



Wall Bushing

Installation & Maintenance Instruction



12~420 kV
High Voltage
Dry Type Wall Bushing



Shandong ChinSun Electrical Equipment Co., Ltd.
Technology Industry Zone, ZiBo city, Shandong Province, China
Tel +86 533 7868868 Fax +86 5337868878 Email: sales@sdchinsun.com

CONTENT

1 Description	1
• 1.1 Structure Overview	1
• 1.2 General Operation Conditions	2
• 1.3 Mechanical Stresses	2
• 1.4 Technical Specs	2
2 Mounting	3
• 2.1 Precautions	3
• 2.2 Lifting & Installation	4
3 Maintenance	7
4 Documents Accompanying the Goods	7
5 Particulars for Ordering	8



1 Description

1.1 Structure Overview

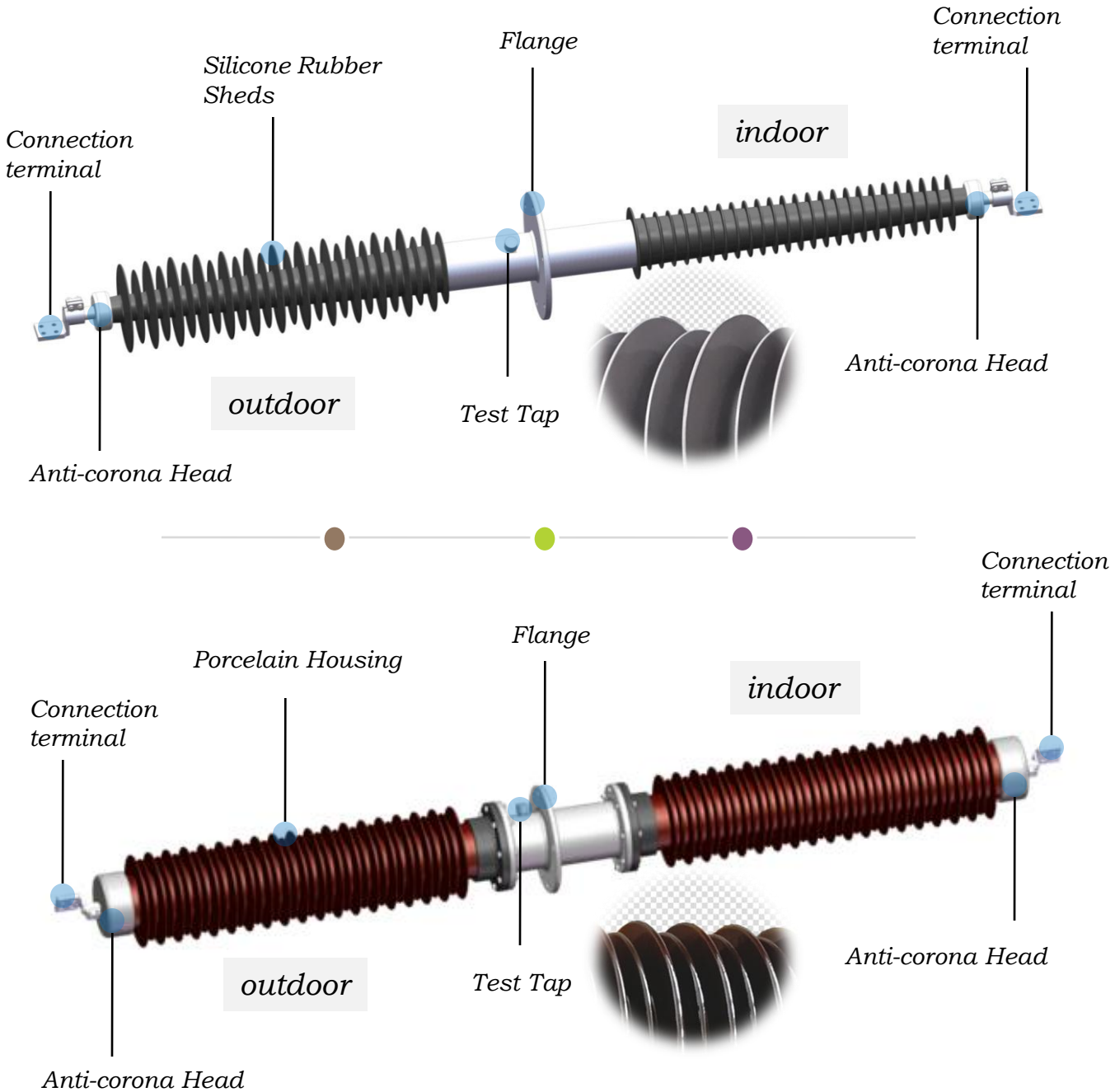


Fig. 1 Wall Bushing Overview

1.2 General Operation Conditions

Application:	wall bushing
Classification:	Condenser type with epoxy resin impregnated synthetic (RIS) and fiber reinforced resin impregnated paper (RIP).
Ambient Temperature:	Outdoor side: - 60°C~ + 55°C
Installation Site Altitude:	< 1500 m (can be higher according to customer's requirement).
Specified Creepage Distance:	31 mm/kV (can be different according to customer's requirement).
Corrosion Protection:	All exposed parts are made from corrosion-resistant material
Standard:	Meet IEC 60137 Ed. 6.0 and GB/T 4109-2008
Packing:	The bushing is packed and sealed in a plastic bag, lying in a well-ventilated wooden crate with flange sitting on crate's bottom, and the heads of both ends supported by wooden mat board.

