

RIP & RIS Condenser Bushings

Insulation: Resin Impregnated Paper (RIP) &
Resin Impregnated Synthetic (RIS)

Application: Transformer - Outdoor

Type: Oil to Air

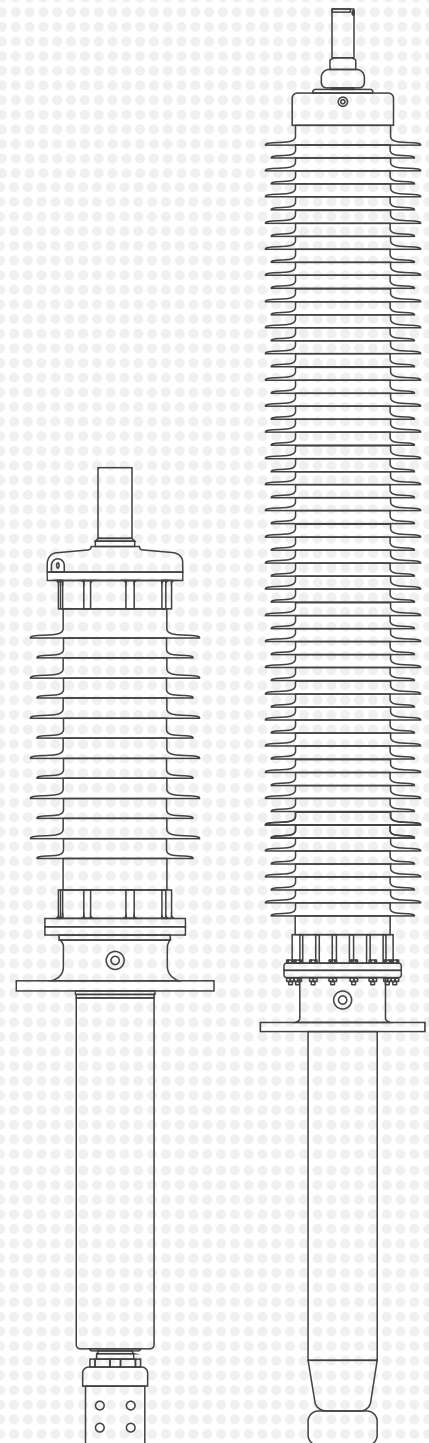
Insulator: Hollow Composite / Silicon

Rated Voltage: 24 kV – 245 kV

Rated Current: 400 A to 3150 A*

Standard: IEC 60137:2017

*Customized Rated Current > 3150 A are available upon request



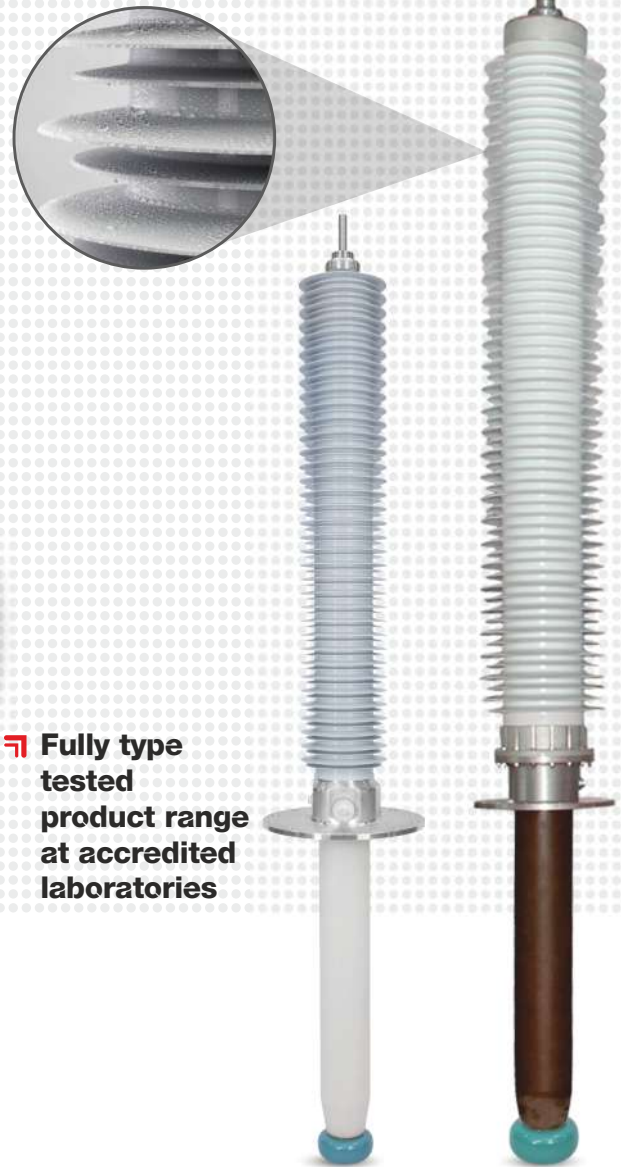
Salient Features

- Oil free / Partial discharge free
- Non-flammable, self-extinguishing when exposed to open fire
- Excellent seismic / earthquake performance
- High thermal strength (120° C)
- Mechanically rigid, yet lightweight and compact, with a weight that is 50% of the OIP
- Can be transported, stored & installed at any angle
- Can be energized immediately after installation
- Seals the transformer & reduces downtime in the event of major failures
- Shatter-proof, hydrophobic silicone sheds

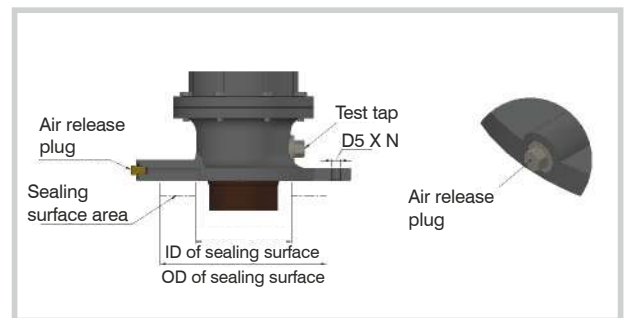
**Swiss Technology,
with Indian Reliability**



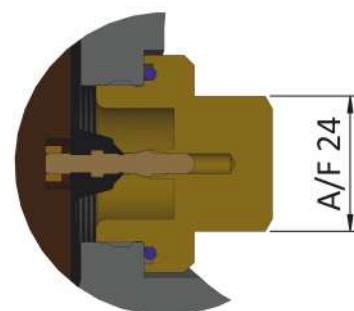
- A 100-year-old Swiss based company researched a way to increase the dielectric characteristics of the high voltage equipment & invented the Resin Impregnated Paper (RIP) Technology in 1958. They have since supplied thousands of RIP bushings upto 362 kV voltage class globally.
- YASH HIGHVOLTAGE LTD. localised the manufacturing of RIP bushings under a technological collaboration with the Swiss based company in 2016, & has executed more than 12,000 units of RIP bushings from India for many discerning end users and OEMs.
