



ZD TOIP

- OIP Transformer Bushings
- ANSI/IEEE Standard
- 25kV-765 kV



(Appendix: IEC standard OIP Bushings Up to 1100kV)

JIANGSU ZHIDA HIGH VOLTAGE ELECTRIC CO., LTD



Jiangsu Zhida High Voltage Electrical Co., Ltd, doing business as (D/B/A) ZDVolt, specializes in advanced high-voltage solutions, including transformer bushings, GIS and breaker bushings, substation post insulators, and bushing/instrument current transformers. Its products are engineered for exceptional reliability and high performance.

Founded in 2003, ZDVolt is a privately held company with hundreds of patents. Its high-voltage bushing product line supports ratings up to 1000 kV and complies with IEC and ANSI/IEEE/CSA standards. ZDVolt's transformer bushings are available in OIP, RIP, RIS, SEC™, and P&O™ series. The company maintains an annual manufacturing capacity of approximately 30,000 bushings and bushing-type current transformers, with average 1-5 months lead times.

By the end of 2025, ZDVolt has installed more than 200,000 high-voltage bushings worldwide (including over 80,000 OIP bushings), including China, the United States, and Europe. Its patented "Porcelain & Oil" (P&O™) technology is the only field-proven, commercially available thermosiphon bushing solution in the industry, with over 10,000 installations.

ZDVolt operates fully integrated manufacturing facilities supported by a dozen in-house testing laboratories. These capabilities enable the production of key components such as porcelain using enhanced isostatic cold pressing, composite insulators, windings, metal parts, and fiberglass. ZDVolt also manufactures its patented BambuX™ composite insulators.

ZDVolt holds valid ISO 9001 (Quality), ISO 14001 (Environment), ISO 45001 (Occupational Health & Safety), GOST, UL, and ISO/IEC 17025 laboratory accreditations.

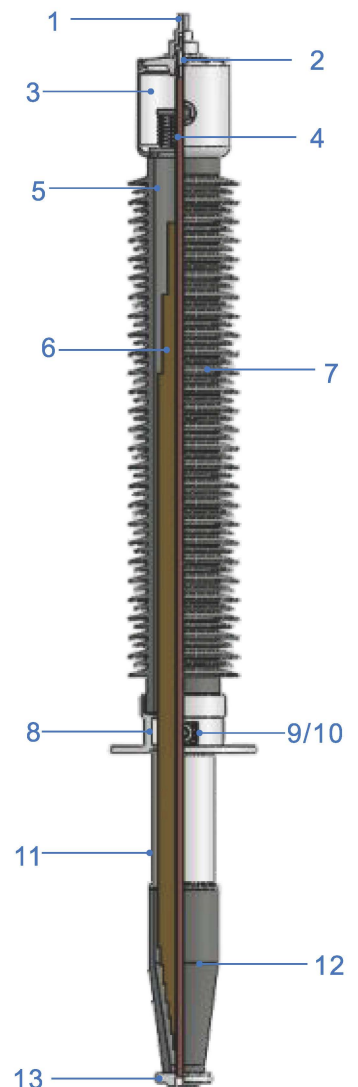


ZDTOIP -- OIP bushings designed for IEEE standard bushings.

ZDTOIP is a series of OIP bushings developed by ZDVolt, with dimensions and electrical performance strictly in accordance with IEEE Std. C57.19.01-2017 and IEEE Std. C57.19.00-2023. Voltage and current fully cover the standard rated levels. The main insulation of this bushing is an oil-impregnated paper capacitor core, which is made by wrapping aluminum foil with kraft paper to form a coaxial series capacitor. After vacuum drying, it is impregnated with treated qualified insulating oil to form an oil-impregnated paper insulation system. The external insulator is made of high-strength porcelain, the glaze is light gray in accordance with ANSI standard, but brown glaze is also as an option.

Bushing structure

1. **Top terminal:** Connected to the outer terminal, silver plated brass or copper
2. **Inner terminal:** Connected to the transformer cable, draw lead type.
3. **Oil expander:** Aluminum alloy, it is equipped with an oil gauge for oil observation.
4. **Coil spring:** Assemble all the parts together relies on the springs' pressure.
5. **Insulation oil:** #45 mineral oil.
6. **Capacitor core:** Main insulation, kraft paper wrapped with foil.
7. **External insulator:** High-strength porcelain, gray glaze. Standard creepage distance of 54mm/kV (extra heavy pollution).
8. **Mounting flange:** Aluminum alloy.
9. **Test tap (up to 69kV bushings):** 25kV to 69kV bushings are equipped with a power factor test tap. The tap is connected to the last layer of the capacitor core and must be grounded when in service.
10. **Voltage tap (115kV bushings and above):** Bushings rated at 115kV and above are equipped with a voltage tap. The tap can be used for testing. It can be connected to the online monitor device or be grounded directly when in service. The tap is ANSI/IEEE standard type A, normally grounded.
11. **CT pocket:** Aluminum alloy, CT space.
12. **Lower insulator:** Porcelain, gray glaze.
13. **Bottom terminal:** Tinned brass.



Bushing electric performance

All the bushings are tested in accordance with IEEE Std. C57.19.00-2023.

Design test

- Leak test
- Draw-lead bushing cap pressure
- Cantilever strength
- Capacitance measurement
- Power factor
- Tap withstand voltage
- Full-wave lightning-impulse withstand voltage
- Chopped-wave lightning-impulse withstand voltage
- Rated frequency wet withstand voltage (900-kV BIL and below)
- Switching-impulse withstand voltage
- Rated frequency dry withstand test with partial discharge measurement
- Temperature rise
- Verification of nameplate markings

Routine test

- Leak test
- Capacitance measurement
- Power factor
- Tap withstand voltage
- Rated frequency dry withstand with partial discharge measurement
- Capacitance measurement
- Power factor
- Verification of nameplate markings

Electric performances exceed ANSI/IEEE standard requirements.

