

Bushings for metal clad installations

SF6 / Oil

Type SOT

123 kV to 550 kV

Up to 2500 A

According IEC 1639-1996 & IEC 60137-2008



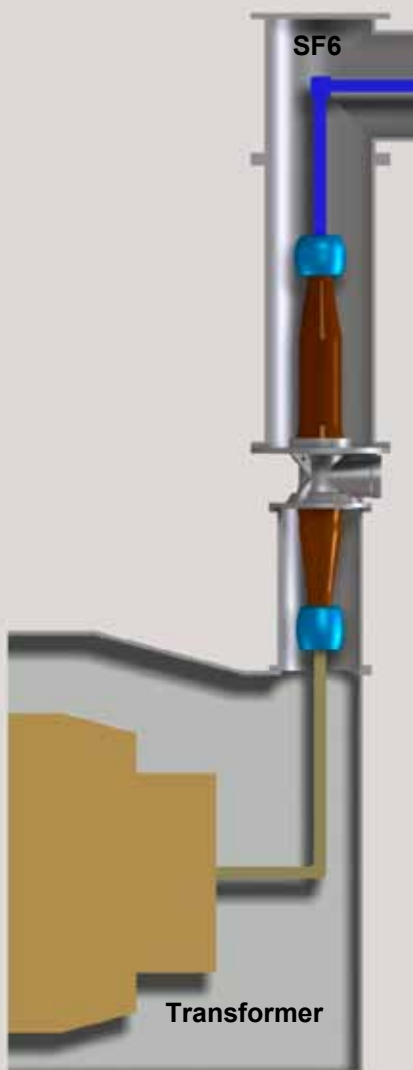
TRENCH



Bushings for transformer to gas insulated switchgear connections

Trench OIP technology for Oil / SF6 bushings

Bushing Type SOT



Application:

This type of bushing, suitable for direct connection between metal clad SF6-insulated switchgear and transformers, enables the integrating of power transformers to the grounded enclosure system of the switchgear.

It is no longer required to join the transformers to the switchgear by means of overhead lines or cables, thus saving outdoor bushing or cable end boxes on both switchgear and transformer side.

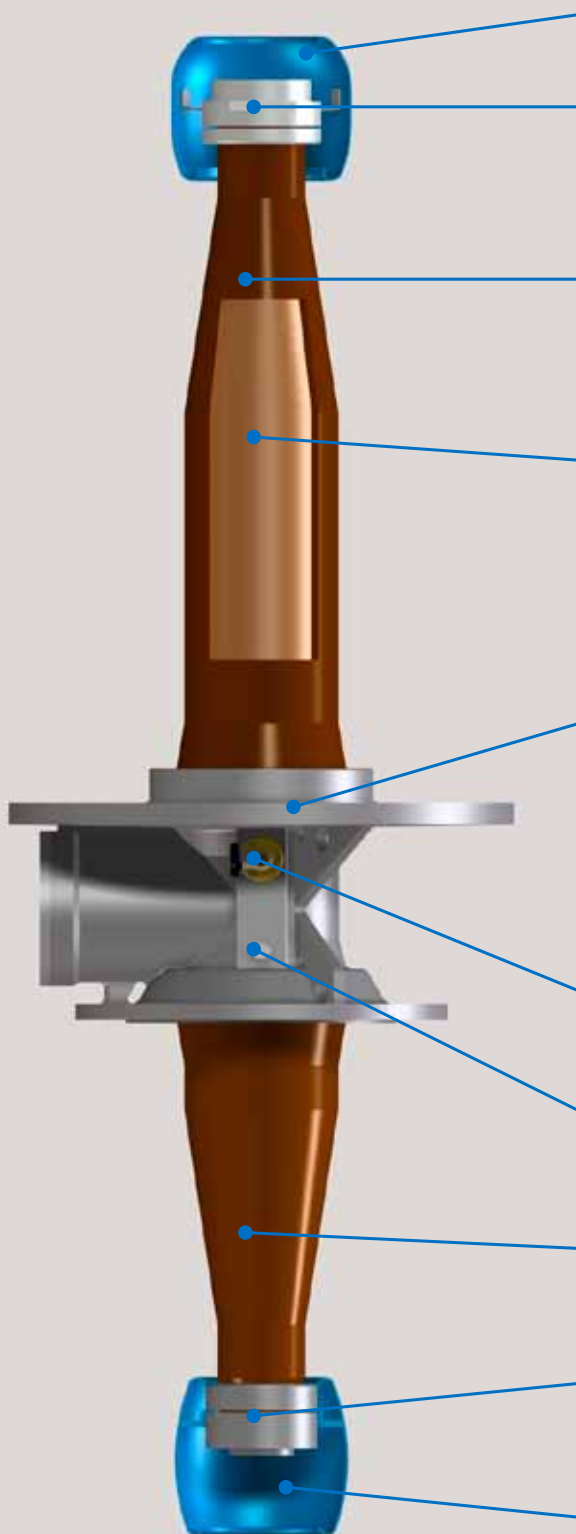
Features:

