

ANNEXURE

FOR CONDITION CONTROLLED MAINTENANCE FREE TYPE BREATHER

3.35. Condition Controlled Maintenance Free Type Breather

3.35.1. The main Transformer tank conservator shall be fitted with a Maintenance-Free type silica gel Breather which shall be equipped with a humidity sensor, a condition based microprocessor control unit and LED status indication.

3.35.2. Dehydrating breather's operating principle:

When the oil conservator breaths-in (e.g. at reduced load), the air flows through a filter made of high-grade steel wire mesh. The equipment fitted with 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 desiccant is dehydrated by the built-in heating unit which is controlled by sensors, thus obviating the need for periodic desiccant replacement. The dehydrating breather is mounted on the pipe to the oil conservator at a height of 1200 mm approximately from transformer rail top level.

3.35.3. Technical Features:

3.35.3.1. 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 and shall work without any trouble for ambient temperature between 0° C to +80° C.

3.35.3.2. Following LEDs for local display on control unit, and suitable contacts & analog signal shall be provided for wiring to remote location:

- a. LED for Power of control unit - ON
 - b. LED for Filter heater- ON
 - c. LED for Anti-condensation heater (of control unit) - ON
 - d. LED & relay contact for "Device Error"
 - e. LED & relay contact for Regeneration active (De-humidification in process)
 - f. Analogue output signal (4-20mA) for the Temperature of air (in filter unit / pipe).
-

- 3.35.3.3. The Breather shall be equipped with 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.
- 3.35.3.4. Control unit shall be equipped with a USB / RS 485 port for downloading the operational data logged by the unit. All necessary software required for downloading and analyzing the logger data shall also be provided by the supplier. Supply of Laptop/PC for above software is not envisaged.
- 3.35.3.5. 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.
- 3.35.3.6. The equipment shall operate at input supply of 230V AC, 50 Hz. Any converter if required shall be supplied with the equipment.
- 3.35.3.7. Degree of Protection shall be at least IP55 for which type Test report shall be submitted. Necessary protective devices shall be provided in order to protect the equipment against over voltages & high-frequency interference.
- 3.35.3.8. The control unit shall be equipped with suitable heater to prevent moisture condensation.
- 3.35.3.9. The size of Condition controlled maintenance free dehydrating breather shall be decided based on the volume of transformer oil during detailed engineering.

24/09/2017
(Kaushalendra Singh)
Sr. Engineer (Design)
Transformer Engineering
B.H.E.L., Jhansi