Higher electric performances	PD at 1.5 times L-G voltage	C1 Power factor
IEEE Std. C57.19.01-2017	10pC	0.5%
ZDVolt level	5pC	0.4%

Note:

Partial discharge of ZDVolt OIP bushings shall not exceed 10 pC at 1.5 Um.

Bushing characteristics

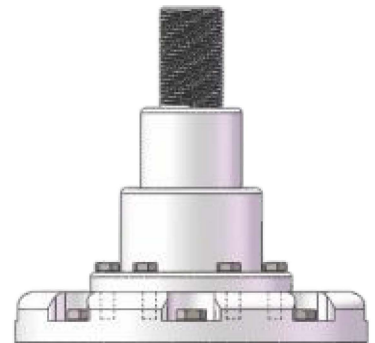
Dimensions and ratings

ZDVOIP bushings cover all voltage class (25 to 765kV) & all current ratings (400 to 5000A). Dimensions and electric performances are strictly in accordance with ANSI/IEEE Std. C57.19.01-2017 & C57.19.00-2023.

Top terminal

Top terminal is an integral cast structure with an advanced sealing design, eliminating the risk of water ingress.

NEMA top terminal pad can be offered as an optional accessory.



Oil level

The oil expander is equipped with a glass oil gauge that can directly see the oil level. The oil level changes mainly because of the ambient temperature. Abnormal oil level needs to evaluate the service condition to confirm the reason. For bushings of 230kV and above, there are two oil gauges that need to be combined to determine the oil level. As long as the oil level can be seen on the gauge below, it is sufficient.



Oil level too high



Normal oil level



Oil level too low

Draw lead

Inner terminal and top terminal are connected through multi-contact blades, with excellent current carrying performance and easy installation. ZDVolt can provide different types of inner terminal for customers to choose from, like welding type, forging type, board contact type and unprocessed type (processed by customer).



Note:

Draw lead type can convert to 1200A bottom connected type by changing the inner terminal.

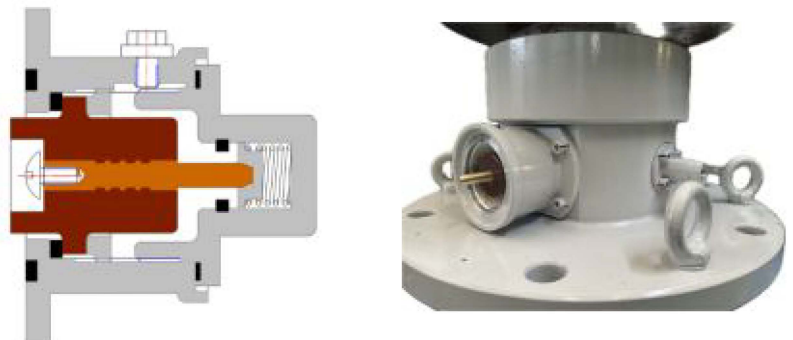
Test tap

Bushings up to 69kV are equipped with a test tap for testing. The tap must be grounded when in service. A standard 4mm test pin needs to be inserted into the tap hole when testing.



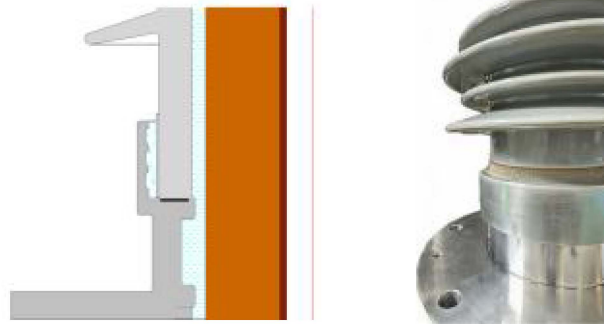
Voltage tap

Bushings rated at 115kV and above are equipped with a voltage tap for testing and can also be used for connecting to the online monitoring device. The tap is ANSI/IEEE standard type A, normally grounded. According to ANSI/IEEE standard, the withstand voltage from tap to earth can reach 20kV at least.



Porcelain structure

For 115kV bushings and above, the porcelain and flange are assembled together with cement, which increases the bending strength and seismic performance. The seismic level can reach at least 0.5g.



Bushing service condition

Ambient temperature

Normally -40~+40°C. Min. ambient temperature affects the selection of the sealing gasket material.

Option (after catalog No.)	Min. ambient temperature	Sealing gasket material
Default	Above -30°C	Nitrile rubber
L	-30°C to -45°C	Low temperature-resistant nitrile rubber
LL	Below -45°C	Fluorosilicone rubber

Note:

- 1, Special temperature must be emphasized in the order document.
- 2, If the max. temperature exceeds 40°C, it is best to choose the higher current grade.

Mounting angle

Due to the fact that the capacitor core must be fully immersed in oil, the installation angle should not exceed 30 degrees from the vertical. For larger angles or horizontal installation, please select the ZDTRIP type.

High anti-corrosion area

Most of the bushing metal parts are made of aluminum alloy, which have high corrosion resistance. For areas below C5 level, no special treatment is required, while for areas at C5 and above, special painting treatment is required.