- ✓ Design is in line with latest requirements of IEC 1639 for gas side connection.
- ✓ Experience in bushing manufacture for more than 90 years.
- ✓ Capacitance fine graded oil-paper insulation with long experience.
- ✓ Computer optimized electrical field distribution.
- ✓ Proven high electrical withstand against transient or impulse test.
- ✓ Excellent long term stability due to extremely low partial discharge and power loss factor.
- ✓ Oil immersed part and SF6 part covered by epoxy resin tube providing high impact resistance.
- ✓ Tan δ and PD-values more than twice as good as requested by IEC 60137.
- ✓ Possibility to trace SF6 gas by means of doing DGA (dissolved gas analysis)
- ✓ Long term easy storage: Bushing 100% tight towards ambient humidity.

Certified ISO 9001

Certified ISO 14001

Oil / SF6 Bushing



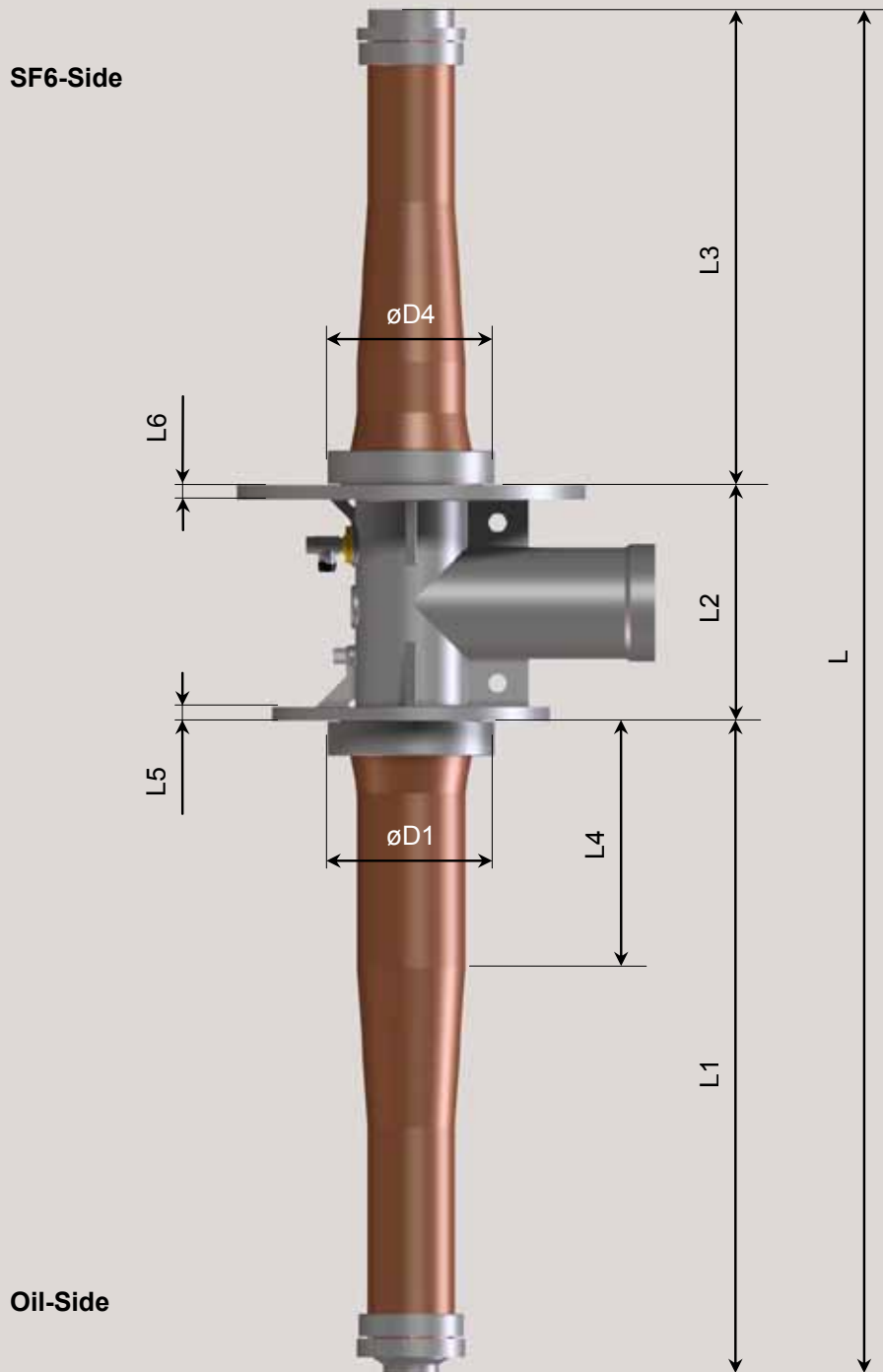
Design

- 1 SF6 side Shield (on request)**
- 2 SF6 side Terminal**
Terminal (Al or Cu) for connection is designed according standard IEC 1639.
- 3 SF6 side end**
The insulator on the SF6 side is made of an epoxy resin tube.
- 4 Active part**
The active part is made of oil-impregnated wide band paper with layers of aluminum foil to control the electrical field radially and axially. Depending on the current rating, the paper and foil are wound on either a central tube or conductor
- 5 Flange**
Mounting flange with integrated test tap and oil sampling device made of corrosion free aluminum alloy, machined to ensure an excellent seal between the bushing and the transformer or metal clad SF6 insulated switchgear.
- 6 Oil sampling device**
- 7 Test tap**
Test tap for through life capacitance and tan delta measurement.
- 8 Oil side end**
The insulator on the SF6 side is made of an epoxy resin tube.
- 9 Oil side terminal**
Terminal (Al or Cu) for connection
Dimensions according customer request
- 10 Oil side Shield (on request)**