- For RIP & RIS bushings, the condenser core is built with resin impregnated paper, and resin impregnated synthetic insulation, respectively. The insulation is built directly on the conductor (rod or tube based on the current requirement) & consists of high quality crepe paper, wound on the conductor in case of RIP bushings, or special grade synthetic fabric in case of RIS bushings. Conductive grading layers are embedded during the paper / synthetic wrapping to form a capacitive core for the best electrical field control. This guarantees the highest level of operational and human safety.
- The wound core is then dried under vacuum & is impregnated with special grade resin. Thus the temperature class of RIP & RIS bushings is class E (i.e. permissible temperatures of max. 120° C). After the condenser core is completely impregnated with resin & completely cured, the core is machined to suit the design requirements.
- The test tap lead & test tap terminal are moulded with special grade resin system between the mounting flange & condenser core. The special resin forms a high strength bond between the flange and the RIP / RIS condenser core. The mounting flange is made of a high strength aluminium alloy. The mounting flange & condenser core joint is leak tested using a helium leak detector.
- The hollow composite (silicone) insulator is then assembled on the air end side with a metal cap on top, along with special sealing rings & thus, the bushing assembly is fixed firmly. The annular space between RIP / RIS condenser core & hollow core insulator is evacuated & completely filled with a special grade insulation foam which dries after curing, thus forming a completely dry composite RIP / RIS bushing solution.
- The bushings are then completely routine tested in accordance with IEC 60137:2017.