High pollution area

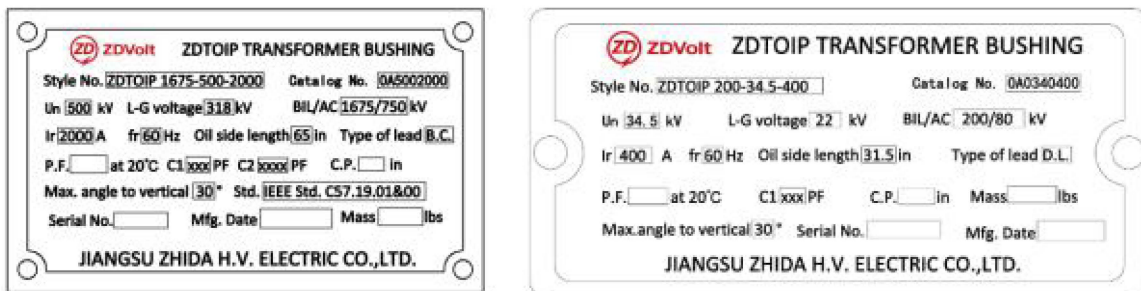
ZDTOIP bushings' porcelains are designed in accordance with the extra heavy pollution level (USCD:54mm/kV), So it can satisfy high pollution area. If the customer needs higher pollution level, ZDVolt can also specially design for it. Add "H" after catalog No. if necessary.

High altitude area

At high altitudes, it is necessary to improve the external insulation level of the bushing, that is, to increase the arcing distance of the bushing. Each voltage level of bushings has a maximum applicable altitude. If the altitude exceeds it, the bushing needs to be specially designed. If the altitude is high enough, it is recommended to increase the voltage level for use. Add "H" after catalog No. if necessary.

Nameplate sample

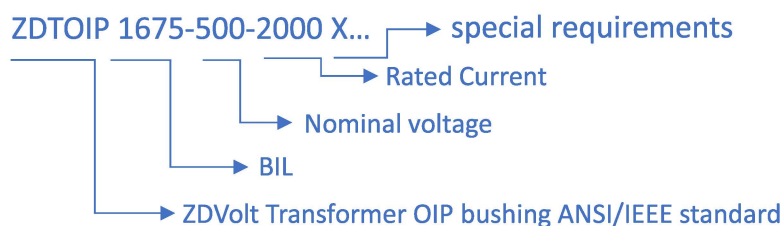
Every bushing is provided with a nameplate made of stainless steel. It contains all the electric data, serial No. and all the information in accordance with ANSI standard.



Style No. and catalog No.

Bushing is defined by the style No. and the catalog No. together. The style No. determines the bushing’s type, BIL, voltage and current. The catalog No. determines the unique of the bushing including the dimension and structure. Usually, for special requirements that affect the dimension and structure of the bushing, some letters will be added after the Catalog No. to indicate specific meanings. IEEE std. bushing is strictly unique, we add the letters after the style No. as well for special requirements.

Style No. example:

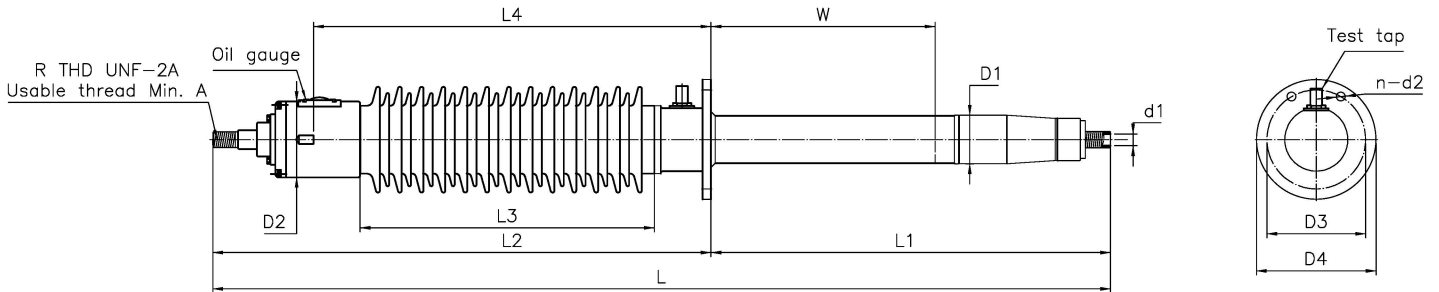


Special requirements		Style No.	Catalog No.
Standard name		ZD TOIP 1675-500-2000	OA5002000
High altitude		ZD TOIP 1675-500-2000 H	OA5002000H
Low temperature	-30°C~-45°C	ZD TOIP 1675-500-2000 L	OA5002000L
	Below -45°C	ZD TOIP 1675-500-2000 LL	OA5002000LL
Special type of lead	Draw lead	ZD TOIP 1675-500-1200 C	OA50001200C
	Bottom connected	ZD TOIP 1675-500-800 G	OA5000800G
Special BIL		ZD TOIP 1800-500-2000	OA5002000A
Other special requirements		ZD TOIP 1675-500-2000 S1	OA5002000S1....

ZDVolt solution

- ZDVolt can provide all related accessories of bushings, including top& bottom terminals and shields.
- ZDVolt has sufficient replacement experience, replacing various types of bushings in the industry, not limited to IEEE Std.
- Short delivery time and high compatibility. Except for insulation paper and insulation oil, all parts ZDVolt can be internally supplied to shorten the delivery time.