Type SOT

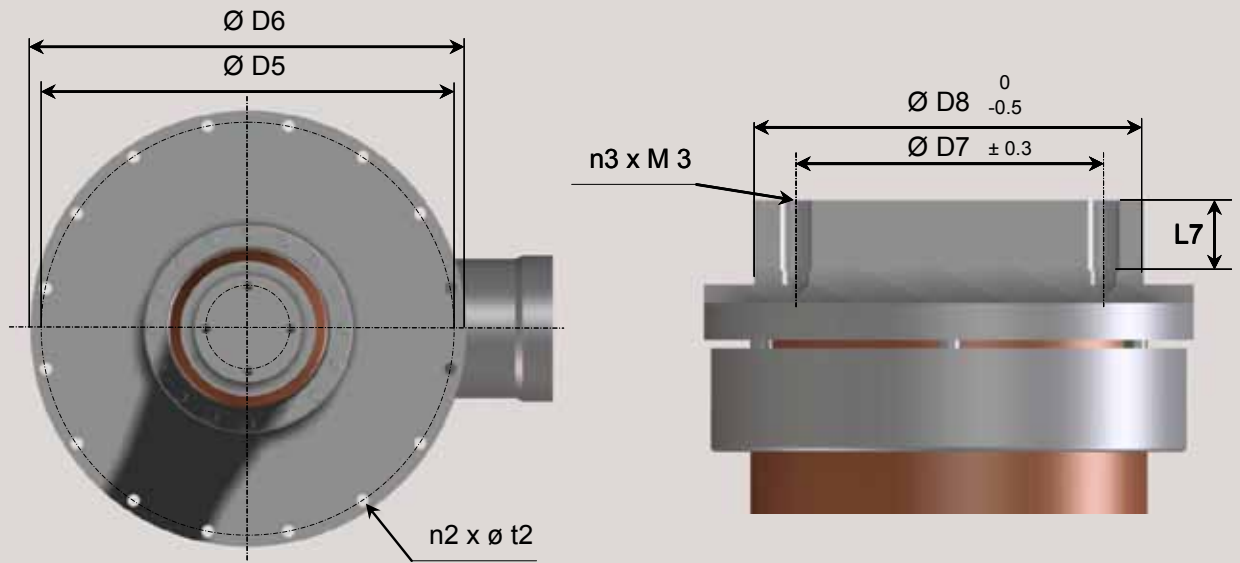
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Highest voltage (Um)	Maximum phase to earth voltage	Bushing Dry Power frequency voltage Withstand (AC)	Transformer Power frequency voltage Withstand (AC)	Lightning Impulse withstand voltage (BIL)	Switching Impulse withstand voltage (SIL)	Rated current (Ir)	CT Space L4	Mass Approx.	Cantilever test load (min)	L	L1	L2	L3	L5	L6	L7	L8	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	n1	t1	n2	t2	n3	m3	n4	m4	
kV	kV	kV	kV	kV	kV	A	mm	kg	N	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
123	71	255	230	550	-	1250	70	3150	1325	575	230	520 ±1	22	25	20	20	205	290	335	205	305	335	70	99	70	90	12	16	8	16	16	4	M12	4	M10	
145	84	305	275	650	-	1600	90	3150	90	3150	230	520 ±1	22	25	20	20	205	290	335	205	305	335	70	99	70	90	12	16	8	16	16	4	M12	4	M10	
170	98	355	325	750	-	1600	70	4000	70	4000	230	520 ±1	22	25	20	20	205	290	335	205	305	335	70	99	70	90	12	16	8	16	16	4	M12	4	M10	
245	142	505	460	1050	850	1250	120	4000	120	4000	382	770 ±2	23	23	25	25	270	400	450	270	535	565	565	110	139	90	115	16	24	16	20	20	24	24	20	20
420	243	695	630	1425	1050	1600	130	4000	130	4000	382	770 ±2	23	23	25	25	270	400	450	270	535	565	565	110	139	90	115	16	24	16	20	20	24	24	20	20
420	243	750	680	1550	1175	1600	140	5000	140	5000	382	770 ±2	23	23	25	25	270	400	450	270	535	565	565	110	139	90	115	16	24	16	20	20	24	24	20	20
420	243	750	680	1550	1175	2500	240	4000	240	4000	382	770 ±2	23	23	25	25	270	400	450	270	535	565	565	110	139	90	115	16	24	16	20	20	24	24	20	20
420	243	750	680	1550	1175	2500	265	4000	265	4000	382	770 ±2	23	23	25	25	270	400	450	270	535	565	565	110	139	90	115	16	24	16	20	20	24	24	20	20
420	243	750	680	1550	1175	2500	280	5000	280	5000	382	770 ±2	23	23	25	25	270	400	450	270	535	565	565	110	139	90	115	16	24	16	20	20	24	24	20	20
420	243	750	680	1550	1175	2500	240	4000	240	4000	382	770 ±2	23	23	25	25	270	400	450	270	535	565	565	110	139	90	115	16	24	16	20	20	24	24	20	20
420	243	750	680	1550	1175	2500	265	4000	265	4000	382	770 ±2	23	23	25	25	270	400	450	270	535	565	565	110	139	90	115	16	24	16	20	20	24	24	20	20
420	243	750	680	1550	1175	2500	280	5000	280	5000	382	770 ±2	23	23	25	25	270	400	450	270	535	565	565	110	139	90	115	16	24	16	20	20	24	24	20	20

