**Tipo IML 80**
*Type IML 80*

Foro su conservatore per alloggiamento: \(2.0 \pm 0.2\)

*Mounting hole on the conservator: \(42.0 \pm 0.2\)*

Diametro max conservatore: 400 mm

*Max diameter conservator: 400 mm*

---

**Tipo IML 99** – quadrante standard
*Type IML 99 – standard dial for conservator mounting*

**Tipo IML 99 NML** – quadrante speciale per parete
*Type IML 99 NML – special dial for side wall mounting*

---

**Magnetic oil level gauges without electric contacts**
NOTE:

Dc: Conservator diameter (Dc Max = 400 mm)

R: Arm length = \(1.15 \left( \frac{Dc}{2} - 45 \right)\)

Mounting hole on conservator: 70±1 mm

Distance between conservator/gauges center = \(0.577 \left( \frac{Dc}{2} - 45 \right)\)

Average weight : \(\sim 1.5\) Kg
Wiring diagram & terminal box connection

**FM (Min cont.)**

**FGM (Min & Max cont.)**

**FFM-A**
(Min Al + Trip cont.)
(Cont. Al + Sensore)

**FFM-S**
(Simultaneous)
(Simultaneo)

**FFGG-M**

Double MIN cont.

Double MIN cont.

Double MIN cont. + Double MAX cont.

Mounting sketch

Oil level gauges

Oil conservator wall

Oil level gauges

Flange

Oil conservator wall

5 ROSETTA PIANA M6
4 ROSETTA PIANA M10
3 ROSETTA PIANA M12
2 PRIGNONERO M8x35
1 VITE T.E. M8x35

WASHER M6
4 WASHER M10
3 WASHER M12
2 SCREW M8x35
1 FLANGE Gasket

Pos. R/Y100
R/Y140
R/Y220
INDICATORE DI LIVELLO
R/Y345

---

**Titolo**
Magnetic oil level gauges IML0

**Data**
01/03/13

Dis. Nr
3750
**X:** Livello minimo olio  
(Quota vincolata al disegno trasformatore)

**X:** Minimum oil level  
(Size depending from transformer design)

*L1:* quota da specificare  
*Size to be stated in order*

*L1 = X + 70*

(*) Tronchetto pos.16 e guarnizione pos.17 forniti su richiesta  
*Welding boss pos.16 and gasket pos.17 supplied upon request*

(**) In alternativa (pos.17) guarnizione piana in fibra Ø46x34x3mm  
*Alternative (pos.17) flat fiber gasket Ø46x34x3mm*

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**Oil level gauge ILRM — 1” vertical float**

**Titolo:** Oil level gauge ILRM — 1” vertical float

**Data:** 12/03/13

**Scala:** 1:4

**Dis. Nr:** 3847

**Visto:** 1
**Pressure relief device R 1”**

**SCHEMA MONTAGGIO / MOUNTING SKETCH**

**CON O/RING OR 139**

WITH O/RING OR 139

**CON GUARNIZIONE IN FIBRA Ø46X34X3**

WITH FIBER GASKET Ø46X34X3

* Particolari pos. 9 & 10 & 11 & 12 forniti solo su richiesta
* Item pos. 9 & 10 & 11 & 12 supplied only upon request

**FILE = 3848.DWG**

**A richiesta, altri valori di intervento**

*Upon request, other rating values*

**Modello Type**

<table>
<thead>
<tr>
<th>Pressione d’intervento</th>
<th>Codice Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure KPa</td>
<td></td>
</tr>
<tr>
<td>R1”/20Kpa</td>
<td>X1VG040X020</td>
</tr>
<tr>
<td>R1”/25Kpa</td>
<td>X1VG040X025</td>
</tr>
<tr>
<td>R1”/30Kpa</td>
<td>X1VG040X030</td>
</tr>
<tr>
<td>R1”/35Kpa</td>
<td>X1VG040X035</td>
</tr>
<tr>
<td>R1”/40Kpa</td>
<td>X1VG040X040</td>
</tr>
<tr>
<td>R1”/45Kpa</td>
<td>X1VG040X045</td>
</tr>
<tr>
<td>R1”/50Kpa</td>
<td>X1VG040X050</td>
</tr>
<tr>
<td>R1”/55Kpa</td>
<td>X1VG040X055</td>
</tr>
<tr>
<td>R1”/60Kpa</td>
<td>X1VG040X060</td>
</tr>
<tr>
<td>R1”/70Kpa</td>
<td>X1VG040X070</td>
</tr>
</tbody>
</table>

**dim in mm.**

**Titolo**

Pressure relief device R 1”