ZD TOIP range from 25 to 69kV ratings & dimensions



Style No.	Catalog No.	Nominal voltage	BIL	Rated current	Creepage distance Min.		Arcing distance Min. (L3)		Max. altitude		Overall length (L)		Length above flange (L2)		Length below flange (L1)		Min. oil level and CT length (W)	
		kV	kV	A	mm	in	mm	in	m	ft	mm	in	mm	in	mm	in	mm	in
ZD TOIP 150-25-400	OA0250400	25	150	400	780	30.71	300	11.81	2700	8856	1454	57.24	705	27.76	749	29.5	533	21
ZD TOIP 150-25-1200	OA0251200	25	150	1200	780	30.71	300	11.81	2700	8856	1454	57.24	705	19.74	749	37.5	533	21
ZD TOIP 150-25-2000	OA0252000	25	150	2000	780	30.71	300	11.81	2700	8856	1495	58.86	695	19.36	800	39.5	533	21
ZD TOIP 150-25-3000	OA0253000	25	150	3000	780	30.71	300	11.81	2700	8856	1605	63.19	805	23.69	800	39.5	533	21
ZD TOIP 150-25-5000	OA0255000	25	150	5000	780	30.71	300	11.81	2700	8856	1753	69.02	915	29.52	838	39.5	533	21
ZD TOIP 200-34.5-400	OA0340400	34.5	200	400	1076	42.36	400	15.75	2700	8856	1655	65.16	855	33.66	800	31.5	533	21
ZD TOIP 200-34.5-1200	OA0341200	34.5	200	1200	1076	42.36	400	15.75	2700	8856	1655	65.16	855	27.66	800	37.5	533	21
ZD TOIP 200-34.5-2000	OA0342000	34.5	200	2000	1076	42.36	400	15.75	2700	8856	1691	66.57	840	27.07	851	39.5	533	21
ZD TOIP 200-34.5-3000	OA0343000	34.5	200	3000	1076	42.36	400	15.75	2700	8856	1751	68.94	900	29.44	851	39.5	533	21
ZD TOIP 200-34.5-5000	OA0345000	34.5	200	5000	1076	42.36	400	15.75	2700	8856	1866	73.46	1015	33.96	851	39.5	533	21
ZD TOIP 250-46-400	OA0460400	46	250	400	1435	56.50	485	19.09	2700	8856	1791	70.51	839	33.03	952	37.5	533	21
ZD TOIP 250-46-1200	OA0461200	46	250	1200	1435	56.50	485	19.09	2700	8856	1791	70.51	839	33.01	952	37.5	533	21
ZD TOIP 250-46-2000	OA0462000	46	250	2000	1435	56.50	485	19.09	2700	8856	1827	71.93	824	32.43	1003	39.5	533	21
ZD TOIP 250-46-3000	OA0463000	46	250	3000	1435	56.50	485	19.09	2700	8856	1887	74.29	884	34.79	1003	39.5	533	21
ZD TOIP 250-46-5000	OA0465000	46	250	5000	1435	56.50	485	19.09	2700	8856	2040	80.31	1037	40.81	1003	39.5	533	21
ZD TOIP 350-69-400	OA0690400	69	350	400	2155	84.84	700	27.56	2700	8856	2152	84.72	1200	47.24	952	37.5	533	21
ZD TOIP 350-69-1200	OA0691200	69	350	1200	2155	84.84	700	27.56	2700	8856	2152	84.72	1200	47.22	952	37.5	533	21
ZD TOIP 350-69-2000	OA0692000	69	350	2000	2155	84.84	700	27.56	2700	8856	2193	86.34	1190	46.84	1003	39.5	533	21
ZD TOIP 350-69-3000	OA0693000	69	350	3000	2155	84.84	700	27.56	2700	8856	2233	87.91	1230	48.41	1003	39.5	533	21
ZD TOIP 350-69-5000	OA0695000	69	350	5000	2155	84.84	700	27.56	2700	8856	2353	92.64	1350	53.14	1003	39.5	533	21

*a: DL means draw lead, BC means Bottom connected.

ZD TOIP—OIP TRANSFORMER BUSHINGS ANSI/IEEE STD.

