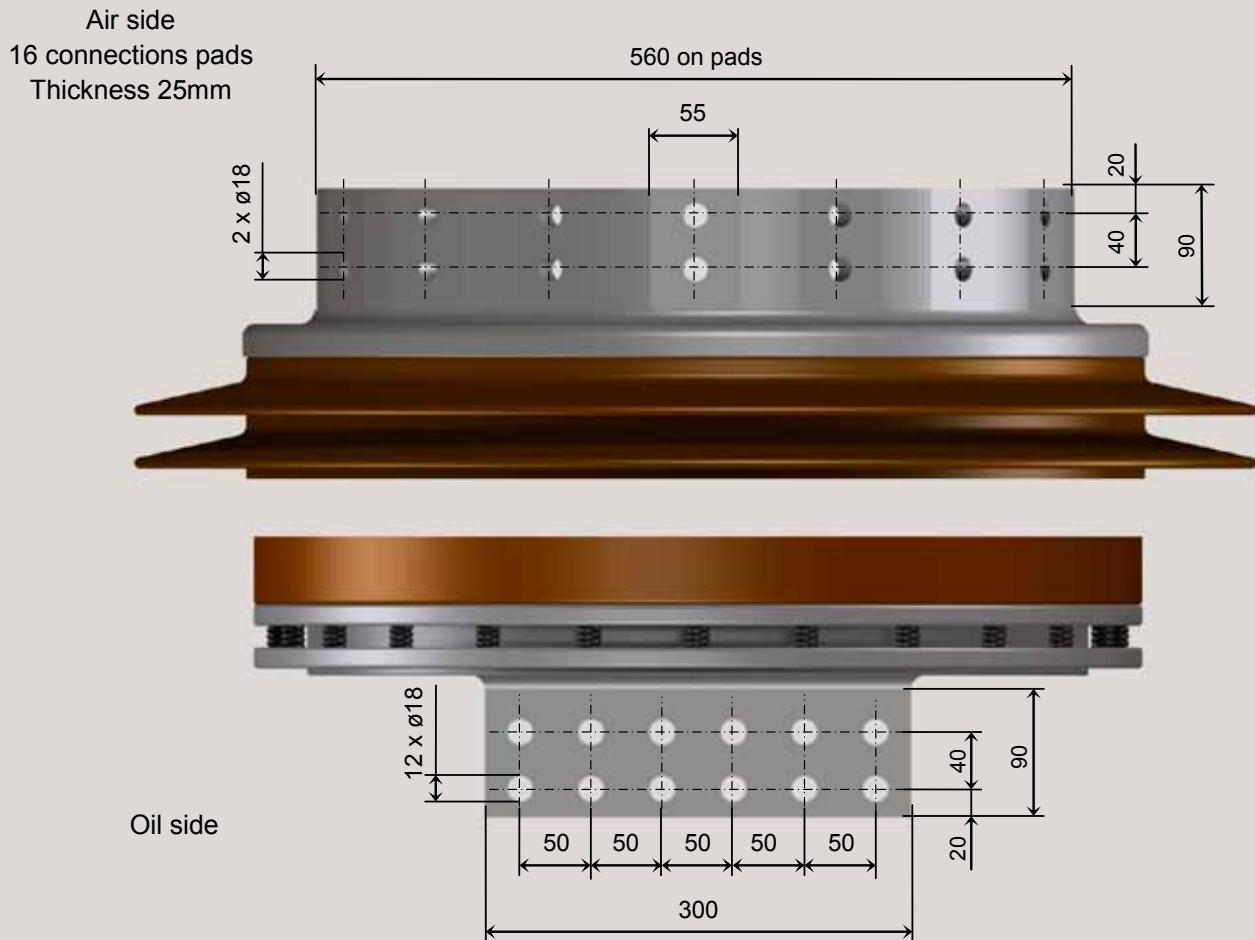
Standard Aluminum Connection 16000A



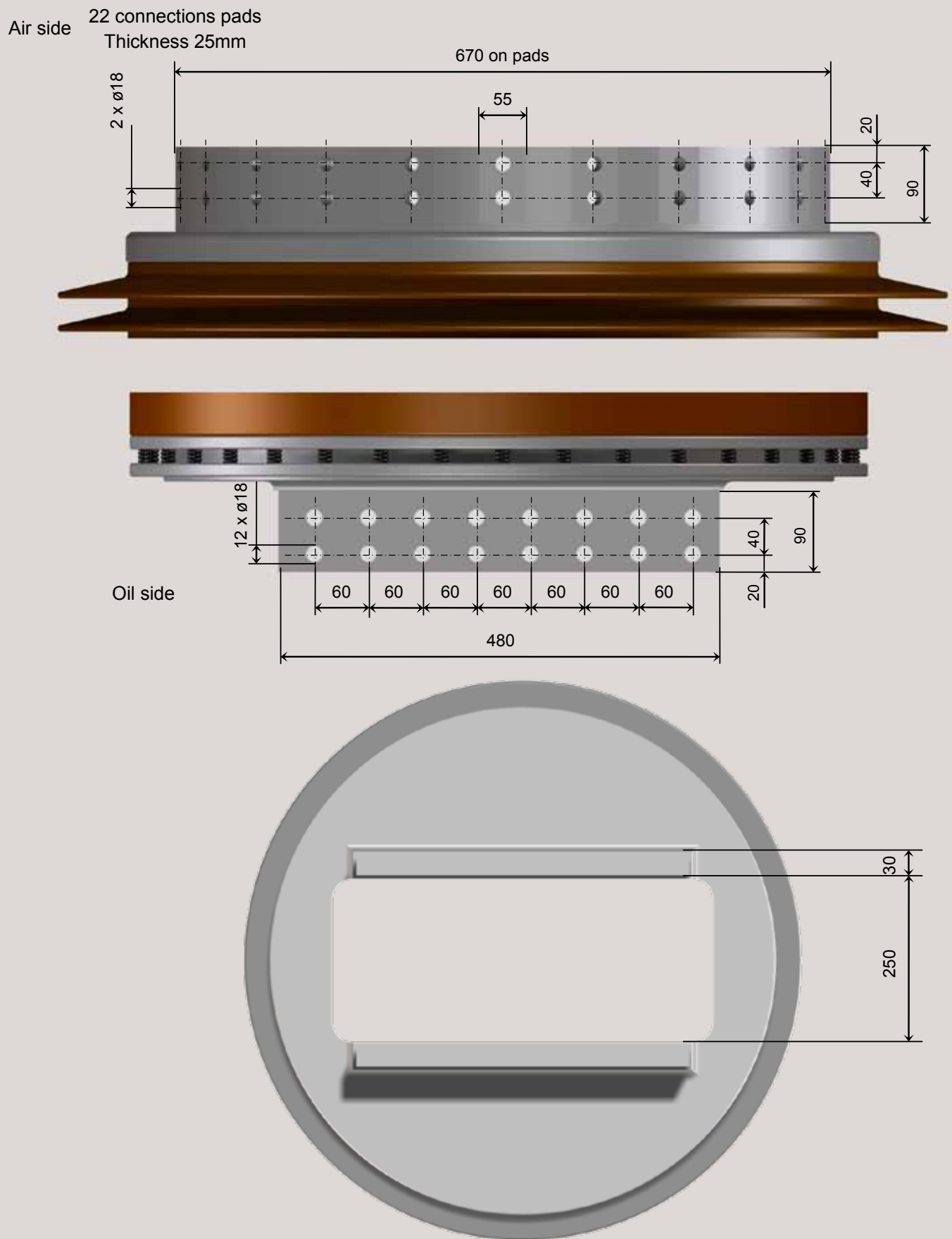
Standard Aluminum Connection 20000A



Standard Aluminum Connection 25000A

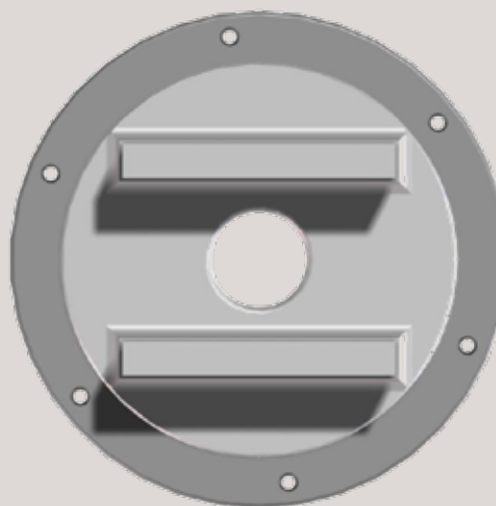


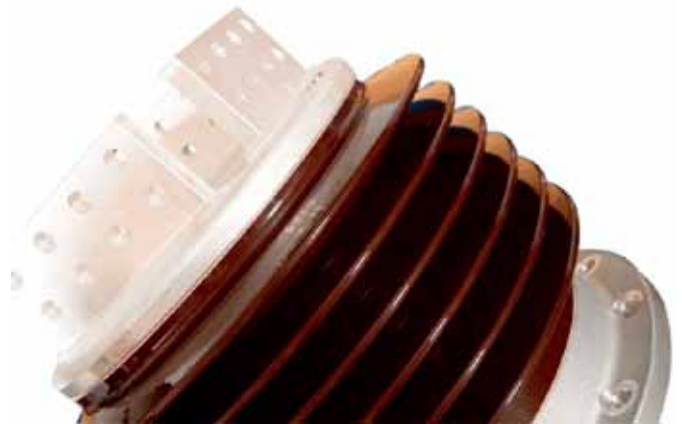
Standard Aluminum Connection 31500A



On Request

Every connection and interchangeability configuration can be done





Springs Lock System

Technical data request

☐ ☒ Mark the requested value...

Um	24kV	<input type="checkbox"/>
	36kV	<input type="checkbox"/>
	52kV	<input type="checkbox"/>
	Other	<input type="checkbox"/>

Up Transfo	50kV	<input type="checkbox"/>
	70kV	<input type="checkbox"/>
	95kV	<input type="checkbox"/>
	Other	<input type="checkbox"/>

BIL	125kV	<input type="checkbox"/>
	170kV	<input type="checkbox"/>
