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TRANSFORMER ENGINEERING DEPARTMENT
BHEL, JHANSI

ANNEXURE TO INDENT No.: 140650981

WO. NO.: 71542A17100

Condition controlled maintenance free dehydrating breather for main conservator

The main Transformer tank conservator shall be fitted with a silica gel Breather of the Maintenance-Free type at a height of 1200 mm from rail top level. Each Silica gel breather shall be equipped with a humidity sensor, a condition based microprocessor control unit and LED status indication. The function shall be tested via a test button. A stainless steel filter at the bottom shall protect the silica gel chamber against external environment influences. This condition controlled application should be environmental friendly. Size of breather shall be such that it content 5kG of silica gel in it & Silica gel is isolated from atmosphere by an oil seal. It is of clear view type design so that moisture absorption indication by change in color of silica gel is visible from a distance. Passage of air is possible through silica gel only

Dehydrating breathers work according to the following principle. When the oil conservator suctions in air (e.g., due to the reduced load), the air flows through a filter made of high-grade steel wire mesh to the inside of the device. This filter & the dust cap, filters the dust, sand and other dirt particles from the air. The filtered air flows through the desiccant chamber filled with colorless, moisture adsorbing pellets and are dehydrated. The dehydrated air rises further via the pipe in the oil conservator. The dehydrating breather is mounted on the pipe to the oil conservator. A suitable counter-flange must be installed on the pipe to mount the dehydrating breather. The desiccant contained in the drying assembly is dehydrated using sensor which is controlled by the built-in heating unit, thus obviating the need for periodic desiccant replacement.

The Maintenance Free Type of Breather shall fulfill the objectives like reduced site inspections, no storage or replacement of the desiccant no pollution and disposal problem of the used up desiccant.

Technical requirements:

1. Material & External Construction of the Breather shall be such that all external parts are suitable for outdoor use & resistive to transformer oil, ultraviolet rays, pollution & salt water.
2. The equipment shall work without any trouble for ambient temperature between 0 C to +80 C.
3. Degree of Protection shall be at least IP55.
4. The control unit shall be provided on the breather equipped with suitable heater to prevent moisture condensation.
5. Status LEDs for local display shall be provided on breather along with suitable contacts to take the signal to remote control room.
6. The moisture and temperature measurement system (sensor) installed should be modular making it easy to replace the same if at all the same is necessary during the service of breather. A self diagnostic system shall be provided with LED indication and remote signal through a relay shall be provided.
7. Micro fuse and an additional built in line filter shall be provided to protect against over voltages & to avoid failures caused by high-frequency interference.



(1) (2)

TRANSFORMER ENGINEERING DEPARTMENT
BHEL, JHANSI

8. The control unit in the breather shall provide analogue output signal of 4-20mA and also shall be equipped with a RS 485 port for data logging.

9. Suitable Data Logger shall also be provided in the control unit.

10. The size and type of Condition controlled maintenance free dehydrating breather to be provided shall be selected on the basis of volume of oil of the offered transformer.

11. The Breather shall also be equipped with integrated test button which should allow to carry out a self-test and to check the functions like relay circuits, heating or the signal transmission in the control room, etc. at any time.

12. Rated supply Voltages shall be 230 V AC or DC.

Rated insulation level - 500VAC 50 Hz, 1 min withstand voltage, 500 VAC 50 Hz, 1min. withstand, analog output against ground; 2.5kVAC 50 Hz, 1 min. withstand, relay contact against ground

13. Type Test report for Degree of protection for control unit shall be submitted.

14. Bidder shall offer all acceptance tests on Condition controlled maintenance free dehydrating breather and submit routine test report during acceptance of transformer for each supply. List of acceptance / routine tests shall be submitted with the tender.

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