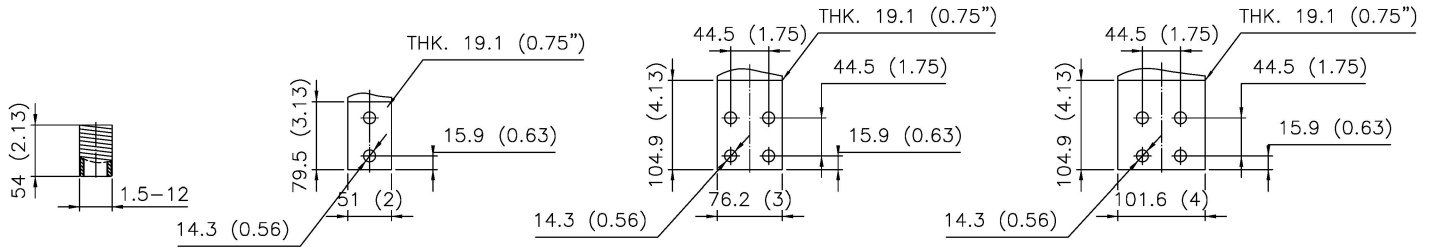


Fig. 1.1

Fig. 1.2

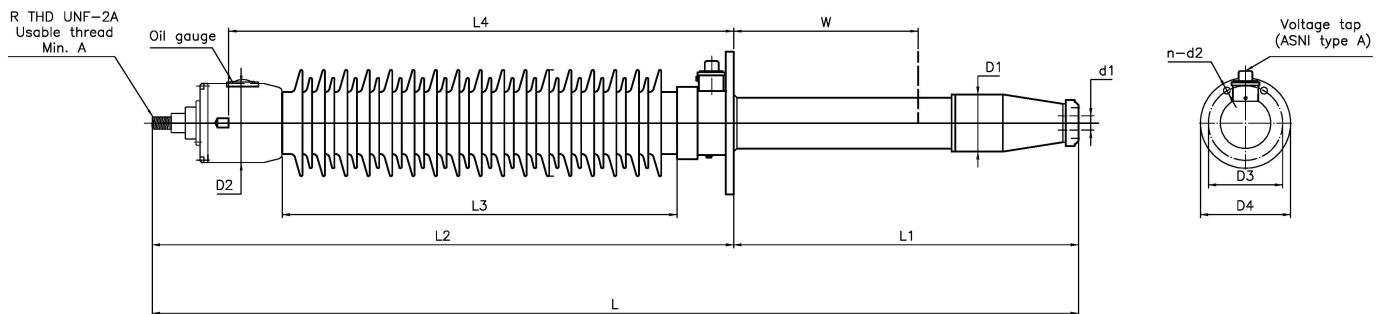
Fig. 1.3

Fig. 1.4

Oil end diameter Max. (D1)		Type of lead	Inner tube diameter (d1)		Draw lead length (air side)		Bottom terminal			Top terminal		Head metal part diameter (D2)		Flange gasket space				Flange					
							Fig.	N		R	A			Inside diameter Max.		Outside diameter Min.		Holes No.	Hole size		B.C.		
mm	in		mm	in	mm	in		mm	in		mm	in	mm	in	mm	in	mm	in	No.	mm	in	mm	in
79	3.11	DL	22	0.88	475	18.70	-	-	-	1.5-12	54	2.13	140	5.51	152	6	210	8.25	4	22	0.88	184	7.25
79	3.11	BC	-	-	-	-	1.1	-	-	1.5-12	54	2.13	140	5.51	152	6	210	8.25	4	22	0.88	184	7.25
92	3.62	BC	-	-	-	-	1.2	-	-	1.5-12	64	2.5	140	5.51	152	6	210	8.25	4	22	0.88	184	7.25
115	4.53	BC	-	-	-	-	1.3	-	-	2.0-12	76	3	180	7.09	178	7	235	9.25	4	22	0.88	210	8.25
160	6.30	BC	-	-	-	-	1.4	-	-	4.0-12	102	4	250	9.84	254	10	324	12.75	6	22	0.88	260	10.25
89	3.50	DL	22	0.88	625	24.61	-	-	-	1.5-12	54	2.13	140	5.51	152	6	210	8.25	4	22	0.88	184	7.25
89	3.50	BC	-	-	-	-	1.1	-	-	1.5-12	54	2.13	140	5.51	152	6	210	8.25	4	22	0.88	184	7.25
102	4.02	BC	-	-	-	-	1.2	-	-	1.5-12	64	2.5	140	5.51	152	6	210	8.25	4	22	0.88	184	7.25
115	4.53	BC	-	-	-	-	1.3	-	-	2.0-12	76	3	180	7.09	178	7	235	9.25	6	22	0.88	235	9.25
160	6.30	BC	-	-	-	-	1.4	-	-	4.0-12	102	4	250	9.84	254	10	324	12.75	6	22	0.88	260	10.25
100	3.94	DL	22	0.88	710	27.95	-	-	-	1.5-12	54	2.13	140	5.51	152	6	210	8.25	4	22	0.88	210	8.25
100	3.94	BC	-	-	-	-	1.1	-	-	1.5-12	54	2.13	140	5.51	152	6	210	8.25	4	22	0.88	210	8.25
115	4.53	BC	-	-	-	-	1.2	-	-	1.5-12	64	2.5	140	5.51	152	6	210	8.25	4	22	0.88	210	8.25
130	5.12	BC	-	-	-	-	1.3	-	-	2.0-12	76	3	180	7.09	178	7	235	9.25	6	22	0.88	235	9.25
160	6.30	BC	-	-	-	-	1.4	-	-	4.0-12	102	4	250	9.84	254	10	324	12.75	6	32	1.25	286	1.25
115	4.53	DL	28	1.10	960	37.80	-	-	-	1.5-12	54	2.13	180	7.09	152	6	210	8.25	6	22	0.88	235	9.25
115	4.53	BC	-	-	-	-	1.1	-	-	1.5-12	54	2.13	180	7.09	152	6	210	8.25	6	22	0.88	235	9.25
138	5.43	BC	-	-	-	-	1.2	-	-	1.5-12	64	2.5	180	7.09	152	6	210	8.25	6	22	0.88	235	9.25
160	6.30	BC	-	-	-	-	1.3	-	-	2.0-12	76	3	200	7.87	178	7	235	9.25	6	22	0.88	260	10.25
180	7.09	BC	-	-	-	-	1.4	-	-	4.0-12	102	4	250	9.84	254	10	324	12.75	6	32	1.25	362	14.25

Note: Dimensions listed in this table are for reference and may be changed. For specific dimensions refer to the outline drawing.