**Data** 12/03/13

**Dis. Nr** 3848

**Scala** 1:4

**Visto** 1
FIG. A — TIPO PR2” F
Attacco 2” GF
Threaded connection 2” F

FIG. B — TIPO PR2” M
Attacco 2” GM
Threaded connection 2” M

Vite spurgo aria (optional)
Air drain screw (optional)

Valore sovrapressione
Overpressure value

Taratura sovrapressione 0.15—0.70 bar
Overpressure setting from 0.15 to 0.7 bar

Pressure relief device R2”
AIR DEHYDRATING BREATHERS
for distribution transformers
Type TV75-6 and VE05-VE10

1. GENERAL INFORMATION

Air dehydrating breathers are transparent hollow cylinder tubes which contain chemically pure silicium salt (silicagel) with
coloured indicator. The air breathed inside the transformer due to the thermal contraction of the oil mass, passes through
the silicagel.
The silicagel absorbs the humidity, indicating the saturation degree by changing colour as follows:
ORANGE silicagel completely dry.
WHITE silicagel saturated with humidity.
The salt contained in the breather, when saturated, may be easily removed and regenerated by heating it, inside a
vented oven, at 120° - 150°C, until the colour becomes orange again.
The specific property of the silicagel is its high absorption power of humidity. This is total until the salt has absorbed water
for about 15% of its weight, and saturation is reached when the salt has absorbed water for 30 to 40% of its weight.

2. TECHNICAL FEATURES

The upper and lower parts are made in a non-porous corrosion-proof aluminium alloy casting. The hollow cylinder is
made of plexiglass and it is protected by a stainless steel cylinder, with windows which allow the visual control of the
silicagel colour.
The bottom side of the breather, an hydraulic valve prevents continuous air contact with the silicagel and allows the air
to pass in both direction (inlet or outlet) only when there is pressure deficiency or excess inside the transformer.
Pressure values for air passage into the dehumidifier are:
0.003 kg/cm² inlet, or 0.005 kg/cm² outlet.
The hollow container and the hydraulic valve are separated by a drilled plate with a labyrinth system, which have the
double purpose of diffusing inlet air uniformly, and of avoiding that any salt dust may damage the closing system.

3. AIR DEHYDRATING BREATHER TYPE TV75 & VE05 & VE10 (Org.3968)

They are small sized dehydrating breathers, particularly fit for assembling on small distribution transformers.
The type VE05 follows the same manufacturing principles of the bigger sizes like the type VE10 – R1 & F6.
The type TV75 is the cheapest model of our breathers: its top flange is made in corrosion proof aluminium alloy. The
silicagel housing is made of cellulose triacetate (cellidor by Bayer), suitable for mineral oil; only upon request, this
breather can be fitted with a stainless steel cylindrical protection.
### Livello olio

**Oil level**

<table>
<thead>
<tr>
<th>Pos</th>
<th>Descrizione</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coperchio</td>
</tr>
<tr>
<td>2</td>
<td>Protezione acciaio inox</td>
</tr>
<tr>
<td>3</td>
<td>Contenitore trasparente di santi</td>
</tr>
<tr>
<td>4</td>
<td>Pascante</td>
</tr>
<tr>
<td>5</td>
<td>Coppa olio (trasparente)</td>
</tr>
<tr>
<td>6</td>
<td>Spia olio e presa d’aria</td>
</tr>
<tr>
<td>7</td>
<td>Coperchio inferiore</td>
</tr>
<tr>
<td>8</td>
<td>Targetta d’identificazione</td>
</tr>
<tr>
<td>9</td>
<td>Scarico condensa</td>
</tr>
<tr>
<td>11</td>
<td>Presa d’aria</td>
</tr>
</tbody>
</table>

**Pos**

<table>
<thead>
<tr>
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<tr>
<td>Coppa olio (trasparente)</td>
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<tr>
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</tr>
<tr>
<td>Targetta d’identificazione</td>
</tr>
<tr>
<td>Scarico condensa</td>
</tr>
<tr>
<td>Presa d’aria</td>
</tr>
</tbody>
</table>

### Tabella dei dati

<table>
<thead>
<tr>
<th>Tipo Type</th>
<th>Olio nel tras. (kg)</th>
<th>G.W. Empty (Kg)</th>
<th>Silicagel Qty Kg</th>
<th>Vol. dm³</th>
<th>H mm</th>
<th>D mm</th>
<th>F</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV75NE</td>
<td>700</td>
<td>0.5</td>
<td>0.25</td>
<td>0.35</td>
<td>155</td>
<td></td>
<td>105</td>
<td>1/2°GF</td>
</tr>
<tr>
<td>VE05</td>
<td>1500</td>
<td>1</td>
<td>0.50</td>
<td>0.65</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:**