**Fully type
tested
product range
at accredited
laboratories**



All bushings are equipped with 2kV test tap

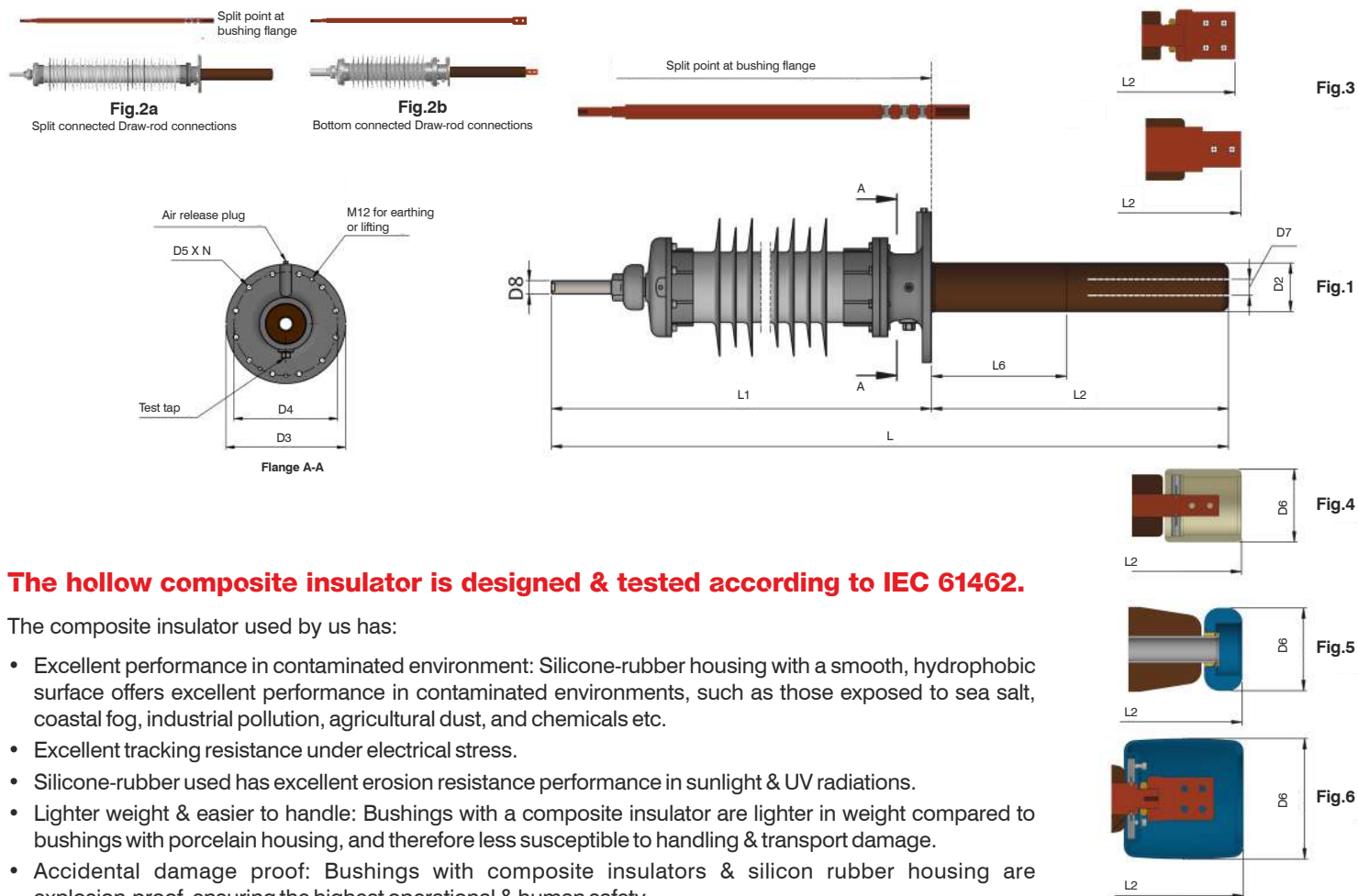


For dimension, refer YASH drawing no. VRL245802601

**Table 1 - Standard dimensions of RIP/RIS bushings rated 24 kV - 245 kV, current upto 3150 A
(All dimensions are in mm)**

Model	Altitude of operation	HSV, kV	BIL, kVp	AC test level, kV	Rated current, Ir Amp	Connection for transformer	Canilever test load, N	L1-Air end length	L2-Oil end length	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	D6-Oil end shield / Electrode max. diameter	D7-Pipe inside diameter	D8-Contact diameter
VRL-2480-100	≤ 1000 meter	24	125	55	800	Fig. 1	1250	738	205	943	100	80	225	185	15x6	-	36	M30x2
VRD-2401-100		24	125	55	1250	Fig. 2a	1250	738	276	1014	100	80	225	185	15x6	-	36	M30x2
VRL-3680-100		36	170	77	800	Fig. 1	1250	850	220	1070	100	80	225	185	15x6	-	36	30
VRD-3601-100		36	170	77	1250	Fig. 2a	1250	850	220	1070	100	80	225	185	15x6	-	36	30
VRS-3602-100		36	170	77	2000	Fig. 3	2000	770	345	1115	100	80	225	185	15x6	-	-	40
VRS-5203-100		52	250	105	3150	Fig. 3	3150	928	475	1403	100	141	335	290	15x12	-	-	60
VRS-5203-300		52	250	105	3150	Fig. 3	3150	928	800	1728	300	141	350	300	20x6	-	-	60
HCC-5206-300		52	250	105	6300	Fig. 3	5000	955	565	1520	300	190	335	290	22x8	-	-	-
VRL-7380-100		72.5	325	155	800	Fig. 1	2000	1105	400	1505	100	80	225	185	15x6	-	36	30
VRL-7380-300		72.5	325	155	800	Fig. 1	2000	1105	600	1705	300	80	225	185	15x6	-	36	30
VRL-7380-600		72.5	325	155	800	Fig. 1	2000	1105	900	2005	600	80	225	185	15x6	-	36	30
VRD-7301-100		72.5	325	155	1250	Fig. 2a	2000	1105	400	1505	100	80	225	185	15x6	-	36	30
VRD-7301-300		72.5	325	155	1250	Fig. 2a	2000	1105	600	1705	300	80	225	185	15x6	-	36	30
VRD-7301-600		72.5	325	155	1250	Fig. 2a	2000	1105	900	2005	600	80	225	185	15x6	-	36	30