ZD TOIP range from 115 to 765kV ratings & dimensions

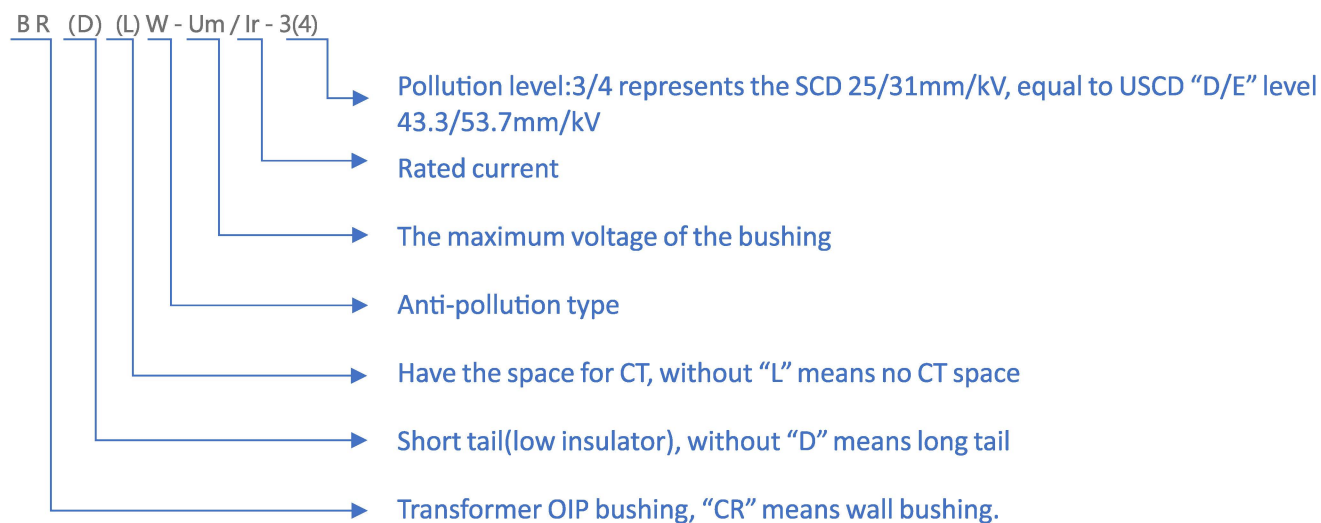


Style No.	Catalog No.	Nominal voltage	BIL	Rated current	Creepage distance Min.		Arcing distance Min. (L3)		Max. altitude		Overall length (L)		Length above flange (L2)		Length below flange (L1)		Min. oil level and CT length (W)	
		kV	kV	A	mm	in	mm	in	m	ft	mm	in	mm	in	mm	in	mm	in
ZD TOIP 550-115-800	OA1150800	115	550	800	3585	141.14	1100	43.31	2400	7874	2797	110.12	1705	67.12	1092	43	584	23
ZD TOIP 550-115-1200	OA1151200	115	550	1200	3585	141.14	1100	43.31	2400	7874	2797	110.12	1705	67.12	1092	43	584	23
ZD TOIP 550-115-2000	OA1152000	115	550	2000	3585	141.14	1100	43.31	2400	7874	2782	109.53	1690	66.53	1092	43	584	23
ZD TOIP 550-115-3000	OA1153000	115	550	3000	3585	141.14	1100	43.31	2400	7874	2812	110.71	1720	67.71	1092	43	584	23
ZD TOIP 550-115-5000	OA1155000	115	550	5000	3585	141.14	1100	43.31	2400	7874	2847	112.09	1755	69.09	1092	43	584	23
ZD TOIP 650-138-800	OA1380800	138	650	800	4310	169.69	1250	49.21	2100	6888	3043	119.80	1855	73.05	1188	46.75	584	23
ZD TOIP 650-138-1200	OA1381200	138	650	1200	4310	169.69	1250	49.21	2100	6888	3043	119.80	1855	73.05	1188	46.75	584	23
ZD TOIP 650-138-2000	OA1382000	138	650	2000	4310	169.69	1250	49.21	2100	6888	3028	119.21	1840	72.46	1188	46.75	584	23
ZD TOIP 650-138-3000	OA1383000	138	650	3000	4310	169.69	1250	49.21	2100	6888	3058	120.39	1870	73.64	1188	46.75	584	23
ZD TOIP 650-138-5000	OA1385000	138	650	5000	4310	169.69	1250	49.21	2100	6888	3093	121.77	1905	75.02	1188	46.75	584	23
ZD TOIP 750-161-800	OA1610800	161	750	800	5020	197.64	1475	58.07	2100	6888	3356	132.13	2080	81.88	1276	50.25	584	23
ZD TOIP 750-161-1200	OA1611200	161	750	1200	5020	197.64	1475	58.07	2100	6888	3356	132.13	2080	81.88	1276	50.25	584	23
ZD TOIP 750-161-2000	OA1612000	161	750	2000	5020	197.64	1475	58.07	2100	6888	3341	131.54	2065	81.29	1276	50.25	584	23
ZD TOIP 750-161-3000	OA1613000	161	750	3000	5020	197.64	1475	58.07	2100	6888	3371	132.72	2095	82.47	1276	50.25	584	23
ZD TOIP 750-161-5000	OA1615000	161	750	5000	5020	197.64	1475	58.07	2100	6888	3471	136.65	2195	86.40	1276	50.25	584	23
ZD TOIP 900-230-800	OA2300800	230	900	800	7170	271.65	2050	80.71	3000	9840	4066	160.08	2790	109.83	1276	50.25	584	23
ZD TOIP 900-230-1200	OA2301200	230	900	1200	7170	271.65	2050	80.71	3000	9840	4066	160.08	2790	109.83	1276	50.25	584	23
ZD TOIP 900-230-2000	OA2302000	230	900	2000	7170	271.65	2050	80.71	3000	9840	4026	158.50	2750	108.25	1276	50.25	584	23
ZD TOIP 900-230-3000	OA2303000	230	900	3000	7170	271.65	2050	80.71	3000	9840	4056	159.69	2780	109.44	1276	50.25	584	23
ZD TOIP 900 230 5000	OA2305000	230	900	5000	7170	271.65	2050	80.71	3000	9840	4086	160.87	2810	110.62	1276	50.25	584	23
ZD TOIP 1175-345-800	OA3450800	345	1175	800	10760	423.62	2900	114.17	2100	6888	5105	200.98	3810	149.98	1295	51	584	23
ZD TOIP 1175-345-1200	OA3451200	345	1175	1200	10760	423.62	2900	114.17	2100	6888	5105	200.98	3810	149.98	1295	51	584	23
ZD TOIP 1175-345-2000	OA3452000	345	1175	2000	10760	423.62	2900	114.17	2100	6888	5085	200.20	3790	149.20	1295	51	584	23
ZD TOIP 1175 345 3000	OA3453000	345	1175	3000	10760	423.62	2900	114.17	2100	6888	5095	200.59	3800	149.59	1295	51	584	23
ZD TOIP 1675-500-800	OA5000800	500	1675	800	15600	614.17	4270	168.11	1000	3280	6895	271.46	5244	206.46	1651	65	584	23
ZD TOIP 1675-500-1200	OA5001200	500	1675	1200	15600	614.17	4270	168.11	1000	3280	6895	271.46	5244	206.46	1651	65	584	23
ZD TOIP 1675-500-2000	OA5002000	500	1675	2000	15600	614.17	4270	168.11	1000	3280	6875	270.67	5224	205.67	1651	65	584	23
ZD TOIP 1675-500-3000	OA5003000	500	1675	3000	15600	614.17	4270	168.11	1000	3280	6885	271.06	5234	206.06	1651	65	584	23
ZD TOIP 2050-765-800	OA7650800	765	2050	800	23850	938.98	6600	168.11	2100	6888	10163	400.12	8004	315.12	2159	85	584	23
ZD TOIP 2050-765-1200	OA7651200	765	2050	1200	23850	938.98	6600	168.11	2100	6888	10163	400.12	8004	315.12	2159	85	584	23
ZD TOIP 2050-765-2000	OA7652000	765	2050	2000	23850	938.98	6600	168.11	2100	6888	10143	399.33	7984	314.33	2159	85	584	23