- Pos. 2 Fig. A1 w/out stainless steel housing
- Pos. 2 Fig. A2 with stainless steel housing

* Replace by new VE10/F6 & VE10/R1 see Drg. 3968

---

**Titolo**

Dehydrating breathers for distribution transformers

**Data** 27/09/11

**Dis. Nr** 3535
**Flanged type**

*Fixation:*
- DN25/PN6 4 holes flange

---

**1" thread connection type**

---

### VE-10/F6

- **Description**: VE-10/F6 (with glass tube)
- **Code**: AEE009SF97

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Description</th>
<th>Empty</th>
<th>With 1Kg charge silicagel</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>VE-10/F6 (with PMMA tube)</td>
<td>AEE009SF00</td>
<td></td>
</tr>
</tbody>
</table>

### VE-10/R1

- **Code**: AEE009SA07

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<th>Description</th>
<th>Empty</th>
<th>With 1Kg charge silicagel</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>VE-10/R1 (with PMMA tube)</td>
<td>AEE009SA00</td>
<td></td>
</tr>
</tbody>
</table>

---

**New Breather VE10/F6 & VE10/R1 (M.Y. 2014)**

---

**Title**

**Data** 23/05/14

**Scala** ****

**Dis. Nr** 3968
TIPOTermometro bimetallico senza contatti elettrici, unicamente per il rilevamento della temperatura.
BM 80–100/1–NT: con bulbo radiale rigido
BM 80–100/1–BE: con bulbo rigido posteriore
CASSA ESTERNA: In acciaio inox
GRADO DI PROTEZIONE: IP 55
MONTAGGIO ESTERNO: Consenti
SCALA STANDARD: 0...120°C
CLASSE DI PRECISIONE: ±2%
INDECO DI MASSIMA: Standard, con vite di azzeroamento sull'asta
BULB ED ATTACCHI: Le figure indicano le esecuzioni più comuni,
ma su richiesta, possono essere fornite
altri esecuzioni speciali
ISTRUZIONI PER L'USO: Tipo radiale con attacco posteriore,
tipo di bulbo e parte immersa in olio.

TIPO:Bimetallic thermometer without electric contacts, only for temperature indication.
BM 80–100/1–NT: with rigid radial stem
BM 80–100/1–BE: with back entry rigid stem
CASSA: Stainless steel housing
PROTEZIONE DEGREE: IP 55
OUTSIDE MOUNTING: Alloned
STANDARD RANGE: 0...120°C
PRECISION CLASS: ±2%
MAX POINTER: Standard, with reset screw on the
glass window
CONNECTION AND OIL IMMERSED PART: on the
drawing we show the most commonly used styles,
but it is possible to supply other special
executions at your request
ORDER INSTRUCTIONS: radial or back entry type,
connection and oil part style

<table>
<thead>
<tr>
<th>TIPO / Type</th>
<th>Dn</th>
<th>d1</th>
<th>d2</th>
<th>H</th>
<th>FIG</th>
<th>BULBO</th>
<th>Cod.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BULBO RADIALE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>RADIAL STEM</td>
<td>80</td>
<td>90</td>
<td>75</td>
<td>188</td>
<td>4</td>
<td>F</td>
<td>TBMB80FO100M</td>
</tr>
<tr>
<td>BM 80/1 – NT</td>
<td>80</td>
<td>90</td>
<td>75</td>
<td>225</td>
<td>4</td>
<td>M</td>
<td>TBMB80MO100M</td>
</tr>
<tr>
<td>BM 100/1 – NT</td>
<td>100</td>
<td>114</td>
<td>95</td>
<td>245</td>
<td>4</td>
<td>M</td>
<td>TBMB99AO100M</td>
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<tr>
<td>BULBO POSTERIORE</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>BACK ENTRY STEM</td>
<td>80</td>
<td>90</td>
<td>75</td>
<td>190</td>
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<td>PK</td>
<td>TBMB80PK100M</td>
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<td>BM 80/1 – BE</td>
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<td>90</td>
<td>75</td>
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<td>TBMB80BO1000</td>
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<tr>
<td>BM 100/1 – BE</td>
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<td>95</td>
<td>190</td>
<td>5</td>
<td>PK</td>
<td>TBMB99BO1000</td>
</tr>
</tbody>
</table>

Fig. 5 - BM 80–100/1 – BE

Bimetallic thermometers, without contacts
(stainless steel housing)