1.3 Mechanical Stresses

Bending Load Test:	Acc. to IEC 60137 Ed. 6.0 and GB/T 4109-2008 table 1, class II
Bending Load in Use:	50% of the values for Bending Load Test.

1.4 Technical Specs

1)- Insulation withstand voltage

Rated Voltage (kV)	Power Frequency Withstand Voltage (1min), dry / wet (kV)	Lightning Impulse Withstand Voltage (kV)
40.5	95/80	200
72.5	140/140	325

Rated Voltage (kV)	Power Frequency Withstand Voltage (1min), dry / wet (kV)	Lightning Impulse Withstand Voltage (kV)
126	230/230	550
252	460/460	1050
363	570/535	1175
420	680	1550

- 2)- Dielectric dissipation factor: $\tan\delta \leq 0.4\%$ under $1.05 U_m/\sqrt{3}$
- 3)- Partial discharge $\leq 5\text{pC}$, under $1.05U_m/\sqrt{3}$
- 4)- Temperature rise $\leq 60\text{K}$, long term operation under rated current I_n
- 5)- Rated thermal short-time current: $I_{th}=25I_n$, 3s

2 Mounting

2.1 Precautions

- 1)- Before installation, please check whether the bushing is damaged during transportation, whether all fasteners are tightened. Remove the contamination on the surface of the bushing please.
- 2)- Please handle the bushing gently when installing it, and do not damage the surface of it. After installation, clean the bushing surface with a silk cloth.
- 3)- When the wall bushing is installed horizontally, the flange is on the outer side of the wall; if the installation is vertical then the flange should be on the top side. Wall bushing should be fixed on a steel plate with thickness of 8-20 mm, and the hole diameter should be over 5mm greater than that of the bushing insertion part. If the rated current of the bushing exceeds 1250A, a nonmagnetic gap along radial direction must be made on the steel plate before installation (e.g. a gap welded with stainless steel electrode) or directly using a brass plate for fixing. When the fixed plate is a concrete slab, the maximum thickness should not exceed 50mm, please pay attention to that the flange should not be buried in the concrete or plaster layer.

2.2 Lifting & Installation

1)- In fact, the gravity centre of the wall bushing is located near the flange. When installing, half of the bushing needs to be inserted into the window. So the only way to lift the bushing is to lift its flange and outdoor end at the same time.

2)- Soft ropes should be used for lifting. For horizontal installation, a balance-weight and guiding-ropes may be used to control inclination and insertion. Please operate carefully, and let the indoor half of the bushing pass through the window slowly in order to prevent it from injury or falling off.

3)- As shown in Fig. 2, when the bushing is lifted with a single crane, it is necessary to add a balance-weight at the outdoor end of the bushing in order to perform the horizontal lifting.

4)- First, take a try-test of hoisting. After the try-test is verified successfully, the bushing should be hoisted horizontally (Fig. 2) or vertically (Fig. 3).

The guiding-rope is used to guide the bushing steadily and slowly through the window until the bushing flange successfully contacts with the steel plate fixed in the window.

Then fasten the bolts. The balance-weight and the guiding-rope cannot be removed until at least half of the bolts are stressed. Finally, be sure all bolts are tightened.