*a: DL means draw lead, BC means Bottom connected.

Appendix: IEC 60137 Standard bushings

Bushing type specification



Electric performance

No.	Um	BIL (kV)	AC (dry, kV)	AC (wet, kV)	SIL (kV)
1	36(40.5)	170(200)	77(95)	70(80)	---
2	52	250	105	95	---
3	72.5	325	155	140	---
4	123 (126)	550	255	230	---
5	145	650	305	275	---
6	170	750	355	325	---
7	245 (252)	1050	505	460	850
8	300	1050	505	---	850
9	362 (363)	1175	560 (625)	---	950
10	420	1425	695	---	1050
11	550	1675	750	---	1175
12	800	2100	970	---	1425
13	1100	2400	1200	—	1950
Tanδ (corrected at 20°C)		<0.4% at Um			
Partial discharge		< 5PC at Um			
		< 10PC at 1.5Um			

OIP bushings—solid stem

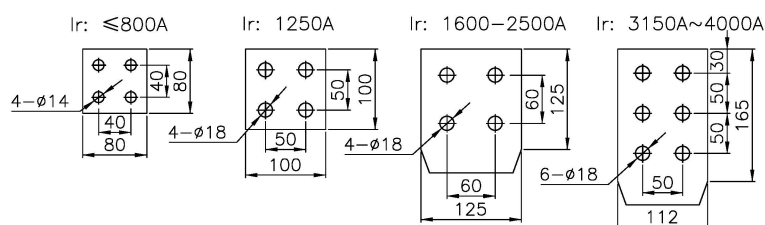
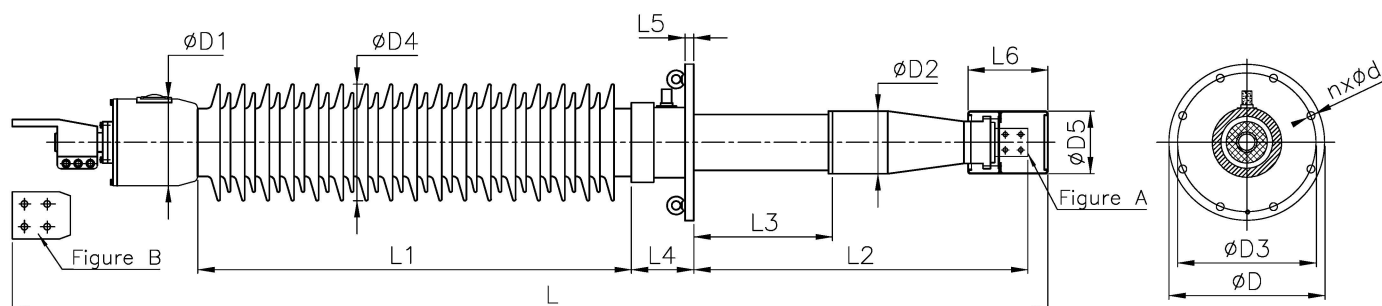