	250kV	<input type="checkbox"/>
	Other	<input type="checkbox"/>

Rated Current	7800A	<input type="checkbox"/>
	12000A	<input type="checkbox"/>
	16000A	<input type="checkbox"/>
	20000A	<input type="checkbox"/>
	25000A	<input type="checkbox"/>
	31500A	<input type="checkbox"/>
	Other	<input type="checkbox"/>

CT Space	0mm	<input type="checkbox"/>
	300mm	<input type="checkbox"/>
	Other	<input type="checkbox"/>

Terminals Material	Aluminum	<input type="checkbox"/>
	Copper	<input type="checkbox"/>
	Other	<input type="checkbox"/>

Maximum Oil Temperature	90°	<input type="checkbox"/>
	70°	<input type="checkbox"/>
	80°	<input type="checkbox"/>
	100°	<input type="checkbox"/>
	Other	<input type="checkbox"/>

Bus Duct	60°	<input type="checkbox"/>
	70°	<input type="checkbox"/>
	80°	<input type="checkbox"/>
	Other	<input type="checkbox"/>

Mounting	Vertical	<input type="checkbox"/>
	Horizontal	<input type="checkbox"/>
	Other	<input type="checkbox"/>

[illegible]



Product Range

Bushings for

- Power Transformers
up to 550 kV, 5000A
- High Current Application
up to 52 kV, 40kA
- Transformer to SF6
connection up to 550kV
- Gas-insulated Switchgear
(GIS) up to 800 kV, 6000A
- Generators
up to 36 kV, 50kA
- Railways
- Buildings , Wall
up to 245 kV, 5000A
- Bushings according
Standard IEC 60137
- Bushings according to
customer's special specification

Quality

At Trench quality is a way of life.
Trench quality assurance
complies with the most stringent
standards of ISO 9001 and ISO 14001.

Certified by AFAQ since 1994



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when concluding the contract.