VRS-7302-100		72.5	325	155	2000	Fig. 3	3150	1070	495	1565	100	109	335	290	15x12	-	-	60
VRS-7302-300		72.5	325	155	2000	Fig. 3	3150	1070	695	1765	300	109	335	290	15x12	-	-	60
VRS-7303-300		72.5	325	155	3150	Fig. 3	3150	1030	695	1725	300	141	335	290	15x12	-	-	60
VRL-14580-300		145	650	305	800	Fig. 1	3150	1760	660	2420	300	109	335	290	15x12	-	36	30
VRD-14501-300		145	650	305	1250	Fig. 2a	3150	1760	660	2420	300	109	335	290	15x12	-	36	60
VRS-14501-300		145	650	305	1250	Fig. 4	3150	1735	800	2535	300	165	335	290	15x12	165	-	60
VRD-14501-500		145	650	305	1250	Fig. 4	3150	1735	1255	2990	500	165	400	350	24x6	165	-	60
VRS-14501-300	≤ 1500 m	145	650	305	1250	Fig. 4	3150	2070	800	2870	300	165	335	290	15x12	165	-	60
VRS-14501-300	≤ 1750 m	145	650	305	1250	Fig. 4	3150	2070	800	2870	300	165	335	290	15x12	165	-	60
VRS-14501-300	≤ 2300 m	145	650	305	1250	Fig. 4	3150	2040	945	2985	300	165	335	290	15x12	165	-	60
VRS-14502-300	≤ 1000 m	145	650	305	2000	Fig. 4	3150	1660	865	2525	300	165	335	290	15x12	165	-	60
VRS-14502-300	≤ 1500 m	145	650	305	2000	Fig. 4	3150	1955	915	2910	300	165	335	290	15x12	165	-	60
VRL-24580-100	≤ 1000 m	245	1050	505	800	Fig. 5	3150	2815	930	3745	100	190	450	400	20x12	190	50	30
VRL-24580-300	≤ 1000 m	245	1050	505	800	Fig. 5	3150	2815	1130	3945	300	190	450	400	20x12	190	50	30
VRD-24501-100	≤ 1000 m	245	1050	505	1250	Fig. 2a	4000	2815	930	3745	100	190	450	400	20x12	190	50	60
VRD-24501-300	≤ 1000 m	245	1050	505	1250	Fig. 2a	4000	2815	1130	3945	300	190	450	400	20x12	190	50	60
VRD-24501-600	≤ 1000 m	245	1050	505	1250	Fig. 2a	4000	2815	1430	4245	600	190	450	400	20x12	190	50	60
VRS-24502-300	≤ 1000 m	245	1050	505	2000	Fig. 6	5000	2890	1230	4120	300	270	450	400	20x12	270	-	60
VRS-24502-300	≤ 2200 m	245	1050	505	2000	Fig. 6	5000	3305	1300	4605	300	270	450	400	20x12	270	-	60