Dimensional Drawing

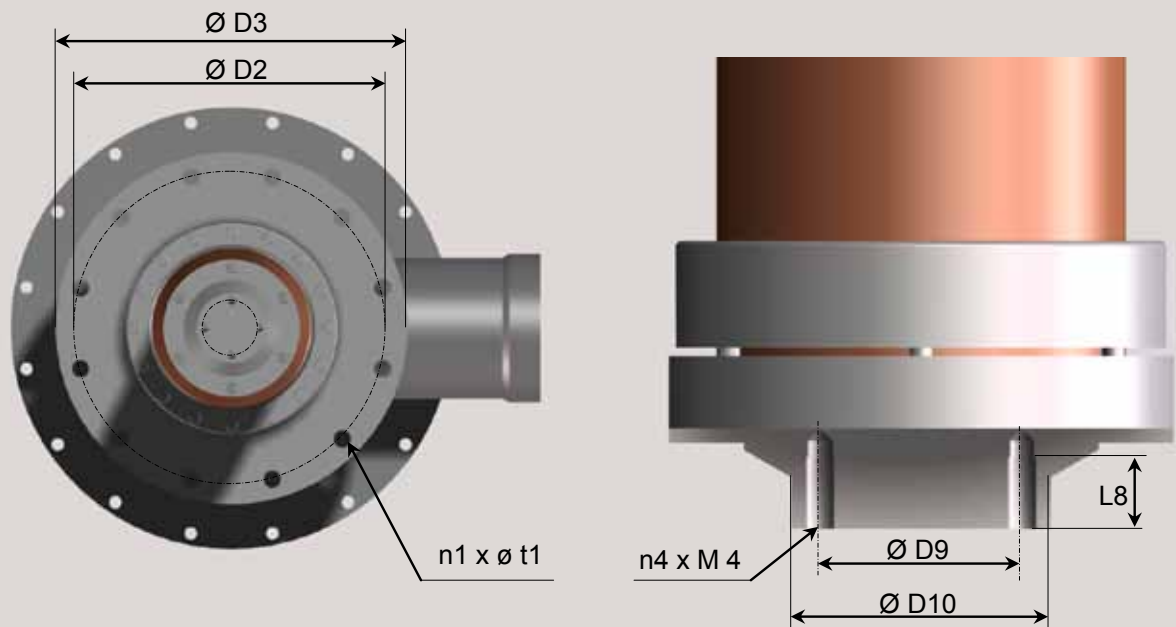


Dimensional Drawing

SF6 side

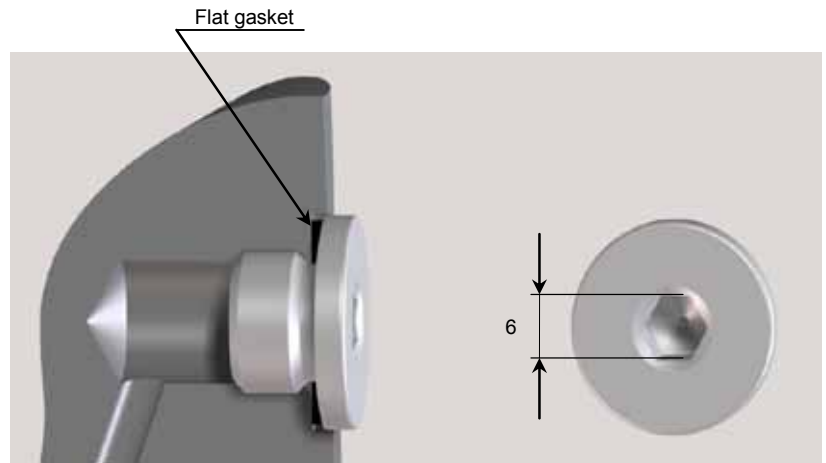


Oil side

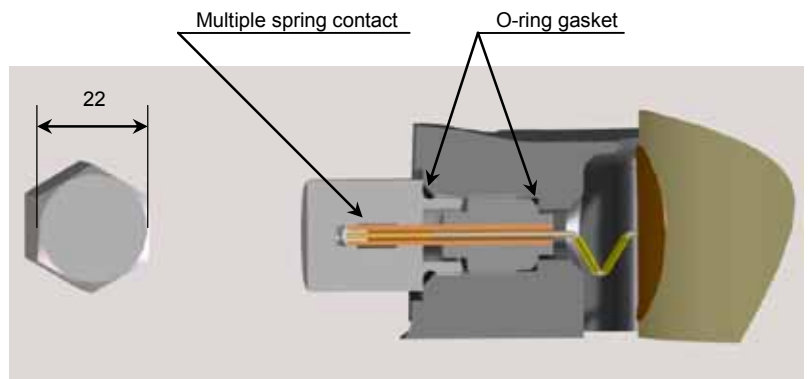


Standard

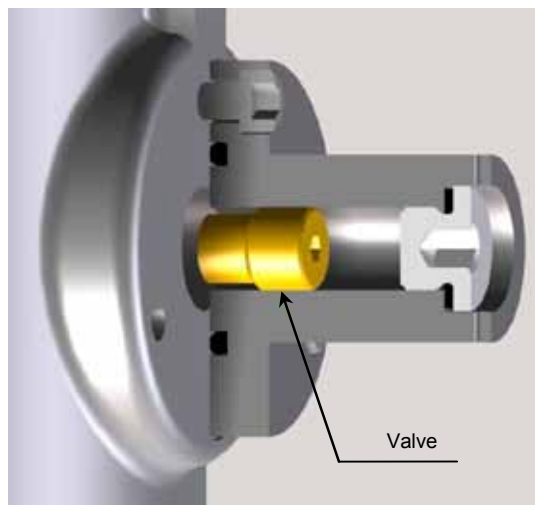
G1/4 Air Outlet



Test tap (2kV)



Oil sampling device



On request

Pressure control



This system permit to control the pressure inside of the bushing

Stress shield



Stress shields are also available with bayonet fixing system and screwed fixing system

If you need any Oil / SF6 bushing proven in operation conditions around the world, Trench has it!

Technical data request

Mark the requested value...

Um	123kV	<input type="checkbox"/>
	145kV	<input type="checkbox"/>
	170kV	<input type="checkbox"/>
	245kV	<input type="checkbox"/>
	420kV	<input type="checkbox"/>
	550kV	<input type="checkbox"/>
	Other	<input type="checkbox"/>

Up Transformer	230kV	<input type="checkbox"/>
	275kV	<input type="checkbox"/>
	325kV	<input type="checkbox"/>
	460kV	<input type="checkbox"/>
	630kV	<input type="checkbox"/>
	680kV	<input type="checkbox"/>
	Other	<input type="checkbox"/>

BIL	550kV	<input type="checkbox"/>
	650kV	<input type="checkbox"/>
	750kV	<input type="checkbox"/>
	1050kV	<input type="checkbox"/>
	1425kV	<input type="checkbox"/>
	1550kV	<input type="checkbox"/>
	1675kV	<input type="checkbox"/>
Other	<input type="checkbox"/>	

Rated Current	1250A	<input type="checkbox"/>
	1600A	<input type="checkbox"/>
	2500A	<input type="checkbox"/>
	Other	<input type="checkbox"/>

CT Space	100mm	<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	70°	<input type="checkbox"/>
	80°	<input type="checkbox"/>
	90°	<input type="checkbox"/>
	100°	<input type="checkbox"/>
	Other	<input type="checkbox"/>

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

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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features must therefore be defined in each individual case
when concluding the contract.