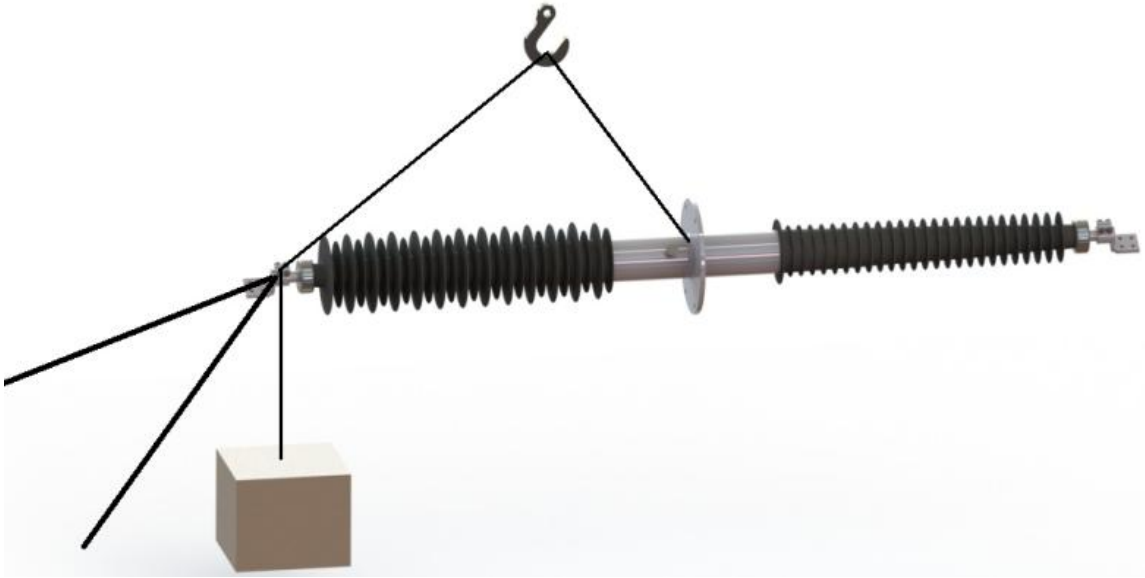


Fig. 2 Horizontal Lifting



Fig. 3 Vertical Lifting

 CAUTION

When lifting the bushing, be sure not applying any stress to the sheds to avoid scratching them (e.g., as shown in Fig. 4).

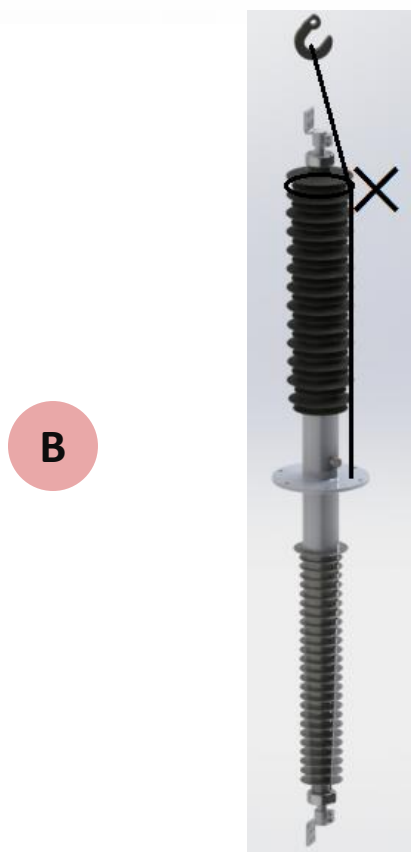
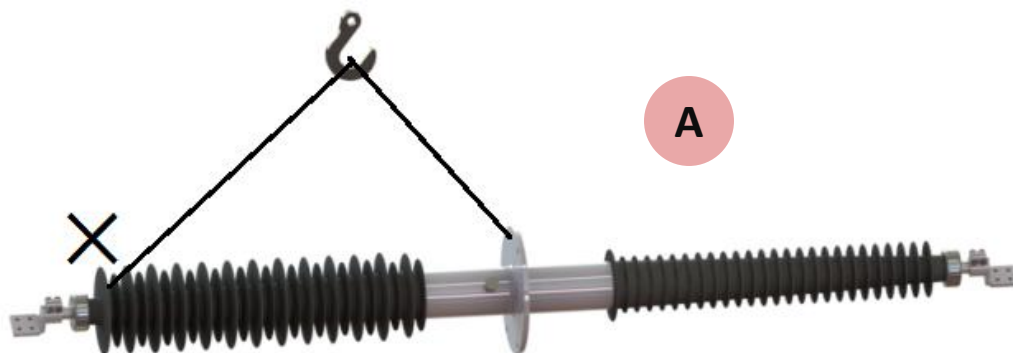


Fig. 4 Lifting in a Wrong Way

3 Maintenance

1)- In the acceptance check or before-running test, it is necessary to carry out the power frequency withstand voltage test and the measurement of dielectric loss factor and capacitance of the bushing.

In power frequency withstand voltage test, the voltage applied on the bushing is usually 80% of the value recorded in the routine test report provided by the manufacturer.

It is highly recommended to carry out measurement of dielectric loss and capacitance in good weathers, in order to avoid the influence by the damp surface of the bushing, because it apparently affects the measured dielectric loss factor. (Our experience shows that the bushing's composite insulating surface is very sensitive to humidity, and the measured dielectric loss factor is surely reliable when the relative humidity is less than 40% and this humidity lasts over 48 hours. In this case, the measured dielectric loss factor should not exceed 0.004.)

2)- The bushing is basically maintenance-free. It is recommended to measure the dielectric loss factor and capacitance every 2 - 3 years, which is benefit for monitoring the bushing's insulation state and ensuring the running safety & reliability of the bushing. The length of the test lead should be as short as possible in order to reduce measurement deviation.

3)- Cleaning of silicone rubber housing: When the silicon rubber sheds become dirty, cleaning is unavoidable. it is recommended to rinse the surface with water, or directly wipe the surface with soft silk, be careful and not scratching.

4 Documents Accompanying the Goods

- Packing list
- Quality certificate
- Routine test report
- Installation & maintenance instruction

5 Particulars for Ordering

1)- When ordering, please state:

- ✓ Rated voltage
- ✓ Rated current
- ✓ Environment pollution level
- ✓ Installation way(horizontal or vertical)
- ✓ If with assorted current transformer

2)- Bushings can be designed according to customers' requirement.



Contact Info:

-  **Tel: +86 533 7868868**
-  **Fax: +86 533 7868878**
-  **Email: sales@sdchinsun.com**
-  **Web: www.sdchinsun.com**