Figure B: Outer terminal

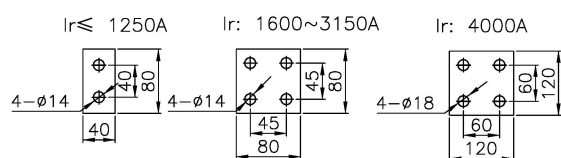


Figure A: Bottom terminal

Code	Type	Um	Ir	L	Outdoor insulator			Flange					Oil end dimension			Shield ball		Outer terminal	Bottom terminal	Head	
					C.P.	L1	D4	D	D3	n	d	L4	L5	L3	L2	D2	L6	D5	B	A	D1
BR3340	BRW-40.5/2000-4	40.5	2000	1440	1260	485	250	255	225	8	14	115	25	30	370	130	*	*	B	A	200
BR3343	BRLW-40.5/2000-4	40.5	2000	1715	1260	485	250	255	225	8	14	115	25	300	645	130	*	*	B	A	200
BR3443	BELW-40.5/3150-4	40.5	3150	1765	1260	485	250	255	225	8	14	115	25	300	645	130	*	*	B	A	200
BR4144DG	BRDLW-72.5/630-4	72.5	630	2075	2250	755	275	320	280	6	18	135	20	400	770	138	200	160	B	A	180
BR4244DG	BRDLW-72.5/1250-4	72.5	1250	2085	2250	700	290	400	350	6	24	145	25	400	795	160	200	180	B	A	200
BR4344A	BRDLW-72.5/1600-4	72.5	1600	2155	2250	700	290	400	350	6	24	145	25	400	800	160	200	180	B	A	200
BR4344	BRDLW-72.5/2000-4	72.5	2000	2155	2250	700	290	400	350	6	24	145	25	400	800	160	200	180	B	A	200
BR4444	BRDLW-72.5/3150-4	72.5	3150	2190	2250	700	315	400	350	6	24	145	25	400	800	160	200	180	B	A	200
BR4445NZ	BRDLW-72.5/3150-4	72.5	3150	2335	2250	700	315	400	350	6	24	145	25	550	955	160	200	180	B	A	200
BR4544X	BRDLW-72.5/4000-4	72.5	4000	2375	2250	700	315	400	350	6	24	145	25	400	800	180	230	220	B	A	250
BR5144G.1	BRDLW-126/630-4	126	800	2720	3906	1250	300	400	350	6	24	145	25	400	905	160	200	160	B	A	200
BR5244DG	BRDLW-126/1250-4	126	1250	2745	3906	1250	300	400	350	6	24	145	25	400	905	160	200	180	B	A	200
BR5344AX	BRDLW-126/1600-4	126	1600	2905	3906	1250	320	450	400	8	24	180	25	400	910	180	200	180	B	A	250
BR5344BX	BRDLW-126/2500-4	126	2500	2905	3906	1250	320	450	400	8	24	180	25	400	910	180	200	180	B	A	250
BR5344X	BRDLW-126/2000-4	126	2000	2905	3906	1250	320	450	400	8	24	180	25	400	910	180	200	180	B	A	250
BR5444X	BRDLW-126/3150-4	126	3150	2905	3906	1250	330	450	400	8	24	180	25	400	910	180	200	180	B	A	250
BR5346NZX	BRDLW-126/2000-4	126	2000	3220	3970	1250	310	400	350	6	24	180	25	630	1140	180	230	180	B	A	250
BR5354X	BRDLW-145/2000-4	145	2000	2985	4495	1250	330	450	400	8	24	180	25	400	960	180	230	180	B	A	250
BR5364B	BRDLW-170/2500-4	170	2500	3315	5300	1475	340	450	400	8	24	180	25	400	1060	190	230	180	B	A	250
BR6145GNZ	BRLW-252/630-4	252	630	4700	8750	2330	420	550	500	12	24	180	25	575	1450	265	265	265	B	A	350
BR6245GNZ	BRLW-252/1250-4	252	1250	4700	8750	2330	420	550	500	12	24	180	25	575	1450	265	265	265	B	A	350
BR6345A	BRLW-252/1600-4	252	1600	4620	8600	2330	420	550	500	12	24	180	25	500	1380	265	265	265	B	A	350
BR6345B	BRLW-252/2500-4	252	2500	4620	8600	2330	420	550	500	12	24	180	25	500	1380	265	265	265	B	A	350
BR7346A	BRLW-363/1600-4	363	1600	6820	12380	3790	500	710	660	12	24	365	30	600	1695	375	280	300	B	A	520
BR7366AT	BRDLW-420/1600-4	420	1600	7700	14325	4270	580	710	660	12	24	339	33	600	2060	435	320	350	2*B	A	520
BR8346BT	BRDLW-550/2500-4	550	2500	8355	18755	4925	580	720	660	12	24	339	33	600	2060	435	320	350	2*B	A	520
BR9346B	BRDLW-800/2500-4	800	2500	11855	29760	7650	700	780	711	12	32	450	35	600	2315	570	360	420	2*B	A	700
BR10335B	BRDLW-1100/2500-3	1100	2500	14760	37060	9505	820	1000	930	20	32	625	40	500	2445	640	450	500	2*B	A	700



72.5-252kV OIP Bushings



550kV OIP Bushings



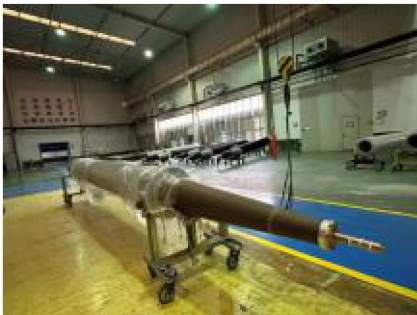
145kV RIP Bushings



550kV RIP Bushings



±800kV SF₆ HVDC Bushing



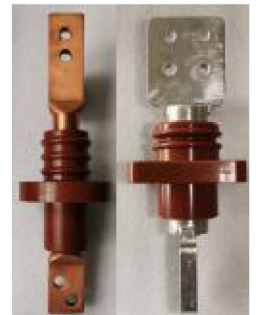
±400kV RIP DC Bushing



Type P&O I



Type P&O II



SEC bushings



Oil-Oil/Gas RIP bushings



GIS/GCB SF₆ Outlet Bushings



Turret with BCTs



CNAS Accreditation



±2400kV DC system



1650kV Power frequency system



4000kV Lightning impulse system



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