Fig. 1 Draw lead type | **Fig.2a** Split connected Draw-rod type connections (Refer detailed GA drawing), **Fig.2b** Bottom connected Draw-rod type connections (Refer detailed GA drawing) | **Fig. 3** Solid stem type for upto 72.5 kV rating | **Fig. 4** Solid stem type for 145 kV & 170 kV rating | **Fig. 5** Draw lead type for > 170 kV rating | **Fig. 6** Solid stem type for > 170 kV rating



Product Range



HIGH CURRENT BUSHINGS

Rated Voltage
24 kV – 52 kV
Rated Current
4000 A – 25000 A
Standard
IEC-60137:2017 / IEEE C57.19.00/01 / Others
Types
Oil filled / Communicating / OIP condenser



OIP CONDENSER BUSHINGS

Rated Voltage
24 kV – 245 kV
Rated Current
Upto 3150 A*
Standards
IEC-60137:2017 / ANSI / IEEE C57.19.00/01 / Others
Connection
Draw lead / Draw rod / Stem type
Housing
Porcelain / Composite

*Customized rated current
>3150A are available upon request



OIP WALL BUSHINGS – OIL TO OIL BUSHINGS

Rated Voltage
24 kV – 245 kV
Rated Current
Upto 3150 A*
Standard
IEC-60137:2017 / IEEE C.57.19.00/01 / Others
Connection
Draw lead / Draw rod / Solid conductor
Housing
Porcelain / Composite silicone-polymer

*Customized rated current
>3150A are available upon request



RETROFIT SOLUTIONS

Interchangeable solutions possible for OIP-OIP, OIP-RIP, OIP-RIS bushings of global reputed makes for up to 245kV.



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