35~220 kV FCRG
Dry type condenser wall bushing
For Outdoor-indoor application

Installation & Maintenance Instruction

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1.Introduction

FCRG dry type high voltage bushing,is an improved product on the basis of STB type from the former China Electric Power Research Institute.The bushings are with following advantages:no oil,no gas,no SF_6gas,small volume,light weight,free for maintenance,can be installed with high accurate current transformer.

For the electrical insulation performance,the partial discharge are developed to less than 5 pC from the former 100pC and the former institute research become mass production,while fine quality is guaranteed.Experiences on more different bushings are also accumulated,such as high current bushing,special-shaped bushings,bushings for high voltage apparatus.

The rated voltage&current is:
Rated voltage:40.5,72.5,126,252kV
Rated voltage:630~2000A(or up to 5000A as per requirement)

2.Application condition

1.The bushings are applied for altitude 1500m and lower district,if higher than 1500m,technical condition shell be negotiated again.

3.Technical Standard

Products are in compliance with GB/T 4109-2008 (IEC 60137 MOD)-Insulated bushings for alternating voltages above 1 000 V.

(1)Insulation withstand voltage test

Rated voltage(kV)	Power frequency withstand voltage 1 min dry /wet(kV)	Lighting impulse withstand voltage(kV)
40.5	95/80	200
72.5	147/140	325
126	230/230	550
252	460/460	1050

(2).Dielectric dissipation factor tanδ:≤0.002,under $1.05\mu.0\sqrt{3}$
(3).Partial discharge:≤5pC,under $1.05\mu.0\sqrt{3}$
(4).Temperature rise test:≤60K,under long term operation
(5).Thermal short time current： 3s under $I_{th}(25I_N)$
(6).Bending load:1250N(Rated current $I_N \leq 800A$) ,1600N Rated current $I_N \geq 1000A$

4.Notice:Transportation&installation.

(1).Bushings should be covered with plastic bags,placed onto wooden frame,be transported together with wooden case.

(2).Bushings should be handled care during installation in case any damage to the housing and shed insulator,the plastic bags should be removed when installation is finished,then wipe bushings by soft silk cloth to clean.

(3).Pay attention to the boundary(boundary:from flange side to the fist shed) ,wall (or steel palate) and assorted current transformer should be limited to the boundary.

(4).Tie the flange part with nylon rope when lifting&installation,be careful in case any damage to housing or shed.For the assorted current transformer,usually the CT should be installed in advance to indoor wall,then let bushing through the wall.For heavy bushing with CT on it,lifting the CT part,don't lift the ends of bushings.

5.Check and maintenance

(1).Before acceptance check or operation,power frequency voltage withstand test,measurement of dielectric dissipation and electrical capacity should be done.Applied voltage to power frequency voltage withstand test shell be the 80% of routine test.Measurement of dielectric dissipation and electrical capacity should be processed under a fine weather condition,in case the bushing surface is humid and effect the result.(better to test under condition which relative humidity continuous less than 40% within 48 hours.Bushings' organic insulation surface is easily affected by humidity.Usually the measurement should be less than 0.01.)

(2).The bushings are basicaly free of maintenance.It's will be favorable to bushings if measurement of dielectric dissipation and electrical capacity can be done every 2-3 years.In the measurement,length of lead wire should be shorten as possible to avoid error.Live line detecting to ground current of bottom shield bushing also is OK.

(3).Better to flush the surface or wipe by silk cloth in case scratch.

6.Attachment

Bushings are with quality certificate,routine test report and installation instruction.

7.Construction and dimension(see attachment)

8.Ordering particulars

(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 as per customers' requirement

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